



*Solutions for Your Site Development,  
Construction, and Environmental Projects*

March 18, 2011

TolTest Project No. 23343

Ms. Cristie Mitchell  
USAED, Louisville  
Corps of Engineers  
Attn: Environmental Branch  
600 Dr. M.L. King Jr. Place  
Louisville, KY 40202-2230

**Subject: Contract No. W912QR-04-D-0038, DO 0011 Final Waste Management Plan for RVAAP-004-R-01  
Open Demolition Area #2 MRS for the White Phosphorus Disposal at the Rocket Ridge Area**

Dear Ms. Mitchell:

TolTest is pleased to provide our Final Waste Management Plan for the above-mentioned delivery order. Pursuant to our previous submittal and subsequent expedited review we are providing 9 copies of slip pages with replacement instructions and CD-ROMs to the recipients of the draft documents on the draft distribution list. Additionally, we are also providing one hard copy and one CD-ROM to both Ravenna Environmental Information Management System and the U.S. Army Center for Health Promotion, and Preventative Medicine for a total of 2 hard copies and 2 CD-ROMs. Attached to this letter are the Standard Form 298 and the Compliance Checklist. Please also see the change in title statement below.

**Revised Title:** Final Waste Management Plan, March 2, 2011

**Replaces Original Title:** Draft Waste Management Plan, March 2, 2011

If you have any questions or require any additional information, please do not hesitate to contact Jennifer Resnik at 419-794-3549 or [jennifer.resnik@toltest.com](mailto:jennifer.resnik@toltest.com) who is the point of contact for working with the RVAAP Administrative Records Manager in resolving any concerns regarding the submittal.

Sincerely,

**TolTest, Inc.**

A handwritten signature in black ink that reads "Thomas W. Knueven".

Thomas W. Knueven, CHMM  
Sr. Project Manager

cc: Eric Cheng, USACE Technical Manager  
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Eileen Mohr, Ohio EPA  
Frank Zingales, Ohio EPA  
Katie Tait, Ohio Army National Guard  
William O'Donnell, BRAQ HQ  
REIMS  
U.S. Army Center for Health Promotion and Preventative Medicine

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
<p>The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p> <p><b>PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</b></p>					
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13. SUPPLEMENTARY NOTES N/A					
14. ABSTRACT  This document discusses drum handling, storage, transportation and disposal activities associated with the RVAAP-004-R-01 open Demolition Area #2 White Phosphorous Disposal project. Also included with the document are associated Quality Control and Health and Safety policies and procedures.					
15. SUBJECT TERMS Onsite Waste Management, Transportation and disposal of white phosphorous contaminants					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT  SAR	18. NUMBER OF PAGES  848	19a. NAME OF RESPONSIBLE PERSON Thomas W. Knueven
a. REPORT UU	b. ABSTRACT UU	c. THIS PAGE UU			19b. TELEPHONE NUMBER (include area code) 317-856-8555



**Environmental  
Protection Agency**

John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Scott J. Nally, Director

April 7, 2011

RE: RAVENNA ARMY AMMUNITION PLANT  
PORTAGE/TRUMBULL COUNTIES  
RRA TCRA WP WORK PLAN  
(WP TRANSPORT/DISPOSAL)  
OHIO EPA ID # 267000859089

Mr. Mark Patterson, Facility Manager  
Ravenna Army Ammunition Plant  
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**CERTIFIED MAIL**

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Emergency and Remedial Response (DERR) has received and reviewed the final replacement pages for the TolTest document entitled: "Final Waste Management Plan for RVAAP-004-R-01 Open Demolition Area #2 MRS for the White Phosphorous Disposal at the Rocket Ridge Area."

The replacement pages contained the required changes and the above-referenced document is approved.

If you have any questions concerning this correspondence, please do not hesitate to contact me at 330-963-1221.

Sincerely,

- FOR -

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**Independent Technical Review  
of**

**Final Waste Management Plan for RVAAP-004-R-01 Open Demolition Area #2 MRS  
White Phosphorus Disposal at the Rocket Ridge Area**

**U.S. ARMY CORP OF ENGINEERS  
LOUISVILLE DISTRICT**

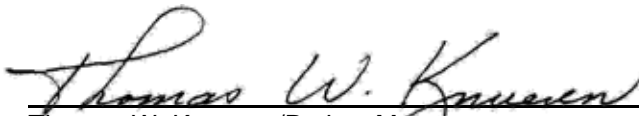
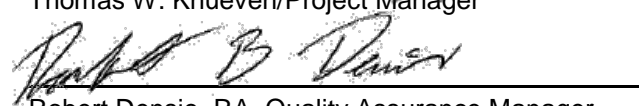

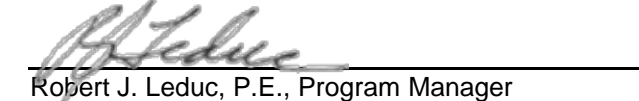
**CONTRACT NO. W912QR-04-D-0038, DO 0011**

**RVAAP-004-R-01 WHITE PHOSPHORUS DISPOSAL AT THE ROCKET  
RIDGE AREA OPEN DEMOLITION AREA #2**

*Was completed by:*

**TolTest, Inc.  
1480 Ford Street  
Maumee, Ohio 43537**

*TolTest, Inc. hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under this contract is complete, accurate, and complies with all requirements of the contract. All comments received from the Independent Technical Review have been incorporated by the author and approved.*

Prepared by:	 Thomas W. Knueven/Project Manager	Date: <u>3/2/2011</u>
Reviewed by:	 Robert Densic, RA, Quality Assurance Manager	Date: <u>3/2/2011</u>
Reviewed by:	 Rich Barcum, CIH, CSP, CHMM, Safety Director	Date: <u>3/2/2011</u>
Reviewed by:	 Robert J. Leduc, P.E., Program Manager	Date: <u>3/2/2011</u>

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**Final Waste Management Plan for  
RVAAP-004-R-01 Open Demolition Area #2 MRS for the  
White Phosphorus Disposal at the Rocket Ridge Area**

**Ravenna Army Ammunition Plant  
Ravenna, Ohio**

**Contract Number: W912QR-04-D-0038  
Delivery Order Number: 0011**

**Prepared For:**



**U.S. Army Corps of Engineers  
Louisville District  
600 Dr. Martin Luther King, Jr. Place  
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**Prepared By:**



**1480 Ford Street  
Maumee, Ohio 43537**

**March 2, 2011**

## DISTRIBUTION LIST

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RVAAP	3	3
USAEC	1	1
Ohio EPA	2	2
Ohio Army National Guard	1	1
BRAC HQ	0	1
US Army Center for Health, Promotion and Preventative Medicine	1	1
REIMS	1	1

BRAC-HQ –Base Realignment and Closure Headquarters  
Ohio EPA – Ohio Environmental Protection Agency  
RVAAP – Ravenna Army Ammunition Plant  
USACE – U.S. Army Corps of Engineers – Louisville District  
USAEC – U.S. Army Environmental Center

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Attachment 4	Transportation Route from RRA to Wet Storage Area
Attachment 5	Inspection Checklists, Weekly Inspection Form
Attachment 6	Hazardous Material Labeling Charts
Attachment 7	Waste Profile for White Phosphorus Waste
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Attachment 9	Veolia Procedures, Permits, Inspection Reports
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Appendix B	Accident Prevention Plan with Site Safety and Health Plan
Appendix C	Contractor Quality Control Plan
Appendix D	Correspondence

## LIST OF ACRONYMS

APP	Accident Prevention Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHMM	Certified Hazardous Material Manager
CIH	Certified Industrial Hygienist
COR	Contracting Officer Representative
CPR	Cardiopulmonary Resuscitation
CSP	Certified Safety Professional
CY	Cubic Yard
DDESB	DoD Explosive Safety Board
DO	Delivery Order
US DOT	United States Department of Transportation
ECM	Earth Covered Magazines
GOCO	Government Owned, Contractor Operated
HAZCOMM	Hazard Communication
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRP	Installation Restoration Program
ISCP	Installation Spill Contingency Plan
LDR	Land Disposal Restriction
LOE	Level of Effort
MARC	Small Business Multiple Award Remediation Contracts
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
MSDS	Material Safety Data Sheet
OAC	Ohio Administrative Code
ODA2	Open Demolition Area #2
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
PCB	Polychlorinated biphenyls
PG	Packaging Group
PIKA	PIKA International, Inc
PPE	Personal Protective Equipment
PWS	Performance Work Statement
RCRA	Resource Conservation and Recovery Act
RRA	Rocket Ridge Area
RVAAP	Ravenna Army Ammunition Plant
SSHP	Site Safety and Health Plan
TCRA	Time Critical Removal Action
Triad	Triad Transportation, Inc.
TSCA	Toxic Substance Control Act
TSD	Treatment, Storage and Disposal
USACE	United States Army Corps of Engineers
Veolia	Veolia Environmental Services
WMP	Waste Management Plan
Vista	Vista Sciences Corporation

## 1.0 INTRODUCTION

ToITest is providing this Waste Management Plan (WMP) to execute the Performance Work Statement (PWS), Delivery Order (DO) 0011 for White Phosphorus Disposal generated from the Rocket Ridge Area (RRA) of Open Demolition Area #2 (ODA2), Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio for the United States Army Corps of Engineers (USACE) Louisville District under the Small Business Multiple Award Remediation Contracts (MARC) Louisville District.

### 1.1 Project Description

The scope of work covered under this WMP includes waste management activities consisting of temporary storage, inspection, transportation and disposal of hazardous waste drums generated from the RRA. The drums will contain white phosphorus and white phosphorus contaminated soil and debris that will be generated by PIKA International, Inc. (PIKA) under a separate government contract as part of this Time Critical Removal Action (TCRA). In addition, a small waste stream of lead/polychlorinated biphenyls (PCB) based paint chips, cleaning rinseate, and fluorescent light fixtures will be generated as part of the repairs to the Earth Covered Magazines (ECMs) and will be handled as a separate waste stream in this plan. Contract Modification #1 Disposal of Munitions and Explosives of Concern (MEC) and Material Potentially Presenting an Explosive Hazard (MPPEH) currently stored in ECM 7-C-3 and 7-C-4 is not included in this WMP but will be addressed under separate plans. While the management of the lead/PCB based paint chip, cleaning rinseates, and fluorescent light fixtures is included, this WMP primarily addresses the management of the white phosphorus waste stream due to the hazardous characteristics of the waste.

The white phosphorus wastes will consist of approximately 1,000 drums of:

- pure or bulk white phosphorus wastes in 30-gallon drums and topped off with water; and
- white phosphorus-contaminated soils and debris in 55-gallon drums and topped off with water.

Title 40 of the Code of Federal Regulations (CFR) Part 266, Subpart 200-206 identifies when military munitions become a solid waste, and if wastes are also hazardous. Unless specifically stated in 40 CFR 266, military munitions solid wastes are subject to the requirements specified in 40 CFR parts 260 through 279. Military munitions are considered explosive material until inspected and certified as containing no items of an explosive nature. After inspected and certified as containing no items of an explosive nature, the waste is considered a solid waste or a hazardous waste as determined under 40 CFR 261. PIKA will be providing the Form 1348-1A for each of the white phosphorus drums and white phosphorus-contaminated soil and debris drums, certifying that the drums do not contain explosive material. The Form 1348-1A is provided in **Attachment 1**. The white phosphorus and white phosphorus-contaminated soil and debris are a hazardous waste as defined under 40 CFR 261.

ToITest will manage the white phosphorus waste stream at the RVAAP Wet Storage Area. The transportation of the waste will be performed by Triad Transportation Inc. (Triad) and the disposal of the waste will be at Veolia Environmental Services (Veolia). The Generator of record for all waste streams generated, stored, transported, and disposed from RVAAP is the Ravenna Army Ammunition Plant, federal government. As stated in the RVAAP Installation Spill Contingency Plan (ISCP) the Generator is RVAAP, the Facility Manager is Mark Patterson at

8451 SR 5, Ravenna, Ohio 330-358-7312. The RVAAP Facility Manager will sign all waste profiles and manifests. The lead/PCB based paint chips will consist of approximately one 55-gallon drum for disposal. The lead/PCB paint chips will be disposed of in accordance with all state, federal and local rules, laws and regulations. The fluorescent light fixtures contain PCB, asbestos and mercury and include approximately 16 fixtures that will be recycled. The cleaning rinseate consists of two 55-gallon drums containing water and bleach collected during the final cleaning of the ECMs. The cleaning rinseates will be disposed of in accordance with all state, federal and local rules, laws and regulations. The light fixtures are intact and non-leaking and have been transported off-site for recycling by Environmental Recycling Group per 40 CFR 761.79—Decontamination standards and procedures.

## **1.2 Project Background**

RRA is located along a steep escarpment approximately 500-feet long and 35-feet high adjacent to Sand Creek within the ODA2. The RRA disposal area is approximately 80 feet long and extends from the top of the escarpment into Sand Creek. The RRA slope was likely used for the disposal of demilitarized munitions, although not each munition appears to have been completely demilitarized. Sand Creek flows in an eastward direction along the northern boundary of RRA, near the toe of the slope. Due to the steep slope of the disposal area and the stream bank erosion resulting from high water events, some of the munitions materials have been deposited into Sand Creek.

On 18 June 2007, a rifle grenade containing white phosphorus functioned as designed on the slope of the RRA Area of ODA2. The Incident Report attributed the cause of the explosion to a corroded white phosphorus grenade that might have been overturned by an animal, which exposed the white phosphorus to air, resulting in its auto-igniting, which heated the grenade until the internal burster exploded. No injuries resulted from the incident.

A TCRA at RRA was initiated in the summer of 2009. The TCRA included the investigation and removal of three 500-lb. bombs, the destruction of one 105-mm projectile, and a MEC and Munitions Debris (MD) density survey. The survey assisted in estimating the Level of Effort (LOE) required for the next TCRA.

This TCRA will include the MEC removal and the removal and disposal of approximately 500 cubic yards (CY) of soil and MD. This TCRA will include the removal and disposal of approximately 270 CY (1,000 55-gallon capacity drums) of white phosphorus and white phosphorus-contaminated soil and debris.

Under DO 0011, ToITest will manage the onsite storage, transportation and disposal of the white phosphorus and white phosphorus-contaminated soil and debris generated from the performance of this TCRA.

## **1.3 RVAAP Facility Information**

When the RVAAP Installation Restoration Program (IRP) began in 1989, the RVAAP was identified as a 21,419 acre installation. The property boundary was resurveyed by the Ohio Army National Guard (OHARNG) over a two year period (2002 and 2003) and the actual total acreage of the property was found to be 21,683 acres. As of February 2006, a total of 20,403 acres has been transferred to the National Guard Bureau and subsequently licensed to the OHARNG for use as a military training site known as Camp Ravenna. The current RVAAP consists of 1,280 acres scattered throughout Camp Ravenna.

Camp Ravenna is in northeastern Ohio within Portage and Trumbull Counties, approximately 4.8 kilometers (3 miles) east northeast of the city of Ravenna and approximately 1.6 kilometers (1 mile) northwest of the city of Newton Falls. The RVAAP portions of the property are solely located within Portage County. Camp Ravenna/RVAAP is a parcel of property approximately 17.7 kilometers (11 miles) long and 5.6 kilometers (3.5 miles) wide bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east. Camp Ravenna is surrounded by several communities: Windham on the north; Garrettsville 9.6 kilometers (6 miles) to the northwest; Newton Falls 1.6 kilometers (1 mile) to the south east; Charlestown to the southwest; and Wayland 4.8 kilometers (3 miles) to the south.

Camp Ravenna did not exist when the RVAAP was operational, and the entire 21,683 acre parcel was a government-owned, contractor-operated (GOCO) industrial installation. In September 1993, the RVAAP was placed in inactive caretaker status, and subsequently changed to modified caretaker status.

#### **1.4 Waste Management Plan Organization**

The WMP is structured to systematically present the means and methods for accomplishing the management of the white phosphorus and white phosphorus contaminated soil drummed for temporary storage, inspection, transportation and disposal in performance of this DO. The White Phosphorus Disposal Contingency Plan Addendum 001 is included in **Appendix A** and is an addendum to the *RVAAP Installation Spill Contingency Plan*, (Vista Sciences Corporation, September 2010).

The Accident Prevention Plan (APP) is included in **Appendix B** with the Site Safety and Health Plan (SSHP) as Attachment 1 of the APP. The Contractor Quality Control Plan is included in **Appendix C**. Copies of all correspondence received are provided in **Appendix D**.

#### **1.5 Project Contacts**

The following points of contact are provided for this project:

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## **2.0 TECHNICAL MANAGEMENT**

TolTest will ensure compliance with hazardous waste rules, laws and regulations, and will verify those requirements when preparing reports, waste shipment records, manifests, and other documents. When accumulating hazardous waste onsite, TolTest will comply with generator requirements in 40 CFR 262 and applicable rules, laws and regulations, mainly Ohio Administrative Code (OAC) 3745-52-34. TolTest will accept custody of the drums upon delivery by PIKA to the drum staging area within the Wet Storage Area and upon completion of required inspections and documentation.

At the point of generation the drums will be labeled by PIKA with a hazardous waste label and PIKA inventory number. Upon acceptance of custody, TolTest will place the required hazardous waste Department of Transportation (DOT) labels on the drums. Onsite accumulation times at the drum staging area located at the Wet Storage Area are anticipated to be one or two weeks depending upon the total number of drums generated and will not be greater than 90 days. Accumulation start dates will commence when waste is first generated (i.e. containerized or otherwise collected for discard). No more than 180 drums will be accumulated at the drum staging area at any given time. It is anticipated that once a week 70-80 drums will be transported off-site for disposal.

The cleaning rinseate, lead/PCB based paint chips and fluorescent light fixtures will be staged in one of the ECMs. The cleaning rinseate, lead/PCB paint chip waste will be disposed after the ECM repairs are completed. The fluorescent light fixtures have been recycled at Environmental Recycling Group.

### **2.1 Guidance Documents and Regulations**

The following lists guidance documents and regulations applicable for this project:

- Ohio Environmental Protection Agency (Ohio EPA) Director's Final Findings and Orders (DFFO) for RVAAP, dated June 10, 2004 (Ohio EPA 2004)
- DoD Ammunition and Explosives Safety Standards DoD 6055.9-STD
- 1998 Memorandum of Agreement (MOA) for the Ravenna Army Ammunition Plant (RVAAP) Among Headquarters, U.S. Army Industrial Operations Command (IOC), The United States Property and Fiscal Officer (USP&FO) for Ohio, and the Ohio Army National Guard (OHARNG)
- 2001 Amendment 1 to the Memorandum of Agreement (MOA) for the Ravenna Army Ammunition Plant (RVAAP) Among Headquarters, U.S. Army Industrial Operations Command (IOC), The United States Property and Fiscal Officer (USP&FO) for Ohio, and the Ohio Army National Guard (OHARNG)
- U.S. Army Industrial Operations Command (IOC) Pamphlet 385-1 Classification and Remediation of Explosive Contamination
- 01 AUGUST 2004 Pamphlet No. 75-1-2 – Munitions and Explosives of Concern (MEC) Support During Hazardous, Toxic, and Radioactive Waste (HTRW) and Construction Activities, Department of the Army, U.S. Army Corps of Engineers
- 25 November 2008, Number 4140.62 – Department of Defense Instruction-Management and Disposition of Material Potentially Presenting an Explosive Hazard (MPPEH)

- March 2001 Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio
- 2005 Munitions and Explosives of Concern (MEC) at the Ravenna Army Ammunition Plant (RVAAP) – Notification Procedures (Ohio EPA)
- March 2001 Facility-Wide Safety and Health Plan (SAIC)
- EM 385-1-97, Explosives – Safety and Health Requirements Manual, 15 September 2008 with Errata Sheets 1, 2, 3, and 4
- ER 385-1-95, Safety and Health Requirements for Munitions and Explosives of Concern (MEC) Operations, 30 March 2007, with Errata Sheet 1
- EM 1110-1-4009, Military Munitions Response Actions, June 2007, with Errata Sheets 1, 2, and 3
- September 2010, RVAAP Installation Spill Contingency Plan (ISCP), Waste Management Guidelines (Vista)
- 40 CFR 266.200 Military Munitions Subpart M
- Memorandum For Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio” from the Department Of The Army Us Army Defense Ammunition Center dated March 3, 2010
- Approved Explosive Safety Submission(s) and Amendments (July 8, 2009, May 26, 2010, August 24, 2010)

## **2.2 Training Requirements**

TolTest associates and subcontractors handling hazardous waste will have completed the initial 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training and three days of supervised experience pursuant to 29 CFR 1910.120(e)(3). TolTest associates and subcontractors will receive eight hours of refresher HAZWOPER Training annually, pursuant to 29 CFR 1910.120(e)(8), as necessary.

Onsite supervisors and managers will receive an additional eight hours of specialized training pursuant to 29 CFR 1910.120(e)(4) which includes such topics as, but not limited to

- TolTest’s SSHP and the associate training requirements
- Personal protective equipment (PPE)
- Spill containment and contingency response
- Health hazard monitoring procedure and techniques specific to this project

In accordance with the 40 CFR 265.16 and the OAC 3745-65-16, an on-the-job training session which overlaps the 29 CFR 1910.120(e)(4) requirements will be held with all onsite TolTest associates and subcontractors. This training includes:

- The requirements listed above
- A review of applicable hazardous waste laws to ensure proper management and compliance of waste procedures
- The White Phosphorus Disposal Contingency Plan Addendum 001 implementation which includes the following:

- emergency procedures
- emergency equipment
- emergency systems including the following:
  - Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment
  - Communications or alarm systems
  - Response to fires or explosions
  - Response to ground water contamination incidents

The above training will be conducted at the beginning of the job and at least annually thereafter.

The Onsite Technical Manager will have the DOT Hazardous waste training and be certified in cardiopulmonary resuscitation (CPR)/First Aid Response. TolTest will ensure that contracted transporters hold current DOT training certificates, licensing, and registrations prior to any of the drums being loaded and transported off RVAAP. Prior to onsite activities beginning, a site coordination and safety meeting will be held. TolTest will coordinate the meeting with USACE and RVAAP Facility Manager and Operating Contractor. In addition, daily tailgate safety meetings will take place each morning prior to the start of work. The tailgate safety meeting will review the hazards associated with the work activities planned for that day. All required training certifications and records will be provided to the RVAAP Operating Contractor and are included in Attachment 11 of the APP or will be submitted at a later date prior to the individual starting work on the project.

### **2.3 TolTest Management Roles and Responsibilities**

TolTest's management personnel and their roles and responsibilities are provided in **Exhibit 1**.

### Exhibit 1, TolTest Management Roles and Responsibilities

TolTest	Responsibilities
<b>Senior Project Manager:</b> Tom Knueven, CHMM	Management of DO contract; Monitors and controls costs; Negotiates contract change orders; Tracks materials, resources, and maintains schedule Subcontractor procurement Invoicing
<b>Onsite Technical Manager:</b> Karen Radomski, CHMM, CSS	Onsite point of contact Manages onsite activities at waste storage area to include: <ul style="list-style-type: none"> <li>▪ Receipt and inspection of drums;</li> <li>▪ Inventory and weekly inspections during storage;</li> <li>▪ Coordination with PIKA, Triad, and Veolia for drum transportation and disposal;</li> <li>▪ Tracking disposal documentation;</li> <li>▪ Attending bi-weekly RVAAP meetings; and</li> <li>▪ Maintaining inventory records, inspection records, manifests for all drums, weekly reporting</li> </ul> Oversees the lead/PCB paint chip and fluorescent light fixture waste streams for storage, waste profiling, manifesting, transportation, and disposal
<b>ECM Site Superintendent:</b> Mike Hovis	Onsite management during the ECM and fence repairs, and Wet Storage Area road improvements
<b>Project Technical Advisor:</b> Robert Collins	Technical oversight regarding white phosphorus
<b>Project Support Team:</b> Jennifer Resnik, Rick Sparks, Sean Boyle, Chris Warren	Technical assistance including quality, safety and reporting requirements
<b>TolTest Subcontractor:</b> Veolia  <b>Veolia Subcontractor:</b> Triad	White phosphorus waste and white phosphorus contaminated soil/debris drum disposal; lead/PCB paint chip waste disposal Triad will provide transportation of white phosphorus waste and white phosphorus contaminated soil/debris drums and lead/PCB paint chip waste drum from RVAAP to Veolia Environmental Services
<b>TolTest Subcontractor:</b> PIKA	Response to non-reactive white phosphorus and white phosphorus soil and debris drum incidents
<b>TolTest Subcontractor:</b> Environmental Recycling Group	Transportation and recycling of fluorescent light fixtures

### 3.0 TYPES OF WASTE MATERIALS

The waste stream from the RRA is white phosphorus waste and white phosphorus contaminated soils and debris. There is no explosive hazard associated with drums containing white phosphorus waste and white phosphorus contaminated soils and debris. These drums will contain no MEC or munitions. The drums will be thoroughly screened by PIKA during the generation and packing phase of project. PIKA will provide the Form 1348-1A referencing each drum delivered to the wet storage area. There will be approximately 1,000 drums total of white phosphorus and white phosphorus contaminated soils and debris generated by this TCRA.

White phosphorus is a colorless, white to yellow translucent wax-like substance with a pungent, garlic-like smell. White phosphorus is highly energetic (active) and ignites once exposed to oxygen. When white phosphorus is exposed to air, it spontaneously ignites and is oxidized rapidly. The chemical reaction continues until either all the material is consumed or the element is deprived of oxygen. The reaction of the white phosphorus and air produces a thick smoke. The chemical reaction first produces diphosphorus pentoxide and then phosphoric acid liquid droplets making the smoke toxic. To ensure there is no reaction of white phosphorus with air, PIKA will top each drum with water and tightly close the drums at the site of accumulation prior to acceptance by TolTest.

The regulatory status of the white phosphorus waste is a hazardous waste and will be handled as hazardous waste for storage, transportation and disposal requirements. All drums containing pure or bulk white phosphorus waste, or white phosphorus-contaminated soil and debris will be labeled UN-1381. These drums will also have the U.S. EPA hazardous waste designation numbers of D001 and D003.

The hazardous waste designation numbers for the white phosphorus were determined in accordance with the waste evaluation requirements found in OAC 3745-52-11. As stated in paragraph 3745-52-11(C), "For purposes of compliance with Chapter 3745-270 of the Administrative Code, or if the waste is not listed as a hazardous waste in rules 3745-51-30 to 3745-51-35 of the Administrative Code, the generator must then determine whether the waste is identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code by either:

- (1) Testing the waste according to the methods set forth in rules 3745-51-20 to 3745-51-24 of the Administrative Code, or according to an equivalent method approved by the U.S. EPA Region 5 Regional Administrator pursuant to 40 CFR 260.21; or
- (2) Applying knowledge of the hazardous characteristic of the waste in light of the materials or the processes used."

The white phosphorus waste is not a listed waste per the rules in the OAC 3745-51-30 to 3745-51-35; however, based on the hazardous characteristic of the white phosphorus, the white phosphorus waste is classified as a hazardous waste. A waste exhibits the hazardous waste characteristic of ignitability if it has the following property as stated in 40 CFR 261.21 and OAC 3745-51-21: "It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard." White phosphorus is highly energetic and ignites once exposed to oxygen producing a toxic smoke. Therefore, the drums containing white phosphorus will have the U.S. EPA hazardous waste number of D001. In addition, white phosphorus exhibits the hazardous waste characteristic of reactivity if it has the following property as stated in 40 CFR 261.23 and OAC 3745-51-23: "It is normally unstable and readily undergoes violent change without detonating." White phosphorus readily reacts

when exposed to air; therefore, the drums containing white phosphorus will have the U.S. EPA hazardous waste number of D003.

During the repairs of ECMs, waste was generated as a result of the removal of paint from the doors of the ECMs and the final cleaning of the ECM interior. The paint has been tested and confirmed to contain both lead and PCBs. The removed paint has been containerized and will be disposed of in accordance with all state, federal and local rules, laws and regulations. The cleaning rinseate was collected into 2 55-gallon drums, sampled and is currently being analyzed for proper disposal in accordance with all state, federal and local rules, laws and regulations. There are a total of 16 fluorescent light fixtures stored in the ECMs each are self-contained, intact, and non-leaking. The fluorescent light fixtures contain asbestos, mercury, and PCBs. As stated in 40 CFR 761.1 substances that are regulated under 40 CFR 761 include paints or coatings containing PCBs, and dielectric fluids containing PCBs such as those found in the ballasts of the light fixtures. The lead/PCB paint chips will be labeled as lead and PCB waste. Fluorescent light fixtures are regulated as PCB wastes.

PCBs were widely used for their insulating properties in electrical products and for their improved covering and elasticity properties in paint through the late 1970's. Production of PCBs was banned by the Toxic Substances Control Act (TSCA) in 1976 because they were found to have carcinogenic characteristics. Human exposure can cause skin, liver, and reproductive disorders.

PCBs are regulated under TSCA and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The lead/PCB containing paint and cleaning rinseate will be labeled and disposed in accordance with all applicable state, federal and local rules, laws and regulations. The light fixtures are considered PCB bulk product waste under 40 CFR 761.62 and have been recycled according to 40 CFR 761.79.

If additional waste streams are identified such as through a contract modification, an addendum to this plan will be created to discuss the waste stream, storage, inspection, transportation and disposal requirements.

### **3.1 Processes Generating Waste**

The processes that will generate the white phosphorus wastes are from the TCRA at the RRA being performed under separate government contract by PIKA. The following information was discussed in the PIKA *Final Project Work Plan for the Time Critical Removal Action (TCRA) at the W912QR-09-P-0213 Rocket Ridge Area (RRA) within RVAAP-004-R-01 Open Demolition Area #2 (May 7, 2010)*. PIKA will hand excavate the white phosphorus contaminated area, segregate based upon shipping compatibility, and containerize in sealable 30-gallon and 55-gallon drums the white phosphorus and white phosphorus contaminated soils. PIKA will employ a sprinkler system to wet the excavation area while they remove the white phosphorus and place the white phosphorus waste into the drums. PIKA will prepare the drums for transportation and storage by topping off the 30-gallon and 55-gallon drums with water and then labeling the drums and transporting the drums to the temporary, authorized storage area at the drum staging area located at the Wet Storage Area. PIKA will provide certification that each drum is inert and/or free of explosives or other dangerous materials by providing an executed Form 1348-1A. They are also certifying the drums are packaged in accordance with the requirements specified by Veolia and to ensure the wastes are covered with copious amounts of water. Photographic documentation of the filled drums will be taken prior to closing the lids. The chain of custody will

be used as certification that the drums have been packaged in accordance with the Veolia specifications and adequately topped off with water.

During the repairs at the ECMs by TolTest, waste was generated as a result of paint removal operations and final cleaning of the interior of the ECMs. The removed paint, containerized in one 55-gallon drum, and cleaning rinseate, containerized in two 55-gallon drums, will be disposed in accordance with all federal, state, and local rules, laws and regulations. A total of 16 light fixtures were generated as a result of the ECM repairs. They were secured to a skid with visqueen wrap and loaded onto a truck and sent to an off-site recycling facility.

### **3.2 Contractor Coordination**

The TolTest Onsite Technical Manager will coordinate with PIKA to schedule the delivery time of drums to the drum staging area at the Wet Storage Area. The TolTest Onsite Technical Manager will be present when PIKA delivers the drums and will observe the off-loading of the drums, perform required inspections, direct the placement of the drums, and complete the transfer custody of the drums. Upon the proper transfer of the drums, the TolTest Onsite Technical Manager will update the drum inventory logs, apply DOT labels to the drums, and secure the storage area.

The TolTest Onsite Technical Manager will maintain close coordination with PIKA to determine the total number of drums that will be generated each week. It is anticipated based on PIKA's Work Plan that approximately 15-20 drums will be generated each day. Based on this rate and a four day work week, it is anticipated that weekly shipments of 70-80 drums will be transported off-site to the disposal facility. Should delays be encountered with transport of the drums such as weather delays or additional drums are generated, the total number of drums that would be accumulated at the temporary storage area will not exceed 180 drums. The TolTest Onsite Technical Manager will coordinate with Triad and Veolia the transportation dates and times. Transportation dates will only be scheduled on Mondays through Thursdays. The TolTest Onsite Technical Manager will be present during drum loading, final inspection and manifest activities prior to transporting wastes from RVAAP.

Coordination for the lead/PCB paint chip transportation and disposal will be with Triad and Veolia. Fluorescent light fixture transportation and recycling was with Environmental Recycling Group. The ECM cleaning rinseate will be transported and disposed at an appropriately licensed facility upon completion of waste stream characterization. The TolTest Site Superintendent will coordinate the movement of these waste streams with the TolTest Onsite Technical Manager and applicable subcontractors.

All waste generation, shipments, and sampling for waste characterization will be coordinated with Jim McGee, RVAAP Operating Contractor with Vista at 330-358-3005 or 330-221-4543. Five days prior to scheduling transportation of the waste for disposal or recycling, the TolTest Onsite Technical Manager and/or TolTest Site Superintendent will notify Mr. McGee of the dates and approximate time the transporter will be onsite to load the white phosphorus drums, lead/PCB paint chip waste, or fluorescent light fixtures. Prior to the white phosphorus drums being loaded for transport, the drums will be weighed to obtain an approximate weight.

## 4.0 STORAGE LOCATION

The white phosphorus drums will be stored at the drum staging area located within the Wet Storage Area. This area is located approximately a mile North of Post #1 and within the perimeter fence on RVAAP. Per the “*Memorandum for Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio*” from the Department of the Army, US Army Defense Ammunition Center dated March 3, 2010, the white phosphorus waste and white phosphorus contaminated soil/debris drums will be stored separately from other wastes. TolTest will only store the white phosphorus waste and white phosphorus contaminated soil/debris drums at the drum staging area, and will not handle additional waste streams at this area. The lead/PCB paint waste, cleaning rinseate will be handled and disposed of according to all state, federal and local regulations.

### 4.1 Type of Storage Area

The Wet Storage Area is a 36-acre parcel that contains two ECMs. The ECMs were used to store explosives, primarily from 1941-1945. The Wet Storage Area is in a remote area of the RVAAP and is secured with a perimeter fence. The drums will be staged on a constructed pad consisting of a 3,000 tensile strength geotextile membrane that will be placed on top of existing soil then covered with six inches of compacted #304 limestone gravel. PIKA will construct a secondary containment around the staging pad which will consist of a six-inch-high by two-foot-wide soil berm. Drums will be stored three to a pallet to meet the load/weight limits of the pallets. Pallets will be spaced to allow access for loading, unloading, and inspections. The drum layout is included in **Attachment 2**.

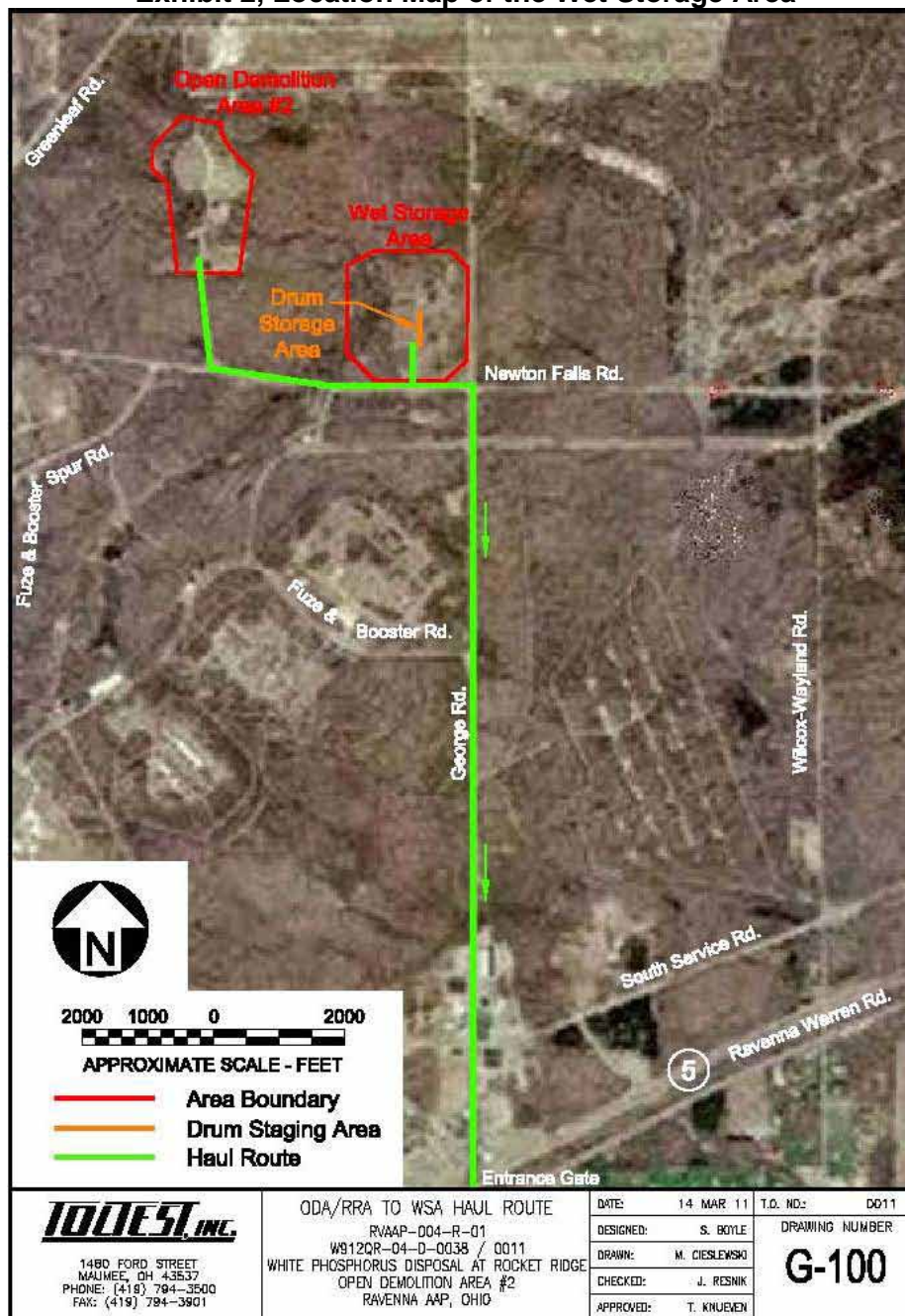
Access to the Wet Storage Area is controlled by a gate that is locked with a pad lock. Keys must be acquired and signed out from Vista. The Security Guards perform regular routine inspections of locked areas to check the locks for tampering.

Safety equipment and spill containment supplies will be provided by TolTest during the duration of the project. A copy of all applicable plans, White Phosphorus Disposal Contingency Plan Addendum 001, Material Safety Data Sheet (MSDS), Hazard Communication (HAZCOMM), emergency procedures and contacts, etc. will be maintained within the field vehicle and clearly marked for access.

### 4.2 Location Map of the Wet Storage Area

A map showing the location of the Wet Storage Area is provided in **Exhibit 2**. It is located approximately a mile North of Post #1 on RVAAP on Newton Falls Road just west of George Road.

**Exhibit 2, Location Map of the Wet Storage Area**



#### 4.3 Regulatory Requirements for Storage

OAC rule 3745-52-34(A)(1)(a) allows generators to manage hazardous waste in containers provided the generator complies with the applicable requirements in rules 3745-66-70 to 3745-66-77 of the Administrative Code for no more than 90 days without obtaining a permit or interim status. RVAAP has been assigned U.S. EPA Identification Number OH5210020736 for the

generation, storage and treatment of hazardous wastes as a large quantity generator. The white phosphorus drum storage will not exceed 90 days. ToITest has regularly scheduled weekly transport of the white phosphorus drums with Triad to ensure the 90 days will not be exceeded.

The PCB containing light fixtures are regulated under TSCA. According to 40 CFR 761.65, "Any PCB waste shall be disposed of as required within one year from the date it was determined to be PCB waste and the decision was made to dispose of it." The storage facility must have the following:

- Adequate roof and walls to prevent rain water from reaching the stored PCB items
- Adequate floor that has a containment volume equal to at least two times the internal volume of the largest PCB article or container and is constructed of a continuous, smooth, non-porous surface
- No drain valves, floor drains, or openings that would permit liquids to flow out of the containment area
- Not located below the 100-yr flood plain

The ECMs meet the requirements of 40 CFR 761.65.

## **5.0 INSPECTION REQUIREMENTS FOR WHITE PHOSPHORUS DRUM TRANSFERS**

Inspection requirements, as discussed in the "Department of Defense Policy to Implement the U.S. EPA's Military Munitions Rule," July 1, 1998, state when demilitarization is required, it must be performed per item specific technical guidance provided by the responsible engineering proponent and inspected and certified, by qualified personnel, as being free of explosives and releasable to the general public. PIKA will be performing this function prior to transferring the drums to TolTest. PIKA will provide certification that each of the white phosphorus and white phosphorus contaminated soil and debris drums associated with each transfer are free of explosives and may be released and handled in accordance with applicable laws, regulations and rules. They are also certifying the drums are packaged in accordance with the requirements specified by Veolia, and that the wastes are covered with copious amounts of water prior to closing the lids. Prior to TolTest accepting the waste at the drum staging area, PIKA will provide photographic documentation of the level of water prior to closing the drums. The Chain of Custody form provided in **Attachment 3** will be used as certification that the drums have been packaged in accordance with the Veolia specifications and adequately topped off with water.

All labeling, manifests, transportation and drum handling required to comply with these inspection requirements will comply with Sections 6.0, Waste Classification, 7.0, Containerized Waste Handling Protocols, and 8.0, Disposal Requirements.

Paint cleaning rinseates are stored in the ECMs until transported for disposal. At that time, the waste manifest will be used as the custody transfer.

### **5.1 White Phosphorus Drum Transfer of Custody**

Upon closing the drums that will contain white phosphorus and white phosphorus contaminated soils and debris, PIKA will affix a hazardous waste label, an inventory number, and date of accumulation on the drum.

The drums will transfer custody three times before final disposal. Below discusses each transfer of custody. A copy of the chain of custody is included in **Attachment 3**. The chain of custody will only be used for RVAAP onsite custody transfer between PIKA and TolTest.

#### **5.1.1 Drum Transport to the Wet Storage Area**

PIKA will transport the sealed and labeled white phosphorus and white phosphorus contaminated soils and debris drums from the RRA to the drum staging area. The anticipated transportation route is included on the map as **Attachment 4** and as described below:

From the RRA south to Newton Falls Road, then east on Newton Falls Road to the Wet Storage Area, then north on the access road to the drum staging area. The transport truck will park on the access road in the Wet Storage Area for unloading.

#### **5.1.2 Transfer of Custody from PIKA to TolTest**

Upon delivery of the drums to the drum staging area, and prior to unloading and acceptance, the TolTest Onsite Technical Manager and PIKA will perform a joint inspection of the drums and review transfer documentation. Transfer documentation includes: Form 1348-1A (**Attachment 1**), Chain of Custody form (**Attachment 3**), TolTest Inspection Checklist, TolTest White Phosphorus Hazardous Waste Inventory Sheet (**Attachment 5**), and photographic documentation. Each drum will be inspected for overall integrity, signs of leaks, to ensure the

lids are closed tightly, to ensure the bungs are closed and the drums are clean, to inspect for drum damage, and verify each drum has a label and inventory number. The Onsite Technical Manager will complete the TolTest Inspection Checklist (**Attachment 5**) for each load of drums delivered by PIKA. The drums will be inspected against the chain of custody form which is to be completed by PIKA. PIKA will then unload the drums and place the drums in the drum staging area. After the drums have been inspected, off loaded and placed in their designated area, the chain of custody form will be signed by TolTest transferring custody of the drums.

### 5.1.3 Transfer of Custody from TolTest to Triad

TolTest will maintain custody of the drums on behalf of the generator while in temporary storage. The access gate will be kept locked at all times when not loading or unloading drums to prevent the drums from being tampered with during storage. Prior to loading the drums onto the transport truck, the TolTest Onsite Technical Manager and the Veolia Representative will jointly inspect the drums to ensure there are no visible signs of leaks, drum deterioration, bulging, or that the integrity of the drums has been compromised. The inspection will be documented on the TolTest Inspection Checklist included in **Attachment 5**. The labels will be inspected to ensure appropriate information and labels are attached to each of the drums.

Veolia Representative will then load the drums onto the Triad transport truck with a forklift. Upon completing the loading of the drums onto the transport trucks the drums will be inspected one final time to ensure no damage to the drums occurred during the loading process.

After the drums are loaded, the truck will be secured with locks and custody seal attached. The hazardous waste manifest will be signed by the RVAAP Facility Manager prior to transporting drums from RVAAP. Custody of the drums will be transferred to Triad using the hazardous waste manifest and a copy of the TolTest White Phosphorus Hazardous Waste Inventory Sheet (included in **Attachment 5**) will be provided for the specific drums loaded in the truck trailer.

The Triad truck will have appropriate DOT placards for each shipment of waste. The TolTest Onsite Technical Manager will inspect the Triad truck to ensure the DOT placards are on the truck prior to leaving RVAAP. Inspections will be documented on the Off-Site Transport Vehicle Inspection Log Figure 12-1 and the Hazardous/Non-Hazardous Waste Shipping Checklist included in **Attachment 5**.

### 5.1.4 Triad Transport to Veolia

Triad will transport the drums by a direct, predetermined route to Veolia stopping only for fuel and DOT required rest breaks along the way. Upon arrival of the Triad truck, Veolia will unload and inspect the drums against the inventory to ensure all drums on the inventory are on the truck. Veolia will inspect the drums following their procedures and sign the hazardous waste manifest accepting custody of the drums. Copies of the manifest will be sent to the RVAAP Operating Contractor. Final disposal of the drums will be by incineration. Upon final disposal, Veolia will provide a Certificate of Destruction to TolTest for each drum received and disposed.

The inspection forms and Certificate of Destruction forms will be provided to the TolTest Onsite Technical Manager who will submit them to the RVAAP Operating Contractor within 45 calendar days. Should a discrepancy in the inventory be noted upon arrival at Veolia such as drums listed on inventory but not on the truck, additional drums on the trailer not listed on the inventory, drums not labeled, Veolia receiving personnel will contact the TolTest Onsite Technical Manager. TolTest will investigate the discrepancy compared to inspection logs, inventory logs, and manifest to determine if the discrepancy is solely a clerical error or if it is a reportable

incident. If it is a reportable incident then the RVAAP Facility Manager and USACE, will be immediately notified followed by a written report within five business days.

## 5.2 Weekly Inspections of Drum Staging Area

Weekly inspections will be completed throughout the duration of this project while waste is at the drum staging area. Inspections are used to ensure the integrity of the drums and the temporary storage site is maintained in accordance with the RVAAP Hazardous Waste Guidelines-weekly inspection procedures. Inspection requirements are outlined below and an inspection checklist along with the RVAAP Rocket Ridge White Phosphorus Storage at Wet Storage Area Weekly Hazardous Waste Inventory Sheet and the RVAAP Rocket Ridge ECM Weekly Hazardous and Non-Hazardous Waste Inventory Sheet have been included in **Attachment 5**. A weekly inspection report including photographic documentation will be submitted each week for the previous week inspections to Jim McGee, Operating Contractor with Vista.

Inspection Checklist Outline:

- Check and ensure only authorized and appropriately trained personnel are onsite.
- Check that each drum is securely closed and lids are intact. Each drum containing the white phosphorus or white phosphorus contaminated soils will be kept closed. Drums will not be opened due to the hazardous nature of the white phosphorus.
- Check each drum for ruptures, leaks, bulging, or deterioration. An obnoxious odor of rotting fish and garlic indicates that a lid or seal is not sealed correctly or a drum is leaking.
- Check to ensure date is on the label and duration of storage is not past 90 days.
- Check to ensure drums are properly stored on the pallets, drums shall not be stacked on top of each other, drums shall be spaced so that they can be easily accessible, and placed on the pallets such that the drum is not off balance. Check to ensure each drum is labeled, appropriate labels are attached, and labels are legible.
- Drums will be checked for tampering such as bung plugs missing, or loose, damage to drum, drum retention ring secure, or undone.
- Check spill kits against the inventory to ensure adequate supplies are available should a spill occur.
- Using the manufacturer's manual inspect the equipment that will be used to move the drums.
- Inspect the staging area for integrity of berms, access way obstacles, garbage, debris, and general maintenance.
- Ensure only drums containing white phosphorus or white phosphorus-contaminated soils are placed in the staging area and that other wastes have not been placed in the staging area.
- Provide photos of the staging area for each weekly inspection.

The inspection sheet will be signed and dated after each inspection. Inspections at the ECMs where the lead/PCB paint chips are stored will use the RVAAP Rocket Ridge ECM Weekly Hazardous and Non-Hazardous Waste Inventory Sheet only. In addition, the emergency

equipment provided by TolTest will be inspected in accordance with OAC 3745-65-33. The emergency equipment inspections will be conducted weekly by the Onsite Technical Manager and recorded on the TolTest Inspection Checklist (**Attachment 5**).

If any aspect of the inspection fails, the TolTest Onsite Technical Manager will note what failed on the TolTest Inspection Checklist or the Weekly Hazardous and Non-Hazardous Waste Inventory Sheet and take corrective action. Corrective action will be determined based upon the non-compliance found during the inspection (i.e. discrepancies with drums, labels, storage area problems, etc.). The Operating Contractor will be notified within one hour should any significant aspect of the inspection fail. If there is drum damage, leaks, drips, spills, the TolTest Onsite Technical Manager will implement the White Phosphorus Disposal Contingency Plan Addendum 001 included in **Appendix A**.

### **5.3 Records**

Copies of records will be presented in the Weekly Reports and Project Completion Report. Weekly Reports will provide information of the activities conducted during the week including: the quantity of drums shipped, inspection records, disposal manifests, and any other pertinent information about the weekly activities.

Once every drum of white phosphorus and white phosphorus contaminated soil and debris has been properly disposed, TolTest will prepare a Project Completion Report in accordance with applicable RCRA regulations. The report will document that all containerized drums of white phosphorus and white phosphorus contaminated soil and debris has been transported off-site and properly disposed in accordance with all rules, laws and regulations. The report will include official documentation of the disposal of the drums of white phosphorus and white phosphorus contaminated soil and debris. It will also draw a conclusion from the activities at the drum staging area including photographs and inspections at the drum staging area.

## 6.0 WASTE CLASSIFICATION

The white phosphorus and white phosphorus contaminated soil and debris are classified as hazardous waste. All drums containing pure or bulk white phosphorus waste or white phosphorus-contaminated soil and debris will be labeled as follows:

- Waste, Phosphorus, White, under water, as hazard class 4.2 with subsidiary hazard 6.1, UN 1381, PG I. The U.S. EPA hazardous waste codes are D001 and D003.

The paint chips contain lead and PCBs. The lead/PCB paint chip waste streams will be labeled and disposed of in accordance with all federal, state, and local laws, rules and regulations.

The cleaning rinseate generated during the ECM repairs is currently undergoing characterization analysis. The cleaning rinseate will be labeled and disposed in accordance with all federal, state, and local laws, rules and regulations.

In addition, the light fixtures contain PCBs, mercury and asbestos. PCBs are not considered hazardous waste, but are regulated under TSCA per 40 CFR 761. The fluorescent light fixtures were labeled for PCB solid mixtures UN3432 PG III and were recycled.

### 6.1 Markings, Labeling, and Placarding

The drums will be packaged, labeled, and marked hazardous waste using the specified materials and in accordance with the following referenced regulations. OAC rule 3745-52-30 requires the generator to package the hazardous waste as required by the DOT regulations found in 49 CFR Parts 173, 178, and 179. The drums will meet these requirements for packaging. Each container of hazardous waste will be marked with the following:

**HAZARDOUS WASTE**—Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. EPA.

Generator's Name and Address \_\_\_\_\_.  
Generator's U.S. EPA Identification Number \_\_\_\_\_.  
Manifest Tracking Number \_\_\_\_\_.

The white phosphorus and white phosphorus contaminated soil and debris waste drums will be labeled initially by PIKA to include the PIKA inventory number and the hazardous waste label with date of accumulation. TolTest will label the drums with the hazardous waste DOT labels. Accumulation start dates will commence when waste is first generated (i.e. containerized or otherwise collected for discard).

Labels will meet design specifications required by OAC rule 3745-52-31 and 49 CFR 172, Subpart E including size, shape, color, printing, and symbol requirements. Labels will include the date, name of contractor, and waste type. Labels will be durable and weather resistant and capable of withstanding, without deterioration or substantial color change, exposure to conditions reasonably expected to be encountered during container storage and transportation.

Triad will provide markings for each transport truck consistent with the requirements of OAC rule 3745-52-32, and 49 CFR 172, Subpart D and 40 CFR 262, Section .32 (for hazardous waste)

for the white phosphorus wastes and lead/PCB paint chips. Markings that will be used for transport of the white phosphorus waste and white phosphorus contaminated soil and debris waste drums and lead/PCB paint chips will be the identification number. Markings will be capable of withstanding, without deterioration or substantial color change, exposure to conditions reasonably expected to be encountered during container storage and transportation. Examples are identified in **Attachment 6**.

As stated in the 40 CFR 761.45 the marking for small PCB containers shall be as shown in **Exhibit 3**. The letters and striping shall be on a white or yellow background and shall be a rectangle 2.5 by 5 cm (1 inch by 2 inches).

**Exhibit 3, PCB Container Marking**



ToITest will provide primary and subsidiary labels for hazardous wastes consistent with the requirements in the Hazardous Materials Table in 49 CFR 172, Section 101, Column 6. 49 CFR 172, Section 101 will be used to identify proper shipping names for each hazardous waste to be shipped off-site. The primary label for white phosphorus drums, Class 4, and the subsidiary label, Class 6, will be placed on the individual drums. The primary label for the lead/PCB paint chips and fluorescent light fixtures is Class 9. Examples are identified in **Attachment 6** and **Exhibit 4**.

**Exhibit 4, White Phosphorus and Lead/PCB Paint Chip Waste Labels**



For each off-site shipment of white phosphorus hazardous waste and lead/PCB paint chips, Triad will provide primary and subsidiary placards consistent with the requirements of 49 CFR 172, Subpart F. Placards will be provided for each side and each end of the transport truck. Placards may be plastic, metal, or other material capable of withstanding, without deterioration, a 30 day exposure to open weather conditions and will meet design requirements specified in

49 CFR 172, Subpart F. Placards that will be used for transport of the white phosphorus waste and white phosphorus contaminated soil and debris waste drums are Class 4 and Class 6, and placards for the lead/PCB paint chips are Class 9. Examples are identified in **Attachment 6**.

## **6.2 Transportation Shipping Documents**

TolTest will ensure that each shipment of hazardous waste is accompanied by properly completed manifests as required by 40 CFR 263 and OAC 3745-52-20 to 3745-52-23. Manifests and waste profiles will be submitted to the RVAAP Operating Contractor for review and approval, and then the Operating Contractor will submit to the RVAAP Facility Manager for signature. A copy of the waste profile for the white phosphorus is included in **Attachment 7**.

## **6.3 Manifests**

Prior to scheduling the drums for disposal, the TolTest Onsite Technical Manager will coordinate the shipment as stated below:

- Coordinate all waste generation and shipments with Jim McGee, RVAAP Operating Contractor, Vista at 330-358-3005 or 330-221-4543
- Insure all labels include: Date, Contractor and Product Type

Hazardous wastes designated for off-site disposal will include the following:

- Generator is RVAAP, Mark Patterson, Facility Manager at 8451 SR 5, Ravenna, Ohio 330-358-7312
- Ohio EPA identification number for RVAAP: OH5210020736
- Contractors shipping Hazardous Waste must provide a Land Disposal Restriction (LDR) in accordance with 40 CFR 268

Profiling:

- The required shipping documentation i.e. waste profile and executive summary of lab reports need to be submitted to the RVAAP Operating Contractor who then submits to the RVAAP Facility Manager for approval and signature prior to shipping.
- Results of characterization must be returned to RVAAP Facility Manager within 45 business days after taking sample.

Manifests-Hazardous and Non-hazardous:

- The waste carrier/transporter provides the appropriate manifest to the disposal facility upon arrival with the waste. The disposal facility will send the generator copy to the RVAAP Operating Contractor within 45 calendar days.

TolTest is required to:

- Ensure that the RVAAP Facility Manager is available to sign the manifest on the scheduled day of shipment; provide waste characterization/waste profile to RVAAP Operating Contractor
- Verify that each manifest is properly completed and signed by the RVAAP Facility Manager
- Provide the Generator copy of the manifest to the RVAAP Operating Contractor prior to shipment leaving the facility

- Ensure that the original Generator copy of the manifest signed by the treatment storage disposal facility is returned to RVAAP Operating Contractor within 30 business days of the shipping date for Hazardous and Non-hazardous Waste

## **7.0 CONTAINERIZED WASTE HANDLING PROTOCOLS**

The following protocols will be implemented to ensure that the handling and transport of drummed wastes will be conducted consistent with the project plans and specifications, in a controlled and safe manner to minimize potential damage to the containers and prevent release of the contents.

### **7.1 Drums and Containers**

PIKA will provide 30-gallon drums, UN certified marking 1A2/Y1.8/150/YR and 1A2/Z2.4/150/YR, to contain the white phosphorus and 55-gallon drums, UN certified marking Y1.8/200, to contain the white phosphorus contaminated soils and debris in accordance with their approved work plan dated May 7, 2010. PIKA will ensure the drum selected is compatible with white phosphorus and drums will not deteriorate during storage and transportation prior to disposal. PIKA is responsible for containerizing the white phosphorus and white phosphorus contaminated soils and debris into the appropriate containers, ensuring adequate water coverage over the waste material and proper sealing and securing of the drum lids prior to their transport to the drum staging area at the Wet Storage Area.

The light fixtures are self-contained and the PCB, asbestos and mercury are encased within the light fixture casing. The lead/PCB paint chips have been containerized in one 55-gallon drum. The cleaning rinseate has been containerized in two 55-gallon drums.

### **7.2 Safety Equipment/Handling Equipment**

Each pallet containing three drums will be loaded individually into the transport trailer using a forklift. Individual drums will be removed from the pallet using a drum dolly and strapped/secured in bundled groups to the trailer as they are loaded. The handling, moving and transporting of drums will be performed only by individuals trained in the use of the equipment specifically being used for this project which will include forklift training. The training documentation is included in Attachment 11 of the APP in Appendix B. Special care will be taken to prevent damage to the drums which could result in potential releases. Handling and transport equipment must be equipped with splash shields. A 10A:60BC fire extinguisher will be fitted to the body of the forklift. Drums will not be handled or moved manually under any circumstances. Safety equipment will be provided and maintained by ToITest and is listed in the White Phosphorus Disposal Contingency Plan Addendum 001 and the APP with SSHP.

The light fixtures are self contained, non-leaking, and intact. They were carefully loaded onto the trucks and transported off-site for recycling. The lead/PCB containing paint chips will be collected in one 55-gallon drum. The drum will be moved using the previously described forklift. The two 55-gallon drums containing cleaning rinseate will be moved using the fork lift and drum dolly.

### **7.3 Drum Handling**

Upon acceptance and transfer, the white phosphorus drums will be staged three per pallet within the drum staging area. Once the drums are staged they will remain closed and will not be moved until ready for transport, unless drums are leaking or damaged and require an emergency response. Any drums found to be leaking or damaged will be handled in accordance with White Phosphorus Disposal Contingency Plan Addendum 001.

Prior to further drum handling or movement, the drums will be inspected to confirm they have retained their integrity during storage. Any bulging, distended or leaking drums will be managed according to the White Phosphorus Disposal Contingency Plan Addendum 001, and after stabilized, may be transferred back to PIKA to reprocess and re-containerize to ensure the safe storage and transport of the waste.

### **7.3.1 Emergency Procedures**

The White Phosphorus Disposal Contingency Plan Addendum 001 will be implemented upon the discovery of any drum that is found to be leaking, distended or demonstrate any other loss of integrity or breach. The White Phosphorus Disposal Contingency Plan Addendum 001 provides specific procedures and processes that are to be implemented in the event of a breach, loss of integrity or if a determination that a threat to human health or the environment exists.

The White Phosphorus Disposal Contingency Plan Addendum 001 specifies emergency response coordinators and contacts, notification processes and emergency response procedures. The TolTest Onsite Technical Manager is required to initially notify the Security Guard at Post #1 by telephone at 330-358-2017 upon the discovery of any leaks, spills, smoke or fire. The Onsite Technical Manager is responsible for other notifications as provided in the White Phosphorus Disposal Contingency Plan Addendum 001. TolTest has contracted with PIKA to respond to non-reacting leaking or spilled drums.

Should the drums containing the lead/PCB paint chip waste or cleaning rinseate become ruptured or leak, the drum and the spilled contents will be placed in an over-pack drum and sealed or repaired using a drum repair kit.

### **7.4 Drum Staging and Loading**

Upon proper transfer and acceptance of the waste by TolTest, the white phosphorus drums will be unloaded by PIKA and staged on pallets within the drum staging area in the Wet Storage Area. The drums will not be double stacked and will be placed so they are easily accessible for moving and personnel egress. Drawing G102 in **Attachment 2** shows the proposed layout of the staging area providing adequate aisle space for personnel and lift trucks, accessible exits and location of the trucks during loading and off-loading of the drums.

### **7.5 Inspections**

White phosphorus drums will be inspected upon initial transfer from PIKA, after the drums have been off-loaded and staged, weekly during storage, prior to loading on the Triad Transport trucks, after the drums have been loaded, and at Veolia disposal facility upon arrival and off-loading. Inspections will be documented using checklists in **Attachment 5**.

Inspections of the lead/PCB paint chip waste and cleaning rinseate will follow the RVAAP weekly inspection checklist. The fluorescent light fixtures will be recycled and removed prior to the ECM repairs being completed.

### **7.6 Shipment of Drums**

Triad will be the licensed hazardous waste transporter and will be responsible for securing the drums for transport. The Veolia Technical Representative will be responsible for the operation of

the forklift and loading the drums onto the Triad truck. The forklift will be utilized to load the drums. Triad will be responsible for ensuring that the drums are adequately secured and positioned within the truck. The Triad Contingency Response Procedures are included in **Section 8**.

#### **7.7 Shipment of Fluorescent Light Fixtures**

Environmental Recycling Group was used to transport the fluorescent light fixtures for recycling. **Attachment 8** contains details on the shipment of fluorescent light fixtures for recycling.

## **8.0 DISPOSAL REQUIREMENT**

The white phosphorus and white phosphorus contaminated soil and debris will be transported and disposed of as D001 and D003 Resource Conservation and Recovery Act (RCRA) hazardous waste. The paint chips and cleaning rinseate will be disposed in accordance with all federal, state, and local laws, rules and regulations. The light fixtures were recycled per 40 CFR 761.79. Transportation will comply with requirements in the DOT referenced regulations in the 49 CFR series.

### **8.1 Facilities for Treatment and Disposal-Subtitle C**

TolTest will use Veolia, a RCRA Subtitle C permitted facility, which meets the requirements of 40 CFR 264 for white phosphorus. The paint chip and cleaning rinseate wastes will be disposed at a licensed facility in accordance with all federal, state, and local laws, rules and regulations. The light fixtures were recycled by Environmental Recycling Group.

### **8.2 Status of the Facility**

Facilities receiving hazardous waste must be permitted in accordance with 40 CFR 270 or operating under interim status in accordance with 40 CFR 265 requirements, or must be permitted by an authorized state program. Veolia has a RCRA Part B permit #29, Title V permit, and an Illinois Department of Mines, Minerals Explosives Magazine Certificate. Copies of their permits and inspection reports are included in **Attachment 9**. Additionally, the facility's status and document information necessary to satisfy the requirements of the U.S. EPA Off-Site policy is included in **Attachment 9**. Environmental Recycling Group permit is included in **Attachment 8**.

### **8.3 Approved Treatment and Disposal Facilities**

Facilities identified for hazardous waste treatment/disposal will be CERCLA approved, RCRA and TSCA compliant, as applicable. The facility U.S. EPA ID numbers, names, locations, and telephone numbers of the approved treatment, storage and disposal (TSD) facilities are provided below

**Veolia Environmental Solutions, Inc.**  
**7 Mobile Street**  
**Sauget, IL 62201-1069** **Phone: (618) 271-2804**  
**US EPA ID ILD 098642424**  
**Permits Part B, CERCLA, RCRA, BATF**

**Environmental Recycling Group**  
**527 E. Woodland Circle**  
**Bowling Green, OH 43402 Phone: 800-284-9107**

The white phosphorus waste will be transported to the above Veolia facility within 90 days of the accumulation start date on each container in accordance with the 40 CFR 263 and OAC 3745-53. TolTest will ensure wastes are treated to meet land disposal treatment standards in 40 CFR 268.. The disposal facility will be treating the white phosphorus wastes to meet the land disposal restriction requirements. The disposal method will be incineration for the white phosphorus

drums, landfill disposal for the paint chips, and the light fixtures will be recycled. Certificates of Disposal/Destruction will be submitted documenting the ultimate disposal, destruction or placement of hazardous wastes within 30 business days of initial shipment.

#### **8.4 Shipping documents and Packaging Certification**

Prior to shipment of any white phosphorus hazardous waste off-site and prior to anticipated pickup, the TolTest Onsite Technical Manager will provide a written certification for review to the RVAAP Facility Manager, Operating Contractor, and USACE Contracting Officer's Representative (COR) that hazardous wastes have been properly packaged, labeled, and marked in accordance with DOT and U.S. EPA requirements. Packaging assurances will be furnished by the designated disposal facility no later than 30 business days after acceptance of the shipment. TolTest will also provide written certification regarding waste minimization efforts documenting that efforts have been taken to reduce the volume and toxicity of waste to the degree economically practicable and that the method of treatment, storage, or disposal selected minimizes threats to human health and the environment.

The U.S. EPA will be notified of the PCB waste activities by filing Form 7710-53 (**Attachment 10**) prior to engaging in PCB waste handling. A PCB waste manifest must accompany PCB waste while in transportation. It must include the unique identification number, type of PCB waste, earliest date of removal from service for disposal, and weight in kilograms of the PCB waste. The generator must keep a copy of each signed manifest until a signed copy from the disposal facility is received. The copy signed by the disposal facility must be retained for at least 3 years. A certificate of disposal will also be prepared by the disposal facility and sent to TolTest who will submit it to the RVAAP Operating Contractor within 30 business days of disposal.

#### **8.5 Records**

TolTest will be responsible for maintaining adequate records to support information provided to the RVAAP regarding exception reports, annual reports, and biennial reports. TolTest will be responsible for ensuring the hazardous waste manifests are submitted within 30 business days from the date of shipment. TolTest will submit information necessary to file state annual or U.S. EPA biennial reports for the white phosphorus hazardous waste transported, treated, stored, or disposed of under this contract. All RVAAP Hazardous and Non-Hazardous records are maintained at Building 1037 by Vista.

The submittal will contain the information necessary for filing of the formal reports in the form and format required by the RVAAP Facility Manager and Ohio EPA. A cover letter will accompany the data to include the contract number, Contractor name, and project location. In the event that a manifest copy documenting receipt of hazardous waste at the treatment storage and disposal facility is not received within 35 business days of shipment initiation, or that a manifest copy documenting receipt of incineration waste at the designated facility is not received within 35 business days of shipment initiation, TolTest will prepare and submit an exception report to the Contracting Officer within 37 business days of shipment initiation.

Per OAC 3745-52-42 Exception report, the exception report will include the following:

- (a) A legible copy of the manifest for which the generator does not have confirmation of delivery; and

(b) A cover letter signed by the generator or his authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts.

## 8.6 Transportation Plan

Transportation routes have been pre-determined by Triad, the authorized transporter. A primary and secondary route to each facility has been identified. The secondary route will be used only if the primary becomes impassible due to weather or road conditions or blockage from construction or accidents. The appropriate State and interstate officials will be consulted as to whether any proposed routes are scheduled for construction or seasonal closures during the implementation of this project. The transportation route map is below.

### 8.6.1 Primary and Secondary Transportation Routes

**Primary Route: From RVAAP to Sauget, IL:** State Route 5 west to State Route 44 south to I-76 west to I-71 south to (Columbus bypass) I-270 west to I-70 west to (Indianapolis by-pass) I-465 south to I-70 west to Route 3 south into Sauget, IL.

**Exhibit 5** shows the locations of emergency response contractors along the primary route should an incident occur during transport of the white phosphorus drums and white phosphorus contaminated soil and debris drums.

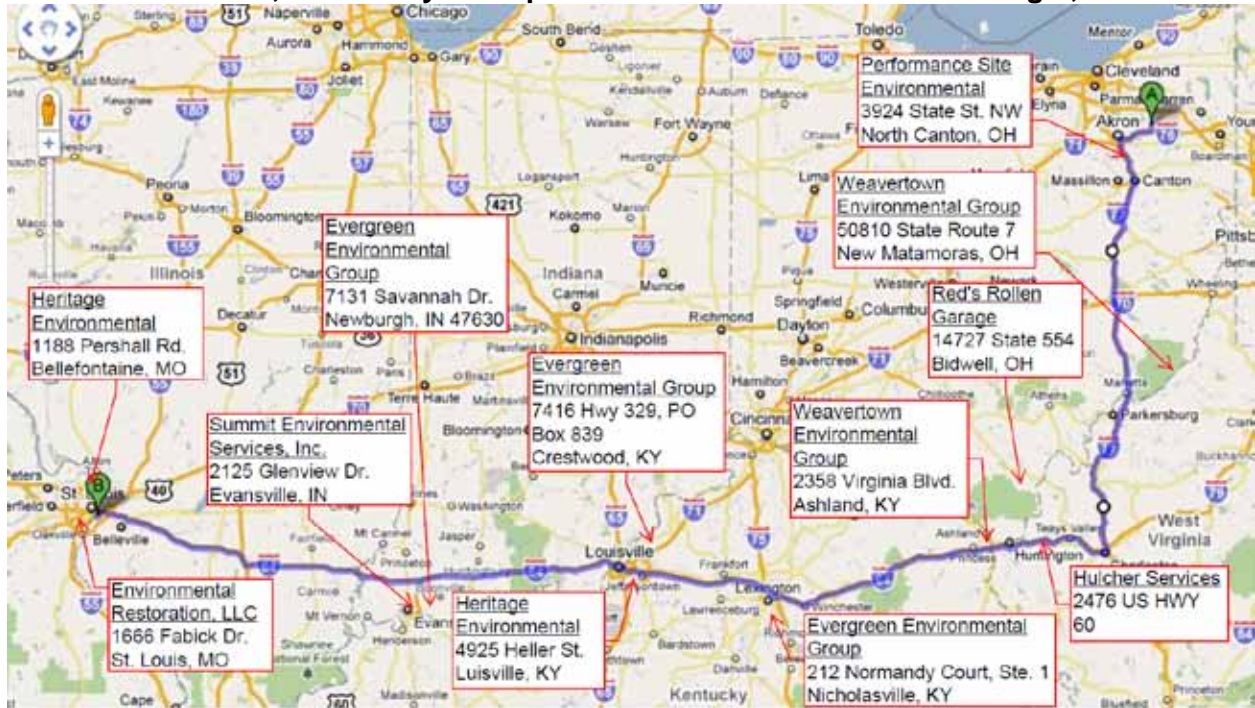
**Exhibit 5, Primary Transportation Route from RVAAP to Sauget, IL**



**Secondary Route: From RVAAP to Sauget, IL:** State Route 5 east to State Route 225 south to State Road 62 west to I-77 south (Canton, OH). From Canton, OH I-77 south to Charleston, WV to I-64 west through West Virginia, Kentucky, Indiana and Illinois to East St. Louis, IL. At East St. Louis, IL take I-255 south to exit 10 and take Route 3 north to Sauget, IL.

**Exhibit 6** shows the locations of emergency response contractors along the secondary route should an incident occur during transport of the white phosphorus drums and white phosphorus contaminated soil and debris drums.

**Exhibit 6, Secondary Transportation Route from RVAAP to Sauget, IL**



### 8.6.2 Transporter Information

Triad, which is permitted by DOT and holds proper state licensing, will be used for the transport of hazardous waste. Triad will maintain compliance with applicable rules, laws and regulations (i.e. CFR Part 263), and will be licensed in the appropriate State(s) and comply with all applicable Federal laws including DOT requirements. Triad's permit to transport the white phosphorus waste is included in **Attachment 11**.

Triad will transport the white phosphorus and white phosphorus contaminated soil and debris drums. Triad's local office is located at the following address:

Triad Transport, Inc.  
1484 Williams Road  
Columbus, OH 43207  
614-491-9497

Upon arrival at Veolia in Sauget, IL, the Triad driver will notify the TolTest Onsite Technical Manager who will in turn notify the RVAAP Facility Manager.

### 8.6.3 Triad Transport Safety During Transport

The following is an outline protocol for the purpose of detailing the transportation of white phosphorus shipments from the RVAAP Ravenna, OH to Veolia in Sauget, IL. These steps will be taken to ensure safe transportation of van shipments via Triad on a predetermined route from origin to destination.

- Triad will provide a spotted van semi-trailer at the RVAAP for the initial load. Each load will be handled as a “drop and hook” load with Triad providing another empty van every time they pick up a loaded van.
- Veolia will notify Triad operations in Columbus, OH with an order for transport “Trip Ticket” at least 5 business days in advance of the scheduled request for pick up.
- Veolia personnel with assistance from Triad will load, secure the load with load locks provided by Triad and seal the trailer. Triad will also placard the trailer with appropriate placards and review the Hazardous Waste Manifest for shipment.
- Triad will dispatch a truck with an empty van trailer to arrive within a two-hour time frame of the requested time for scheduled pick up. Upon arrival, the driver will drop the empty van at the prearranged loading location and hook up to the loaded trailer.
- The driver will then review the shipping manifest and verify that the trailer is sealed and ready for transport. The driver will also verify that each trailer is placarded properly before he signs the manifest.
- Upon leaving the RVAAP, the Triad driver will drive to Sauget, IL on the predetermined route stopping only for fuel and rest breaks along the way.
- Once onsite at Veolia – Sauget, IL the facility will live unload each trailer as required by Triad’s permit.
- In the event of an equipment failure such as truck mechanical problems Triad will provide replacement equipment within 24 hours if the equipment cannot be repaired in a timely fashion.

### 8.6.4 Triad Emergency Procedures During Transport

In the event of an accident or incident while the truck is enroute from Ravenna to Sauget, the Triad driver will call the following people in this order:

1. 911 – Fire and Rescue
2. Triad’s Safety Director - 918-916-6944 Cell
3. TolTest Onsite Technical Manager – 330-240-0492 Cell; who in turn will notify:
4. RVAAP Facility Manager – 505-721-9770 Cell

General emergency response actions are provided below. For more specific spill response-related procedures, including Triad’s *White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste*, refer to **Attachment 12**.

- **General Emergency Response Actions:**
  - Triad personnel will move a safe distance away from the area and warn all pedestrians and motorists to stay away from the spill area, point out to them the danger involved, and call the police and/or fire department.

- Upon the arrival of the police or fire department, the Triad driver will inform them of what kind of material has been spilled and request the area to be blocked off to both pedestrians and vehicles to prevent property damage or any serious personal injury.
- **Emergency Response Agencies Contact Numbers are provided as follows:**
  - U.S. National Response Center 800-424-8802, 202-426-2675
  - CHEMTREC 800-424-9300
- **State Agency Emergency Contact Numbers are provided as follows:**
  - ILLINOIS
    - Illinois Emergency Management Agency at 217-782-7860
    - Illinois Environmental Protection Agency at 217-782-3637
  - INDIANA
    - Indiana Department of Environmental Management, Emergency Response Section at 888-233-7745
  - OHIO
    - Ohio EPA, Emergency Response Section at 800-282-9378

## **9.0 SPILL PREVENTION AND CONTROL**

In the event of a spill or release of a drum containing white phosphorus or white phosphorus-contaminated soils, or lead/PCB paint chips, TolTest will notify the Security Guard at Post #1 by telephone (330-358-2017) immediately. This section discusses spill prevention planning.

### **9.1 Source of Leaks**

The sources of potential leaks and spills are from the white phosphorus drums and lead/PCB paint chip waste drum, and waste water drums. Potential spills could occur during the movement of the drums while loading and off-loading the drums. Spills or leaks could occur: if drums are staged unevenly so the drums are tilted or weight not distributed evenly; drums are not secure on the equipment during movement or too close to edge of truck; drums are too close to other objects that could rupture the drums; drums are staged so that they are not easily accessible; or drums are not securely tightened or closed.

### **9.2 Methods to Prevent Spills**

Only trained individuals who have been trained on the equipment that will be used to move the drums will handle the drums. Prior to operating the equipment, the operator shall complete an inspection of the equipment to ensure proper operation. Prior to moving the drums the pathway that will be used to travel during the movement of drums will be inspected to ensure there are no obstructions or obstacles that could cause the load to become off-balance and tip causing a spill or damage to the drums. In addition, prior to moving the drums the operator of the equipment will ensure the drums are secured to prevent the drums from rolling or falling off of the equipment during movement. The equipment will be operated within the manufacturer's specifications and guidelines so that operator does not use the equipment in ways it was not designed to be operated. The operator of the equipment should not make sudden turns or twists with the equipment which could cause the load to become off-balance. A spotter may be necessary to help guide the operator during backing up. The operators will ensure their line of vision is clear while moving the drums and if their vision is obstructed use a spotter to guide them.

While loading the drums onto the trucks, the equipment operator will ensure the drums are loaded carefully and squarely on the truck. A spotter may be needed to ensure the placement of the drums on the trucks. The drums will be spaced so that they are easily accessible by the equipment and within the equipment operating capabilities. Prior to moving the drums, the drums will be secured to the equipment to ensure the drums do not fall during movement. When loading the drums onto the truck trailers, the trailers will be inspected to ensure that there are no obstructions in the truck that could rupture the drums or put pressure on the drums. The driver of the truck will need to ensure the trailer is loaded properly for weight distribution.

### **9.3 Type and Amount of Spill Equipment and Initial Response to Small Spills**

If a spill should occur the TolTest Onsite Technical Manager will follow the procedures in the White Phosphorus Disposal Contingency Plan Addendum 001 for emergency response. If minor leaks or spills are observed during white phosphorus drum movement, the equipment operator may place the drum in an over-pack drum. Larger spills or spills in which the white phosphorus is reacting will be handled in accordance with the White Phosphorus Disposal Contingency Plan

Addendum 001. Spill equipment that will be maintained onsite for initial response to small spills include: over-pack drums, source of water to fill the over-pack drums, absorbents to contain and soak up any water that may spill, wet sand, hand tools, and additional PPE. (PPE is discussed in the SSHP in **Appendix B**.)

#### **9.4 Control of Leaks/Drips from Drums**

Leaks or drips observed from white phosphorus drums will be investigated by PIKA during the spill response to determine if the leak is from an unsecure lid or drum bung or if the drum was ruptured causing the leaks and drips. If the drum was ruptured causing the drum to leak and drip, the leaks and drips will be stopped by placing the leaking drum into an over-pack drum and filling with water and closing tightly the lid. The liquid that seeped from the drum will be cleaned using absorbents and the absorbents will be placed in the over-pack drums. Should the leak or drip be from an unsecure lid or bung, the lid or bung will be reseated and tightened. If reseating and tightening the lid and bung does not stop the leaking or dripping, then the drum will be placed in an over-pack drum and filled with water before closing the lid securely.

Leaks or drips from the lead/PCB paint chip waste drum will be investigated to determine the source of the leak. If the drum containing the lead/PCB paint chip waste is ruptured, the drum will be placed in an over-pack drum and sealed or a drum repair kit will be utilized to repair the drum.

## **10.0 WASTE MINIMIZATION METHODS**

The generation of hazardous waste will be minimized to the maximum extent practicable and necessary precautions will be in place to avoid mixing clean and contaminated wastes. Requirements of 40 CFR 266 shall apply to hazardous wastes recycled in a manner constituting disposal. Written certification will be submitted by RVAAP that waste minimization efforts have been undertaken to reduce the volume and toxicity of waste to the degree economically practicable and that the method of treatment, storage, or disposal selected minimizes threats to human health and the environment.

**ATTACHMENT 1**

**INERT CERTIFICATION FOR EXPLOSIVES**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
24. DOCUMENT NUMBER & SUFFIX (30-44)										25. NATIONAL STOCK NO. & ADD (8-22)										26. RC (1-6) UI (23-24) QTY (25-26) CON CODE (71) DIST (33-36) UF (74-80)										27. ADDITIONAL DATA																																																																					
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17. ITEM NOMENCLATURE																																																																																																			
18. TY CONT										19. NO CONT										20. TOTAL WEIGHT										21. TOTAL CUBE																																																																					
22. RECEIVED BY										23. DATE RECEIVED																																																																																									
<p>" This certifies and verifies that the Material Potentially Presenting an Explosive Hazard (MPPEH), Munition Debris (MD), and/or Explosive Contaminated Property listed has been 100 percent properly inspected and, to the best of our knowledge and belief, are free of explosive hazards."</p> <p>.....</p> <p>Mel Lau, SUXOS PIKA International, Inc Stafford Texas 77477 (281) 340-5525</p> <p>.....</p> <p>Lew Kovarikt, UXOQCS PIKA International, Inc. Stafford, TX 77477</p>																																																																																																			

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**ATTACHMENT 2**

**DRUM STAGING AREA FOR WET STORAGE AREA**

Wet Storage Area

Drum Staging Area

Equipment Staging Area

George Rd.

Newton Falls Rd.

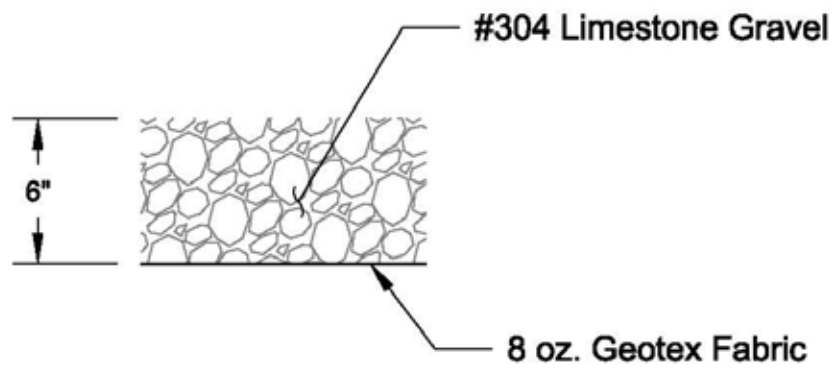
- Area Boundary
- Drum Staging Area
- Evacuation Routes



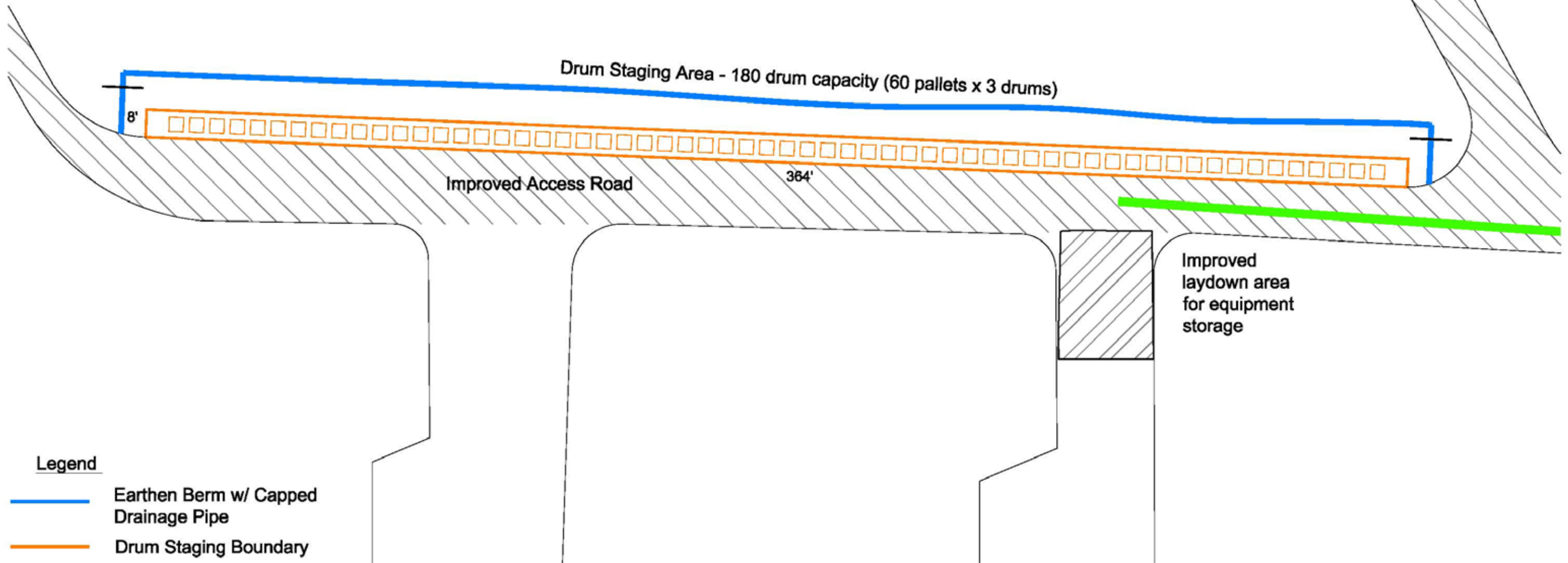
**TOLLEST, INC.**  
 1480 FORD STREET  
 MAUMEE, OH 43537  
 PHONE: (419) 794-3500  
 FAX: (419) 794-3901

**WET STORAGE AREA**  
 RVAAP-004-R-01  
 W912QR-04-D-0038 / 0011  
 WHITE PHOSPHORUS DISPOSAL AT ROCKET RIDGE  
 OPEN DEMOLITION AREA #2  
 RAVENNA AAP, OHIO

DATE:	14 MAR 11	T.O. NO.:	0011
DESIGNED:	S. BOYLE	DRAWING NUMBER <b>G-101</b>	
DRAWN:	M. CIESLEWSKI		
CHECKED:	J. RESNIK		
APPROVED:	T. KNUEVEN		



## Compacted Lot Profile



### Legend

- Earthen Berm w/ Capped Drainage Pipe
- Drum Staging Boundary
- Haul Route
- 4'x4' Wood pallets (typ.)  
((3) 55 gallon drums / pallet)
- Improved Access Road



**TOLLEST, INC.**

1480 FORD STREET  
MAUMEE, OH 43537  
PHONE: (419) 794-3500  
FAX: (419) 794-3901

### DRUM STAGING AREA

RVAAP-004-R-01  
W912QR-04-D-0038 / 0011  
WHITE PHOSPHORUS DISPOSAL AT ROCKET RIDGE  
OPEN DEMOLITION AREA #2  
RAVENNA AAP, OHIO

DATE:	09 MAR 11	T.O. NO.:	0011
DESIGNED:	S. BOYLE	DRAWING NUMBER	
DRAWN:	M. CIESLEWSKI		
CHECKED:	J. RESNIK		
APPROVED:	T. KNUEVEN		

**G-102**

**ATTACHMENT 3**

**CHAIN OF CUSTODY**

## White Phosphorus Disposal Chain of Custody

COC ID Number: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

Facility/Base ID: **Ravenna Army Ammunition Plant, Ravenna, Ohio**

Project Name/Site Name: **RVAAP-004-R-01 White Phosphorus Disposal at the Rocket Ridge Area Open Demolition Area #2 (ODA2)**

Project Number: **W912QR-04-D-0038, DO 11**

Client Name: **United States Army Corps of Engineers (USACE) Louisville District**

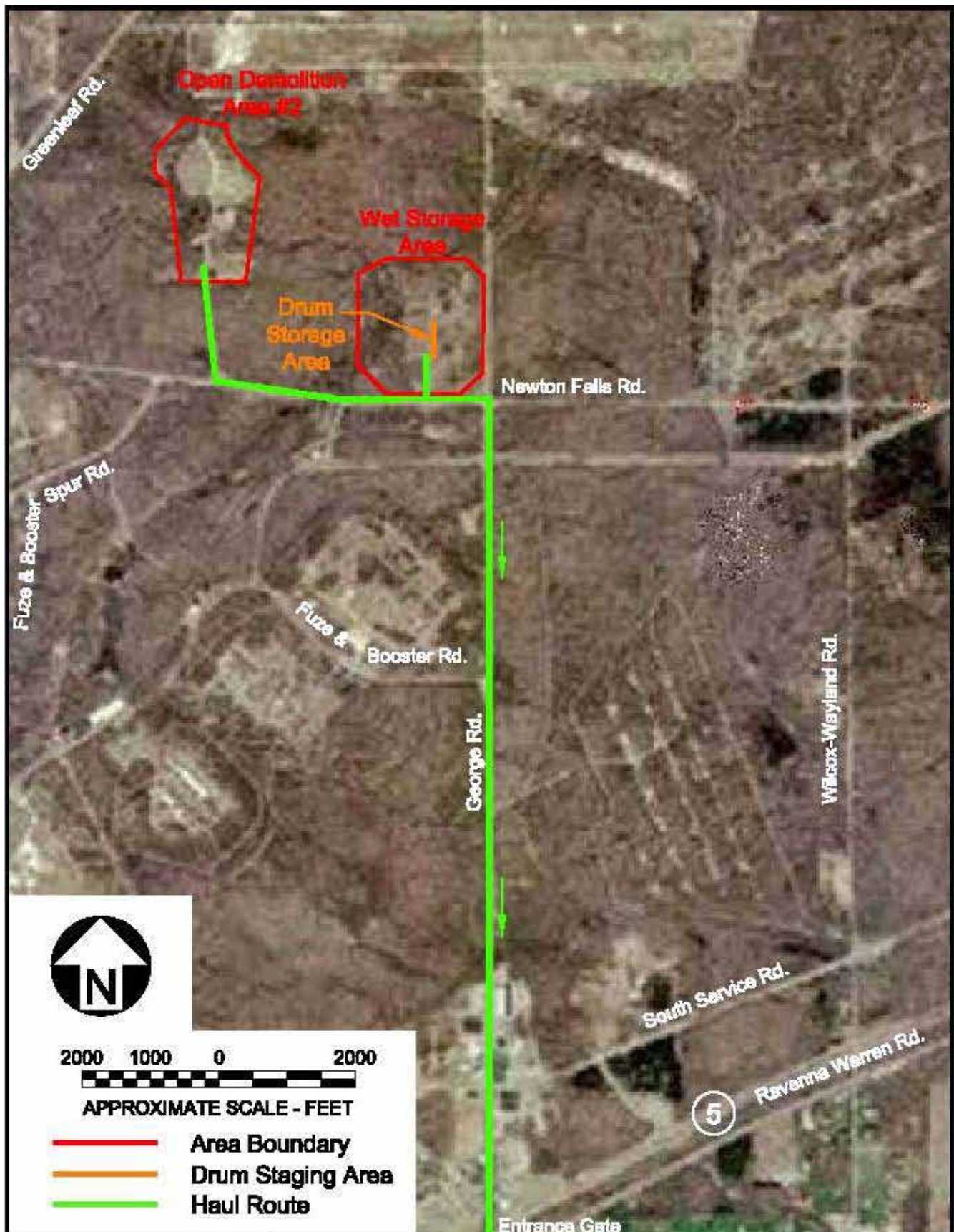
Drum Label Number	HAZWASTE Tracking Number	Date (dd-mmm-yyyy)	Time (Military)	Number of Containers				

This COC is to be used solely to document the receipt of drums containing white phosphorous and/or white phosphorous contaminated soil and debris generated as a result of the RRA TCRA performed by PIKA. Only drums that have been inspected by the TolTest On-Site Technical Manager and found to be compliant with the acceptance criteria contained in the WMP will be accepted. Additionally, the Form 1348 for each drum must be properly executed and provided with this COC. By relinquishing these drums, PIKA certifies that the drums have been topped off with water, as required by the WMP. Photo documentation must accompany this COC for each drum listed showing the water level in the drum prior to closing the drum and the inventory number.

Relinquished By (Signed):	Date	Time	Received By (Signed)	Date	Time
1. _____	_____	_____	1. _____	_____	_____
2. _____	_____	_____	2. _____	_____	_____
3. _____	_____	_____	3. _____	_____	_____

**ATTACHMENT 4**

**TRANSPORTATION ROUTE FROM ODA2 TO WET STORAGE AREA**



**TOLEST, INC.**

1480 FORD STREET  
MAJME, OH 43537  
PHONE: (419) 794-3500  
FAX: (419) 794-3901

ODA/RRR TO WSA HAUL ROUTE  
RVAAP-004-R-01  
W912QR-04-D-0038 / 0011  
WHITE PHOSPHORUS DISPOSAL AT ROCKET RIDGE  
OPEN DEMOLITION AREA #2  
RAVENNA AAP, OHIO

DATE: 14 MAR 11  
DESIGNED: S. BOYLE  
DRAWN: M. CIESLEWSKI  
CHECKED: J. RESNIK  
APPROVED: T. KNUVEN

T.O. NO.: D011  
DRAWING NUMBER

**G-100**



- Area Boundary
- Drum Staging Area
- Haul Route



**TOLLEST, INC.**

1480 FORD STREET  
MAUMEE, OH 43537  
PHONE: (419) 794-3500  
FAX: (419) 794-3901

TRUCK HAUL ROUTE  
RVAAP-004-R-01  
W912QR-04-D-0038 / 0011  
WHITE PHOSPHORUS DISPOSAL AT ROCKET RIDGE  
OPEN DEMOLITION AREA #2  
RAVENNA AAP, OHIO

DATE:	13 JULY 10	T.O. NO:	DD11
DESIGNED:	S. BOYLE	DRAWING NUMBER	
DRAWN:	M. CIESLEWSKI		
CHECKED:	J. RESNIK		
APPROVED:	T. KNUDSEN		

**G-100**

**ATTACHMENT 5**

**TOLTEST INSPECTION CHECKLIST, RVAAP WEEKLY INSPECTION FORM**

TolTest Inspection Checklist				Report Number
				Week Ending Date
Inspection Item	Satisfactory	Unsatisfactory	Not Acceptable	Comment Number
Ensure drum has inventory number and listed on drum inventory sheet				
Ensure only authorized and trained personnel onsite				
Check drums are securely closed and lids are intact				
Check each drum for ruptures, leaks, bulging, or deterioration Note: An obnoxious odor of rotting fish and garlic indicates a leak whether a seal, bung plug or lid is not closed all of the way or the drum is leaking.				
Check drums are properly stored drums not stacked on top of each other drums staged on pallets				
Check drum labeled, appropriate labels attached, and labels legible				
Check drums for tampering- bung plugs missing or loose damage to drum drum ring locks missing or undone				
Check spill kits and all emergency equipment against the inventory missing items? Spill kit filled? Emergency equipment operational?				
Check dates on labels accumulation start date listed? stored longer than 90 days?				
Inspect equipment used to move the drums using the manufacturer's manual.				
Check drums attached to equipment prior to moving;				
Inspect the straps, ties, or wraps used to secure the drums to the equipment for wear, tears, fragmentation, or general deterioration				
Inspect the staging area integrity of berms access way free of obstacles, garbage, debris general maintenance				
Only drums containing WP or WP-contaminated soils in the staging area? other wastes present in the staging area?				
Drums protected from freezing temperatures/excess heat				
Signature of inspector				
Name Printed	Signature		Date	

**Provide photos of staging area for each weekly inspection.**

Comments should be numbered by S, UNS, or NAC followed by a sequential number example UNS-1 for first "Unsatisfactory" item UNS-2 for the next and so on

"Satisfactory" means a good and acceptable condition without any impact to the HW treatment or storage operations that would violate EPA regulations or create stress to the environment or human health.

"Unsatisfactory" means a deteriorating or unfavorable condition that has a good potential for violating EPA regulations or standards, but does not yet create stress to the environment or human health.

"Not Acceptable: means a situation that is present, which poses a violation to EPA regulations or standards, or a situation, which creates stress to the environment or humanhealth.

**RVAAP ROCKET RIDGE**  
**Earth Covered Magazine**  
**Weekly Hazardous and Non-Hazardous Waste Inventory Sheet**

Contractor: \_\_\_\_\_ Month: \_\_\_\_\_ Year: \_\_\_\_\_

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
	Date:      Time:	Date:      Time:	Date:      Time:	Date:      Time:
Point of Contact (Name / Number)				
Contracting Agency - POC				
Spill kit available and on site	yes / no	yes / no	yes / no	yes / no
Waste generation site				
55 Gallon Waste Drums	yes / no	yes / no	yes / no	yes / no
Number of Containers (size / type)				
Condition of Container				
Waste labeled properly (40 CFR 262.34 (c) (1))	yes / no	yes / no	yes / no	yes / no
Secondary containment intact/drained	yes / no	yes / no	yes / no	yes / no
Photo's submitted      yes / no	yes / no	yes / no	yes / no	yes / no
On Site Inventory Inspection up to date/accurate	yes / no	yes / no	yes / no	yes / no
Emergency Equipment				
Visitor's Control				
Printed Name:				
Signature:				

COMMENTS:

**RVAAP ROCKET RIDGE**  
**White Phosphorous Storage at Wet Storage Area**  
**Weekly Hazardous Waste Inventory Sheet**

Contractor: \_\_\_\_\_ Month: \_\_\_\_\_ Year: \_\_\_\_\_

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
	Date: Time:	Date: Time:	Date: Time:	Date: Time:
Point of Contact (Name / Number)				
Contracting Agency - POC				
Spill kit available and on site	yes / no	yes / no	yes / no	yes / no
Waste generation site				
30 Gallon Waste Drums Bulk or Pure WP	Bulk or Pure WP	Bulk or Pure WP	Bulk or Pure WP	Bulk or Pure WP
55 Gallon Waste Drums Contaminated soil	yes / no	yes / no	yes / no	yes / no
Number of Containers (size / type)				
Condition of Container				
Waste labeled properly (40 CFR 262.34 (c) (1))	yes / no	yes / no	yes / no	yes / no
Secondary containment intact/drained	yes / no	yes / no	yes / no	yes / no
Photo's submitted yes / no	yes / no	yes / no	yes / no	yes / no
On Site Inventory Inspection up to date/accurate	yes / no	yes / no	yes / no	yes / no
Emergency Equipment				
Visitor's Control				
Printed Name:				
Signature:				

COMMENTS:



### Hazardous / Non-Hazardous Waste Shipping Checklist

<b>Hazardous / Non-Hazardous Waste Shipping Checklist</b>				
<b>Instructions:</b> <ol style="list-style-type: none"> <li>1. Complete the checklist at time of shipment.</li> <li>2. Maintain records in the site file system.</li> </ol>				
<b>Manifest #(s):</b>				
<b>Bill of Lading #(s):</b>				
<b>MANIFEST / BILL OF LADING:</b>				
1.	Y	N	NA	Your Generator EPA ID# (12-digit) & Manifest Document # (5-digit) Entered?
2.	Y	N	NA	Page 1 of _____. Total Number of Pages Entered?
3.	Y	N	NA	Generator's Name, Mailing Address, and Phone Number Entered?
4.	Y	N	NA	Transporter Name, EPA ID#, State ID#, and Phone Number?
5.	Y	N	NA	Designated Facility Name, Address, EPA ID#, and Phone Number?
6.	Y	N	NA	Proper Shipping Name (must match name on specific profile), Container Type/Quantity, Units, EPA Waste Codes (4-digit), State Waste Codes?
7.	Y	N	NA	Additional descriptions, Special Handling Instructions, Handling Codes, and Emergency Phone Number?
8.	Y	N	NA	Manifest & LDR Signatures?
9.	Y	N	NA	Manifest Signed by Transporter?
<b>DRUMS / CONTAINERS:</b>				
10.	Y	N	NA	All Drums/Containers Have Proper Labels, Dated & DOT Diamond Markings?
11.	Y	N	NA	Drums/Containers Free of Leaks or Large Dents?
12.	Y	N	NA	Drums/Containers Tightly Closed?
<b>TRUCK INSPECTION:</b>				
13.	Y	N	NA	Transporter's Emergency Plan in Truck? (Driver Familiar With It?)
14.	Y	N	NA	Emergency Response Guide Book in Truck?
15.	Y	N	NA	National Response Center Phone Number Available To Driver?
16.	Y	N	NA	State Regulatory Phone Numbers Available to Driver?
17.	Y	N	NA	Driver Has Valid CDL License?
18.	Y	N	NA	Placards On All 4 Sides of Truck? (required for over 1,000 lbs per hazard class)
19.	Y	N	NA	Floor Bed Inside Truck in Good Condition? No Potential Leakage Hazards?
<b>POST-SHIPMENT:</b>				
20.	Y	N	NA	Copies of LDR Attached To Each Copy of the Manifest?
21.	Y	N	NA	Distribute Copies of Manifests To Generator State and Disposer State.
22.	Y	N	NA	Shipment Date and Manifest Number Recorded In The "Hazardous Waste Tracking Log" For Tracking?
<b>Date Shipped:</b>			<b>Time:</b>	<b>Destination:</b>
<b>Inspector's Signature:</b>				
<b>Actions Taken To Correct Any Deficiencies:</b>				

**Off-Site Transport Vehicle Inspection Log**

<b>OFF-SITE TRANSPORT VEHICLE INSPECTION LOG</b>											
Date:					Final Inspection						
Manifest/ Bill-of-Lading No.	Trucking Company	Driver's Name	Vehicle Registration	Destination	Decon	Tarp	Tailgate	Placards	Shipping Docs	Driver's Initials	On-Site Spvsnr's Initials

Prior to departure from the site, the loaded vehicles will be inspected by the driver and the On-Site Technical Manager and his/her designee for the following items: (1) decontamination-to ensure proper decontamination of the vehicle; (2) vehicle tarp-to ensure security; (3) vehicle tailgate-to ensure proper closure; (4) placards-to ensure appropriate use and placement; and (5) shipping documents-to ensure proper use, completion, and distribution. After the final inspection has been completed by both the driver and the On-Site Technical Manager, the driver and On-Site Technical Manager must initial this form and the vehicle will be dispatched from the Site.



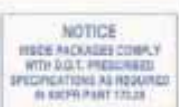
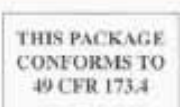
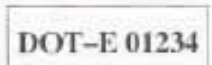






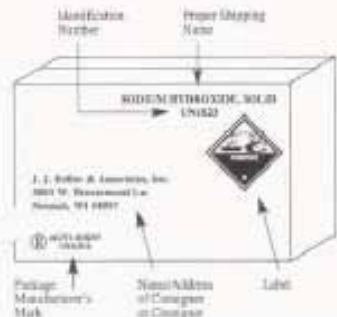
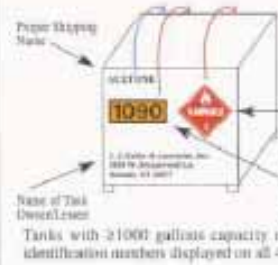

**ATTACHMENT 6**

**HAZARDOUS MATERIAL LABELING CHARTS**





















## Hazardous Materials Labeling Chart

HAZARDOUS MATERIALS LABELING CHART					
<b>CLASS 1</b> Explosive 1.1, 1.2, 1.3  <small>*Include appropriate division number and compatibility group.</small>	<b>CLASS 1</b> Explosive 1.4  <small>*Include appropriate compatibility group.</small>	<b>CLASS 1</b> Explosive 1.5  <small>*Include appropriate compatibility group.</small>	<b>CLASS 1</b> Explosive 1.6  <small>*Include appropriate compatibility group.</small>	<b>CLASS 2</b> Gas 2.1  <small>Flammable gas</small>	<b>CLASS 2</b> Gas 2.2  <small>Non-flammable gas</small>
<b>CLASS 2</b> Oxygen 2.2  <small>Oxygen</small>	<b>CLASS 2</b> Inhaled 2.3  <small>Hazardous gas</small>	<b>CLASS 3</b> Flammable liquid 3  <small>Flammable liquid</small>	<b>CLASS 4</b> Flammable solid 4  <small>Flammable solid</small>	<b>CLASS 4</b> Spontaneously combustible 4.2  <small>Spontaneously combustible</small>	<b>CLASS 4</b> Corrosive 4.3  <small>Corrosive other solid</small>
<b>CLASS 5</b> Oxidizer 5.1  <small>Oxidizer</small>	<b>CLASS 5</b> Organic peroxide 5.2  <small>Organic peroxide</small>	<b>CLASS 6</b> Inhaled 6.1  <small>Hazardous inorganic liquid</small>	<b>CLASS 6</b> Inhaled 6.2  <small>Hazardous organic liquid</small>	<b>CLASS 6</b> Inhaled 6.3  <small>Toxic</small> <small>The word "TOXIC" is allowed to be used in place of the word "POISON".</small>	<b>CLASS 6</b> Inhaled 6.4  <small>PG III</small> <small>The label "PG III" is allowed to be used in place of the word "POISON".</small>
<b>CLASS 6</b> Infectious 6.5  <small>Hazardous substance</small>	<b>CLASS 6</b> Infectious 6.6  <small>Hazardous substance</small>	<b>CLASS 7</b> Radioactive 7  <small>Radioactive I</small>	<b>CLASS 7</b> Radioactive 7  <small>Radioactive II</small>	<b>CLASS 7</b> Radioactive 7  <small>Radioactive III</small>	<b>CLASS 8</b> Corrosive 8  <small>Corrosive</small>
<b>CLASS 9</b> Miscellaneous 9  <small>Miscellaneous</small>	<b>SUBSIDIARY RISK</b>  <small>Corrosive</small>		<b>EMPTY</b>  <small>For Class 7 (packaging that meet the requirements in §172.403)</small>	<b>FOR AIRCRAFT</b>  <small>Danger - Aircraft</small>	
<b>GENERAL GUIDELINES ON USE OF HAZMAT LABELS</b>					
<ol style="list-style-type: none"> <li>The shipper must attach the appropriate label(s) to each package of hazardous material offered for shipment unless excepted from labeling requirements. (§172.400)</li> <li>If the material in a package has more than one hazard classification, the package must be labeled for each hazard. (§172.402)</li> <li>When two or more hazardous materials of different classes are packed within the same packaging or outer enclosure, the outside of the package or enclosure must be labeled for each class of hazardous material involved. (§172.404)</li> <li>Radioactive materials requiring labeling, must be labeled on two opposite sides of the package. (§172.403)</li> <li>A label should only be applied to a package containing a hazardous material if it represents the hazard inside. (§172.401)</li> <li>No one may offer or transport a package bearing any marking or label which by its color, design, or shape could be confused with a hazardous materials label. This does not prohibit the use of labels in conformance with U.N. Recommendations, IMO requirements, ICAO Technical Instructions, or TDG Regulations. (§172.401)</li> </ol>					

## Hazardous Materials Marking Chart

HAZARDOUS MATERIALS MARKING CHART				
 <p><b>ORIENTATION ARROWS</b> Each non-bulk package of hazardous materials having inner packaging containing liquid hazardous material must be marked on two opposing sides with this marking.</p>	 <p><b>ORM-D</b> <b>ORM-D-AIR</b></p> <p><b>ORM-D</b> Each non-bulk package containing a material classed as ORM-D must be marked on at least one side or end with this marking. The ORM-D designation must be immediately following or below the proper shipping name of the material. If the shipment is to be by air, the marking must be ORM-D-AIR.</p>	 <p><b>NOTICE</b> HSEB PACKAGES COMPLY WITH D.O.T. PRESCRIBED SPECIFICATIONS AS REQUIRED IN 49CFR PART 173.25</p> <p><b>INNER PACKAGING</b> An overpack containing authorized packages of hazardous materials must be marked with this marking, unless the specification markings on the inside packages are visible.</p>	 <p><b>THIS PACKAGE CONFORMS TO 49 CFR 173.4</b></p> <p><b>SMALL QUANTITY</b> By placing this marking on a package the shipper certifies conformance with the requirements in §173.4 for small quantity exceptions. Until October 1, 2000, the wording "This package conforms to the conditions and limitations specified in 49 CFR 173.4" may be used.</p>	 <p><b>DOT-E 01234</b></p> <p><b>EXEMPTION PACKAGE</b> Each package authorized by an exemption must be plainly and durably marked "DOT-E" followed by the exemption number assigned.</p>
 <p><b>MARINE POLLUTANT</b> Non-bulk packages which contain marine pollutants that are subject for transportation or transport by vessel must be marked with this marking in association with required labels or proper shipping name. Bulk packages, which contain marine pollutants must be marked on each side and each end with this marking. Except for transportation by vessel, a bulk package that bears a label or placard is not required to display this marking.</p>	 <p><b>HAZARDOUS WASTE</b> This marking can be used to meet DOT and EPA marking requirements. Proper shipping names on non-bulk packages are not required to include the word "waste" if this marking is displayed in accordance with 40 CFR 302.55.</p>	<p><b>PG III</b></p> <p><b>(PACKING GROUP III)</b> To take advantage of the exceptions in the regulations for a packaging containing a Division 3.1 PG III material, "PG III" must be displayed. The marking "PG III" may be placed adjacent to the POISON label or "PG II" may be displayed on the label. If "PG III" is displayed on the label it does not have to be marked adjacent to the label.</p>	 <p><b>INHALATION HAZARD</b> Bulk packages containing material that is poisonous by inhalation must be marked "Inhalation Hazard" in association with the required labels or placards, as appropriate, in shipping name when required. Bulk packages must be marked on two opposing sides. This marking is not required if the words "Inhalation Hazard" appear on a label or placard.</p>	 <p><b>DANGER</b> <b>DO NOT ENTER</b></p> <p><b>FUMIGANT</b> No person may offer for transport or transport a rail car, freight container, truck body, or trailer that has been or is being fumigated, unless this marking is prominently displayed or it can be seen by any person attempting to enter the transport vehicle or freight container. For domestic transport an EPA warning label (40 CFR Part 150) may be used as an alternative to this marking.</p>
 <p><b>HOT</b></p> <p><b>ELEVATED TEMPERATURE MATERIAL</b> Bulk packages of elevated temperature material must be marked on two opposing sides with the word "HOT". The combining of the "HOT" marking and the identification number marking on the same white square on-point configuration is allowed.</p>	<p><b>10-99</b> <b>V I P L K T</b></p> <p><b>CARGO TANK TEST/INSPECTION</b> Each cargo tank successfully completing a reinspection must be marked with the date (month and year) and the type of reinspection completed. The reinspection may be shown used as follows: V - external visual I - internal visual P - pressure L - lining K - leakage T - thickness</p>	 <p><b>1951</b> <b>1824</b> <b>3082</b></p> <p><b>IDENTIFICATION NUMBER DISPLAY</b> When allowed by the regulations, the identification number can be displayed on a placard, orange panel, or white square-on-point configuration.</p>		
<p><b>NON-BULK PACKAGE</b></p>  <p>Identification Number Proper Shipping Name Hazardous Material Label J. J. Griffin &amp; Associates, Inc. 2001 W. Woodward Ave. Ann Arbor, MI 48107 Package Manufacturer's Mark Name/Address of Consignor or Consignee Label</p>	<p><b>PORTABLE TANK</b> ≤ 1000 gallons capacity</p>  <p>Proper Shipping Name Identification Number Name of Tank Owner/Leasee Tanks with ≤ 1000 gallons capacity must have identification numbers displayed on all 4 sides.</p>	<p><b>BULK PACKAGE</b></p> <p><b>CARGO TANK</b></p>  <p>Identification number on placard, orange panel, or white square-on-point configuration. Display on all 4 sides. Common name or proper shipping name for Class 2 materials. Display on all 4 sides.</p>		

## Hazardous Materials Marking Chart

HAZARDOUS MATERIALS PLACARDING CHART				
<p><b>CLASS 1</b></p>  <p><b>EXPLOSIVES 1.1, 1.2, &amp; 1.3</b> This Division covers 1.1, 1.2 or 1.3 and compatible gases are placed on. Placed any quantity of Division number 1.1, 1.2 or 1.3 material.</p>	<p><b>CLASS 1</b></p>  <p><b>1.4 EXPLOSIVES</b> The compatibility group is black ink. Placed 454 kg (1001 lbs.) or more of 1.4 explosives.</p>	<p><b>CLASS 1</b></p>  <p><b>1.5 BLASTING AGENTS</b> The compatibility group is black ink. Placed 454 kg (1001 lbs.) or more of 1.5 blasting agents.</p>	<p><b>CLASS 1</b></p>  <p><b>1.6 EXPLOSIVES</b> The compatibility group is black ink. Placed 454 kg (1001 lbs.) or more of 1.6 explosives.</p>	<p><b>CLASS 2</b></p>  <p><b>OXYGEN</b> Placed 454 kg (1001 lbs.) or more gases gross weight or other gases compressed, refrigerated, liquefied, or frozen. See 49 CFR 173.204(c)(1).</p>
<p><b>CLASS 2</b></p>  <p><b>FLAMMABLE GAS</b> Placed 454 kg (1001 lbs.) or more of flammable gas. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 2</b></p>  <p><b>NON-FLAMMABLE GAS</b> Placed 454 kg (1001 lbs.) or more aggregate gross weight of non-combustible gas. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 2</b></p>  <p><b>INHALATION HAZARD</b> Placed 454 kg (1001 lbs.) or more of 2.2 material. Placed any quantity of Division 2.2 material.</p>	<p><b>CLASS 3</b></p>  <p><b>FLAMMABLE</b> Placed 454 kg (1001 lbs.) or more gross weight of flammable liquid. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 3</b></p>  <p><b>GASOLINE</b> May be used in the place of FLAMMABLE on a placard displayed on a cargo tank in a portable tank being used to transport gasoline by highway. See 49 CFR 173.204(c)(1).</p>
<p><b>CLASS 3</b></p>  <p><b>COMBUSTIBLE</b> Placed a combustible liquid when transported in bulk. A FLAMMABLE placard may be used in place of a Combustible placard on a cargo tank or portable tank of a combination tank car which carries both flammable and combustible liquids. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 3</b></p>  <p><b>FUEL OIL</b> May be used in place of COMBUSTIBLE on a placard displayed on a cargo tank or portable tank being used to transport by highway fuel oil not considered as a flammable liquid. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 4</b></p>  <p><b>FLAMMABLE SOLID</b> Placed 454 kg (1001 lbs.) or more gross weight of flammable solid. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 4</b></p>  <p><b>SPONTANEOUSLY COMBUSTIBLE</b> Placed 454 kg (1001 lbs.) or more gross weight of spontaneously combustible material. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 4</b></p>  <p><b>DANGEROUS WHEN WET MATERIAL</b> Placed any quantity of Division 4.3 material.</p>
<p><b>CLASS 5.1</b></p>  <p><b>OXIDIZER</b> Placed 454 kg (1001 lbs.) or more gross weight of oxidizing material. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 5</b></p>  <p><b>ORGANIC PEROXIDE</b> Placed 454 kg (1001 lbs.) or more gross weight of organic peroxide. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 6</b></p>  <p><b>INHALATION HAZARD</b> Placed any quantity of Inhalation Hazard. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 6</b></p>  <p><b>POISON</b> Placed 454 kg (1001 lbs.) or more gross weight of poison. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 6</b></p>  <p><b>TOXIC</b> Placed 454 kg (1001 lbs.) or more gross weight of poison. The word TOXIC is placed in place of the word POISON. See 49 CFR 173.204(c)(1).</p>
<p><b>CLASS 6</b></p>  <p><b>PG III</b> Placed 454 kg (1001 lbs.) or more gross weight of PG III. The word PG III is placed in place of the word TOXIC. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 7</b></p>  <p><b>RADIOACTIVE</b> Placed any quantity of packages bearing the RADIOACTIVE YELLOW III label. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 8</b></p>  <p><b>CORROSIVE</b> Placed 454 kg (1001 lbs.) or more gross weight of corrosive material. See 49 CFR 173.204(c)(1).</p>	<p><b>CLASS 9</b></p>  <p><b>MISCELLANEOUS</b> A Class 9 placard is not required. However, one may placard 454 kg (1001 lbs.) or more gross weight of a material which presents a hazard during transport, but which is not included in any other hazard class. See 49 CFR 173.204(c)(1).</p>	<p><b>SUBSIDIARY RISK PLACARD</b></p>  <p><b>DANGEROUS WHEN WET MATERIAL</b> Class 4 division number is not enough in subsidiary risk placards. See 49 CFR 173.204(c)(1).</p>
<p><b>DANGEROUS</b></p>  <p><b>DANGEROUS</b> Placed 454 kg (1001 lbs.) gross weight of bulk or more quantity of hazardous materials listed in Table 2. A freight container, and tank vehicle, portable tank, or rail car which carries hazardous materials may use one category of hazardous materials placard or more categories of hazardous materials placard as specified in Table 2, may be placarded with a DANGEROUS placard instead of the response placard specified for each of the materials in Table 2. However, when 1,000 kg (2,204 lbs.) or more aggregate gross weight of bulk or one category of material is transported in one loading facility, or in freight containers, and tank vehicles, transport vehicles, or rail cars, the placard specified in Table 2 for that category must be used. See 49 CFR 173.204(c)(1).</p>	<p><b>SQUARE BACKGROUND</b></p>  <p>The white square background is required for the following placards when in red text: EXPLOSIVES 1.1 or 1.2, POISON, and Inhalation Hazard (Class 2.2, PG I, PG II, PG III, PG IV, PG V, PG VI, PG VII, PG VIII, PG IX, PG X, PG XI, PG XII, PG XIII, PG XIV, PG XV, PG XVI, PG XVII, PG XVIII, PG XIX, PG XX, PG XXI, PG XXII, PG XXIII, PG XXIV, PG XXV, PG XXVI, PG XXVII, PG XXVIII, PG XXIX, PG XXX, PG XXXI, PG XXXII, PG XXXIII, PG XXXIV, PG XXXV, PG XXXVI, PG XXXVII, PG XXXVIII, PG XXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV, PG LXVI, PG LXVII, PG LXVIII, PG LXIX, PG LXX, PG LXXI, PG LXXII, PG LXXIII, PG LXXIV, PG LXXV, PG LXXVI, PG LXXVII, PG LXXVIII, PG LXXIX, PG LXXX, PG LXXXI, PG LXXXII, PG LXXXIII, PG LXXXIV, PG LXXXV, PG LXXXVI, PG LXXXVII, PG LXXXVIII, PG LXXXIX, PG XL, PG XLI, PG XLII, PG XLIII, PG XLIV, PG XLV, PG XLVI, PG XLVII, PG XLVIII, PG XLIX, PG L, PG LI, PG LII, PG LIII, PG LIV, PG LV, PG LVI, PG LVII, PG LVIII, PG LIX, PG LX, PG LXI, PG LXII, PG LXIII, PG LXIV, PG LXV</p>			

**ATTACHMENT 7**

**WASTE PROFILE FOR WHITE PHOSPHORUS WASTE**

55 gal

Veolia ES Technical Solutions L. L. C.

WASTESTREAM INFORMATION PROFILE

				Disposal Code	
Recertification					
Veolia ES Location		NORTH JACKSON OFFICE	NORTH JACKSON	OH	001 010
Invoice Address		OFFICE	CITY	ST	

Veolia ES TSDF requested \_\_\_\_\_ Technology requested \_\_\_\_\_ Generator No. 577989 Generator EPA ID No. OH5210020736  
1. Generator Name RAVENNA AAP Generator State No. \_\_\_\_\_  
Address 8451 STATE ROUTE 5 State Wastestream No. \_\_\_\_\_  
City RAVENNA State OH Country US ZIP 44266 9297  
NAICS(SIC) Code 2892 Source G09 Origin 1 Form W319 System Type \_\_\_\_\_

2. Waste Name WHITE PHOSPHORUS / SOIL - DEBRIS Lab or Waste Area \_\_\_\_\_

3. Process Generating Waste

Environmental Restoration Project Removal of White Phosphorus from ODA#2 rocket ridge area

4. Shipping Name WASTE PHOSPHORUS, WHITE, UNDER WATER

Hazard Class 4.2 UN/NA No. UN1381 PG I Sub Haz (6.1) RQ amt 1 lb Waste: Y PIH: N IH: N DWW: N P: N

RQ Des: 1. \_\_\_\_\_ 2. \_\_\_\_\_

DOT Des: 1. \_\_\_\_\_ 2. \_\_\_\_\_

5. Waste Codes D001 D003

Wastewater Non Wastewater X Sub Category D001-IG, D003-OR Mix: N Sol: N

6. Physical and chemical properties:

pH	Specific Gravity	Flash Point(F)	Solids
a < 2	a < .8	a < 80	0 - 0% suspended 0 - 0% ash
b 2 - 5	b .8 - 1.0	b X 80 - 100	95 - 95% settleable 0 - 0% water solubility
c X 5 - 9	c 1.0	c 100 - 140	0 - 5% dissolved 5000 -10000 BTU/lb
d 9 - 12.5	d X 1.0 - 1.2	d 140 - 200	
e > 12.5	e > 1.2	e > 200	Free Liquid 20 - 40 %
- exact	- exact	f no flash - exact	VOC 0 - 0 %

Physical State		Hazardous Characteristics		Odor
s X solid	a X air reactive	r radioactive or NRC regulated	a none	
m semi-solid	w water reactive	s shock sensitive	b mild	
l liquid	c cyanide reactive	t temp sensitive	c strong X	
p pumpable semi-solid	f sulfide reactive	m polymerization/monomer	describe pungent garlic	
f flowable powder	e explosive	n OSHA carcinogen		
g gas	o oxidizing acid	i infectious		
a aerosol	p peroxide former	h inhalation hazard		
r pressurized liquid		Zone: -		
d debris per 40 CFR 268.45				
h sharps				
q pumpable liquid				

Halogens  
Br .0 - .0 % Bromine  
Cl .0 - .0 % Chlorine  
F .0 - .0 % Fluorine  
I .0 - .0 % Iodine

Layers: a multilayered: b X bi-layered: c single phase

	Top Layer	Second Layer	Bottom Layer	Color
Viscosity	high(syrup)	high(syrup)	high(syrup)	WHT
by	medium(oil)	medium(oil)	medium(oil)	BRN
Layer:	X low(water)	low(water)	low(water)	
	solid	X solid	solid	

Veolia ES Technical Solutions L.L.C.

WASTESTREAM INFORMATION PROFILE

Used oil y/n ☐ HOC < 1000 ppm ☐ HOC > 1000 ppm ☐

7. Chemical Composition [M=Marine Pollutant, S=Severe Marine Pollutant, O=Ozone Depleting Substance,  
U=Underlying Hazardous Constituent, B=Benzene NESHP, T=TRI Chemical, C=OSHA Carcinogen]

Constituents	Ranges	Units
WATER	20.00	40.00 %
S,T, WHITE PHOSPHORUS	.00	20.00 %
DEBRIS (E.G. METAL, WOOD)	10.00	20.00 %
SOIL	40.00	60.00 %

Other:

8. Is the wastestream being imported into the USA? Yes ☐ No ☒
9. Does the wastestream contain PCBs regulated by 40CFR? Yes ☐ No ☒  
PCB Concentration .00 ppm
10. Is the wastestream subject to the Marine Pollutant Regulations? Yes ☐ No ☒
11. Is the wastestream from an industry regulated under Benzene NESHP? Yes ☐ No ☒  
If yes:  
Is the wastestream subject to Notification/Control Requirements? Yes ☐ No ☒  
Benzene Concentration .00 ppm  
Does it contain >= 10% water? Yes ☐ No ☒  
What is the TAB at your facility? .00 Mg/Yr
12. Is the wastestream subject to RCRA subpart CC controls? Yes ☐ No ☒  
Volatile Organic Concentration .00 ppmw  
CC Approved Analytical Method? Yes ☐ No ☒  
Generator Knowledge? Yes ☐ No ☒
13. Is the wastestream from a CERCLA or state mandated cleanup? Yes ☒ No ☐

14. Container Information :

Packaging: 551A2 Type/Size: DM 55 GAL OPEN HEAD (17H) DM  
Type/Size:

Shipping Frequency: Units .00 Per Day Per Week Per Month Per Qtr Per Year One Time  
UOM DESCRIPTION:

15. Additional Information :

Avoid contact with air - SPONTANEOUSLY COMBUSTIBLE

GENERATOR CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261 - Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize sampling of any waste shipment for purposes of recertification.

Mark Patterson 330-358-7311 4/4/11  
Name(Print or Type) Phone Date  
Mark Patterson Fac. Manager  
Signature Title

If approved for management, Veolia ES has all the necessary permits and licenses for the waste that has been characterized and identified by this profile.

30 gal.

## Veolia ES Technical Solutions L. L. C.

## WASTESTREAM INFORMATION PROFILE

Disposal Code

Recertification

Veolia ES Location NORTH JACKSON OFFICE NORTH JACKSON OH 001 010  
 Invoice Address OFFICE CITY ST

Veolia ES TSDf requested \_\_\_\_\_ Technology requested \_\_\_\_\_ Generator No. 577989 Generator EPA ID No. OH5210020736

1. Generator Name RAVENNA AAP Generator State No. \_\_\_\_\_  
 Address 8451 STATE ROUTE 5 State Wastestream No. \_\_\_\_\_  
 City RAVENNA State OH Country US ZIP 44266 9297  
 NAICS(SIC) Code 2892 Source G09 Origin 1 Form W319 System Type \_\_\_\_\_

2. Waste Name WHITE PHOSPHORUS AND WATER Lab or Waste Area \_\_\_\_\_

## 3. Process Generating Waste

Environmental Restoration Project Removal of White Phosphorus from ODA #2 rocket ridge area

4. Shipping Name WASTE PHOSPHORUS, WHITE, UNDER WATER

Hazard Class 4.2 UN/NA No. UN1381 PG I Sub Haz (6.1) RQ amt 1 lb Waste: Y PIH: N IH: N DMW: N P: Y

RQ Des: 1. \_\_\_\_\_ 2. \_\_\_\_\_

DOT Des: 1. \_\_\_\_\_ 2. \_\_\_\_\_

5. Waste Codes D001 D003 \_\_\_\_\_

Wastewater \_\_\_\_\_ Non Wastewater X Sub Category D001-IG, D003-OR Mix: N Sol: N

## 6. Physical and chemical properties:

pH	Specific Gravity	Flash Point(F)	Solids
a <u>&lt; 2</u>	a <u>&lt;.8</u>	a <u>&lt; 80</u>	<u>0</u> - <u>0</u> % suspended <u>0</u> - <u>0</u> % ash
b <u>2 - 5</u>	b <u>.8 - 1.0</u>	b <u>X</u> <u>80 - 100</u>	<u>95</u> - <u>95</u> % settleable <u>0</u> - <u>0</u> % water solubility
c <u>X</u> <u>5 - 9</u>	c <u>1.0</u>	c <u>100 - 140</u>	<u>0</u> - <u>5</u> % dissolved <u>7500</u> - <u>7500</u> BTU/lb
d <u>9 - 12.5</u>	d <u>X</u> <u>1.0 - 1.2</u>	d <u>140 - 200</u>	
e <u>&gt; 12.5</u>	e <u>&gt; 1.2</u>	e <u>&gt; 200</u>	Free Liquid <u>20</u> - <u>40</u> %
_____ exact	_____ exact	f <u>no flash</u> _____ exact	VOC <u>0</u> - <u>0</u> %

## Physical State

## Hazardous Characteristics

## Odor

s <u>X</u> solid	a <u>X</u> air reactive	r _____ radioactive or NRC regulated	a none _____
m _____ semi-solid	w _____ water reactive	s _____ shock sensitive	b mild _____
l _____ liquid	c _____ cyanide reactive	t _____ temp sensitive	c strong <u>X</u>
p _____ pumpable semi-solid	f _____ sulfide reactive	m _____ polymerization/monomer	describe <u>pungent garlic</u>
f _____ flowable powder	e _____ explosive	n _____ OSHA carcinogen	
g _____ gas	o _____ oxidizing acid	i _____ infectious	
a _____ aerosol	p _____ peroxide former	h _____ inhalation hazard	
r _____ pressurized liquid		Zone: _____	
d _____ debris per 40 CFR 268.45			
h _____ sharps			
q _____ pumpable liquid			

## Halogens

Br .0 - .0 % Bromine  
 Cl .0 - .0 % Chlorine  
 F .0 - .0 % Fluorine  
 I .0 - .0 % Iodine

Layers: | a \_\_\_\_\_ multilayered: | b X bi-layered: | c \_\_\_\_\_ single phase |

	Top Layer	Second Layer	Bottom Layer	Color
Viscosity	_____ high(syrup)	_____ high(syrup)	_____ high(syrup)	<u>WHT</u>
by	_____ medium(oil)	_____ medium(oil)	_____ medium(oil)	
Layer:	<u>X</u> low(water)	_____ low(water)	_____ low(water)	
	_____ solid	<u>X</u> solid	_____ solid	

WASTESTREAM INFORMATION PROFILE

Used oil y/n ☐ HOC < 1000 ppm ☐ HOC > 1000 ppm ☐

7. Chemical Composition [M-Marine Pollutant, S-Severe Marine Pollutant, O-Ozone Depleting Substance,  
U=Underlying Hazardous Constituent, B=Benzene NESHAP, T=TRI Chemical, C=OSHA Carcinogen]

Constituents	Ranges	Units
WATER	20.00	40.00 %
MISCELLANEOUS DEBR (E.G. SOIL, METAL, WOOD)	20.00	30.00 %
S, T, WHITE PHOSPHORUS	20.00	30.00 %

Other:

8. Is the wastestream being imported into the USA? Yes ☐ No ☒
9. Does the wastestream contain PCBs regulated by 40CFR? Yes ☐ No ☒  
PCB Concentration .00 ppm
10. Is the wastestream subject to the Marine Pollutant Regulations? Yes ☐ No ☒
11. Is the wastestream from an industry regulated under Benzene NESHAP? Yes ☐ No ☒  
If yes:  
Is the wastestream subject to Notification/Control Requirements? Yes ☐ No ☒  
Benzene Concentration .00 ppm  
Does it contain >= 10% water? Yes ☐ No ☒  
What is the TAB at your facility? .00 Mg/Yr
12. Is the wastestream subject to RCRA subpart CC controls? Yes ☐ No ☒  
Volatile Organic Concentration .00 ppmw  
CC Approved Analytical Method? Yes ☐ No ☒  
Generator Knowledge? Yes ☐ No ☒
13. Is the wastestream from a CERCLA or state mandated cleanup? Yes ☒ No ☐

14. Container Information :

Packaging: Type/Size:   
301A2 Type/Size: DM 30 GAL OPEN HEAD (17H) DM

Shipping Frequency: Units .00 Per Day Per Week Per Month Per Qtr Per Year One Time   
UOM DESCRIPTION:

15. Additional Information :

Avoid contact with air - SPONTANEOUSLY COMBUSTIBLE

GENERATOR CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261 - Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize sampling of any waste shipment for purposes of recertification.

Mark Patterson 330-358-7311 4/4/11  
Name(Print or Type) Phone Date  
Mark Patterson Fac. Manager  
Signature Title

If approved for management, Veolia ES has all the necessary permits and licenses for the waste that has been characterized and identified by this profile.

# FLINN SCIENTIFIC, INC.

## Material Safety Data Sheet (MSDS)

MSDS #: 601.00

Revision Date: September 27, 2010

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### Phosphorus, Yellow

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

### SECTION 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Phosphorus, Yellow

Synonym: yellow or white phosphorus.

CAS#: 7723-14-0

### SECTION 3 — HAZARDS IDENTIFICATION

White to off-white to yellow chunks; exhibits phosphorescence at room temperature. Odorless.

Highly toxic by ingestion, inhalation and skin absorption. May be fatal.

Corrosive to body tissues. Skin burns very possible. Avoid all body contact.

Spontaneously combustible solid. Extremely flammable.

#### FLINN AT-A-GLANCE

Health-3

Flammability-3

Reactivity-3

Exposure-3

Storage-3

0 is low hazard, 3 is high hazard

### SECTION 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for 15 minutes.

External: Wash continuously with fresh water for 15 minutes.

Internal: Give large quantities of water. Call a physician or poison control at once.

### SECTION 5 — FIRE FIGHTING MEASURES

Extremely flammable solid.

Spontaneously combustible solid. Autoignition Temperature: 86 °F

When heated to decomposition, emits toxic fumes of PO<sub>x</sub> and/or phosphine.

**Fire Fighting Instructions:** Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

#### NFPA CODE

H-4

F-4

R-2

### SECTION 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area. Cover with wet sand; keep under cold water and follow disposal procedure.

Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

### SECTION 7 — HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Inorganic #10. Store with sulfur and phosphorus.

Store in a dedicated flammables cabinet. If a flammables cabinet is not available, store in Flinn Saf-Stor can.

Store under water and away from heat. Use and dispense in a hood.

### SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin, and clothing. Wear chemical splash goggles, chemical-resistant gloves, and chemical-resistant apron. Use ventilation to keep airborne concentrations below exposure limits. Always wear a NIOSH-approved respirator with proper cartridges or a positive pressure, air-supplied respirator when handling this material in emergency situations (spill or fire).

Exposure guidelines: TWA 0.1 mg/m<sup>3</sup> (OSHA)

**SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES**

---

White to off-white to yellow chunks.  
Solubility: Insoluble in water and alcohol. Soluble in carbon disulfide.  
Formula: P  
Formula Weight: 123.88

Melting Point: 44.1 °C  
Specific Gravity: 1.82  
Vapor Density: 0.02 (Air=1)  
Vapor Pressure: 1 mm @ 76.6 °C

---

**SECTION 10 — STABILITY AND REACTIVITY**

---

Avoid contact with halogens, halide, sulfur, oxidizers, copper, copper alloys, oxygen, reducers, heat, open flame, and all sources of ignition.  
Shelf life: Poor; serious storage risk.

---

**SECTION 11 — TOXICOLOGICAL INFORMATION**

---

Acute effects: Highly toxic, harmful solid and fumes, stomach pain, vomiting, and diarrhea	ORL-HUMAN LD50: 1.4 mg/kg
Chronic effects: N.A.	IHL-RAT LC50: N.A.
Target organs: N.A.	SKN-RBT LD50: N.A.

---

N.A. = Not available, not all health aspects of this substance have been fully investigated.

---

**SECTION 12 — ECOLOGICAL INFORMATION**

---

Data not yet available.

---

**SECTION 13 — DISPOSAL CONSIDERATIONS**

---

Please consult with state and local regulations.  
Flinn Suggested Disposal Method #27c is one option.

---

**SECTION 14 — TRANSPORT INFORMATION**

---

Shipping Name: Phosphorus, yellow, under water  
Hazard Class: 4.2, Spontaneously combustible, poison  
UN Number: UN1381  
N/A = Not applicable

---

**SECTION 15 — REGULATORY INFORMATION**

---

TSCA-listed, EINECS-listed (231-768-7), RCRA code D001.

---

**SECTION 16 — OTHER INFORMATION**

---

This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. The data should not be confused with local, state, federal or insurance mandates, regulations, or requirements and CONSTITUTE NO WARRANTY. Any use of this data and information must be determined by the science instructor to be in accordance with applicable local, state or federal laws and regulations. The conditions or methods of handling, storage, use and disposal of the product(s) described are beyond the control of Flinn Scientific, Inc. and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT(S).

---

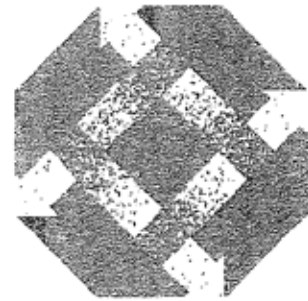
**Consult your copy of the *Flinn Science Catalog/Reference Manual*  
for additional information about laboratory chemicals.**

---

**ATTACHMENT 8**

**ENVIRONMENTAL RECYCLING GROUP TRANSPORTATION PLAN AND PERMIT**

# Alliance for Uniform HazMat Transportation Procedures Uniform Program Credentials



**ALLIANCE**  
FOR UNIFORM  
**HAZMAT**  
TRANSPORTATION  
PROCEDURES

LAMPS INC  
ENVIRONMENTAL RECYCLING  
PO BOX 167  
BOWLING GREEN, OH 43402

USDOT Census #           **00627933**  
MC Docket #              **00395586**  
EPA Transporter ID #    **OHR000034025**  
Intrastate Motor Carrier #: **N/A**

179097  
227106

**Phone Number to call in case of a accident or emergency: (734) 437-9677 -- 24 Emergency HM Contact**

Uniform Program ID:    **UPW-0627933-OH**  
Certified By:           **Leonard Shenk**  
Issuance Date:          **03-Nov-2010**   Expiration Date: **01-Jan-2012**  
Issuing Agency:        **PUBLIC UTILITIES COMMISSION OF OHIO**  
Agency Telephone:     **(614) 466-3392**



**UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**



**HAZARDOUS MATERIALS  
CERTIFICATE OF REGISTRATION  
FOR REGISTRATION YEAR(S) 2010-2011**

**Registrant:** ENVIRONMENTAL RECYCLING  
Attn: PAUL COTTRELL  
PO BOX 167  
BOWLING GREEN, OH 43402

This certifies that the registrant is registered with the U.S. Department of Transportation as required by 49 CFR Part 107, Subpart G.

This certificate is issued under the authority of 49 U.S.C. 5108. It is unlawful to alter or falsify this document.

**Reg. No: 051110 551 092S   Issued: 05/11/2010   Expires: 06/30/2011**

**Record Keeping Requirements for the Registration Program**

The following must be maintained at the principal place of business for a period of three years from the date of issuance of this Certificate of Registration:

- (1) A copy of the registration statement filed with PHMSA; and
- (2) This Certificate of Registration

Each person subject to the registration requirement must furnish that person's Certificate of Registration (or a copy) and all other records and information pertaining to the information contained in the registration statement to an authorized representative or special agent of the U. S. Department of Transportation upon request.

Each motor carrier (private or for-hire) and each vessel operator subject to the registration requirement must keep a copy of the current Certificate of Registration or another document bearing the registration number identified as the "U.S. DOT Hazmat Reg. No." in each truck and truck tractor or vessel (trailers and semi-trailers not included) used to transport hazardous materials subject to the registration requirement. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.

For information, contact the Hazardous Materials Registration Manager, PHH-62, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 1200 New Jersey Avenue, SE, Washington, DC 20590, telephone (202) 366-4109.

Michigan Department of Environmental Quality

**Uniform Program  
for Liquid Industrial Waste  
Transportation Credentials**



LAMPS INC DBA ENVIRONMENTAL RECYCLING  
PAUL COTTRELL  
PO BOX 167  
BOWLING GREEN, OH 43402

Telephone Number in case of accident or emergency: (800) 284-9107

National Uniform Program Credential Number: UPW0627933OH

Michigan LIW Uniform Program Identification Number: LIW 0627933 MI

Certified By: *Lawrence L. Aubuchon*

Registration Issued: 10/09/2010      Registration Expiration 10/09/2011

Issuing Agency: **Department of Environmental Quality**

Agency Telephone Number: (586) 753-3850

OHIO E.P.A.

OHIO ENVIRONMENTAL PROTECTION AGENCY

MAY 27 2009

ENTERED DIRECTOR'S JOURNAL

OHIO HAZARDOUS WASTE FACILITY  
INSTALLATION AND OPERATION PERMIT

Permittee: Lamps Inc., dba Environmental Recycling

Mailing  
Address: Environmental Recycling  
527 East Woodland Circle  
Bowling Green, Ohio 43402

Owner: PEMM Group  
P.O. Box 167  
527 East Woodland Circle  
Bowling Green, Ohio 43402

Operator: Lamps Inc., dba Environmental Recycling  
527 East Woodland Circle  
Bowling Green, Ohio 43402

Location: Environmental Recycling  
527 East Woodland Circle  
Bowling Green, Ohio 43402

US EPA ID: OHR 000 034 025

Issue Date: May 27, 2008

Effective Date: May 27, 2008

Expiration Date: May 27, 2018

I certify this to be a true and accurate copy of the  
official documents as filed in the records of the Ohio  
Environmental Protection Agency.

By: 

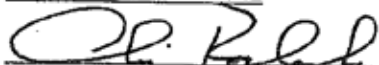
Date: 5-27-08

AUTHORIZED ACTIVITIES

In reference to the application of Lamps Inc., dba Environmental Recycling for an Ohio Hazardous Waste Facility Installation and Operation Permit under Ohio Revised Code (ORC) Chapter 3734 and the record in this matter, you are authorized to conduct at the above-named facility the following hazardous waste management activities:

- ♦ Storage of hazardous waste in containers

PERMIT APPROVAL



Chris Korleski, Director  
Ohio Environmental Protection Agency

This permit approval is based upon the record in this matter which is maintained at the offices of the Ohio Environmental Protection Agency. The Director has considered the application, accompanying information, inspection reports of the facility, information disclosed by the facility as required by ORC 3734.42, and such other information as is relevant to the operation of the facility. The Director has determined that the facility meets the requirements and conditions to subsequently operate the facility under ORC Chapter 3734, and the applicable rules adopted thereunder.

Entered into the Journal of the Director this 27 day of MAY, 2008.

By MILK J. DAVENPORT of the Ohio Environmental Protection Agency.

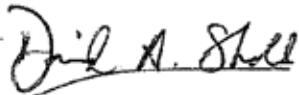
Mr. Michael K. Dolkowski  
Lamps, Inc. dba Environmental Recycling  
May 27, 2008  
Page Two

---

Environmental Review Appeals Commission  
309 South Fourth Street, Room 222  
Columbus, OH 43215

If you have any questions concerning compliance, do not hesitate to call Melissa Boyers of Ohio EPA's Northwest District Office at (419)373-3066.

Sincerely,



David A. Sholtis  
Division of Hazardous Waste Management

Attachments

cc: Edwin Lim, Mgr., ERAS, DHWM  
Jeremy Carroll/Pam McCoy, ERAS, DHWM  
Dale Meyer, US EPA, Region V  
John Pasquarette/Melissa Boyers DHWM, DO  
Carol Hester, Public Interest Center, Ohio EPA  
file



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

LR-8J

MAY 12 2010

Mr. Todd Hendrick  
Compliance Officer  
Environmental Recycling Group  
527 East Woodland Circle  
Bowling Green, Ohio 43402

Re: Status of Current TSCA Storage Approval

Dear Mr. Hendrick:

On March 22, 2010, the U.S. Environmental Protection Agency received your request to continue for an additional ten years for your current approval which expires on June 27, 2010, to commercially store polychlorinated biphenyls (PCBs).

Because Environmental Recycling (ER) submitted a timely, complete, and adequate notice of intent to continue the June 27, 2000 approval, the approval and its conditions remain in effect beyond the approval expiration date until EPA completes its review of the submitted information and makes a final determination regarding whether the approval is to be renewed.

If you have any questions on this matter, please call me or Steve Johnson, of my staff, at (312) 886-1330.

Sincerely,

A handwritten signature in black ink, which appears to read "Mary S. Setnicar", is written over a faint, larger version of the same signature.

Mary S. Setnicar  
Acting Chief, RCRA Branch



# CERTIFICATE OF LIABILITY INSURANCE

OP ID: XM

DATE (MM/DD/YYYY)

12/16/10

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Hylant Group Inc - Toledo 811 Madison Ave Toledo, OH 43604 Thomas Nemeth		<b>419-255-1020</b> <b>419-255-7557</b>	<b>CONTACT NAME:</b> PHONE (A/C, No, Ext): E-MAIL: ADDRESS: PRODUCER CUSTOMER ID #: <b>SQS-001</b>	
<b>INSURED</b> SQS, Inc. dba Environmental Recycling Group Lamps, Inc. dba Environmental Recycling 527 E. Woodland Circle Bowling Green, OH 43402			<b>INSURER(S) AFFORDING COVERAGE</b> <b>INSURER A:</b> Zurich American Insurance Co <b>INSURER B:</b> Steadfast Insurance Company <b>INSURER C:</b> Accident Fund InsCo of America <b>INSURER D:</b> <b>INSURER E:</b> <b>INSURER F:</b>	
			<b>NAC #</b> <b>16535</b> <b>26387</b> <b>10166</b>	

**COVERAGES****CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<b>GENERAL LIABILITY</b>					
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY		GLO916943103	12/13/10	12/13/11	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR					DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000
	<input checked="" type="checkbox"/> OH Stop Gap		GLO916943103	12/13/10	12/13/11	MED EXP (Any one person) \$ 5,000
	GEN'L AGGREGATE LIMIT APPLIES PER:					PERSONAL & ADV INJURY \$ 1,000,000
	<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC					GENERAL AGGREGATE \$ 2,000,000
						PRODUCTS - COMP/OP AGG \$ 2,000,000
						Stop Gap \$ 1,000,000
A	<b>AUTOMOBILE LIABILITY</b>					
	<input checked="" type="checkbox"/> ANY AUTO		BAP916943303	12/13/10	12/13/11	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input type="checkbox"/> ALL OWNED AUTOS					BODILY INJURY (Per person) \$
	<input type="checkbox"/> SCHEDULED AUTOS					BODILY INJURY (Per accident) \$
	<input checked="" type="checkbox"/> HIRED AUTOS					PROPERTY DAMAGE (Per accident) \$
	<input checked="" type="checkbox"/> NON-OWNED AUTOS					\$
	<input checked="" type="checkbox"/> \$1,000 Deds					\$
B	<b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR					
	<b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE					
	<b>DEDUCTIBLE</b>		SEO596330503	12/13/10	12/13/11	EACH OCCURRENCE \$ 5,000,000
	<input checked="" type="checkbox"/> RETENTION \$ 10,000					AGGREGATE \$ 5,000,000
C	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b>					
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	Y/N <input type="checkbox"/>	WCV6016485 MICHIGAN	12/13/10	12/13/11	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER
	If yes, describe under DESCRIPTION OF OPERATIONS below	N/A				E.L. EACH ACCIDENT \$ 1,000,000
						E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
B	<b>CONTR. POLLUTION</b>		PEC596329403	12/13/10	12/13/11	E.L. DISEASE - POLICY LIMIT \$ 1,000,000
B	<b>POLLUTION LEGAL</b>		PLC596329903	12/13/10	12/13/11	Poll/Prof \$ 5,000,000
						Poll \$ 5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

**CERTIFICATE HOLDER****CANCELLATION**

INFO-01

For Informational Purposes

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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# Transportation Guidance Manual

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## Emergency Spill Procedures

Drivers are responsible for the initial response to control a release that may occur during the transportation of waste materials. In the event of a spill, the driver must evaluate the situation and, if safe to do so, attempt to control the release as follows:

- 1) Determine which material has been released. Select proper personal protective equipment. If appropriate protection equipment is not available, contact the office immediately and they will contact the proper authorities. Do not attempt to control a release without proper personal protective equipment.
- 2) If the appropriate personnel protective equipment is available, locate the source of the leak and use absorbent clay or other available materials to contain the release. If you have a quantity of recovery drums sufficient for repackaging the leaking containers, proceed with overpacking. Shovel all contaminated absorbent or soil into the recovery drum(s) or other appropriate containers that may be available at the scene of the incident.
- 3) Contact the office as soon as possible after the release has been contained. Company personnel or subcontractors will provide additional assistance on an immediate basis, as appropriate.

After the incident has been resolved and clean-up activities have been completed, management must prepare an accident report to meet State of Ohio, Corporate, and Motor Carrier requirements.



**Environmental  
Recycling™**

Transportation Guidance Manual

## APPENDIX 5

### EMERGENCY TELEPHONE NUMBERS

**NOTIFICATIONS:** In the event of a spill of a large amount of chemicals, fuel oil or diesel oil, or a potential leak of the underground storage tanks, notify the following, giving details as requested from the incident report form in Appendix 7:

- |  |                |
|--|----------------|
| 1. Ohio EPA - emergency response hotline | 1-800-282-9378 |
| 2. Bowling Green Fire Division           | 419-352-3106   |
| 3. Local Emergency Planning Committee    | 419-354-9269   |
| (24 Hour)                                | 419-354-9001   |

### OPTIONAL AND/OR CONDITIONAL NOTIFICATIONS

- |   |  |
|---|--|
| 4. City of Bowling Green Wastewater Treatment Plant   | 419-354-6274                               |
| 5. City of Bowling Green Offices  | 419-352-2571                               |
| 6. U.S. EPA National Response Center  | 1-800-424-8802<br>1-800-426-2675           |
| 7. U.S. EPA (Region V)  | 1-312-886-6236                             |
| 8. Wood County Health Department  | 419-352-8402                               |
| 9. U.S. Coast Guard   | 1-419-259-6372<br>(24 hour) 1-419-259-6448 |
| 10. Ohio State Fire Marshall Office<br>Bureau of Underground Storage Tanks<br>(underground storage tank release only) | 1-614-864-5510                             |
| 11. Ohio Division of Wildlife   | 1-419-424-5000                             |

### Emergency Coordinators

Title	Name	Location	Phone
Emergency Coordinator	Paul Cottrell	Front office	419-409-0413
1 <sup>st</sup> Alternate Emergency Coordinator	Matt Zachary	Front office	419-409-1104
2 <sup>nd</sup> Alternate Emergency Coordinator	Erik Thayer	Front Office	419-409-0415

Emergency Response Contractor (ERS of Ohio)

(419) 354-0515

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>OHD 521 002 036</b>		2. Page 1 of <b>1</b>		3. Emergency Response Phone <b>734-437-9677</b>		4. Manifest Tracking Number <b>002140041 FLE</b>		
		5. Generator's Name and Mailing Address <b>Ravenna Army Ammunitions Plant - Bldg. 1037 8451 State Route 5 Ravenna, Ohio 44266</b>								
		Generator's Site Address (if different than mailing address)								
		Generator's Phone: <b>330-358-7312 Attn: Mark Patterson</b>								
		6. Transporter 1 Company Name <b>Environmental Recycling</b>						U.S. EPA ID Number <b>OHR 000 034 025</b>		
		7. Transporter 2 Company Name						U.S. EPA ID Number		
		8. Designated Facility Name and Site Address <b>Environmental Recycling 527 E. Woodland Circle Bowling Green, OH 43402</b>						U.S. EPA ID Number <b>OHR 000 034 025</b>		
		Facility's Phone: <b>800-284-9107</b>								
GENERATOR	9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))				10. Containers		11. Total Quantity	12. Unit Wt/Vol	13. Waste Codes
						No.	Type			
	1.	<b>RQ Polychlorinated Biphenyls, Solid, Mixture, 9, UN3432, PG III</b>				<b>02</b>	<b>CW</b>	<b>475</b>	<b>K</b>	<b>PCB</b>
	2.									
	3.									
14. Special Handling Instructions and Additional Information <b>9b1.) -PCB Lighting Fixtures ---contain mercury and asbestos &gt; 50 ppm PCB SFDD: 11-11-10 ERG # 171</b>										
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.										
Generator's/Officer's Printed/Typed Name <b>Mark Patterson</b>										
Signature <i>Mark Patterson</i>										
Month Day Year <b>11 24 10</b>										
TRANSPORTER INTL	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____									
	17. Transporter Acknowledgment of Receipt of Materials									
	Transporter 1 Printed/Typed Name <b>DEAN KOEPKE</b>									
Signature <i>Dean Koepke</i>										
Month Day Year <b>11 24 10</b>										
DESIGNATED FACILITY	18. Discrepancy									
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
	18b. Alternate Facility (or Generator) Manifest Reference Number: _____ U.S. EPA ID Number: _____									
	Facility's Phone: _____									
	18c. Signature of Alternate Facility (or Generator) _____ Month Day Year _____									
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)										
1. _____ 2. _____ 3. _____ 4. _____										
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a										
Printed/Typed Name _____ Signature _____ Month Day Year _____										



# Environmental Recycling

PO Box 167, 527 East Woodland Circle, Bowling Green, OH 43402  
419.354.6110 Phone • 800.284.9107 Phone • 419.354.5110 Fax  
734.437.9877 Emergency Phone - 24 Hour # • OHR 000 034 025

## STRAIGHT BILL OF LADING

JOB #	SHIPPER #
Doc #	PO #
Doc #	P/U DATE

73122

CUSTOMER **4000**

GENERATOR **4281**

TRANSPORTER

TOLTEST  
508 W. Elnora St.  
ODON , IN 47562  
RICK SPARKS  
(812) 638-8501

RAVENNA ARMY  
8451 STATE ROUTE 5  
RAVENNA OH 44266  
Mike Hovis/BRIAN MORGAN  
(412) 481-1298 (812) 701-4198

ENVIRONMENTAL RECYCLING  
(800) 284-9107

ARRIVE  
8 AM  
DEPART  
9:15

SUPPLIES	DOT CY Box	55 Gal Steel OT Dm	55 Gal Poly OT Dm	4' Lamp Box	8' Lamp Box
	Non-DOT CY Box	55 Gal Steel CT Dm	55 Gal Poly CT Dm	4' Lamp Drum	8' Lamp Drum
	CY Box Liner	55 Gal Drum Liner	5 Gal Poly Pail		

HMT	DESCRIPTION	ERG #	CONTAINERS		WEIGHT (IN LBS)	
			#	TYPE	ESTIMATED	ACTUAL
1	Mercury Contained in Manufactured Articles, 8, UN 2809, PG III Universal Waste Mercury Devices	172				
2	Lithium Battery, 9, UN 3090, PG II Universal Waste Batteries, Lithium	138				
2	Lithium Batteries Contained in Equipment, 9, UN 3091, PG II Universal Waste Batteries, Lithium	138				
	Batteries, Wet, Filled with Acid, 8, UN 2794, PG III Universal Waste Batteries, Lead Acid	154				
	Batteries, Wet, Filled with Alkali, 8, UN 2795, PG III Universal Waste Batteries, Nickel-Cadmium	154				
	Batteries, Wet, Non-Spillable, 8, UN 2800, PG III Universal Waste Batteries	154				
3	Batteries, Dry, Sealed, n.o.s. (Greater Than 9 Volt) Universal Waste Batteries	154				
4	Batteries, Dry, Sealed, Non-DOT Regulated (9 Volt or Less) Universal Waste Batteries	n/a				
Manifest # 002140041 FILE						
Electronic Devices / Computer Monitors - In Michigan, Universal Waste, Electronics						
Universal Waste Electric Lamps (Est. Quantities) _____ HID _____ Mixed _____ 4' Fluorescent _____ 8' Fluorescent _____ U-Shaped/Circular						

- All mercury devices must be packaged in DOT-approved drums / pails to prevent the possibility of leaking.
- Lithium batteries must be packaged separately and all terminals protected. Additional labeling is required.
- Batteries must be prepared and packaged for transport in a manner to prevent a dangerous evolution of heat, short circuiting, or damage to terminals via individual packaging of each battery or taping of terminals. Typical battery types include Ni-Cd, Ni-MH, mercury, zinc air, and alkaline batteries.
- Per DOT Letter of Clarification Ref. # 09-0295 dated January 8, 2010.

DF	Drum, Fiber
DM	Drum, Metal
CF	Container, Fiber (Box)
CM	Container, Metal
CW	Container, Wood (Pallet)

### SHIPPER'S DECLARATION

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked, and labeled/placarded and are in all respects in proper condition for transport according to applicable national and international governmental regulations.

SHIPPER	<i>Michael J. Morgan</i>
CARRIER	<i>[Signature]</i>
RECEIVED BY	<i>[Signature]</i>
DATE	11-24-10

WHITE - Recycling Facility • YELLOW - Certificate • PINK - Processing • GOLD - Shipper

**ATTACHMENT 9**

**VEOLIA PERMITS, INSPECTION REPORTS, PROCEDURES**

**Jennifer Resnik**

---

**Sent:**  
**To:**  
**Subject:**

----- Forwarded message -----

From: <[Damico.William@epamail.epa.gov](mailto:Damico.William@epamail.epa.gov)>  
Date: Fri, Jan 21, 2011 at 3:59 PM  
Subject: Re: Veolia TWI - Off Site Rule  
To: Karen Radomski <[kvradomski@gmail.com](mailto:kvradomski@gmail.com)>

As I stated yesterday on the phone, Veolia is currently acceptable to receive waste regulated by the CERCLA Off-Site Rule. This facility was inspected 9/29/10 under the RCRA program.

I spoke with an air enforcement person working on the CAA case. She said they have sent them a couple of findings of violations for failure to comply with MACT air emissions requirements and have an outstanding request for information. They have been in settlement negotiations but have not proposed a penalty so she is not sure where the penalty amount in ECHO came from.

---

William Damico  
312-353-8207 (v)  
312-582-5113 (f)

From: Karen Radomski <[kvradomski@gmail.com](mailto:kvradomski@gmail.com)>  
To: William Damico/R5/USEPA/US@EPA  
Date: 01/21/2011 12:51 PM  
Subject: Veolia TWI - Off Site Rule

William,  
It was a pleasure talking to you yesterday.

As we discussed, please confirm Veolia TWI's (Sauget, IL) ability to accept waste generated from a CERCLA mandated site and their compliance with the Off Site Rule. In addition, any information you can provide concerning the non-conformances that led to the imposed fines would also be appreciated.

Thank you

--

Karen Radomski CPG, CHMM, CSS

Environmental & Quality Services, LLC  
5511 Pierce Rd.  
Warren, OH 44481  
Office (330) 847-5919  
Cell (330) 240-0492

--

Karen Radomski CPG, CHMM, CSS

*Environmental & Quality Services, LLC*  
*5511 Pierce Rd.*  
*Warren, OH 44481*  
*Office (330) 847-5919*  
*Cell (330) 240-0492*

## **TWI MATERIAL PROCESSING**

### **REACTIVES PROCESSING PROCEDURE NO: PAR-2**

**(Revision 1.0)**

#### **PURPOSE**

This procedure details the steps and equipment to be used to process White Phosphorus. This also includes materials that are contaminated with White Phosphorus, which is spontaneously combustible in air. White Phosphorus is shipped both dry and under water and is labeled with the DOT CLASS: 4.2 (SPONTANEOUSLY COMBUSTIBLE).

#### **SCOPE**

This procedure details specific handling of a class of materials that will react with air primarily due to the presence of White Phosphorus. This includes debris, wastes, soils, and equipment which would normally be considered or treated as non-reactive waste in which the predominant hazard in terms of repackaging is the **PYROPHORIC** nature of White Phosphorus. The Process Hazard Sheet for the waste profile listed on the Burn Plan will outline any specific description and hazards of the waste streams. This procedure serves as the Process Hazard Sheet for the waste stream unless the Reactives Engineer feels a separate one is needed for the particular material.

#### **USERS**

Technicians using this procedure must have attended New Employee 24-hour training, be trained on all procedures already in place for the handling of non-reactive wastes currently being handled. Personnel who have been trained and certified on this procedure will be the only ones to perform these tasks.

#### **DOCUMENTATION/FORMS**

Waste Tracking Forms, Process Hazard Sheets, Process Plan, Training Document Form.

#### **PERSONAL PROTECTIVE EQUIPMENT**

Refer to the Burn / Process Plan (with Process Hazard Sheet) for the required Personal Protective Equipment. (Nomex Coveralls are always required for personnel performing this procedure.) THE MINIMUM NUMBER OF PERSONNEL REQUIRED TO PERFORM THIS PROCEDURE IS THREE. TWO MUST BE DRESSED IN THE FULL REQUIRED PPE. THE THIRD PERSON ACTS AS PROCESSING SUPPORT AND EMERGENCY RESPONSE.

The Process Hazard Sheet Lists Emergency Response Items Needed.

#### **SPECIALIZED EQUIPMENT, TOOLS AND SUPPLIES**

1. Water supply, hose and spray nozzle or lance which can be turned on and off at nozzle.
2. Shovels (plastic or steel)
3. Scoops (plastic or steel)
4. TWI standard charge boxes, 4-mil. heavy bag liners, plastic 5-gallon to 55-gallon drums with lids, jars (plastic or glass with lids). The physical state of the material will dictate more the type of container which will be used. For example, sharp debris which could tear poly bags and allow water to leak out and White Phosphorus to dry out could cause a fire. A plastic drum or pail would be preferred in this case.
5. Bung Wrenches

#### **MATERIAL CHARACTERISTICS & HAZARDS**

## MATERIAL CHARACTERISTICS:

1. White Phosphorus is a flammable solid, spontaneously combustible solid that is soft and waxy.
2. It is white or colorless (with sometimes yellow tint due to impurities).
3. Exposure to light causes material to turn dark.
4. Material can cause severe burns on contact with skin.
5. Ignites spontaneously > 86 Deg F in moist air.
6. Boiling point is 536 Deg F, Melting point is 111 Deg F.

EXPOSURE SYMPTOMS: (1) eye irritation, (2) respiratory tract irritation, (3) skin burns, (4) abdominal pain, (5) nausea, (6) anemia, (7) jaundice.

## MISHANDLING OF THIS MATERIAL COULD RESULT IN THE FOLLOWING:

Exposure of White Phosphorus to air or contact with reactive metals, oxidizers including Fluorine, Bromine, Chlorine, and Iodine can result in liberation of poison gases (Phosphine), ignition, and even an explosion. Water which has been in contact with Phosphorus will be corrosive (acidic, low pH).

## PROCEDURE

### A. INITIAL SETUP OF STARTUP

1. Lead person must review the Process Plan & Hazard Sheet with crew.
2. Obtain equipment needed to perform the procedure.
3. Area and equipment must be free of residual wastes, especially oxidizers, reactive metals, and combustible liquids.
4. Remove all combustible items from the process area. This includes charge containers, paper, bags, liners, and any items which could sustain a flame once ignited. **(This means do not store any pre-made charge boxes in the process area.)**
5. Lay visqueen down underneath where the waste transfer will take place. Cover with oil dry or sand to prevent slipping hazard.
6. Hook up water hose and nozzle and make sure water supply to nozzle is on.
7. Place drum in work area. Bond and ground the drum to building ground system.
8. Have a supply of Copper Sulfate readily available to coat any reacting Phosphorus. Generally a 5 % solution in water is effective.

### B. NORMAL OPERATIONS, PROCESSING

9. Do not open drum if bulging or hot to the touch, stop and contact supervisor.
10. If drum has a bung, open it first to vent pressure in case any has built up before removing lid.
11. Open the drum by loosening the ring bolt first and then carefully remove the lid. Never lean over the drum while removing the lid. **HAVE THE WATER HOSE IN HAND READY TO COVER THE MATERIAL COMPLETELY WITH WATER.**
12. If the drum is not an open top, double check the PHS sheet to determine if using an air chisel is permitted to remove the drum top.

13. After the material in the drum is completely covered with water, scoop or with shovel transfer material out of the original drum and place in one of the approved containers listed in the equipment section of this procedure. (If you encounter chunks of actual White Phosphorus, place a level of water in charge container to be able to immediately submerge the material under water). Do not break any crust formations which may have formed unless material is submerged under water.
14. Any material which is spilled must be kept water soaked and recovered immediately, otherwise it will ignite. Wet sand or wet oil dry can be used absorb up material. THE PROCESS / BURN PLAN WILL GIVE CHARGE WEIGHT. Always burn this material at Unit-4.
15. During transfer, do not let the material free fall or become airborne. Note that tools coming in contact with White Phosphorus must be kept wet and washed off, if allowed to dry, a fire could result.
16. Handle charges to avoid tearing inner liners if TWI charges boxes are being used in conjunction with double liners (4-mil poly) to retain water level above material in charge container. (This means lift charge box by the carton, not lifting charge by the plastic bag).
17. Process charges as per the Process Hazard Sheet & Burn Plan.

#### C. SHUTDOWN

18. Double check the Process Hazard Sheet for any specifics & incompatibles.
19. Proceed with the charges going directly to the incinerator to be incinerated immediately unless the Process Hazard Sheet states storage is an option.
20. Incinerate original waste container if it has been in contact with the actual waste stream, i.e., not just an overpack.
21. Any residual waste coating empty drum surface must remain wet and incinerated directly at Unit #4.
22. All equipment must be washed down with water and the rinse must be incinerated.
23. Any spilled material should be handled as described in Emergency Operations. This includes the oil dry and visqueen used for spill prevention during processing.
24. Inspect the work area, surface, tipper, and roller conveyors for spills. Any areas that are wet from water must be checked for phosphorus. A fire will result if spills of Phosphorus dry out.

#### D. EMERGENCY OPERATIONS:

##### FIRES

1. In general, use large volumes of water, wet sand, or dry chemical to extinguish fires of Phosphorus.

##### SPILLS

1. Donn respirator protection (supplied air or SCBA).
2. Cover with wet sand, wet oil dry, or water.
3. Submerge material immediately under water into a burnable container listed in the sections for equipment.
4. If a spill results in which White Phosphorus comes in contact with other incompatible wastes, respond from a distance taking whatever steps that can be done at this point to prevent ignition.

**STANDARD DIVISION PRACTICE**  
**TWI – VEOLIA ENVIRONMENTAL SERVICES**  
**Division**

**TITLE:** Receiving and Storage of White Phosphorus

**SDP NUMBER:** 3022

Containers

**EFFECTIVE DATE:** 12/3/10

**DEPARTMENT:** Operations

**PAGE:** 1 of 8

**SECTION:** Inventory Control

**ORIGINAL DATE:** 12/3/10

**REPLACES: Number -** n/a

**Date -** n/a

**APPROVED BY:** Doug Harris (signed), General Manager

---

**1.0 Purpose:**

- 1.1 To establish a set of safe and environmentally sound guidelines for the proper receipt and storage of containers of white phosphorus or white phosphorus mixtures prior to processing.

**2.0 Scope:**

- 2.1 This practice addresses the procedures and requirements that are needed to safely and effectively receive, move and store containers of white phosphorus and selected white phosphorus mixtures from the time they arrive at the facility until the time they are processed. It addresses sampling protocol, documentation, emergency response actions, and the DOT compatibility tests performed in the lab to assure proper storage.

**3.0 Users:**

- 3.1 Security Guard
- 3.2 Material Acceptance Group
- 3.3 Material Handlers
- 3.4 Lab Chemists and Technicians

**4.0 Documentation/Forms:**

- 4.1 Physical Description Worksheet (Attachment A)
- 4.2 TWI Laboratory Analysis Report (Attachment B)

**5.0 Personal Protective Equipment:**

For handling of closed containers (standard plant requirements):

- 5.1 Hard hat
- 5.2 Safety Glasses
- 5.3 Steel-toed safety shoes

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For inspection and sampling of open containers:

- 5.4 CPF-3 Protective outer suit
- 5.5 Nomex coveralls
- 5.6 Butyl rubber outer gloves
- 5.7 Nitrile inner gloves
- 5.8 Full-face respirator with supplied breathing air
- 5.9 Chemical-resistant booties over steel-toed shoes

6.0 Specialized Equipment, Tools, Supplies:

- 6.1 Forklift (with approved drum moving attachments as needed)
- 6.2 Stretch wrap
- 6.3 Bar-code scanner

7.0 Procedures:

7.1 Container Receipt and Inspection:

7.1.1 The containers will arrive at the facility operations main gate where the hazardous waste manifest will be compared to the waste delivery schedule and related information by the security guard or designee. The following items will be verified:

7.1.1.1 An Illinois hazardous waste manifest is used and the waste profiles listed on the manifest are approved and on the schedule.

7.1.1.2 The waste transporter has a valid Haz-mat permit.

7.1.1.3 Driver is approved for unescorted access to designated areas within the active facility when transporting the containers.

NOTE: If the driver is not approved, the security guard will administer the required training video and certification.

7.1.1.4 cursory inspection of the transport vehicle shows no exposed wastes or structural concerns.

7.1.2 The delivery will be signed in by the security guard or designee and the Driver Check-In Sheet will be completed as directed in SDP 5000: Waste Receipt.

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- 7.1.3 The driver will be directed to the Material Acceptance Group (MAG) and enter the active facility with the containers in order to deliver applicable paperwork to MAG.
- 7.1.4 MAG will perform the formal paperwork review of the delivered containers as directed in SDP 5000: Waste Receipt. Upon completion, personnel from MAG or an approved designee will sign the manifest as received.
- 7.1.5 The driver will be directed to the Receiving Department by MAG to prepare for the unloading the containers.
- 7.1.6 MAG will enter the applicable information for each received container into the facility waste tracking system. This action will enable a unique, bar-coded label to be created for each container.
- 7.1.7 When a door at Receiving Building 3 is available, the driver will position the load of containers for unloading by a Material Handler.
- 7.1.8 The containers will be unloaded by the Material Handler using a forklift into a bay designated for the load.
- 7.1.9 The containers will first be inspected to assure that they are in compliance with all applicable facility permits and regulations. This includes the following:

7.1.9.1 Verify that each container has the required labeling/markings:

- Hazardous waste label
- Proper DOT Labels/Markings
- Profile number

7.1.9.2 Inspect each container for integrity as described below:

- Severe rusting, dents, bulging or concavity
- Leaking or evidence of leaking
- Completely closed

**NOTE:** If a compliance issue is found, it must be resolved immediately and prior to moving the container to storage. **Any improperly labeled container or a container of questionable integrity cannot be placed into storage.** If

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there is a leak or spill, a spill report must be filled out immediately after remediation of it as directed by SDP 1605: Reporting of Spills and Releases. All spills must be reported to the Area Supervisor.

- 7.1.10 Perform a piece count of all containers by profile and verify that it matches the piece count as manifested.

NOTE: If there is a piece count discrepancy, discontinue the receiving of the containers and resolve the discrepancy as directed in SDP 5000: Waste Receipt.

- 7.1.11 Apply a unique bar-coded receiver number – drum number label to each container.

- 7.1.12 Determine the sampling protocol to be applied to the containers by referencing the Sampling Report (Attachment C) for each profile. The sampling protocol will either be “visual only” based on container labeling and visual inspection, or an actual extraction of material from a pre-determined number of containers using the methods of SDP 3016: Sampling Solids and Semi-solids in Drums and Pails.

NOTE: All containers must be analyzed per the site’s Waste Analysis Plan prior to final acceptance, storage and processing.

- 7.1.13 Prior to sampling, the Material Handler will put on the proper PPE as identified in Section 5.0 and in the Sampling Report.

- 7.1.14 Perform the applicable sampling method and document the results on the Physical Description Worksheet (Attachment A). Deliver any samples and accompanying paperwork to the facility laboratory to be logged in per SDP 5301: Chain of Custody for Samples.

NOTE: Due to the reactive nature of white phosphorus, the Sampling Report will include instructions to keep any sampled material under water within the sample container and to transport the samples within a poly-bucket.

- 7.1.15 Upon completion of lab analysis, containers that have passed the parameters for acceptance are candidates for storage and processing. Containers that have been determined to be discrepant based on lab analysis must be resolved as directed in SDP 5000: Waste Receipt.

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NOTE: Discrepant containers may be placed in temporary storage pending resolution of the discrepancy. They are not candidates for processing.

7.2 Container Storage:

NOTE: Due to the reactive nature of white phosphorus and the restrictive storage requirements applicable to containers of them, a determination will be made on whether to immediately begin processing these containers or place them in a designated storage area.

- 7.2.1 After being taken from the receiving bays, all applicable containers will be stored by DOT compatibility as directed by the container storage requirements of the facility's RCRA Part B Permit.

NOTE: Compatibility charts and other signs posted in the drum storage buildings give direction on separating incompatible materials.

- 7.2.2 A DOT compatibility test will be performed in the facility laboratory for containers with any amount of free liquid that are not accepted as "visual only" to ensure that storage designations are proper and accurate. The results of this test will be documented on the TWI Laboratory Analysis Report ("fingerprint form", see Attachment B). A copy of this form will be forwarded to the Receiving Supervisor and Process Planner to alert them to any incompatible containers requiring relocation or expedited processing.

NOTE: Containers which are approved as "visual only" will not be tested for storage compatibility but will have storage designations determined based on the known hazards of the material.

- 7.2.3 Material handlers will use forklifts or other transport equipment to move the containers to the designated storage location.

NOTE: Physically unstable containers of waste that are on skids must be secured using shrink-wrap or equivalent method.

- 7.2.4 Containers of white phosphorus or white phosphorus mixtures must follow the appropriate stacking requirements as listed below.

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NOTE: The height of any pallet or handling device on which containers may be stacked is not included in the total stack height for these requirements.

7.2.4.1 55-gallon drums or over-packed 55-gallon drums cannot be double-stacked

7.2.4.2 30-gallon drums can be double-stacked on other 30-gallon drums. Over-packed 30-gallon drums can be double stacked if they do not exceed the height of double-stacked 55-gallon drums.

7.2.4.3 30-gallon drums can be double-stacked on 55-gallon drums.

7.2.4.4 Containers of permitted, compatible material can be stacked on top of containers of white phosphorus if they do not exceed the height of double-stacked 55-gallon drums.

7.2.5 Each container movement must be recorded using a bar code scanner. Information recorded as part of this movement includes:

Receiver number

Drum number

Profile number

Location moved to (Building # and Row #)

**7.3 Emergency Procedures:**

NOTE: The facility's written Contingency Plan identifies emergency exits and evacuation routes for areas where white phosphorus and white phosphorus mixtures may be received or stored.

**7.3.1 Response to Fires:**

NOTE: All facility storage buildings in which white phosphorus containers may be stored are equipped with fire sprinkler systems.

NOTE: For all fires, an incident report must be filled out immediately after remediation of it as directed by SDP 1210: Incident, Injury and Accident Investigations. All fires must be reported to the Area Supervisor.

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7.3.1.1 For small fires, remove any adjacent combustible materials and use dry chemical fire extinguisher or wet sand.

7.3.1.2 For moderately-sized, incipient fires, initiate the fire alarm for the area to alert the facility Emergency Response Team. Move any combustible material away from the fire as appropriate and use high volumes of water or wet sand to extinguish the fire.

7.3.1.3 For large fires beyond the resources of facility personnel to extinguish, initiate the fire alarm for the area (if not already initiated from sprinkler system) and evacuate area as appropriate. Notify site Emergency Coordinator or designee.

**7.3.2 Response to Spills:**

NOTE: For all reportable leaks or spills, a spill report must be filled out immediately after remediation of it as directed by SDP 1605: Reporting of Spills and Releases. All spills must be reported to the Area Supervisor.

7.3.2.1 For small spills or leaks, cover material with wet sand or dry-all. Combine materials and place in lined, combustible container for immediate incineration.

7.3.2.2 For larger spills, remove all combustible materials away from immediate area and contact technical personnel for further instruction.

**8.0 User Responsibilities:**

8.1 Users are responsible for correctly following all procedures and requirements of this SDP whenever they are receiving or storing white phosphorus containers.

8.2 The Area Supervisor is responsible for allowing only personnel who are trained and certified on this SDP to receive or store white phosphorus containers without oversight of other certified personnel.

**9.0 User Performance Criteria:**

9.1 Users must be trained and certified that they can perform the procedures and requirements of this SDP without oversight of other certified personnel.

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10.0 Cross References:

- 10.1 Sampling Report (Attachment C)
- 10.2 SDP 5000: Waste Receipt
- 10.3 SDP 1605: Reporting of Spills and Releases
- 10.4 SDP 3016: Sampling Solids and Semi-solids in Drums and Pails
- 10.5 SDP 5301: Chain of Custody for Samples
- 10.6 SDP 1210: Incident, Injury and Accident Investigations

11.0 Regulatory/Permit Requirements:

- 11.1 Waste Analysis Plan, RCRA Part B Permit
- 11.2 Container Storage, RCRA Part B Permit
- 11.3 Contingency Plan, RCRA Part B Permit

12.0 Glossary of Terms:

- 12.1 Physical Description Worksheet (PDW) – Document used in waste receiving process to record piece-count, container descriptions, waste quantities and physical waste characteristics for each container received under a unique site Receiver Number.
- 12.2 Sampling Report – Document that catalogues pertinent information for each waste profile including chemical description, hazards of the waste, PPE requirements, sampling protocol and any unique precautions or handling requirements for the waste.

jdm/sdp3022

## **ATTACHMENT A**

### **Physical Description Worksheet (PDW)**

File #: 291714

Operator: MA COM

Description: WHITE PHOSPHORUS CONTAMINATED DEBRIS

Source Code: SRA

CT-2

Physical Description Worksheet

Receiver #: 235444

Received Date: 5/19/03

(1)

Drum #	Size / Type	D / P	Color / Description	% Full	% Solid	% Liquid
①	550P		Clear 1.9 / PPE	F	25	75
2						
3						
4			JS 5-29-03			
5			①			
6						
7			Recent this Load			
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

T. P. Date 5-28-03

Comments

605

# **ATTACHMENT B**

**TWI Laboratory Analysis Report**

**“Fingerprint” Form**

Receiver #: 235444

TWI Laboratory Analysis Report  
Sample Required

# of Drums: 1

Date: 5/19/2003

Profile #: 291714

Generator: MA COM

Descript: WHITE PHOSPHORUS CONTAMINATED DEBRIS

Process Code(s): SRA

## Drum Storage Compatability

Profiled DOT Hazard Class 4.2

P = Pass F = Fail

8A \_\_\_\_\_ 8B \_\_\_\_\_ 4/5 \_\_\_\_\_

Sample Number **214589** IL09353205

Drum Rep / Comp 1/1

Free Liquid (%)

Pumpable Yes No

Layers/Phases - % Ea. 1 \_\_\_\_\_ %

Color

Turbidity N/A TnsP TnsL Opq

Viscosity N/A L M H

Physical State Liq Solid Sludge Semi-sld

Water Miscibility Misc Part Floats Sinks Emuls



214589

## Add. Description

Water Reactivity ( ) No RXN ( ) RXN:

Radiation Screen ( ) =BKG ( ) &gt;BKG:

Flam. Pot. Screen ( ) Neg ( ) Pos ( ) BOC

pH Screen ( ) 100% ( ) 10%

Oxidizer Screen ( ) Neg ( ) Pos

Paint Filter Test ( ) Pass ( ) Fail ( ) V-Fail ( ) N/A

Cyanide Screen ( ) Neg ( ) Pos ( ) N/A

Sulfide Screen ( ) Neg ( ) Pos ( ) N/A

Incidental Odor ( ) No ( ) Yes:

Specific Gravity

BTU/Lb

% Chloride

Flash Point - Deg F

PCBs By GC - mg/kg

pH by Meter ( ) 100% ( ) 10%

Arsenic mg/kg

Beryllium mg/kg

Cadmium mg/kg

Chromium mg/kg

Lead mg/kg

Mercury mg/kg

Profile Conform Date Initials

Yes No

L M H N/A

=BKG

See Flashpoint

2-12.5

0.000 - 0.000

1 - 5000

1 - 5

&gt;140 N/A

&lt;50ppm

0

0

0

0

0

0

Profile Review for Appendix WAP-C Constituents by: KMEREDITH

Date: 5/21/2003

Reactive Category: D

Add. Comments: SR-WHITE PHOSPHORUS CONTAMINATED DEBRIS UNDER WATER; KEEP WET

# **ATTACHMENT C**

## **Sampling Report**

## **Sampling Report**

Profile: 291714

Waste Name: WHITE PHOSPHORUS CONTAMINATED DEBRIS

Process Generating Waste: FORMING OF CRYSTALS

Ship. Name: WASTE PHOSPHORUS, WHITE, UNDER WATER

Addl. Desc:

Physical State: Solid/Liquid

Process Code: SRA

## **HANDLING and PPE**

BUTYL RUBBER GLOVE

N-DEX INNER GLOVE

CPF 3

FULLFACE RESPIRATOR

TYPE C RESPIR CONST FLOW

INDEX/BLUE NITRILE (INNER GLOVE)

SRA-WHITE PHOSPHORUS CONTAMINATED DEBRIS UNDER WATER

REACTIVE CATEGORY: D

## **Dot Properties**

Inhalation: 3      Dermal: 3      Oral: 3      Flammable: 0      Health: 0

## **Profile Handling and Other Comments**

CHARGE CODE: PSCO

\*\*\*\* 5-03

## **Sampling and Receiving Information**

Sample Required

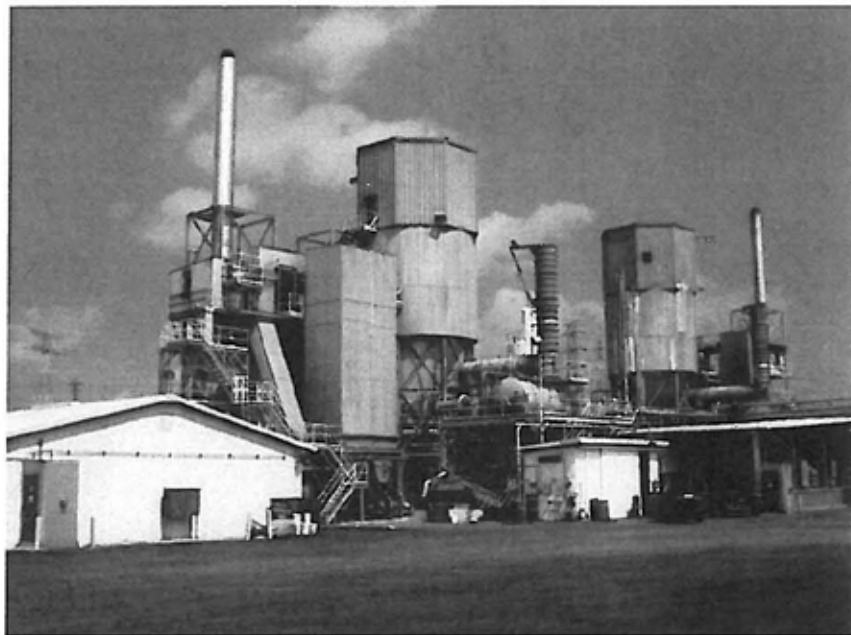
Profile Review for Appendix WAP-C Constituents by: KMEREDITH

Date: 5/21/2003

Reactive Category: D

Comments: SR-WHITE PHOSPHORUS CONTAMINATED DEBRIS UNDER WATER; KEEP WET

# **Business and Environmental Audit Information**



**Veolia Environmental Services L.L.C.  
Sauget, Illinois**

SUMMARY OF PERMIT MODIFICATIONS

JANUARY 2009

PERMIT MODIFICATION	DATE SUBMITTED	STATUS
RCRA Part B Permit Renewal Application	11/4/97 to IEPA, Div. of Land, and US EPA, Region V.	Permit application submitted 180 days before expiration of permit to allow for Continuing operation during review process. NOD comments received on 12/24/97; response submitted to IEPA on 2/19/98. Application deemed complete on 4/17/98. Draft Permit originally issued on June 3, 2003. Revised draft issued on July 24, 2008. Veolia submitted comments on the permit on September 15, 2008. Draft permit to be issued first quarter of 2009.

VEOLIA OPERATING PERMITS

JANUARY 2009

<u>PERMIT</u>	<u>ID NO.</u>	<u>EFF DATE</u>	<u>EXP. DATE</u>	<u>RE-SUBMIT- TAL DATE</u>	<u>COMMENTS</u>
RCRA Part B Permit	#29	5/5/88	5/5/98	11/5/97	Last update 1/14/98. Approval of feedrate increases for Incinerators 2 and 3. Part B Permit Renewal Application submitted to IEPA and US EPA on 11/4/97. Notice of deficiency received on 12/24/97. Response submitted 2/19/98. Application deemed complete on 4/17/98.
Slate of IL Solid Waste Mgmt. Permit	1983-10-OP	11/28/83	--	--	State permit covering all non-hazardous waste activities. Last update of permit: 5/16/96 -- Crushed Drum Disposal Modification.
Title V Permit	V-IL-1716300103-08-01	10/12/2008	10/12/2013	Title V Permit Application Due 10/12/2012	Final Title V Permit
NPDES Storm water Permit	#IL0071552	9/1/02	8/31/2007	2/28/2007	Permit covers the stormwater discharge points from Veolia. Name change approved. Renewal application submitted on 2/23/07. Continue to operate on expired permit till new permit is issued. Draft permit public noticed on January 21, 2009.
Village of Sauget Water Permit	#04-111a	2/1/02	2/1/2009	8/1/2008	Permit covers direct discharge to POTW & Regional Wastewater Treatment Facility. Renewal application submitted 7/2008.
Bureau of Alcohol, Tobacco & Firearms Explosive Magazine License	3-IL-101-33-1G-12962	10/1/94	7/1/2011	1/1/2011	License to operate explosive magazine.
IL Dept. of Mines & Minerals Explosive Magazine Certificate	#8020	3/1/2006	2/28/2009	11/28/2008	License renewal application submitted in 7/2008.
Federal Communications Commission Radio Station License	WQBX370	10/21/99	12/31/2014	9/5/2014	Name change implemented. New call numbers replace WNQW813

# VEOLIA OPERATING PERMITS

JANUARY 2009

<u>PERMIT</u>	<u>ID NO.</u>	<u>EFF. DATE</u>	<u>EXP. DATE</u>	<u>RE-SUBMIT-TAL DATE</u>	<u>COMMENTS</u>
Federal Communication Commission Radio Station License	WPGN771	3/22/00	2/16/2015	11/16/2014	Name change implemented. License permits the use of mobile radios and base stations.
Federal Communication Commission Radio Station License	WNNN691	4/2/96	6/03/2011	3/03/2006	Name change implemented. License permits the use of mobile radios and base stations.
Federal Communication Commission Radio Station License	WPJM305	7/25/96	7/25/2011	4/25/2011	Name change implemented. License permits the use of mobile radios and base stations.
Federal Communications Commission Radio Station License	WPKE319	1/29/97	1/29/2012	10/29/2011	Name change implemented. License permits the use of mobile radios and base stations.
U S. Dept. of Justice Drug Enforcement Admin. Controlled Substance Registration Certificate					Controlled Substance reverse distributors license held by Veolia, Menomonee Facility in Wisconsin.
State of IL Controlled Substance License	097.001253	12/31/01	12/31/2010	12/01/10	License to incinerate controlled substances.
State of IL Dept. of Nuclear Safety Radioactive Material License	IL-01358-01	12/31/94	12/31/2013	6/30/2013	License to operate Lab equipment that contains radioactive sources. Letter received from IL DNS renewing license.

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Scheduling/Manifesting/Labeling/Receiving Procedures	Tab VII
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## General Information

**Company Name:** Veolia Environmental Services-Technical Solutions, L.L.C. (VES-TS)  
Formally known as Onyx Environmental Services - Trade Waste  
Incineration (TWI)

**Location:** #7 Mobile Avenue  
Sauget, Illinois 62201-1069

Facility is located in an industrial complex that borders the Mississippi River and lies approximately two (2) miles east of downtown St. Louis, Missouri.

Phone Number: (618) 271-2804  
Fax: (618) 271-2128  
Federal ID Number: ILD098642424  
State ID Number: 1631210009  
Trans. Federal Number: NJD080631369  
Transporter Number: UPW0609181OH  
SIC code: 4953  
NAICS: 562211  
D&B: 11-542-4061  
FEIN: 36-4394814

**Company Owner:** Veolia Environment  
Paris, France

**Township:** Centerville, Illinois  
**County:** St. Clair

**Site Operating Hours:** 24 hours/day  
7 days/week

**Business Hours:** Monday – Friday  
8:00 a.m. – 4:30 p.m.

**Number of Employees:** Approximately 180

## Facility History

### Site History

Year Established:	1978, by private owner Jack McCoy
Start-up:	July 1980 with one fixed hearth incinerator, Unit #1 and associated facilities.
CWM Acquired:	August, 1983
Part "B" issued:	March 3, 1988, received from the Illinois EPA Division of Land Pollution Control – Effective May 8 <sup>th</sup> , 1988
CERCLA Status:	Gained eligibility in 1995.
VEOLIA Acquired:	August, 2000
Previous Land Owner:	Illinois Gulf Central
Previous Land Use:	Railroad switch yard

### Property Facts:

Site Pollution Incidents:	None
Site contamination:	None

### Proximity to:

Nearest Residence:	1 and ½ miles to the east
Nearest Waterway:	¼ mile to the west (Mississippi River)
Nearest School:	1 and ½ miles to the south
Portable Wells:	>3 miles
Property Size:	35 acres
Active:	25 acres
Area water sources: (Adjacent to site)	Wells: ½ mile Crops: ½ mile
Floodplain standards:	Outside the 100-year floodplain
Buffer Zone:	50 feet

**Community Relations:**

- VES-TS invests in the community by making annual financial contributions to a variety of organizations including United Way, Catholic Social Services, and other local community charities.
- VES-TS sponsors environmental awareness programs and provides educational tours for the local community grade schools, surrounding colleges, and universities. VES-TS also supports seminar grants and environmental seminar grant programs for educators.

**Site Security:**

- Entire facility is fenced.
- Warning signs posted along fence.
- All entrances and exits are locked or controlled.
- Internal alarm and communication.
- Telephone and 2-way radios are available in case of emergency.
- Closed circuit television for facility monitoring.

**Open Door Policy:**

VES-TS is proud of its safety and environmental programs and the operation of its facility. The facility maintains an open door policy for any interested party including regulators, customers, and the public, who would like a tour of the facility or requires a comprehensive audit of the operations.

**Safety Information for Visitors:**

The safety and well being of all visitors is important. Should a visit or tour be scheduled, please comply with the following:

- Sign in with the guard upon arrival.
- Your host must escort you while you are in the active portion of the facility and know where you are at all times during your stay. The Environmental Health & Safety Department must approve any exceptions.
- Approved safety equipment must be worn in designated areas (e.g., safety glasses with side shields, hard hat, etc.) These will be supplied by your host upon arrival as needed.
- In case of fire or emergency, follow the instructions given by your host.
- Alarms: 1 blast = warning, Continuous blast = evacuate to parking lot as indicated by your host
- Smoking is only permitted in designated areas.
- Photographs cannot be taken without prior approval.
- If you become ill or injured, please notify your host immediately for assistance.
- Please do not wear open-toed shoes or sandals.

**Directions to VES-TS (TWI) from St. Louis Lambert Airport:**

Hwy 70 East to Illinois. When crossing bridge, take Route 3 South. At second stoplight, turn right which is Monsanto Avenue. At "Y" in road, veer left and TWI will be on your right.

**Directions from St. Louis Lambert Airport to suggested Hotels in St. Louis:**

Hwy 70 East (approximately 1 mile)

Hwy 170 South (approximately 9 miles)

Hwy 64/40 East (approximately 9 miles)

Exit at Jefferson and turn left

Go 2 blocks and turn right onto Market Street

The Hampton Inn will be on your left. (Phone Number: 314-241-3200)

The Drury Inn – Go approximately 2 blocks and turn right on 21<sup>st</sup> Street and the hotel will be on your right about 1 block down. (Phone Number: 314-231-3900)

**Directions to VES-TS (TWI) from St. Louis Hotels:**

Hwy 40 East (the hotel lobby can direct you to the highway)

Follow any Illinois signs.

When crossing bridge, take Route 3 South Exit (Cahokia/Sauget)

Go to second stoplight and turn right (Monsanto Ave)

When road makes a Y, veer to the left and TWI will be on your right.

**Directions to Illinois Hotel from St. Louis Airport:**

Holiday Inn, Collinsville, IL (Phone Number: 618-345-2800)

Hwy 70 East (to Illinois)

When crossing bridge take Hwy 55/70 East

Exit #11 (Collinsville), turn left at the end of the exit ramp

Go to 2<sup>nd</sup> stoplight and turn left (Eastport Plaza Drive)

Holiday Inn will be on your right.

**Directions to VES-TS (TWI) from Holiday Inn**

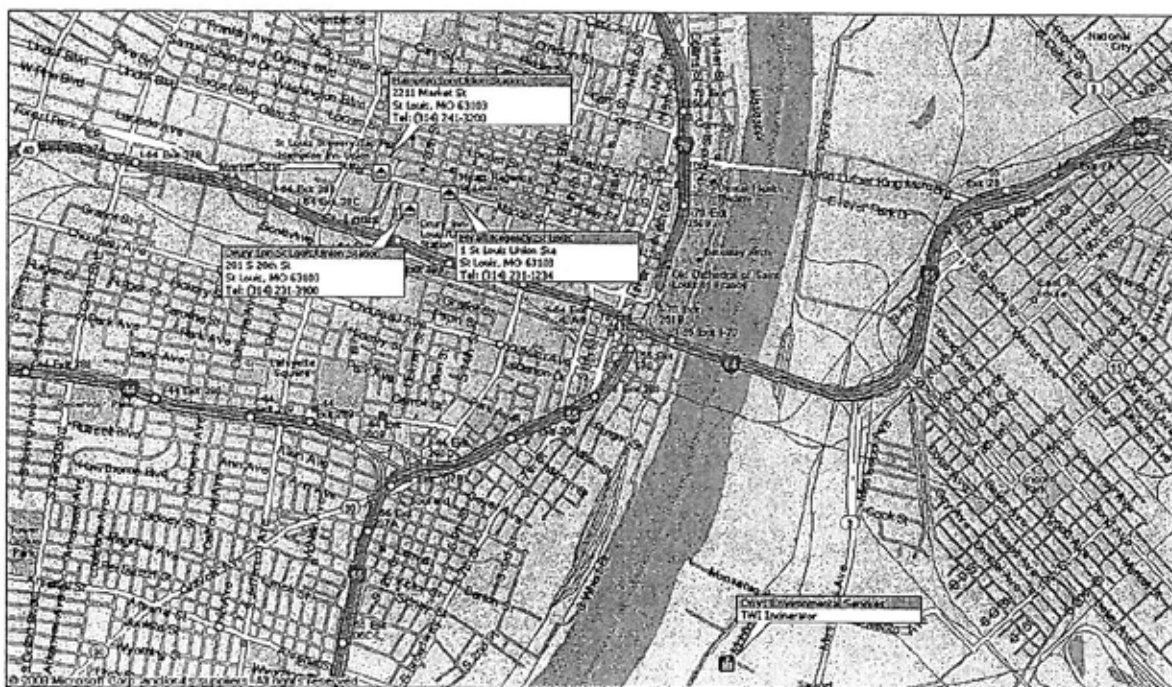
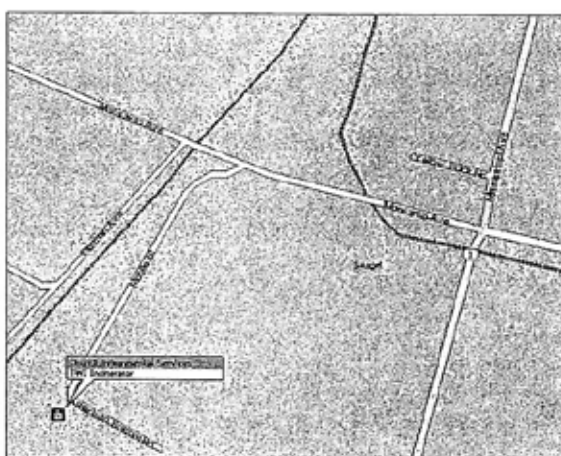
Hwy 55/70 West

Take Route 3 South (Sauget) Exit

Go to Second stoplight and turn right (Monsanto Avenue)

When road makes a "Y", veer left and TWI will be on your right after that.





## **KEY FACILITY PERSONNEL**

### **Doug Harris, General Manager**

Doug joined VES-TS in June, 1988. Doug has both an MBA in Business Administration from St. Louis University and a B.S. in Mechanical Engineering from the University of Illinois. He has almost 20 years experience in managing RCRA waste incineration operations for VES-TS.

### **Doug Bushey, Materials Manager**

Doug joined VES-TS in September, 1985. He has a B.S. Degree in Chemical Engineering from the University of Michigan. Doug has over 20 years experience managing hazardous waste field services and remediation programs; and RCRA Waste Treatment and incineration operations for VES-TS.

### **Christie Narez, Technical Manager**

Christie joined VES-TS in July, 2000. She has a B.S. Degree in Chemical Engineering from University of Kentucky, Lexington, KY, 1999. Christie has over 5 years experience in Process Engineering and managing RCRA waste incineration operations for VES-TS.

### **Dave Klarich, Incineration Manager**

Dave joined Veolia in August, 1987. Dave has a B.S. Degree in Chemical Engineering from the University of Missouri at Rolla. He has almost 20 years experience managing hazardous waste, process engineering, and special projects for VES-TS.

### **Dennis Warchol, Environmental, Health and Safety Manager**

Dennis joined VES-TS in August, 1982. Dennis earned a B.S. in Environmental Systems from Southern Illinois University in 1980. Dennis has over 24 years of environmental compliance and safety experience in the hazardous waste industry.

## Regulatory Contacts

IEPA - Division of Land Pollution Control  
Mike Grant - RCRA Inspector  
(618) 346-5120

IEPA - Division of Air Pollution Control  
Mark Schlueter - Air Inspector  
(618) 346-5120

IEPA - Division of Land Pollution Control, Permit Section  
Mary Riegle- Permit Writer  
(217) 524-3329

IEPA - Division of Air Pollution Control, Permit Section  
TBD - Permit Writer  
(217) 782-2113

American Bottoms Regional Wastewater Treatment Plant - Water Permit  
Jerry Richardson, Pretreatment Coordinator  
(618) 337-1710

IEPA - Division of Water Pollution Control, NPDES Stormwater Permit  
Fred Rosenblum, Permit Writer  
(217) 782-0610

## Permits and Regulatory Requirements

### Permits:

- RCRA Part B Permit, Number 29, Issued by IEPA-DLPC (See RCRA Part B Application Deemed Complete Letter in Addendum A, #5)
  - 1. Submitted in 1983
  - 2. Issued 3/31/88
  - 3. Effective date 5/5/88
  - 4. Renewal Application submitted 11/97
  - 5. Application Completeness Letter received 4/98 from IEPA.
- 35IAC02.125 authorized the continued operation under the expired permit.
- Air Permits for all three incinerators and feed systems, Number 163121AAP, Issued by IEPA-DAPC
- NPDES Storm Water Permit (site-specific), Number IL0071552, Issued by IEPA
- Bureau of Alcohol, Tobacco, and Firearms Permit (for explosive management), Number 3-IL-101-33-5G-12962, Issued by BATF (See Addendum A, #6)
- State of Illinois Explosive Magazine Permit, Number 7365, Issued by Illinois Dept. of Mines and Minerals (See Addendum A, #6)
- State of Illinois Controlled Substance License
- The facility is also approved to accept CERCLA (Superfund) waste (gained eligibility in 1995) (See Addendum A, #4)

### Regulations

The facility is regulated by both the USEPA and IEPA in accordance with the Resource Conservation and Recovery Act (RCRA), the Clean Air Act, the Clean Water Act, and other related regulations and state laws. The following recently promulgated regulations are applicable to the facility:

- Benzene NESHAP (40 CFR Part 61)
- Subpart BB, CC (40 CFR Part 63)
- Subpart DD
- Subpart EEE –Incinerator MACT Rule (40 CFR Part 63.1200)

### Facility Inspection Plan:

The following structures or equipment are inspected daily:

- Incinerator Equipment
- Safety and Emergency Equipment
- Security Devices
- Operating and Structural Equipment
- Drum Storage Buildings
- Tank Farms

**Government Agency Inspections:**

In addition to internal inspections, the Illinois Environmental Protection Agency (IEPA) inspects the facility semi-annually. (See addendum A #7, at the end of this section, for the latest inspections.)

**Environmental Monitoring**

- **Air**
  1. The facility is self-monitored – Continuous Emission Monitors operate on all three incinerators. Data is telecommunicated to IEPA
  2. There is an automatic shutdown
  3. The facility does not conduct ambient monitoring
  4. There are no off-site pollution problems
- Land is inspected daily. No analysis is conducted because a previous extensive soil sampling study revealed no contamination.
- Water (sewer and storm water) is permitted to discharge to an off-site facility, and discharges are monitored semi-annually. The sewer water discharges automatically. There are no chronic discharge problems. In addition, rainwater is controlled by dikes in the storage facilities and gathered in blind sumps for collection. All storm water is incinerated or tested prior to discharge to the sewer.

**Contingency Plan:**

The contingency plan includes the following procedures:

- Initiation of containment and control procedures
- Accounting of all facility personnel by headcount
- Implementation of internal notifications
- Notification of authorities
- Requests for assistance
- Coordination of first aid activities
- Activation of the casualty control procedure
- Activation of the evacuation plan

**Spill Prevention and Containment:**

There are physical barriers, containment, and procedures in place to prevent or handle any spills or leaks at the facility:

- The storage areas have dikes
- There are daily, weekly, monthly, and yearly inspections

**Fire Protection:**

- There are pressurized hydrants on site as well as chemical extinguishers
- There is a sprinkler/deluge system with an on-site 400,000 gallon fire water tank
- The facility is located < 2 miles from the Sauget Fire Department
- There are agreements in place with local hospitals, police, and fire departments
- There is a trained emergency response team on site

**Training Programs:**

Each employee has a written job description and a record for the type and amount of training. Employees are required to complete RCRA training prior to employment, and are scheduled for periodic training as

needed. Employee training records are available for review. The following bulleted items are among the types of training provided:

- Employee Orientation/safety
- RCRA Personnel Training
- Formal Operator Training
- DOT training
- 24 hours of initial explosive training
- Material specific training for reactives and explosives as needed
- Additional training as required due to regulatory changes, policy updates, refreshers, etc.

#### **Container Storage and Management:**

The drum storage buildings are metal with concrete floors, and have a bermed blind sump collection system for spills and storm water. There are explosion-proof light fixtures, an emergency alarm system, and fire extinguishers. All containers must be in good condition. Incompatible containers are separated by berms and are inspected daily for leaks and defects. The following types of containers can be stored:

- Drums
- Hoppers
- Roll-off boxes
- Lugger boxes
- Cubic Yard boxes
- Gaylord Boxes

## Maximum Waste Inventory:

### Drum Storage-11,380 fifty five gallon drum equivalents total

■ Building 1A	352 containers
■ Building 1B	352 containers
■ Building 1C	436 containers
■ Building 2A	720 containers
■ Building 2B North	104 containers
■ Building 2B South	104 containers
■ Building 3	1200 containers
■ Building 3A	3360 containers
■ Building 3B	3360 containers
■ Building 6	672 containers

### Bulk Pits-192 cubic yards of bulk solids

■ Pit 1	48 cubic yards
■ Pit 2	48 cubic yards
■ Pit 3	48 cubic yards
■ Pit 4	48 cubic yards

### Bulk solid storage

■ Building 7	96,960 gallons
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## Tank farms

### Tank farm #1-total capacity 119,406 gallons

■ Tank 2	4,931 gallons
■ Tank 4	4,831 gallons
■ Tank 6	7,200 gallons
■ Tank 8	5,280 gallons
■ Tank 10	12,869 gallons
■ Tank 20	12,869 gallons
■ Tank 30	12,869 gallons
■ Tank 40	12,869 gallons
■ Tank 50	12,869 gallons
■ Tank 60	12,869 gallons
■ Tank 120	19,850 gallons

### Tank Farm #3-Total capacity 200,000 gallons

■ Tank 300	30,000 gallons
■ Tank 302	30,000 gallons
■ Tank 304	30,000 gallons
■ Tank 306	30,000 gallons
■ Tank 308	30,000 gallons
■ Tank 310	30,000 gallons
■ Tank 312	30,000 gallons
■ Tank 314	30,000 gallons


**Laboratory Information:**

The facility manages an on site laboratory for incoming waste analysis. All lab waste is incinerated. The available instruments are as follows:

- Vent hoods
- Pensky Marten Closed Cup Flashpoint Tester
- Wet Chemistry
- Gas Chromatograph (GC)
- Atomic Absorption (AA)
- Dionex Ion Chromatograph (IC)
- Calorimeters
- Muffle Furnaces
- Karl Fischer Moisture Analyzer
- High Pressure Liquid Chromatograph (HPLC)
- Inductively Coupled Plasma (ICP)

Off-site analysis of site-generated residuals is performed by third party approved labs.

Addendum A

		ACKNOWLEDGEMENT OF NOTIFICATION OF HAZARDOUS WASTE ACTIVITY	
<p>This is to acknowledge that you have filed a Notification of Hazardous Waste Activity for the installation located at the address shown in the box below to comply with Section 3010 of the Resource Conservation and Recovery Act (RCRA). Your EPA Identification Number for that installation appears in the box below. The EPA Identification Number must be included on all shipping manifests for transporting hazardous wastes; on all Annual Reports that generators of hazardous waste, and owners and operators of hazardous waste treatment, storage and disposal facilities must file with EPA; on all applications for a Federal Hazardous Waste Permit; and other hazardous waste management reports and documents required under Subtitle C of RCRA.</p>			
EPA I.D. NUMBER	➔	IL0098642424	REACKNOWLEDGEMENT
		TRADE WASTE INCINERATION INC	
		1 MOBILE ST.	
		SAUGEY	IL 62201
INSTALLATION ADDRESS	➔	1 MOBILE ST	
		SAUGEY	IL 62201

EPA Form 8700-12A (4-80)

Received 4/20/98



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 Mary A. Gade, Director

217/782-6762

April 17, 1998

CERTIFIED MAIL  
P 344 351 007

Trade Waste Incineration  
A Division of Chemical Waste Management, Inc.  
Attn: Tom Bramlette  
7 Mobil Avenue  
Sauget, Illinois 62201-1069

Re: 1631210009 -- St. Clair County  
Trade Waste Incineration  
ILD098642424  
RCRA Permit #29-R  
RCRA Part B -- Administrative Record

Dear Mr. Bramlette:

The Illinois Environmental Protection Agency has reviewed your application for renewal of the RCRA permit to construct, maintain and operate a waste management facility to store and incinerate hazardous waste. The application was dated November 4, 1997 and received November 5, 1997 for the above referenced facility. A list of deficiencies identified during our review were included in the Notice of Deficiency (NOD) dated December 22, 1997 which was mailed to you. Based upon your responses received February 20, 1998 and April 15, 1998 to the NOD, the Illinois EPA has determined that your Part B Permit application is complete and has begun a technical review of your application.

If you have any questions in this matter, please contact Mark Schollenberger, P.E. of my staff at 217/524-3307.

Sincerely,

A handwritten signature in cursive script, appearing to read "Edwin C. Bakowski".

Edwin C. Bakowski, P.E.  
Manager, Permit Section  
Bureau of Land

ECB:MAS\mls\982593.WPD

Addendum A

NOTIFICATION OF INTENT TO COMPLY  
40 CFR §63.1210(b)(1)

(i) GENERAL INFORMATION

(A) NAME AND ADDRESS OF OWNER/OPERATOR AND THE SOURCE:

Owner/Operator Name: Onyx Environmental Services

Owner Address: 700 East Butterfield Road  
Lombard, IL 60148

Source Address: #7 Mobile Ave.  
Sauget, IL 62201-1069

(B) SOURCE STATUS: Facility is a major source as defined by 40 CFR §63.2

(C) WASTE MINIMIZATION AND EMISSION CONTROL TECHNIQUES BEING CONSIDERED:

The source operates two fixed hearth hazardous waste incinerators (Units #2 and #3) and a rotary kiln hazardous waste incinerator (Unit #4). The source plans on meeting the emissions standards by limiting the constituents in the waste feeds that affect compliance with the standards or by the addition of a carbon injection system at the rotary kiln unit. The facility is also considering modifications to the spray dryer absorber systems to allow the recycling of some of the scrubber solids to further improve dioxin and metal removal efficiencies.

(D) EMISSION MONITORING TECHNIQUE(S) YOU ARE CONSIDERING:

The source monitors continuously for carbon monoxide, hydrocarbons, hydrochloric acid, oxygen and opacity. The source is considering the addition of a chlorine gas analyzer to demonstrate compliance with the HCl/Cl<sub>2</sub> standard and a baghouse leak detection monitor to detect broken baghouse bags.

Addendum A

NOTIFICATION OF INTENT TO COMPLY

Page 2

(E) WASTE MINIMIZATION AND EMISSION CONTROL TECHNIQUE(S) EFFECTIVENESS :

The source will determine the effectiveness of the waste minimization practices and emission control techniques through stack emission testing. It is anticipated that the effectiveness of these techniques will achieve compliance with the MACT standards.

(F) A DESCRIPTION OF THE EVALUATION CRITERIA USED OR TO BE USED TO SELECT WASTE MINIMIZATION AND /OR EMISSION CONTROL TECHNIQUE(S):

The source has and will be reviewing reference documents on waste minimization and emission control techniques that could be applicable to the operation and successful in meeting the emission standards. Once the appropriate waste minimization or emission control technique is implemented, it will be evaluated by conducting stack emission testing.

(G) Onyx Environmental Services intends to comply with the emission standards defined in 40 CFR§63.1203.

(ii) INFORMATION ON KEY ACTIVITIES AND ESTIMATED DATES FOR THESE ACTIVITIES THAT WILL BRING THE SOURCE INTO COMPLIANCE WITH EMISSION CONTROL REQUIREMENTS OF THE RULE.

(A) THE DATES FOR BEGINNING AND COMPLETION OF ENGINEERING STUDIES TO EVALUATE EMISSION CONTROL SYSTEMS OR PROCESS CHANGES FOR EMISSIONS:

Onyx Environmental Services commenced engineering studies on carbon injection systems and the recycling of pollution control residues for emission control on January 2, 2000. Onyx expects these studies to be completed and a determination of the control system and/or process system upgrades to be made by August 1, 2000.

Addendum A

NOTIFICATION OF INTENT TO COMPLY

Page 3

- (B) THE DATE BY WHICH YOU WILL COMMIT INTERNAL OR EXTERNAL RESOURCES FOR INSTALLING EMISSION CONTROL SYSTEMS OR MAKING PROCESS CHANGES FOR EMISSION CONTROL, OR THE DATE BY WHICH YOU WILL ISSUE ORDERS FOR THE PURCHASE OF COMPONENT PARTS TO ACCOMPLISH EMISSION CONTROL OR PROCESS CHANGES:

October 15, 2000

- (C) THE DATE BY WHICH YOU WILL SUBMIT CONSTRUCTION APPLICATIONS:

October 15, 2000

- (D) THE DATE BY WHICH YOU WILL INITIATE ON-SITE CONSTRUCTION, INSTALLATION OF EMISSION CONTROL EQUIPMENT, OR PROCESS CHANGES:

November 15, 2000 contingent on EPA approval of construction permit.

- (E) DATE TO COMPLETE ON-SITE CONSTRUCTION, INSTALLATION OF EMISSION CONTROL EQUIPMENT, OR PROCESS CHANGES:

January 1, 2001

- (F) THE DATE BY WHICH YOU WILL ACHIEVE FINAL COMPLIANCE:

September 30, 2002

(ii) **SUMMARY OF PUBLIC MEETING**

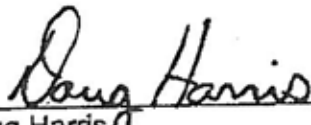
Onyx Environmental Services notified the Public of the intended date of the NIC public meeting by placing a display advertisement in the Belleville News-Democrat on June 19, 2000. A radio broadcast was made on June 23, 2000 at 12:30 PM on WESL, 1490 AM. Onyx notified its mailing list via a Public Meeting Announcement mailing on June 23, 2000. A sign notifying the Public of the NIC meeting was posted outside the Facility on June 23, 2000 and remained posted until after the meeting date. The informal public meeting was held on July 25, 2000 at 1 PM at the Sauget Village Hall. There was no public attendance at this meeting and no written comments were submitted.

Addendum A

NOTIFICATION OF INTENT TO COMPLY  
PAGE 4

40 CFR§63.1212(a)(1)  
CERTIFICATION OF INTENT TO COMPLY

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

  
\_\_\_\_\_  
Doug Harris  
General Manager

9/28/00  
\_\_\_\_\_  
Date



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

P.O. Box 19506, SPRINGFIELD, ILLINOIS 62794-9506

THOMAS V. SKINNER, DIRECTOR

217/782-2112

## OPERATING PERMIT - REVISED

### PERMITTEE

AETS, L.L.C.  
Attn: Mr. Tom Bramlette  
7 Mobile Avenue  
Sauget, Illinois 62201-1069

Application No.: 83120053  
Application's Designation: INCIR #2  
Subject: TWI-2000 Incinerator Unit 2  
Date Issued: February 18, 1998  
Location: 7 Mobile Avenue, Sauget

I.D. No.: 163121AAP  
Date Received: February 13, 1997  
Expiration Date: February 17, 2003

Permit is hereby granted to the above-designated Permittee to OPERATE emission(s) and/or air pollution control equipment consisting of a TWI-2000 Series 2 incinerator with a Joy Spray Dry Adsorber and Fabric Filter as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. Particulate matter emissions from the incinerator shall not exceed 0.08 grains per dry standard cubic foot of the gas discharge to the atmosphere, pursuant to 35 Ill. Adm. Code 212.181(b).
2. Carbon monoxide emissions from the incinerator shall not exceed 500 parts per million corrected to 50 percent excess air, pursuant to 35 Ill. Adm. Code 216.141.
3. The physical form of the liquid and sludge wastes shall not exceed the burner or nozzle manufacturer's specifications.
4. The drum pump, pressure feeder and solids feeder/shredder are the only specialty feeders which may be used in conjunction with, or connected, to Fixed Hearth Incinerator No. 2. Only one specialty feeder may be connected to the incinerator at any one time.
5. The total feed rate of chlorine to each incinerator shall not exceed 233 lb/hr.
6. The heat input of containerized solids or lab packs fed shall not exceed 750,000 Btu/charge of material.
7. The lab packs incinerated at the site must not exceed the limits approved through the Small Quantity Chemical Guidelines referenced in the Waste Analysis Plan.



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

P.O. Box 19506, Springfield, Illinois 62794-9506

THOMAS V. SKINNER, DIRECTOR

217/782-2112

## OPERATING PERMIT - REVISED

### PERMITTEE

AETS, L.L.C.  
Attn: Mr. Tom Bramlette  
7 Mobile Avenue  
Sauget, Illinois 62201-1069

Application No.: 87100024  
Application's Designation: INCIR #3  
Subject: TWI-2000 Incinerator Unit 3  
Date Issued: February 18, 1998  
Location: 7 Mobile Avenue, Sauget

I.D. No.: 163121AAP  
Date Received: February 13, 1997  
Expiration Date: February 17, 2003

Permit is hereby granted to the above-designated Permittee to OPERATE emission(s) and/or air pollution control equipment consisting of a TWI-2000 Series 2 incinerator with a Joy Spray Dry Adsorber and Fabric Filter, ten 12,000 gal. tanks, Aerosol Can Processor, Specialty Feeder Fume Control, and Truck Unload Station, two glove boxes as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. Particulate matter emissions for the incinerator shall not exceed 0.08 grains per dry standard cubic foot of the gas discharge to the atmosphere, pursuant to 35 Ill. Adm. Code 212.181(b).
2. Carbon monoxide emissions from the incinerator shall not exceed 500 parts per million corrected to 50 percent excess air, pursuant to 35 Ill. Adm. Code 216.141.
3. The physical form of the liquid and sludge wastes shall not exceed the burner or nozzle manufacturer's specifications.
4. The drum pump, pressure feeder and solids feeder/shredder are the only specialty feeders which may be used in conjunction with, or connected, to Fixed Hearth Incinerator No. 3. Only one specialty feeder may be connected to the incinerator at any one time.
5. The total feed rate of chlorine to each incinerator shall not exceed 233 lb/hr.
6. The heat input of containerized solids or lab packs fed shall not exceed 750,000 Btu/charge of material.
7. The lab packs incinerated at the site must not exceed the limits approved through the Small Quantity Chemical Guidelines referenced in the Waste Analysis Plan.



State of Illinois

# ENVIRONMENTAL PROTECTION AGENCY

APR 3 1994

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217-782-2113

## OPERATING PERMIT

### PERMITTEE

Trade Waste Incineration  
Attn: Mr. Charles Eifler  
7 Mobile Ave.  
Sauger, IL 62201-1069

Application No.: 90020011

I.D. No.: 163121AAP

Applicant's Designation: INCIN # 4

Date Received: December 29, 1994

Subject: Transportable Rotary Kiln Incinerator (TRKI #4)

Date Issued: March 28, 1995

Expiration Date: June 30, 1998

Location: 7 Mobile Ave, Sauger

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of Unit #4 Incinerator and associated equipment and sixteen 30,000 gal. storage tanks as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1. This operating permit becomes effective upon dismissal of the permit appeal, PCB 94-170.
2. The physical form of the liquid and sludge wastes must not exceed the burner or nozzle manufacturer's specifications.
3. The total feed rate of chlorine to the incinerator system must not exceed 500 lb/hr.
4. The heat input of the solids or lab packs fed to the kiln shall be limited to 2,000,000 Btu/Charge of material.
5. The lab packs incinerated at the site must not exceed the limits approved through the Small Quantity Chemical Guidelines referenced in the Waste Analysis Plan.
6. The total thermal loading to the incinerator from all waste must be less than 50 million Btu/hr.
7. Waste derived fuels fed to the SCC waste burner must have a heating value greater than 13,000 Btu/lb and a viscosity within the burner manufacturer's specifications.

ILLINOIS



Illinois  
Department of  
Natural Resources

Office of Mines and Minerals

Oper #: 1004

VEOLIA E.S. TECHNICAL SOLUTIONS, L.L.C.

#7 MOBILE AVENUE

SAUGET, IL 62201-1069

HAS PAID THE REQUIRED FEE AND IS HEREBY ISSUED A

# STORAGE CERTIFICATE

Not exceeding 100,000 pounds/count of explosives

Under an "Illinois Explosives Act"  
Approved January 1, 1990

Effective Date: 3/1/2009

Certificate No.: 8918

Expires: Last day of February, 2010

Director  
Office of Mines  
and Minerals



## DEPARTMENT OF THE TREASURY - BUREAU OF ALCOHOL, TOBACCO AND FIREARMS

## LICENSE/PERMIT (18 U.S.C. CHAPTER 40, EXPLOSIVES)

In accordance with the provisions of Title XI, Organized Crime Control Act of 1970, and the regulations issued thereunder (27 CFR Part 555) you may engage in the activity specified in this license/permit within the limitations of Chapter 40, Title 18, United States Code and the regulations issued thereunder, until the expiration date shown. See "WARNING" and "NOTICES" on back.

DIRECT ATF  
CORRESPONDENCE  
TO

Christopher R. Reeves  
Chief, Federal Explosives Licensing Center & ELC  
Bureau of Alcohol, Tobacco, Firearms and Explosives  
244 Neady Road  
Martinsburg, West Virginia 25401-9901  
Telephone: 1-877-283-3332 Fax: 1-304-283-3143

NAME

TRADE WASTE INCINERATION

TYPE OF LICENSE OR PERMIT

33-USER OF HIGH EXPLOSIVES

CHIEF, FEDERAL EXPLOSIVES LICENSING CENTER &amp; ELC

*Christopher R. Reeves*  
Chief, Federal Explosives Licensing Center & ELC

## PURCHASING CERTIFICATION

I certify that this is a true copy of a license/permit  
issued to me to engage in the activity specified.

(SIGNATURE OF LICENSEE/PERMITTEE)

The licensee/permittee named herein shall use a reproduction of this  
license/permit to assist a transferor of explosives to verify the identity  
and status of the licensee/permittee as provided in 27 CFR Part 555.  
The signature on each reproduction must be an ORIGINAL signature.

ATF F 5400.14/5400.15, Part 1 (8/99)

PERMIT  
NUMBER

3-IL-101-23-RG-12962

EXPIRATION  
DATE

July 1, 2008

Premises Address CHANGES? You must notify the FELC at least 10 days before the move.

7 MOBILE ST  
SAUGET, IL 62201-0000

Mailing Address CHANGES? You must notify the FELC at least 10 days before the change.

ONYX ENVIRONMENTAL SERVICES  
TRADE WASTE INCINERATION  
7 MOBILE ST  
SAUGET, IL 62201-1089

Addendum A



DEFENSE LOGISTICS AGENCY  
DEFENSE CONTRACT MANAGEMENT COMMAND  
DEFENSE CONTRACT MANAGEMENT AREA OPERATIONS ST. LOUIS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2812



IN REPLY  
REFER TO

DCMDW-GLQ (D. Kleinhauer/(314)331-5757/sm)

20 Jul 94

SUBJECT: Capability Review, Trade Waste Incineration, Sauget, IL

THRU: DCMDW-GLQ/Elmer Powell

*JP 7/20/94*

TO: DCMO Birmingham  
ATTN: DCMDS-GRAB/MS. Cunningham  
2121 8th Avenue North, Room 104  
Birmingham, AL 35203-2376

1. Reference: DCMDS-GRAB letter, 5 Jul 94, subject as above.

2. A capability review of Trade Waste Incineration (TWI), Sauget, IL, was conducted on 12, 13, and 15 Jul 94. Personnel contacted included Mr. Charlie Bifler, Director, Pyrotechnics, Explosives and Propellants (PEP) Business Development, Mr. Pat O'Shea, PEP Business Development, Mr. Wayne Vischer, TWI Technical Manager, Mr. Craig Ragland, Thermal Facilitator, and Mr. Bruce McClason, Explosives Safety Director. This review was conducted to determine if the above contractor could meet DoD 4145.2GM requirements for handling and disposal of DoD Hazard Class 1.3 ammonium perchlorate based propellant.

3. Operational Experience: TWI began operations in 1983 as a hazardous waste incinerator and obtained a PART B RCRA permit in 1988. TWI is currently incinerating propellants, flammables, combustibles, reactives, poisons, and corrosives. TWI cannot incinerate Dioxin, PCBs, or DoD Hazard Class 1.1 or 1.2 items because of quantity distance problems. Typical operations involve receipt of the material, inspection, and laboratory analysis to ensure that identification of the material is accurate and safe to handle and incinerate. Prior to incineration, all materials are stored in one of several storage areas depending on compatibility. When analysis and inspection are complete, the material is taken to a breakdown area where it is broken down into small quantities for incineration. When completed, the broken down material is taken to one of three incinerators and fed automatically into the incinerator.

4. Safety Program:

a. TWI implements a formal safety program headed by Mrs. Arlene Lyons. Mr. Bruce McClason, a 15 year U.S. Army Explosive Ordnance Disposal (EOD) Veteran, heads the explosive safety program which includes a formal 24 hour explosive safety training course for all personnel who will be required to handle explosives. The training covers explosive definition and terms, pyrotechnics, propellants, spills, emergencies, hazards, and handling. In addition, all employees receive a three-day orientation that includes plant safety requirements, basic fire fighting and extinguisher training, hazard communication, respirator fit/test, accident/injury reporting requirements, and PPE requirements. All employees receive annual refresher training on applicable job related requirements and all employees are required to

## Addendum A

DCRDW-GLQ

PAGE 2

SUBJECT: Capability Review, Trade Waste Incineration, Sauget, IL

satisfactorily complete on-the-job training with a responsible supervisor who determines when the employee has acquired the experience and expertise to perform his/her job unsupervised. All employees train and work to TWI Standard Division Practices (SDP) which meet the requirements for Standard Operating Procedures (SOP). Each explosive task has a SOP developed for it.

b. Prior to commencement of any new job project, a process safety meeting is held to discuss the hazards and concerns associated with the incoming material. In addition, a trial run may be held to ensure that all associated parties are clear on the job task requirements necessary to ensure a safe operation with the material to be handled.

c. Past EPA audits and the contractor's past OSHA 200 form are attached as supporting data.

5. Disposal Plan: TWI would use the following plan to incinerate the ammonium perchlorate:

a. AP will be unloaded in a permitted receiving area. The purpose for this unloading is to verify piece count and package volumes.

b. Material will be transferred and stored in TWI's bulk storage magazine.

c. Material will be transferred to an inspection/sampling area for 100% inspection and testing.

d. When the material is ready for incineration, up to 5,000 lb quantities will be removed from the magazine and sent to the processing area for breakdown into incineration quantities.

e. Material is taken to the incinerator and fed into the incinerator at feed rates in compliance with explosive test burn results and Part B RCRA permit requirements.

5. Fire Prevention/Protection: The site is provided with a dedicated fire protection water supply with fire hydrants throughout. The dedicated fire protection water supply is supplied by a 400,000 gallon water storage tank which delivers water to a 3,000 gpm at 125 psi diesel engine driven fire pump. Yard hydrants are located throughout along with fire hose stations containing 50 feet of 2-1/2 inch hose, 100 feet of 1-1/2 inch hose, and two 1-1/2 inch nozzles. The facility is provided with a manual fire alarm system monitored on a fire alarm control panel at the Security/Guard House which is manned 24 hours a day. The alarm system is not directly tied into the City of Sauget Fire Department. Automatic sprinkler systems are located throughout all facilities and storage areas including the bulk storage magazine. Fire extinguishers are also located throughout the facility and kept within NFPA

## Addendum A

DCMDW-GLO

PAGE 3

SUBJECT: Capability Review, Trade Waste Incineration, Sauget, IL

10 requirements. In the event of a fire that was beyond the incipient stage, the City of Sauget full time Fire Department would respond upon notification. All TWI employees receive basic fire fighting training which includes the use of fire extinguishers and hoses and fire extinguishing media compatibility.

6. Licenses and Permits: TWI has all required licensing from the BATF for explosive handling and storage and all required EPA licensing for handling and incineration of hazardous waste.

7. Current Facilities: Facilities that would be involved with the incineration of ammonium perchlorate based propellant include one bulk storage magazine with a 30,000 lb DoD Hazard Class 1.3 limit, three incinerators, each to have a 1,000 lb DoD Hazard Class 1.3 limit, and two processing areas, each having a 5,000 lb Hazard Class 1.3 limit. All areas were reviewed and found to be in compliance with DoD 4145.26M with the exception of the following observations:

a. All facilities handling 1.3 hazard class explosive will require a DoD 1.3 fire hazard symbol.

b. All facilities handling 1.3 hazard class explosive will require suitable personnel and explosive limits to be posted as discussed.

c. TWI will also require a written fire agreement between themselves and the City of Sauget, IL.

d. A letter of intent from TWI is attached as supporting data. This letter states that TWI will correct the above observations and comply with all applicable DoD 4125.26M, Safety Requirements.

8. Waivers and Exemptions: N/A

9. Subcontracting Out: N/A

10. Quantity Distance: The contractor's site plan was reviewed and found acceptable in meeting DoD 4145.26M requirements with the following observations being noted:

a. The contractor's magazine will be sited for 30,000 lbs of DoD Hazard Class 1.3 materials.

b. Distance from the magazine to the west property line is 83 feet. The DoD requirement for 30,000 lbs of 1.3 to inhabited building distance is 215 feet. However, the land past TWI's west property line meets the definition of uninhabitable. The contractor meets this QD requirement per DoD 4145.26M (Ch 6, para 86g).

Addendum A

DCMDW-GLQ

PAGE 4

SUBJECT: Capability Review, Trade Waste Incineration, Sangre, II.

c. Distance from the magazine to the east property line is 203 feet. However, the land past TWI's east property line meets the definition of uninhabitable. The contractor meets this QD requirement per DoD 4145.26X (Ch 6, para 86g).

d. TWI currently meets DoD 4145.26X requirements for the limits that they have set for their bulk storage magazine, incinerators, and preparation areas. The undersigned also discussed with TWI that these limits would include both commercial and DoD 1.3 materials and that the limits could not be separated into two different poundages or limits.

11. Recommendation, Conclusions and Summary:

a. The contractor can meet DoD 4145.26X requirements for handling and disposal of DoD Hazard Class 1.3 materials at the limits noted above.

b. If TWI is awarded a Purchase Order by Atlantic Research Corp., a safety delegation will be required to be sent to this office from the cognizant safety specialist.

5 Encl

*Dennis M. Klinebauer*

DENNIS M. KLINEBAUER  
Safety & Occupational Health Specialist  
Quality Assurance Division

cc:  
DCMDW-0A/J. Walters  
DCMDS-GBQ/M. Smith

## **CERCLA – Letter of Eligibility**

JUN 24 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

CERTIFIED MAIL  
RETURN REQUEST REQUESTED

REPLY TO THE ATTENTION OF

HR-BJ

Charles T. Eifler, General Manager  
Chemical Waste Management  
Trade Waste Incinerator Division  
7 Mobile Avenue  
Sauget, Illinois 62201-1069

Re: Off-Site Rule  
Trade Waste Incineration (CWM)  
ILD 098 642 424

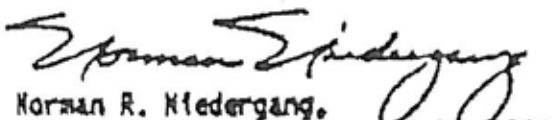
Dear Mr. Eifler:

The United States Environmental Protection Agency previously informed you in a letter dated July 15, 1993, that your facility is unacceptable to receive waste from Superfund response actions.

Information we obtained from the Illinois Environmental Protection Agency (IEPA) about the last Compliance Evaluation Inspection March 22, 23, and 24, 1995, indicated to us that you have no additional violations and all previous violations were resolved through the Consent Order June 1, 1995, with IEPA. Therefore, your facility is now acceptable to receive waste from Superfund response actions.

If you have any further questions, please contact Gertrud Matuschkovitz at (312) 353-7921, United States Environmental Protection Agency HRE-BJ, 77 West Jackson Boulevard, Chicago, Illinois 60604.

Sincerely yours,

  
Norman R. Niedergang,  
Associate Division Director for RCRA  
Waste Management Division

cc: William Radlinski, IEPA  
Michael Grant, IEPA, Collinsville Office

Addendum A #4



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 • (217) 782-2829  
James R. Thompson Center, 100 West Randolph, Suite 11-300, Chicago, IL 60601 • (312) 814-6026

PAT QUINN, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

618/346-5120

Fax: 618/346-5155

July 8, 2009

Veolia Environmental Services  
Attn.: Doug Harris - General Manager  
7 Mobile Avenue  
Sauget, Illinois 62201

RE: 1631210009 - St. Clair County  
Veolia Environmental Services  
ILD098624424  
Compliance File

Dear Mr. Harris:

On May 28<sup>th</sup> and May 29<sup>th</sup>, 2009, an inspection of the above referenced site was conducted by Mike Grant representing the Illinois Environmental Protection Agency. The purpose of this inspection was to determine the site's compliance with the Illinois Environmental Protection Act and 35 Illinois Administrative Code 35 Ill. Adm. Code Part 722, subparts A-D: Part 724, Subparts A-I, I, J, O, BB, CC and EE, Part 728, Subparts A-E and Part 733 Subpart B regulations and the facility's RCRA Part B Permit.

No violations were noted at the time of this inspection. For your information, a copy of the inspection report is enclosed.

Please contact Mike Grant at 618/346-5120 if you have any questions regarding this inspection.

Sincerely,

Chris N. Cahnovsky, Regional Manager  
Field Operations Section  
Bureau of Land

CNC:MDG;jlb/veolianov7809

Enclosure

Rockford • 4302 N. Main St., Rockford, IL 61103 • (815) 987-7760

Elgin • 595 S. State, Elgin, IL 60123 • (847) 608-3131

Bureau of Land - Peoria • 7620 N. University St., Peoria, IL 61614 • (309) 693-5462

Collinsville • 2009 Mall Street, Collinsville, IL 62234 • (618) 346-5120

Des Plaines • 9511 W. Harrison St., Des Plaines, IL 60016 • (847) 294-4000

Peoria • 5415 N. University St., Peoria, IL 61614 • (309) 693-5463

Champaign • 2125 S. First St., Champaign, IL 61820 • (217) 278-5800

Marion • 2309 W. Main St., Suite 116, Marion, IL 62959 • (618) 993-7200

COMPLETED DATE: 07/02/09

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**

BUREAU OF LAND / FIELD OPERATIONS SECTION

**RCRA INSPECTION REPORT****GENERAL FACILITY INFORMATION**

USEPA ID #:	ILD098642424	BOL ID #:	1631210009
Facility Name:	Veolia Environmental Services	Phone #:	618/271-2804
Location	#7 Mobile Avenue	County:	St Clair
City:	Sauget	State:	Illinois
		Zip Code:	62201
Region:	Collinsville	Inspection Date:	05/28/09 05/29/09
		Time:	13:00 - 15:30 8:40 - 15:15
Weather:	Overcast ~65, Partly Sunny ~75		

**FACILITY TYPE**

Notified As:	G-1/TS	Regulated As:	G-1/TS
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**INSPECTION TYPE**

CEI:	<input checked="" type="checkbox"/>	GME:	<input type="checkbox"/>	OAM:	<input type="checkbox"/>	NRR:	<input type="checkbox"/>	CSE:	<input type="checkbox"/>	CAO:	<input type="checkbox"/>	FUI to:	
FCI (Other):												CCI:	<input type="checkbox"/>
												CSI:	<input type="checkbox"/>

**NOTIFICATION DATES (EPA 8700-12)**

Initial:	07/18/80	Subsequent:	06/14/06
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**PART A PERMIT DATES (EPA 3510-3 OR EPA 8700-23)**

Initial:	11/18/80	Amended:	06/14/06	Withdrawn:	
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**PART B PERMIT**

(Check one if applicable) Application Submitted?	<input type="checkbox"/>	Permit Issued?	<input checked="" type="checkbox"/>	Date:	03/31/88
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**ACTIVE ENFORCEMENT**

Date facility referred to:	USEPA:	IAGO:	County State's Attorney:
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**ACTIVE ENFORCEMENT ORDERS**

CACO:	CAFO:	Federal Court Order:
Consent Decree:	11/08/05	IPCB Order:
		State Court Order:

### TSD FACILITY ACTIVITY SUMMARY

Activity by Process Code	On Part A?	On Part B?	Activity ever done?	Closed?	Being done during inspection?	Exempt per 35 IAC Sec:
T03 - Incinerator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
T04 - Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S01 - Container	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S02 - Tank	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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#### OWNER

#### OPERATOR

<b>Name:</b>	Veolia Environmental Services	<b>Name:</b>	Veolia Environmental Services
<b>Address:</b>	700 East Butterfield	<b>Address:</b>	700 East Butterfield
<b>City:</b>	Lombard	<b>City:</b>	Lombard
<b>State:</b>	Illinois	<b>State:</b>	Illinois
<b>Zip Code:</b>	60148	<b>Zip Code:</b>	60148
<b>Phone #:</b>	630/218-1647	<b>Phone #:</b>	630/218-1647

PERSON(S) INTERVIEWED	TITLE	PHONE #
Dennis Warchol	Environmental Manager	618/271-2804
George Smith	Operations Manager	618/271-2804

INSPECTION PARTICIPANTS	AGENCY/BUREAU	PHONE #
*Mike Grant	IEPA/BOL/FOS	618/346-5120

\*Report prepared by this person.

### SUMMARY OF APPARENT VIOLATIONS

SECTION	X	SECTION	X	SECTION	X
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
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	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

X = CONTINUING VIOLATIONS

# HAZARDOUS WASTE DISPOSITION FORM

Facility Name: Veolia Environmental Services		USEPA ID #: ILD098624424										
Inspection Date: May 28 & 29, 2009		IEPA ID #: 1631210009										
Waste Name	Generating Process	Last Analysis Date	USEPA HW #	On Notif.? (8700-12)	On Part A? (3510-3 or 8700-23)	On Annual Report for Years:			Amount On-Site	Generation Rate	Last Manifest Date	Disposition
						2006	2007	2008				
Incinerator Ash	Incinerator Residue	Analyzed quarterly for LDRs	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1 R/O 5 Tr'l's	1-2 R/O a day	05/26/09	EQ -Michigan
DSS	Dry Scrubber Solids	Analyzed quarterly For LDRs	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5 Tr'l's	1 Trailer a Day	05/26/09	EQ - Michigan
Crushed Drums	RCRA MT Drums	N/A	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2 Trailers	1 Trailer a week	05/20/09	Waste Management - Milam
Fluorescent and HI Sodium Bulbs	Bulb Replacement	K	UW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 cy/box of 4'	Varies	07/24/08	Onyx Port Washington, WI
Used Oil	Equipment Maintenance	K	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2 Drums	4 drs/mo	N/A	Incinerated On-site
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
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				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

## NARRATIVE

On May 28<sup>th</sup> and 29<sup>th</sup>, 2009, an inspection was conducted at the Veolia Environmental Services (VES) facility in Sauget, Illinois. Upon arrival at the site I met with the Dennis Warchol, Environmental Manager. VES is an incinerator of hazardous and non-hazardous wastes. The facility received their RCRA Part B permit on March 31, 1988. The permit was last modified on February 7, 2003. This modification was in response to a Class 1 modification submitted May 15, 2002 and a Class 2 modification submitted on October 7, 2002. Both of these requests were for adding additional waste codes to the facility's Part B Permit. Those additional codes are K176, K177 and K178. These new listed waste codes are wastes generated by inorganic chemical manufacturing processes.

The facility's Part B Permit covers container storage, tank storage, decant/repackaging operations, waste feed systems and incineration. Container storage (S01) is permitted in the following areas of the facility; Container Storage 1A, 1B, 1C, 2A, 2B, 2C, Receiving Unit #3, Units 3A, 3B, and Building #6. The total permitted volume for container storage is 732,836 gallons. The Part B Permitted tank storage areas (S02) are Tank Farm #1 and Tank Farm #2. The total permitted volume of waste stored in tanks is 1,165,300 gallons.

There are three permitted incinerators (T03) at the facility. Incinerators #2 and #3 are fixed hearth incinerators and are located at the north end of the facility and incinerator #4 is a rotary kiln which is located at the south end. Along with the previously mentioned units, there are also several miscellaneous units (T04) that are also covered by the facility's Part B Permit. The facility has a Direct Inject Building at each end of the facility. The Direct Inject Building located at the south end is also used for bulk unloading into Tank Farm #2. There are two Drum Decant/Material Processing areas at the north end, MP1 and MP2. Container Storage Area 2B is also permitted for lab pack repackaging.

The facility's Part B Permit expired on May 8, 1998. A new application was submitted on November 6, 1997. The application was deemed complete on April 17, 1998 and the Agency has begun its technical review. The Agency issued a Notice of Deficiencies (NOD) on June 2, 1999. VES responded to the NOD on August 30, 1999. A second NOD dated December 9, 1999, was sent to the facility after the Agency completed its second technical review. On January 7, 2000, VES submitted their response. On November 16, 2000, VES submitted their response to the Agency's NOD dated October 17, 2000. On July 10, 2007, additional information was submitted to the Agency regarding the name change request to Veolia Environmental Services for the Part B Renewal Application. Section 702.125 allows the

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facility to continue operating pursuant to the expired permit until the new permit is issued.

Incinerators #2 and #3 are permitted at a heat input rate of 16-million Btu/hr. The system includes a batch lime preparation system, spray dryer absorber, fabric filter baghouse and an ash conveying system. Both incinerators #2 and #3 are computer automated and are operated through the use of a keyboard and terminal. Each unit has one specialty feeder port.

Unit #2 has a compressed gas cylinder feed system, a direct inject liquid feed system and a specialty container feeder. Unit #3 has a hooded specialty container feeder (fume control system), a glove box emission control system and a direct inject liquid feed system. Since these units are equipped with one port, only one feeder can be used at a time. These feeders are used to transfer waste that may be difficult to handle (will not pump) or waste that needs special handling/precautions (reactive/explosive).

Unit #4 is a rotary kiln incinerator with a heat release capability of 50-million Btu/hr. Along with the liquid and containerized waste feeds on this unit, it is also equipped to feed bulk solids (i.e. contaminated dirt). A bulk storage building with four bins is used to contain the waste. The waste is fed to the incinerator via a clamshell bucket operated on a tram. Bulk solids are loaded into the unit via a chute (bulk loading), or a screw conveyor that feeds the soil at a controlled rate. At the time of this inspection Unit #4 was shutdown for routine maintenance and clean-out.

As a result of these operations, the facility generates the following wastes. Incinerators #2, #3 and #4 generate incinerator ash (D008) and dry scrubber solids (D008). The incinerator ash is stored in 20 yd<sup>3</sup> roll-off boxes and in dump trailers. The dry scrubber solids are collected in a 5000-gallon pneumatic tanker trailer and dump trailers. The roll-offs of ash and trailers of scrubber solids were being stored closed and were labeled as required. The facility generates fluorescent bulbs and high intensity sodium bulbs. These bulbs are managed as Universal Wastes and are shipped to the VES facility in Port Washington, Wisconsin. There was one partial 1-cy box of four foot fluorescent tubes in accumulation at the time of this inspection. The last shipment of Universal Waste bulbs was made on July 24, 2008. Empty drums that are not recycled are crushed and disposed at the Milam Landfill. The facility also generates approximately 4 drums a month of used oil. The used oil is incinerated on-site. There were two trailers of crushed drums and two drums of used oil on-site at the time of this inspection.

Due to the land disposal restrictions, the ash generated from Incinerator 2 and 3 is reburned in #4. These residues are placed in the bulk pits and fed to #4 via the clamshell. The residues generated from #4 (ash and dry scrubber solids) are assigned with all of the waste codes that

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VES is permitted to accept. This procedure assumes that the ash and dry scrubber solids contain all the waste codes, with the exception of those codes VES will not/cannot accept. These wastes are analyzed quarterly for compliance with the treatment standards for the organic constituents. These wastes must be further treated at the receiving facility prior to disposal. The dry scrubber solids and incinerator ash are being shipped to EQ in Belleville Michigan. A LDR notice is shipped with every load of ash to EQ in Belleville, Michigan. Stabilization is conducted to ensure the inorganic treatment parameters are met. At the time of this inspection, there were 5 dump trailers of ash in accumulation for offsite shipment and 1 roll-off container of ash to be reburied at Unit #4. There were also 5 dump trailers of dry scrubber solids in accumulation at the time of this inspection.

With respect to the Subpart CC requirements, VES is managing all of their tanks in accordance with the Benzene NESHAP regulations. The tanks are equipped with carbon canisters to control organic emissions. The bulk pits associated with the #4 incinerator are also managed in accordance with the NESHAP regulations. All containers received and subsequently stored must be in DOT approved containers. A Subpart CC Visual Inspection Form is completed for each manifested load. The inspection is conducted and certified by the transporter that the closure devices are intact and no visible cracks or holes could be observed. The facility also records and conducts monitoring to comply with Subpart BB. The Master List for all of the equipment subject to Subpart BB was last updated on January 26, 2009. Pumps are monitored monthly, PRVs and conservation vents are monitored every 5 days and the valves are monitored annually. The last annual valve monitoring was conducted over several days in December of 2008.

Receiver numbers are unique numbers assigned to each individual hazardous waste entered on line item 9 (formerly line 11) of the Uniform Hazardous Waste Manifests that accompanies the waste to the facility. That Receiver Number is cross-referenced to the Waste Profile Sheet that the facility has on file for that waste stream. A bar code is placed upon each container with the Receiver Number and each movement of that container is scanned. That data is then downloaded into the waste tracking system. I asked Mr. Warchol what the date of the oldest container in storage was. He informed me it was a plugged cylinder which they could not process. The Receiver Number is 327597, it was received on June 19, 2008. It is currently being stored in Building 3, Row 4 and approval has been received to ship the cylinder to SET Environmental, Inc.

All drum storage areas, material processing areas, both tank farms and the three incinerators were observed. Veolia is using Bay 3, Rows 19-21 in Receiving Building 3 for 10-day transfer containers. Cameras have been placed in the Unit 2/3 Direct Inject building and in

1631210009 – St. Clair County  
Sauget/Veolia Environmental Services  
ILD098642424  
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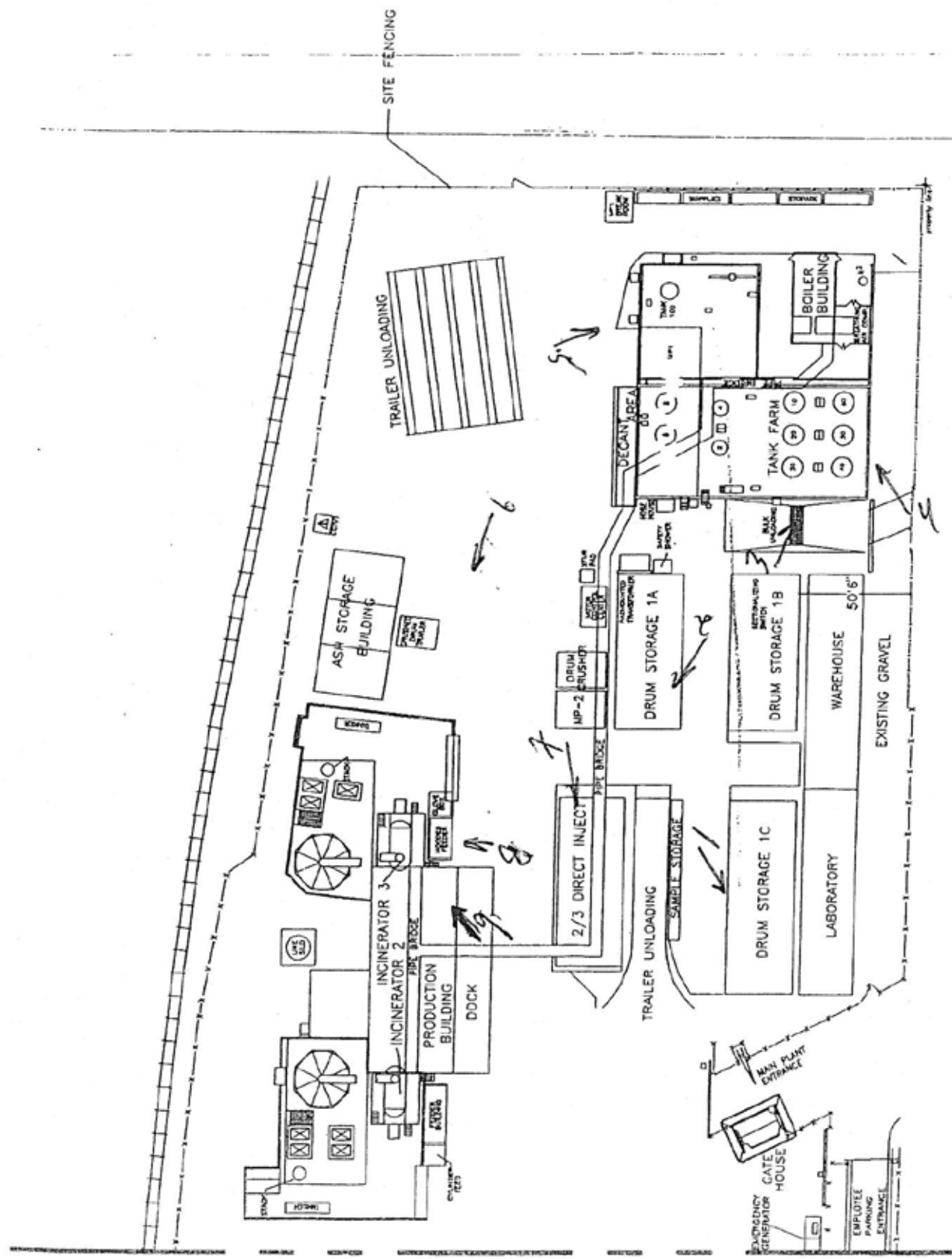
Building 6 at Unit 4. This allows the operators to observe these areas. Building 6 holds the explosive waste just prior to incinerator after it is moved from the facility's explosive magazine.

The facility sent in a Class 1 Modification for the Part B Permit on January 6, 2009. This modification was filed to reflect the changes made in December of 2008 to the facility's Contingency Plan. The changes were made to update the list of Emergency Coordinators. Annual employee's hazardous waste training was last conducted in February and March of 2009. After the results of the October 2009, annual tank integrity testing, tank 30 was taken out of service. The results revealed that Tank 30 had reached its critical thickness. A new stainless steel tank was put into service on March 25, 2009 to replace Tank 30. With the exception of Tanks 40, 50, and 60, all tanks onsite now are constructed of stainless steel. Tanks 40, 50 and 60 are all aqueous storage tanks (low btu liquids). In addition to the above mentioned records reviewed, I also reviewed manifests (both incoming and outgoing), incident reports and inspection and calibration records.

As a result of this inspection no apparent violations were observed.

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Sauget/Veolia Env. Svs.  
ILD098642424  
F05 File

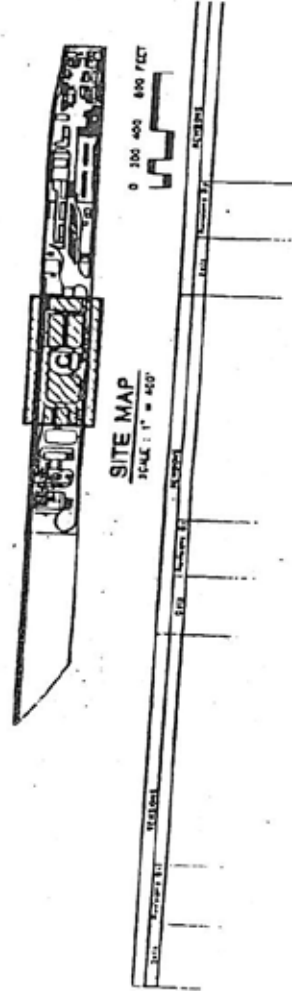
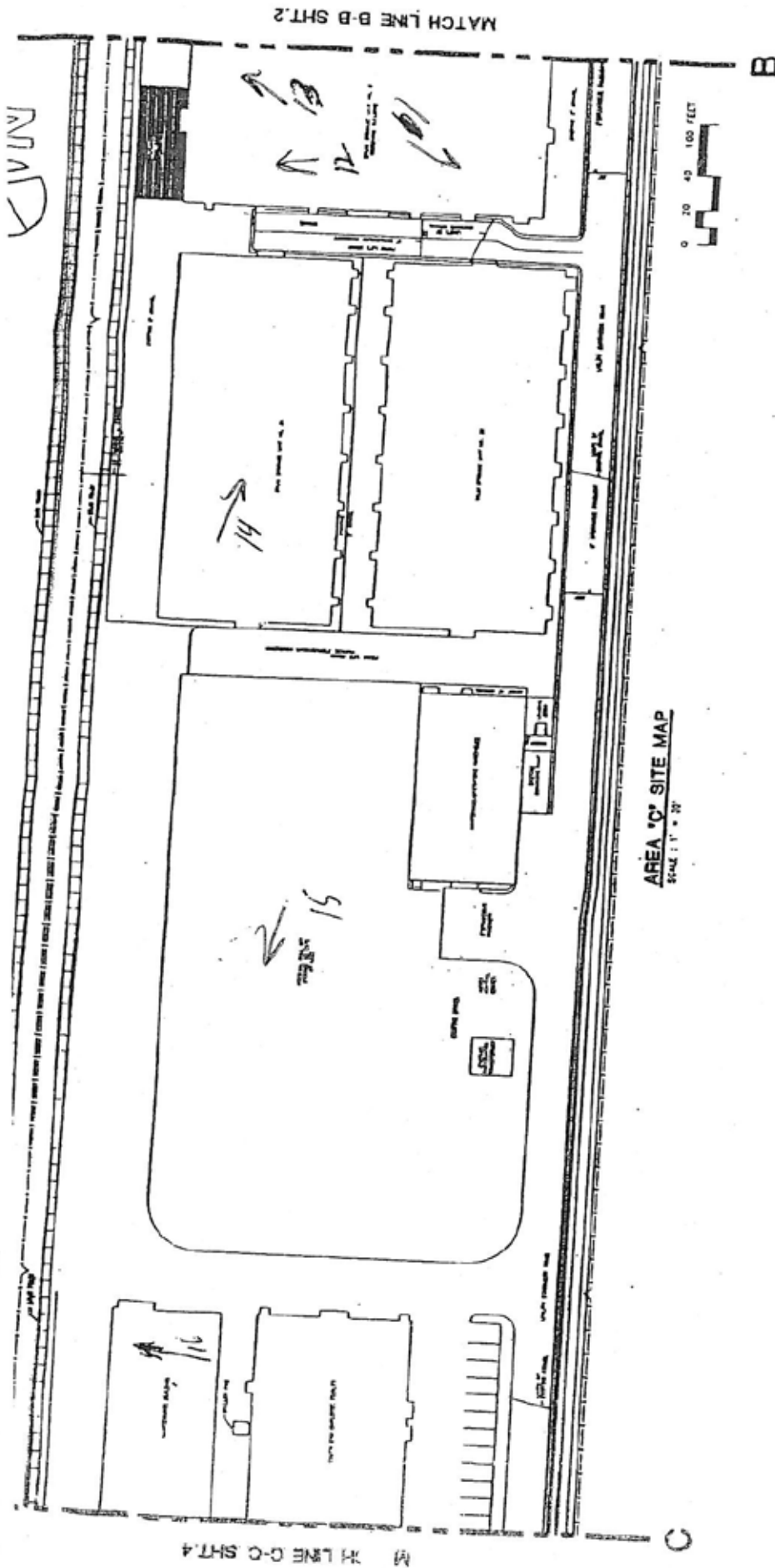
MATCH LINE SUPPORT MODULE



0 20

0 20

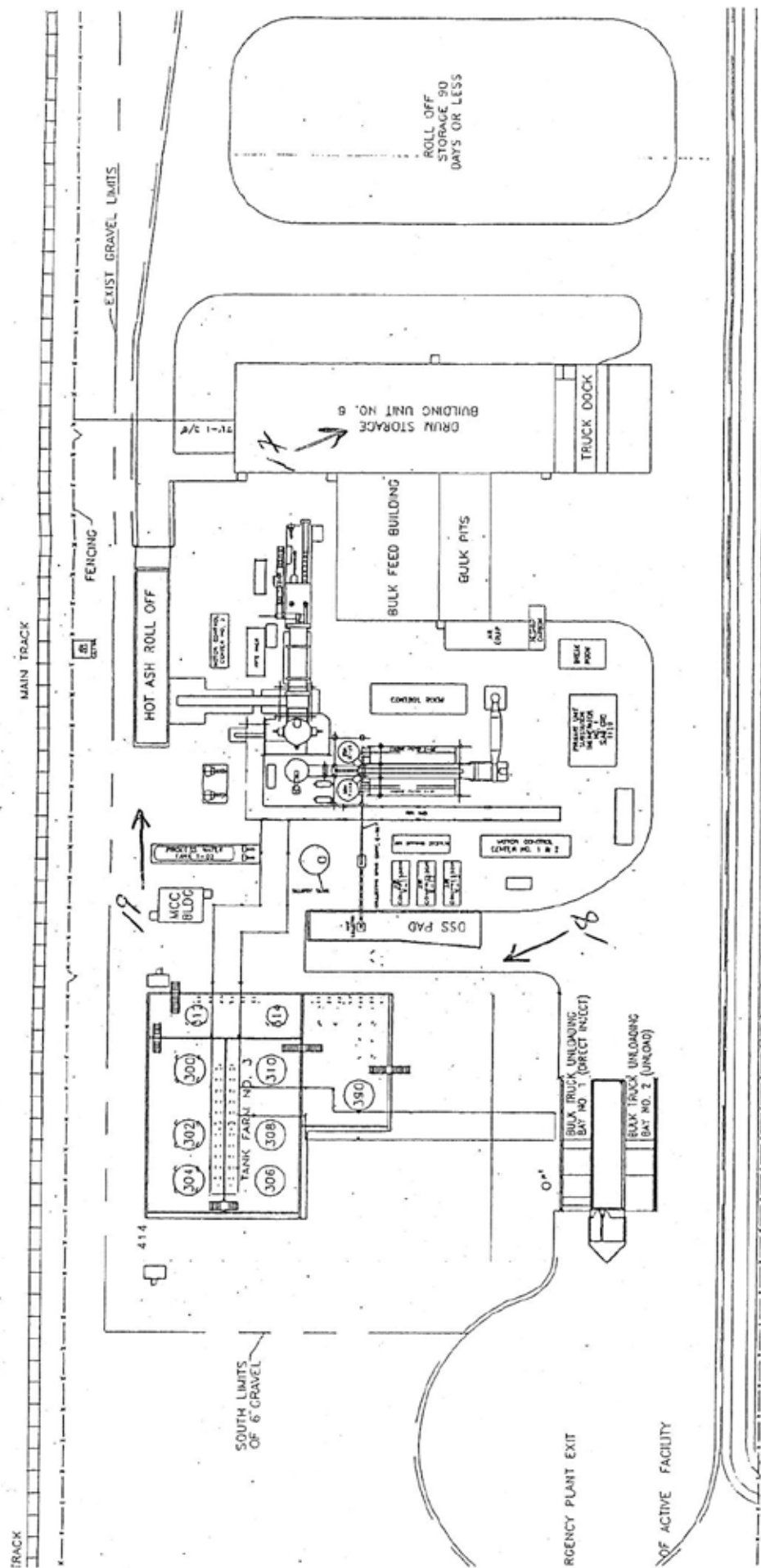




1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svs.  
ILD098642424  
FOS File

Project Name: S-1000A  
Project Number: 1631210009  
Revision: 1.0

Drawn By: J. Taylor  
Date: 10/1/2010





## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

618/346-5120  
Fax 618/346-5155

September 26, 2008

Veolia Environmental Services  
Attn.: Doug Harris - General Manager  
7 Mobile Avenue  
Sauget, Illinois 62201

RE: 1631210009 - St. Clair County  
Veolia Environmental Services  
ILD098624424  
Compliance File

Dear Mr. Harris:

On August 20<sup>th</sup> and August 21<sup>st</sup>, 2008, an inspection of the above referenced site was conducted by Mike Grant representing the Illinois Environmental Protection Agency. The purpose of this inspection was to determine the site's compliance with the Illinois Environmental Protection Act and 35 Illinois Administrative Code 35 Ill. Adm. Code Part 722, subparts A-D: Part 724, Subparts A-I, I, J, O, BB, CC and EE, Part 728, Subparts A-E and Part 733 Subpart B regulations and the facility's RCRA Part B Permit.

No violations were noted at the time of this inspection. For your information, a copy of the inspection report is enclosed.

Please contact Mike Grant at 618/346-5120 if you have any questions regarding this inspection.

Sincerely,

Chris N. Cahnovsky, Regional Manager  
Field Operations Section  
Bureau of Land

CNC:MDG;jlb/veolianov92808

Enclosure

ROCKFORD - 4302 North Main Street, Rockford, IL 61103 - (815) 987-7760 • DES PLAINES - 9511 W. Harrison St., Des Plaines, IL 60016 - (847) 294-4000  
ELGIN - 595 South State, Elgin, IL 60123 - (847) 608-3131 • PEORIA - 5415 N. University St., Peoria, IL 61614 - (309) 693-5463  
BUREAU OF LAND - PEORIA - 7620 N. University St., Peoria, IL 61614 - (309) 693-5462 • CHAMPAIGN - 2125 South First Street, Champaign, IL 61820 - (217) 278-5800  
SPRINGFIELD - 4500 S. Sixth Street Rd., Springfield, IL 62706 - (217) 786-6892 • COLLINSVILLE - 2009 Mall Street, Collinsville, IL 62234 - (618) 346-5120  
MARION - 2309 W. Main St., Suite 116, Marion, IL 62959 - (618) 993-7200

PRINTED ON RECYCLED PAPER

COMPLETED DATE: 09/24/08

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**

BUREAU OF LAND / FIELD OPERATIONS SECTION

**RCRA INSPECTION REPORT****GENERAL FACILITY INFORMATION**

USEPA ID #:	ILD098642424	BOL ID #:	1631210009
Facility Name:	Veolia Environmental Services	Phone #:	618/271-2804
Location	#7 Mobile Avenue	County:	St Clair
City:	Sauget	State:	Illinois
		Zip Code:	62201
Region:	Collinsville	Inspection Date:	08/20/08 08/21/08
		Time:	14:00 - 17:55 9:45 - 15:15
Weather:	Overcast ~80, Scattered Showers		

**FACILITY TYPE**

Notified As:	G-1/TS	Regulated As:	G-1/TS
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**INSPECTION TYPE**

CEI: <input checked="" type="checkbox"/>	GME: <input type="checkbox"/>	OAM: <input type="checkbox"/>	NRR: <input type="checkbox"/>	CSE: <input type="checkbox"/>	CAO: <input type="checkbox"/>	FUI to:
FCI (Other):						CCI: <input type="checkbox"/> CSI: <input type="checkbox"/>

**NOTIFICATION DATES (EPA 8700-12)**

Initial:	07/18/80	Subsequent:	06/14/06
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**PART A PERMIT DATES (EPA 3510-3 OR EPA 8700-23)**

Initial:	11/18/80	Amended:	06/14/06	Withdrawn:
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**PART B PERMIT**

(Check one if applicable) Application Submitted?	<input type="checkbox"/>	Permit Issued?	<input checked="" type="checkbox"/>	Date:	03/31/88
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**ACTIVE ENFORCEMENT**

Date facility referred to:	USEPA:	IAGO:	County State's Attorney:
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**ACTIVE ENFORCEMENT ORDERS**

CACO:	CAFO:	Federal Court Order:
Consent Decree:	11/08/05	IPCB Order:
		State Court Order:

### TSD FACILITY ACTIVITY SUMMARY

Activity by Process Code	On Part A?	On Part B?	Activity ever done?	Closed?	Being done during inspection?	Exempt per 35 IAC Sec:
T03 - Incinerator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
T04 - Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S01 - Container	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S02 - Tank	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### OWNER

#### OPERATOR

<b>Name:</b> Veolia Environmental Services	<b>Name:</b> Veolia Environmental Services
<b>Address:</b> 700 East Butterfield	<b>Address:</b> 700 East Butterfield
<b>City:</b> Lombard	<b>City:</b> Lombard
<b>State:</b> Illinois <b>Zip Code:</b> 60148	<b>State:</b> Illinois <b>Zip Code:</b> 60148
<b>Phone #:</b> 630/218-1647	<b>Phone #:</b> 630/218-1647

PERSON(S) INTERVIEWED	TITLE	PHONE #
Dennis Warchol	Environmental Manager	618/271-2804

INSPECTION PARTICIPANTS	AGENCY/BUREAU	PHONE #
*Mike Grant	IEPA/BOL/FOS	618/346-5120

\*Report prepared by this person.

### SUMMARY OF APPARENT VIOLATIONS

SECTION	X	SECTION	X	SECTION	X
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

X = CONTINUING VIOLATIONS

## NARRATIVE

On August 20<sup>th</sup> and 21<sup>st</sup>, 2008 an inspection was conducted at the Veolia Environmental Services (VES) facility in Sauget, Illinois. VES was formerly known as Onyx Environmental Services. VES submitted a revised Part A application dated June 14, 2006 reflecting the name change. Upon arrival at the site I met with the Dennis Warchol, Environmental Manager, VES is an incinerator of hazardous and non-hazardous wastes. The facility received their RCRA Part B permit on March 31, 1988. The permit was last modified on February 7, 2003. This modification was in response to a Class 1 modification submitted May 15, 2002 and a Class 2 modification submitted on October 7, 2002. Both of these requests were for adding additional waste codes to the facility's Part B Permit. Those additional codes are K176, K177 and K178. These new listed waste codes are wastes generated by inorganic chemical manufacturing processes.

The facility's Part B Permit covers container storage, tank storage, decant/repackaging operations, waste feed systems and incineration. Container storage (S01) is permitted in the following areas of the facility; Container Storage 1A, 1B, 1C, 2A, 2B, 2C, Receiving Unit #3, Unit 3A, 3B, and Building #6. The total permitted volume for container storage is 732,836 gallons. The Part B Permitted tank storage areas (S02) are Tank Farm #1 and Tank Farm #2. The total permitted volume of waste stored in tanks is 1,165,300 gallons.

There are three permitted incinerators (T03) at the facility. Incinerators #2 and #3 are fixed hearth incinerators and are located at the north end of the facility and incinerator #4 is a rotary kiln which is located at the south end. Along with the previously mentioned units, there are also several miscellaneous units (T04) that are also covered by the facility's Part B Permit. The facility has a Direct Inject Building at each end of the facility. The Direct Inject Building located at the south end is also used for bulk unloading into Tank Farm #2. There are two Drum Decant/Material Processing areas at the north end, MP1 and MP2. Container Storage Area 2B is also permitted for lab pack repackaging.

The facility's Part B Permit expired on May 8, 1998. A new application was submitted on November 6, 1997. The application was deemed complete on April 17, 1998 and the Agency has begun its technical review. The Agency issued a Notice of Deficiencies (NOD) on June 2, 1999. VES responded to the NOD on August 30, 1999. A second NOD dated December 9, 1999, was sent to the facility after the Agency completed its second technical review. On January 7, 2000, VES submitted their response. On November 16, 2000, VES submitted their response to the Agency's NOD dated October 17, 2000. On July 10, 2007, additional information was submitted to the Agency regarding the name change request to Veolia

Environmental Services for the Part B Renewal Application. Section 702.125 allows the facility to continue operating pursuant to the expired permit until the new permit is issued. A draft Permit is to be issued soon and go out for public comment.

Incinerators #2 and #3 are permitted at a heat input rate of 16-million Btu/hr. The system includes a batch lime preparation system, spray dryer absorber, fabric filter baghouse and an ash conveying system. Both incinerators #2 and #3 are computer automated and are operated through the use of a keyboard and terminal. Each unit has one specialty feeder port. Unit #2 has a compressed gas cylinder feed system, a direct inject liquid feed system and a specialty container feeder. Unit #3 has a hooded specialty container feeder (fume control system), a glove box emission control system and a direct inject liquid feed system. Since these units are equipped with one port, only one feeder can be used at a time. These feeders are used to transfer waste that may be difficult to handle (will not pump) or waste that needs special handling/precautions (reactive/explosive).

Unit #4 is a rotary kiln incinerator with a heat release capability of 50-million Btu/hr. Along with the liquid and containerized waste feeds on this unit, it is also equipped to feed bulk solids (i.e. contaminated dirt). A bulk storage building with four bins is used to contain the waste. The waste is fed to the incinerator via a clamshell bucket operated on a tram. Bulk solids are loaded into the unit via a chute (bulk loading), or a screw conveyor that feeds the soil at a controlled rate. At the time of this inspection Unit #4 was shutdown for routine maintenance and clean-out.

As a result of these operations, the facility generates the following wastes. Incinerators #2, #3 and #4 generate incinerator ash (D008) and dry scrubber solids (D008). The incinerator ash is stored in 20 yd<sup>3</sup> roll-off boxes and in dump trailers. The dry scrubber solids are collected in a 5000-gallon pneumatic tanker trailer and dump trailers. The roll-offs of ash and trailers of scrubber solids were being stored closed and were labeled as required. The facility generates fluorescent bulbs and high intensity sodium bulbs. These bulbs are managed as Universal Wastes and are shipped to the VES facility in Port Washington, Wisconsin. There were approximately 20 fluorescent tubes and three high sodium bulbs in accumulation at the time of this inspection. The last shipment of Universal Waste bulbs was made on July 22, 2008. Empty drums that are not recycled are crushed and disposed at the Milam Landfill. The facility also generates approximately 4 drums a month of used oil. The used oil is incinerated on-site. There was one partial trailer of crushed drums and one drum of used oil on-site at the time of this inspection.

Due to the land disposal restrictions, the ash generated from Incinerator 2 and 3 is reburned in #4. These residues are placed in the bulk pits and fed to #4 via the clamshell. The residues generated from #4 (ash and dry scrubber solids) are assigned with all of the waste codes that VES is permitted to accept. This procedure assumes that the ash and dry scrubber solids contain all the waste codes, with the exception of those codes VES will not/cannot accept. These wastes are analyzed quarterly for compliance with the treatment standards for the organic constituents. The quarterly certifications for these two waste streams were completed on June 6<sup>th</sup> and June 8 2008. These wastes must be further treated at the receiving facility prior to disposal. The dry scrubber solids and incinerator ash are being shipped to EQ in Belleville Michigan. A LDR notice is shipped with every load of ash to EQ in Belleville, Michigan. Stabilization is conducted to ensure the inorganic treatment parameters are met. At the time of this inspection, there were 8 roll-offs of incinerator ash and 4 dump trailers and 1 pneumatic tanker of dry scrubber solids.

On May 9, 2007, Veolia submitted a letter to the Agency regarding the recycling of dry scrubber solids. Veolia is proposing to ship the lime to the Sauget Industrial Treatment Plant (P-Chem) as a substitute for raw lime. The dry scrubber solids generated by Veolia contains approximately 50% unreacted lime and therefore could be used as a substitute for a raw material (lime). In a letter dated July 21, 2007, the Agency agreed with Veolia's proposal. I asked Mr. Warchol if any of the dry scrubber solids had been shipped to the P-Chem plant. He stated that two loads had been sent to the P-Chem plant with the last load being sent on August 18, 2008.

With respect to the Subpart CC requirements, VES is managing all of their tanks in accordance with the Benzene NESHAP regulations. The tanks are equipped with carbon canisters to control organic emissions. The bulk pits associated with the #4 incinerator are also managed in accordance with the NESHAP regulations. All containers received and subsequently stored must be in DOT approved containers. A Subpart CC Visual Inspection Form is completed for each manifested load. The inspection is conducted and certified by the transporter that the closure devices are intact and no visible cracks or holes could be observed. The last annual valve monitoring was conducted on December 20, 2007.

Receiver numbers are unique numbers assigned to each individual hazardous waste entered on line item 9 (formerly line 11) of the Uniform Hazardous Waste Manifests that accompanies the waste to the facility. That Receiver Number is cross-referenced to the Waste Profile Sheet that the facility has on file for that waste stream. A bar code is placed upon each container with the Receiver Number and each movement of that container is scanned.

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ILD098642424  
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That data is then downloaded into the waste tracking system.

Also at the time of this inspection, Veolia was conducting a trial burn/stack test on the Unit #4 incinerator. On August 20, 2008, while inspecting the South Tank Farm to observe Tank 312, the tank designated to feed the high Btu liquids being used for the test, I observed the valve at Tank 314 leaking. Apparently the valve packing had developed a small drip and was observed dripping into the tank farm secondary containment system. Veolia responded to the spill and had the valve repaired and the spilled liquid cleaned up during my inspection of the plant on August 21, 2008. The tank system and spill was repaired and remediated within 24 hours of detection as required in 35 Ill. Adm. Code Section 724.296b.

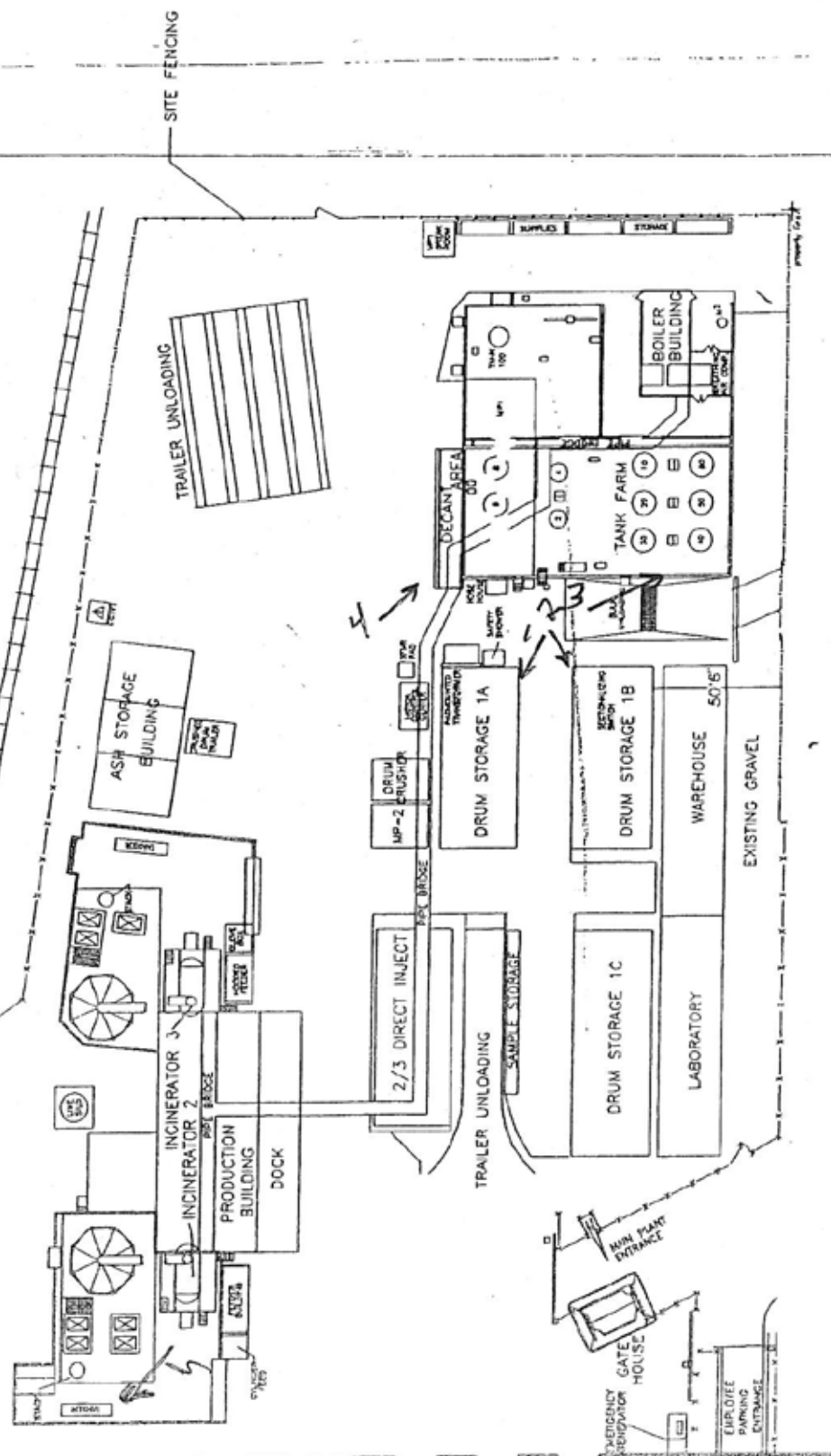
All drum storage areas, material processing areas, both tank farms and the three incinerators were observed. Veolia is using Bay 3, Rows 19-21 in Receiving Building 3 for 10-day transfer containers. Cameras have been placed in the Unit 2/3 Direct Inject building and in Building 6 at Unit 4. This allows the operators to observe these areas. Building 6 holds the explosive waste just prior to incinerator after it is moved from the facility's explosive magazine.

As a result of this inspection no apparent violations were observed.

# HAZARDOUS WASTE DISPOSITION FORM

Facility Name: Veolia Environmental Services		USEPA ID #: ILD098624424										
Inspection Date: August 20 and 21, 2008		IEPA ID #: 1631210009										
Waste Name	Generating Process	Last Analysis Date	USEPA HW #	On Notif.? (8700-12)	On Part A? (3510-3 or 8700-23)	On Annual Report for Years:			Amount On-Site	Generation Rate	Last Manifest Date	Disposition
						2005	2006	2007				
Incinerator Ash	Incinerator residue	June 08 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8 R/Os Trl's	1-2 R/O a day	8/21/08	EQ -Michigan
DSS	Dry Scrubber Solids	June 08 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3 Trl's 1 Tankr	1 Trailer a Day	8/21/08	EQ - Michigan
Crushed Drums	RCRA MT Drums	N/A	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Trailer	1 Trailer a week	8/18/08	Waste Management - Milam
Fluorescent and HI Sodium Bulbs	Bulb Replacement	K	UW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	~20 Tubes 3 high sodium	Varies	07/22/08	Onyx Port Washington, WI
Used Oil	Equipment Maintenance	K	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Drum	4 drums/month	N/A	Incinerated On-site
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

# MATCH LINE SUPPORT MODULE



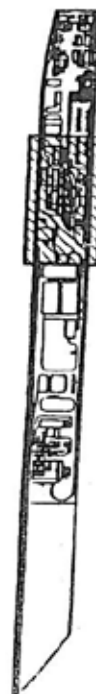
Sauget/Veolia Env. Svs.  
 ILD098642424  
 FOS File.

→ N

A



**AREA "B" SITE MAP**  
SCALE : 1" = 30'



**SITE MAP**  
SCALE : 1" = 400'

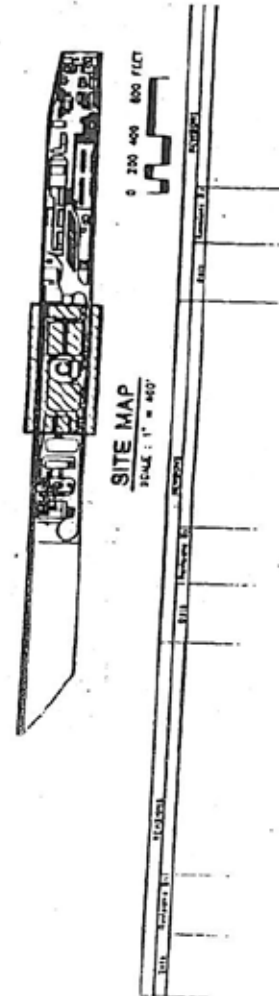
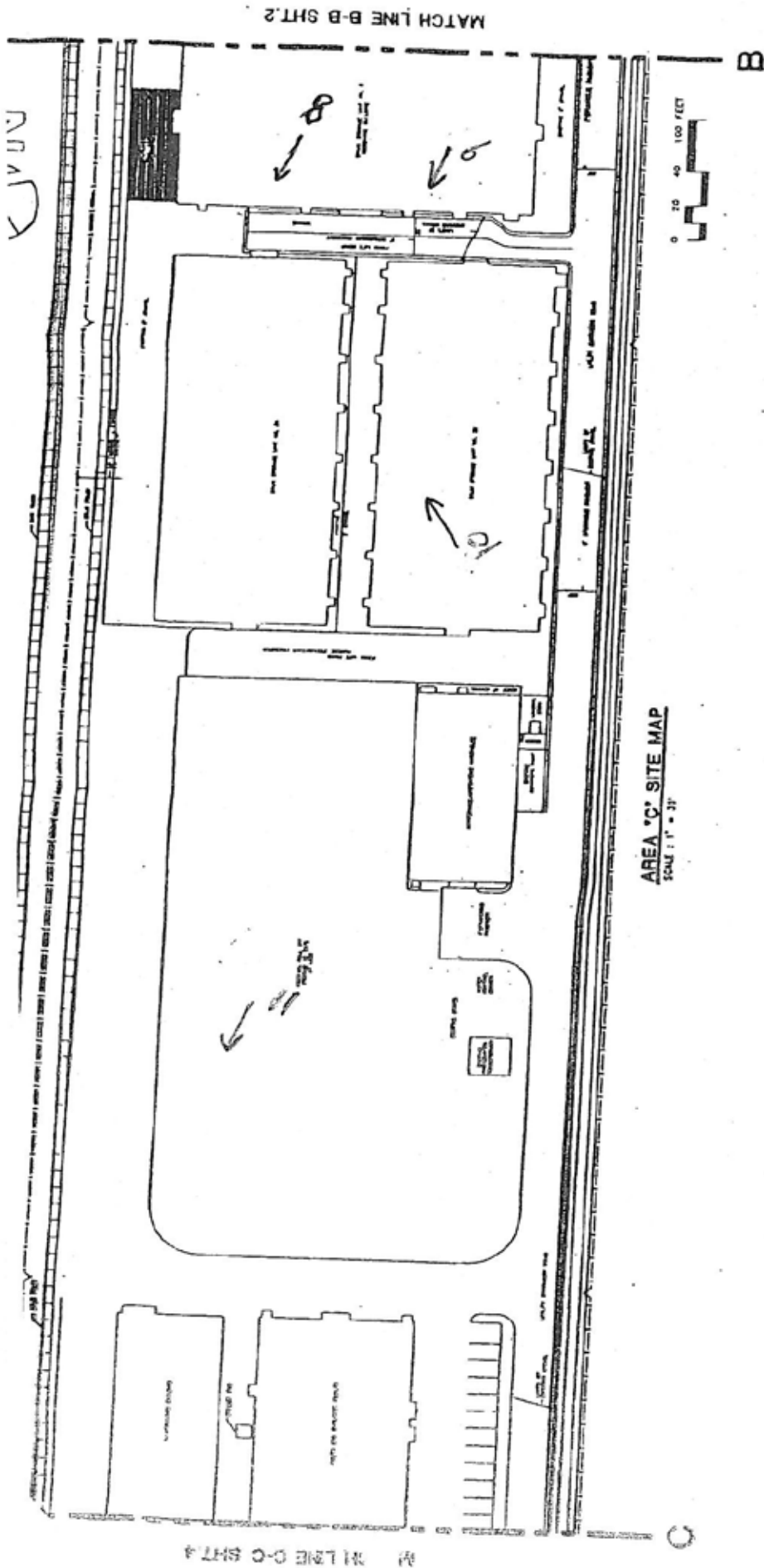


1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svs.  
ILD098642424  
F05 File

YCC-15-1002A

**Printed by O. MATHESON**

NAME : A.S. MONGE  
DATE GIVEN : 2 AUG 93  
DRAWN BY : D. Vaughan

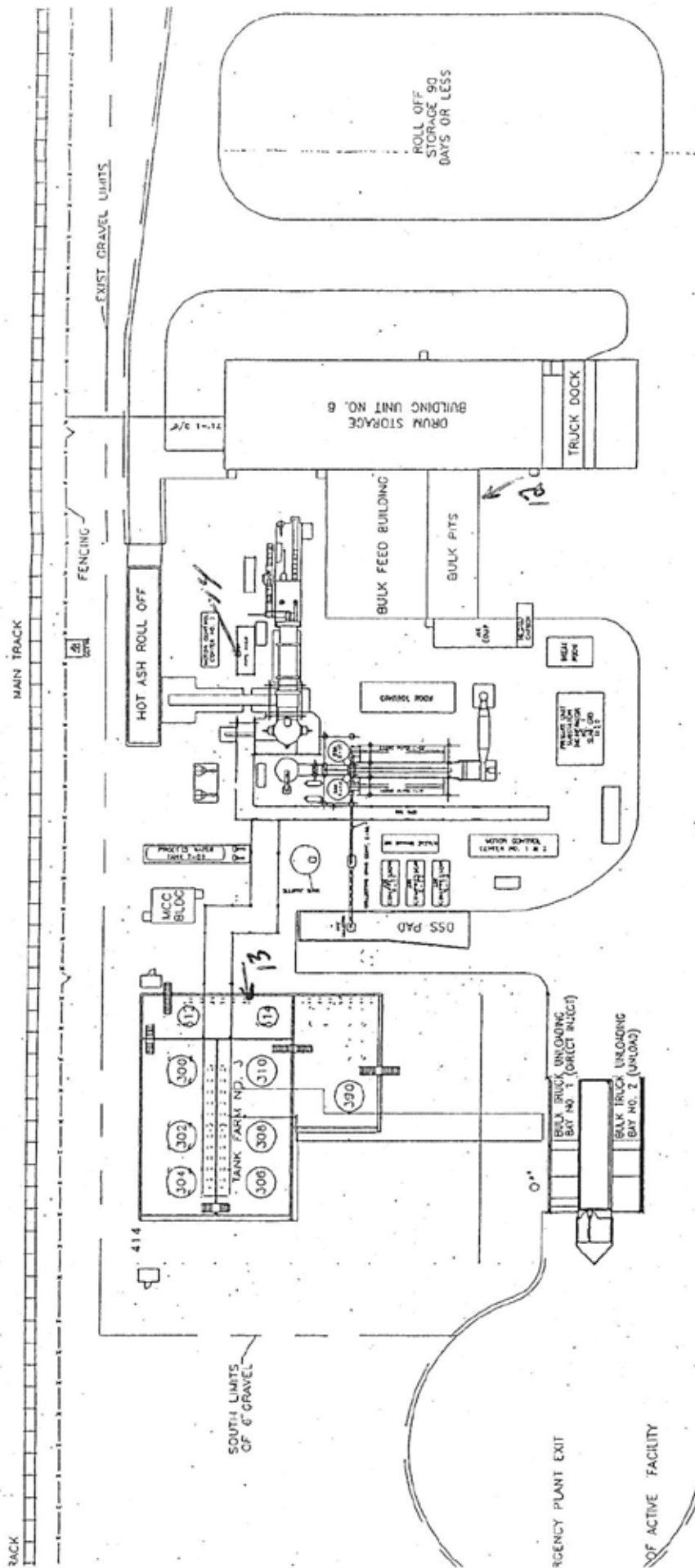


1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svcs.  
ILD098642424  
FOS File

Project Number: E-1005A  
Project Name: Saugat/Veolia Env. Svcs.  
Drawing No. 2. VADCSA

Date: 04/08/2010  
Scale: 1" = 40'

N





## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

618/346-5120

Fax 618/346-5155

July 22, 2008

Veolia Environmental Services  
Attn.: Doug Harris - General Manager  
7 Mobile Avenue  
Sauget, Illinois 62201

RE: 1631210009 - St. Clair County  
Veolia Environmental Services  
ILD098624424  
Compliance File

Dear Mr. Harris:

On June 10<sup>th</sup> and June 12th, 2008, an inspection of the above referenced site was conducted by Mike Grant representing the Illinois Environmental Protection Agency. The purpose of this inspection was to determine the site's compliance with the Illinois Environmental Protection Act and 35 Illinois Administrative Code 35 Ill. Adm. Code Part 722, subparts A-D: Part 724, Subparts A-I, I, J, O, BB, CC and EE, Part 728, Subparts A-E and Part 733 Subpart B regulations and the facility's RCRA Part B Permit.

No violations were noted at the time of this inspection. For your information, a copy of the inspection report is enclosed.

Please contact Mike Grant at 618/346-5120, if you have any questions regarding this inspection.

Sincerely,

Chris N. Cahnovsky, Regional Manager  
Field Operations Section  
Bureau of Land

CNC:MDG;jlb/veolianov072208

Enclosure

COMPLETED DATE: 07/14/08

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**  
BUREAU OF LAND / FIELD OPERATIONS SECTION  
**RCRA INSPECTION REPORT**

**GENERAL FACILITY INFORMATION**

USEPA ID #:	ILD098642424	BOL ID #:	1631210009
Facility Name:	Veolia Environmental Services	Phone #:	618/271-2804
Location	#7 Mobile Avenue	County:	St Clair
City:	Sauget	State:	Illinois
		Zip Code:	62201
Region:	Collinsville	Inspection Date:	06/10/08 06/12/08
		Time:	13:00 - 15:15 9:00 - 11:45
Weather:	Sunny -85		

**FACILITY TYPE**

Notified As:	G-1/TS	Regulated As:	G-1/TS
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**INSPECTION TYPE**

CEI: <input type="checkbox"/>	GME: <input type="checkbox"/>	OAM: <input type="checkbox"/>	NRR: <input type="checkbox"/>	CSE: <input type="checkbox"/>	CAO: <input type="checkbox"/>	FUI to:	
FCI (Other):						CCI: <input type="checkbox"/>	CSI: <input type="checkbox"/>

**NOTIFICATION DATES (EPA 8700-12)**

Initial:	07/18/80	Subsequent:	06/14/06
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**PART A PERMIT DATES (EPA 3510-3 OR EPA 8700-23)**

Initial:	11/18/80	Amended:	06/14/06	Withdrawn:
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**PART B PERMIT**

(Check one if applicable) Application Submitted? <input type="checkbox"/>	Permit Issued? <input checked="" type="checkbox"/>	Date:	03/31/88
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**ACTIVE ENFORCEMENT**

Date facility referred to:	USEPA:	IAGO:	County State's Attorney:
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**ACTIVE ENFORCEMENT ORDERS**

CACO:	CAFO:	Federal Court Order:
Consent Decree:	11/08/05	IPCB Order:
		State Court Order:

### TSD FACILITY ACTIVITY SUMMARY

Activity by Process Code	On Part A?	On Part B?	Activity ever done?	Closed?	Being done during inspection?	Exempt per 35 IAC Sec:
T03 - Incinerator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
T04 - Other	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S01 - Container	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
S02 - Tank	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### OWNER

#### OPERATOR

<b>Name:</b> Veolia Environmental Services	<b>Name:</b> Veolia Environmental Services
<b>Address:</b> 700 East Butterfield	<b>Address:</b> 700 East Butterfield
<b>City:</b> Lombard	<b>City:</b> Lombard
<b>State:</b> Illinois <b>Zip Code:</b> 60148	<b>State:</b> Illinois <b>Zip Code:</b> 60148
<b>Phone #:</b> 630/218-1647	<b>Phone #:</b> 630/218-1647

#### PERSON(S) INTERVIEWED

#### TITLE

#### PHONE #

Dennis Warchol	Environmental Manager	618/271-2804

#### INSPECTION PARTICIPANTS

#### AGENCY/BUREAU

#### PHONE #

*Mike Grant	IEPA/BOL/FOS	618/346-5120

\*Report prepared by this person.

### SUMMARY OF APPARENT VIOLATIONS

SECTION	X	SECTION	X	SECTION	X
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

X = CONTINUING VIOLATIONS

## HAZARDOUS WASTE DISPOSITION FORM

Facility Name: Veolia Environmental Services						USEPA ID #: ILD098624424						
Inspection Date: June 10 <sup>th</sup> and 12 <sup>th</sup> , 2008						IEPA ID #: 1631210009						
Waste Name	Generating Process	Last Analysis Date	USEPA HW #	On Notif.? (8700-12)	On Part A? (3510-3 or 8700-23)	On Annual Report for Years:			Amount On-Site	Gener-ation Rate	Last Mani-fest Date	Disposition
						2004	2005	2006				
Incinerator Ash	Incinerator residue	03/17/08 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3 R/Os 3 Trl'rs	1-2 R/O a day	09/12/07	EQ -Michigan
DSS	Dry Scrubber Solids	03/17/08 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6 Trl'rs	1 Trailer a Day	09/13/07	EQ - Michigan
Crushed Drums	RCRA MT Drums	N/A	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Trailer	1 Trailer a week	09/13/07	Waste Management - Milam
Fluorescent and HI Sodium Bulbs	Bulb Replacement	K	UW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1box 4' ~20 8's Tubes 30gal drn high sodium	Varies	03/12/08	Onyx Port Washington, WI
Used Oil	Equipment Maintenance	K	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Drum	4 drs/mo	N/A	Incinerated On-site
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

## NARRATIVE

On June 10<sup>th</sup> and 12<sup>th</sup>, 2008 an inspection was conducted at the Veolia Environmental Services (VES) facility in Sauget, Illinois. VES was formerly known as Onyx Environmental Services. VES submitted a revised Part A application dated June 14, 2006 reflecting the name change. Upon arrival at the site I met with the Dennis Warchol, Environmental Manager, VES is an incinerator of hazardous and non-hazardous wastes. The facility received their RCRA Part B permit on March 31, 1988. The permit was last modified on February 7, 2003. This modification was in response to a Class 1 modification submitted May 15, 2002 and a Class 2 modification submitted on October 7, 2002. Both of these requests were for adding additional waste codes to the facility's Part B Permit. Those additional codes are K176, K177 and K178. These new listed waste codes are wastes generated by inorganic chemical manufacturing processes.

The facility's Part B Permit covers container storage, tank storage, decant/repackaging operations, waste feed systems and incineration. Container storage (S01) is permitted in the following areas of the facility; Container Storage 1A, 1B, 1C, 2A, 2B, 2C, Receiving Unit #3, Unit 3A, 3B, and Building #6. The total permitted volume for container storage is 732,836 gallons. The Part B Permitted tank storage areas (S02) are Tank Farm #1 and Tank Farm #2. The total permitted volume of waste stored in tanks is 1,165,300 gallons.

There are three permitted incinerators (T03) at the facility. Incinerators #2 and #3 are fixed hearth incinerators and are located at the north end of the facility and incinerator #4 is a rotary kiln which is located at the south end. Along with the previously mentioned units, there are also several miscellaneous units (T04) that are also covered by the facility's Part B Permit. The facility has a Direct Inject Building at each end of the facility. The Direct Inject Building located at the south end is also used for bulk unloading into Tank Farm #2. There are two Drum Decant/Material Processing areas at the north end, MP1 and MP2. Container Storage Area 2B is also permitted for lab pack repackaging.

The facility's Part B Permit expired on May 8, 1998. A new application was submitted on November 6, 1997. The application was deemed complete on April 17, 1998 and the Agency has begun its technical review. The Agency issued a Notice of Deficiencies (NOD) on June 2, 1999. VES responded to the NOD on August 30, 1999. A second NOD dated December 9, 1999, was sent to the facility after the Agency completed its second technical review. On January 7, 2000, VES submitted their response. On November 16, 2000, VES submitted their response to the Agency's NOD dated October 17, 2000. Section 702.125 allows the facility to continue operating pursuant to the expired permit until the new permit is issued.

Incinerators #2 and #3 are permitted at a heat input rate of 16-million Btu/hr. The system includes a batch lime preparation system, spray dryer absorber, fabric filter baghouse and an ash conveying system. Both incinerators #2 and #3 are computer automated and are operated through the use of a keyboard and terminal. Each unit has one specialty feeder port.

Unit #2 has a compressed gas cylinder feed system, a direct inject liquid feed system and a specialty container feeder. Unit #3 has a hooded specialty container feeder (fume control system), a glove box emission control system and a direct inject liquid feed system. Since these units are equipped with one port, only one feeder can be used at a time. These feeders are used to transfer waste that may be difficult to handle (will not pump) or waste that needs special handling/precautions (reactive/explosive).

Unit #4 is a rotary kiln incinerator with a heat release capability of 50-million Btu/hr. Along with the liquid and containerized waste feeds on this unit, it is also equipped to feed bulk solids (i.e. contaminated dirt). A bulk storage building with four bins is used to contain the waste. The waste is fed to the incinerator via a clamshell bucket operated on a tram. Bulk solids are loaded into the unit via a chute (bulk loading), or a screw conveyor that feeds the soil at a controlled rate. At the time of this inspection Unit #4 was shutdown for routine maintenance and clean-out.

As a result of these operations, the facility generates the following wastes. Incinerators #2, #3 and #4 generate incinerator ash (D008) and dry scrubber solids (D008). The incinerator ash is stored in 20 yd<sup>3</sup> roll-off boxes and in dump trailers. The dry scrubber solids are collected in a 5000-gallon tanker trailer. The roll-offs of ash and trailers of scrubber solids were being stored closed and were labeled as required. The facility generates fluorescent bulbs and high intensity sodium bulbs. These bulbs are managed as Universal Wastes and are shipped to the VES facility in Port Washington, Wisconsin. There were approximately 20 8' fluorescent tubes, 1 box of 4' tubes and 1 30-gallon drum of high sodium bulbs. The last shipment of Universal Waste bulbs was made on March 12, 2008. Empty drums that are not recycled are crushed and disposed at the Milam Landfill. The facility also generates approximately 4 drums a month of used oil. The used oil is incinerated on-site. There was one partial trailer of crushed drums and one drum of used oil on-site at the time of this inspection.

Due to the land disposal restrictions, the ash generated from Incinerator 2 and 3 is reburned in #4. These residues are placed in the bulk pits and fed to #4 via the clamshell. The residues generated from #4 (ash and dry scrubber solids) are assigned with all of the waste codes that VES is permitted to accept. This procedure assumes that the ash and dry scrubber solids

contain all the waste codes, with the exception of those codes VES will not/cannot accept. These wastes are analyzed quarterly for compliance with the treatment standards for the organic constituents. The quarterly certifications for these two waste streams were completed on March 17, 2008. These wastes must be further treated at the receiving facility prior to disposal. The dry scrubber solids and incinerator ash are being shipped to EQ in Belleville Michigan. A LDR notice is shipped with every load of ash to EQ in Belleville, Michigan. Stabilization is conducted to ensure the inorganic treatment parameters are met. At the time of this inspection, there were 3 roll-offs and 3 dump trailers of incinerator ash and 6 dump trailers of dry scrubber solids.

There is a proposed change regarding the disposition of dry scrubber solids. On May 9, 2007, Veolia submitted a letter to the Agency regarding the recycling of dry scrubber solids. Veolia is proposing to ship the lime to the Sauget Industrial Treatment Plant (P-Chem) as a substitute for raw lime. The dry scrubber solids generated by Veolia contains approximately 50% unreacted lime and therefore could be used as a substitute for a raw material (lime). In a letter dated July 21, 2007, the Agency agreed with Veolia's proposal. I asked Mr. Harris if any of the dry scrubber solids had been shipped to the P-Chem plant. Mr. Harris said the P-Chem plant was awaiting issuance of the Construction Permit from the IEPA Bureau of Air Permit Section.

With respect to the Subpart CC requirements, VES is managing all of their tanks in accordance with the Benzene NESHAP regulations. The tanks are equipped with carbon canisters to control organic emissions. The bulk pits associated with the #4 incinerator are also managed in accordance with the NESHAP regulations. All containers received and subsequently stored must be in DOT approved containers. A Subpart CC Visual Inspection Form is completed for each manifested load. The inspection is conducted and certified by the transporter that the closure devices are intact and no visible cracks or holes could be observed. The last annual valve monitoring was conducted on December 20, 2007.

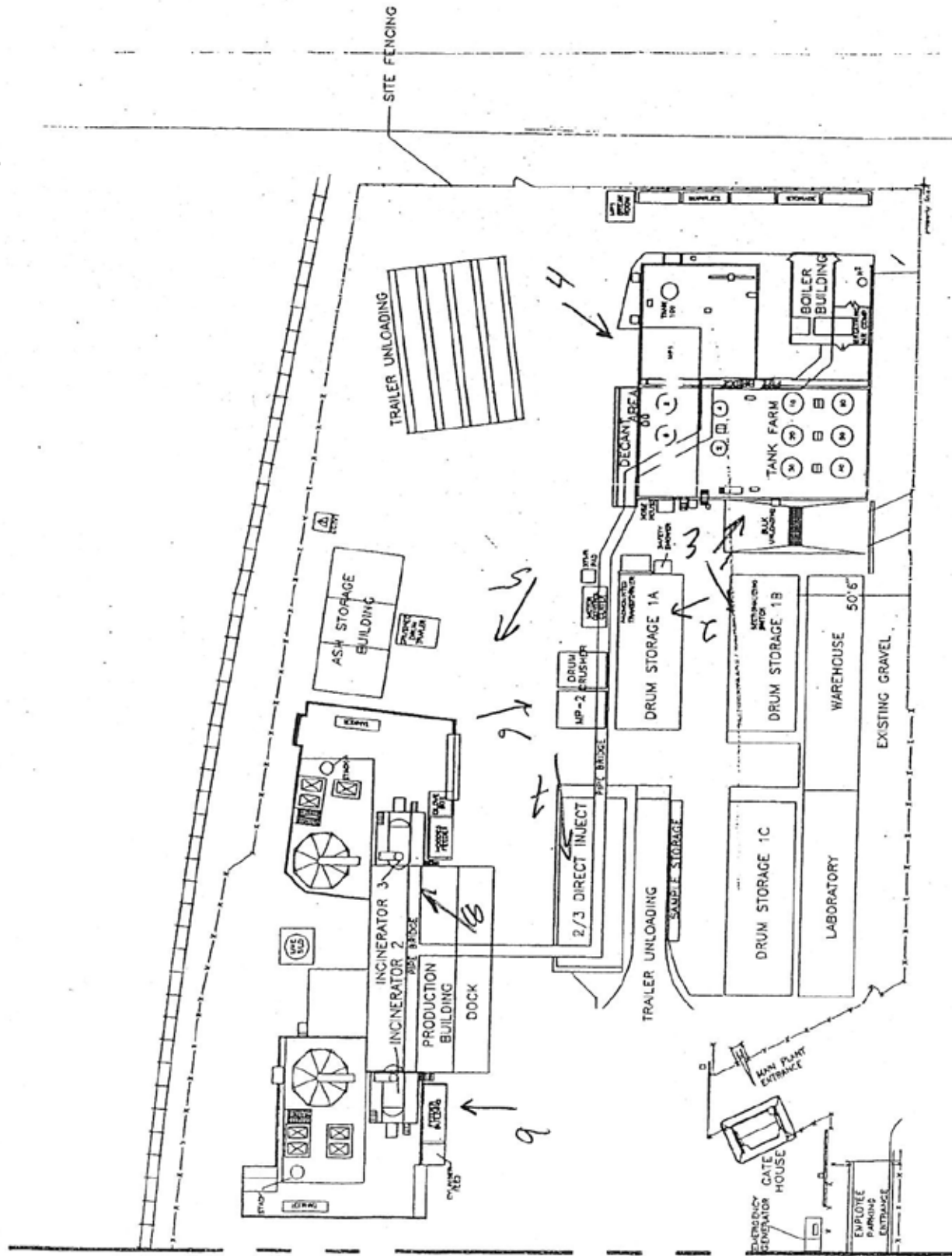
Receiver numbers are unique numbers assigned to each individual hazardous waste entered on line item 9 (formerly line 11) of the Uniform Hazardous Waste Manifests that accompanies the waste to the facility. That Receiver Number is cross-referenced to the Waste Profile Sheet that the facility has on file for that waste stream. A bar code is placed upon each container with the Receiver Number and each movement of that container is scanned. That data is then downloaded into the waste tracking system.

1631210009 – St. Clair County  
Sauget/Veolia Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

An inspection of the facility was conducted on June 12, 1008. All drum storage areas, material processing areas, both tank farms and the three incinerators were observed. Veolia is using Bay 3, Rows 19-21 in Receiving Building 3 for 10-day transfer containers. Cameras have been placed in the Unit 2/3 Direct Inject building and in Building 6 at Unit 4. This allows the operators to observe these areas. Building 6 holds the explosive waste just prior to incinerator after it is moved from the facility's explosive magazine.

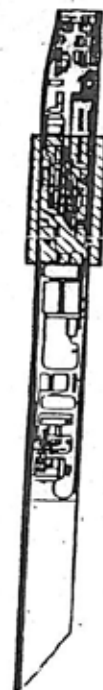
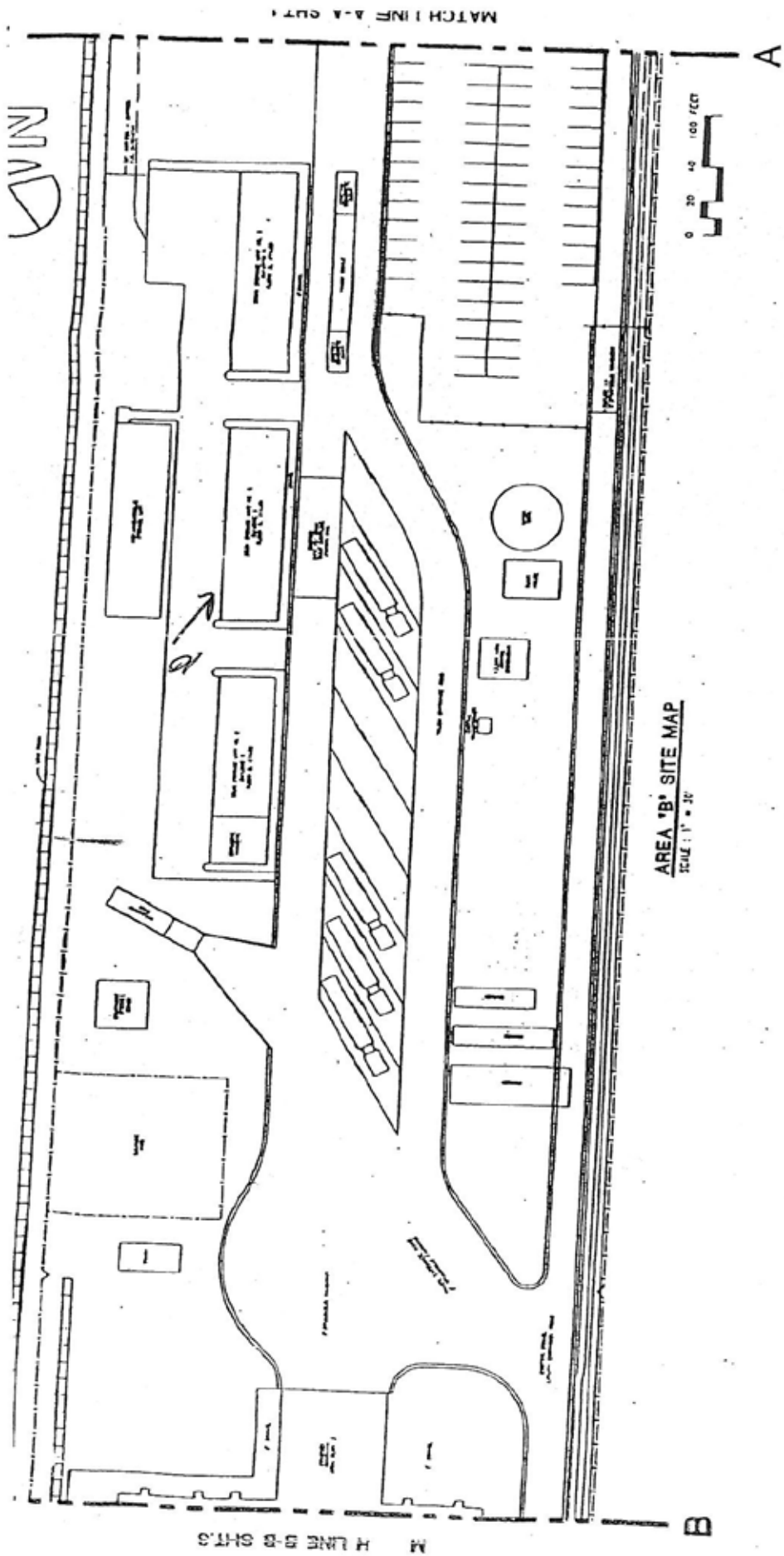
I conducted a review of records i.e. manifests, inspection and operating records, Subpart CC monitoring data, tank assessments and training records. The last annual hazardous waste training for the facilities employees was conducted at the end of March and early April 2008. As a result of this inspection no apparent violations were observed.

MATCH LINE SUPPORT MODULE



A

A



SITE MAP  
SCALE: 1" = 400'

1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svs.  
ILD098642424  
FOS File

Project Number: 15-1002A  
Project Name: Sauget/Veolia Env. Svs.  
Issued By: D. MATTHEW

Drawn By: D. Vargha



12

MAIN TRACK

MAIN TRACK

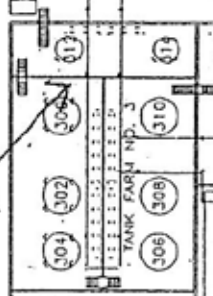
EXISTING GRAVEL LIMITS

FENCING

25'±

HOT ASH ROLL OFF

MCC BLDG



SOUTH LIMITS OF 6' GRAVEL

13

DRUM STORAGE UNIT NO. 8

BULK FEED BUILDING

BULK PITS

CONTROL ROOM

OSS PAD

EMERGENCY PLANT EXIT

END OF ACTIVE FACILITY

BULK TRUCK UNLOADING BAY NO. 1 (DIRECT INJECT)

BULK TRUCK UNLOADING BAY NO. 2 (UNLOAD)

TRUCK DOCK

ROLL OFF STORAGE 90 DAYS OR LESS

15

14

17



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

618/346-5120

Fax: 618/346-5155

October 12, 2007

Veolia Environmental Services  
Attn.: Doug Harris - General Manager  
7 Mobile Avenue  
Sauget, Illinois 62201

RE: 1631210009 - St. Clair County  
Veolia Environmental Services  
ILD098624424  
Compliance File

Dear Mr. Harris:

On September 13<sup>th</sup> and 14<sup>th</sup>, 2007, an inspection of the above referenced site was conducted by Mike Grant representing the Illinois Environmental Protection Agency. The purpose of this inspection was to determine the site's compliance with the Illinois Environmental Protection Act and 35 Illinois Administrative Code 35 Ill. Adm. Code Part 722, subparts A-D: Part 724, Subparts A-I, I, J, O, BB, CC and EE, Part 728, Subparts A-E and Part 733 Subpart B regulations and the facility's RCRA Part B Permit.

No violations were noted at the time of this inspection. For your information, a copy of the inspection report is enclosed.

Please contact Mike Grant at 618/346-5120, if you have any questions regarding this inspection.

Sincerely,

Chris N. Cahnovsky, Regional Manager  
Field Operations Section  
Bureau of Land

CNC:MDG;jlb/veolianov101207

Enclosure

ROCKFORD - 4302 North Main Street, Rockford, IL 61103 - (815) 987-7760 • DES PLAINES - 9511 W. Harrison St., Des Plaines, IL 60016 - (847) 294-4000  
ELGIN - 595 South State, Elgin, IL 60123 - (847) 608-3131 • PEORIA - 5415 N. University St., Peoria, IL 61614 - (309) 693-5463  
BUREAU OF LAND - PEORIA - 7620 N. University St., Peoria, IL 61614 - (309) 693-5462 • CHAMPAIGN - 2125 South First Street, Champaign, IL 61820 - (217) 278-5800  
SPRINGFIELD - 4500 S. Sixth Street Rd., Springfield, IL 62706 - (217) 786-6892 • COLLINSVILLE - 2009 Mall Street, Collinsville, IL 62234 - (618) 346-5120  
MARION - 2309 W. Main St., Suite 116, Marion, IL 62959 - (618) 993-7200

# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

BUREAU OF LAND / FIELD OPERATIONS SECTION

## RCRA INSPECTION REPORT

### GENERAL FACILITY INFORMATION

USEPA ID #:	ILD098642424	IEPA ID #:	1631210009
Facility Name:	Veolia Environmental Services	Phone #:	618/271-2804
Location	#7 Mobile Avenue	County:	St Clair
City:	Sauget	State:	Illinois
		Zip Code:	62201
Region:	Collinsville	Inspection Date:	September 13, 2007 September 14, 2007
		Time:	13:00 - 15:00 10:45 - 13:15
Weather:	Sunny ~ 75°		

### TYPE OF FACILITY

Notified As:	G-1/TS	Regulated As:	G-1/TS
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### TYPE OF INSPECTION

CEI:	<input checked="" type="checkbox"/> CME/O&M:	<input type="checkbox"/> CSI:	<input type="checkbox"/> NRR:	<input type="checkbox"/> CCI:	<input type="checkbox"/> PIF:	<input type="checkbox"/> CVI:	<input type="checkbox"/> CSE:	<input type="checkbox"/> CAO:	<input type="checkbox"/>
FUI to:	Other:								

### NOTIFICATION INFORMATION (EPA 8700-12)

Notification Date:	07/18/80 (initial)	06/14/06 (subsequent)
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### PART A PERMIT INFORMATION (EPA 3510-3 OR EPA 8700-23)

Part A Date:	11/18/80	Amended:	06/14/06	Withdrawn:
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### PART B PERMIT INFORMATION

(Check one if applicable) Application Submitted?	<input type="checkbox"/> Permit Issued?	<input checked="" type="checkbox"/> Date:	03/31/88
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### ACTIVE ENFORCEMENT

Date facility referred to:	USEPA:	IAGO:	05/21/01	County State's Attorney:
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### ACTIVE ENFORCEMENT ORDERS

CACO:	CAFO:	Federal Court Order:
Consent Decree:	11/08/05	IPCB Order:
		State Court Order:

### TSD FACILITY ACTIVITY SUMMARY

Activity by Process Code	On Part A?	On Part B?	Activity ever done?	Closed?	Being done during inspection?	Exempt per 35 IAC Sec:	On Annual Report:		
							2001	2002	2003
T03	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
T04	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S02	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### OWNER

<b>Name:</b>	Veolia Environmental Services
<b>Address:</b>	700 East Butterfield
<b>City:</b>	Lombard
<b>State:</b>	Illinois
<b>Zip Code:</b>	60148
<b>Phone #:</b>	630/218-1647

#### OPERATOR

<b>Name:</b>	Veolia Environmental Services
<b>Address:</b>	700 East Butterfield
<b>City:</b>	Lombard
<b>State:</b>	Illinois
<b>Zip Code:</b>	60148
<b>Phone #:</b>	630/218-1647

#### PERSON(S) INTERVIEWED

#### TITLE

#### PHONE #

Dennis Warchol	Environmental Manager	618/271-2804
Doug Harris	General Manager	618/271-2804
Dave Klarich	Compliance Manager	618/271-2804

#### INSPECTION PARTICIPANTS

#### AGENCY/BUREAU

#### PHONE #

*Mike Grant	IEPA/BOL/FOS	618/346-5120
Mark Schlueter (09/14/07)	IEPA/BOA/FOS	618/346-5120

\*Report prepared by this person.

### SUMMARY OF APPARENT VIOLATIONS

AREA	SECTION	X
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
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AREA	SECTION	X
		<input type="checkbox"/>
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AREA	SECTION	X
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		<input type="checkbox"/>
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		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

X = CONTINUING VIOLATIONS

## NARRATIVE

On September 13<sup>th</sup> and 14<sup>th</sup>, 2007, an inspection was conducted at the Veolia Environmental Services (VES) facility in Sauget, Illinois. On September 14<sup>th</sup>, Mark Schlueter, the Bureau of Air inspector accompanied me to the site. VES was formerly known as Onyx Environmental Services. VES submitted a revised Part A application dated June 14, 2006 reflecting the name change. Upon arrival at the site I met with the Dennis Warchol, Environmental Manager, Doug Harris, General Manager and Dave Klarich, Compliance Manager. VES is an incinerator of hazardous and non-hazardous wastes. The facility received their RCRA Part B permit on March 31, 1988. The permit was last modified on February 7, 2003. This modification was in response to a Class 1 modification submitted May 15, 2002 and a Class 2 modification submitted on October 7, 2002. Both of these requests were for adding additional waste codes to the facility's Part B Permit. Those additional codes are K176, K177 and K178. These new listed waste codes are wastes generated by inorganic chemical manufacturing processes.

The facility's Part B Permit covers container storage, tank storage, decant/repackaging operations, waste feed systems and incineration. Container storage (S01) is permitted in the following areas of the facility; Container Storage 1A, 1B, 1C, 2A, 2B, 2C, Receiving Unit #3, Unit 3A, 3B, and Building #6. The total permitted volume for container storage is 732,836 gallons. The Part B Permitted tank storage areas (S02) are Tank Farm #1 and Tank Farm #2. The total permitted volume of waste stored in tanks is 1,165,300 gallons.

There are three permitted incinerators (T03) at the facility. Incinerators #2 and #3 are fixed hearth incinerators and are located at the north end of the facility and incinerator #4 is a rotary kiln which is located at the south end. Along with the previously mentioned units, there are also several miscellaneous units (T04) that are also covered by the facility's Part B Permit. The facility has a Direct Inject Building at each end of the facility. The Direct Inject Building located at the south end is also used for bulk unloading into Tank Farm #2. There are two Drum Decant/Material Processing areas at the north end, MP1 and MP2. Container Storage Area 2B is also permitted for lab pack repackaging.

The facility's Part B Permit expired on May 8, 1998. A new application was submitted on November 6, 1997. The application was deemed complete on April 17, 1998 and the Agency has begun its technical review. The Agency issued a Notice of Deficiencies (NOD) on June 2, 1999. VES responded to the NOD on August 30, 1999. A second NOD dated December 9, 1999, was sent to the facility after the Agency completed its second technical review. On January 7, 2000, VES submitted their response. On November 16, 2000, VES submitted

1631210009 – St. Clair County  
Sauget/Veolia Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

there response to the Agency's NOD dated October 17, 2000. Section 702.125 allows the facility to continue operating pursuant to the expired permit until the new permit is issued.

Incinerators #2 and #3 are permitted at a heat input rate of 16-million Btu/hr. The system includes a batch lime preparation system, spray dryer absorber, fabric filter baghouse and an ash conveying system. Both incinerators #2 and #3 are computer automated and are operated through the use of a keyboard and terminal. Each unit has one specialty feeder port. Unit #2 has a compressed gas cylinder feed system, a direct inject liquid feed system and a specialty container feeder. Unit #3 has a hooded specialty container feeder (fume control system), a glove box emission control system and a direct inject liquid feed system. Since these units are equipped with one port, only one feeder can be used at a time. These feeders are used to transfer waste that may be difficult to handle (will not pump) or waste that needs special handling/precautions (reactive/explosive).

Unit #4 is a rotary kiln incinerator with a heat release capability of 50-million Btu/hr. Along with the liquid and containerized waste feeds on this unit, it is also equipped to feed bulk solids (i.e. contaminated dirt). A bulk storage building with four bins is used to contain the waste. The waste is fed to the incinerator via a clamshell bucket operated on a tram. Bulk solids are loaded into the unit via a chute (bulk loading), or a screw conveyor that feeds the soil at a controlled rate.

As a result of these operations, the facility generates the following wastes. Incinerators #2, #3 and #4 generate incinerator ash (D008) and dry scrubber solids (D008). The incinerator ash is stored in 20 yd<sup>3</sup> roll-off boxes and in dump trailers. The dry scrubber solids are collected in a 5000-gallon tanker trailer. The roll-offs of ash and trailers of scrubber solids were being stored closed and were labeled as required. The facility generates fluorescent bulbs and high intensity sodium bulbs. These bulbs are managed as Universal Wastes and are shipped to the VES facility in Port Washington, Wisconsin. There were approximately 200 fluorescent tubes and 1 ½ 30-gallon drums of high sodium bulbs. The last shipment of Universal Waste bulbs was made on January 25, 2007. Empty drums that are not recycled are crushed and disposed at the Milam Landfill. The facility also generates approximately 4 drums a month of used oil. The used oil is incinerated on-site. There was one partial trailer of crushed drums and three drums of used oil on-site at the time of this inspection.

Due to the land disposal restrictions, the ash generated from Incinerator 2 and 3 is reburned in #4. These residues are placed in the bulk pits and fed to #4 via the clamshell. The residues generated from #4 (ash and dry scrubber solids) are assigned with all of the waste codes that

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ILD098642424  
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VES is permitted to accept. This procedure assumes that the ash and dry scrubber solids contain all the waste codes, with the exception of those codes VES will not/cannot accept. These wastes are analyzed quarterly for compliance with the treatment standards for the organic constituents. The quarterly certifications for these two waste streams were completed on August 21, 2007. These wastes must be further treated at the receiving facility prior to disposal. The dry scrubber solids and incinerator ash are being shipped to EQ in Belleville Michigan. A LDR notice is shipped with every load of ash to EQ in Belleville, Michigan. Stabilization is conducted to ensure the inorganic treatment parameters are met. At the time of this inspection, there were 3 roll-offs and 3 dump trailers of incinerator ash and 3 dump trailers of dry scrubber solids.

There is a proposed change regarding the disposition of dry scrubber solids. On May 9, 2007, Veolia submitted a letter to the Agency regarding the recycling of dry scrubber solids. Veolia is proposing to ship the lime to the Sauget Industrial Treatment Plant (P-Chem) as a substitute for raw lime. The dry scrubber solids generated by Veolia contains approximately 50% unreacted lime and therefore could be used as a substitute for a raw material (lime). In a letter dated July 21, 2007, the Agency agreed with Veolia's proposal. I asked Mr. Harris if any of the dry scrubber solids had been shipped to the P-Chem plant. He said no the specific details i.e. delivery and conveyance into the treatment process had yet to be worked out with the plant.

With respect to the Subpart CC requirements, VES is managing all of their tanks in accordance with the Benzene NESHAP regulations. The tanks are equipped with carbon canisters to control organic emissions. The bulk pits associated with the #4 incinerator are also managed in accordance with the NESHAP regulations. All containers received and subsequently stored must be in DOT approved containers. A Subpart CC Visual Inspection Form is completed for each manifested load. The inspection is conducted and certified by the transporter that the closure devices are intact and no visible cracks or holes could be observed. The last annual valve monitoring was conducted on December 12, 2006.

Receiver numbers are unique numbers assigned to each individual hazardous waste entered on line item 9 (formerly line 11) of the Uniform Hazardous Waste Manifests that accompanies the waste to the facility. That Receiver Number is cross-referenced to the Waste Profile Sheet that the facility has on file for that waste stream. A bar code is placed upon each container with the Receiver Number and each movement of that container is scanned. That data is then downloaded into the waste tracking system.

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Sauget/Veolia Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

An inspection of the facility was conducted on September 14th, 2007. All drum storage areas, material processing areas, both tank farms and the three incinerators were observed. Veolia is using Bay 3, Rows 19-21 in Receiving Building 3 for 10-day transfer containers. Cameras have been placed in the Unit 2/3 Direct Inject building and in Building 6 at Unit 4. This allows the operators to observe these areas. Building 6 holds the explosive waste just prior to incinerator after it is moved from the facility's explosive magazine.

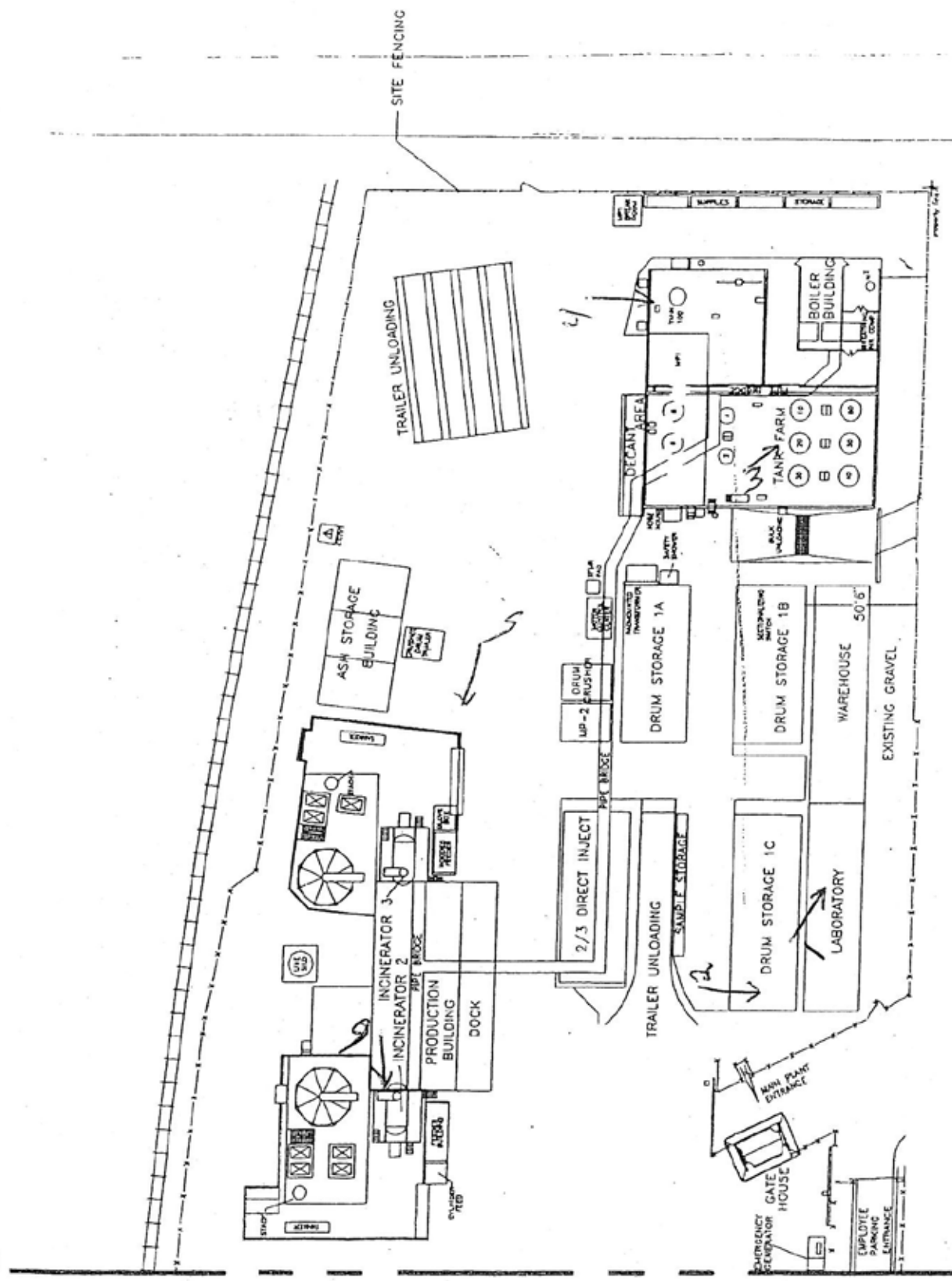
I conducted a review of records i.e. manifests, inspection and operating records, Subpart CC monitoring data, tank assessments and training records. As a result of this inspection no apparent violations were observed.

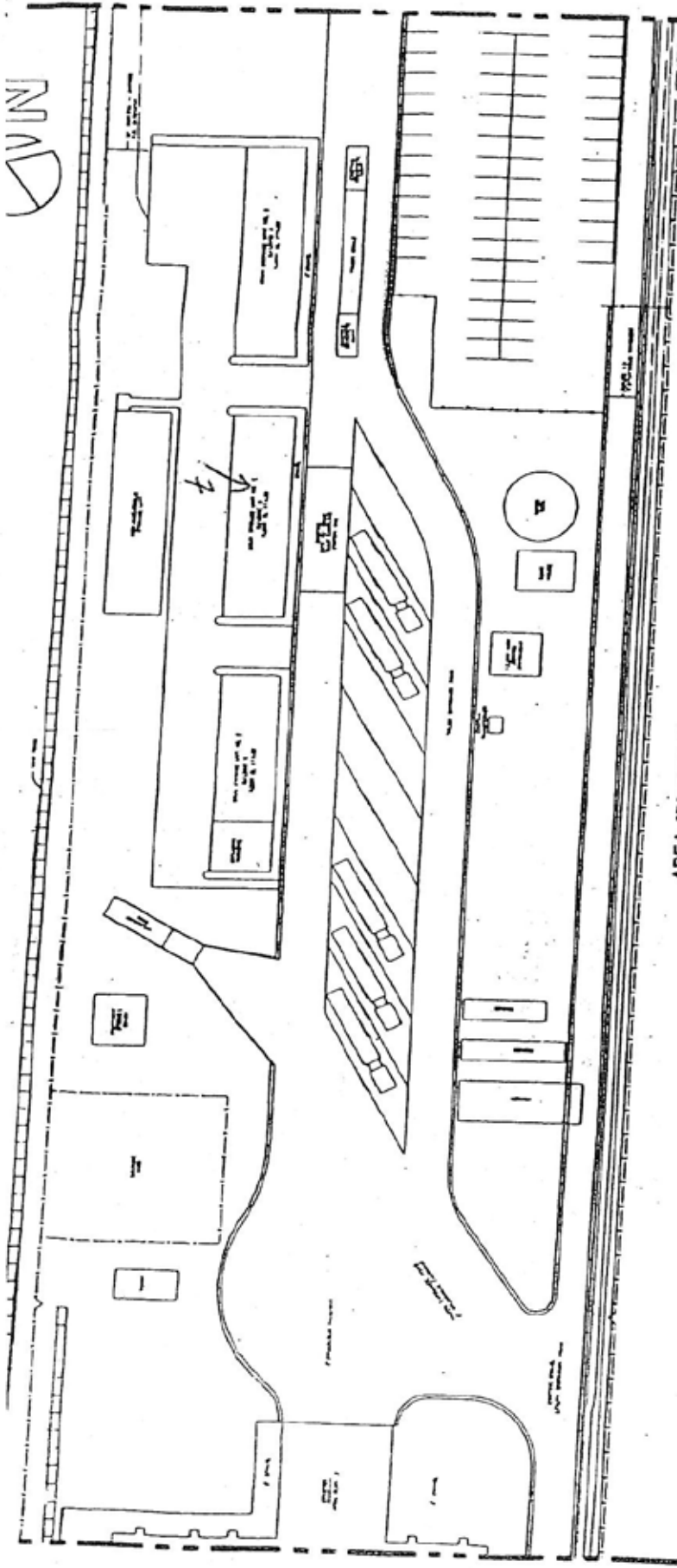
# HAZARDOUS WASTE DISPOSITION FORM

<b>Facility Name:</b> Veolia Environmental Services (formerly Onyx)		<b>USEPA ID #:</b> ILD098624424										
<b>Inspection Date:</b> September 13 <sup>th</sup> and 14 <sup>th</sup> , 2007		<b>IEPA ID #:</b> 1631210009										
Waste Name	Generating Process	Last Analysis Date	USEPA HW #	On Notif.? (8700-12)	On Part A? (3510-3 or 8700-23)	On Annual Report for Years:			Amount On-Site	Generation Rate	Last Manifest Date	Disposition
						2004	2005	2006				
Incinerator Ash	Incinerator residue	08/21/07 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3 R/Os 3 Trlrs	1-2 R/O a day	09/12/07	EQ -Michigan
DSS	Dry Scrubber Solids	08/21/07 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3 Trlrs	1 Trailer a Day	09/13/07	EQ - Michigan
Crushed Drums	RCRA MT Drums	N/A	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Trailer	1 Trailer a week	09/13/07	Waste Management - Milam
Fluorescent and HI Sodium Bulbs	Bulb Replacement	K	UW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	~200 Tubes 1 1/2dr high sodium	Varies	01/25/07	Onyx Port Washington, WI
Used Oil	Equipment Maintenance	K	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3 Drums	4 drs/mo	N/A	Incinerated On-site
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
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				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

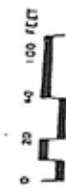
AN

MATCH LINE SUPPORT MODULE





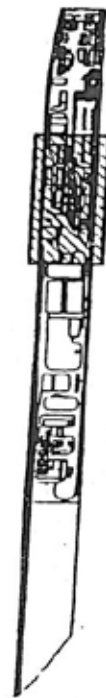
AREA 'B' SITE MAP  
SCALE: 1" = 30'



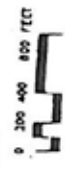
A

B

M LINE B-B SHTS.



SITE MAP  
SCALE: 1" = 100'



1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svs.  
ILD098642424  
FOS File

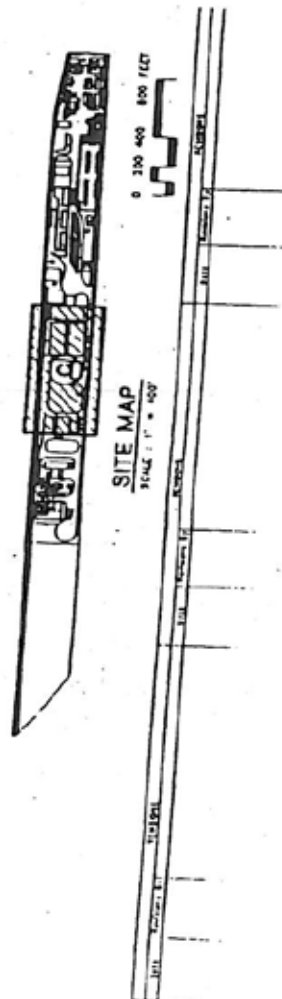
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Project Name: Saugat/Veolia Env. Svs.  
Project Date: 08/05/14  
Project By: D. Veolia

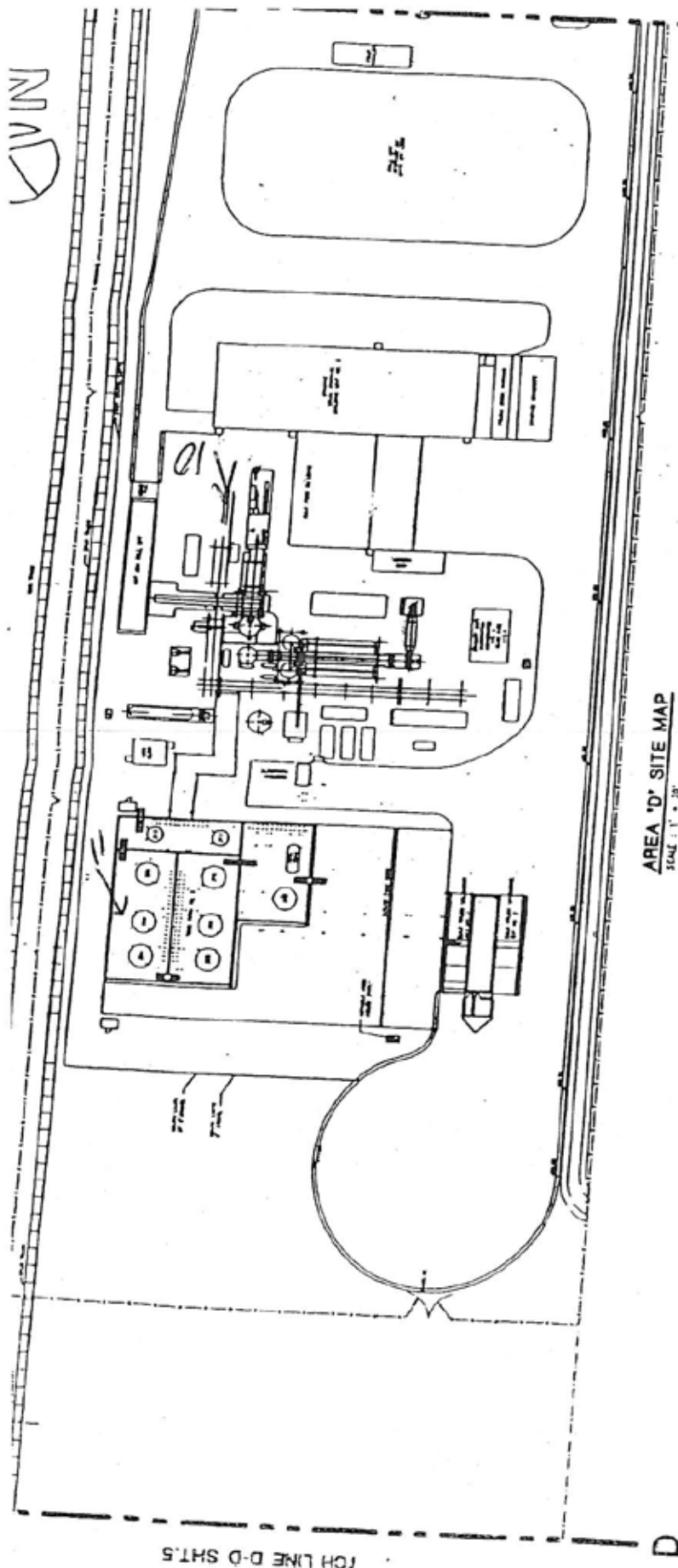
AREA "C" SITE MAP  
SCALE: 1" = 20'



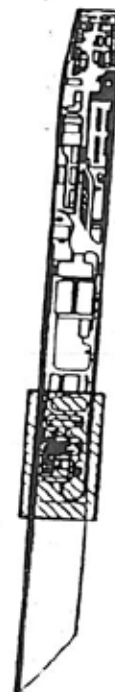
1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svs.  
ILD098642424  
F05 File

Order No. 8-10034  
Price \$1.00  
Order by C. MATTHEWS

[illegible]



MAN



**SITE MAP**  
SCALE: 1" = 100'



1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svcs.  
ILD098642424  
FOS File

Project Number: S-10044  
Project Engineer:  
Drawn By: S. M. M. S. S.

Scale: AS NOTED  
Date: 08/13/2009  
Page: 11 of 11



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

618/346-5120

Fax 618/346-5155

July 5, 2007

Veolia Environmental Services  
Attn.: Doug Harris - General Manager  
7 Mobile Avenue  
Sauget, Illinois 62201

RE: 1631210009 -- St. Clair County  
Veolia Environmental Services  
ILD098624424  
Compliance File

Dear Mr. Harris:

On June 6 and 7, 2007, an inspection of the above referenced site was conducted by Mike Grant representing the Illinois Environmental Protection Agency. The purpose of this inspection was to determine the site's compliance with the Illinois Environmental Protection Act and 35 Illinois Administrative Code 35 Ill. Adm. Code Part 722, subparts A-D; Part 724, Subparts A-I, I, J, O, BB, CC and EE, Part 728, Subparts A-E and Part 733 Subpart B regulations and the facility's RCRA Part B Permit.

No violations were noted at the time of this inspection. For your information, a copy of the inspection report is enclosed.

Please contact Mike Grant at 618/346-5120, if you have any questions regarding this inspection.

Sincerely,

Chris N. Cahnovsky, Regional Manager  
Field Operations Section  
Bureau of Land

CNC:MDG;jlb/onxcovltr070507

Enclosure

# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

BUREAU OF LAND / FIELD OPERATIONS SECTION

## RCRA INSPECTION REPORT

### GENERAL FACILITY INFORMATION

USEPA ID #:	ILD098642424	IEPA ID #:	1631210009
Facility Name:	Veolia Environmental Services	Phone #:	618/271-2804
Location	#7 Mobile Avenue	County:	St Clair
City:	Sauget	State:	Illinois
		Zip Code:	62201
Region:	Collinsville	Inspection Date:	June 6, 2007 June 7, 2007
		Time:	10:55 - 15:05 10:00 - 12:10
Weather:	Sunny ~ 80°		

### TYPE OF FACILITY

Notified As:	G-1/TS	Regulated As:	G-1/TS
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### TYPE OF INSPECTION

CEI:	<input checked="" type="checkbox"/> CME/O&M:	<input type="checkbox"/> CSI:	<input type="checkbox"/> NRR:	<input type="checkbox"/> CCI:	<input type="checkbox"/> PIF:	<input type="checkbox"/> CVI:	<input type="checkbox"/> CSE:	<input type="checkbox"/> CAO:	<input type="checkbox"/>
FUI to:	Other:								

### NOTIFICATION INFORMATION (EPA 8700-12)

Notification Date:	07/18/80 (initial)	06/14/06 (subsequent)
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### PART A PERMIT INFORMATION (EPA 3510-3 OR EPA 8700-23)

Part A Date:	11/18/80	Amended:	06/14/06	Withdrawn:
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### PART B PERMIT INFORMATION

(Check one if applicable) Application Submitted?	<input type="checkbox"/> Permit Issued?	<input checked="" type="checkbox"/>	Date:	03/31/88
--	---	-------------------------------------	-------	----------

### ACTIVE ENFORCEMENT

Date facility referred to:	USEPA:	IAGO:	05/21/01	County State's Attorney:
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### ACTIVE ENFORCEMENT ORDERS

CACO:	CAFO:	Federal Court Order:
Consent Decree:	11/08/05	IPCB Order:
		State Court Order:

### TSD FACILITY ACTIVITY SUMMARY

Activity by Process Code	On Part A?	On Part B?	Activity ever done?	Closed?	Being done during inspection?	Exempt per 35 IAC Sec:	On Annual Report:		
							2001	2002	2003
T03	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
T04	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S02	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### OWNER

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#### OPERATOR

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<b>Phone #:</b>	630/218-1647

#### PERSON(S) INTERVIEWED

#### TITLE

#### PHONE #

Dennis Warchol	Environmental Manager	618/271-2804
Doug Harris	General Manager	618/271-2804

#### INSPECTION PARTICIPANTS

#### AGENCY/BUREAU

#### PHONE #

*Mike Grant	IEPA/BOL/FOS	618/346-5120

\*Report prepared by this person.

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AREA	SECTION	X
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
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AREA	SECTION	X
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AREA	SECTION	X
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		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

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1631210009 – St. Clair County  
Sauget/VES Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

there response to the Agency's NOD dated October 17, 2000. Section 702.125 allows the facility to continue operating pursuant to the expired permit until the new permit is issued.

Incinerators #2 and #3 are permitted at a heat input rate of 16-million Btu/hr. The system includes a batch lime preparation system, spray dryer absorber, fabric filter baghouse and an ash conveying system. Both incinerators #2 and #3 are computer automated and are operated through the use of a keyboard and terminal. Each unit has one specialty feeder port. Unit #2 has a compressed gas cylinder feed system, a direct inject liquid feed system and a specialty container feeder. Unit #3 has a hooded specialty container feeder (fume control system), a glove box emission control system and a direct inject liquid feed system. Since these units are equipped with one port, only one feeder can be used at a time. These feeders are used to transfer waste that may be difficult to handle (will not pump) or waste that needs special handling/precautions (reactive/explosive).

Unit #4 is a rotary kiln incinerator with a heat release capability of 50-million Btu/hr. Along with the liquid and containerized waste feeds on this unit, it is also equipped to feed bulk solids (i.e. contaminated dirt). A bulk storage building with four bins is used to contain the waste. The waste is fed to the incinerator via a clamshell bucket operated on a tram. Bulk solids are loaded into the unit via a chute (bulk loading), or a screw conveyor that feeds the soil at a controlled rate.

As a result of these operations, the facility generates the following wastes. Incinerators #2, #3 and #4 generate incinerator ash (D008) and dry scrubber solids (D008). The incinerator ash is stored in 20 yd<sup>3</sup> roll-off boxes and in dump trailers. The dry scrubber solids are collected in a 5000-gallon tanker trailer. The roll-offs of ash and trailers of scrubber solids were being stored closed and were labeled as required. The facility generates fluorescent bulbs and high intensity sodium bulbs. These bulbs are managed as Universal Wastes and are shipped to the VES facility in Port Washington, Wisconsin. There were two boxes of fluorescent tubes bulbs and 1 30-gallon drum of high sodium bulbs. The last shipment of Universal Waste bulbs was made on June 22, 2006. Empty drums that are not recycled are crushed and disposed at the Milam Landfill. The facility also generates approximately 4 drums a month of used oil. The used oil is incinerated on-site.

Due to the land disposal restrictions, the ash generated from Incinerator 2 and 3 is reburned in #4. These residues are placed in the bulk pits and fed to #4 via the clamshell. The residues generated from #4 (ash and dry scrubber solids) are assigned with all of the waste codes that VES is permitted to accept. This procedure assumes that the ash and dry scrubber solids contain all the waste codes, with the exception of those codes VES will not/cannot accept.

1631210009 – St. Clair County  
Sauget/VES Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

These wastes are analyzed quarterly for compliance with the treatment standards for the organic constituents. The quarterly certifications for these two waste streams were completed on April 20, 2007. These wastes must be further treated at the receiving facility prior to disposal. The dry scrubber solids and incinerator ash are being shipped to EQ in Belleville Michigan. A LDR notice is shipped with every load of ash to EQ in Belleville, Michigan. Stabilization is conducted to ensure the inorganic treatment parameters are met. At the time of this inspection, there were 4 roll-offs and 2 dump trailers of incinerator ash and 3 dump trailers of dry scrubber solids.

With respect to the Subpart CC requirements, VES is managing all of their tanks in accordance with the Benzene NESHAP regulations. The tanks are equipped with carbon canisters to control organic emissions. The bulk pits associated with the #4 incinerator are also managed in accordance with the NESHAP regulations. All containers received and subsequently stored must be in DOT approved containers. A Subpart CC Visual Inspection Form is completed for each manifested load. The inspection is conducted and certified by the transporter that the closure devices are intact and no visible cracks or holes could be observed. The last annual valve monitoring was conducted on December 12, 2006.

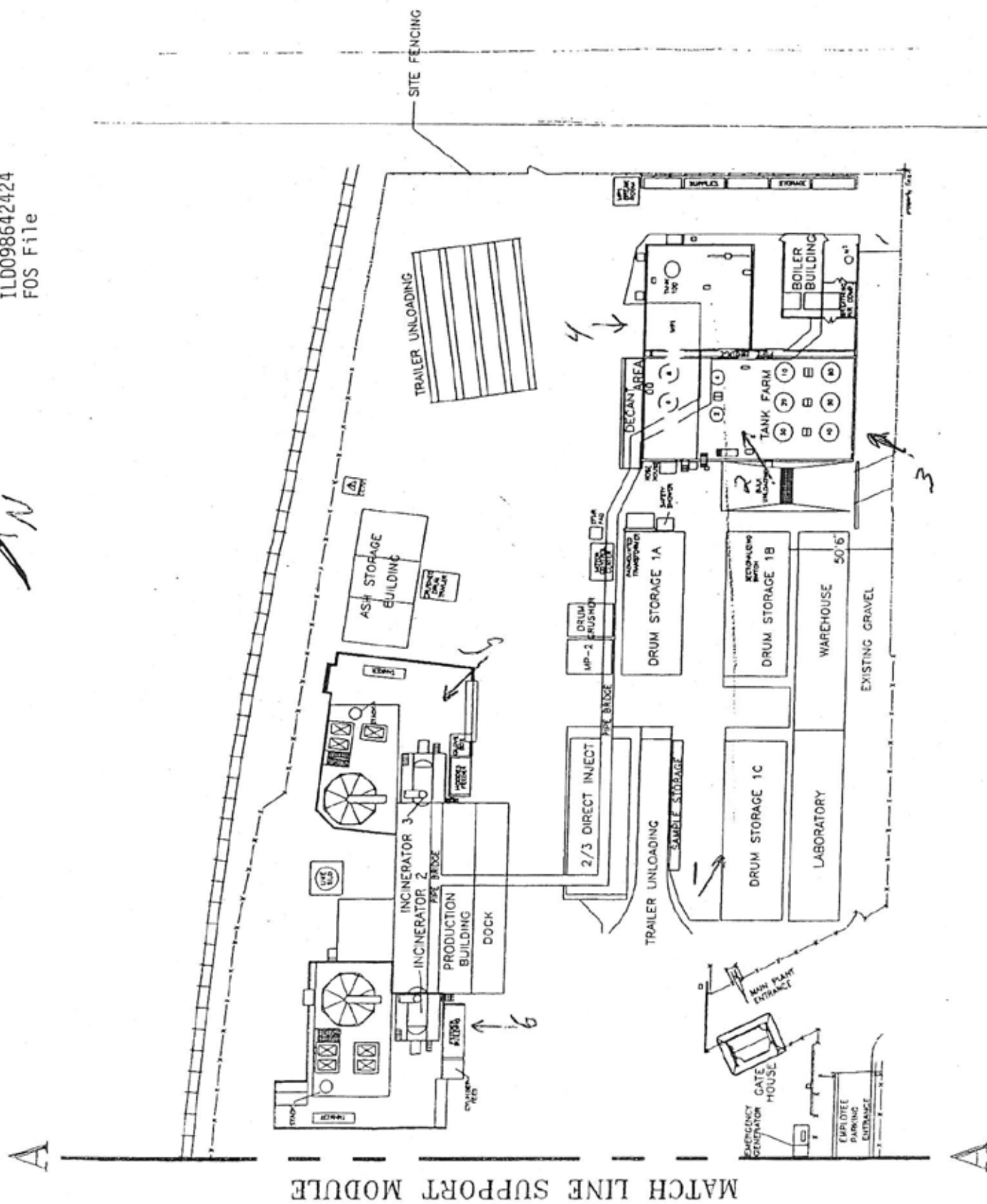
Receiver numbers are unique numbers assigned to each individual hazardous waste entered on line item 9 (formerly line 11) of the Uniform Hazardous Waste Manifests that accompanies the waste to the facility. That Receiver Number is cross-referenced to the Waste Profile Sheet that the facility has on file for that waste stream. A bar code is placed upon each container with the Receiver Number and each movement of that container is scanned. That data is then downloaded into the waste tracking system.

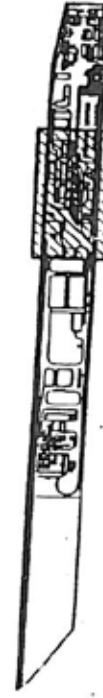
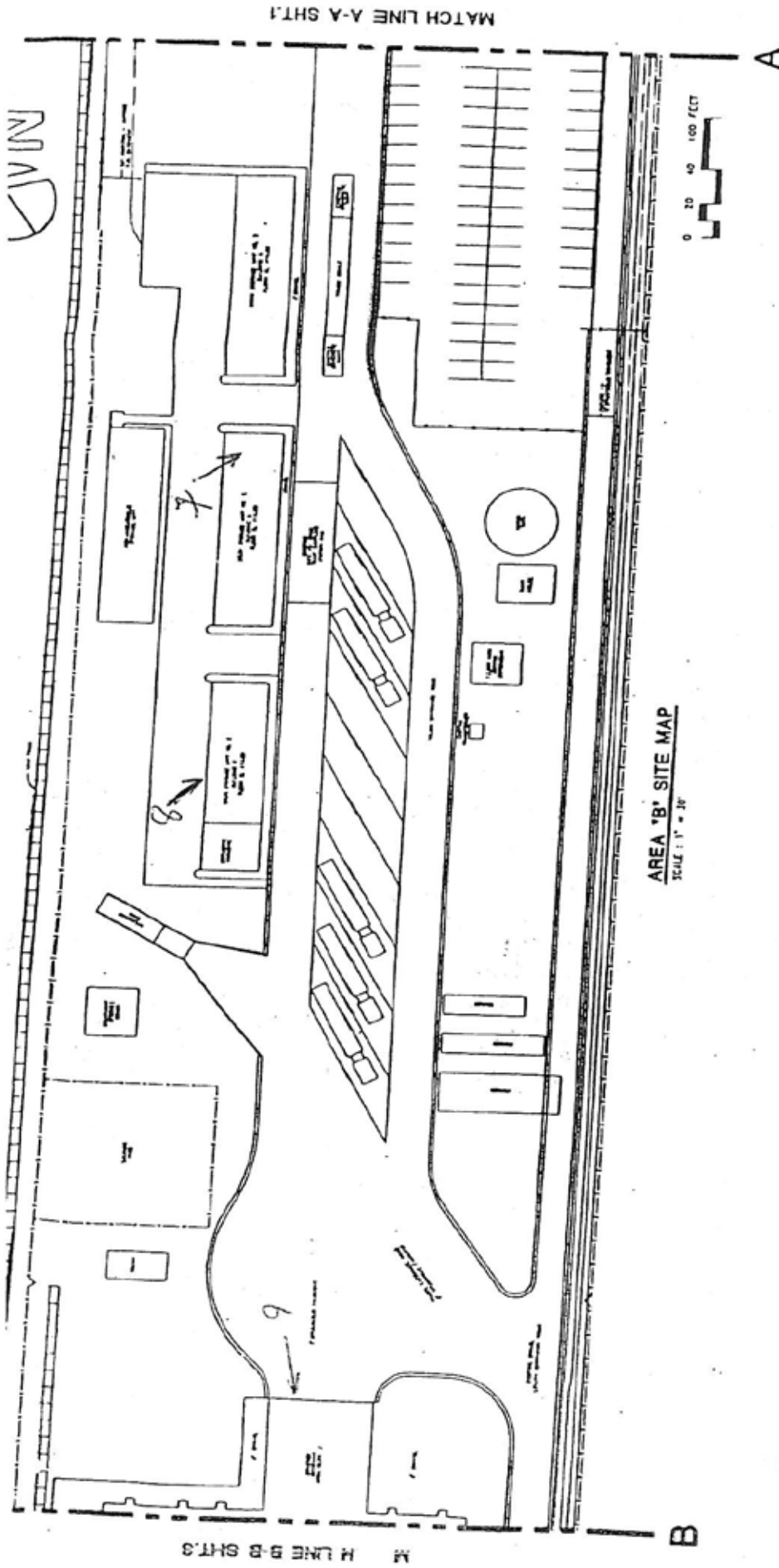
An inspection of the facility was conducted on June 6, 2007. All drum storage areas, material processing areas, both tank farms and the three incinerators were observed. Mr. Warchol told me that since my inspection last September, Veolia has begun using Bay 3, Rows 19-21 in Receiving Building 3 for 10-day transfer containers. He also pointed out as we walked the facility that cameras have been placed in the Unit 2/3 Direct Inject building and in Building 6 at Unit 4. This allows the operators to observe these areas. Building 6 holds the explosive waste just prior to incinerator after it is moved from the facility's explosive magazine.

I conducted a review of records i.e. manifests, inspection and operating records, Subpart CC monitoring data, tank assessments and training records. As a result of this inspection no apparent violations were observed.

# HAZARDOUS WASTE DISPOSITION FORM

<b>Facility Name:</b> Veolia Environmental Services (formerly Onyx)		<b>USEPA ID #:</b> ILD098624424										
<b>Inspection Date:</b> June 6 <sup>th</sup> & 7 <sup>th</sup> , 2007		<b>IEPA ID #:</b> 1631210009										
Waste Name	Generating Process	Last Analysis Date	USEPA HW #	On Notif.? (8700-12)	On Part A? (3510-3 or 8700-23)	On Annual Report for Years:			Amount On-Site	Generation Rate	Last Manifest Date	Disposition
						2004	2005	2006				
Incinerator Ash	Incinerator residue	04/20/07 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4 R/Os 2 Tr'lrs	1-2 R/O a day	06/05/07	EQ - Michigan
DSS	Dry Scrubber Solids	04/20/07 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3 Tr'lrs	1 Trailer a Day	06/06/07	EQ - Michigan
Crushed Drums	RCRA MT Drums	N/A	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Trailer	1 Trailer a week	06/06/07	Waste Management - Milam
Fluorescent and HI Sodium Bulbs	Bulb Replacement	K	UW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2 bxs bulbs 1 drum high sodium	Varies	06/22/06	Onyx Port Washington, WI
Used Oil	Equipment Maintenance	K	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not Determined	4 drs/mo	N/A	Incinerated On-site
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				





SITE MAP  
SCALE: 1" = 40'



1631210009 - St. Clair Co.  
Sauget/Veolia Env. SVS.  
ILD098642424  
FOS File

Project Number: 16-1092A  
Project Engineer:  
Issued By: D. WATSON

Scale: AS NOTED  
Date: 08/24/2016  
Drawn By: D. Watson

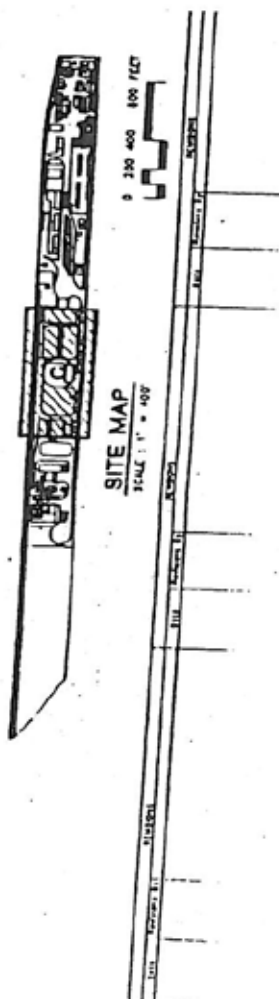
**AREA 'C' SITE MAP**  
SCALE: 1" = 30'

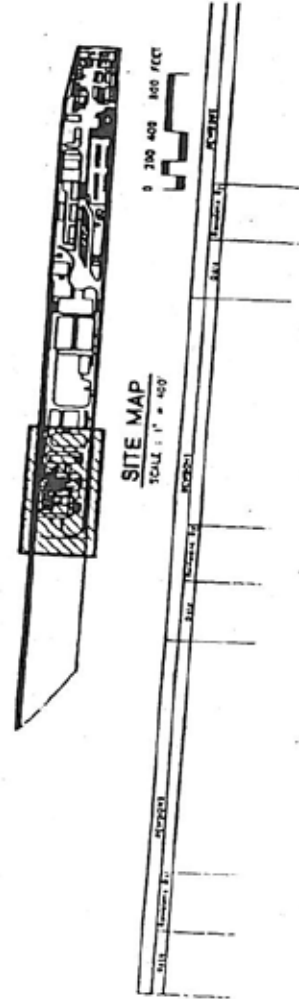
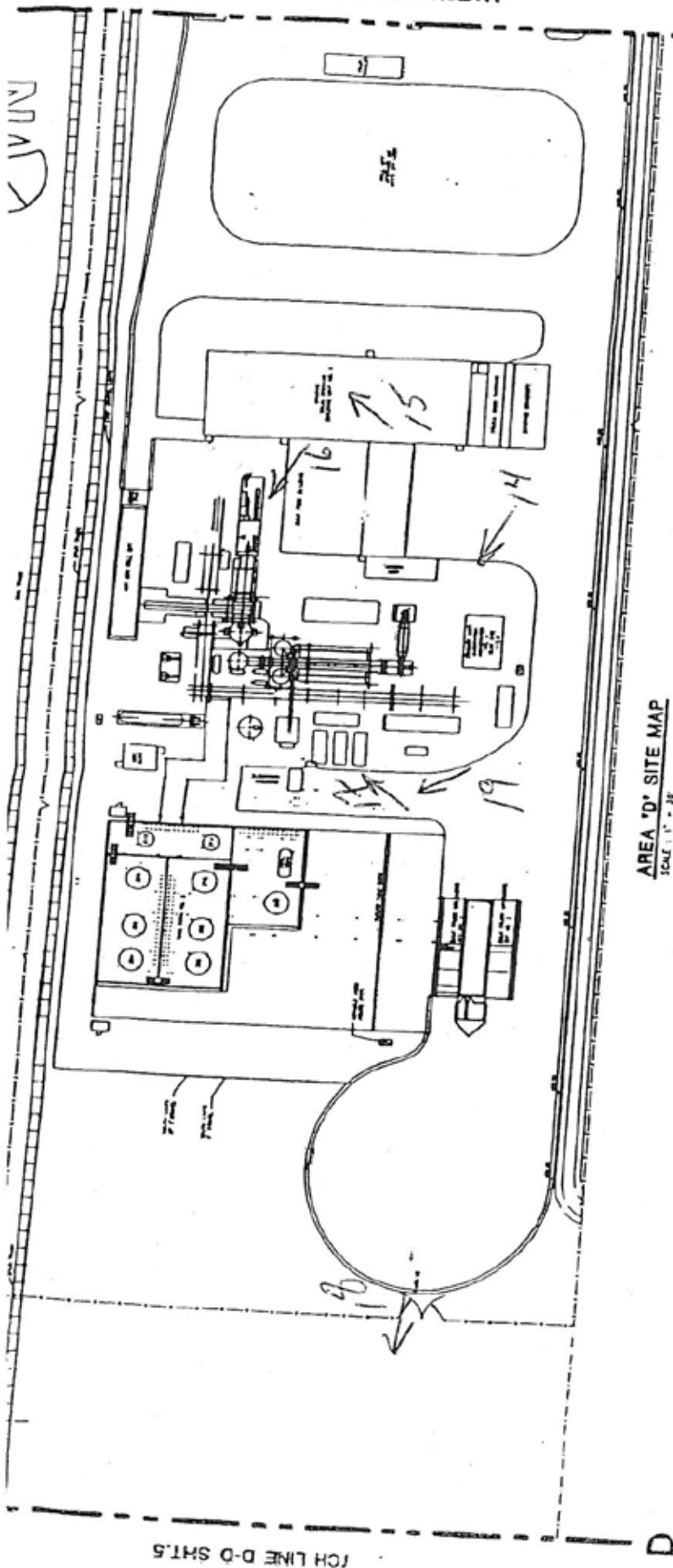


1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svs.  
ILD098642424  
FOS File

Study made : 8-1003A  
 Prep. (page) :  
 Revised by : J. GATCHEL

Name: A. E. WONG  
 Date: Jan 14, 1964  
 Page 1. of 1





1631210009 - St. Clair Co.  
Sauget/Veolia Env. Svcs.  
ILD098642424  
FOS File

Project Number: E-10000  
Project Name: Sauget/Veolia Env. Svcs.  
Drawing No.: E-10000-001

Date: 05/05/03  
Drawn By: J. J. J. J.



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

618/346-5120

Fax 618/346-5155

October 12, 2006

Veolia Environmental Services  
Attn.: Doug Harris - General Manager  
7 Mobile Avenue  
Sauget, Illinois 62201

RE: 1631210009 - St. Clair County  
Veolia Environmental Services (Formerly Onyx)  
ILD098624424  
Compliance File

Dear Mr. Harris:

On October 10, 2006, a Non Financial Record Review was conducted by Mike Grant of the Illinois EPA. The purpose of this review was to determine if the requirements of the November 8, 2005 Consent Order No. 05-MR-280 had been fully complied with. This review was based upon the documentation received from the facility on September 22, 2006, as well as previous submittals to the Illinois EPA. As a result of this review, the Illinois EPA has determined that the subject facility has complied with the Consent Order and has returned to compliance for the apparent violations of 35 Ill. Adm. Code Section 724.117(b), 724.131 and 724.445(d), Part B Permit Conditions III.I.2, V.a.D.8, V.a.D.9, V.b.D.8, V.b.D.9 and V.b.D.10 and Sections 9(a) and 21(f) of the Act.

If you have any questions, please contact at Mike Grant at 618/346-5120.

Sincerely,

Chris N. Cahnovsky, Regional Manager  
Field Operations Section  
Bureau of Land

CNC:MDG:jlb/onyxarrtcl01206mdg



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

October 17, 2006

Veolia Environmental Services  
Attn.: Doug Harris - General Manager  
7 Mobile Avenue  
Sauget, Illinois 62201

RE: 1631210009 -- St. Clair County  
Veolia Environmental Services (Formerly Onyx)  
ILD098624424  
Compliance File


Dear Mr. Harris:

On September 21 and 22, 2006, an inspection of the above referenced site was conducted by Mike Grant representing the Illinois Environmental Protection Agency. The purpose of this inspection was to determine the site's compliance with the Illinois Environmental Protection Act and 35 Illinois Administrative Code 35 Ill. Adm. Code Part 722, subparts A-D: Part 724, Subparts A-I, I, J, O, BB, CC and EE, Part 728, Subparts A-E and Part 733 Subpart B regulations and the facility's RCRA Part B Permit.

For your information, a copy of the inspection report is enclosed.

Please contact Mike Grant at 618/346-5120 if you have any questions regarding this inspection.

Sincerely,

  
Chris N. Cahnovsky, Regional Manager  
Field Operations Section  
Bureau of Land

CNC:MDG:pbo

Enclosure

ROCKFORD - 4302 North Main Street, Rockford, IL 61103 - (815) 987-7760 • DES PLAINES - 9511 W. Harrison St., Des Plaines, IL 60016 - (847) 294-4000  
ELGIN - 595 South State, Elgin, IL 60123 - (847) 608-3131 • PEORIA - 5415 N. University St., Peoria, IL 61614 - (309) 693-5463  
BUREAU OF LAND - PEORIA - 7620 N. University St., Peoria, IL 61614 - (309) 693-5462 • CHAMPAIGN - 2125 South First Street, Champaign, IL 61820 - (217) 278-5800  
SPRINGFIELD - 4500 S. Sixth Street Rd., Springfield, IL 62706 - (217) 786-6892 • COLLINSVILLE - 2009 Mall Street, Collinsville, IL 62234 - (618) 346-5120  
MARION - 2309 W. Main St., Suite 116, Marion, IL 62959 - (618) 993-7200

PRINTED ON RECYCLED PAPER

# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

BUREAU OF LAND / FIELD OPERATIONS SECTION

## RCRA INSPECTION REPORT

### GENERAL FACILITY INFORMATION

USEPA ID #:	ILD098642424	IEPA ID #:	1631210009
Facility Name:	Veolia Environmental Services (Formerly Onyx Env Services)		Phone #: 618/271-2804
Location	#7 Mobile Avenue	County:	St Clair
City:	Sauget	State:	Illinois
		Zip Code:	62201
Region:	Collinsville	Inspection Date:	September 21, 2006 September 22, 2006
		Time:	13:00 - 15:00 10:30 - 15:40
Weather:	Sunny ~ 70°		

### TYPE OF FACILITY

Notified As:	G-1/TS	Regulated As:	G-1/TS
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### TYPE OF INSPECTION

CEI:	<input checked="" type="checkbox"/>	CME/O&M:	<input type="checkbox"/>	CSI:	<input type="checkbox"/>	NRR:	<input type="checkbox"/>	CCI:	<input type="checkbox"/>	PIF:	<input type="checkbox"/>	CVI:	<input type="checkbox"/>	CSE:	<input type="checkbox"/>	CAO:	<input type="checkbox"/>
FUI to:	Other:																

### NOTIFICATION INFORMATION (EPA 8700-12)

Notification Date:	07/18/80 (initial)	06/14/06 (subsequent)
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### PART A PERMIT INFORMATION (EPA 3510-3 OR EPA 8700-23)

Part A Date:	11/18/80	Amended:	06/14/06	Withdrawn:
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### PART B PERMIT INFORMATION

(Check one if applicable) Application Submitted?	<input type="checkbox"/>	Permit Issued?	<input checked="" type="checkbox"/>	Date:	03/31/88
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### ACTIVE ENFORCEMENT

Date facility referred to:	USEPA:	IAGO:	05/21/01	County State's Attorney:
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### ACTIVE ENFORCEMENT ORDERS

CACO:	CAFO:	Federal Court Order:
Consent Decree:	11/08/05	IPCB Order:
		State Court Order:

### TSD FACILITY ACTIVITY SUMMARY

Activity by Process Code	On Part A?	On Part B?	Activity ever done?	Closed?	Being done during inspection?	Exempt per 35 IAC Sec:	On Annual Report:		
							2001	2002	2003
T03	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
T04	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S02	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### OWNER

#### OPERATOR

<b>Name:</b>	Veolia Environmental Services	<b>Name:</b>	Veolia Environmental Services
<b>Address:</b>	700 East Butterfield	<b>Address:</b>	700 East Butterfield
<b>City:</b>	Lombard	<b>City:</b>	Lombard
<b>State:</b>	Illinois	<b>State:</b>	Illinois
<b>Zip Code:</b>	60148	<b>Zip Code:</b>	60148
<b>Phone #:</b>	630/218-1647	<b>Phone #:</b>	630/218-1647

#### PERSON(S) INTERVIEWED

#### TITLE

#### PHONE #

Dennis Warchol 09/22/06	Environmental Manager	618/271-2804
Dave Klarich	Compliance Manager	618/271-2804

#### INSPECTION PARTICIPANTS

#### AGENCY/BUREAU

#### PHONE #

*Mike Grant	IEPA/BOL/FOS	618/346-5120

\*Report prepared by this person.

### SUMMARY OF APPARENT VIOLATIONS

AREA	SECTION	X	AREA	SECTION	X	AREA	SECTION	X
DGS	724.117b)	<input checked="" type="checkbox"/>	PtB	V.b.D10	<input checked="" type="checkbox"/>			<input type="checkbox"/>
DPP	724.131	<input checked="" type="checkbox"/>	Act	9a)	<input checked="" type="checkbox"/>			<input type="checkbox"/>
DIN	724.445d)	<input checked="" type="checkbox"/>	Act	21f)	<input checked="" type="checkbox"/>			<input type="checkbox"/>
PtB	III.I.2	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
PtB	V.a.D.8	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
PtB	V.a.D.9	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
PtB	V.b.D.8	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
PtB	V.b.D.9	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>

X = CONTINUING VIOLATIONS

## NARRATIVE

On September 21st and 22nd, 2006, an inspection was conducted at the Veolia Environmental Services (VES) facility in Sauget, Illinois. VES was formerly known as Onyx Environmental Services. VES submitted a revised Part A application dated June 14, 2006 reflecting the name change. Upon arrival at the site I met with the Compliance Manager Dave Klarich. I had been informed that Dennis Warchol, Environmental Manager for VES would not be onsite until September 22, 2006. VES is an incinerator of hazardous and non-hazardous wastes. The facility received their RCRA Part B permit on March 31, 1988. The permit was last modified on February 7, 2003. This modification was in response to a Class 1 modification submitted May 15, 2002 and a Class 2 modification submitted on October 7, 2002. Both of these requests were for the addition of additional waste codes to the facility's Part B Permit. Those additional codes are K176, K177 and K178. These new listed waste codes are wastes generated by inorganic chemical manufacturing processes.

The facility's Part B Permit covers container storage, tank storage, decant/repackaging operations, waste feed systems and incineration. Container storage (S01) is permitted in the following areas of the facility; Container Storage 1A, 1B, 1C, 2A, 2B, 2C, Receiving Unit #3, Unit 3A, 3B, and Building #6. The total permitted volume for container storage is 732,836 gallons. The Part B Permitted tank storage areas (S02) are Tank Farm #1 and Tank Farm #2. The total permitted volume of waste stored in tanks is 1,165,300 gallons.

There are three permitted incinerators (T03) at the facility. Incinerators #2 and #3 are fixed hearth incinerators and are located at the north end of the facility and incinerator #4 is a rotary kiln which is located at the south end. Along with the previously mentioned units, there are also several miscellaneous units (T04a) that are also covered by the facility's Part B Permit. The facility has a Direct Inject Building at each end of the facility. The Direct Inject Building located at the south end is also used for bulk unloading into Tank Farm #2. There are two Drum Decant/Material Processing areas at the north end. Container Storage Area 2B is also permitted for lab pack repackaging.

The facility's Part B Permit expired on May 8, 1998. A new application was submitted on November 6, 1997. The application was deemed complete on April 17, 1998 and the Agency has begun its technical review. The Agency issued a Notice of Deficiencies (NOD) on June 2, 1999. VES responded to the NOD on August 30, 1999. A second NOD dated December 9, 1999, was sent to the facility after the Agency completed its second technical review. On January 7, 2000, VES submitted their response. On November 16, 2000, VES submitted

1631210009 – St. Clair County  
Sauget/VES Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

there response to the Agency's NOD dated October 17, 2000. Section 702.125 allows the facility to continue operating pursuant to the expired permit until the new permit is issued.

Incinerators #2 and #3 are permitted at a heat input rate of 16 million Btu/hr. The system includes a batch lime preparation system, spray dryer absorber, fabric filter baghouse and an ash conveying system. Both incinerators #2 and #3 are computer automated and are operated through the use of a keyboard and terminal. Each unit has one specialty feeder port.

Unit #2 has a compressed gas cylinder feed system, a direct inject liquid feed system and a specialty container feeder. Unit #3 has a hooded specialty container feeder (fume control system), a glove box emission control system and a direct inject liquid feed system. Since these units are equipped with one port, only one feeder can be used at a time. These feeders are used to transfer waste that may be difficult to handle (will not pump) or waste that needs special handling/precautions (reactive/explosive).

Unit #4 is a rotary kiln incinerator with a heat release capability of 50 million Btu/hr. Along with the liquid and containerized waste feeds on this unit, it is also equipped to feed bulk solids (i.e. contaminated dirt). A bulk storage building with four bins is used to contain the waste. The waste is fed to the incinerator via a clamshell bucket operated on a tram. Bulk solids are loaded into the unit via a chute (bulk loading), or a screw conveyor that feeds the soil at a controlled rate.

As a result of these operations, the facility generates the following wastes. Incinerators #2, #3 and #4 generate incinerator ash (D008) and dry scrubber solids (D008). The incinerator ash is stored in 20 yd<sup>3</sup> roll-off boxes. The dry scrubber solids are collected in a 5000-gallon tanker trailer. The roll-offs of ash and trailers of scrubber solids were being stored closed and were labeled as required. The facility generates fluorescent bulbs and high intensity sodium bulbs. These bulbs are managed as Universal Wastes and are shipped to the VES facility in Port Washington, Wisconsin. There were four 8' fluorescent tubes bulbs and approximately 75 4' in storage. The last shipment of Universal Waste bulbs was made on June 22, 2006. Empty drums that are not recycled are crushed and disposed at the Milam Landfill. The facility also generates approximately 4 drums a month of used oil. The used oil is incinerated on-site.

Due to the land disposal restrictions, the ash generated from Incinerator 2 and 3 is reburned in #4. These residues are placed in the bulk pits and fed to #4 via the clamshell. The residues generated from #4 (ash and dry scrubber solids) are assigned with all of the waste codes that VES is permitted to accept. This procedure assumes that the ash and dry scrubber solids contain all the waste codes, with the exception of those codes VES will not/cannot accept.

1631210009 – St. Clair County  
Sauget/VES Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

These wastes are analyzed quarterly for compliance with the treatment standards for the organic constituents. The quarterly certifications for these two waste streams were completed on August 18, 2006. These wastes must be further treated at the receiving facility prior to disposal. The dry scrubber solids are being shipped to Peoria Disposal Company (PDC). VES does a one time LDR notice with each new quarterly Certification. However a LDR notice is shipped with every load of ash to EQ in Belleville, Michigan. Stabilization is conducted to ensure the inorganic treatment parameters are met. At the time of this inspection, there were 3 roll-offs and 2 dump trailers of incinerator ash and 4 dump trailers of dry scrubber solids.

With respect to the Subpart CC requirements, VES is managing all of their tanks in accordance with the Benzene NESHAP regulations. The tanks are equipped with carbon canisters to control organic emissions. The bulk pits associated with the #4 incinerator are also managed in accordance with the NESHAP regulations. All containers received and subsequently stored must be in DOT approved containers.

Receiver numbers are unique numbers assigned to each individual hazardous waste entered on line item 9 (formerly line 11) of the Uniform Hazardous Waste Manifests that accompanies the waste to the facility. That Receiver Number is cross-referenced to the Waste Profile Sheet that the facility has on file for that waste stream. A bar code is placed upon each container with the Receiver Number and each movement of that container is scanned. That data is then downloaded into the waste tracking system. On September 5, 2006, implementation of the new manifest became effective. VES has received approval from the USEPA to have their own manifests printed. According to Mr. Warchol and a couple of employees directly responsible for handling the manifests, the transition to the new manifesting system has gone smoothly. As of the date of this inspection, VES had not received a shipment of waste on the old style manifest was required.

An inspection of the facility was conducted on September 21, 2006. Mr. Klarich accompanied this writer on the plant walk through. On September 22, 2006, I conducted a review of records i.e. manifests, inspection records, tank assessments and training records. As a result of this inspection no apparent violations were observed.

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Sauget/VES Environmental Services  
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Prepared by: Michael D. Grant

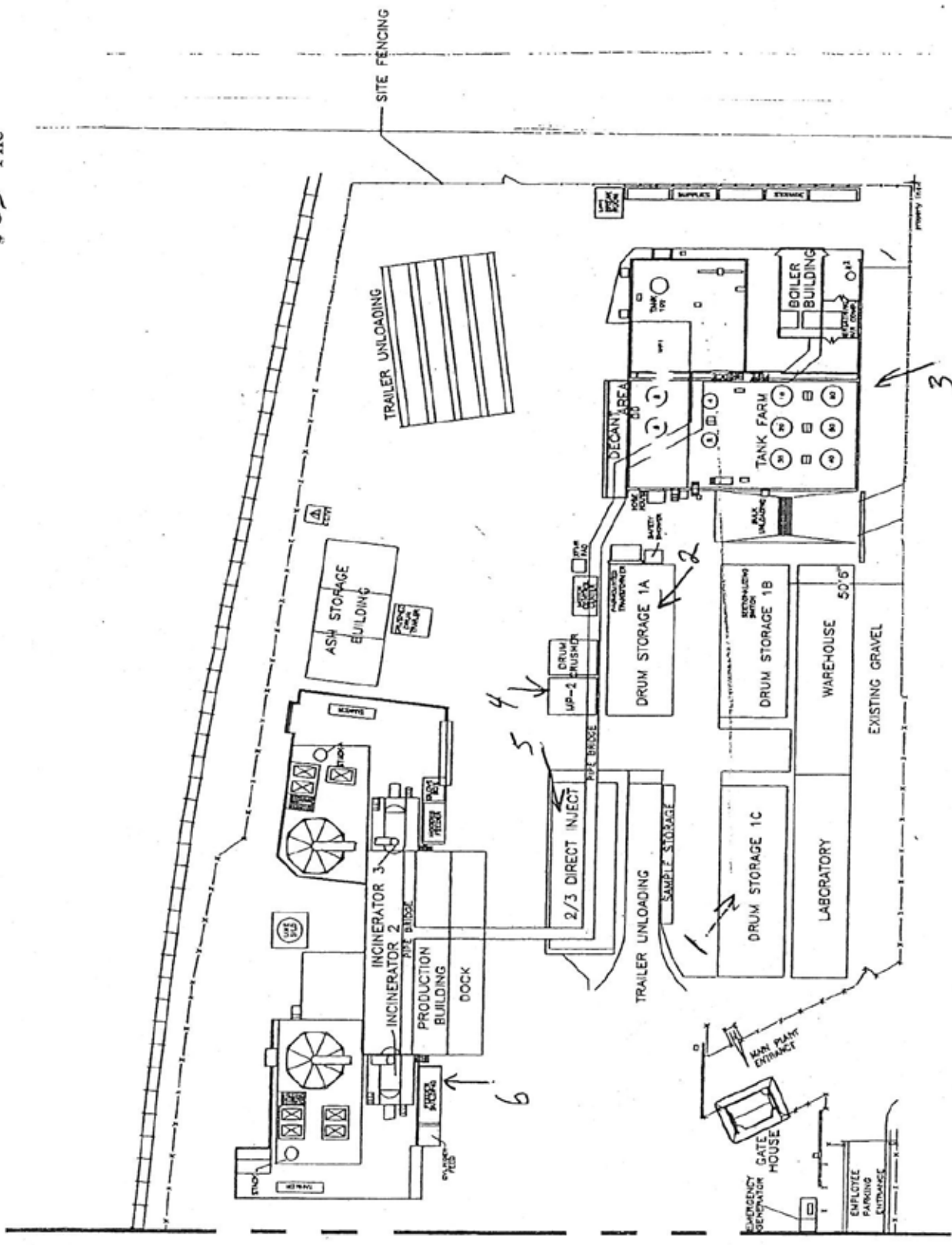
On November 8, 2005, Consent Order No. 05-MR-280 was entered in the Circuit Court of St. Clair County. There were several provisions of the Order that VES had to comply with. Mr. Warchol provided me with copies of all of the documents to demonstrate that those provisions had been complied with. A Non-Financial Record Review will have to be conducted to determine that the requirements of the Order have been complied with. Until that time, the following apparent violations will remain outstanding; 724.117b, 724.131 and 724.445d), Part B Permit Conditions III.I.2, V.a.D.8, V.a.D.8, V.b.D.8, V.b.D.9 and V.b.D.10 and Sections 9a and 21f of the Act..

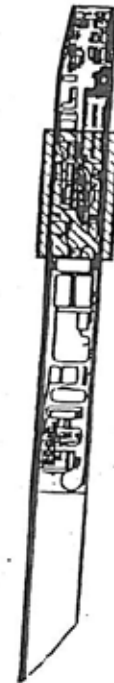
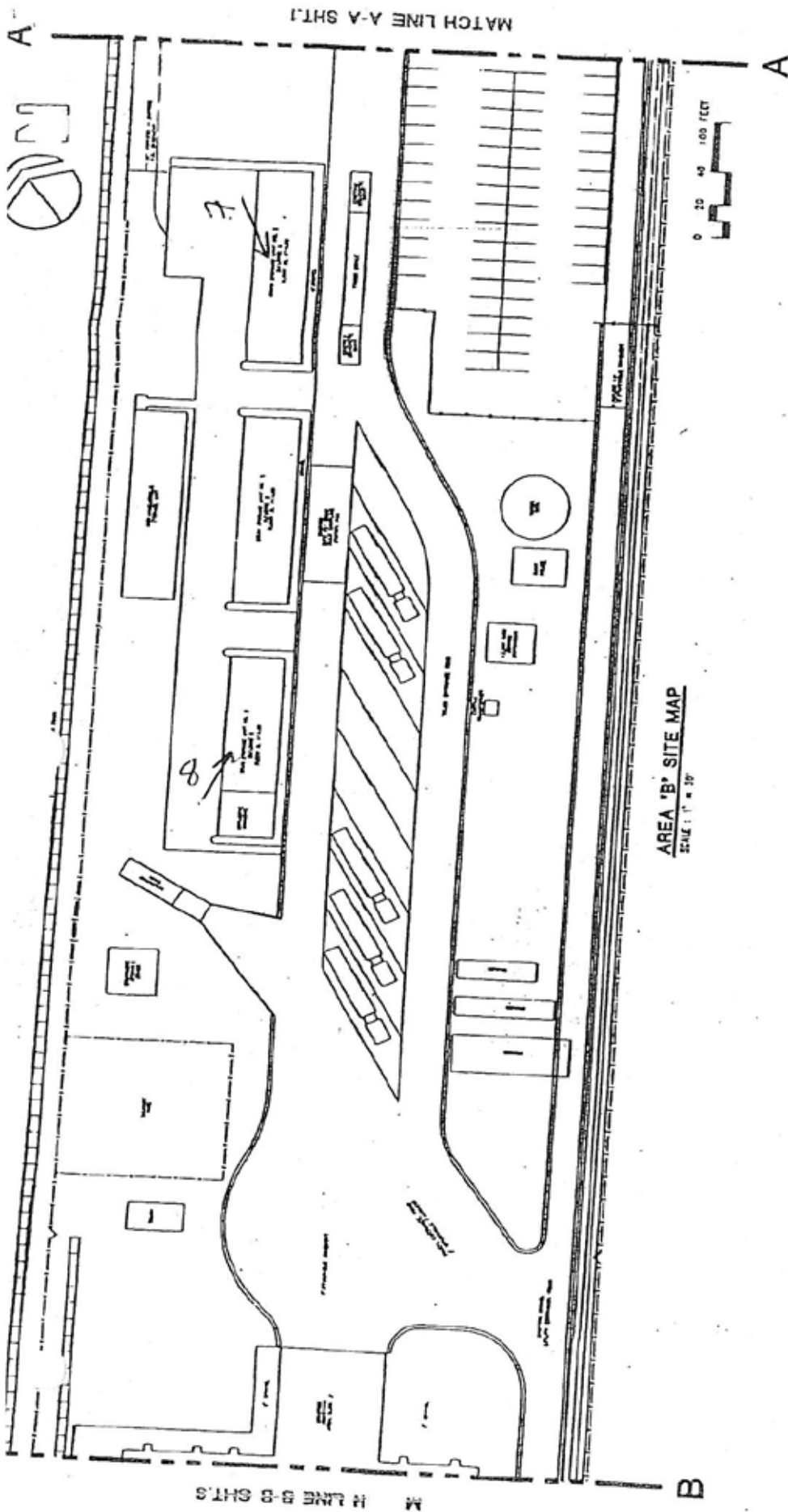
MDG:VES09-04

# HAZARDOUS WASTE DISPOSITION FORM

Facility Name: Veolia Environmental Services (formerly Onyx)		USEPA ID #: ILD098624424										
Inspection Date: September 21 and 22, 2006		IEPA ID #: 1631210009										
Waste Name	Generating Process	Last Analysis Date	USEPA HW #	On Notif.? (8700-12)	On Part A? (3510-3 or 8700-23)	On Annual Report for Years:			Amount On-Site	Gener-ation Rate	Last Mani-fest Date	Disposition
						2003	2004	2005				
Incinerator Ash	Incinerator residue	08/18/06 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3 R/Os 2 Tr'lrs	1-2 R/O a day	09/20/06	EQ
DSS	Dry Scrubber Solids	08/18/06 LDR quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4 Tr'lrs	1 Trailer a Day	09/21/06	PDC
Crushed Drums	RCRA MT Drums	N/A	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Trailer	1 Trailer a week	09/15/06	Waste Management - Milam
Fluorescent and HI Sodium Bulbs	Bulb Replacement	K	UW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4 - 8's ~75 - 4's	Varies	06/22/06	Onyx Port Washington, WI
Used Oil	Equipment Maintenance	K	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not Determined	4 drs/mo	N/A	Incinerated On-site
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

MATCH LINE SUPPORT MODULE





SITE MAP  
SCALE: 1" = 40'

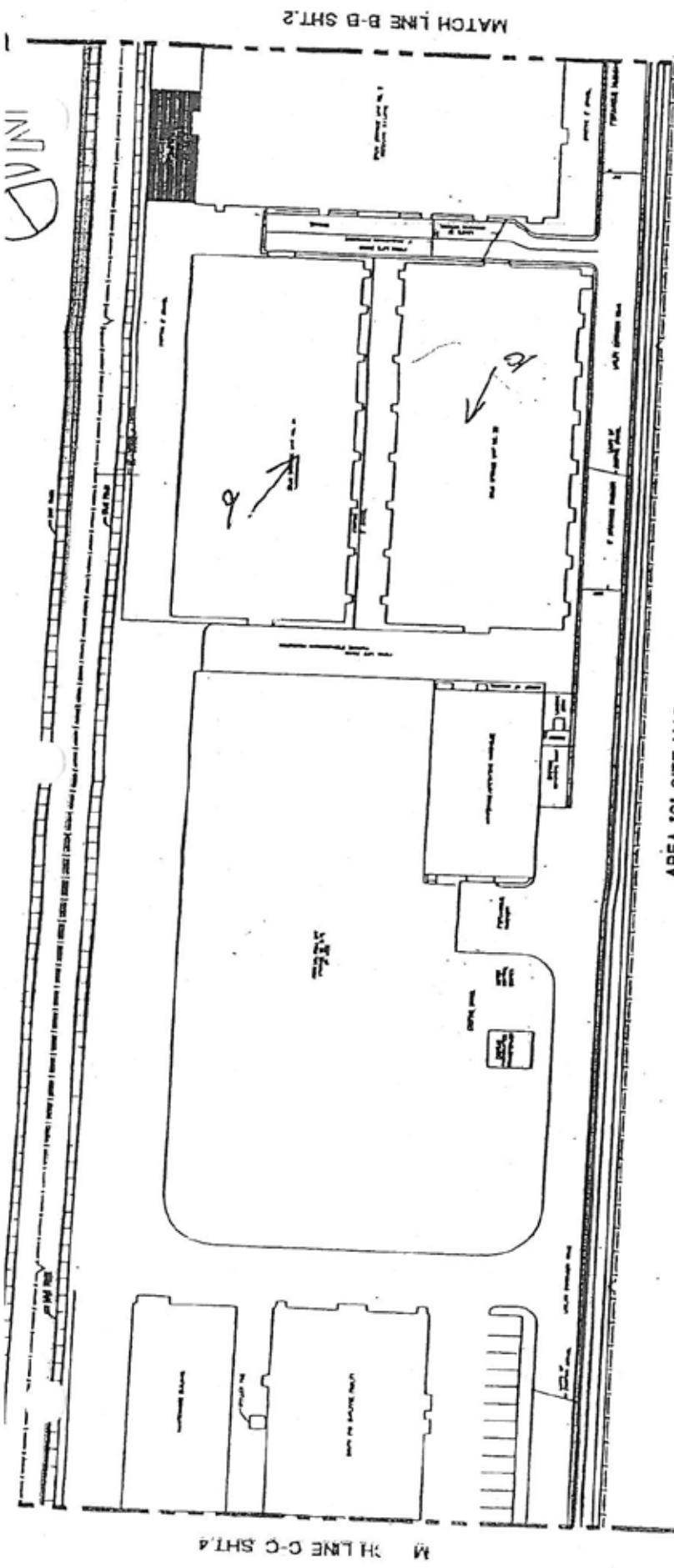
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1631210009 - St. Clair Co.  
Sauget/Onyx Environmental Services  
ILD098642424

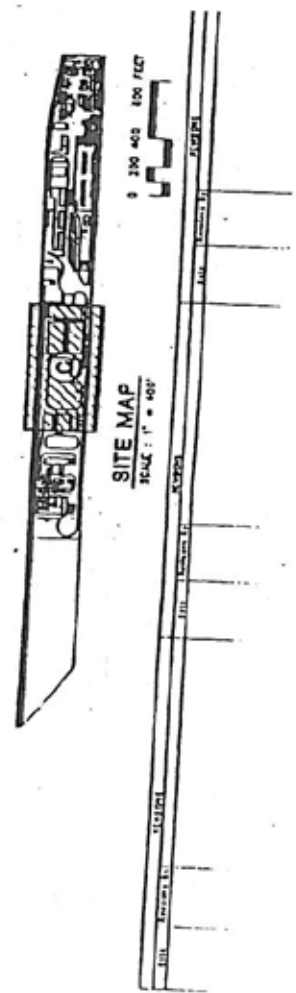
for file

Project Number: 1631210009  
Date: 08/01/2009  
Prepared By: D. MATTHEWS

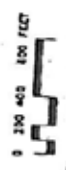
Scale: 1" = 40' (1:1600)  
North Arrow: 0, Magnetic



AREA 'C' SITE MAP  
SCALE: 1" = 30'



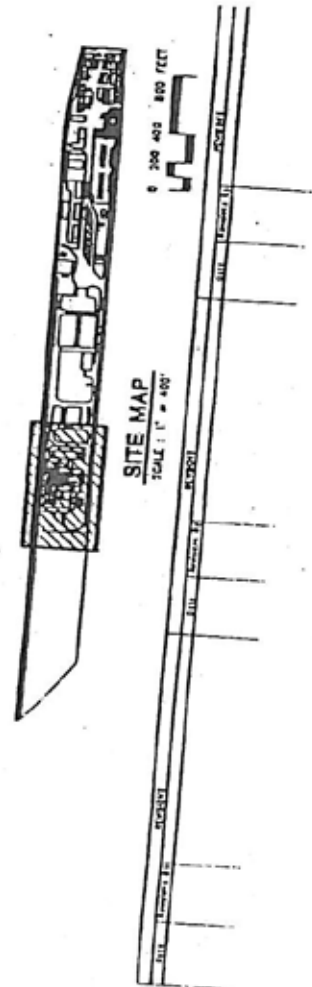
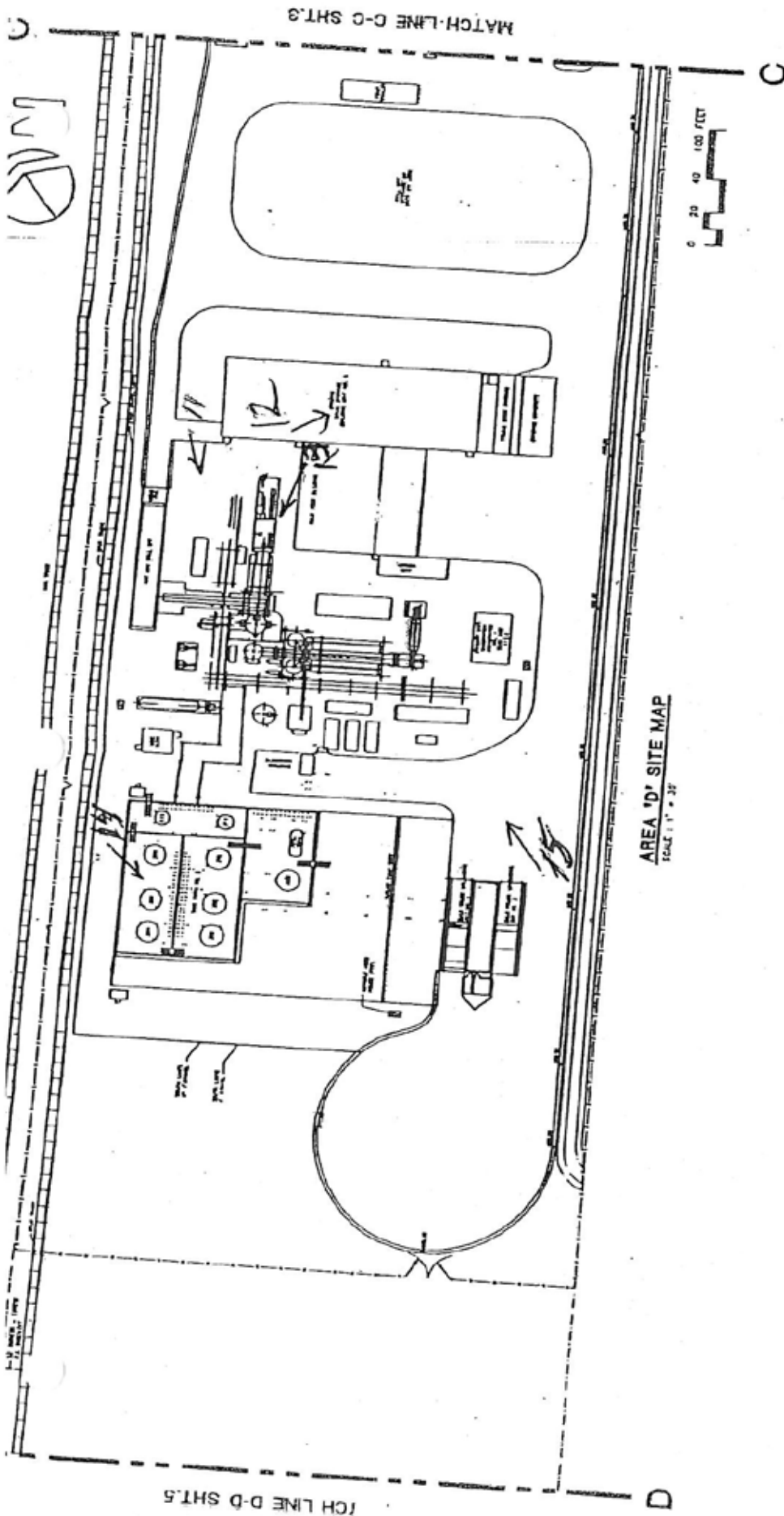
SITE MAP  
SCALE: 1" = 100'



1631210009 - St. Clair Co.  
Sauge/Onyx Environmental Services  
ILD098642424

*File*

Drawn: 10/10/09  
Checked: 10/10/09  
Date: 10/10/09  
Scale: 1" = 30'



1631210009 - St. Clair Co.  
Sauget/Oayx Environmental Services  
ILD098642424

**FOS** File

Project Number: E-10004  
Project Name: Sauget/Oayx  
Revision: 2. 01/01/2011

Drawn: AS NOTED  
Check: AS NOTED  
Date: 11/11/10



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

November 2, 2005

Attn: Doug Harris, General Manager  
Onyx Environmental Services  
#7 Mobile Avenue  
Sauget, IL. 62201

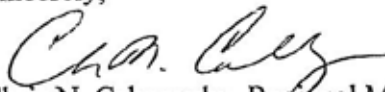
Re: 1631210009 - St. Clair County  
Sauget/Onyx Environmental Services  
ILD098642424  
Compliance File

Dear Mr. Harris:

On September 29<sup>th</sup> and 30<sup>th</sup>, 2005, your facility was inspected by Michael D. Grant of the Illinois Environmental Protection Agency. The purpose of this inspection was to determine your facility's compliance with the Illinois Environmental Protection Act and 35 Illinois Administrative Code, Part 722, Subparts A through D; Part 724, Subparts A through E, I, J, O, BB, CC and EE; Part 728, Subparts A through E and Part 733 Subpart B regulations and your RCRA Part B Permit. At the time of the inspection, apparent violations identified as a result of incidents which occurred at the facility on August 10, 1999, August 20, 1999, August 29, 1999 and September 6, 1999, July 2, 2000, July 3, 2000 and July 6, 2000, October 1, 2001 and March 29, 2002 remain outstanding.

For your information, a copy of this inspection report is enclosed. Should you have any questions regarding this inspection, please contact Michael D. Grant at 618/346-5120.

Sincerely,

  
Chris N. Cahnovsky, Regional Manager  
Field Operations Section  
Bureau of Land

Enclosure

# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

BUREAU OF LAND / FIELD OPERATIONS SECTION

## RCRA INSPECTION REPORT

### GENERAL FACILITY INFORMATION

USEPA ID #:	ILD098642424	IEPA ID #:	1631210009
Facility Name:	Onyx Environmental Services	Phone #:	618/271-2804
Location	#7 Mobile Avenue	County:	St Clair
City:	Sauget	State:	Illinois
		Zip Code:	62201
Region:	Collinsville	Inspection Date:	September 29, 2005 September 30, 2005
		Time:	13:00 - 15:45 9:15 - 13:00
Weather:	Sunny - 70'		

### TYPE OF FACILITY

Notified As:	G-1/TS	Regulated As:	G-1/TS
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### TYPE OF INSPECTION

CEI:	<input checked="" type="checkbox"/> CME/O&M:	<input type="checkbox"/> CSI:	<input type="checkbox"/> NRR:	<input type="checkbox"/> CCI:	<input type="checkbox"/> PIF:	<input type="checkbox"/> CVI:	<input type="checkbox"/> CSE:	<input type="checkbox"/> CAO:	<input type="checkbox"/>
FUI to:	Other:								

### NOTIFICATION INFORMATION (EPA 8700-12)

Notification Date:	07/18/80 (initial)	03/26/99 (subsequent)
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### PART A PERMIT INFORMATION (EPA 3510-3 OR EPA 8700-23)

Part A Date:	11/18/80	Amended:	03/05/03	Withdrawn:
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### PART B PERMIT INFORMATION

(Check one if applicable) Application Submitted?	<input type="checkbox"/>	Permit Issued?	<input checked="" type="checkbox"/>	Date:	03/31/88
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### ACTIVE ENFORCEMENT

Date facility referred to:	USEPA:	IAGO:	05/21/01	County State's Attorney:
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### ACTIVE ENFORCEMENT ORDERS

CACO:	CAFO:	Federal Court Order:
Consent Decree:	IPCB Order:	State Court Order:

### TSD FACILITY ACTIVITY SUMMARY

Activity by Process Code	On Part A?	On Part B?	Activity ever done?	Closed?	Being done during inspection?	Exempt per 35 IAC Sec:	On Annual Report:		
							2001	2002	2003
T03	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
T04	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S02	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### OWNER

#### OPERATOR

<b>Name:</b>	Onyx Environmental Services	<b>Name:</b>	Onyx Environmental Services
<b>Address:</b>	700 East Butterfield	<b>Address:</b>	700 East Butterfield
<b>City:</b>	Lombard	<b>City:</b>	Lombard
<b>State:</b>	Illinois	<b>State:</b>	Illinois
<b>Zip Code:</b>	60148	<b>Zip Code:</b>	60148
<b>Phone #:</b>	630/218-1647	<b>Phone #:</b>	630/218-1647

#### PERSON(S) INTERVIEWED

#### TITLE

#### PHONE #

Dennis Warchol	Environmental Manager	618/271-2804

#### INSPECTION PARTICIPANTS

#### AGENCY/BUREAU

#### PHONE #

Mike Grant	IEPA/BOL/FOS	618/346-5120

\*Report prepared by this person.

### SUMMARY OF APPARENT VIOLATIONS

AREA	SECTION	X	AREA	SECTION	X	AREA	SECTION	X
DGS	724.117b)	<input checked="" type="checkbox"/>	PtB	V.b.D10	<input checked="" type="checkbox"/>			<input type="checkbox"/>
DPP	724.131	<input checked="" type="checkbox"/>	Act	9a)	<input checked="" type="checkbox"/>			<input type="checkbox"/>
DIN	724.445d)	<input checked="" type="checkbox"/>	Act	21f)	<input checked="" type="checkbox"/>			<input type="checkbox"/>
PtB	III.I.2	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
PtB	V.a.D.8	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
PtB	V.a.D.9	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
PtB	V.b.D.8	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
PtB	V.b.D.9	<input checked="" type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>

X = CONTINUING VIOLATIONS

## REMARKS

On September 29<sup>th</sup> and 30<sup>th</sup>, 2005, an inspection was conducted at the Onyx Environmental Services - Trade Waste Incineration (Onyx) facility in Sauget, Illinois. Upon arrival at the site I met with Onyx's Environmental Manager Dennis Warchol. Onyx is an incinerator of hazardous and non-hazardous wastes. The facility received their RCRA Part B permit on March 31, 1988. The permit was last modified on February 7, 2003. This modification was in response to a Class 1 modification submitted May 15, 2002 and a Class 2 modification submitted on October 7, 2002. Both of these requests were for the addition of additional waste codes to the facility's Part B Permit. Those additional codes are K176, K177 and K178. These new listed waste codes are wastes generated by inorganic chemical manufacturing processes.

The facility's Part B Permit covers container storage, tank storage, decant/repackaging operations, waste feed systems and incineration. Container storage (S01) is permitted in the following areas of the facility; Container Storage 1A, 1B, 1C, 2A, 2B, 2C, Receiving Unit #3, Unit 3A, 3B, and Building #6. The total permitted volume for container storage is 732,836 gallons. The Part B Permitted tank storage areas (S02) are Tank Farm #1 and Tank Farm #2. The total permitted volume of waste stored in tanks is 1,165,300 gallons.

There are three permitted incinerators (T03) at the facility. Incinerators #2 and #3 are fixed hearth incinerators and are located at the north end of the facility and incinerator #4 is a rotary kiln which is located at the south end. Along with the previously mentioned units, there are also several miscellaneous units (T04a) that are also covered by the facility's Part B Permit. The facility has a Direct Inject Building at each end of the facility. The Direct Inject Building located at the south end is also used for bulk unloading into Tank Farm #2. There are two Drum Decant/Material Processing areas at the north end. Container Storage Area 2B is also permitted for lab pack repackaging.

The facility's Part B Permit expired on May 8, 1998. A new application was submitted on November 6, 1997. The application was deemed complete on April 17, 1998 and the Agency has begun its technical review. The Agency issued a Notice of Deficiencies (NOD) on June 2, 1999. TWI responded to the NOD on August 30, 1999. A second NOD dated December 9, 1999, was sent to the facility after the Agency completed its second technical review. On January 7, 2000, TWI submitted their response. On November 16, 2000, Onyx submitted their response to the Agency's NOD dated October 17, 2000. Section 705.202 allows the facility to continue operating pursuant to the expired permit until the new permit is issued.

1631210009 – St. Clair County  
Sauget/Onyx Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

Incinerators #2 and #3 are permitted at a heat input rate of 16 million Btu/hr. The system includes a batch lime preparation system, spray dryer absorber, fabric filter baghouse and an ash conveying system. Both incinerators #2 and #3 are computer automated and are operated through the use of a keyboard and terminal. Each unit has one specialty feeder port. Unit #2 has a compressed gas cylinder feed system, a direct inject liquid feed system and a specialty container feeder. Unit #3 has a hooded specialty container feeder (fume control system), a glove box emission control system and a direct inject liquid feed system. Since these units are equipped with one port, only one feeder can be used at a time. These feeders are used to transfer waste that may be difficult to handle (will not pump) or waste that needs special handling/precautions (reactive/explosive).

Unit #4 is a rotary kiln incinerator with a heat release capability of 50 million Btu/hr. Along with the liquid and containerized waste feeds on this unit, it is also equipped to feed bulk solids (i.e. contaminated dirt). A bulk storage building with four bins is used to contain the waste. The waste is fed to the incinerator via a clamshell bucket operated on a tram. Bulk solids are loaded into the unit via a chute (bulk loading), or a screw conveyor that feeds the soil at a controlled rate.

As a result of these operations, the facility generates the following wastes. Incinerators #2, #3 and #4 generate incinerator ash (D008) and dry scrubber solids (D008). The incinerator ash is stored in 20 yd<sup>3</sup> roll-off boxes or dump trailers. The dry scrubber solids are collected in a 5000-gallon tanker trailer. The roll-offs and trailers of ash and scrubber solids were being stored closed and were labeled as required. The facility generates fluorescent bulbs and high intensity sodium bulbs. These bulbs are managed as Universal Wastes and are shipped to the Onyx facility in Menomonee Falls, Wisconsin. There were two boxes containing 8-foot bulbs and one box containing 4-foot bulbs. A 15-gallon drum was being used to store high intensity sodium bulbs. These containers were labeled as required and are stored in the maintenance building. Empty drums that are not recycled are crushed and disposed at the Milam Landfill. There was one roll-off container of crushed drums at the site during this inspection. The facility also generates approximately 4 drums a month of used oil. The used oil is incinerated on-site.

Due to the land disposal restrictions, the ash generated from Incinerator 2 and 3 is reburned in #4. These residues are placed in the bulk pits and fed to #4 via the clamshell. The residues generated from #4 (ash and dry scrubber solids) are assigned with all of the waste codes that Onyx is permitted to accept. This procedure assumes that the ash and dry scrubber solids contains all the waste codes, with the exception of those codes TWI will not/cannot accept. These wastes are analyzed quarterly for compliance with the treatment standards for the

1631210009 – St. Clair County  
Sauget/Onyx Environmental Services  
ILD098642424  
Prepared by: Michael D. Grant

organic constituents. These wastes must be further treated at the receiving facility prior to disposal. The dry scrubber solids are being shipped to Peoria Disposal Company (PDC). Onyx does a one time LDR notice which each new quarterly Certification. However a LDR notice is shipped with every load of ash to EQ in Belleville, Michigan. Stabilization is conducted to ensure the inorganic treatment parameters are met. At the time of this inspection, there were 11 roll-offs and 4 dump trailers of incinerator ash and 1 roll-off and 7 dump trailers of dry scrubber solids.

The following records were reviewed: manifests, daily and weekly inspection, employee training records and the incident reports. RCRA annual hazardous waste refresher training was conducted in March of 2005. The facility also does 10-day transfer inspections for the trailers that are parked on the lot to ensure that the waste is either moved to a permitted storage area or is shipped off-site to an alternate facility. These inspections are conducted daily.

With respect to the Subpart CC requirements, TWI is managing all of their tanks in accordance with the Benzene NESHAP regulations. The tanks are equipped with carbon canisters to control organic emissions. The bulk pits associated with the #4 incinerator are also managed in accordance with the NESHAP regulations. All containers received and subsequently stored must be in DOT approved containers. Each shipment of containers is inspected prior to or during loading to ensure the containers and closure devices i.e. bungs are intact pursuant to Subpart CC. An inspection record is signed either by the generator or the transporting.

Receiver numbers are unique numbers assigned to each individual hazardous waste entered on line item 11 of the Uniform Hazardous Waste Manifests that accompanies the waste to the facility. That Receiver Number is cross-referenced to the Waste Profile Sheet that the facility has on file for that waste stream. A bar code is placed upon each container with the Receiver Number and each movement of that container is scanned. That data is then downloaded into the waste tracking system.

No deficiencies were observed during the inspection of the drum and tank storage areas, processing areas or the incinerators. The following apparent violations will remain unresolved until resolution of the pending enforcement action; 724.113a), 724.113b), 724.117a), 724.117b), 724.131, 724.441b), 724.443a)1), 724.443b), 724.443c), 724.445d), Sections Va.B.2, V.a.B.3, V.a.D.8, V.a.D.9, V.b.D.6, V.b.D.8, V.b.D.9, V.b.D.10, V.b.H.4, Standard Conditions 33, 34 and 35 of the Part B Permit, and Sections 9a) and 21f) of the Act.

MDG:Onyx09-05

# HAZARDOUS WASTE DISPOSITION FORM

Facility Name: Onyx Environmental Services		USEPA ID #: ILD098624424	
Inspection Date: September 29 & 30, 2005		IEPA ID #: 1631210009	

Waste Name	Generating Process	Last Analysis Date	USEPA HW #	On Notif.? (8700-12)	On Part A? (3510-3 or 8700-23)	On Annual Report for Years:			Amount On-Site	Generation Rate	Last Manifest Date	Disposition
						2002	2003	2004				
Incinerator Ash	Incinerator residue	Quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11 R/Os 4 Tr'l's	1-2 R/O a day	9/29/2005	EQ - Michigan
DSS	Dry Scrubber Solids	Quarterly	Listed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7 Tr'l's 1 R/O	1 Trailer a Day	9/29/2005	Peoria Disposal Company
Crushed Drums	RCRA MT Drums	N/A	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Trailer	1 Trailer a week	9/29/2005	Waste Management - Milam
Fluorescent and HI Sodium Bulbs	Bulb Replacement	K	UW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2 bx 8's 1 bx 4's 1 dr hi sodium	Varies	Not Determined	Onyx Menomonee Falls, WI
Used Oil	Equipment Maintenance	K	Non-Haz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not Determined	4 drs/mo	N/A	Incinerated On-site
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
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				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				



## ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR

RENEE CIPRIANO, DIRECTOR

618/346-5120

September 7, 2004

ONYX Environmental  
Attn: Dennis Warchol  
#7 Mobile Avenue  
Sauget, IL 62201

Re: ID #163 121 AAP

Dear Mr. Warchol:

On July 9, 2004, an inspection of ONYX Environmental Services was conducted by Mark Schlueter representing the Illinois Environmental Protection Agency. The purpose of the visit was to review facility operations with regard to applicable state and federal air pollution control laws and regulations.

A copy of the inspection report is enclosed for your information.

Please contact Mark Schlueter at 618/346-5120 if you have any questions regarding this inspection.

Sincerely,

John B. Justice  
Regional Manager  
Bureau of Air

JBj:MCS:pbo

Enclosure

JED  
9-3-04

MEMORANDUM

Date: September 2, 2004  
To: Ed Bakowski, FOS Section Manager  
From: Mark Schluter, FOS Engineer *max*

Date of Inspection: July 9, 2004  
Last Insp. Date: Sept. 19, 2003  
I.D.#163121AAP R/D: 301  
County: St. Clair

Source: ONYX Environmental Services  
Address: #7 Mobile Ave., Sauget, IL 62201  
Contact/Title: Dennis Warchol/Environmental Manager & Dave Clarich/Engr. Manager  
Phone: 618/271-2804

**Purpose**

The purpose of the inspection was reviewing the company's current permit status with the Bureau of Air.

**Description**

ONYX Environmental Services, Inc. currently operates 3 hazardous waste incinerators in Sauget, IL. The company operated 4 at one time, but the oldest unit (Unit #1) was taken out of service years ago. The incinerators are used to destroy liquid and solid hazardous and non-hazardous wastes. Waste materials are received in bulk form and in metal/fiber drums. The waste streams are generated from a wide variety of processes in various industries. Materials such as lab wastes, degreasing washes, tank cleanouts, paint sludges, still bottoms, industrial chemical wastes and pathological hospital wastes are incinerated. ONYX classifies the majority of material received as having a high or low ash content and as being halogenated or non-halogenated. When the waste material composition has been determined, the shipment will be routed to: 1-the drum storage area, 2-the tank farm, or 3-directly to the incinerator.

The incinerators designated as Units #2 & #3 are two-chambered hearth units each rated at 16 million BTU/hr. The waste materials are fed into the primary chamber where they are ignited at temperatures in excess of 1500F. The secondary chamber acts as a large afterburner that is required to maintain a minimum temperature of 1800F. The two chambers are designed to provide sufficient residence times at these desired temperatures to destroy hazardous constituents. The air pollution control system for each unit consists of a spray dryer absorber and fabric filter. The SDA takes lime slurry, atomizes it and discharges the spray into direct contact with the flue gas. The lime is fed to the SDA at a rate of 6-8gpm. The fabric filter removes the suspended lime along with the incinerator generated particulates.

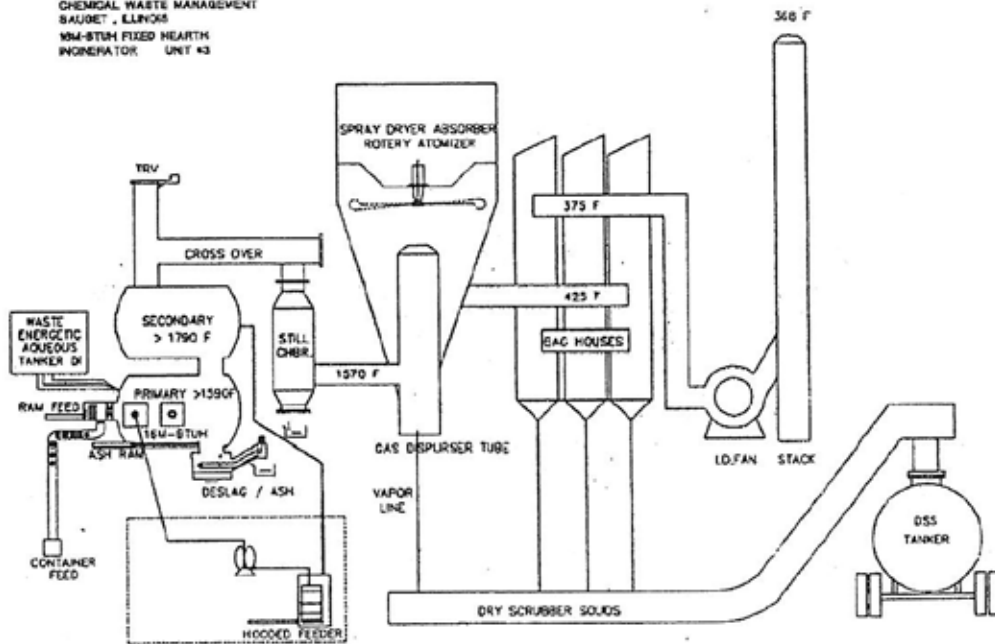
### Findings

The comments from this inspection/visit center on the permit status for the incinerators at the ONYX Sauget facility. The site has previously had an operating permit from the Bureau of Air that had language similar to the Bureau of Land RCRA Part B permit. The RCRA program was established to regulate the transport, storage, handling and treatment of hazardous waste. To minimize confusion between the two bureaus, the RCRA permit in many instances has taken the lead in governing the operation of ONYX's three hazardous waste incinerators.

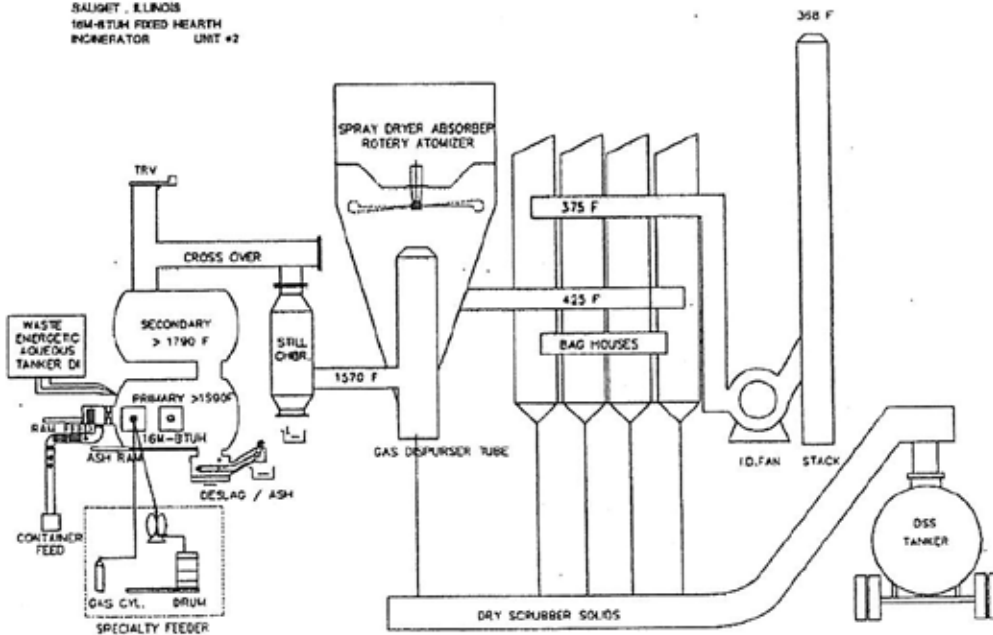
The USEPA has now developed rules, which instilled strict emissions controls on incinerators based on performance of available best technologies, referred to as maximum achievable control technology (MACT). Compliance with MACT will take precedence over a portion of the RCRA Part B program. The MACT standards that apply to ONYX will be spelled out when the Title V air operating permit is issued from IEPA to ONYX. The MACT standards will be part of ONYX's compliance program to be in compliance with 40 CFR Part 63 Subpart EEE. At this point issuance of the Title V permit is held up due to outstanding issues with the reissuance of the RCRA Part B permit to ONYX by IEPA-BOL. USEPA -BOL has performed a risk screening analysis of the surrounding area, which has brought up concerns with certain metals. USEPA wants ONYX to address these concerns through conditions imposed by the IEPA through a reissued RCRA Part B permit. ONYX has hired a consultant to perform another risk screening analysis and submit these results along with any action plan to USEPA for their review. On the air permit front, ONYX is preparing for demonstrating compliance with the MACT standards. ONYX has confidence that the metal emission standards of Subpart EEE can be met. They have found through a series of in-house tests that semi-volatile and low volatile metals are collected/removed by the air pollution control equipment. According to ONYX, as these metals are released through combustion they attach to the dust entrained in the SCC & SDA and are collected in particulate form by the fabric filter. The toughest metal to collect is mercury, which ONYX is dealing with by installing carbon control systems on each unit. My understanding is that a compliance performance test or CPT is required by ONYX by 12/31/04. ONYX believes they have enough performance data from in-house testing to submit "data in lieu" as an alternative to a CPT. This strategy is allowed by MACT. With the delays in decisions because of the USEPA involvement discussed above, ONYX will probably ask for extensions in regards to meeting the MACT compliance date. They can request 2-6 month extensions.

This ended my discussion with ONYX on the air permit issue.

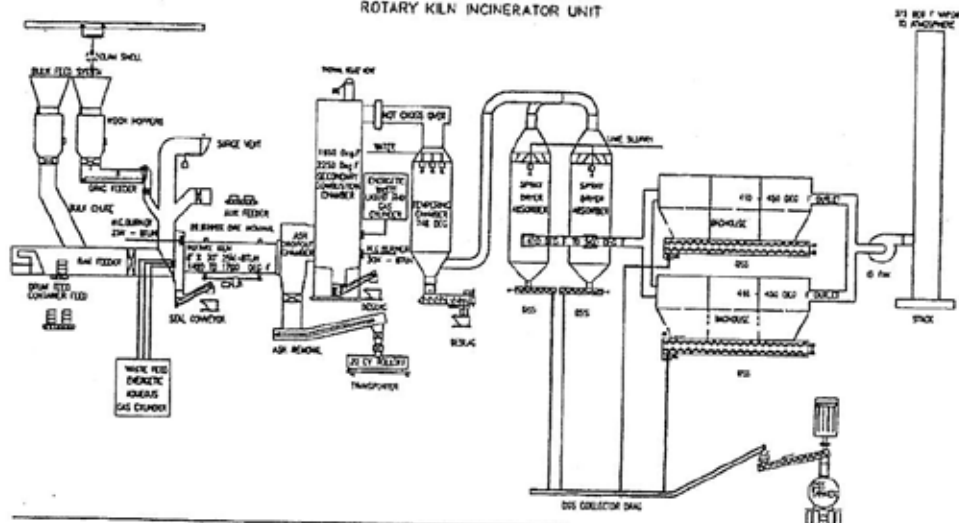
CHEMICAL WASTE MANAGEMENT  
SAUGET, ILLINOIS  
16M-BTUM FIXED HEARTH  
INCINERATOR UNIT #3



CHEMICAL WASTE MANAGEMENT  
SAUGET, ILLINOIS  
16M-BTUM FIXED HEARTH  
INCINERATOR UNIT #2

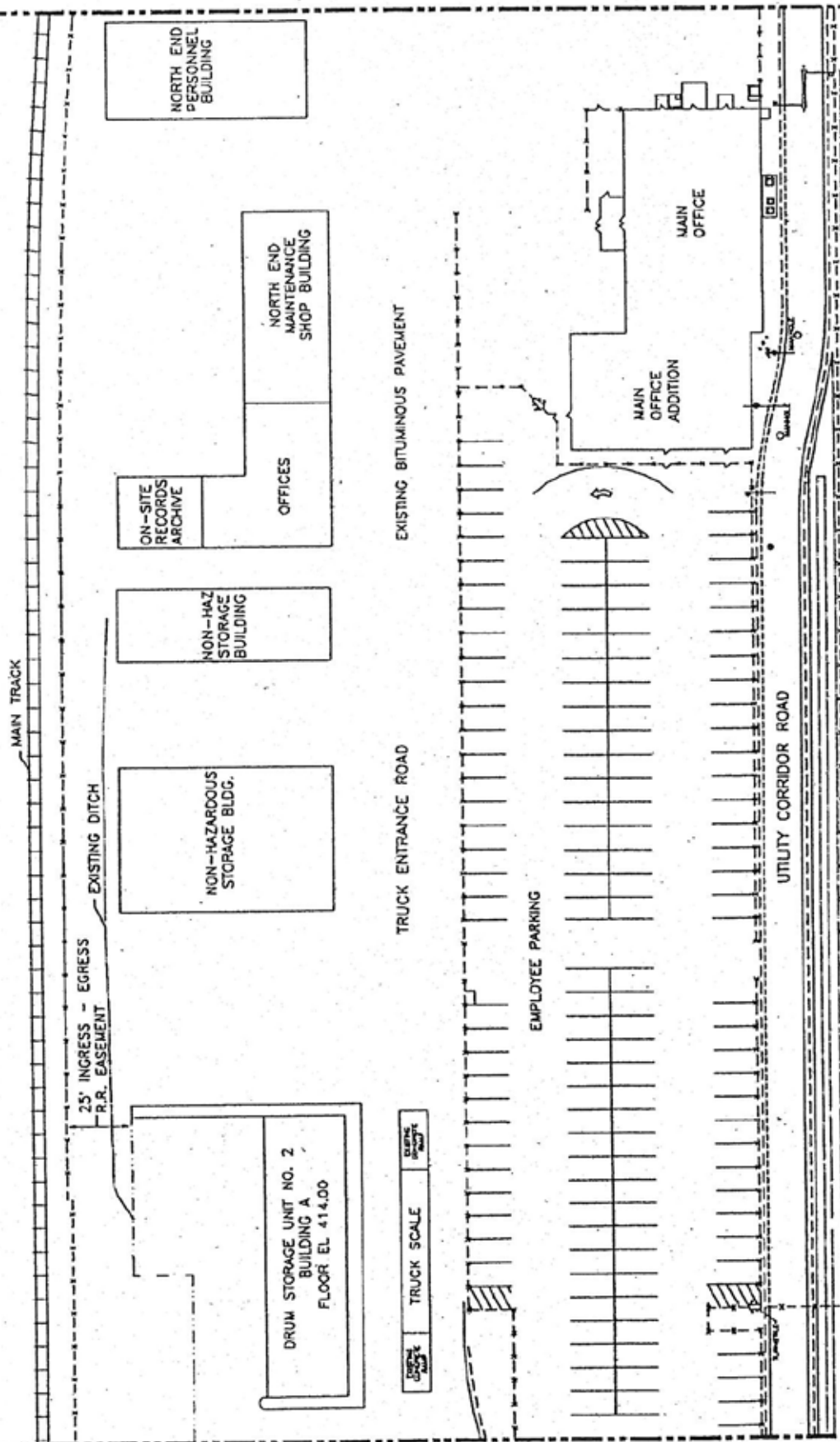


CHEMICAL WASTE MANAGEMENT, INC.  
SAUGET, ILLINOIS  
ROTARY KILN INCINERATOR UNIT





# MATCH LINE PROCESS MODULE - A



MATCH LINE SUPPORT MODULE

## SUPPORT MODULE

A B

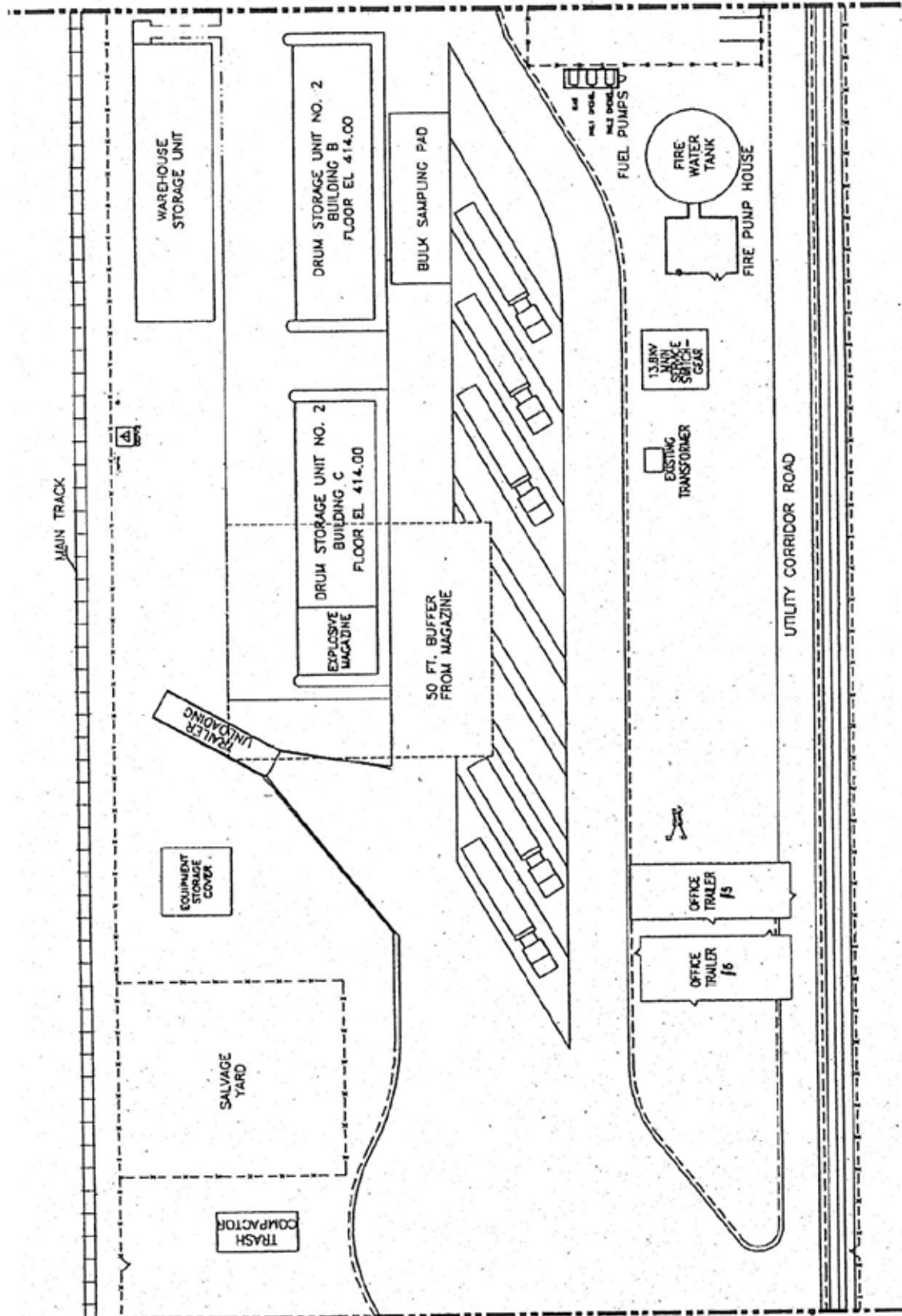
# MATCH LINE SUPPORT MODULE

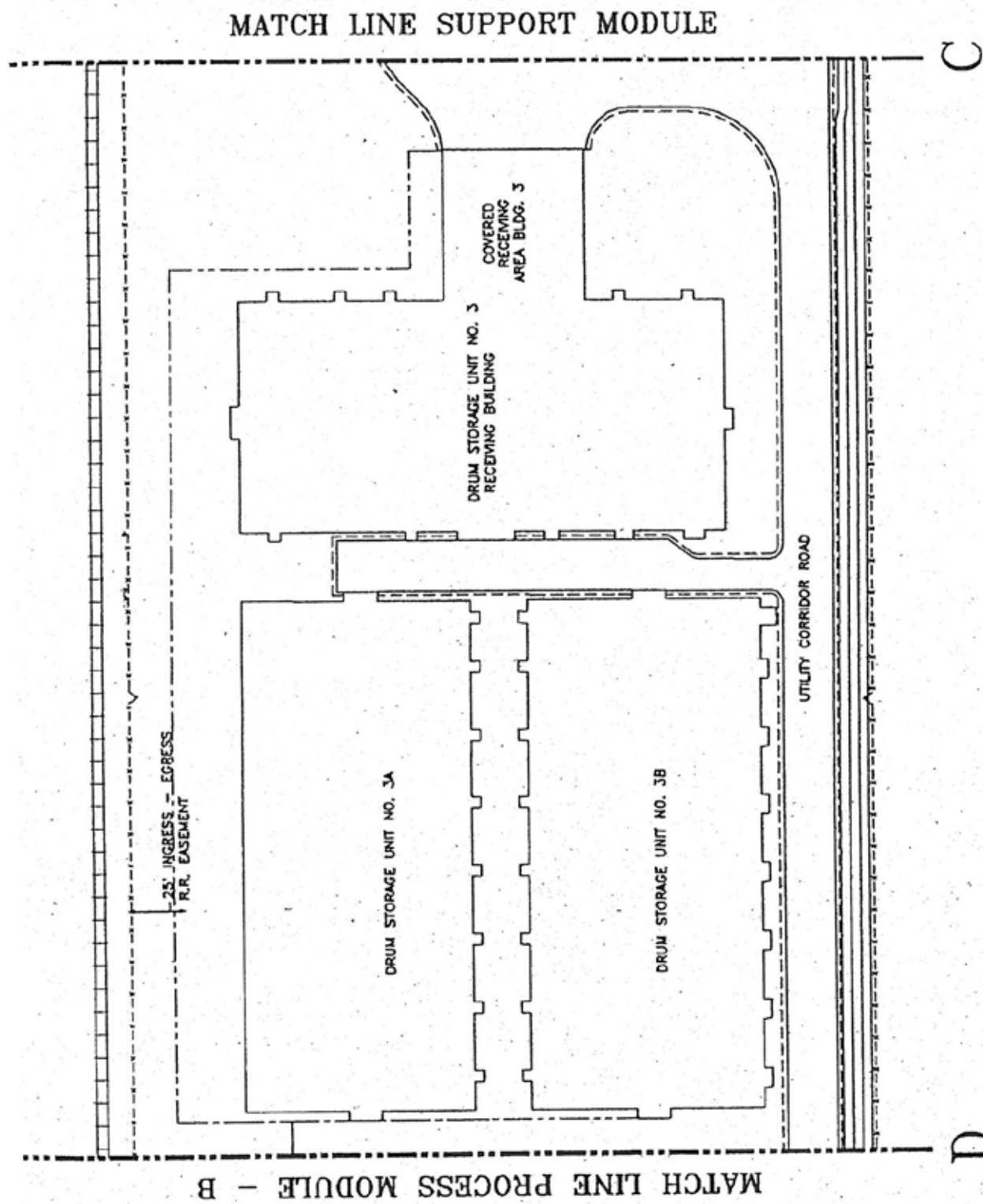
B

## SUPPORT MODULE

MATCH LINE PROCESS MODULE - B

C

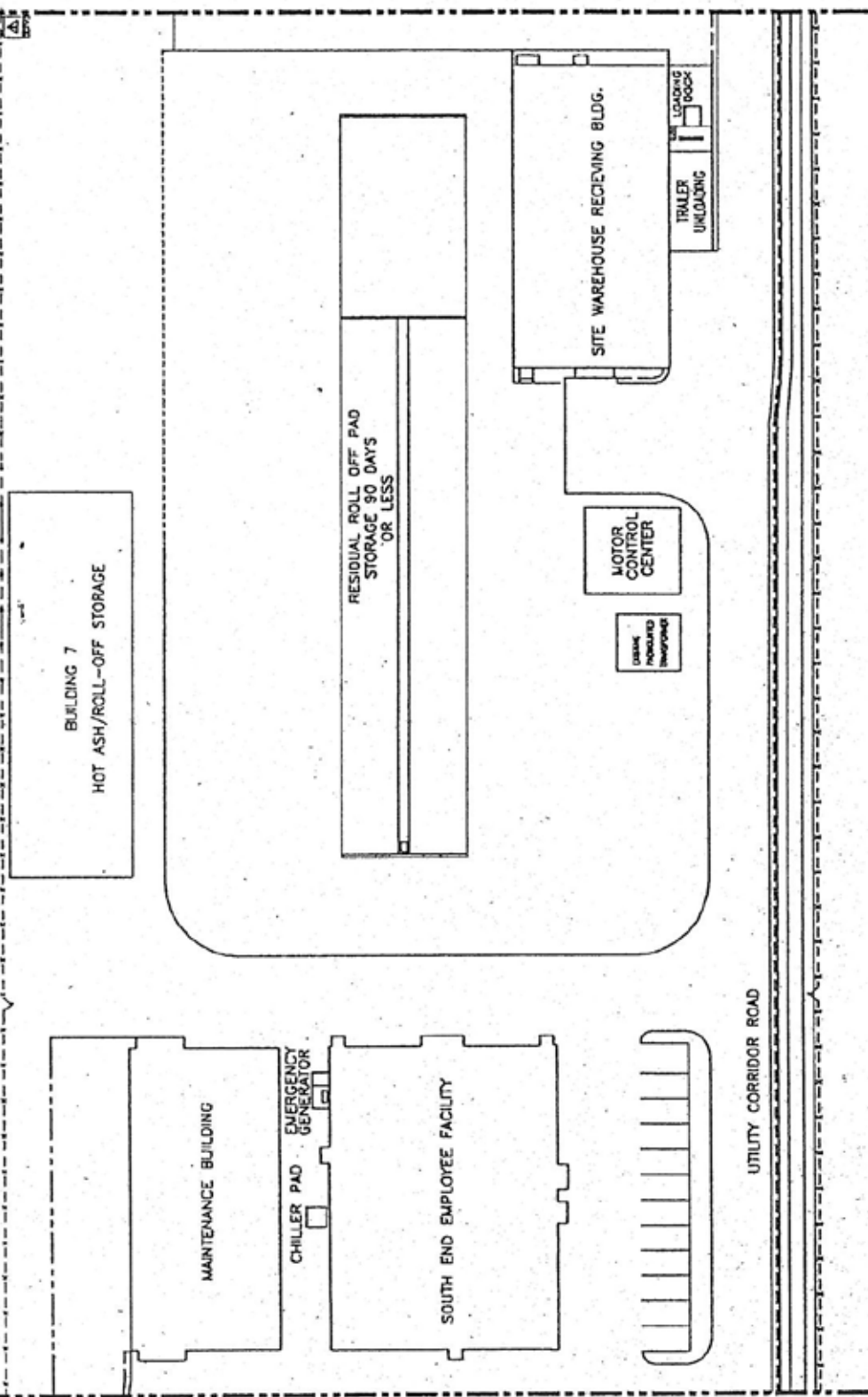




# PROCESS MODULE - B

# MATCH LINE PROCESS MODULE - B

# MATCH LINE PROCESS MODULE - C



# PROCESS MODULE - B


REVISED

REVISED

REVISED

PROCESS MODULE - C

0 20 40 100 FEET



**TRADE WASTE**  
A FUND  
**CHEMICAL WASTE MGMT.**

SITE PLANNING  
PROCESS MODEL



### Unacceptable and Conditionally Acceptable Codes

The following list of material is unacceptable at VES-TS.

- ☒ D006, cadmium batteries
- ☒ D008, lead acid batteries
- ☒ D009, high mercury inorganic
- ☒ F020
- ☒ F021
- ☒ F022
- ☒ F023
- ☒ F026
- ☒ F027
- ☒ F028
- ☒ K069, non  $\text{CaSO}_4$
- ☒ K088
- ☒ K106, high mercury
- ☒ P009, gaseous state
- ☒ P031, gaseous state
- ☒ P033, gaseous state
- ☒ P056, gaseous state
- ☒ P063, gaseous state
- ☒ P065, high mercury incinerator residues and RMERC residues
- ☒ P076
- ☒ P078
- ☒ P092, high mercury incinerator residues and RMERC residues
- ☒ P095, gaseous state
- ☒ P096, gaseous state
- ☒ U134, gaseous state
- ☒ U151, high mercury
- ☒ PCB's >50ppm (TSCA waste)
- ☒ Radioactive material
- ☒ Mixed waste
- ☒ Asbestos
- ☒ Potentially Infectious Medical Waste as defined by 35 Illinois Administrative Code 1420.102

USEPA coded metal bearing waste is conditionally acceptable at VES-TS. All coded metal bearing waste must meet one of the following:

- ☒ >5000 BTU
- ☒ contain combustible debris
- ☒ contain F039 organic constituents in treatable quantities
- ☒ contain >1% total organic carbon
- ☒ carry a code with INCIN as the specified technology
- ☒ in a lab pack utilizing the alternative treatment standard of incineration

## Waste Handling Summary

### Approval:

Once a customer requests an approval of a waste for incineration, the facility will perform a pre-acceptance review of information and any data supplied by the customer. (See Tab 6 Approval Process Details) When the waste is approved a process code is assigned. The process code describes how the operations group will process the waste. The proper personal protective equipment is selected specifically for the waste constituents. Consultation of on site safety officers and the generator or manufacturer may be utilized if necessary.

### Receiving:

The waste is scheduled and delivered to VES-TS. When the waste arrives at the facility, the manifests are reviewed and piece count verified. Samples of the waste may be required by the Waste Analysis Plan (WAP) at receipt and our on-site laboratory performs analysis. Samples of the generator's waste are incinerated after analysis is complete. Significant discrepancies will be resolved with the customer prior to acceptance of the waste. (See Tab 7 Scheduling/Manifesting/Labeling/Receiving Procedures)

### Waste Tracking:

The Waste Tracking System at VES-TS, begins at scheduling with a sequentially assigned number that follows each container throughout receiving, sampling, analysis, storage, processing and incineration. The Waste Tracking System is kept up to date by scanning each container as it is moved.

### Storage and Process Planning:

Waste is placed in one of ten storage buildings and evaluated for placement on a processing plan. The Process Planner issues a plan describing in detail how each waste must be processed and incinerated. There are three material processing areas at the site. Process plans for reactive wastes are reviewed by processing engineers and management prior to executing the plans. Based on the process plan, the operations group prepares the waste for incineration.

- Bulk Liquids are placed in one of two tank farms with other compatible liquids or may be directly injected from a tanker. The facility has four direct inject feed lines.
- Bulk Solids are off-loaded into one of four pits. Waste is moved through the feed system via an overhead clamshell crane into the incinerator. The roll off may be placed into a storage building prior to off-loading into a pit.
- Drum Liquids are placed in a storage tank with other compatible liquids or may be directly injected from a drum. VES-TS has the ability to hood feed 85 gallon drums or less that are air or water reactive or very odiferous. This allows vapors to be incinerated in the secondary combustion chamber.
- Drum Solids are either consolidated into a roll off or broken down into burnable charges. If the waste is air or water reactive the waste may be packaged in a glove box. Non hazardous wastes may be shredded in the double shear shredder.
- Lab Pack materials are inspected and packaged into burnable charges.
- Cylinders are directly injected into the incinerator or packaged into smaller charges in a glove box.

**Incineration:**

There are three incinerators at the facility. Two are sixteen million BTU per hour fixed hearth incinerators. The fixed hearth incinerators primary chambers burn at an average temperature of 1850 degrees F. The secondary combustion chambers burn at an average temperature of 1910 degrees F. The third incinerator is a fifty million BTU per hour rotary kiln. The primary chamber burns at an average of 1900 degrees F and the secondary at 1950 degrees F. The retention time in all primary combustion chambers varies with the type of material.

Gases from each incinerator enter their own individual scrubber system. Constant stack monitoring of carbon monoxide and total hydrocarbons, etc ensures combustion efficiency. Thermal destruction of 99.99% is obtained. On average VES-TS incinerates 12 million pounds of material a year.

**Residual Handling:**

As a result of incineration, there are two streams generated. Ash and dry scrubber solid, which are sent to an VES-TS approved Subtitle C landfills. Dry scrubber solids are the result of lime slurry that is sprayed and collected in the bag houses that scrub any impurities out of the gases produced.

All drums are RCRA emptied and burned or crushed. They are then placed in a secure landfill or recycled.

## Approval Process Details

The decision to approve waste into the facility takes the following into account: regulations, health and safety, site handling capabilities, and the permit. Approved waste streams are reviewed every two years for new regulations or procedures that may change how the waste is handled. Lab packs are approved on a drum-by-drum basis.

### Lab Packs:

Inner containers must be 5 gallons or less in size and must be packaged with absorbent in a larger container. Requirements for a technical decision are as follows:

- A completed and signed Generator's Waste Profile Sheet (see Attachment A)
- An accurate drum inventory sheet for each drum that lists the content of all inner containers, sizes, hazardous waste codes, and any other pertinent information
- Additional information or paperwork as requested by the Approvals Chemist
- Copies of the Lab Pack Guidelines are available upon request.

### Waste Streams:

If your waste is of the type listed below, a Generator's Waste Profile Sheet and an MSDS (if applicable) should be submitted for approval.

- Unused or off-spec products
- Empty containers (must meet the RCRA definition of empty)
- Pharmaceuticals or commercial products packaged in consumer packaging
- Aerosol cans
- Batteries
- DEA Controlled Substances (21CFR parts 1300 to end.)

If your waste is not on the previous list, the facility requires the following analytical:

- Pensky-Martens Closed-Cup Flash Point
- Apparent Viscosity (Visual description)
- PH (by paper or meter)
- PCB totals (with a detection limit of < 50 ppm) (SW846-8082)
- Radioactivity Screen (Geiger Counter)
- Dioxin precursor analysis-as required (SW846-8150)

### Samples:

The sample can be sent to the facility or a certified lab may supply the analysis.

- A representative, 1 quart sample is required for VES-TS analysis.
- Each sample must have a sample container label that lists:
  - Generator Name
  - Waste Name
  - Sampler's Name
  - Sampler's Signature
- Each sample must have a chain of custody.
- A copy of the Waste Profile Sheet must be included inside the box

Send samples to:

Veolia Environmental Services, L.L.C.  
#7 Mobile Avenue  
Sauget, IL 62201  
Attn. Sample Receiving

**Veolia ES Technical Solutions LLC**

 7 Mobile Avenue  
 Sauget, IL 62201  
 Telephone: (618) 271-2804 Fax: (618) 271-9704

**WASTE PROFILE**

1. **GENERATOR NAME:** \_\_\_\_\_ **Generator USEPA ID:** \_\_\_\_\_  
 2. **Generator Address:** \_\_\_\_\_ **Billing Address:** ☐ Same \_\_\_\_\_  
 3. **Technical Contact Phone:** \_\_\_\_\_ **Billing Contact Phone:** \_\_\_\_\_  
 4. **Technical Contact Fax:** \_\_\_\_\_ **Billing Contact Fax:** \_\_\_\_\_

**PROPERTIES AND COMPOSITION**

5. **A. Process Generating Waste:** \_\_\_\_\_  
**B. Is the waste from a CERCLA or state mandated cleanup?** Yes ☐ No ☐ **Location Name:** \_\_\_\_\_  
 6. **Waste Name:** \_\_\_\_\_  
 7. **A. Is this a USEPA hazardous waste (40 CFR Part 261)?** Yes ☐ No ☐  
**B. If D001, D002, D004-D043 do any underlying hazardous constituents (UHC's) apply?** Yes ☐ No ☐ (If yes attach UHC form)  
**C. Does this waste contain debris (List size and type in chemical composition)?** Yes ☐ No ☐  
**D. Identify ALL USEPA listed and characteristic waste code numbers (D,F,K,P,U):** \_\_\_\_\_

**State Waste Codes:** \_\_\_\_\_  
 8. **Physical State @ 70°F:** A. Solid ☐ Liquid ☐ Both ☐ Gas ☐ B. Single Layer ☐ Multi-layer ☐ C. Free Liquid Range \_\_\_\_ to \_\_\_\_ %  
 9. **A. pH Range:** \_\_\_\_ to \_\_\_\_ or Not Applicable ☐ B. Strong Odor ☐ Describe: \_\_\_\_\_ C. Color: \_\_\_\_\_  
 10. **Liquid Flash Point:** <73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥200°F ☐ N/A ☐

11. **Chemical Composition:** List ALL constituents (including halogenated organics and UHC's) present in any concentration and forward available analysis

Constituents	Range	Units	Constituents	Range	Units
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**TOTAL COMPOSITION MUST EQUAL OR EXCEED 100%**

12. **Other:** PCB's if yes, Concentration \_\_\_\_ PPM, PCB's regulated by 40 CFR 761 ☐ Pyrophoric ☐ Explosive ☐ Radioactive ☐  
 Water Reactive ☐ Shock Sensitive ☐ Oxidizer ☐ Carcinogen ☐ Infectious ☐ Other: \_\_\_\_\_  
 13. **If Benzene, Concentration \_\_\_\_ PPM, Is the waste subject to the Benzene Waste Operations NESHAP?** Yes ☐ No ☐ Unknown ☐  
 14. **Is the waste subject to RCRA subpart CC control?** Yes ☐ No ☐ Volatile Organic Concentration, if known: \_\_\_\_ PPMV  
 15. **If waste is subject to the land ban and meets the treatment standards, check here:** \_\_\_\_ and supply analytical results where applicable.  
 16. **Is the wastestream being imported into the USA?** Yes ☐ No ☐  
 17. **Is the wastestream subject to the Marine Pollutant Regulations?** Yes ☐ No ☐  
 18. **Is the wastestream subject to any NESHAP/MACT notification requirements?** Yes ☐ No ☐  
 19. **If the answer to question 18 is yes, to which NESHAP/MACT is the waste subject?** \_\_\_\_\_  
 20. **If a NESHAP/MACT was identified in 19 will each shipment be monitored and/or inspected prior to transport, as required?** Yes ☐ No ☐

**SHIPPING INFORMATION**

21. **Packaging:** Bulk Solid ☐ Type/Size: \_\_\_\_\_ Bulk Liquid ☐ Type/Size: \_\_\_\_\_ Drum ☐ Type/Size: \_\_\_\_\_ Other: \_\_\_\_\_  
 22. **Shipping Frequency:** Units \_\_\_\_ Per: Month ☐ Quarter ☐ Year ☐ One Time ☐ Other: \_\_\_\_\_  
 23. **Shipping Name:** \_\_\_\_\_  
 24. **Hazardous Class:** \_\_\_\_\_ **UN/NA #:** \_\_\_\_\_ **PG:** \_\_\_\_\_ **RQ Amount** \_\_\_\_\_ **lb/k** \_\_\_\_\_

**SAMPLING INFORMATION**

25. **A. Sample Source (drum, lagoon, pond, tank, vat, etc.):** \_\_\_\_\_  
**Date Sampled:** \_\_\_\_\_ **Sampler's Name/Company:** \_\_\_\_\_  
 25. **B. Generator's Agent Supervising Sampling:** \_\_\_\_\_

**GENERATOR'S CERTIFICATION**

I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261-Appendix 1 or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize Veolia Environmental Services LLC to obtain a sample from any waste shipment for purposes of re-certification. If this certification is made by a broker, the undersigned signs as authorized agent of the generator and has confirmed the information contained in this Waste Profile from information provided by the generator and additional information as it has determined to be reasonably necessary.

Signature \_\_\_\_\_

Printed (or typed) Name and Title \_\_\_\_\_

Date \_\_\_\_\_

If the waste is approved, Veolia ES Technical Solutions, LLC has the appropriate permits and will accept the waste pursuant to our agreement.

**Scheduling:**

Material may be scheduled into VES-TS through our customer service department by calling (800) 894-9462 or faxing an order to (618) 271-9704. Hours of receipt are 6:00 a.m. – 2:00 p.m., Monday through Friday.

**Manifesting:**

- Scheduled loads are checked in at the guardhouse.
- Starting September 5, 2006, there will be no more state Hazardous Waste Manifests by rule of the USEPA.
- The Hazardous Waste Manifest is based on both RCRA authority and hazardous materials regulations administered by DOT.
- Each manifest form will have a unique, preprinted manifest tracking number. The manifest tracking number will be taking the place of the manifest document number (from the old manifest).
- Veolia ES Technical Solutions has been approved by the EPA to be a printer of the hazardous manifest.
- The six- part manifest would allow only limited state required information i.e. (state waste codes).
- Some of the new parts of the manifest includes a space for site address for a generator. It eliminates the use for a transporter phone number. Includes space for the facility phone number. New special handling section combines the old J and 15 sections.
- In the absence of a standardized EPA waste code hierarchy, Veolia will continue with the waste code hierarchy procedures presently in place with the exception of when a D003 exists for a waste, then D003 will be entered in the first waste code box.
- Veolia has created an optional addendum to the manifest for documenting other waste information required by the Generator or TSDF due to the space limitations in the Additional Description portion (section 14) of the new manifest.

**Labeling:**

All containers must be labeled in accordance with all the regulations and restrictions of the US DOT and the USEPA. All outside containers must be marked with a unique drum number and the Waste Profile Sheet number. Both numbers should be marked on the top and the side of the drum.

**Receiving Procedures:**

- Scheduled loads are checked in at the guardhouse.
- The material acceptance group reviews the manifest and enters information into the Waste Tracking System.
- The receiving department verifies the piece count and labels the drums for waste tracking.
- Sampling is performed per the Waste Analysis Plan (WAP).

**Incoming Waste Testing:**

The following parameters are outlined in the WAP and are used to determine conformance:

- PH
- Flammability potential screen
- Radioactivity screen (waste must not be radioactive, <0.5 millirad/hour)
- Apparent viscosity
- PCB's (TSCA-regulated PCB's are unacceptable.)

Supplemental waste checks include:

- Physical state
- Color
- Viscosity
- Layering
- Odor
- Water mix / reactivity
- Air reaction
- Specific gravity
- Cyanide screen
- Sulfide screen
- Oxidizer screen
- Halogen determination

Sampling and analysis can be waived for certain waste streams, such as unused products. Compatibility testing is performed on all liquids destined for tank storage

**Discrepancy Resolution:**

If the waste does not conform to the approved profile, the laboratory prepares a discrepancy report. All discrepancies must be resolved within 15 days, or the reason for the discrepancy and why it is not resolved must be reported to the IEPA. Discrepancies are resolved using the available information and through discussions with the customer.



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
07/08/2009

<b>PRODUCER</b> Marsh USA Inc. 1000 Main Street, Suite 3000 Houston, TX 77002 Attn: Specialty.CertRequests@marsh.com; 212-948-0564		<b>THIS CERTIFICATION IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.</b>	
010056-Veoli-Prima-09/10	BID	<b>INSURERS AFFORDING COVERAGE</b>	<b>NAIC #</b>
<b>INSURED</b> VEOLIA ES TECHNICAL SOLUTIONS, LLC 7 MOBILE AVENUE SAUGET, IL 62201		INSURER A: New Hampshire Insurance Company	23841
		INSURER B: Insurance Company Of The State Of PA	19429
		INSURER C: AIG Casualty Company	19402
		INSURER D: National Union Fire Ins Co Pittsburgh PA	19445
		INSURER E: Commerce And Industry Ins Co	19410

## COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	LIMITS
A	<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> CONTRACTUAL LIABILITY-RR  GENERAL AGGREGATE LIMIT APPLIES PER <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC	GL4572700	07/01/2009	07/01/2010	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES(Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 1,000,000 PRODUCTS - COMP/OP AGG \$ 1,000,000
	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	CA4576281 (All Other States)	07/01/2009	07/01/2010	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
		CA4576282 (MA)	07/01/2009	07/01/2010	BODILY INJURY (Per person) \$
		CA4576283 (VA)	07/01/2009	07/01/2010	BODILY INJURY (Per accident) \$
				PROPERTY DAMAGE (Per accident) \$	
	<b>GARAGE LIABILITY</b> <input type="checkbox"/> ANY AUTO			AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY AGG \$	
	<b>EXCESS / UMBRELLA LIABILITY</b> <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE  <input type="checkbox"/> DEDUCTIBLE RETENTION \$			EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$	
A	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE Y/N OFFICER/MEMBER EXCLUDED? <input checked="" type="checkbox"/> N (Mandatory in NH) If yes, describe under SPECIAL PROVISIONS below	WC4552998 (All Other States) WC4552999 (AZ, MD & VA) WC4553000 (CA) WC4553001 (WI & STOP GAP)	07/01/2009 07/01/2009 07/01/2009 07/01/2009	07/01/2010 07/01/2010 07/01/2010 07/01/2010	<input checked="" type="checkbox"/> WC STATU- TORY LIMITS <input type="checkbox"/> OTH- ER E L EACH ACCIDENT \$ 1,000,000 E L DISEASE - EA EMPLOYEE \$ 1,000,000 E L DISEASE - POLICY LIMIT \$ 1,000,000
B	<b>OTHER</b> Workers Compensation and	WC1558356 (FL)	07/01/2009	07/01/2010	See Above Limits
B	Employers Liability	WC0623124 (MA)	07/01/2009	07/01/2010	
F		WC4883561 (TX)	07/01/2009	07/01/2010	

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

## CERTIFICATE HOLDER

HOU-001186352-02

## CANCELLATION

VEOLIA ES TECHNICAL SOLUTIONS, LLC  
7 MOBILE AVENUE  
SAUGET, IL 62201


SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE  
of Marsh USA Inc.  
Barry N. Smith

<b>ADDITIONAL INFORMATION</b>		HOU-001186362-02	DATE (MM/DD/YY) 07/08/2009
<b>PRODUCER</b> Marsh USA Inc. 1000 Main Street, Suite 3000 Houston, TX 77002 Attn: Specialty.CertRequest@marsh.com; 212-948-0564			
010056-Veoli-Prima-09/10	BID .... -----	<b>INSURERS AFFORDING COVERAGE</b>	<b>NAIC #</b>
<b>INSURED</b> VEOLIA ES TECHNICAL SOLUTIONS, LLC 7 MOBILE AVENUE SAUGET, IL 62201		INSURER F: Illinois National Ins Co	23817
		INSURER G: N/A	N/A
		INSURER H: N/A	N/A
		INSURER I:	

**TEXT**

**CERTIFICATE HOLDER**

VEOLIA ES TECHNICAL SOLUTIONS, LLC 7 MOBILE AVENUE SAUGET, IL 62201	<div style="border-top: 1px solid black; height: 40px; width: 100%;"></div>
	<small>AUTHORIZED REPRESENTATIVE of Marsh USA Inc.</small> Barry N. Smith <div style="text-align: right;">  </div>



February 26, 2007  
TECHNICAL SOLUTIONS  
NORTH AMERICA

Financial Assurance  
Facility Reporting Unit  
Planning and Reporting Section  
Illinois Environmental Protection Agency  
Division of Land Pollution Control  
1001 North Grand Ave. East  
Springfield, IL 62702

RE: Veolia ES Technical Solutions L.L.C.  
#7 Mobile Ave.  
Sauget, IL 62201  
Amendment to Letter of Credit No. 181382580

Financial Assurance, Planning and Reporting Section:

Attached is Veolia ES Technical Solutions L.L.C., amendment to Letter of Credit No. 181382580 for the Closure amount \$9,788,972. A copy of the original irrevocable standby Letter of Credit is also attached. The closure cost has been recalculated for current labor and disposal cost and the defined cost of \$9,788,972 is significantly more than the current calculation due to decreases over the years in disposal cost.

Please call me if you have any questions concerning this closure information.

Sincerely,

A handwritten signature in black ink, appearing to read "Dennis J. Warchol", written over the word "Sincerely,".

Dennis J. Warchol  
Environmental, Health and Safety Manager

cc: IEPA File

DATE OF AMENDMENT: FEBRUARY 10, 2004

AMENDMENT TO LETTER OF CREDIT NO.:  
1S1382580  
DATE OF ISSUE: MARCH 19, 2003

ISSUING BANK:

FLEET NATIONAL BANK  
GLOBAL TRADE OPERATIONS  
FLEET WAY, MAIL STOP: PAEHOS02SM  
SCRANTON PA 18507-1999

APPLICANT:

ONYX ENVIRONMENTAL SERVICES, LLC  
7 MOBILE AVENUE  
SAUGET, IL 62201

BENEFICIARY:

ILLINOIS ENVIRONMENTAL PROTECTION  
AGENCY  
1001 NORTH GRAND AVENUE EAST  
SPRINGFIELD, IL 62702  
ATTN: BLAKE HARRIS, FINANCIAL  
ASSURANCE FACILITY REPORTING UNIT

THE ABOVE MENTIONED CREDIT IS AMENDED AS FOLLOWS:

THE AMOUNT OF THIS CREDIT HAS BEEN INCREASED BY USD 9,578,250.00

THE AMOUNT OF THE CREDIT ISSUED NOW TOTALS USD 9,788,972.00

ALL CORRESPONDENCE INCLUDING PRESENTATIONS UNDER THIS LETTER OF CREDIT SHALL BE  
SENT TO FLEET NATIONAL BANK, ATTN: GLOBAL TRADE OPERATIONS DEPT., STANDBY UNIT,  
FLEET WAY, SCRANTON, PA 18507.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

  
AUTHORIZED SIGNATURE



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

07/24/2009

## PRODUCER

Marsh USA Inc.  
1000 Main Street, Suite 3000  
Houston, TX 77002  
Attn: Specialty.CertRequest@marsh.com; 212-948-0564

THIS CERTIFICATION IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

010056-Veolia-POLL-09/10

\*\*\*\*

## INSURERS AFFORDING COVERAGE

## NAIC #

## INSURED

Veolia ES Technical Solutions, LLC  
7 Mobile Avenue  
Sauget, IL 62201-1069

INSURER A N/A

N/A

INSURER B N/A

N/A

INSURER C N/A

N/A

INSURER D N/A

N/A

INSURER E N/A

N/A

## COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	LIMITS
	<b>GENERAL LIABILITY</b> <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> OCCUR <input type="checkbox"/> GENERAL AGGREGATE LIMIT APPLIES PER <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMPROP AGG \$
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<b>GARAGE LIABILITY</b> <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY AGG \$
	<b>EXCESS / UMBRELLA LIABILITY</b> <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input type="checkbox"/> Y/N (Mandatory in NH) If yes, describe under SPECIAL PROVISIONS below				WC STATUTORY LIMITS <input type="checkbox"/> OTHER <input type="checkbox"/> E L EACH ACCIDENT \$ E L DISEASE - EA EMPLOYEE \$ E L DISEASE - POLICY LIMIT \$
F	<b>OTHER</b> Pollution Legal Liability Claims Made Form	PLS1364667	09/30/2004	07/01/2010	Each Incident 15,000,000 Aggregate 15,000,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS  
EVIDENCE ONLY

## CERTIFICATE HOLDER

HOU-001192990-09

## CANCELLATION

VEOLIA ES TECHNICAL SOLUTIONS LLC  
#7 MOBILE AVENUE  
SAUGET, IL 62201

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE  
of Marsh USA Inc.  
Barry N. Smith

### **IMPORTANT**

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

### **DISCLAIMER**


This Certificate of Insurance does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

<b>ADDITIONAL INFORMATION</b>		HOU-001192990-09	DATE (MM/DD/YY) 07/24/2009
<b>PRODUCER</b> Marsh USA Inc. 1000 Main Street, Suite 3000 Houston, TX 77002 Attn: Specialty.CertRequest@marsh.com; 212-948-0564			
010056-Veolia-POLL-09/10	****	<b>INSURERS AFFORDING COVERAGE</b>	<b>NAIC #</b>
<b>INSURED</b> Veolia ES Technical Solutions, LLC 7 Mobile Avenue Saugel, IL 62201-1069		INSURER F American International Specialty Lines Ins Co	26883
		INSURER G N/A	N/A
		INSURER H N/A	N/A
		INSURER I	

**TEXT**

<b>WORKER'S COMPENSATION:</b>	<b>POLICY NUMBER:</b>	<b>POLICY TERM:</b>
<b>CARRIER:</b>		
INSURANCE CO. OF THE STATE OF PA	WC 1558356 (FL)	7/1/09 - 7/1/10
LIMITS: EL EACH ACCIDENT: \$1,000,000	EL DISEASE-POLICY LIMIT: \$1,000,000	EL DISEASE-EACH EMPLOYEE: \$1,000,000.
INSURANCE CO. OF THE STATE OF PA	WC 0623124 (MA)	7/1/09 - 7/1/10
LIMITS: EL EACH ACCIDENT: \$1,000,000	EL DISEASE-POLICY LIMIT: \$1,000,000	EL DISEASE-EACH EMPLOYEE: \$1,000,000.
ILLINOIS NATIONAL INSURANCE CO.	WC4883561 (TX)	7/1/09 - 7/1/10
LIMITS: EL EACH ACCIDENT: \$1,000,000	EL DISEASE-POLICY LIMIT: \$1,000,000	EL DISEASE-EACH EMPLOYEE: \$1,000,000

**CERTIFICATE HOLDER**

VEOLIA ES TECHNICAL SOLUTIONS LLC #7 MOBILE AVENUE SAUGET, IL 62201	
	<small>AUTHORIZED REPRESENTATIVE of Marsh USA Inc. Barry N. Smith</small> 

**ATTACHMENT 10**

**U.S. EPA PCB FORM 7710-53**

**USEPA**United States  
**Environmental Protection Agency**  
Washington, DC 20460Form Approved  
OMB No. 2070-0112

## Notification of PCB Activity

Return To:  Document Control Officer (5305P) Office of Solid Waste U.S. Environmental Protection Agency 1200 Pennsylvania Ave., N.W. Washington, DC 20460-0001		<b>For Official Use Only</b>	
1. Name of Facility	Name of Owner Facility	2. EPA Identification Number (if already assigned under RCRA)	
3. Facility Mailing Address (Street or PO Box, City, State, & Zip Code)		4. Location of Facility (No. Street, City, State, & Zip Code)	
5. Installation Contact (Name and Title)		6. Type of PCB Activity (Mark 'X' in appropriate box. See Instructions.)	
Telephone Number (Area Code and Number)		<input type="checkbox"/> A. Generator w/onsite storage facility	
		<input type="checkbox"/> B. Storer (Commercial)	
		<input type="checkbox"/> C. Transporter	
		<input type="checkbox"/> D. R&D/Treatability	
		<input type="checkbox"/> E. Approved Disposer	
		<input type="checkbox"/> F. Scrap Metal Recovery Oven/Smelter, High Efficiency Boilers	
7. Certification			
<p>Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as a company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.</p>			
Signature	Name and Official Title (Type of Print)		Date Signed
<b>Paperwork Reduction Act Notice</b>			
<p>The annual public burden for this collection of information is estimated to average 0.57 hours per response. This estimate includes time for reading instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, Collection Strategies Division, U.S. Environmental Protection Agency (mail code 2822), 1200 Pennsylvania Ave., N.W., Washington, D.C. 20460-0001. Include the OMB number identified above in any correspondence. Do not send the completed form to this address. The actual information or form should be submitted in accordance with the instructions accompanying the form, or as specified in the corresponding regulations.</p>			

**ATTACHMENT 11**

**TRIAD DOT PERMIT**



U.S. Department  
of Transportation

Pipeline and Hazardous  
Materials Safety Administration

East Building, PHH-30  
1200 New Jersey Avenue, Southeast  
Washington, D.C. 20590

SPECIAL PERMIT AUTHORIZATION

DOT-SP 13552

EXPIRATION DATE: November 30, 2013

GRANTEE: Triad Transport, Inc.  
McAlester, OK

In response to your March 24, 2009 application for renewal of DOT-SP 13552, the grantee status to DOT-SP 13552 for Triad Transport, Inc. is hereby renewed in accordance with 49 CFR § 107.109.

Copies of this special permit may be obtained by accessing the Office of Hazardous Materials Safety Homepage at [http://hazmat.dot.gov/sp\\_app/special\\_permits/spec\\_perm\\_index.htm](http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm). The most recent revision of the special permit supersedes all previous revisions of the special permit. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

If you have questions regarding this action please call the Office of Hazardous Materials Special Permits and Approvals at (202) 366-4535.

Issued in Washington D.C. on April 12, 2010.

for Dr. Magdy El-Sibaie  
Acting Associate Administrator  
for Hazardous Materials Safety

May 5, 2009



U.S. Department  
of Transportation

East Building, PHH - 30  
1200 New Jersey Avenue, Southeast  
Washington, D.C. 20590

**Pipeline and Hazardous  
Materials Safety Administration**

DOT-SP 13552  
(FIFTH REVISION)

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: (See individual authorization letter)
2. PURPOSE AND LIMITATION:
  - a. This special permit authorizes the transportation in commerce of Phosphorus, white dry or Phosphorus, white, under water or Phosphorus white, in solution, or Phosphorus, yellow dry or Phosphorus, yellow, under water or Phosphorus, yellow, in solution in alternate packaging. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
  - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.
  - c. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.188 in that alternative packaging is authorized as provided herein.
5. BASIS: This special permit is based on the Pipeline and Hazardous Materials Safety Administration's (PHMSA) editorial review under § 107.121 initiated on December 4, 2008.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Phosphorus, white dry or Phosphorus, white, under water or Phosphorus white, in solution, or Phosphorus, yellow dry or Phosphorus, yellow, under water or Phosphorus, yellow, in solution	4.2	UN1381	I

7. SAFETY CONTROL MEASURES:a. PACKAGING - Prescribed packaging is:

(1) A 55-gallon UN 1A2 steel drum certified to the PG I performance level for solids and the PG II performance level for liquids and dual marked to a minimum of UN1A2 X/400/S and UN1A2 Y/1.2/150; or

(2) A 30-gallon UN 1A2 steel drum certified to the PG I performance level for solids and the PG II performance level for liquids and dual marked to a minimum of UN1A2 X/235/S and UN1A2 Y/1.2/150.

b. OPERATIONAL CONTROLS:

(1) Transportation is authorized by private or contract carrier only.

(2) Transportation is authorized one-time, one-way, only from the generator of the waste material to the hazardous waste treatment facility where it must be unloaded by the consignee for disposal.

(3) Sufficient water must be present in each drum to ensure that the waste phosphorous is covered during transportation, in any orientation of the drum.

(4) Drums must be held and observed for a minimum of 24-hours before transportation. Any leaking or

otherwise unsuitable drums must be replaced prior to transportation.

(5) Packages must be destroyed at the disposal site and may not be reused.

(6) The net mass of the waste material and water, in kilograms, must not exceed the mass that would be permitted by calculating the volume of the packaging in liters multiplied by the specific gravity indicated on the package certification.

8. SPECIAL PROVISIONS:

(1) A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

(2) A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or change is made to the package and it is reoffered for transportation in conformance with this special permit and the HMR.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle used to transport packages covered by this special permit.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- o Registration required by § 107.601 et seq., when applicable.

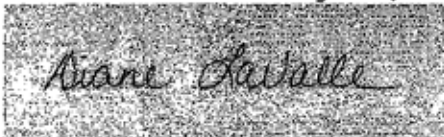
Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) - 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this exemption are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this exemption must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this exemption.

Issued in Washington, D.C.:



for Theodore L. Willke  
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at [http://hazmat.dot.gov/sp\\_app/special\\_permits/spec\\_perm\\_index.htm](http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm)  
Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: DL/AM

**ATTACHMENT 12**

**TRIAD'S WHITE PHOSPHORUS TRANSPORTATION PROTOCOL AND  
CONTINGENCY PLAN FOR TRANSPORTATION OF HAZARDOUS WASTE**

**Triad Transport, Inc.  
P.O. Box 818  
McAlester, OK 74502  
800-324-1139**

### White Phosphorus Transportation and Contingency Protocol

The following is an outline protocol for the purpose of detailing the transportation of White Phosphorus shipments from the Ravenna Arsenal – Ravenna, OH to TWI – Sauget, IL. These steps will be taken to ensure safe transportation of van shipments via Triad Transport, Inc. (Triad) on a predetermined route from origin to destination.

- Triad will provide a van semi-trailer at the Ravenna Arsenal for each load. Each load will be handled as a “live load and go” with Triad providing a clean empty van every time they pick up at Ravenna.
- Veolia will notify Triad operations in Columbus, OH with an order for transport “Trip Ticket” at least 5 business days in advance of the scheduled request for pick up.
- Triad will dispatch a truck with an empty van trailer to arrive within a two-hour time frame of the requested time for scheduled pick up. Upon arrival, the driver will park at the prearranged loading location.
- Veolia personnel with the assistance of the Triad driver will load, secure load with load locks provided by Triad and seal the trailer. They will also placard the trailer with appropriate placards and prepare a Hazardous Waste Manifest for shipment.
- The Triad driver will then review the shipping manifest and verify that the trailer is sealed and ready for transport. The driver will also verify that each trailer is placarded properly before he signs off on the manifest.
- Upon leaving the Ravenna Arsenal, the Triad driver will drive to Sauget, IL on the following predetermined route stopping only for fuel and rest breaks along the way.

#### **1.0 Predetermined Transportation Route**

- **Primary Route From Ravenna Arsenal to Sauget, IL:** State Route 5 west to State Route 44 south to I-76 west to I-71 south to (Columbus bypass) I-270 west to I-70 west to (Indianapolis by-pass) I-465 south to I-70 west to Route 3 south into Sauget, Illinois.
- **Alternative Route from Ravenna Arsenal to Sauget, IL:** State Route 5 east to State Route 225 south to State Road 62 west to I-77 south (Canton, Ohio). From Canton, Ohio I-77 south to Charleston, West Virginia to I-64 west through West Virginia, Kentucky, Indiana and Illinois

to East St. Louis, Illinois. At East St. Louis, Illinois take I-255 south to exit 10 and take Route 3 north to Sauget, Illinois.

## 2.0 Transportation Protocol

- Once on site at Veolia – Sauget, IL the facility will live unload each trailer as required by Triad's permit.
- In the event of an equipment failure, Triad will provide replacement equipment within 24 hours if the equipment cannot be repaired in a timely fashion.
- In the event of an accident or incident while the truck is enroute from Ravenna to Sauget, the Triad driver will refer to the **Emergency Response Guidebook** and call the following people in this order:
  1. 911 – Fire and Rescue
  2. Triad's Safety Director
  3. TolTest Onsite Technical Manager – 330-240-0492 Cell; who in turn will notify
    - RVAAP Facility Manager – 505-721-9770 Cell

The Safety Director for Triad will be responsible for contacting the National Spill Response Center, Veolia's Emergency Response Team and the Triad Operations Manager. The Triad Operations Manager will contact the Regional Vice President for Triad who in turn will notify the Veolia team.

## 3.0 Discussion from the Emergency Response Guide 2008

Page 218

### 3.1 POTENTIAL HAZARDS

- **FIRE OR EXPLOSION**
  - Extremely flammable; will ignite itself if exposed to air.
  - Burns rapidly, releasing dense, white, irritating fumes.
  - Substance may be transported in a molten form.
  - May re-ignite after fire is extinguished.
  - Corrosive substances in contact with metals may produce flammable hydrogen gas.
  - Containers may explode when heated.
- **HEALTH**
  - Fire will produce irritating, corrosive and/or toxic gases.
  - TOXIC; ingestion of substance or inhalation of decomposition products will cause severe injury or death.
  - Contact with substance may cause severe burns to skin and eyes.

- Some effects may be experienced due to skin absorption.
- Runoff from fire control may be corrosive and/or toxic and cause pollution.

### **3.2 PUBLIC SAFETY**

• **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover of the *Emergency Response Guidebook*.**

- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Stay upwind.
- Keep unauthorized personnel away.
- Keep out of low areas.

#### **3.2.1 PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

• **For Phosphorus (UN1381): Special aluminized protective clothing should be worn when direct contact with the substance is possible.**

#### **3.2.2 EVACUATION**

##### **3.2.2.1 Spill**

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

##### **3.2.2.2 Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

### **3.3 Emergency Response**

#### **3.3.1 Small Fire**

- Water spray, wet sand or wet earth.

#### **3.3.2 Large Fire**

- Water spray or fog.
- **Do not scatter spilled material with high-pressure water streams.**

- Move containers from fire area if you can do it without risk.

### **3.3.3 Fire involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

### **3.3.4 Spill or Leak**

- Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch or walk through spilled material.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.

#### **3.3.4.1 Small Spill**

- Cover with water, sand or earth. Shovel into metal container and keep material under water.

#### **3.3.4.2 Large Spill**

- Dike for later disposal and cover with wet sand or earth.
- Prevent entry into waterways, sewers, basements or confined areas.

### **3.3.5 FIRST AID**

- Move victim to fresh air. • Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- In case of contact with substance, keep exposed skin areas immersed in water or covered with wet bandages until medical attention is received.
- Removal of solidified molten material from skin requires medical assistance.
- Remove and isolate contaminated clothing and shoes at the site and place in metal container filled with water. Fire hazard if allowed to dry.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

**3.4 Spill Follow-Up Procedures:** Two steps remain once the immediate emergency aspects of a spill have been taken care of:

- A. **DECONTAMINATION** - A truck or trailer - exposed to a spill or leak will be decontaminated at the site in order to prevent any further release to the extent that it can be transported (or move under its own power) to an authorized facility capable of further decontamination if necessary.

EQUIPMENT will be decontaminated in the following manner: Each item used will be placed in an open head container and thoroughly rinsed with a compatible solvent or cleaning compound. The residue or wash water will then be drained into a tight head container, sealed, and disposed of in accordance with Federal and State Regulations at an authorized disposal site. Larger equipment will be decontaminated using a washing process and wastewater or solvent will be contained, collected into drums and disposed of properly.

CLOTHING - contaminated clothing will be placed with the clean up residue and disposed of in accordance with Federal and State Regulations at an authorized disposal site. If clothing is reusable then it will be decontaminated properly and the residue added to the other waste.

- B. **NOTIFICATION** - The Department of Transportation, Director of Hazardous Materials Registration, Materials and Transportation Bureau, Washington, D.C., 20590 will be notified in writing of the occurrence and nature of the incident and a copy will be submitted to the state and generator.

**3.5 TRAINING PROGRAM**

In preparation for handling hazardous materials and hazardous wastes, all drivers and response personnel receive approximately 40 hours classroom training conducted by Triad's Safety Department followed by refresher training by Triad's Safety Department at monthly safety meetings or in safety letters. In addition to the above, an annual meeting is held to educate further each Triad's Operation Supervisor on changes in regulations. The following is a list of classroom training provided to all personnel responsible for the handling and storage of hazardous waste:

- A. Alcohol & Drug Testing, and abuse.

- B. Hazardous Waste Manifesting
- C. Container Receiving Maintenance
- D. Container Inspection
- E. Containing Transferring
- F. Container Pickup Checklist
- G. Re-Use of Containers for Hazardous Waste
- H. Emergency Response Equipment (including PPE)
- I. Emergency Procedures
- J. Hazardous Waste Labeling
- K. Product Compatibility
- L. In-House Maintenance Checks
- M. Decontamination Procedures
- N. Emergency Spills

Since much of the drivers' actions involve hazardous materials, including hazardous wastes, their instructions specifically include:

- A. Inspection of their vehicles before and during trips.
- B. Driving Rules.
- C. Knowledge of safety and health hazards of products carried (e.g., flammable, corrosive).
- D. Actions to be implemented in case of spills, accidents, or other emergencies involving hazardous materials and hazardous wastes.

### **3.6 Contact Personnel and Numbers**

National Spill Response Center  
**800-424-8802**

---

Veolia Technical Solutions Emergency Response General Call Center  
**800-688-4005**

---

Triad Transport, Inc.  
P.O. Box 818  
McAlester, OK 74502  
**800-324-1139**

Triad Transport, Inc.  
Safety Director

Houston Brittain

**800-324-1134 X417**

918-916-6944 Cell

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John Allen Titsworth

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918-916-1379 Cell

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Terminal Manager

Chris Bennett

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**Final White Phosphorus Disposal Contingency Plan  
Addendum 001 to the Ravenna Army Ammunition Plant Installation  
Spill Contingency Plan (Vista, September 2010) for  
RVAAP-004-R-01 Open Demolition Area #2 MRS for the  
White Phosphorus Disposal at the Rocket Ridge Area**

**Ravenna Army Ammunition Plant  
Ravenna, Ohio**

**Contract Number: W912QR-04-D-0038  
Delivery Order Number: 0011**

Prepared For:



U.S. Army Corps of Engineers  
Louisville District  
600 Dr. Martin Luther King, Jr. Place  
Louisville, Kentucky 40202

Prepared By:



1480 Ford Street  
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March 2, 2011

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Attachment 1	White Phosphorus Material Safety Data Sheet
Attachment 2	Activity Description and Visitor Notification Form
Attachment 3	Emergency Response Flowchart
Attachment 4	Spill Alert Form for Discoverer

## ACRONYM LIST

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
BRAC	Base Realignment and Closure
BRACD	Base Realignment and Closure Division
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CY	Cubic Yard
EHS	Extremely Hazardous Substance
US EPA	United States Environmental Protection Agency
HSP	Health and Safety Plan
ISCP	Installation Spill Contingency Plan
LEPC	Local Emergency Planning Committee
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OAC	Ohio Administrative Code
ODA2	Open Demolition Area #2
OEL	Occupational Exposure Level
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
OSC	On-Scene Coordinator
PIKA	PIKA International, Inc
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
RQ	Reportable Quantity
RRA	Rocket Ridge Area
RVAAP	Ravenna Army Ammunition Plant
SERC	State Emergency Response Commission
TCRA	Time Critical Removal Action
T&D	Transportation & Disposal
TPQ	Threshold Planning Quantities
TWA	Time Weighted Average
VISTA	Vista Sciences Corporation

## 1.0 INTRODUCTION

This White Phosphorus Disposal Contingency Plan Addendum 001 (Addendum) is provided as a supplement to the *Ravenna Army Ammunition Plant (RVAAP) Installation Spill Contingency Plan (ISCP)* (Vista Sciences Corporation (Vista), September 2010). This Addendum was created due to the changes in waste management activities associated with drum storage at the Wet Storage Area. Drums containing pure or bulk white phosphorus waste and white phosphorus contaminated soil and debris will be generated from the Rocket Ridge Area (RRA) and temporarily stored at the Wet Storage Area until shipped offsite for disposal.

The white phosphorus drums will be stored at the drum staging area located within the Wet Storage Area. This area is located within the perimeter fence on RVAAP approximately a mile North of Post #1 on Newton Falls Road just west of George Road. Per the "Memorandum for Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio" from the Department of the Army, US Army Defense Ammunition Center dated March 3, 2010, the white phosphorus waste and white phosphorus contaminated soil/debris drums will be stored separately from other wastes. TolTest will only store the white phosphorus waste and white phosphorus contaminated soil/debris drums at the drum staging area, and will not handle additional waste streams at this area.

### 1.1 Intent and Purpose

This Addendum complies with Title 40 Code of Federal Regulations (CFR) Part 264 Subpart 54, which requires an addendum to the ISCP when facility changes materially increase the potential for fires, explosions, or release of hazardous chemicals. Additionally it complies with 40 CFR Part 355, Emergency Planning and Notification, which requires a facility to provide information necessary for developing and implementing state and local chemical emergency response plans. It also requires emergency notification of chemical releases for Extremely Hazardous Substances (EHS) which meet certain Threshold Planning Quantities (TPQ) as provided in Appendices A and B of Part 355. White phosphorus (CAS 7723-14-0) is listed in 40 CFR Part 355 Appendix A as an EHS with a TPQ of 100 pounds.

The scope of this work consists of temporary storage, inspection, transportation and disposal of white phosphorus hazardous waste. The white phosphorus and white phosphorus contaminated soil and debris will be generated by PIKA International, Inc. (PIKA) under a separate government contract as part of the Time Critical Removal Action (TCRA) as discussed in Section 1.1 of the *Final Waste Management Plan for RVAAP-004-R-01 Open Demolition Area #2 (ODA2) for the White Phosphorus Disposal at the Rocket Ridge Area* (TolTest, February 2011). The white phosphorus waste includes approximately 1,000 drums of:

- Pure or bulk white phosphorus wastes topped off with water in 30-gallon drums
- White phosphorus-contaminated soils and debris topped off with water in 55-gallon drums

The quantity of white phosphorus temporarily stored within the drum staging area may exceed 100 pounds and is therefore subject to the notification provisions contained within 40 CFR Part 355.20. Part 355.20 requires the operator of the facility to notify the State Emergency Response Commission (SERC) and the Local Emergency Planning Committee (LEPC) that the facility is subject to the emergency planning requirements of 40 CFR Part 355 and must designate a facility representative who will participate in the local emergency planning process as a facility emergency response coordinator.

Attachment 1 of the ISCP, "Oil and Hazardous Substance Release Notification Form" identifies the SERC and LEPCs requiring notification under 40 CFR Part 355. Vista is the Installation Security and Support Contractor for the RVAAP, and has appointed its Project Manager the primary On-Scene Coordinator (OSC) and his Administrative Assistant the Alternate OSC. It is the responsibility of Vista to provide notifications required by 40 CFR Part 355, and to distribute this Addendum according to the requirements contained in the ISCP.

The purpose of this Addendum and the ISCP is to clearly define the responsibilities of the onsite personnel, list available resources, and establish effective procedures should an emergency occur resulting from the white phosphorus storage activities at the drum staging area.

## **1.2 Implementation**

This Addendum will be implemented in the event of a spill of white phosphorus, smoke, fire, explosion, or a combination of these. Additionally, this Addendum will be implemented if the TolTest Onsite Technical Manager determines that a threat to human health or the environment exists. Implementation of this Addendum is intended to mitigate or protect onsite personnel, the facility and neighboring community from injury; contamination from hazardous waste; damage to equipment; damage to the environment; or a combination of these.

## **1.3 Properties of White Phosphorus Waste**

White phosphorus is a colorless, white to yellow translucent wax-like substance with a pungent, garlic-like smell. Refer to the White Phosphorus Material Safety Data Sheet (MSDS) provided in **Attachment 1**. White phosphorus is highly energetic (active) and ignites once exposed to oxygen. When exposed to air, it spontaneously ignites and is oxidized rapidly releasing dense, white, irritating fumes. The chemical reaction continues until either all the material is consumed or the element is deprived of oxygen. The reaction of the white phosphorus and air produces a thick smoke. The chemical reaction first produces diphosphorus pentoxide and then phosphoric acid liquid droplets making the smoke toxic.

White phosphorus may re-ignite after the fire is extinguished. Corrosive substances such as white phosphorus in contact with metals may produce flammable hydrogen gas. Containers may explode when heated such as in a fire. Fire will produce irritating, corrosive and/or toxic gases. Ingestion of white phosphorus or inhalation of decomposition products will cause severe injury or death. Direct contact may cause severe burns to skin or eyes. Some effects may be experienced due to skin absorption. Runoff from fire control may be corrosive and/or toxic and cause pollution to the environment.

## **1.4 Source and Amount of White Phosphorus Waste**

It is anticipated that approximately 15-20 white phosphorus drums will be generated from the RRA and transported each day Monday through Thursday, to the drum staging area located within the Waste Storage Area. Transportation for offsite disposal will be scheduled when the total number of drums reaches 80, and will only be scheduled on working days Monday through Thursday. No more than 180 drums will be accumulated at the drum staging area at any given time.

## 1.5 Project Contacts

The following points of contact are provided for this project:

### **USACE Technical Manager:**

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**Ohio EPA Division of Hazardous Waste Management**

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**OHARNG Camp Ravenna - Garrison Commander**

LTC Ed Meade

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Cell: (614) 307-0493

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**OHARNG Camp Ravenna - Range Ops Officer**

CPT Mike Yates

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Email: [Michael.Yates2@us.army.mil](mailto:Michael.Yates2@us.army.mil)

## 2.0 INCIDENT PREPAREDNESS

The following sections detail incident preparedness with regard to white phosphorus waste operations at the Wet Storage Area, including procedures and equipment.

### 2.1 Coordination Agreements

Vista currently has agreements in place with the Ravenna City Fire Department and Robinson Memorial Hospital for emergencies that may occur at RVAAP. These agreements should be utilized in the case of an incident involving white phosphorus at the Wet Storage Area or the surrounding areas. The ISCP details the current arrangements with the local fire department, hospitals and response teams for emergencies on the RVAAP installation.

### 2.2 Communication Methods

The communication methods are illustrated in the Emergency Response Flow Chart provided in **Attachment 3**. In addition all visiting and contractor personnel on base will be required to provide a primary phone number to the Security Guard at Post #1 so they can be reached should an emergency occur. An Activity Description and Visitor Notification with Evacuation Route form (**Attachment 2**) will be presented to all visitors upon check-in at Post #1.

The TolTest Onsite Technical Manager will maintain contact with the field crew throughout the drum handling and storage process. If there is an emergency, the air horn will be activated for ten seconds. Personnel will be trained that if they hear the horn, they must begin evacuation. Cell phones will also be utilized for communication.

The primary emergency contact is the **Security Guard at Post #1 (330-358-2017)**. Both the OHARNG and the Base Realignment and Closure (BRAC) Security Guard staff Post #1. The BRAC Security Guard is contracted with Vista and operates at Post #1 Monday through Friday, from 6 a.m. until 6 p.m. The OHARNG staffs Post #1 24-hours a day, seven days a week. When the BRAC Security Guard is off duty, the OHARNG Security Guard will assume his responsibilities. The security guard will then contact the Ravenna Fire Department and Mr. Jim McGee OSC, either by radio or cell phone.

### 2.3 Evacuation Plan

An evacuation plan for all on post work areas within a half mile radius of the drum staging area has been established to assist in evacuating personnel during an emergency, (see **Exhibit 1**). Any spill, leak, or fire from the white phosphorus drums where a reaction is occurring will require evacuation of personnel. If an emergency would occur, the TolTest Onsite Technical Manager, or any person who discovers the incident, will activate the horn indicating all personnel must evacuate. The TolTest Onsite Technical Manager or person who identifies the incident will notify the **Security Guard at Post #1 (330-358-2017)** of the emergency situation. The following discusses the procedures the BRAC Security Guard and the OHARNG Security Guard will implement upon receiving notification of an incident:

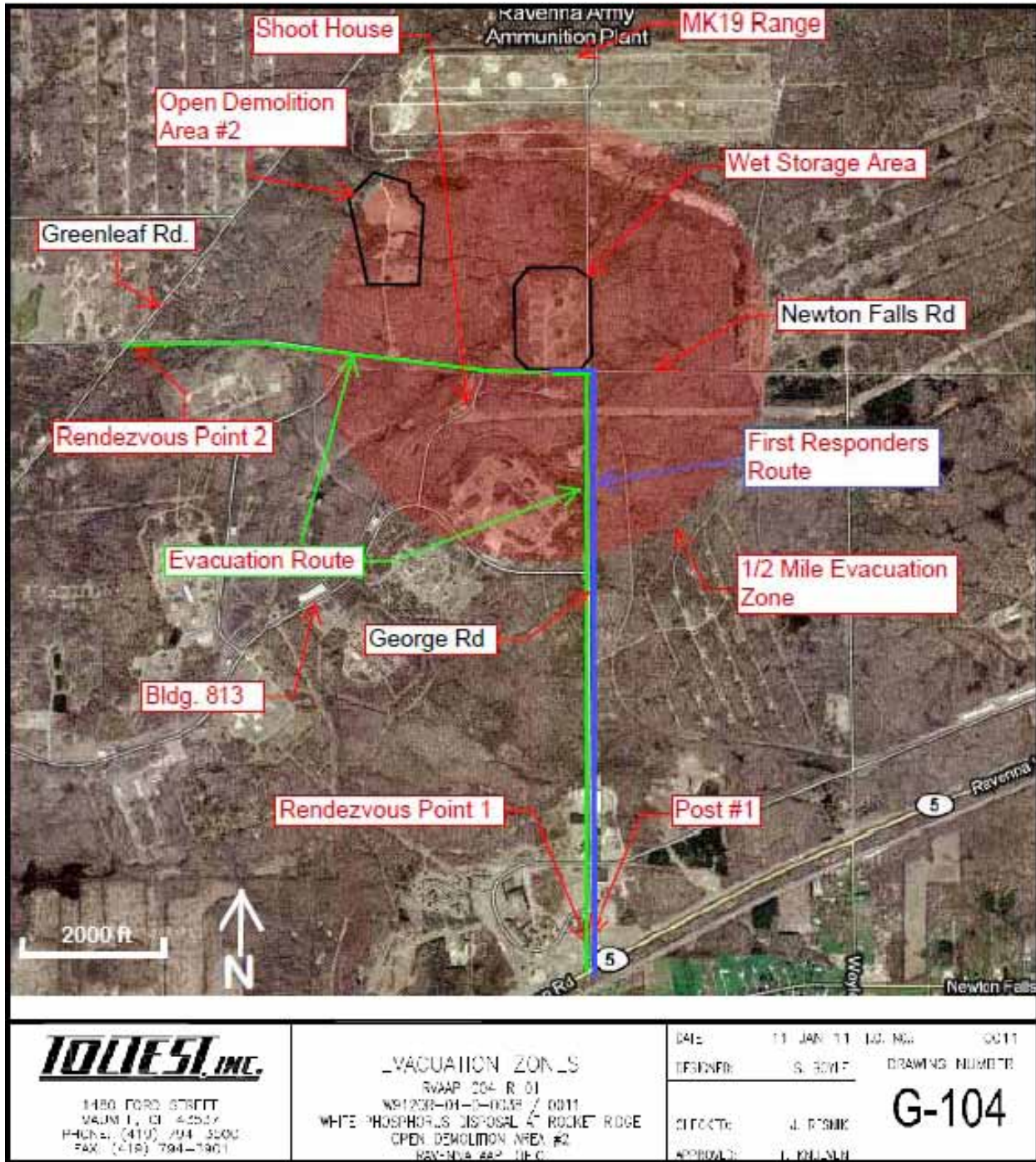
- Both the BRAC and OHARNG Security Guards are at Post #1
  - BRAC Security Guard will notify the Ravenna Fire Department
  - BRAC Security Guard will notify the OSC, Jim McGee
  - BRAC Security Guard will stay at Post #1 and direct emergency responders

- OHARNG Security Guard will notify the Camp Ravenna Range Control at (614) 336-6041 who are responsible for making all internal necessary contacts and evacuation of their personnel, if necessary via established routes
- Only the OHARNG Security Guard is at Post #1
  - Assumes the responsibilities of the BRAC Security Guard in addition to his own
  - OHARNG Security Guard will notify the Ravenna Fire Department
  - OHARNG Security Guard will notify the OSC, Jim McGee
  - OHARNG Security Guard will notify the OHARNG personnel
  - OHARNG Security Guard will direct emergency responders

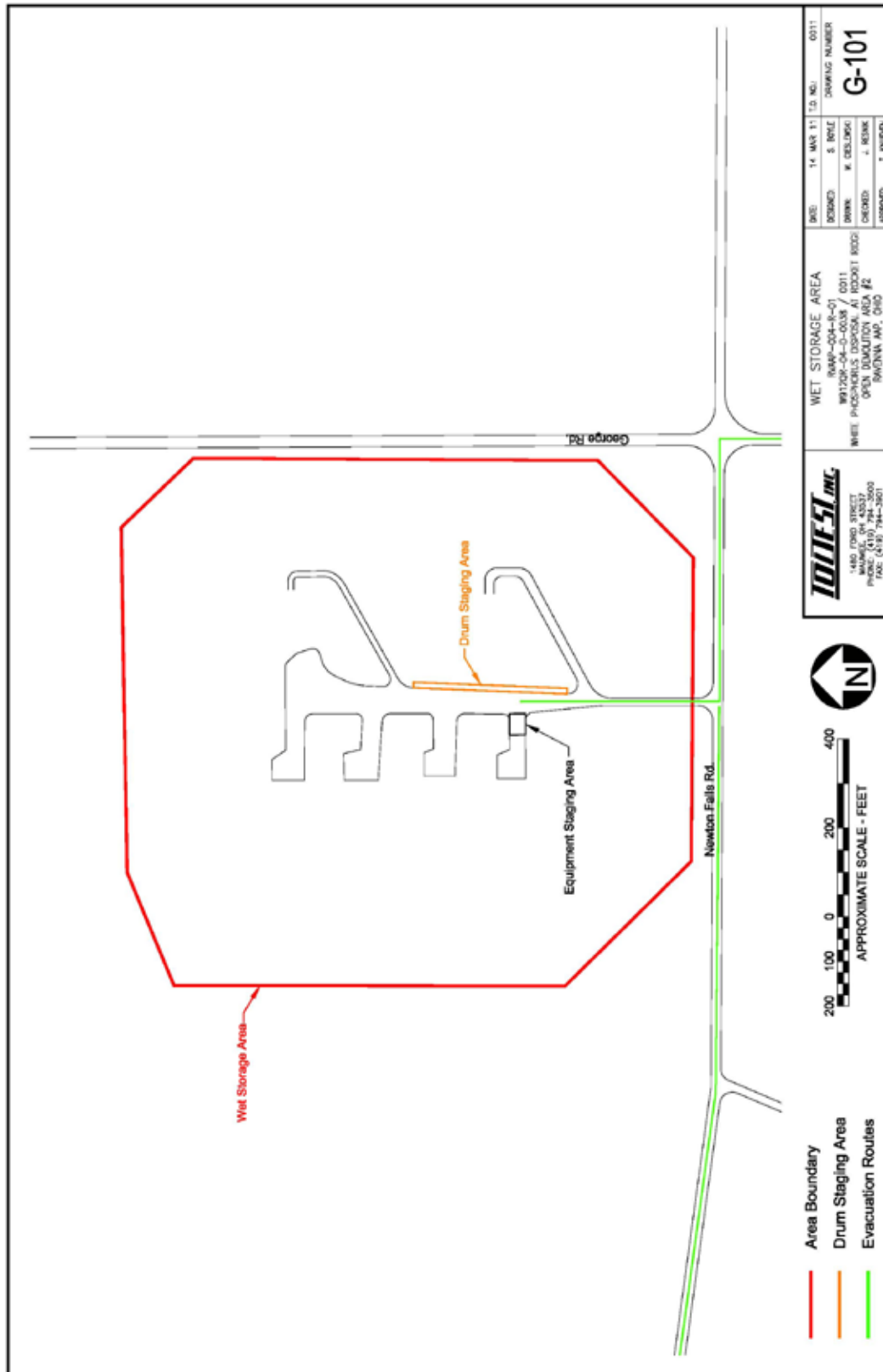
The Security Guard will maintain the clipboard with the list of personnel and contractors on RVAAP. Vista will have personnel at each rendezvous point on the evacuation route and document the location of personnel. The Vista personnel at both rendezvous points will have radio and cell phone communications to contact the BRAC Security Guard and will cross reference their list of personnel with the list the BRAC Security Guard has to make sure all personnel are evacuated. Post #1 will be the rendezvous point and the staging area for emergency responders. Other personnel and contractors on base will follow the evacuation route and rendezvous points shown in **Exhibit 1** below.

Evacuation routes and rendezvous points will be directed from the Wet Storage Area as shown in **Exhibit 1 and Exhibit 2**.

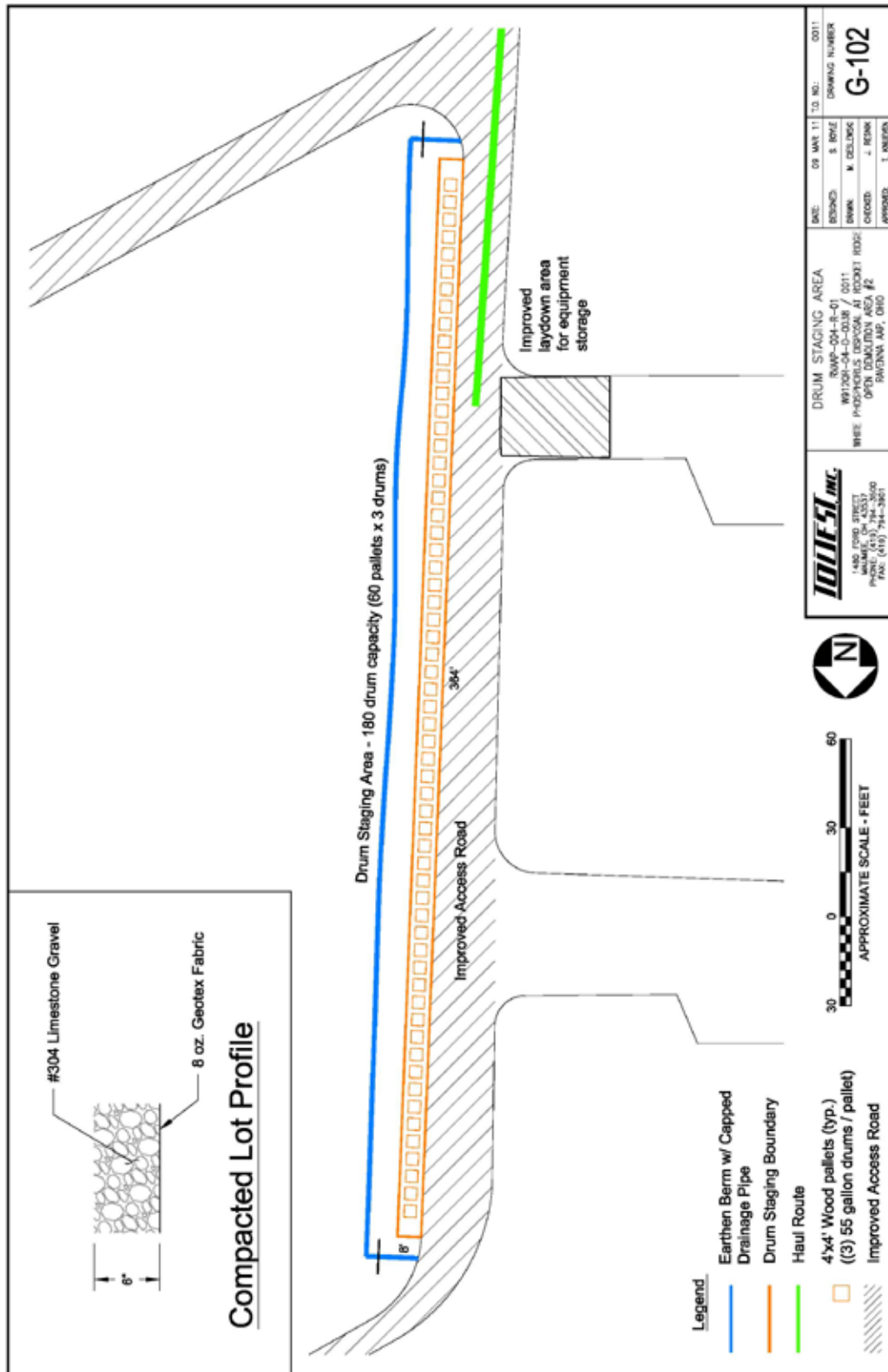
**Exhibit 1, Evacuation Zone and Route and Rendezvous Points**



**Exhibit 2, Wet Storage Area Site Layout/Evacuation Plan**



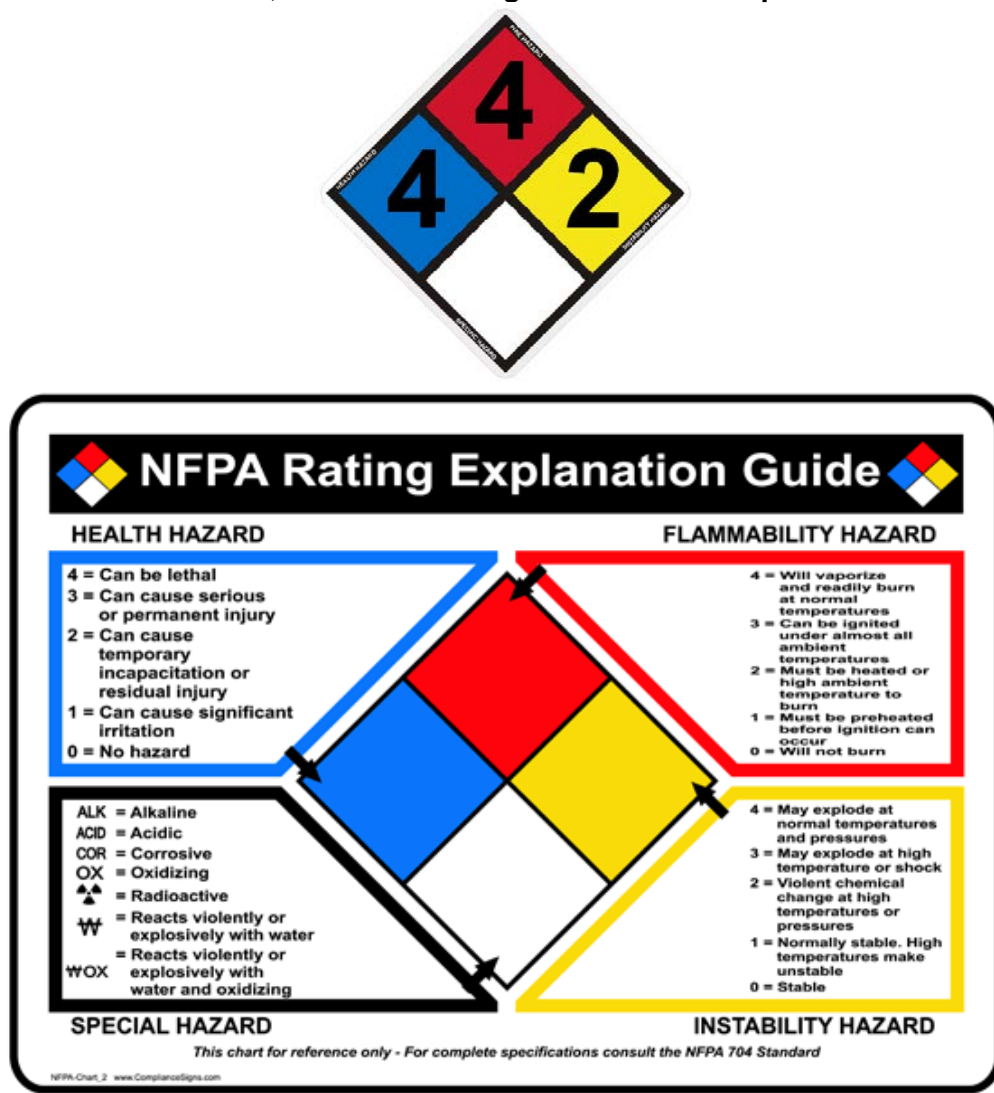
**Exhibit 3, Wet Storage Area - Drum Storage Layout**



## 2.4 Wet Storage Area Details

The drum staging area located within the Wet Storage Area (shown in **Exhibit 3** above) will be utilized for the drums containing white phosphorus waste and white phosphorus-contaminated soil and debris. The drum staging area can store up to 180 drums which will be stored on wooden pallets. The staging area is constructed of 8 ounce geotextile fabric layer covered by six inches of gravel. It is located greater than 50 feet from the property line which is a requirement for ignitable hazardous waste, and has a gate that will remain locked when authorized personnel are not working within. The drum staging area will be equipped with a generator and a pump to prevent flooding of the area in case of significant amounts of rainfall. The National Fire Protection Association (NFPA) 704 Triangle (shown below in **Exhibit 4**) has been placed outside the entrance to the Wet Storage Area to alert emergency personnel to the presence and hazards of white phosphorus should an emergency occur. The NFPA rating explanation guide is also included in **Exhibit 4**.

Exhibit 4, NFPA 704 Triangle for White Phosphorus



#### **2.4.1 Wet Storage Area Emergency Response Equipment**

Activation of the air horn will serve as the alarm system. In addition, verbal communication and cell phones will be used to notify personnel of an emergency.

Emergency response equipment is stored in a temporary storage container located within the Wet Storage Area. Emergency equipment will be utilized provided that the spill or leak does not pose an immediate threat to life or injury.

Specific Emergency/Spill Control Equipment at the drum staging area includes:

- Eye wash Station
- First aid kit – capable of treating minor injuries/lacerations and/or stabilizing more serious injuries
- Four 50 lb bags of Handy Sand – used to absorb spills
- Two 5 gallon buckets – used to store sand for easy access
- Two hand sprayers – used to wet the sand and spill area
- Extra PPE – ANSI Z87 approved chemical safety goggles, chemical splash shield, Saranex (or equivalent) chemical protective clothing, cotton or leather work gloves, Silvershield inner gloves, hard hat as applicable, taped interfaces
- Absorbent pads – used for absorbing material in leaking drum if needed/used to absorb small spills of oil products
- One 85 gal overpack drum – used to place any leaking drum inside
- Drum grabber
- Drum repair kit – containing plugging material
- Air horn – used for evacuation alarm
- Chemical hazard/caution tape
- Delineators – for roping off drums once stored

Two 10A:60BC fire extinguishers will also be located in the storage container. They will be used to initially suppress small NON white phosphorus fires, if possible.

#### **2.5 Air Monitoring**

Air samples will be collected during routine inspections and drum handling activities. Air monitoring will be conducted to test for phosphine (a by-product of white phosphorus decomposition) vapors in the air. Air monitoring will be performed utilizing real-time and integrated air monitoring for phosphine vapors in the air.

Real-time monitoring will involve the use of colorimetric/stain tubes to detect the presence of phosphine in the air. The purpose of the real time monitoring is NOT to decide, verify or confirm levels of protective equipment. This is due to the fact that this type of air monitoring instrument may have an error rate of up to  $\pm 25\%$ . Real-time monitoring will be used to determine the presence of phosphine in general. If phosphine is determined through real-time monitoring to be present, the area will be immediately evacuated. The hazard assessment will be performed and the procedures discussed in Section 3.0, "Emergency Response" will be initiated. Re-entry into

the area will require the dual concurrence of the TolTest Certified Industrial Hygienist (CIH) and the USACE CIH.

Integrated air monitoring will be conducted for phosphine utilizing NIOSH Method 7300 Elements by Inductively Coupled Plasma. This method involves drawing air through filter media and sending the media into an AIHA accredited laboratory for analysis. The purpose of the integrated air monitoring is to aid in verifying/confirming levels of Personnel Protective Equipment (PPE).

## 2.5.1 Air Monitoring Guidelines and Action Levels

If unexpected hazards at a site indicate the need for a different level of PPE than that listed in the Site Safety and Health Plan (SSHP), the plan will be modified, subject to the approval of the Corporate Health & Safety Director or designee, in accordance with the air monitoring and action level guidelines presented in **Exhibit 5**.

**Exhibit 5, Air Monitoring and Action Level Guidelines**

<i>Detection Method</i>	<i>Action Level</i>	<i>Action</i>
Phosphorus	Above 0.1 mg/m <sup>3</sup> (PEL)	Cease all operations and evacuate the drum staging area. Implement approved White Phosphorus Disposal Contingency Plan Addendum 001, Section 3.0. Contact TolTest CIH and USACE CIH.
Phosphorus	IDLH 5 mg/m <sup>3</sup>	Cease all operations and evacuate the drum staging area. Implement approved White Phosphorus Disposal Contingency Plan Addendum 001, Section 3.0. Contact TolTest CIH and USACE CIH.
Phosphine	Above 0.3 ppm (PEL)	Cease all operations and evacuate the drum staging area. Implement approved White Phosphorus Disposal Contingency Plan Addendum 001, Section 3.0. Contact TolTest CIH and USACE CIH.

In accordance with EM 385-1-1 Section 06.A, TolTest utilizes the Occupational Exposure Limits (OEL) which is the most stringent between the American Conference of Governmental Industrial Hygienists (ACGIH) and OSHA. The various OELs applicable to this project include the following:

- **PEL (Permissible Exposure Limit):** An 8-hour time weighted average (TWA) that OSHA establishes as the regulatory limit for personnel exposure.
- **TLV (Threshold Limit Value):** An 8-hour TWA that the ACGIH recommends as a guideline for personnel exposure.
- **STEL (Short Term Exposure Limit):** The exposure limit established by both OSHA and the ACGIH separately that is the limit for personnel exposure over a 15-minute period, 4 times daily with at least 1 hour in between each exposure event.
- **IDLH (Immediately Dangerous to Life or Health):** The exposure limit established by OSHA that is the limit for personnel exposure above which an individual would likely be unable to escape without injury or irreversible health effects within a 30-minute period. Entry into an IDLH environment on this project is prohibited.

- **Odor Threshold:** The odor threshold for phosphine is 0.15 ppm which is below the PEL. Phosphine has a pungent garlic-like odor or an odor of rotting fish. Should anyone smell this odor, they shall immediately cease all operations, evacuate the facility, and implement the procedures outlined in Section 3.0, "Emergency Response."

## 2.6 Personal Protective Equipment

Minimum PPE requirements are outlined below in **Exhibit 6**. PIKA will provide PPE for their responders. PIKA will be responsible for determining the appropriate PPE based on the type of emergency response. PPE will be used whenever its use can prevent injury and engineering controls are not feasible.

## 2.7 Drills and Training

Training on this Addendum included a meeting, and a table top drill. These were provided by OSC and TolTest Onsite Technical Manager to ensure understanding of this Addendum to the ISCP. The training was coordinated with Vista, RVAAP Facility Manager, USACE, OHARNG, PIKA, Ohio EPA, Ravenna Fire Department, Portage County Emergency Response Team and Robinson Memorial Hospital. In addition, all onsite contractors were informed of the emergency procedures, including awareness of the air horn, and evacuation routes.

**Exhibit 6, Personal Protection Equipment**

<i><b>Work Activity</b></i>	<i><b>Minimum PPE Required</b></i>
White Phosphorus Drum Handling	Modified Level D PPE: <ul style="list-style-type: none"><li>▪ Safety toed boots</li><li>▪ ANSI Z87 approved chemical safety goggles</li><li>▪ Chemical splash shield</li><li>▪ Saranex (or equivalent) chemical protective clothing</li><li>▪ Cotton or leather work gloves</li><li>▪ Silvershield inner gloves</li><li>▪ Hard hat or bump cap as applicable</li><li>▪ Taped interfaces</li></ul>
Operating Forklift, Loading, and Handling	Modified Level D PPE: <ul style="list-style-type: none"><li>▪ Safety toed boots</li><li>▪ ANSI Z87 approved chemical safety goggles</li><li>▪ Chemical splash shield</li><li>▪ Saranex (or equivalent) chemical protective clothing</li><li>▪ Cotton or leather work gloves</li><li>▪ Silvershield inner gloves</li><li>▪ Hard hat or bump cap as applicable</li><li>▪ Taped interfaces</li></ul>

### 3.0 EMERGENCY RESPONSE

The following sections outline the procedures specific to white phosphorus emergencies. The ISCP is to be used as guidance during all emergencies.

#### 3.1 Hazard Assessment

The first step in emergency response is to assess the situation to determine the degree of the emergency. The TolTest Onsite Technical Manager or the person who identifies the emergency will assess the emergency relating to the white phosphorus drums and notify and communicate the severity of the incident to the **Security Guard at Post #1 (330-358-2017)**. A hazard assessment will be performed provided it is safe to do so. If there is a non-reactive leak, spill, bulging drum, off-gassing, or minor drum damage is observed in four or less drums, the appropriate cleanup measures will be performed by the contracted responder, PIKA. If there is any evidence of fire or smoke the **Security Guard at Post #1 (330-358-2017)** will notify the local emergency responders.

In the initial stage of hazard assessment, the following information should be determined, to the furthest extent possible:

- What happened:
  - Type of incident
  - Cause of incident
  - Extent of release and transport
  - Extent of damage to structures, equipment, and terrain
  - Casualties:
    - Victims (number, location, and condition)
    - Treatment required
    - Missing personnel
- What could happen:
  - Potential for fire and explosion
  - Location of all personnel onsite relative to hazardous areas
  - Potential for danger to offsite population or environment
- What can be done:
  - Equipment and personnel resources needed for victim rescue and hazard mitigation
  - Number of uninjured personnel available for response
  - Resources available onsite
  - Resources available from outside groups and agencies
  - Time for outside resources to reach the site
  - Hazards involved in rescue and response

#### 3.2 Emergency Response Coordinators

Initial incident notification will be to the **Security Guard at Post #1 (330-358-2017)**.

## OSC

- Jim McGee  
Office: (330) 358-3005  
Cell: (330) 221-4543  
Home: (330) 297-0975

## Alternate OSC

- Christy Esler  
Office: (330) 358-7311  
Cell: (330) 980-4466  
Home: (330) 325-9264

## The Emergency Response Coordinators for the OHARNG are the following:

- Camp Ravenna Range Control (614) 336-6041
- LTC Ed Meade (614) 307-0493
- CPT Mike Yates (614) 593-1669

## The TolTest Onsite Technical Manager:

- Karen Radomski (330) 240-0492

For small spills leaking or bulging drums (four drums or less), and where there is no reaction occurring, PIKA has been contracted to respond.

- **The primary PIKA Responder is Mr. Mel Lau at (330) 352-5305**
- **The alternate PIKA Responder is Mr. Lew Kovarik (740) 632-1143**

## 3.3 Emergency Notification Process

The emergency notification process is presented in the Emergency Response Flowchart provided in **Attachment 3**. If an emergency should occur, the initial response will be to secure the area and contact the **Security Guard at Post #1 (330-358-2017)**. The Security Guard will contact Ravenna City Fire Department, which will utilize their Hazardous Materials Response Team to respond to spills, reactions or fires. The OHARNG Security Guard will notify Camp Ravenna Range Control at (614) 336-6041. OHARNG personnel are responsible for making all internal necessary contacts and evacuation of their personnel via established routes. Following the call to the Security Guard at Post #1, the TolTest Onsite Technical Manager will contact the following personnel:

- TolTest Safety Director – Rich Barcum (419) 794-3500
- TolTest Project Manager – Tom Knueven Office: (317) 856-8555, Cell: 419-908-9506

The OSC, RVAAP Facility Contractor will contact the Ohio EPA's Emergency Response Hotline at (800) 282-9378.

## 3.4 Catastrophic Event on Site

According to OAC 3745-104-01(B)(8), a *"catastrophic release means a major uncontrolled emission, fire, or explosion, involving one or more regulated substances that presents imminent and substantial endangerment to public health and the environment."*

A catastrophic event onsite could consist of a large chain-reaction fire while white phosphorus drums are onsite. Due to the surrounding vegetation near the drum staging area, a fire has the potential to spread into a rapidly spreading wildfire if conditions are right. Emergency response procedures should be followed as previously stated in **Attachment 3**.

### 3.5 First Aid/Medical Emergencies

In emergencies, toxic exposures and hazardous situations that cause injuries and illnesses can vary greatly. In many cases, essential medical help may not be immediately available. For this reason, TolTest has trained its onsite emergency personnel in on-the-spot treatment techniques, to establish and maintain telephone contact with medical experts (e.g., toxicologists), and to establish liaisons with local hospitals and ambulance services. The TolTest Onsite Technical Manager has been trained and certified in first-aid/CPR and can respond initially to a medical emergency. Robinson Memorial Hospital emergency response personnel have been involved in the planning phase on how to respond to emergencies involving white phosphorus.

Specific first aid procedures concerning contact with white phosphorus include:

- ~~Move~~ Move victim to fresh air and notify local emergency medical service;
- Artificial respiration may be administered if victim is not breathing provided it can be performed safely and without exposure to the contaminant.
- In case of contact with substance, keep exposed skin areas immersed in water or covered with wet or gel bandages until medical attention is received;
- Removal of solidified molten material from skin requires medical assistance;
- Remove and isolate contaminated clothing and shoes at the site and place in metal container filled with water. It is a fire hazard if the contaminated clothing and shoes are allowed to dry;
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed;
- Keep victim warm and quiet;
- Ensure that medical personnel are aware of the materials involved and take precautions to protect themselves.

### 3.6 Prevention of Recurrence or Spread of Fires, Explosions, Releases

Following an incident of fire, explosion or release of white phosphorus at the drum staging area, the incident will be investigated to determine the root cause. The investigation will be documented on an incident report and submitted to the USACE, RVAAP Facility Manager, OHARNG, Ohio EPA, as listed in the *ISCP* (Vista, 2010). Prior to the end of the work day, the TolTest Onsite Technical Manager will complete the "Spill Alert Form for Discoverer/Notifier" (**Attachment 4**) and forward it to the Operating Contractor from, Vista, Jim McGee.

Preventative measures will be implemented following the results of the investigation.

Before normal site activities are resumed, personnel must be fully prepared and equipped to handle another emergency. The following steps should be reviewed:

- Notify appropriate government agencies as required. For example, OSHA must be notified if there have been any fatalities or three or more hospitalizations.

- Restock all equipment and supplies. Replace or repair damaged equipment. Clean and refuel equipment for future use.
- Review and revise all aspects of the *White Phosphorus Disposal Contingency Plan Addendum 001* according to new site conditions and lessons learned from the emergency response. When reviewing the information, consider typical questions such as:
  - Cause: What caused the emergency?
  - Prevention: Was it preventable? If so, how?
  - Procedures: Were inadequate or incorrect orders given or actions taken? Were these the result of bad judgment, wrong or insufficient information, or poor procedures? Can procedures or training be improved?
  - Site profile: How does the incident affect the site profile? How are other site cleanup activities affected?
  - Liability: Who is liable for damage payments?

### **3.7 Post-Emergency Equipment Maintenance**

Immediately after an emergency event, all emergency equipment utilized will be inspected for proper function, completeness and condition. The equipment used for spill clean-up will be documented and evaluated for hazardous characteristics, decontaminated, or properly disposed in containers.

Decontamination procedures include a pressurized water rinse, scrubbing equipment with brushes and water-compatible solvent cleaning solutions or steam cleaning. If the equipment remains contaminated, additional decontamination efforts will be completed. Contamination will be determined through visual observation and sampling, if necessary. Rinseates from equipment decontamination will be collected in containers. The rinseates which contacted hazardous waste and resulting residue will be managed as hazardous waste unless laboratory results indicate otherwise. All rinseates will be tested for contaminate levels and managed in accordance with all applicable rules, laws and regulations. Processes which generate hazardous wastes that were affected must not be resumed until the equipment has been properly decontaminated and has been checked for proper operation.

### **3.8 Required Reports**

Should an emergency occur an incident report will be prepared and submitted within 24-hours of the incident. All spills and leaks that reach the environment are reportable to the Base Realignment and Closure Division (BRACD) Environmental Office within 24 hours of the occurrence. Spills of regulated materials exceeding the reportable quantity must be reported immediately to the National Response Center or, if the spill is to navigable water, to the U.S. Coast Guard, and to the Ohio EPA Emergency Response Center. Within 15 business days of a reportable spill, a written report must be sent to the US EPA Regional Administrator, Region 5 and to the Director of the Ohio EPA. Per OAC 3745-65-56(I) the report must include:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident;
- Name and quantity of material involved;

- The extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, where applicable;
- Estimated quantity and disposition of recovered material that resulted from the incident.

A copy of any report of a spill will be sent to the RVAAP Facility Manager.

White Phosphorus is listed both as an EHS per 40 CFR part 355 and a listed CERCLA Hazardous Substance under 40 CRF part 302.4. The Reportable Quantity (RQ) for white phosphorus is defined as 1 pound by both parts. If an incident results in the release of white phosphorus that equals or exceeds the RQ within a 24 hour period, the facility must provide notification to the LEPC and the SERC in accordance with 40 CFR part 355.40 and must notify the U.S. National Response Center at 800-424-8802 as per CERCLA section 103 and its implementing regulations 40 CFR part 302.

### **3.9 Submission of Reports**

Any spill or leak event is subject to review by various regulatory agencies as well as the general public. Therefore, it is necessary for each person involved with a spill or leak and/or the resulting containment and clean-up operations to maintain a written record of the conditions found and the actions taken. The information maintained should be specific and should be backed up with pictures, measurements, analytical data, etc. Water and soil samples should be collected and analyzed where appropriate. Information should be promptly provided to the OSC, who will maintain the log of the events. Vista record retention period for bill of ladings and waste manifests is a minimum of three years, land disposal restriction forms is a minimum of five years; however, all hazardous waste records are maintained in Building 1037 for 50 years. Reports will be submitted as outlined in Appendix 1 and Appendix 2 of the *RVAAP ISCP* (Vista, Sept 2010).

#### **4.0 CONTINGENCY PLAN REVISIONS**

This plan must be reviewed and immediately amended, if necessary whenever:

- Applicable rules are changed
- The plan fails in an emergency
- Facility changes in design, construction, operation, maintenance practices or other circumstances in a way that increases the potential for fires, explosions or releases of hazardous wastes or hazardous constituents or changes the response necessary in an emergency
- The emergency coordinator list changes
- The emergency equipment list changes

## 5.0 ISCP DISTRIBUTION LIST

Copies of this Addendum will be maintained along with the Installation Spill Contingency Plan (ISCP) at the facility and will be given to the local police, fire department, hospital and response teams.

### DRAFT

<u>Name/Organization</u>	<u>Number of Printed Copies</u>	<u>Number of Electronic Copies</u>
Mark Patterson/RVAAP	1	1
Jeffery Cleveland/City of Ravenna Fire Department	1	1
Robert Walker/Robinson Memorial Hospital	1	1
Tim Morgan/Environmental Supervisor	1	1
Todd Fisher/Ohio EPA	1	1
Glen Beckham/USACE Project Manager	1	1

**ATTACHMENT 1**

**WHITE PHOSPHORUS MATERIAL SAFETY DATA SHEET (MSDS)**

# FLINN SCIENTIFIC, INC.

## Material Safety Data Sheet (MSDS)

MSDS #: 601.00

Revision Date: September 27, 2010

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### Phosphorus, Yellow

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

### SECTION 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Phosphorus, Yellow

Synonym: yellow or white phosphorus.

CAS#: 7723-14-0

### SECTION 3 — HAZARDS IDENTIFICATION

White to off-white to yellow chunks; exhibits phosphorescence at room temperature. Odorless.

Highly toxic by ingestion, inhalation and skin absorption. May be fatal.

Corrosive to body tissues. Skin burns very possible. Avoid all body contact.

Spontaneously combustible solid. Extremely flammable.

#### FLINN AT-A-GLANCE

Health-3

Flammability-3

Reactivity-3

Exposure-3

Storage-3

0 is low hazard, 3 is high hazard

### SECTION 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for 15 minutes.

External: Wash continuously with fresh water for 15 minutes.

Internal: Give large quantities of water. Call a physician or poison control at once.

### SECTION 5 — FIRE FIGHTING MEASURES

Extremely flammable solid.

Spontaneously combustible solid. Autoignition Temperature: 86 °F

When heated to decomposition, emits toxic fumes of PO<sub>x</sub> and/or phosphine.

**Fire Fighting Instructions:** Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

#### NFPA CODE

H-4

F-4

R-2

### SECTION 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area. Cover with wet sand; keep under cold water and follow disposal procedure.

Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

### SECTION 7 — HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Inorganic #10. Store with sulfur and phosphorus.

Store in a dedicated flammables cabinet. If a flammables cabinet is not available, store in Flinn Saf-Stor can.

Store under water and away from heat. Use and dispense in a hood.

### SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin, and clothing. Wear chemical splash goggles, chemical-resistant gloves, and chemical-resistant apron. Use ventilation to keep airborne concentrations below exposure limits. Always wear a NIOSH-approved respirator with proper cartridges or a positive pressure, air-supplied respirator when handling this material in emergency situations (spill or fire).

Exposure guidelines: TWA 0.1 mg/m<sup>3</sup> (OSHA)

**SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES**

---

White to off-white to yellow chunks.

Solubility: Insoluble in water and alcohol. Soluble in carbon disulfide.

Formula: P

Formula Weight: 123.88

Melting Point: 44.1 °C

Specific Gravity: 1.82

Vapor Density: 0.02 (Air=1)

Vapor Pressure: 1 mm @ 76.6 °C

---

**SECTION 10 — STABILITY AND REACTIVITY**

---

Avoid contact with halogens, halide, sulfur, oxidizers, copper, copper alloys, oxygen, reducers, heat, open flame, and all sources of ignition.

Shelf life: Poor; serious storage risk.

---

**SECTION 11 — TOXICOLOGICAL INFORMATION**

---

Acute effects: Highly toxic, harmful solid and fumes, stomach pain, vomiting, and diarrhea

Chronic effects: N.A.

Target organs: N.A.

ORL-HUMAN LD50: 1.4 mg/kg

IHL-RAT LC50: N.A.

SKN-RBT LD50: N.A.

---

N.A. = Not available, not all health aspects of this substance have been fully investigated.

---

**SECTION 12 — ECOLOGICAL INFORMATION**

---

Data not yet available.

---

**SECTION 13 — DISPOSAL CONSIDERATIONS**

---

Please consult with state and local regulations.

Flinn Suggested Disposal Method #27c is one option.

---

**SECTION 14 — TRANSPORT INFORMATION**

---

Shipping Name: Phosphorus, yellow, under water

Hazard Class: 4.2, Spontaneously combustible, poison

UN Number: UN1381

N/A = Not applicable

---

**SECTION 15 — REGULATORY INFORMATION**

---

TSCA-listed, EINECS-listed (231-768-7), RCRA code D001.

---

**SECTION 16 — OTHER INFORMATION**

---

This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. The data should not be confused with local, state, federal or insurance mandates, regulations, or requirements and CONSTITUTE NO WARRANTY. Any use of this data and information must be determined by the science instructor to be in accordance with applicable local, state or federal laws and regulations. The conditions or methods of handling, storage, use and disposal of the product(s) described are beyond the control of Flinn Scientific, Inc. and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT(S).

**Consult your copy of the *Flinn Science Catalog/Reference Manual*  
for additional information about laboratory chemicals.**

---

**ATTACHMENT 2**

**EMERGENCY RESPONSE COORDINATION AGREEMENTS**

Activity Description and Visitor Notification with Evacuation Route for:

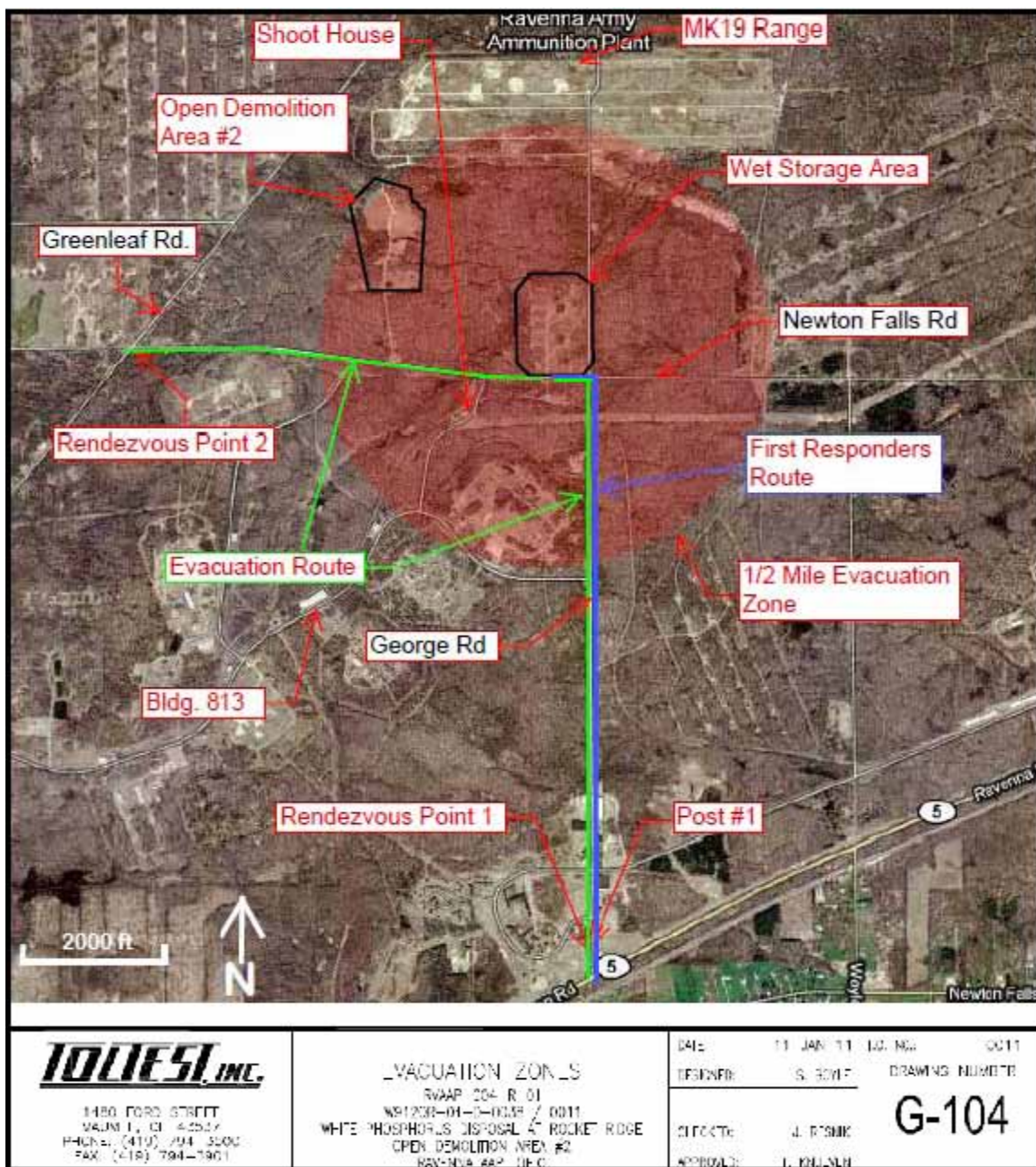
### White Phosphorus Disposal at Wet Storage Area

#### **Activity Description**

White phosphorus contaminated soil is currently being stored at the Wet Storage Area as part of a soil remediation project on RVAAP. White phosphorus is highly energetic (active)—when exposed to air, it spontaneously ignites and is oxidized rapidly releasing dense, white, irritating fumes. The chemical reaction continues until either all the material is consumed or the element is deprived of oxygen. The reaction of the white phosphorus and air produces a thick smoke. The chemical reaction first produces diphosphorus pentoxide and then phosphoric acid liquid droplets making the smoke toxic.

#### **What to do in case of an emergency:**

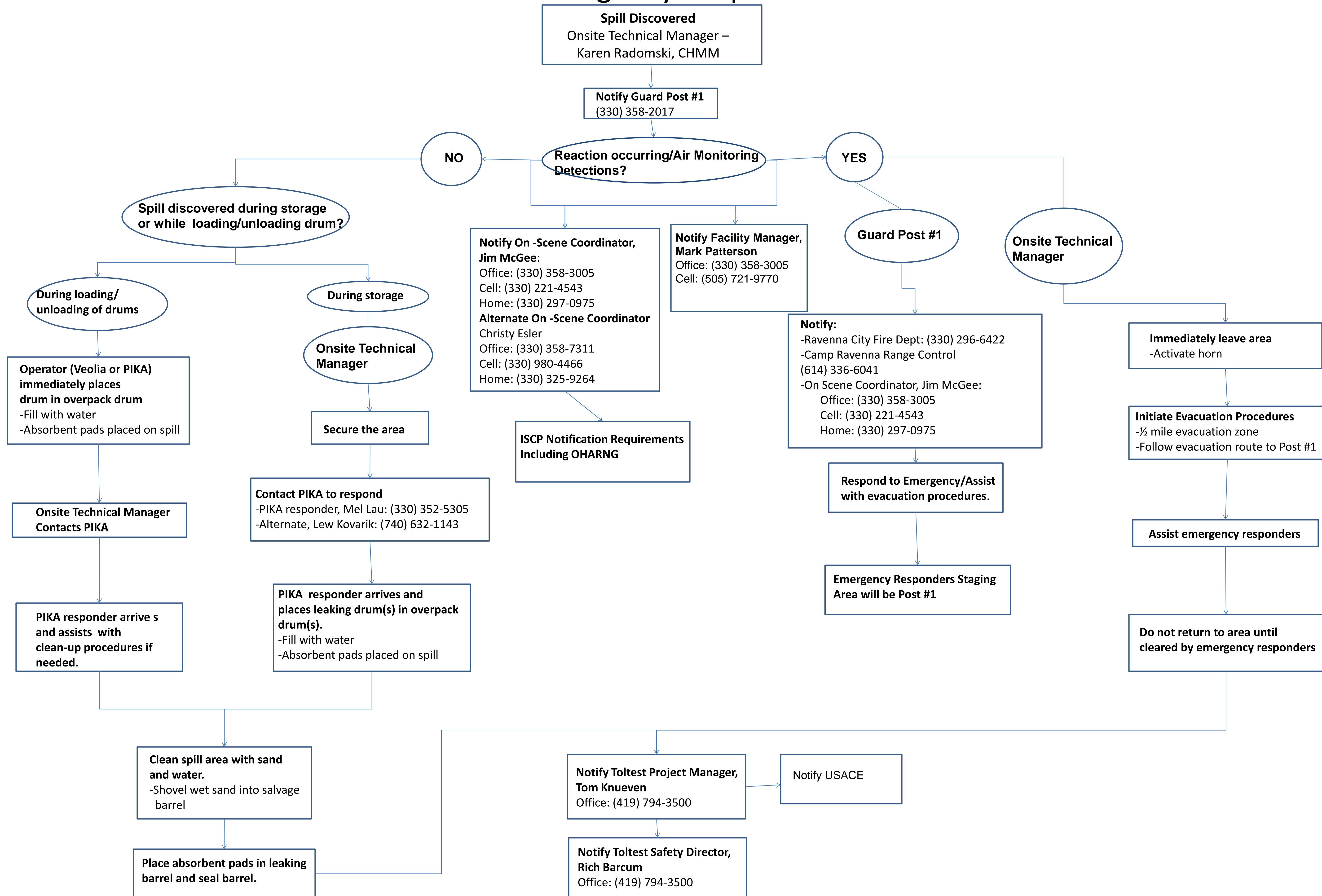
Any spill or leak of white phosphorus that results in a reaction (smoke/fire) will require an evacuation of all personnel within a half-mile radius of the Wet Storage Area. The half-mile radius is shown in the Evacuation Zone and Routes map below. If evacuation is deemed necessary, an air horn will be activated at the Wet Storage Area. Should you find yourself within the half-mile evacuation zone when this alarm is activated, follow the evacuation route displayed in the Evacuation Zone and Routes map.



**ATTACHMENT 3**

**EMERGENCY RESPONSE FLOWCHART**

# Attachment 3 - Emergency Response Flow Chart



**ATTACHMENT 4**

**SPILL ALERT FORM FOR DISCOVERER**

## SPILL ALERT FORM FOR DISCOVERER/NOTIFIER

If YOU are the first person to discover a spill or leak;

Immediately call the Security dispatcher at **WPYD 389** or Phone **330-358-2017**.

TELL THE DISPATCHER “**THIS IS A SPILL ALERT**” AND BE READY TO ANSWER THE FOLLOWING QUESTIONS:

1. Who is calling? \_\_\_\_\_

2. What is your location? \_\_\_\_\_

3. What is the material spilled? \_\_\_\_\_

Description \_\_\_\_\_

Estimated Quantity \_\_\_\_\_

4. Are there any injuries? \_\_\_\_\_

5. Is the leak or spill continuing? \_\_\_\_\_ YES \_\_\_\_\_ NO

6. Is the spill contained? \_\_\_\_\_ YES \_\_\_\_\_ NO

If NO, which way is it moving? \_\_\_\_\_

7. Who else is on the scene? \_\_\_\_\_

8. Where will you be? \_\_\_\_\_

9. How can you be reached? Radio No. \_\_\_\_\_ Telephone No. \_\_\_\_\_

10. Date Discovered \_\_\_\_\_ Time Discovered \_\_\_\_\_

Complete this form prior to the end of your shift and forward to the Vista Project Manager.

**Final Accident Prevention Plan for  
RVAAP-004-R-01 Open Demolition Area #2 MRS for the  
White Phosphorus Disposal at the Rocket Ridge Area**

**Ravenna Army Ammunition Plant  
Ravenna, Ohio**

**Contract Number: W912QR-04-D-0038  
Delivery Order Number: 0011**

**Prepared For:**



**U.S. Army Corps of Engineers  
Louisville District  
600 Dr. Martin Luther King, Jr. Place  
Louisville, Kentucky 40202**

**Prepared By:**



**1480 Ford Street  
Maumee, Ohio 43537**

**March 2, 2011**

# FINAL ACCIDENT PREVENTION PLAN

## Prepared For:

RVAAP-004-R-01 White Phosphorus Disposal at the  
Rocket Ridge Area Open Demolition Area #2 MRS  
Ravenna Army Ammunition Plant  
Ravenna, Ohio

## Submitted to:

United States Army Corps of Engineers  
Louisville District  
TolTest Project No. 23343  
W912QR-04-D-0038

## Prepared By:

**TOLTEST, INC.**  
1480 Ford Street  
Maumee, Ohio 43537

TolTest, Inc. does hereby certify that, to the best of its knowledge and belief, the technical data delivered herewith under this contract is complete, accurate, and complies with all requirements of the contract.

## PREPARED BY:

Health and Safety Supervisor:

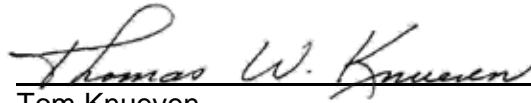


Christopher Warren

3/1/2011  
(Date)

## APPROVED BY:

Project Manager:



Tom Knueven

3/1/2011  
(Date)

Safety Director:



Richard L. Barcum, CIH, CSP, CHMM

3/1/2011  
(Date)

**Project Name:** RVAAP-004-R-01 White Phosphorus Disposal at the Rocket Ridge  
Area Open Demolition Area #2 (ODA2) MRS  
**Project Number:** 23343.01  
**Project Location:** Ravenna Army Ammunition Plant, Ohio

**Declaration of Understanding**

**I have read and understand this Plan and agree to abide by the procedures and limitations specified within.**

Name	Signature	Employer	Date

**To be signed by all workers on the project**

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## LIST OF ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
CFR	Code of Federal Regulations
CHMM	Certified Hazardous Materials Manager
CHST	Construction Health and Safety Technician
CIH	Certified Industrial Hygienist
CP	Competent Person
CPR	Cardiopulmonary Resuscitation
CQCP	Construction Quality Control Plan
CSIR	Contractor Significant Injury Reports
CSP	Certified Safety Professional
CWZ	Construction Work Zone
DA	Department of the Army
DO	Delivery Order
DoD	Department of Defense
ECM	Earth Covered Magazine
EMR	Experience Modification Rating
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
H&S	Health and Safety
H&SD	Health and Safety Director
MARC	Multiple Award Remediation Contracts
MSDS	Material Safety Data Sheet
NFPA	National Fire Protection Association
ODA2	Open Demolition Area #2
OHARNG	Ohio Army National Guard
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyls
PIKA	PIKA International, Inc.
PMO	Program Management Office
PPE	Personal Protective Equipment
QC	Quality Control
RRA	Rocket Ridge Area
RVAAP	Ravenna Army Ammunition Plant
SOH	Safety, Occupational, and Health
SSHO	Site Safety and Health Officer
SSHP	Site Safety Health Plan
TCRA	Time Critical Removal Action
TLV	Threshold Limit Values
USACE	United States Army Corps of Engineers
WMP	Waste Management Plan

## 1.0 BACKGROUND INFORMATION

TolTest has prepared this Accident Prevention Plan (APP) to perform Delivery Order (DO) 0011 for White Phosphorus Disposal generated from the Rocket Ridge Area (RRA) of Open Demolition Area #2 (ODA2), Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio for the United States Army Corps of Engineers (USACE) Louisville District under the Small Business Multiple Award Remediation Contracts (MARC) for the Louisville District.

This APP is specific to the work activities that will be completed on this project. These activities include but are not limited to drum handling and inspections, drum staging area maintenance, heavy equipment operation, hazardous waste handling, lead paint abatement, painting, earth moving activities, vegetation/tree trimming, and cleaning with bleach solutions.

Field activities will be conducted in accordance with USACE EM 385-1-1, Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR), and Environmental Protection Agency (EPA) 40 CFR. (Note: If there are conflicts between listed regulations the most stringent regulation will apply). TolTest has developed this APP in accordance with EM 385-1-1 as well as 29 CFR 1926.62 Lead and 1910.120 Hazardous Waste Operations and Emergency Response. Material Safety Data Sheets (MSDS) are provided in **Attachment 2**.

Included with this APP is a Site Safety and Health Plan (SSHP) provided in **Attachment 1**. This APP and a Construction Quality Control Plan (CQCP) are appendices of the Waste Management Plan (WMP).

### 1.1 Project Description

The scope of work includes waste management activities consisting of temporary storage, inspection, transportation and disposal of hazardous waste drums generated from the RRA. The drums will contain white phosphorus and white phosphorus contaminated soil and debris that will be generated by PIKA International, Inc. (PIKA) under a separate government contract as part of this Time Critical Removal Action (TCRA). In addition, the Wet Storage Area access road improvements and the optional task to repair five earth covered magazines (ECM) to comply with the standards and specifications contained in Department of Defense (DoD) 60550.9-STD will be completed under this DO.

### 1.2 Experience Modification Rate

TolTest's experience modification rate (EMR) is 0.24.

### 1.3 OSHA 300A

TolTest's OSHA 300A form is located in **Attachment 3**.

### 1.4 Activity Hazard Analysis

An Activity Hazard Analysis (AHA) has been developed for each definable feature of work for this project and are provided in **Attachment 14**. The AHAs include:

- |  |   |
|--|---|
| ▪ White Phosphorus Drum Handling                       | ▪ Operating Forklift, Loading, and Handling |
| ▪ Repair Existing Chain Link Fence                     | ▪ Repair of Concrete Walls                  |
| ▪ Lead/Polychlorinated biphenyls (PCB) Paint Abatement | ▪ Geo-Textile, Gravel Grading               |
|  | ▪ Generator and Sump Pump Operation         |

Injuries that may result from physical hazards can range from simple slip-trip-fall types of accidents to fatalities. Injuries can generally be avoided by consistent safe work practices at all times, especially when operating or handling machinery and equipment. All work will be performed under the guidelines of OSHA regulations, EM 385-1-1 and applicable TolTest policies where designated. To ensure a safe work place, the Site Safety and Health Officer (SSHO) will conduct and document regular safety inspections. The SSHO will inform all site workers of any applicable physical hazards related to each work zone during the daily tailgate meetings.

## 2.0 STATEMENT OF SAFETY AND HEALTH POLICY

One of the TolTest's Management Principles is to promote safety by stressing safe work practices through meetings, training programs, and medical surveillance, in order to prevent accidents, protect associates and equipment, and provide a working environment free of hazards for the public.

We have adopted a "Zero Accidents" goal. We believe that every accident is preventable and ask all associates to share the responsibility for reducing personal injury, automobile, and equipment incidents to zero. We must now take the necessary steps to absolutely ensure that every action taken is accomplished in a safe and acceptable manner.

TolTest's Safety and Health Policy Statement is located in our Corporate Incident Prevention Plan. A copy of TolTest's Corporate Health and Safety (H&S) Program Overview is provided in **Attachment 4**. Incident reporting forms are provided in **Attachment 5** and portions of our Corporate H&S Plans (Respiratory Protection Program, Personal Protective Equipment [PPE], Hazard Communication Program, and Hearing Conservation Program) have been included in **Attachments 6 through 9**. RVAAP's Base Wide Safety and Health Plan is provided in **Attachment 10**.

### **3.0 RESPONSIBILITIES AND LINES OF AUTHORITIES**

#### **3.1 Statement of Ultimate Responsibility**

At TolTest, the safety and protection of associates, subcontractor employees, clients, and the community is a core value. This concern for safety is not restricted to field operations but extends to the offices and shop facilities. If an activity or condition is unsafe, the task will not proceed until the situation is corrected.

Every associate, regardless of job title, shares the responsibility for safety and should report any unsafe condition without fear of reprisal. Project Managers and Site Supervisors are responsible for administration and enforcement of the safety procedures and protocols at project locations. The Corporate H&S Department is responsible for supporting and assisting the General Manager/Operating Unit Managers, Project Managers, and Site Supervisors in the execution of the health and safety program.

The identification and accountability of TolTest personnel at both the Corporate and Project level is provided in the following sections.

#### **3.2 Identification and Accountability of Personnel Responsible for Safety**

##### **3.2.1 Project Manager**

The Project Manager, Tom Knueven, is the key operational manager of project activities and is responsible for:

- Maintaining clear, up-to-date communications with the RVAAP and USACE designated representative;
- Coordinating resources required to complete the project;
- Monitoring personnel, compliance with regulations, procedures, and contractual requirements;
- Allocating TolTest resources to individual tasks, including the selection of an Onsite Technical Manager, ECM Site Superintendent, and/or project personnel;
- Monitoring the project schedule and budget;
- Overseeing site activities and day-to-day management; and
- Overseeing the administrative and support functions for the project.

##### **3.2.2 Onsite Technical Manager/ECM Site Superintendent**

White Phosphorus Transportation/Disposal Phase: Karen Radomski, Onsite Technical Manager

ECM Upgrades and Site Improvements Phase: Mike Hovis, ECM Site Superintendent

The TolTest Onsite Technical Manager/ECM Site Superintendent is responsible for maintaining files for task execution, site safety oversight, hazard identification, maintaining reference documents, attending project meetings, and project performance. The Onsite Technical Manager/ECM Site Superintendent's additional responsibilities will include but not be limited to the following:

- Ensuring each subcontractor conducts daily tailgate safety meetings to disseminate information to project personnel necessary to accomplish each day's activities to make sure that subcontractor provides a copy of the tailgate sign in sheet;

- Monitoring all activities by project personnel to include subcontractors and document site progress;
- Reviewing and implementing project plans;
- Providing on-site decision making to perform all operational tasks according to specifications;
- Providing administrative support, supervision, and management of contractor and subcontractor personnel, equipment, and materials;
- Conducting incident and accident investigations and preparing the required reports;
- Attending pre-construction conferences and meetings associated with project progress and standings; and
- Troubleshooting unique field health and safety issues and providing feedback and suggestions.

### **3.2.3 Quality Control Manger**

White Phosphorus Transportation/Disposal Phase: Karen Radomski

ECM Upgrades and Site Improvements Phase: Mike Hovis

The Quality Control (QC) Manager will be responsible for the implementation and adherence to the TolTest Corporate QC Program and ensuring the project performance conforms to the applicable project specifications and drawings provided in the solicitation. The QC Manager will conduct the following tasks:

- Documenting quality control and quality assurance activities;
- Reviewing and approving each submittal;
- Ensuring material is legible and compliant with contract documents;
- Inspecting materials and equipment received on-site to ensure compliance with contract requirements;
- Ensuring testing is performed; and
- Supervising QC testing as required by the contract documents.

### **3.2.4 Site Safety and Health Officer**

White Phosphorus Transportation/Disposal Phase: Chris Warren

ECM Upgrades and Site Improvements Phase: Mike Hovis

The SSHO will be responsible for the implementation and adherence to the TolTest H&S Program and ensuring the project performance conforms to the applicable project specifications and plans. A summary of the qualifications for the SSHO and Alternate SSHO are provided in **Exhibit 1**.

The SSHO's additional responsibilities will include but not be limited to the following:

- Implementing and ensuring TolTest and subcontractor compliance with approved APP, SSHP, AHA, and all other health and safety requirements;
- Maintaining APP, SSHP, AHA and other applicable site specific safety reference material on the project site;

**Exhibit 1, Site Safety and Health Officer Summary of Qualifications**

<p><b>Christopher Warren</b>  White Phosphorus  Transportation/Disposal Phase  Site Safety and Health Officer</p>	<p><b>B.S. – Occupational Health and Safety, 2010</b></p>
<ul style="list-style-type: none"> <li>▪ Construction Health and Safety Technician</li> <li>▪ OSHA 40 Hour HAZWOPER Training and 8 Hour Refresher</li> <li>▪ OSHA 30 Hour Construction Health and Safety Authorized Trainer</li> <li>▪ American Heart Association, First Aid/CPR Certified Trainer</li> <li>▪ USACE Construction Quality Management for Contractors</li> <li>▪ Confined Space Competent Person</li> <li>▪ Fall Protection Competent Person</li> <li>▪ Excavation Competent Person</li> <li>▪ Forklift Trainer</li> </ul>	<p>Mr. Warren brings 12 years of experience in the environmental health and safety field, including over 5 years addressing and mitigating chemical and environmental hazards on project sites. His training and work as a Health and Safety Supervisor for ToITest has provided direct field supervision and health and safety experience on numerous environmental remediation projects. He has directly overseen the health and safety performance for hazardous waste remediation projects for federal projects.</p> <p>He has expertise in hazard recognition including air monitoring strategies, activity hazard analysis preparation, and assignment and proper use of personal protection equipment.</p>
<p><b>Karen Radomski</b>  White Phosphorus  Transportation/Disposal Phase  Alternate Site  Safety and Health Officer</p>	<p><b>B.S. – Earth Science, 1988</b></p>
<ul style="list-style-type: none"> <li>▪ Certified Professional Geologist</li> <li>▪ Certified Hazardous Materials Manager</li> <li>▪ Certified Safety Specialist</li> <li>▪ ISO 14000 Certified EMS Leader</li> <li>▪ ISO 9001 Certified Quality Lead Auditor</li> <li>▪ USACE CQM for Contractors</li> <li>▪ OSHA 40 Hour HAZWOPER and 8 Hour Refresher</li> <li>▪ OSHA 30 Hour Construction Safety</li> <li>▪ DOT Hazardous Materials Training</li> </ul>	<p>Ms. Radomski is a specialist in regulatory compliance for federal, state, and local governments for environmental investigations, regulatory compliance studies and audits, permit preparation, support closure and remediation of hazardous waste sites. She has coordinated the logistics for hazardous waste removal and handling on several federal projects. Her expertise on regulatory support issues includes RCRA, CERCLA, CWA, CAA, and OSHA.</p> <p>Ms. Radomski has also led the regulatory training and compliance for Team Members and for the QC and H&amp;S management of environmental projects.</p>

- Inspecting materials and equipment received on-site to ensure compliance with contract requirements;
- Inspecting onsite safety and health equipment to ensure proper operation and accuracy;
- Conducting exposure monitoring/air sampling and selecting/adjusting protective equipment use.
- Inspecting field activities;
- Coordinating PPE supplies for ToITest Personnel only;
- Troubleshooting unique field health and safety issues and providing feedback and suggestions;

- Maintaining a safety and health deficiency tracking system that monitors recognized deficiencies until they are resolved;
- Ensuring all personnel entering the site have received the proper training and/or security access.
- Being onsite during the delivery, and shipping of containers.

The SSHO has the authority to:

- Temporarily suspend field activities if health and safety of personnel are endangered, pending further consideration by the Corporate Health and Safety Director (H&SD).
- Temporarily suspend an individual from field activities for infractions of the SSHP, pending further consideration by the Corporate H&SD.

### **3.2.5 Corporate Health and Safety**

Richard Barcum CIH, CSP, CHMM is the Corporate H&SD and is responsible for program safety oversight and implementation and review of corporate safety policies. Mr. Barcum has independent direct authority over safety oversight and communication with the Project Manager, Onsite Technical Manager, and ECM Site Superintendent. Mr. Barcum's responsibilities include:

- Directing the implementation of the H&S program and providing recommendations for improving the program;
- Coordinating the health and safety activities of TolTest;
- Determining the need for project H&S plans;
- Maintaining a high level of understanding regarding health and safety regulations affecting TolTest;
- Reviewing and approving H&S plans;
- Monitoring implementation of H&S plans;
- Investigating reports of incidents or accidents;
- Determining whether an accidental exposure or injury merits a change in the affected individual's work assignments and whether changes in work practices are required; and
- Coordinating project sites with regard to H&S equipment needs.

The Corporate H&SD has the authority to:

- Approve or disapprove all H&S plans
- Direct the appropriate Safety Supervisor to prepare H&S plans
- Access and review project files
- Direct changes in personnel work practices to improve health and safety of employees
- Remove individuals from projects if their conduct jeopardizes their health and safety or that of co-workers
- Suspend work on any project that jeopardizes the H&S of personnel involved

Christopher W. Warren, CHST, is the Corporate H&S Supervisor. Mr. Warren's responsibilities include:

- Administering the H&S program within the TolTest;

- Maintaining a working understanding of key government health and safety regulations and TolTest's health and safety policies;
- Interfacing with Project Managers in matters of health and safety;
- Reporting to Corporate H&SD on health and safety matters;
- Developing or reviewing, approving or disapproving project H&S plans prior to submitting to the Corporate H&SD for review;
- Conducting staff training and orientation on health and safety related activities;
- Appointing or approving site safety officers;
- Monitoring compliance with the APP and SSHP and conducting worksite audits;
- Assisting Project Manager's in obtaining required health and safety equipment; and
- Answering employee questions and concerns regarding health and safety.

The Corporate H&S Supervisor has the authority to:

- Suspend work or otherwise limit exposures to personnel if health and safety risks are unacceptable
- Direct personnel to change work practices if existing practices are deemed to be hazardous to the H&S of personnel
- Remove personnel from projects if their actions or conditions endanger the H&S of themselves or co-workers

### **3.3 Designated Competent Person Present**

OSHA 29 CFR 1926.32(f), defines a competent person (CP) as someone who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and has authorization to take prompt corrective measures to eliminate them.

The Onsite Technical Manager, ECM Site Superintendent, or SSHO will ensure that a designated CP is present on the job site at all time. It is TolTest's site management and SSHO's responsibility to verify the training of the listed CP used for hazardous work activities. Work shall not begin until a qualified CP is identified and verified.

### **3.4 Requirements for Pre-Task Safety and Health Analysis**

Prior to initiation of any task, the ECM Site Superintendent, Onsite Technical Manager, and the SSHO will ensure that all affected individuals review the associated AHA. Any necessary corrections will be handwritten on the applicable AHA and approved by the SSHO prior to implementation. At a minimum, the AHA shall be reviewed with affected personnel on a weekly basis. After reviewing each AHA, project personnel are required to sign the AHA (or applicable sign in sheet) to acknowledge that they understand the contents and agree to comply with all of the requirements set forth within the AHA.

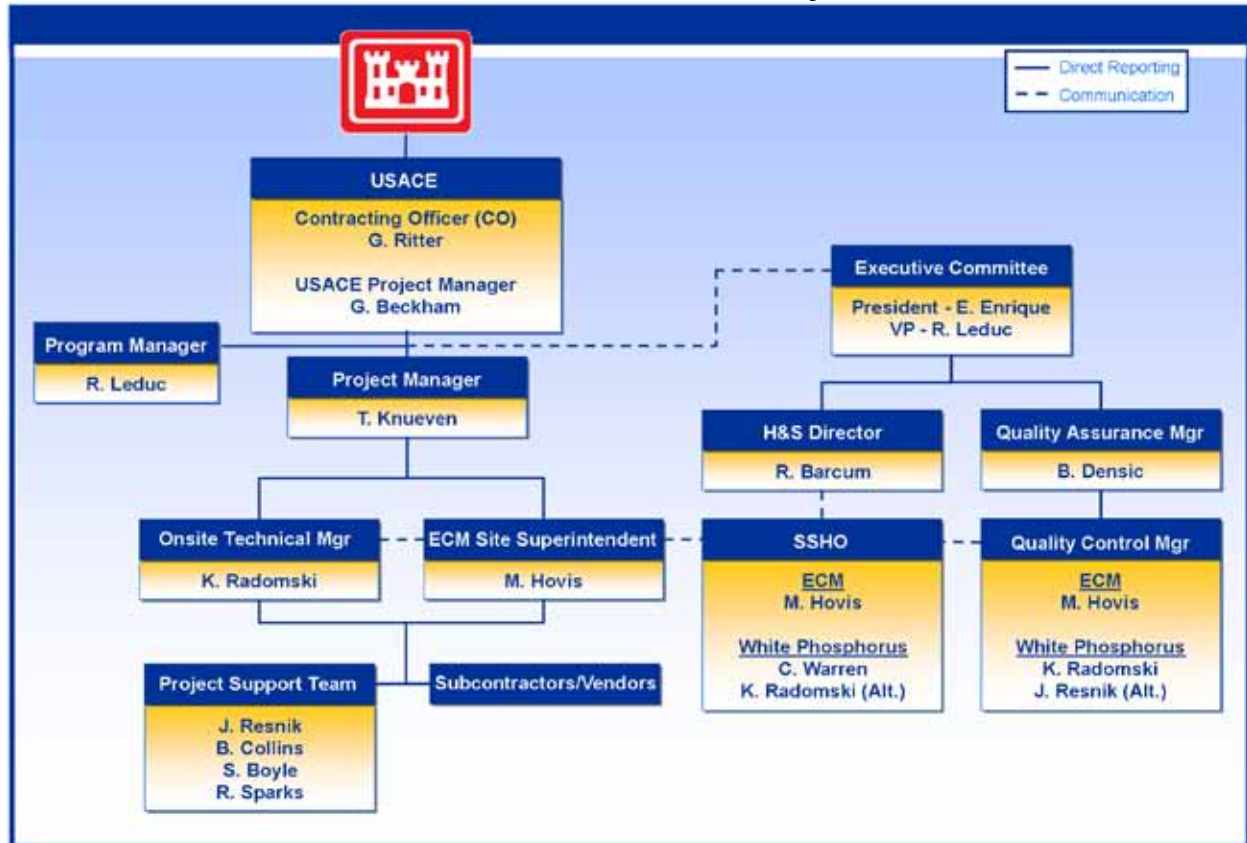
### **3.5 Lines of Authority**

The TolTest Corporate H&S Department is responsible for oversight of the APP. The Corporate H&SD or designee conducts compliance assessments and audits as required to ensure the

safety of all personnel. As such, the Corporate H&SD or designee may suspend work being performed in an unsafe manner.

The SSHO is responsible for day-to-day implementation of and compliance with the health, safety, and, to a lesser extent, some quality assurance requirements. In this capacity, s/he maintains close coordination with the Project Manager and has the responsibility and authority to stop work when unsafe conditions exist or work is not being performed to specifications. Lines of authority regarding safety on this project have been provided in **Exhibit 2**.

**Exhibit 2, Lines of Authority**



### 3.6 Policies and Procedures Regarding Noncompliance with Safety Requirements

If unsafe work practices are observed directly or indirectly, practiced, or allowed to be used by associates and management, disciplinary action may be implemented in accordance with company policy. This may include any of the following: verbal warning documented in writing, written warning, suspension with or without pay, or termination of employment.

There may be circumstances when one or more steps are bypassed.

Progressive discipline means that, with respect to most disciplinary problems, these steps will normally be followed:

- a first offense may call for a verbal warning documented in writing,
- a next offense may be followed by a written warning,
- another offense may lead to a suspension; and
- still another offense may then lead to termination of employment.

TolTest recognizes that there are certain types of safety problems that are serious enough to justify either a suspension, or, in extreme situations, termination of employment, without going through the usual progressive discipline steps. Those situations deemed severe enough to warrant suspension or termination of employment will be reviewed by the Corporate H&SD and the Corporate Human Resources Director prior to any action being taken.

### **3.7 Company Procedures for Holding Managers and Supervisors Accountable for Safety**

TolTest holds safety as a key value to ensure the viability of our associates and the company as a whole. Overall safety performance for our projects is a key component of the annual Performance Evaluation and Merit Increase process for Managers and Supervisors. In the meantime, if a Manager or Supervisor is found to have neglected their responsibilities regarding safety, the issues are addressed in accordance with TolTest's Progressive Discipline Program, which could levy penalties ranging from verbal counseling up to termination of employment.

## **4.0 SUBCONTRACTOR AND SUPPLIERS**

### **4.1 Identification of Subcontractors and Suppliers**

**Exhibit 3** provides a list of subcontractors and suppliers that will be utilized by TolTest. These subcontractors are required to abide by the provisions and limitations set forth in our master subcontractor agreement contract and the requirements and measures outlined in the WMP and this APP.

**Exhibit 3, Subcontractors / Suppliers**

<b>Subcontractors</b>	<b>Suppliers</b>
Veolia Environmental Solutions Environmental Waste Solutions Environmental and Quality Services, LLC Falls Electrical Services Dean's Fence, Inc Environmental Recycling Group Triad PIKA	JDM Supply, Inc Charlestown Sand & Gravel United Rentals Sunbelt Rentals Leppo Rentals Grainger Industrial

### **4.2 Safety Responsibilities of Subcontractors and Suppliers**

Any subcontractors and suppliers that will be used on the project will be advised of the safety requirements for the project upon issuance of subcontracts and/or purchase order. Upon arrival at the job site, new subcontractors and suppliers who access the site shall be indoctrinated by the Onsite Technical Manager or ECM Site Superintendent and SSHO on the safety requirements. Subcontractors and suppliers shall be required to attend the daily tailgate safety meetings or conduct their own safety meetings to address specific hazards of work to be performed. All site safety training attendance sheets will be given to the SSHO, kept on file, and recorded in the daily safety report. Suppliers who deliver materials shall be required to report to the ECM Site Superintendent or Onsite Technical Manager prior to completing the delivery to make sure that the delivery person is aware of any potential hazards that may exist at the site and take appropriate safety precautions while on the site.

The responsibilities for subcontractors and suppliers are the same as those established for TolTest personnel. Personnel onsite must fully comply with the safety provisions of the contract and the Onsite Technical Manager for white phosphorus has the overall responsibility to make sure the subcontractors and suppliers are informed of the requirements and that the requirements are met.

## **5.0 TRAINING**

### **5.1 Requirements for New Hire Safety, Occupational, and Health Training**

Prior to the start of site work, all personnel assigned to the project will attend initial site-specific safety, occupational, and health (SOH) training and records will be supplied to RVAAP Operating Contractor prior to commencement of onsite work. The Project Manager and/or the SSHO will conduct the training, which will specifically address the activities, procedures, and equipment applicable to the site's operation. The training will include the site layout, potential hazards, monitoring protocols, safety procedures, and emergency response services, as outlined in this SSHP. The training session will allow site personnel to clarify any issues they do not understand and will reinforce individual responsibilities regarding health and safety during site work. Upon completion of the initial training session, workers will sign the APP Declaration of Understanding located after the signature page of this plan.

Site specific training and orientation will include the review of this APP and supporting WMP, SSHP, White Phosphorus Disposal Contingency Plan Addendum 001, and AHA documents for on-site personnel. Verification of review will be confirmed by the sign off sheet located at the beginning of each document.

Daily tailgate safety meetings will be conducted by each subcontractor with on-site personnel in attendance signing a training attendance sheet that will be provided to the SSHO. Topics discussed during these tailgate safety meetings will be tailored to address that day's activities such as safe drum handling, drum inspections, staging area safety, or heavy equipment operations and may be derived from the elements of this APP and project AHA. These topics include but are not limited to the following:

- Site Access and RVAAP standard operating procedures
- Plan review and requirements of the EM 385-1-1
- Emergency contact information and incident reporting
- Emergency evacuation procedures
- Location of material safety data sheets, first aid kit, eye wash station, fire extinguishers, and phone
- Personal protective equipment
- Work zone delineation and restricted access points
- Stop work authority
- Lines of authority and identification of personnel with first aid and cardiopulmonary resuscitation (CPR) training
- Phase of work and potential hazards

### **5.2 Certificates and Training**

Each subcontractor will verify that site personnel are trained specifically for the work activities, procedures, and equipment at a site. Training records or verification of training will be supplied to RVAAP Operating Contractor prior to commencement of onsite work this training will at a minimum include:

- Project Specific Orientation
- Hazard Communication
- HAZWOPER 40 Hour/ 8 Hour Refresher
- Control of Hazardous Energy (lockout/tagout)
- Site Emergency Plan
- Site Safety Program
- Contingency Plans
- Excavation Safety

- Occupational Noise
- First Aid/CPR and Bloodborne Pathogens (minimum of two associates)
- PPE Use and Assessment
- Corporate Substance Abuse Policy
- DOT Hazardous Materials Training

Each training program will address applicable EM 385-1-1 and OSHA regulations and will provide the opportunity for workers to raise questions and discuss concerns. A written record of the completed training will be kept to document the subjects covered and the persons participating. Periodic training will be provided for all associates working on-site when any changes are made to requirements or procedures on this project. This training will be designed to inform personnel of these changes, and the safety precautions implemented to protect them from all known hazards that may surface as a result of these changes.

### **5.3 Procedures for Periodic Safety and Health Training**

#### **5.3.1 Task Specific Training**

Prior to initiation of any task, the Onsite Technical Manager or ECM Site Superintendent and the SSHO will ensure that all affected individuals review the associated AHA. Any necessary corrections will be handwritten on the applicable AHA and approved by the SSHO prior to implementation. At a minimum, the AHA shall be reviewed with affected personnel on a weekly basis. After reviewing each AHA, project personnel are required to sign the AHA (or applicable sign in sheet) to acknowledge that they understand the contents and agree to comply with all of the requirements set forth within the AHA.

In addition, each AHA will specify which task specific training is required prior to initiation of a particular task. It is the responsibility of the Onsite Technical Manager or ECM Site Superintendent and the SSHO to ensure that all personnel (including subcontractors) have received the proper training and instruction prior to initiation of the task and to verify that the personnel that are performing a specific task are doing so in a safe and efficient manner. If it is determined that an individual has not been trained, has been inadequately trained or is not following the instruction provided during training, the individual will be removed from working on that task until they have been properly re-trained.

#### **5.4 Verification of Training**

Training records sufficient to verify the completion of applicable training required by EM 385-1-1, OSHA Standards, and/or site contractual requirements will be maintained at the Program Management Office (PMO) located in Maumee, Ohio. A copy of these records will be given to the Operating Contractor at RVAAP.

#### **5.5 Emergency Response Training**

In the event of an emergency, which necessitates evacuation of the site, all personnel will be expected to leave the work zone and mobilize to an established safe distance as described in the White Phosphorus Disposal Contingency Plan Addendum 001 found as Appendix A of the Waste Management Plan. Evacuation routes will be addressed at the daily safety meeting. Personnel will remain at that area until the Onsite Technical Manager, ECM Site Superintendent or SSHO provides further instructions. Evacuation routes, assembly points, emergency and site control procedures, medical clinic and hospital routes, and emergency numbers will be discussed each day at the daily safety briefing to ensure all site personnel are familiar with this information. A route map to the medical clinic and the hospital and the list of emergency

contacts presented in Section 8 will be posted in all site vehicles. All site personnel will be familiar with the location of these lists and maps, and will be aware of the location of the closest telephone and/or radio communications.

Emergency contact information may be found in Section 8.2.4 of this document.

## **5.6 First Aid/CPR Training**

At least two members of the project staff will have first aid and CPR training. The SSHO will maintain all training documentation.

Personnel will receive instructions on the use and locations of first aid equipment onsite to include eyewash stations and fire extinguishers.

## **5.7 Minor Injuries**

For minor injuries, the two onsite personnel trained in first aid/CPR training will provide the initial first aid response. If deemed necessary by the Onsite Technical Manager, ECM Site Superintendent, or SSHO, the injured person may be taken to a medical clinic. Treatment for non-emergency first aid will be provided by the Med Group in Stow, Ohio. A map to this facility is provided in **Attachment 11**.

If it is determined by the Onsite Technical Manager, ECM Site Superintendent, or SSHO that additional/advanced medical treatment is required, the Onsite Technical Manager, ECM Site Superintendent, or SSHO will determine if the injured person should be transported using a site vehicle or by ambulance. If it is determined that a site vehicle may be used, a first-aid trained attendant will accompany the driver and injured person for the trip to the hospital designated for non-critical injuries. For advanced medical treatment for illnesses or injuries see Section 5.8.

## **5.8 Serious Injuries**

In the event that the Onsite Technical Manager, ECM Site Superintendent, or SSHO requests emergency medical services (EMS), the project first aid personnel will provide initial support in an effort to stabilize the injured person until the ambulance service arrives. Once onsite, EMS personnel will not only provide medical services but will also determine which hospital the injured party will be transported to as well as the mode of transportation. EMS personnel may elect to use ground transportation or summon helicopter air ambulance service for transporting the injured person to a trauma center. Robinson Memorial Hospital in Ravenna, Ohio (330-297-0811) will be the first choice for serious injuries, unless otherwise determined by the medical response personnel. A map to this facility is provided in **Attachment 11**.

## **5.9 Assembly Points**

Prior to the initiation of site operations, the Onsite Technical Manager or ECM Site Superintendent will identify the evacuation routes and assembly points of the site. These routes and assembly points will be identified on the site map and will be communicated each morning to site personnel during the daily safety briefing.

## **6.0 SAFETY AND HEALTH INSPECTIONS**

### **6.1 Safety Inspections**

Machinery and equipment will be inspected and tested daily to ensure a safe operating condition. Records of tests and inspections will be maintained at the site, made available upon request, and become part of the project file. Designated work areas and ongoing activities will be visually inspected periodically each day to identify and minimize potential hazards. The observations from these inspections and corrective actions will be included in the Daily Reports.

The Onsite Technical Manager, ECM Site Superintendent or SSHO will also conduct daily documented inspections of the work site to ensure that associates and subcontractors are operating in accordance with all applicable H&S regulations, policies, procedures, and approved plans for this project. The Onsite Technical Manager or ECM Site Superintendent will maintain a written log of these inspections to include operation/area inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. These safety inspection logs will be submitted with TolTest's daily quality control report. TolTest will also establish a deficiency tracking log as outlined in EM 385-1-1 A 01 A.06(f) that will include date of observed deficiency, corrective action assignee information, and date the deficiency was corrected.

### **6.2 External Inspections**

The Assigned Inspector, Eric Cheng, USACE, will be notified 72 hours in advance of all Preparatory Inspections and 24 hours in advance of all Initial Inspections. Mr. Cheng may elect to be present for these inspections or conduct separate quality assurance inspections to ensure that the project is being performed in accordance with approved project plans. A final inspection of the site may be conducted with Mr. Cheng for final acceptance of the project.

## **7.0 INCIDENT REPORTING**

All incidents will be reported, investigated, and analyzed to develop countermeasures that may prevent re-occurrence. These incidents will be reported to Operating Contractor, Vista or their designated representative by phone immediately and in writing within 24 hours of occurrence. A standard TolTest incident report form can be found in **Attachment 5**, and will be completed for each incident that takes place on this project. All incidents will be reported to the Corporate H&SD immediately.

### **7.1 Exposure Data**

The Onsite Technical Manager or ECM Site Superintendent will be responsible for providing exposure data (man-hours worked) on a daily basis. This information will be reported on the Contractor's Daily Production Reports.

### **7.2 Accident Investigations, Reports, and Logs**

The SSHO will be responsible for performing incident investigations and completing incident investigation reports using Form 3394 to be transmitted to the USACE, RVAAP Operating Contractor, Vista or designated representative as soon as possible but no later than 24 hours following the occurrence. The SSHO will coordinate incident investigations and reporting activities via the Contractor Significant Injury Report (CSIR) with the Corporate H&SD for the maintenance of OSHA recordable and other applicable injury logs. Copies of the Form 3394 and CSIR are provided in **Attachment 5**.

The Corporate H&S Department will provide additional support on all incident investigations and will assist in completing the CSIR when necessary.

Following investigation, prescribed corrective actions will be implemented in the field as soon as reasonably possible. While investigation is pending, hazards will be removed or other actions will be taken to protect from these hazards that may have caused the incident.

### **7.3 Immediate Notification of Major Accidents**

The SSHO will make immediate notification of all major accidents to the USACE, RVAAP Operating Contractor, Vista or designated representative and will follow up this notification with written reports within 4 hours of the occurrence. The following require immediate accident notification:

- A fatal injury
- A permanent total disability
- A permanent partial disability
- Arc flash Incident
- The hospitalization of three or more people resulting from a single occurrence
- Property damage of \$200,000 or more

## **8.0 PLANS REQUIRED BY EM 385 1-1**

### **8.1 Layout Plans (04A.01)**

Prior to the start of construction, layout plans will be coordinated with the Operating Contractor, Vista concerning the on-site placement of equipment, material, waste containers, and site access to the drum staging area located within the Wet Storage Area. Drawings of the layout are provided in the WMP.

### **8.2 Emergency Response Plan**

Operations, materials and equipment involving potential exposure to hazardous substances, agents, or environments shall be evaluated by a qualified industrial hygienist or CP, to evaluate a hazard control program for acceptance before the start of the operations. Emergency plans have been developed to ensure associate safety in the case of a fire or any other emergency. The White Phosphorus Disposal Contingency Plan Addendum 001 is provided in the WMP and will be reviewed with all affected personnel.

#### **8.2.1 Procedures and Tests (01.E.01)**

All associates working onsite will be notified of these routes and procedures during their initial arrival on the project site. A reminder will be given during tailgate safety meetings. During severe weather conditions workers will be instructed by SSHO to head to a designated area that is determined by the Operating Contractor, Vista or designated representative.

##### **8.2.1.1 General Evacuation**

General evacuation involving white phosphorus will be conducted in accordance with the approved White Phosphorus Disposal Contingency Plan Addendum 001 found as Appendix A of the Waste Management Plan.

##### **8.2.1.2 Potential or Actual Fire or Explosion**

Evacuation involving White Phosphorus fire or explosion or the potential for fire or explosion will be conducted in accordance with the approved White Phosphorus Disposal Contingency Plan Addendum 001.

##### **8.2.1.3 Protective Equipment Failure**

If any site worker experiences a failure of protective equipment that affects the protection ability of the equipment, that person and affected co-worker(s) will immediately leave the construction work zone (CWZ). Re-entry to the CWZ will not be permitted until the equipment has been repaired or replaced.

##### **8.2.1.4 Physical Injury or Industrial Chemical Exposure**

Emergency first aid will be applied onsite, if necessary. For non-emergency physical injuries or industrial chemical exposure requiring medical treatment beyond onsite first aid, the victim will be transported to an off-base medical facility. Emergency response actions will follow the White Phosphorus Disposal Contingency Plan Addendum 001. Typical first aid responses to chemical exposure emergencies include:

- **Inhalation** – Move to fresh air and call for emergency assistance if needed by calling The Security Guard at Post #1 (330-358-2017).

- **Eye exposure** – Immediately remove the patient/victim from the source of exposure, and immediately wash eyes with large amounts of cool water for at least 15 minutes. Keep exposed eyes covered with wet compresses to prevent white phosphorus particles from re-igniting. Avoid application of any lipid-based or oil-based ointments, which may increase the absorption of white phosphorus, and get patient to medical attention immediately.
- **Skin** – First aid for white phosphorus type of burns is complicated by the fact that white phosphorus particles ignite upon contact with air. Superficial burns caused by simple skin contact or burning clothes should be flushed with water and treated like thermal burns. Wash and immerse areas of affected skin with cold water or cover them with wet dressings or specialized gel bandages. Partially embedded white phosphorus particles must be continuously flushed with water while the first aid provider removes them with whatever tools are available (i.e., tweezers, pliers, forceps). Do this quickly but gently. Firmly or deeply embedded particles that cannot be removed by the first aid provider must be covered with a saline soaked dressing, which must be kept wet until the victim reaches a medical treatment facility. Do not apply lipid- or oil-based ointments, which may increase the absorption of white phosphorus. Seek medical attention immediately.
- **Ingestion** – Decontaminate (only if it does not create additional harm to the victim) and transport to emergency medical facility identified in detailed in **Attachment 11** of this APP.
- **Puncture Wound or Laceration** – Decontaminate (only if it does not create additional harm to the victim) and transport to emergency medical facility identified in detailed in **Attachment 11** of this APP.

For emergency/critical physical injuries, medical assistance must be summoned by dialing the Security Guard at Post #1 (330-358-2017) from any available phone, and the Security Guard at Post #1 will contact the Ravenna Fire Department.

#### **8.2.1.5 Injury in the CWZ**

In the event of an injury in the CWZ, all site personnel, except the injured party and the SSHO will exit the CWZ and assemble at the site field office. The SSHO will evaluate the nature of the injury and the injured party will be decontaminated to the extent practical prior to removal from the CWZ. Appropriate first aid will be initiated, an immediate request will be made for an ambulance, if necessary, and the designated medical facility will be notified as required. No persons will re-enter the CWZ until the cause of injury or symptoms are determined.

#### **8.2.1.6 Injury outside the CWZ**

The SSHO will be notified of any injuries that occur outside of the CWZ. Appropriate first aid will be administered and, if necessary, the injured individual will be sent to the designated medical facility. The injured associate may be transported for treatment using the posted directions to the nearest off-site medical facilities as detailed in **Attachment 11** of this APP. If the injury does not affect the safe performance of other site personnel, operations may continue.

### **8.2.2 Spill Plans (01.E.01, 06.A.02)**

All spills will be handled in accordance with the approved White Phosphorus Disposal Contingency Plan Addendum 001 found as Appendix A of the Waste Management Plan.

### **8.2.3 Fire Fighting Plan (01 E.01, 19.A.04)**

In the event of any fires, notify everyone in the drum staging area and the surrounding areas to evacuate and contact Security Guard at Post #1 (330-358-2017). For non-white phosphorus

fires TolTest will ensure that two fire extinguishers rated not less than 10A:60BC will be maintained onsite during each phase of the work. If work is being performed in more than one area simultaneously, TolTest will have a fire extinguisher at each location. These fire extinguishers will each carry a 10A: 60BC rating. In the event of a fire, the Security Guard at Post #1 (330-358-2017) will be contacted immediately and the Operating Contractor, Vista or designated representative will be contacted shortly after. If the fire is small enough to be extinguished using one extinguisher, a competent and trained associate may choose to combat the fire.

In the event of a white phosphorus spill immediately contact the Security Guard at Post #1 (330-358-2017) and follow the White Phosphorus Disposal Contingency Plan Addendum 001.

- Small white phosphorus spills that are not reacting – PIKA has been contracted to handle small spills of less than 4 drums on non-reacting white phosphorus. They may use cold water spray, wet sand, or wet earth to prevent the white phosphorus from reacting and for removal operations.
- Large white phosphorus fires or small white phosphorus spills that are reacting – require immediate evacuation of project personnel will take place. Upon notification by project personnel, the Security Guard at Post #1 will contact the responding fire department and inform them that white phosphorus is being stored at the drum staging area located in the Wet Storage Area.

Phone numbers for the fire department and other emergency contacts shall be posted at the job site and accessible to all associates. Each associate will be trained on what to do in case of a fire and when and how to use a fire extinguisher, blankets, water or other fire extinguishing measures in a manner that would not jeopardize their personal safety. Regular job site inspections will be made to make sure fire extinguishers are fully charged and ready for use and that fire prevention measures are in place.

#### **8.2.4 Posting of Emergency Telephone Numbers (01.E.05)**

The following information will be used for on-site emergencies, which require immediate actions to prevent additional problems or harm to responders, the public, property, or the environment.

The onsite emergency phone numbers for this project are provided in **Exhibit 4**. A telephone will be located with the TolTest Onsite Technical Manager and ECM Site Superintendent. The On-Duty Security Guard at Post #1 will be notified immediately by telephone (330-358-2017) and they will contact the appropriate emergency services. This will ensure that the call is dispatched to the appropriate emergency services.

Emergency telephone numbers for ambulance, physicians, hospital, fire and police will be conspicuously posted at the work site. The Onsite Technical Manager and ECM Site Superintendent will have a cell phone at all times and will make sure that any associate working in remote locations will have an operating cell phone or other means of communication if cell phone service is not available.

#### **8.2.5 Man Overboard/Abandon Ship (19.A.04)**

Not applicable.

#### Exhibit 4, Emergency Telephone Numbers

Description	Phone Number
<b>Post #1 - CALL FOR ALL EMERGENCIES</b>	<b>(330) 358-2017</b>
The below numbers are for information	
Hospital (Robinson Memorial, Ravenna)	(330) 297-0811
Fire Department (City of Ravenna)	(330) 296-6422
National Response Center	(800) 424-8802
Ohio EPA Emergency Response Hotline	(800) 282-9378
RVAAP Facility Manager (General Office)	(330) 358-7311
LRL Safety Office Jerry Simms, CIH	(502) 315-6347
TolTest Project Manager, Tom Knueven	(317) 856-8555 Cell: (419) 908-9506
TolTest Corporate Office, Maumee, OH	(419) 794-3500
TolTest Corporate H&SD Richard Barcum CIH, CSP, CHMM	(419) 794-3500 Cell: (419) 351-3857
TolTest Site Safety and Health Officer Chris Warren, CHST	(419) 794-3573 Cell: (419) 481-2262
Onsite Technical Manager, Karen Radomski	Cell: (330) 240-0492
ECM Site Superintendent, Mike Hovis	Cell: (419) 481-1296
RVAAP Operating Contractor, Vista Sciences, Corp Jim McGee	(330) 358-3005 Cell: (330) 221-4543
RVAAP Operating Contractor, Vista Sciences, Corp Christy Esler	(330) 358-7311 Cell: (330) 980-4466

#### 8.2.6 Medical Support

Robinson Memorial is the medical facility that will be used in the case of an emergency. Robinson Memorial Hospital is located approximately 9 miles from the site at 6847 N. Chestnut Street in Ravenna, Ohio. The hospital can be reached by taking State Route 5 W (Ravenna Warren Road) approximately 6.6 miles, turn right on State Route 14 Cleve E go 2.4 miles make left on State Route 44 (North Chestnut Street), the hospital is on the right. The phone number is 330-297-0811. A chart with directions and map is located in **Attachment 11**. This chart, and detailed hospital directions will be posted on-site for easy access in the event of an emergency. CPR/First Aid Responders assigned to this project are also highlighted in this chart.

#### 8.3 Plan for Prevention of Alcohol and Drug Abuse (01.C.02)

All TolTest personnel are required to complete the web-based Alcohol and Drug Awareness training. Subcontractor associates are required to show proof of maintaining an alcohol and drug free workplace. TolTest's Alcohol and Drug Free Workplace Program is provided in **Attachment 12**.

## **8.4 Site Sanitation Plan (Section 2)**

TolTest will provide toilet facilities to meet EM 385-1-1 requirements for a construction site. At a minimum, the following will be provided:

- 20 or fewer workers – 1 toilet with a seat will be provided
- 20 to 199 workers – 1 toilet with a seat and 1 urinal will be provided per every 40 workers
- 200 or more workers – 1 toilet with a seat and 1 urinal will be provided per every 50 workers

Drinking water will be supplied to workers in a 5-gallon cooler.

## **8.5 Access and Haul Road Plan (8.D.1)**

TolTest will utilize existing roadways. There will be no anticipated work tasks on this project that requires the redirection of traffic. If there is a case where TolTest will need to restrict access to roads running through work zone TolTest will provide notification to the USACE, Ohio Army National Guard (OHARNG) and RVAAP management in accordance with Operating Contractor, Vista or designated representative requirements.

TolTest shall notify the Operating Contractor, Vista or designated representative, OHARNG and RVAAP Operating Contractor within 14 calendar days before closing any traffic lanes, blocking streets, or otherwise changing traffic routes. TolTest will provide, place, maintain, relocate, and remove all traffic control devices required for construction on this project. All traffic control shall comply with the requirements of the current Manual on Uniform Traffic Control.

## **8.6 Respiratory Protection Plan (05.E.03)**

TolTest has developed and implemented Respiratory Protection Procedures to address the proper use of respirators on this project. Personnel required to wear air purifying respirators must have a current (within one year) Physician's Written Opinion stating that they are medically cleared to wear a respirator. This certification shall include the following:

- Telephone, email and physical address of the medical facility/provider
- Printed name of licensed, certified health care provide along with his/her signature
- The statement of clearances or respiratory limitations only.
- Date of examination and date that clearance expires.

Personnel must also have a current fit test (within one year) to wear a respirator and be trained in the proper use of respirators. In addition, workers will not be permitted to use respirators unless training has been completed to address the following topics:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- Limitations and capabilities of the respirator;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, put on and remove, use, and check the seals of the respirator;
- Procedures for maintenance and storage of the respirator; and

- How to recognize medical signs and symptoms of exposure.

### **8.7 Health Hazard Control Program (06.A.02)**

The project AHA's will be used to evaluate operations, materials and equipment to determine the presence of hazardous environments, and recommended hazard control measures.

### **8.8 Hazardous Communication Program (01.B.06)**

Due to the nature of work for this project, hazardous materials are present. Associates will receive hazard communication training and are required to review the WMP, APP, SSHP, and AHAs prior to entering the site.

Additionally, the Onsite Technical Manager and ECM Site Superintendent will maintain an inventory of any hazardous materials brought onto the job site and shall keep a notebook containing MSDS sheets. All associates will be informed of the location of MSDS sheets as part of their new employee indoctrination.

### **8.9 Process Safety Management Plan (06.B.04)**

Not applicable.

### **8.10 Lead Abatement Plan (06.B.05 & Specifications)**

ToITest has developed a Lead Abatement Plan to be submitted in support of this APP. The Lead Abatement Plan is included in **Attachment 13**.

### **8.11 Asbestos Abatement Plan (06.B.05 & Specifications)**

Not applicable.

### **8.12 Radiation Safety Program (06.E.03a)**

Not applicable.

### **8.13 Abrasive Blasting (06.H.01)**

Not applicable.

### **8.14 Heat/Cold Stress Monitoring Plan (06.I.02)**

The SSHO will assess the condition of the associates, specific weather conditions, work tasks and other environmental factors and conditions to determine when to begin monitoring. Work/rest regimens and fluid replacement schedules will be established for associates working while wearing impermeable work clothing.

#### **8.14.1 Cold Stress Hazards**

The effects experienced by site personnel when working in cold environments depend upon many environmental and personal factors, such as ambient air temperature, wind speed, duration of exposure, type of protective clothing and equipment worn, type of work conducted, level of physical effort, and health status of the worker. In cold environments, overexposure can

cause significant stress on the body that can lead to serious, and potentially permanent injury. Cold may affect exposed body surfaces and extremities, or may affect the deeper body tissues and body core. Presented below is information about the most common cold stress disorders, their signs, symptoms, affects, and control techniques.

## **8.14.2 Cold Stress Disorders**

### **8.14.2.1 Immersion Foot or Trench Foot**

These two cold injuries occur as a result of exposure to cool or cold weather and persistent dampness or immersion in water. Immersion foot usually results from prolonged exposure when air temperatures are above freezing, whereas trench foot normally occurs from shorter exposure at temperatures near freezing. The symptoms for each disorder are similar and include tingling, itching, swelling, pain and/or numbness, lack of sweating, and blisters.

#### **8.14.2.2 Frostbite**

Frostbite occurs when there is actual freezing of the water contained in the body tissues. This usually occurs when temperatures are below freezing, but excessive wind can result in frostbite even when ambient temperatures are above freezing. Frostbite can occur from several types of cold exposure, such as: exposure of bare skin to cold and wind; exposure to extremely cold ambient temperatures; skin contact with rapidly evaporative liquids (gasoline, alcohol or cleaning solvents) at temperatures below 39.2°F; or from skin contact with metallic objects whose temperatures are below freezing. The extremities are usually affected first since the body's initial response to cold stress is to decrease the heat loss from the blood by decreasing the blood flow to the extremities. The tissue damage caused by frostbite can be superficial, near the surface of the skin, or extend deep into body tissues that can cause severe tissue damage. During the initial stages of frostbite, the skin may have a prickly or tingling sensation and will later become numb with cold. The appearance of the affected skin may range from superficial redness, to white, hard, frozen-looking tissues.

#### **8.14.2.3 Hypothermia**

Hypothermia results when the body loses heat faster than it can be produced. When this occurs, the blood vessels in the skin and extremities constrict, reducing the flow of warm blood to those areas which have a high surface area to volume relation. This reduction in blood flow reduces heat loss and usually affects the peripheral extremities first. Ears, fingers and toes begin to experience chilling, pain and then numbness due to loss of both blood flow and heat. Shivering begins as the body's core temperature begins to drop, and the body uses the shivering to compensate and create metabolic heat. Shivering is often the first sign of hypothermia. The pain and numbness in the extremities is an indication that the heat loss is increasing, but when shivering becomes severe and uncontrollable, the heat loss in the body core has become extreme. Further heat loss produces speech difficulty, reduced mental alertness, and forgetfulness, loss of manual dexterity, collapse, unconsciousness and finally death.

#### **8.14.2.4 Treatment of Cold Stress Disorders**

The intent of cold stress treatment is to bring the deep body core temperature back to its normal temperature of about 98.6°F. Work performed in cold environments will be discontinued for any worker who exhibits the signs or symptoms associated with hypothermia or frost bite and medical attention will be sought. Workers exhibiting cold stress symptoms should be brought to a warm area and allowed to rest and warm-up gradually. If a worker's clothing becomes wet, which reduces its insulation effect; it should be removed and replaced by dry clothing, or allowed to dry before resuming work. Warm, sweet, non-alcohol, decaffeinated drinks (not

coffee) or soup should be given to increase the body core temperature, and re-warming should be gradual.

For frostbite, the victim should be sheltered from the wind and cold and given warm drinks. If the frostbite is superficial, the frozen area(s) should be covered with extra clothing or blankets, or warmed against the body. Do not use direct heat and do not pour hot water over or rub the affected area. Warming should be gentle and gradual. Failure to do this could lead to bleeding in the tissues and increase the possibility of infection. If the frostbite is deep, (i.e. the affected area is frozen and hard to the touch), immediate medical attention should be obtained. The safe thawing of deep frostbite is beyond the expertise and facilities found onsite.

### 8.14.3 Prevention of Cold Stress Disorders

#### 8.14.3.1 Cold Stress Monitoring

Guidance for the monitoring of cold stress is provided by the American Conference of Governmental Industrial Hygienists (ACGIH) in the Threshold Limit Values (TLV) and Biological Exposure Indices booklet (latest edition). To comply with the cold stress TLV, the following monitoring schedule will be implemented:

- A suitable thermometer for measuring ambient temperatures shall be available on sites when the air temperature is below 60.8°F;
- Whenever the air temperature onsite falls below 30.2°F, the temperature shall be measured and recorded at least once every two hours, unless sudden drops in the temperature are expected or noted, then it will be recorded once each hour;
- Whenever the air temperature onsite falls below 30.2°F, the wind speed shall be measured and recorded together with the air temperature;
- The equivalent wind chill temperature shall be obtained from the Wind Chill Factor Chart provided as **Exhibit 5** and recorded, in cases when air speed measurements are required.

**Exhibit 5, Wind Chill Factor Chart**

Wind MPH	Temperature (°F)																	
	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

#### 8.14.3.2 Controls Implemented by Site Personnel

During work in cold environments, the SSHO will use the tailgate safety briefing to inform site personnel of the temperature and wind conditions anticipated for the day's site activities. The SSHO will also advise site personnel of the general practices, listed below, which should be utilized in the prevention and control of cold stress. Wear adequate, appropriately layered clothing, including a water repellant outer layer if precipitation is forecasted;

**CAUTION:** Extreme caution should be exercised before dispatching any personnel for outside work activities when the wind-chill factor is minus 20 degrees Fahrenheit (-20°F) or less.

- Use layered clothing which should include, an innermost layer (such as cotton or silk) to trap heat and absorb perspiration, an insulating layer of wool or synthetic fiberfill (such as polypropylene), a layer of work weight clothing, and an outer protective layer designed to retain heat and be wind/water proof (such as nylon, or Gortex®)
- Wear gloves, socks and a hat that are synthetic or wool insulated
- Remove outer layers of clothing during breaks in heated shelters to prevent inner layers from getting wet with perspiration
- Cover exposed skin and use a wind breaker in windy, cold conditions
- Eat well-balanced meals and maintain adequate intake of non-alcohol, de-cafeinated fluids
- Seek shelter in a warm protected area when signs and symptoms of cold stress become evident
- Protect clothing from getting wet with perspiration during site activities by monitoring and moderating the level of physical activity, and if necessary, removing excessive layers of clothing; and
- If the potential exists for clothing to become wet during site operations, site personnel should report to work with an extra set of work and insulated clothing.

#### 8.14.4 Heat Stress

Physical hazards may involve heat-related symptoms such as heat stress, heat cramps, heat exhaustion, or heat stroke. Heat stress is the aggregate of environmental and physical work factors that make up the total heat load imposed on the body. The environmental factors of heat stress include air temperature, humidity, radiant heat exchange, and wind/water vapor pressure (related to humidity).

Physical work contributes to the total heat stress by producing metabolic heat in the body, proportional to the intensity of the work. Heavy physical labor can greatly increase the likelihood of heat fatigue, heat exhaustion, and heat stroke, the latter being a life threatening condition. Heat stress monitoring and observation of personnel should commence when the ambient temperature is 80° F or above (65° F, if chemical protective clothing is worn). Heat stress can be an issue in cold weather environments due to dehydration and the inability of protective clothing to properly dissipate heat. Anytime that a worker is wearing chemical protective clothing they should be observed for signs of heat stress regardless of the ambient temperature and wind chill conditions.

To prevent heat stress, the following control measures will be implemented.

- Site workers will be encouraged to drink plenty of water throughout the day.
- Onsite drinking water will be kept cool to encourage personnel to drink frequently.

- A work regimen that will provide adequate rest periods for cooling down will be established, as required.
- All personnel will be advised of the dangers and symptoms of heat stroke, heat exhaustion, and heat cramps.
- Associates will be instructed to observe and monitor themselves and coworkers for signs of heat stress and to take additional breaks as necessary.
- All breaks should take place in cool, well ventilated, and shaded rest areas.

**Heat Cramps.** Heat cramps are caused by heavy sweating and inadequate electrolyte replacement. Symptoms include muscle spasms and pain in the hands, feet or abdomen.

**Heat Exhaustion.** Heat exhaustion occurs from increased stress on various body organs. Signs and symptoms include:

- Pale, cool, moist skin
- Heavy sweating
- Dizziness, nausea
- Fainting

**Heat Stroke.** Heat stroke is the most serious form of heat stress and should always be treated as a medical emergency. The body's temperature regulation system fails and the body temperature rapidly rises to critical levels. The differential diagnosis for heat stroke is the lack of sweating as the body's defense mechanisms for shedding excess heat fail. Immediate action must be taken to cool the body before serious injury or death occurs. Signs and symptoms of heat stroke include:

- Red, hot, usually dry skin
- Lack of or reduced respiration
- Nausea
- Dizziness and confusion
- Strong, rapid pulse and confusion
- Coma

**Emergency Measures.** It is important for the associate to be treated immediately as heat stress can cause permanent damage or death. There are some immediate first aid measures that should be taken by a certified CPR/First Aid provider while waiting for medical professionals to arrive.

- Get the associate indoors.
- Remove clothing and gently apply cool water to the skin followed by fanning to stimulate sweating.
- Apply ice packs to the groin and armpits.
- Have the associate lie down in a cool area with their feet slightly elevated.

All associates will be informed of the possibility and symptoms of heat stress. If an associate experiences extreme fatigue, cramps, dizziness, headache, nausea, profuse sweating, or pale, clammy skin, the associate and the SSHO will take control measures. If the symptoms do not subside after a reasonable rest period, the SSHO should seek medical assistance.

#### **8.15 Crystalline Silica Monitoring Plan (12.A.01)**

Not applicable.

#### **8.16 Night Operations Lighting Plan (16.C.19.d)**

TolTest does not anticipate working at night. If it becomes necessary to complete construction related tasks outside at night, TolTest will develop and submit a Night Operations Lighting Plan before night work begins outside.

#### **8.17 Fire Prevention Plan (Section 09.A.01)**

Smoking is only permitted in designated smoke areas located on RVAAP. All construction activities will be completed in accordance with the fire protection requirements of RVAAP that apply during construction.

A fire watch trained in accordance with National Fire Protection Association (NFPA) 51B will be present during all hot work operations and will remain present at least 30 minutes after hot work is completed or as long as stated on hot work permit. Combustible materials such as tool lubricants will be stored in an equipment trailer or truck outside of the drum staging area away from work activities.

In addition to the fire extinguishers used specifically for hot work, fire extinguishers of the appropriate size and type will be maintained onsite during each phase of the work. If work is being performed in more than one area simultaneously, TolTest will have a fire extinguisher at each location. These fire extinguishers will have a minimum rating of 10A:60BC. In the event of a fire, contact the Security Guard at Post #1 (330-358-2017) to contact the Fire Department immediately. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire. Immediately upon evacuation of the facility, the Security Guard at Post #1 will be notified if any fire potentially due to phosphorus reactions.

#### **8.18 Wild Land Fire Prevention Plan (09.K.01)**

There is no apparent threat on this project from wild fires therefore no separate wild fire plan has been prepared. Should a wildfire occur the procedures discussed in Section 8.2.3 will be followed.

#### **8.19 Hazardous Energy Control Plan (12.A.07)**

Utility disconnections and equipment lockouts may be implemented for this project if necessary to control hazardous energy. It is understood that the construction area will be closed off but RVAAP operations will continue during construction. TolTest will coordinate with the Operating Contractor, Vista on any lockout/tag out events prior to implementation to prevent or minimize interference with RVAAP daily operations.

#### **8.20 Critical Lift Procedures (16.C.18)**

A critical lift is a non-routine crane lift requiring detailed planning and additional safety precautions. A critical lift plan will be developed by a qualified person before a critical lift is attempted. The qualified person preparing the plan may be the crane operator, lift supervisor, or the rigger. The plan will be documented and a copy will be provided to the Operating Contractor,

Vista for approval prior to any critical lifts being implemented. The plan will be reviewed at the pre-lift planning meeting and signed by all personnel involved with the lift.

### **8.21 Contingency Plan Severe Weather (19.A.03)**

TolTest will abide by the guidelines for severe weather in EM 385-1-1, Section 06.I. The National Weather Service will be monitored and used to determine when weather requires the shutdown of operations. If an Inclement Weather Advisory is issued, the Onsite Technical Manager, ECM Site Superintendent or SSHO will act in accordance with these recommendations.

During periods of lightning and severe weather, work zones will be evacuated immediately to prevent potential exposure to severe weather. While each project site will be subject to varying types of weather conditions, this section provides general information and controls on several types of severe weather.

**Lightning.** If a lightning storm is suspected or observed, all site activities must be stopped, and site equipment must be evaluated for its potential for acting as a lightning rod. Metal machines and people provide conduits for lightning to strike and injure workers. Personnel should wait indoors for the storm or lightning event to end for 30 minutes after the last lightning flash observed or clap of thunder heard. If the strike of lightning occurs and personnel are out in the field, the response should be to disband from one another and lay low to the ground by dropping to your knees and bending forward with your hands wrapped around your knees, away from any poles or trees.

**Tornados.** Tornadoes usually develop from thunderstorms and normally occur at the trailing edge of the storm. Most tornadoes occur in the months of April, May, June, and July in the late afternoon and early evening hours however, they may occur at any time of the year and at any time of the day under the proper conditions. When storms are predicted for the project areas, monitor weather conditions on a radio for the following conditions:

- **Tornado Watch.** Issued when favorable conditions exist for the development of a tornado.
- **Tornado Warning.** Issued by the local weather service office whenever a tornado has actually been sighted or is strongly indicated by radar.

If a tornado warning is issued and you are in a vehicle or a site trailer, leave and go to the nearest building. If there are no buildings nearby, go in the nearest ditch, ravine, or culvert, with your hands shielding your head. If there are permanent buildings located onsite, go there immediately, moving toward interior hallways or small rooms on the lowest floor. If you are in open country, lie flat in a ditch or depression. Hold onto something on the ground, such as a bush or wooden fence post, if possible.

Once a tornado has passed the site, site personnel are to assemble at the designated assembly area to determine if anyone is missing or injured. Administer first aid and seek medical attention as needed.

**Winter Storms.** When snow or ice storms are predicted for the project area, site personnel should monitor the radio for reported weather conditions. Be aware of the following conditions:

- **Winter Storm Watch.** Issued when a storm has formed and is approaching the area.
- **Winter Storm Warning.** Issued when a storm is imminent and immediate action is to be taken.

When a storm watch (warning) is issued, monitor weather conditions and prepare to halt site activities. Notify the Onsite Technical Manager, ECM Site Superintendent or SSHO of the

situation. Seek shelter at site buildings or leave the site and seek warm shelter. If you are caught in a severe winter storm while traveling, seek warm shelter if road conditions prevent safe travel. If you are stranded in a vehicle during a winter storm:

- Stay in the vehicle. Disorientation comes quickly in blowing and drifting snow.
- Wait for help.
- Keep a window open an inch or so to avoid carbon monoxide poisoning.
- Run the engine and heater sparingly.
- Keep watch – do not let everyone sleep at the same time.
- Exercise occasionally.

**Wind Chill Work Conditions:** TolTest will follow the State of Ohio Advisories, Watches and Warning System when deciding whether to work in extreme wind chill conditions.

- **Advisory:** A less severe winter weather event that is imminent. Highlight hazardous weather conditions which could lead to life-threatening situations if caution is not exercised. Advisories are usually issued 6-18 hours prior to the weather event.
  - **Wind Chill Advisory** - Issued when wind chill temperatures are expected to be 10 to 24 degrees below zero for an extended period of time.
  - **Outside** work will be allowed to continue but the weather report must be monitored every 2 hours.
- **Watch:** The potential exists for a significant or dangerous weather event.
  - **Wind Chill Watch – Issued** when there is a potential for dangerous wind chill values.
  - Outside work will be allowed to continue but the weather report must be **monitored** on an hourly basis.
- **Warning:** A significant or dangerous weather event is imminent.
  - **Wind Chill Warning – Issued** for dangerous, life-threatening wind chills less than or equal to minus 25 degrees Fahrenheit.
  - Only **project** critical outside operations will be allowed to continue until the project is secured. Afterwards, no work will be allowed to continue until wind chill levels reach acceptable levels.

## 8.22 Float Plan (19.F.04)

Not applicable.

## 8.23 Site Specific Fall Protection Plan & Prevention Plan (Section 21)

Personnel exposed to a fall of 6 foot or more will be protected by the use of standard guardrails or fall arrest systems. Personnel working within six feet of the edge of unprotected edges, such as roofs, greater than six feet in height will be required to wear full body harnesses attached to a suitable anchor point capable of withstanding 5,000 pounds of force. Personnel working off of ladders will be required to work facing the ladder and maintain three points of contact at all times. A CP for Fall Protection will be identified prior to work from heights being performed.

**8.24 Demolition Plan (23.A.01)**

Not applicable.

**8.25 Excavation/trenching Plan (25.A.01)**

Not applicable.

**8.26 Emergency Rescue (Tunneling) (26.A.05)**

Not applicable.

**8.27 Underground Construction Fire Prevention and Protection Plan (26.D.01)**

Not Applicable.

**8.28 Compressed Air Plan (26.I.01)**

Not applicable.

**8.29 Formwork and Shoring Erection and Removal Plan (27.B.02)**

Not applicable.

**8.30 Pre-Cast Concrete Plan (27.D)**

Not Applicable.

**8.31 Jacking Plan (Lift) Slab Plan (27.E.)**

Not applicable.

**8.32 Steel Erection Plan (27.F.01)**

Not applicable.

**8.33 Site Safety and Health Plan for Hazardous, Toxic and Radioactive Waste Work (28.B)**

TolTest associates and subcontractors will receive the appropriate training listed in the training section of this APP, undergo regular medical surveillance, and utilize the appropriate PPE required by this APP, contract specifications, OSHA standards 29 CFR 1910.120(f) and 29 CFR 1926.65(f), USACE regulations (EM 385-1-1), and applicable DoD and Department of the Army (DA) regulations as well as TolTest policies HS-2840 Hazardous Material Management and HS301 Hazard Communication Program, for handling, inspecting, and transporting drums containing white phosphorus soil. All associates have completed the 40-hour HAZWOPWER training and maintain 8-hour annual refresher course that complies with OSHA standards 29 CFR 1910.120 and 29 CFR 1926.65.

During completion of this DO, various tasks will be performed that potentially pose chemical and/or physical hazards. The known contaminant or hazardous material at the RVAAP for this task order is lead based paint with PCB's from steel door abatement, and white phosphorus

drums stored at the drum staging area located within the Wet Storage Area for transportation. Potential chemical exposure hazards associated with this project involve exposure to lead, white phosphorus, and PCB contaminated dusts. Preventing exposure to toxic chemicals is a primary concern during any activity that may present an exposure potential to site personnel.

This site is not anticipated to be of substantial concern with regard to chemical exposure because the containers are sealed when delivered and shipped for disposal. Sealed white phosphorus drums will at no time be opened or otherwise breached by TolTest or TolTest subcontractor personnel. However, TolTest personnel will be made aware of the potential to encounter chemical substances during storage and transportation of containerized white phosphorus activities and TolTest has established engineering, monitoring, PPE controls for handling, moving and shipping the sealed drums.

Should any unforeseen hazard become evident during the performance of work, the SSHO shall bring such hazard information to the attention of all associates, Onsite Technical Manager or ECM Site Superintendent, TolTest Corporate H&SD, and the USACE contracting representative (both verbally and in writing) for resolution as soon as possible. In the interim, necessary action potentially including stop work, shall be taken to reestablish and maintain safe working conditions.

TolTest has developed a White Phosphorus Disposal Contingency Plan Addendum 001 for this DO that addresses emergency response contingencies in the event of damaged drums, spills, or fire for TolTest work activities of receiving, storing, and shipping white phosphorus. The White Phosphorus Disposal Contingency Plan Addendum 001 addresses Pre-emergency planning with local emergency responders; personnel roles, lines of authority, training, and communication; key personnel roles, command structure/lines of authority and communications requirements for responding to white phosphorus spills and fires; pre-planning meetings to review the TolTest White Phosphorus Disposal Contingency Plan Addendum 001.

TolTest White Phosphorus Disposal Contingency Plan Addendum 001 follows EM 385-1-1 28.G Sections a-m, 29 CFR 1910.120 (q) (6) (ii), 29 CFR 1910.120(q) and 29 CFR 1926.65(q) for responding to white phosphorus releases while stored and shipped from the drum staging area located within the Wet Storage Area.

#### **8.34 Blasting Plan (29.A.01)**

Not applicable.

#### **8.35 Diving Plan (30.A.13)**

Not applicable.

#### **8.36 Confined Space (34.A)**

Not applicable.

## 9.0 RISK MANAGEMENT PROCESSES

TolTest is committed to providing a safe and healthful, accident-free workplace maintained in accordance with all regulations, guidelines, policies and standards. AHAs have been developed for this project to address the activities being performed and identify the work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk.

TolTest will not begin work until the AHA for the work activity has been approved and discussed with all engaged in the activity, including the Contractor, subcontractor(s), and Government on-site representatives at preparatory and initial control phase meetings.

Engineering controls will be explored prior to the use of PPE. PPE will be used whenever its use can prevent injury and engineering controls are not feasible.

### 9.1 Protective Requirements

TolTest will attempt to exhaust all options to protect project personnel before requiring the use of PPE. However, in the event that engineering and work practice controls are not feasible, the PPE requirements listed in **Exhibit 6** will be utilized.

The SSHO may upgrade PPE at their discretion or at the request of project personnel. Notification of the desire to upgrade must be made to the TolTest Certified Industrial Hygienist (CIH) prior to the upgrade in PPE taking place. Any downgrades of PPE must be approved by both the TolTest CIH and the USACE CIH.

### Exhibit 6, Task Matrix

Work Activity	Minimum PPE Required
Lead/PCB Paint Abatement	Level C PPE: <ul style="list-style-type: none"> <li>▪ Disposable fabric protective coveralls (Tyvek or similar)</li> <li>▪ Inner gloves</li> <li>▪ Appropriate work gloves</li> <li>▪ Safety Toed Boots</li> <li>▪ ANSI Z87 approved safety glasses</li> <li>▪ Hard hat or bump cap as applicable</li> <li>▪ NIOSH Approved half face air purifying respirator with P100 filter</li> <li>▪ Taped interfaces</li> </ul>
Repair of Concrete Walls	Level D PPE: <ul style="list-style-type: none"> <li>▪ Safety toed boots</li> <li>▪ ANSI Z87 approved safety glasses</li> <li>▪ Standard work uniform</li> <li>▪ Appropriate work gloves</li> <li>▪ Hard hat</li> <li>▪ Class II Reflective Vest (during heavy equipment operations and all traffic control operations)</li> </ul>
Geo-Textile, Gravel Grading	Level D PPE: <ul style="list-style-type: none"> <li>▪ Safety toed boots</li> <li>▪ ANSI Z87 approved safety glasses</li> <li>▪ Standard work uniform</li> <li>▪ Appropriate work gloves</li> <li>▪ Hard hat</li> <li>▪ Class II Reflective Vest (during heavy equipment operations and all traffic control operations)</li> </ul>
Repair Existing Chain Link Fence	Level D PPE: <ul style="list-style-type: none"> <li>▪ Safety toed boots</li> <li>▪ ANSI Z87 approved safety glasses</li> <li>▪ Standard work uniform</li> <li>▪ Appropriate work gloves</li> <li>▪ Hard hat</li> <li>▪ Class II Reflective Vest (during heavy equipment operations and all traffic control operations)</li> </ul>
White Phosphorus Drum Handling	Modified Level D PPE: <ul style="list-style-type: none"> <li>▪ Safety toed boots</li> <li>▪ ANSI Z87 approved chemical safety goggles</li> <li>▪ Chemical splash shield</li> <li>▪ Saranex (or equivalent) chemical protective clothing</li> <li>▪ Cotton or leather work gloves</li> <li>▪ Silvershield inner gloves</li> <li>▪ Hard hat or bump cap as applicable</li> <li>▪ Taped interfaces</li> </ul>
Operating Forklift, Loading, and Handling	Modified Level D PPE: <ul style="list-style-type: none"> <li>▪ Safety toed boots</li> <li>▪ ANSI Z87 approved chemical safety goggles</li> <li>▪ Chemical splash shield</li> <li>▪ Saranex (or equivalent) chemical protective clothing</li> <li>▪ Cotton or leather work gloves</li> <li>▪ Silvershield inner gloves</li> <li>▪ Hard hat or bump cap as applicable</li> <li>▪ Taped interfaces</li> </ul>

**ATTACHMENT 1**

**TOLTEST SITE SAFETY AND HEALTH PLAN**

**Final Site Safety and Health Plan for  
RVAAP-004-R-01 Open Demolition Area #2 MRS for the  
White Phosphorus Disposal at the Rocket Ridge Area**

**Ravenna Army Ammunition Plant  
Ravenna, Ohio**

**Contract Number: W912QR-04-D-0038  
Delivery Order Number: 0011**

**Prepared For:**



**U.S. Army Corps of Engineers,  
Louisville District  
600 Dr. Martin Luther King, Jr. Place  
Louisville, Kentucky 40202**

**TolTest Project No. 23343**

**Prepared By:**

***TOLTEST, INC.***  
**1480 Ford Street  
Maumee, Ohio 43537**

**March 2, 2011**

# **SITE SAFETY AND HEALTH PLAN**

## **Prepared For:**

**RVAAP-004-R-01 White Phosphorus Disposal at the  
Rocket Ridge Area Open Demolition Area #2 MRS  
Ravenna Army Ammunition Plant  
Ravenna, Ohio**


## **Submitted to:**

**United States Army Corps of Engineers  
Louisville District  
TolTest Project No. 23343  
W912QR-04-D-0038**


## **Prepared By:**

**  
1480 Ford Street  
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Reviewed/Approved By:  
Corporate Health & Safety Manager

  
Richard L. Barcum, CIH, CSP, CHMM 3/1/2011  
Date

Reviewed/Approved By:  
Project Manager

  
Thomas W. Knueven, CHMM 3/1/2011  
Date

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## LIST OF ENCLOSURES

Enclosure 1	ToITest Procedures HS0301, Hazard Communications Program, and HS2840, Hazardous Materials
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## LIST OF ACRONYMS

ACGIH	American Conference of Governmental Hygienists
AHA	Activity Hazard Analysis
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute
APP	Accident Prevention Plan
AR	Army Regulation
CFR	Code of Federal Regulations
CHMM	Certified Hazardous Materials Manager
CHST	Certified Health and Safety Technician
CIC	Continuous Improvement Committee
CIH	Certified Industrial Hygienist
COR	Contracting Officer's Representative
CPG	Certified Professional Geologist
CQCP	Construction Quality Control Plan
CRZ	Contamination Reduction Zone
CSP	Certified Safety Professional
CSS	Certified Safety Specialist
CWZ	Construction Work Zone
DO	Delivery Order
DOT	Department of Transportation
EMS	Emergency Medical Service
EPA	Environmental Protection Agency
EZ	Exclusion Zone
H&S	Health and Safety
H&SD	Health and Safety Director
HAZWOPER	Hazardous Waste Operations and Emergency Response
ICP	Inductively Coupled Plasma
IDLH	Immediately Dangerous to Life or Health
IRP	Installation Restoration Program
MARC	Multiple Award Remediation Contract
MEC	Munitions and Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
MSDS	Material Safety Data Sheet
ND	None Detected
NIOSH	National Institute for Occupational Safety and Health
ODA2	Open Demolition Area #2
OEL	Occupational Exposure Limit
OHARNG	Ohio Army National Guard
OSHA	Occupational Safety and Health Administration
PIKA	PIKA International, Inc.
PCB	Polychlorinated Biphenyls
PEL	Permissible Exposure Limit
PPE	Personal Protective Equipment
QC	Quality Control
QCC	Quality Control Coordinator
RRA	Rocket Ridge Area
RVAAP	Ravenna Army Ammunition Plant
SSHO	Site Safety and Health Officer

### **LIST OF ACRONYMS**

SSHP	Site Safety Health Plan
STEL	Short Term Exposure Limit
SZ	Support Zone
TLV	Threshold Limit Value
TWA	Time Weighted Average
USACE	United States Army Corps of Engineers

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## **1.0 INTRODUCTION**

This Site Safety and Health Plan (SSHP) presents our approach to safety in the performance of Delivery Order (DO) 0011. TolTest has prepared this SSHP to perform white phosphorus disposal generated from the Rocket Ridge Area (RRA) of Open Demolition Area #2 (ODA2), Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio for the United States Army Corps of Engineers (USACE) Louisville District under the Small Business Multiple Award Remediation Contracts (MARC) for the Louisville District.

The scope of work covered under this SSHP includes waste management activities consisting of temporary storage, inspection and transportation of hazardous waste drums generated from the RRA. It also includes operating a forklift while loading and handling drums. The drums will contain white phosphorus and white phosphorus contaminated soil and debris that will be generated by PIKA International, Inc. (PIKA). Contract Modification #1 Disposal of Munitions and Explosives of Concern (MEC) and Material Potentially Presenting an Explosive Hazard (MPPEH) currently stored in ECM 7-C-3 and 7-C-4 is not included in this SSHP but will be addressed under separate plans. While the repairs to the ECMs are included, this SSHP primarily addresses the management of the white phosphorus waste stream due to the hazardous characteristics of the waste.

The white phosphorus wastes will consist of approximately 1,000 drums of:

- pure or bulk white phosphorus wastes in 30-gallon drums and topped off with water; and
- white phosphorus-contaminated soils and debris in 55-gallon drums and topped off with water.

This SSHP is required reading and compliance for all subcontractors and staff on this project

### **1.1 Emergency Contact Information**

The following points of contact are provided for this project:

#### **TolTest Site Safety and Health Officer:**

Chris Warren  
Office: (419) 794-3573  
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Email: [Mark.C.Patterson@us.army.mil](mailto:Mark.C.Patterson@us.army.mil)

**RVAAP Operating Contractor, Vista Sciences Corporation**

Jim McGee

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Cell: (330) 221-4543

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**Ohio Environmental Protection Agency (EPA) Division of Emergency and Remedial Response**

Eileen Mohr

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Cell: (330) 389-0486

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**Ohio EPA Division of Hazardous Waste Management**

Frank Zingales

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**Ohio Army National Guard (OHARNG) Environmental Specialist**

Katie Tait

Office: (614) 336-6136

Email: [Kathryn.S.Tait@us.army.mil](mailto:Kathryn.S.Tait@us.army.mil)

**OHARNG Camp Ravenna - Garrison Commander**

LTC Ed Meade

Office: (614) 336-6560

Cell: (614) 307-0493

Email: [William.Meade.1@us.army.mil](mailto:William.Meade.1@us.army.mil)

**OHARNG Camp Ravenna - Range Ops Officer**

CPT Mike Yates

Office: (614) 336-6193

Cell: (614) 593-1669

Email: [Michael.Yates2@us.army.mil](mailto:Michael.Yates2@us.army.mil)

**Nearest Hospital from RVAAP:**

Robinson Memorial

6847 N. Chestnut Street

Ravenna, Ohio

Phone: (330) 297-0811

**Post #1:\*\***

Phone: (330) 358-2017

\*\*Fire, Police, and Ambulance

**1.2 Purpose of the Health and Safety Plan**

The purpose of this document is to establish the responsibilities, requirements, and procedures for the protection of TolTest personnel and subcontractor personnel authorized to conduct fieldwork at the RVAAP under this contract.

Activities not already covered in this SSHP will be discussed during daily tailgate safety meetings. Copies of this SSHP will be maintained on site by the Site Safety and Health Officer (SSHO). The information in this SSHP is provided solely for the purpose of protecting the health and safety (H&S) of TolTest associates, and to establish minimum H&S requirements for subcontractors working under the direct supervision and control of TolTest.

### **1.2.1 Subcontractor Liability**

TolTest assumes no liability for, nor responsibility to, any other parties for the accuracy or completeness of the information contained herein for any use or reliance upon this SSHP by any other party. Subcontractor personnel are not relieved of their responsibility to comply with all applicable Federal, State, and Local H&S requirements. TolTest subcontractors are to independently evaluate this SSHP to determine what additional H&S safeguards may be necessary or appropriate to protect their associates and others within the context of their own scope of work. Activity Hazard Analyses (AHA) are required for all tasks performed and must be reviewed and accepted by the SSHO prior to beginning work. Any hazards associated with the equipment and procedures of subcontractor personnel must be brought to the attention of all field team members during the daily tailgate safety meetings.

### **1.2.2 OSHA Requirements**

The Occupational Safety and Health Administration (OSHA) requires employers involved in hazardous waste activities to comply with Title 29 Code of Federal Regulations (CFR), Part 1910, Section 120 (29 CFR 1910.120), Hazardous Waste Operations and Emergency Response. All work conducted shall also comply with USACE Safety and Health Manual Requirements 385 1-1 dated September 15, 2008. This document has been designed to meet Federal and State OSHA standards and EPA requirements. Working conditions may necessitate modification of this plan. Except in emergency situations, no deviations from this plan may be implemented without the prior notification and approval of the designated SSHO.

### **1.2.3 Modifying the SSHP**

This SSHP may be modified if it becomes evident to personnel associated with this work that the provisions specified are not feasible or adequate to protect the H&S of site personnel, or if new activities are added to the program for which adequate H&S procedures have not been identified. Modifications may also be made whenever there are changes in the identified H&S personnel and whenever there are changes in the emergency procedures or contacts. Modifications will be accomplished by consultation with the key H&S personnel for the project, who in turn will recommend appropriate modifications after conferring with TolTest Corporate Health and Safety Department. All changes to the SSHP will be documented. The SSHO will be responsible for ensuring that staff and subcontractors are informed of all changes to the SSHP.

## **2.0 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATIONS - HAZARDOUS WASTE OPERATIONS**

### **2.1 General Information**

When the RVAAP Installation Restoration Program (IRP) began in 1989, it was identified as a 21,419-acre installation. The property boundary was resurveyed by the OHARNG over a two year period (2002 and 2003) and the actual total acreage of the property was found to be 21,683 acres. As of February 2006, a total of 20,403 acres has been transferred to the National Guard Bureau and subsequently licensed to the OHARNG for use as a military training site known as Camp Ravenna. The current RVAAP consists of 1,280 acres scattered throughout Camp Ravenna.

## 2.2 Site-Specific Training

Site-specific information training will be used to provide site personnel with important information related to site operations. This training shall cover site-specific training topics listed below:

- Site history and background
- Site organization and chain of command
- Proper use and maintenance control measures
- Emergency response procedures, assignments, and contacts
- Facility-specific requirements
- Inspection and sampling requirements
- Personal protective equipment (PPE)
- Respirator usage
- Lead and polychlorinated biphenyls (PCB) paint abatement awareness
- Drum handling
- White phosphorus identification features, hazards, storage, handling, and shipping requirements

### 2.2.1 Documentation of Training

TolTest personnel and subcontractors handling hazardous waste will have completed the initial 40-Hour *Hazardous Waste Operations and Emergency Response* (HAZWOPER) and three days of supervised experience pursuant to 29 CFR 1910.120(e)(3). TolTest personnel and subcontractors will receive eight hours of refresher training annually, pursuant to 29 CFR 1910.120(e)(8). On-site supervisors and managers will receive an additional eight hours of specialized training pursuant to 29 CFR 1910.120(e)(4). Daily tailgate safety meetings will take place each morning prior to the start of work. The tailgate safety meeting will review the hazards associated with the work activities planned for that day. One onsite TolTest associate will have the Department of Transportation's (DOT) hazardous waste training and two will be certified in CPR/First Aid Response while work is being performed. TolTest will ensure that contracted transporters hold current DOT training certificates, licensing, and registrations prior to any of the drums being loaded and transported off RVAAP. Prior to onsite activities beginning, a site coordination and safety meeting will be held. TolTest will coordinate the meeting with USACE and RVAAP Facility Manager and Operating Contractor.

Workers and management/supervisory personnel will be trained in accordance with 29 CFR 1926.62 paragraph (l)(1)(i) and 29 CFR 1926.59, *Hazard Communication*; training as required under paragraph (1)(2)(iii) for the use of respirators; and training in accordance with 29 CFR 1926.21, *Safety Training and Education*.

Training records or verification of training will be supplied to the RVAAP Operating Contractor prior to commencement of onsite work

Additional training documentation (i.e. powered industrial trucks) will be collected by the SSHO and made readily available for review.

### **3.0 STAFF, ORGANIZATION, QUALIFICATIONS AND RESPONSIBILITIES**

This SSHP identifies applicable H&S requirements for the project scope. This site-specific SSHP includes the identification of site location, planned activities, the H&S Program Organization, hazard analysis, worker training, PPE, medical surveillance, monitoring, site controls, and emergency response.

#### **3.1 Health and Safety Program Description**

The purpose of the H&S Program is to reduce the number of disabling injuries and illnesses to a minimum; not just equaling, but surpassing the average safety records of similar operations nationwide. The program includes:

Providing mechanical and physical safeguards to the greatest extent possible

- Conducting on-going H&S and environmental inspections to find and eliminate unsafe working conditions/practices; to control hazards to associates' health; to fully comply with job safety, health, or environmental standards; and to seek out and correct any condition that could possibly harm the environment
- Training all associates in good H&S and environmental practices and procedures
- Developing and enforcing H&S and environmental rules and requiring that associates adhere to these rules at the time of hire as a condition of continuing employment
- Investigating promptly and thoroughly, every incident to ascertain the cause and take corrective action if necessary
- Supporting and encouraging associate participation in the day-to-day operation of the plan
- Recognizing that the responsibility for leadership in the H&S and environmental program and for its effectiveness and improvement is the responsibility of every associate
- Obtaining employee participation in the H&S process

TolTest's Corporate H&S Department is responsible for the administration, monitoring, and enforcement of the H&S policies established by TolTest. TolTest's Corporate H&S Department reports to the Corporate Continuous Improvement Committee (CIC). The CIC will monitor the establishment and implementation of the H&S system.

Project personnel are responsible for cooperation with all aspects of this project including compliance with all rules and regulations and/or continuously utilizing good health, safety, and environmental practice while performing their duties. Associates and subcontractors are required to employ safe work practices at all times and comply with all OSHA, TolTest, and subcontractor-specific requirements.

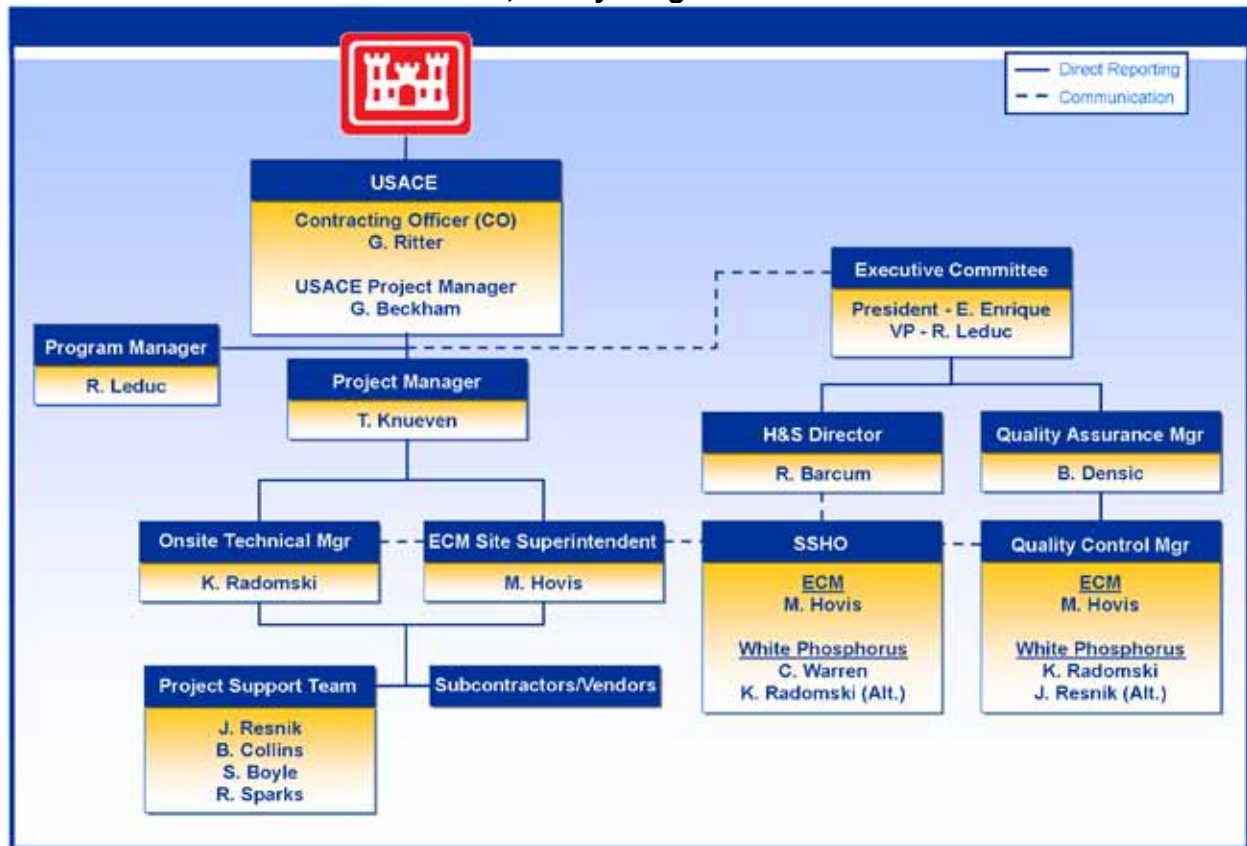
#### **3.2 Safety Program Members and Responsibilities**

The TolTest Corporate H&S Department is responsible for oversight of this SSHP. The Corporate Health & Safety Director (H&SD) or designee conducts compliance assessments and audits as required to ensure the safety of all personnel. As such, the Corporate H&SD or designee may suspend work deemed unsafe.

The SSHP and Onsite Technical Manager are responsible for day-to-day implementation of and compliance with the health, safety, and quality assurance requirements. All workers have the responsibility and authority to stop work when unsafe conditions exist or work is not being

performed to DO specifications. An organizational chart showing the safety program team members is provided in **Exhibit 1**. Contact information for the safety program personnel is located in Exhibit 4 of the Accident Prevention Plan (APP).

**Exhibit 1, Safety Program Members**



### 3.2.1 Corporate Health and Safety Director

TolTest's Corporate H&SD, Richard L. Barcum, CIH, CSP, CHMM, or designee will be responsible for oversight at the corporate level and for providing program support by developing and revising H&S procedures for site-specific requirements. The Corporate H&SD or designee will also:

- Conduct or ensure H&S training is complete for all personnel for effective implementation of the H&S program
- Review TolTest associate's training and medical records to ensure that the staff has received appropriate training and medical testing
- Perform H&S program evaluations, including periodic reviews of H&S audit results and other quality related feedback from internal sources and clients

### 3.2.2 Project Manager

The Project Manager, Tom Knueven, CHMM, will be responsible for the implementation of all programs prior to the start of any work onsite. As the Project Manager, Mr. Knueven will also be responsible for:

- Reporting daily progress to the Contracting Officer's Representative (COR)
- Providing oversight of the preparation of contractor submittals and include them in a Final Completion Report
- Overseeing the proper set up and demobilization of all project personnel and equipment, including subcontractors

### **3.2.3 Onsite Technical Manager**

The Onsite Technical Manager, Karen Radomski, CPG, CHMM, CSS, will be responsible for the direct supervision of all field activities. The Onsite Technical Manager will be located at the project site whenever work is in progress. The Onsite Technical Manager is responsible for reporting all daily progress to the Project Manager and ensuring subcontractor personnel perform all activities in accordance with the project plans. As the Onsite Technical Manager, Ms. Radomski will also be responsible for:

- Conducting daily tailgate safety meetings to disseminate information to project personnel necessary to accomplish each day's activities
- Monitoring all activities by project personnel to include subcontractors and document all site progress
- Reviewing operation plans
- Providing onsite decision making to perform all operational tasks according to specifications
- Providing administrative support, supervision, and management of all contractor and subcontractor personnel, equipment, and materials

### **3.2.4 Quality Control Coordinator**

The Quality Control Coordinator (QCC), Karen Radomski, will be responsible for the proper implementation and the supervision of quality control (QC) testing as required by the contract documents. The QCC will report all quality issues to the Quality Assurance Manager, Bob Densic, as identified in the Construction Quality Control Plan (CQCP). The QCC is responsible for ensuring compliance with all QC standards required. The QCC will also have a direct line of contact with the Corporate H&SD or designee for safety oversight on the project. As the QCC, Ms. Radomski will also be responsible for:

- Conducting incident investigations and report results directly to the Corporate H&SD within 24 hours of the incident. In the event of an incident, the PM will be notified immediately
- Conducting daily H&S meetings with Onsite Technical Manager
- Inspecting materials and equipment received onsite to assure compliance with contract requirements
- Inspecting onsite laboratory equipment and H&S equipment to ensure proper operation and accuracy
- Be responsible for ensuring all personnel entering the site have the proper training and/or security access
- Supervise QC testing as required by the contract documents
- Oversee sampling as necessary

### **3.2.5 Site Safety and Health Officer**

The SSHO, Chris Warren, CHST, will be responsible for implementing a comprehensive safety plan to protect all contractor personnel, including both the prime and subcontractors. TolTest's SSHO will ensure that all elements of the approved SSHP and CQP are implemented and enforced onsite. As the SSHO, Mr. Warren will also be responsible for:

- Implementing subcontractor H&S in the field
- Inspecting materials and equipment received onsite to ensure compliance with contract requirements
- Inspecting onsite H&S equipment to ensure proper operation and accuracy
- Inspecting field activities
- Coordinating PPE supplies
- Troubleshooting unique field H&S issues and provide feedback and suggestions to the COR
- Conducting specified real-time and/or time weighted average air monitoring/sampling

### **3.3 Telephone Numbers**

The contact numbers for all members of the H&S program are listed in Section 1.1. All emergency services, such as a fire, hospital, police, and ambulance shall be obtained by calling the Security Guard at Post #1 (330-358-2017). Mobile phones will be utilized at the site. Site telephone numbers will be posted for easy access to all project personnel and after hours numbers will be kept on file for emergency use only.

### **3.4 Work Suspension Authority**

As stated in the TolTest Safety and Health Policies and Procedures found in TolTest Health and Safety Procedures Manual, all associates have the right and duty to suspend work when conditions are unsafe, notify the SSHO, and assist in correcting these conditions. Upon notification to the SSHO of an unsafe condition, the SSHO has the authority as well as the Ohio EPA to order a suspension of work. Work will be suspended until such time that the danger has been removed.

## **4.0 TRAINING**

### **4.1 Training Requirements**

Personnel are required to have training in areas for specific tasks that may be performed on any jobsite. The Project Manager is responsible for identifying personnel requiring training and coordinating with the SSHO regarding scheduling the training.

#### **4.1.1 Hazardous Waste Operations Safety and Health Training**

All personnel entering a contamination reduction zone or exclusion zone will have completed the initial 40-Hour HAZWOPER training and three days of supervised experience pursuant to 29 CFR 1910.120(e)(3). All personnel will receive eight hours of refresher training annually, pursuant to 29 CFR 1910.120(e)(8), as necessary.

#### **4.1.2 Confined Space Entry**

No confined space entry is anticipated for this DO. If confined space entry becomes necessary a competent person will be identified and submitted to the USACE for approval. All personnel (entrants, attendants, and supervisors) involved in confined space entry will receive confined space training and review the appropriate AHA pursuant to the requirements of 29 CFR 1910.146 and TolTest Procedure HS401.

#### **4.1.3 Respiratory Protection Equipment**

All personnel who are required to wear respiratory protection will receive training on the proper use, care, and maintenance of respiratory protection equipment pursuant to the requirements of 29 CFR 1910.134 and TolTest Procedure HS801.

#### **4.1.4 Excavation and Trenching**

No excavations or trenches deeper than 3 feet are anticipated for this DO.

#### **4.1.5 Buddy System Training**

Associates will also be instructed in the use of the “buddy” system. The “buddy” system will be used at all times when associates are within an Exclusion Zone (EZ) or Contamination Reduction Zone (CRZ). The “buddy” system is a method of organizing work groups so that there is someone that is always available to:

- Provide his or her partner with assistance in an emergency
- Observe his or her partner for signs of chemical or physical exposure
- Periodically check the integrity of his or her partner’s PPE
- Notify the emergency response personnel when an emergency situation occurs

The “buddy” system usually requires that two or more people work within visual range from one another. However, the “buddy” system can include radio contact if site conditions are such that a person could otherwise work alone. In order to deviate from the buddy system, an explanation of the specific task to be completed is required; along with a procedure for assuring that single person work parties are safe.

#### **4.2 Site-Specific Training**

Site-specific training involves providing orientation and training to personnel specific to the DO. The SSHO or designated alternate will conduct the orientation and training. Site visitors will receive site-specific training prior to entering the area. The format and content will be left up to the discretion of the SSHO.

##### **4.2.1 Pre-Work Safety and Health Orientation**

All site associates and subcontractors will receive site-specific H&S training prior to entering the site for commencement of work. All personnel reporting for work at the site will attend a documented pre-work H&S general orientation conducted by the Onsite Technical Manager or SSHO. The orientation should emphasize that no employee will be required to work in conditions that are unsanitary, hazardous, or dangerous to their safety or health, and that accident prevention is the responsibility of each individual on the work site. The associates will be advised of their H&S rights (a work place free from recognized hazards with a procedure to

make hazards known to management) and their H&S responsibilities (to work in a safe manner and report any unsafe conditions). The H&S orientation should at a minimum address the additional following points:

- TolTest, lower-tier subcontractor and/or vendor responsibilities
- The location of approved Project Plans available for review by associates
- First aid and medical facilities
- Emergency response procedures to include local warning, evacuation, and sheltering
- Specific Occupational H&S Programs or procedures applicable to the work activities
- The Hazard Communication Program
- Associate access to exposure monitoring data and medical records
- General project hazards and the applicable policies and procedures for addressing these hazards
- Work hazard recognition and the procedures for reporting or correcting unsafe conditions
- Drum handling
- White Phosphorus
- PCB and lead abatement awareness training
- Procedures for reporting accidents or incidents
- Fire prevention and control
- Alcohol and drug abuse policy
- Disciplinary procedures for safety infractions or violations

Additional orientation on items that vary from day to day will be provided during daily tailgate safety meetings. The Project Manager or SSHO reserves the right to require and provide additional work H&S orientation topics for inclusion in the H&S orientations.

#### **4.2.2 Emergency Response Plan / White Phosphorus Disposal Contingency Plan**

The White Phosphorus Disposal Contingency Plan Addendum 001(Addendum) was developed as a supplement to the *Ravenna Army Ammunition Plant (RVAAP) Installation Spill Contingency Plan (ISCP) (Vista, September 2010)*. This Addendum was created due to the changes in waste management activities associated with the drum staging area located within the Wet Storage Area. This Addendum will be implemented in the event of a spill of white phosphorus drums, smoke, fire, explosion, or a combination of these. Additionally, the Addendum will be implemented if the TolTest Onsite Technical Manager determines that a threat to human health or the environment exists. Implementation of this Addendum is intended to mitigate or protect the facility from injury; contamination from hazardous waste; damage to equipment; damage to the environment; or a combination of these.

The Addendum addresses the control procedures for the drum staging area, as well as, the emergency response contacts and notification procedures. The emergency response procedures provide specific response activities and actions to be taken based upon the reaction occurring and aggressiveness of the event.

In the event of an emergency at the drum staging area, the TolTest Onsite Technical Manager or person who discovers the event, will initiate contingency actions as outlined in the Addendum. Immediate actions will consist of an evacuation of all personnel from the area, and contacting the Security Guard at Post #1 at 330-358-2017 and ensuring all workers in the field are notified. The Security Guard at Post #1 will immediately notify the Ravenna City Fire Department. The Security Guard will also notify the On Scene Coordinator and the OHARNG. The TolTest Onsite Technical Manager will assist the local emergency responders by providing the necessary information regarding the nature of the emergency. For small spills where reaction such as smoke or fire is not present, PIKA will be contacted to respond to the spill. The TolTest Onsite Technical Manager will keep unauthorized personnel from the area.

#### **4.2.2.1 First Aid**

- Move victim to fresh air and notify the Security Guard at Post #1 (330-358-2017) to contact emergency medical service
- Artificial respiration may be administered if victim is not breathing provided it can be performed safely and without exposure to the contaminant.
- In case of contact with substance, keep exposed skin areas immersed in water or covered with wet bandages until medical attention is received
- Removal of solidified molten material from skin requires medical assistance,
- Remove and isolate contaminated clothing and shoes at the site and place in metal container filled with water. Fire hazard if allowed to dry
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Keep victim warm and quiet
- Ensure that medical personnel are aware of the materials involved and take precautions to protect themselves

#### **4.3 Verification of Training**

Training records sufficient to verify the completion of applicable training required by EM 385-1-1, OSHA Standards, and/or site contractual requirements will be maintained at the project site and provided to the client upon request.

### **5.0 PERSONAL PROTECTION EQUIPMENT**

Engineering controls will be explored prior to the use of PPE. PPE will be used whenever its use can prevent injury and engineering controls are not feasible.

Personal protective equipment requirements are outlined in Section 9.1 of the APP and are provided in **Exhibit 2**.

#### **5.1 Donning and Doffing Guidelines**

A decontamination station will be set up in the CRZ for personnel to remove contaminated PPE and to wash when exiting the EZ. The decontamination process will be developed onsite and discussed at each day's tailgate safety meeting.

### Exhibit 2, Personal Protection Equipment

Work Activity	Minimum PPE Required
White Phosphorus Drum Handling	Modified Level D PPE: <ul style="list-style-type: none"><li>▪ Safety toed boots</li><li>▪ ANSI Z87 approved chemical safety goggles</li><li>▪ Chemical splash shield</li><li>▪ Saranex (or equivalent) chemical protective clothing</li><li>▪ Cotton or leather work gloves</li><li>▪ Silvershield inner gloves</li><li>▪ Hard hat or bump cap as applicable</li><li>▪ Taped interfaces</li></ul>
Operating Forklift, Loading, and Handling	Modified Level D PPE: <ul style="list-style-type: none"><li>▪ Safety toed boots</li><li>▪ ANSI Z87 approved chemical safety goggles</li><li>▪ Chemical splash shield</li><li>▪ Saranex (or equivalent) chemical protective clothing</li><li>▪ Cotton or leather work gloves</li><li>▪ Silvershield inner gloves</li><li>▪ Hard hat or bump cap as applicable</li><li>▪ Taped interfaces</li></ul>

## 6.0 MEDICAL SURVEILLANCE

Medical screening and medical surveillance are two fundamental strategies for optimizing employee health. Both can contribute significantly to the success of worksite H&S programs. Many occupational health problems can be prevented or their effects minimized if identified early.

Personnel who are required to work within the EZ or who are required to utilize respiratory protection must have a current (within one year) Physician's Written Opinion stating that they are medically cleared to wear a respirator. This certification shall include the following:

- Telephone, email and physical address of the medical facility/provider
- Printed name of licensed, certified health care provide along with his/her signature
- The statement of clearances or respiratory limitations only.
  - Respiratory Protection Clearance required to respirator use
  - Hazardous Waste Clearance required to access the EZ
- Date of examination and date that clearance expires.

### 6.1 Summary of Medical Surveillance Requirements

The medical surveillance program consists of a baseline or initial examination, an annual medical examination, a termination examination, and episodic medical examinations as necessary. The contents of medical examinations will be determined by TolTest Medical Review Officer based upon each employee anticipated job duties and exposures.

An episodic examination will be required if any employee develops signs or symptoms related to the possible overexposure to hazardous substances or other health hazards, if the employee has been injured, or if the employee has been exposed above the permissible exposure limits or published exposure levels in an emergency. The scope of any episodic examination will be left to the discretion of the TolTest Medical Review Officer.

## **6.2 Subcontractor Personnel**

Subcontractors, upon award of specific work, must provide appropriate documentation as specified in Section 6.0 above.

Medical certificates must be provided to TolTest as the subcontractor receives them. Any worker whose medical certification has expired will not perform any work at the project site until the medical certification is attained and submitted to the SSHO. Medical certification for newly assigned personnel must be provided to the SSHO prior to beginning work on the project.

## **6.3 Drug Abuse Prevention Program**

TolTest is committed to the establishment and maintenance of a safe and efficient work environment for all associates free from the effects of alcohol, illegal drugs, other controlled substances, and prohibited items. TolTest has implemented a Substance Abuse Prevention Program, which includes pre-employment testing, periodic testing, post-accident testing, for cause testing and random testing. TolTest Alcohol and Drug Free Workplace Program (HS102) are in strict compliance with the Federal Drug and Alcohol Free Workplace Act.

## **6.4 Recordkeeping**

The TolTest H&S Coordinator will arrange medical surveillance for TolTest associates. The statements by the examining physician(s) attesting to the medical qualification of individual workers will be maintained at the project site and will remain a part of the project files. The examining physician will maintain medical records.

## **7.0 EXPOSURE MONITORING/AIR SAMPLING PROGRAM**

Air samples will be collected during routine inspections and drum handling activities. Sampling will involve both direct reading and integrated air sampling. All integrated air samples will be analyzed at an American Industrial Hygiene Association (AIHA) accredited laboratory.

Air monitoring will be conducted to test for white phosphorus fumes and phosphine (a by-product of white phosphorus decomposition) vapors in the air.

Air monitoring results will be submitted to the client as an attachment to the Contractor Production Report.

## **7.1 Instrument Calibration and Maintenance**

Instrumentation used for air monitoring will be calibrated and maintained by the SSHO or other qualified individual per instruction provided by the instrument manufacturer.

Calibration of instruments will be checked before and after use and maintained in accordance with the manufacturer's instructions. Calibration data, including the instrument model, serial number, calibration data, and site conditions will be recorded on the Instrument Calibration Log prior to obtaining monitoring data.

## 7.2 Air Monitoring Guidelines and Action Levels

If unexpected hazards at a site indicate the need for a different level of PPE than that listed in the site-specific SSHP, the plan will be modified, and subject to the approval of the Corporate H&SD or designee. Exhibit 3 presents the air monitoring and action level guidelines. .

**Exhibit 3, Air Monitoring and Action Level Guidelines**

<i>Detection Method</i>	<i>Action Level</i>	<i>Action</i>
Phosphorus	Above 0.1 mg/m <sup>3</sup> (PEL)	Cease all operations and evacuate the drum storage area. Implement approved White Phosphorus Disposal Contingency Plan Addendum 001. Contact TolTest CIH and USACE CIH.
Phosphorus	IDLH 5 mg/m <sup>3</sup>	Cease all operations and evacuate the drum storage area. Implement approved White Phosphorus Disposal Contingency Plan Addendum 001. Contact TolTest CIH and USACE CIH.
Phosphine	Above 0.3 ppm (PEL)	Cease all operations and evacuate the drum storage area. Implement approved White Phosphorus Disposal Contingency Plan Addendum 001. Contact TolTest CIH and USACE CIH.

In accordance with EM385-1-1 Section 06.A, TolTest utilizes the Occupational Exposure Limits (OEL) which are the most stringent between the American Conference of Governmental Industrial Hygienists (ACGIH) and OSHA. The various OELs applicable to this project include the following:

- **PEL (Permissible Exposure Limit):** An 8-hour time weighted average (TWA) that OSHA establishes as the regulatory limit for personnel exposure.
- **TLV (Threshold Limit Value):** An 8-hour TWA that the ACGIH recommends as a guideline for personnel exposure.
- **STEL (Short Term Exposure Limit):** The exposure limit established by both OSHA and the ACGIH separately that is the limit for personnel exposure over a 15-minute period, 4 times daily with at least 1 hour in between each exposure event.
- **IDLH (Immediately Dangerous to Life or Health):** The exposure limit established by OSHA that is the limit for personnel exposure above which an individual would likely be unable to escape without injury or irreversible health effects within a 30-minute period. Entry into an IDLH environment on this project is prohibited.
- **Odor Threshold:** The odor threshold for phosphine is 0.15 ppm which is below the PEL. Phosphine is a pungent garlic-like odor or an odor of rotting fish. If anyone smells this odor, they would immediately cease all operations, evacuate the drum staging area, and implement the approved White Phosphorus Disposal Contingency Plan Addendum 001.

## 7.3 Air Monitoring Strategy

Air monitoring will be performed utilizing real-time and integrated air monitoring for white phosphorus fumes and phosphine (a by-product of white phosphorus decomposition) vapors in the air.

Real time monitoring will involve the use of colorimetric/stain tubes to detect the presence of phosphine in the air. It will NOT be used to decide, verify or confirm levels of PPE because this type of air monitoring instrumentation may have an error rate of up to  $\pm 25\%$ . Real time monitoring will be used to determine the presence of phosphine in general. If phosphine is determined through real time monitoring to be present, the area will be immediately evacuated and the White Phosphorus Disposal Contingency Plan Addendum 001 will be initiated. Re-entry into the area will require the dual concurrence of the TolTest CIH and the USACE CIH.

Acceptable colorimetric/stain tubes include, in the order of preference, the following:

- **Sensidyne – Phosphine – Tube:** 121U – This tube has a detection limit of 0.02 ppm and a measurable range of 0.05 to 2.0 ppm with a relative standard deviation of + 10%. These tubes require 1 to 2 strokes of the pump to accurately collect contamination with each stroke taking approximately 1 minute. Contamination is indicated by the collection media changing from yellow in color to pink. This tube can only be used with a pump manufactured by Sensidyne.
- **Drager – Phosphine – Tube:** 0.01a – This tube has a detection limit of 0.01 ppm and a measurable range of 0.01 to 1.0 ppm with a relative standard deviation of + 10% to + 15%. These tubes require 3 to 10 strokes of the pump to accurately collect contamination with each stroke taking approximately 1 minute. Contamination is indicated by the collection media changing from yellow in color to red. This tube can only be used with a pump manufactured by Drager.
- **Drager – Phosphine – Tube:** 0.1a – This tube has a detection limit of 0.1 ppm and a measurable range of 0.1 to 4.0 ppm with a relative standard deviation of + 15% to + 20%. These tubes require 10 strokes of the pump to accurately collect contamination with each stroke taking approximately 30 seconds. Contamination is indicated by the collection media changing from white in color to grey violet. This tube can only be used with a pump manufactured by Drager.

Integrated air monitoring will be conducted for white phosphorus fumes utilizing National Institute for Occupational Safety and Health (NIOSH) Method 7300 Elements by Inductively Coupled Plasma (ICP). This method involves drawing air through filter media and sending the media into an AIHA accredited laboratory for analysis. The purpose of the integrated air monitoring is to aid in verifying/confirming levels of PPE.

Monitoring frequencies are discussed in Section 10.3.

All air monitoring results will be transmitted to the client daily via the Contractor Production Report.

## 8.0 HEAT AND COLD STRESS MONITORING

The SSHO will assess the condition of the associates, specific weather conditions, work tasks, and other environmental factors and conditions to determine when to begin monitoring for heat or cold stress. The monitoring processes are described in Section 8.14 of the APP.

## 9.0 STANDARD OPERATING SAFETY PROCEDURE

The Corporate Health and Safety Department is responsible for supporting and assisting the General Manager/Operating Unit Managers, Project Managers, and Site Supervisors in the execution of the H&S program.

## **10.0 SITE CONTROL MEASURES**

Control procedures will be implemented to prevent unauthorized access to the work area and will be designated in the site-specific SSHP. The SSHO will ensure that all personnel entering the site have the necessary training and medical approval documentation. Personnel entering the site will be given a thorough briefing on the site hazards and safe work procedures prior to proceeding.

### **10.1 Work Zones**

A Construction Work Zone (CWZ) will be established for the site. This area will be delineated by the SSHO based on the extent of potential for exposure and observed field conditions. The CWZ will be clearly delineated by using physical barriers such as yellow caution tape, barricades, and pylons. All persons working in the CWZ will sign the Site Access Log. The zone may be adjusted as the project work changes and progresses. The EPA requires contaminated work sites to be divided into three working zones: Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and Support Zone (SZ). Site work zones are discussed in more detail in Section 11.

All visitors will be expected to comply with applicable regulatory OSHA requirements as well as the requirements of this SSHP. In the event that a visitor does not adhere to the provisions of the SSHP, they will be required to leave the work area. All non-conformance incidents will be recorded in the site log and reported to the H&SD. The SSHO will document a written record of all personnel entering and exiting the site.

Control procedures will be implemented to prevent unauthorized access to the work area. Work zones will be established and the flow of personnel and equipment will be controlled when a potential for worker exposure to hazardous substances or physical hazards exists. The establishment of work zones will ensure that work activities and contamination are confined to the appropriate areas, and personnel can be located and evacuated in an emergency. The SSHO will ensure that all personnel entering the site have the necessary training and medical approval documentation. Personnel entering the site will be given a thorough briefing on the site hazards and safe work procedures prior to proceeding. Site control procedures involve site and security controls, staffing, air quality monitoring, and respiratory protection, dermal (skin) protection, hearing conservation, decontamination procedures, emergency procedures and incident reporting.

### **10.2 Pre-Mobilization Meeting**

All associates, subcontractors and other individuals entering the field sites will be involved in a pre-mobilization meeting conducted by TolTest. This meeting will describe the project plan to be utilized for the site, ensure that all involved parties understand the H&S requirements, discuss H&S concerns and recognize potential or existing health or safety risks. Appropriate client personnel may be requested to provide any H&S information at this meeting.

### **10.3 Site Characterization**

The *Personnel Protection* section of this SSHP provides a preliminary PPE selection prior to mobilization to the field site. Once onsite, the SSHO will evaluate the work conditions and adjust PPE controls as necessary to properly protect the workers. After this evaluation, the SSHO will decide whether it is necessary to upgrade or downgrade the preliminary PPE levels of

protection. Any downgrading of PPE requires the dual concurrence of the TolTest CIH and the USACE CIH. The physical ambient conditions will be evaluated during field activities and background and worker breathing zone concentrations will be recorded in the safety daily report and posted at the work site. This data will be collected by using direct reading air monitoring instruments, and will be utilized to make critical path decisions regarding changes in levels of PPE.

Prior to mobilization, existing site characteristic information will be used for planning purposes. This information will allow the SSHO to coordinate specific job tasks, and plan site accessibility and mobilization for heavy equipment. The evaluation of background information on chemical and physical hazards at the field site will allow the SSHO to plan the necessary control measures to be instituted at the site. Other information such as wind speed, wind direction, soil conditions, and site hazards will provide useful information for the preparation of the emergency response plan.

### **10.3.1 Monitoring Procedures**

TolTest will provide the necessary PPE level to minimize worker exposures and maintain exposure levels below recommended OSHA PEL's and ACGIH TLV. Should the preliminary air monitoring data or physical site conditions change (for example, by increasing the airborne contaminant concentrations as a result of field activity), the SSHO will direct the field staff to stop work and the site will be re-evaluated under the direction of TolTest's Corporate H&SD to determine the correct course of action.

### **10.3.2 Monitoring Plan**

For the first 3 days of storage operations, the SSHO will conduct real time monitoring utilizing the colorimetric/stain tubes at a minimum of twice daily. This will include once in the morning at the beginning of the work shift and once in the afternoon. This monitoring will consist of taking a representative sample of the drum storage area. If, after the initial 3 days of air monitoring, all results are determined to be none detected (ND), then the frequency of air monitoring will be reduced to 1 time daily. Monitoring will be conducted in accordance with the manufacturer's operating instructions. Monitoring results will be documented and reported to the client via the Contractor Production Report.

For the first 3 days of drum loading operations, the SSHO will conduct real time monitoring utilizing the colorimetric/stain tubes at a minimum of hourly during the loading process. This monitoring will consist of taking a representative sample of the drum storage area and the inside of the cargo area of the truck being sampled alternately. If, after the initial 3 days of air monitoring, all results are determined to be ND, then the frequency of air monitoring will be reduced to once in the morning and once in the afternoon. Monitoring will be conducted in accordance with the manufacturer's operating instructions. Monitoring results will be documented and reported to the client via the Contractor Production Report. Monitoring results will also be disseminated to onsite personnel during the tailgate safety meetings.

The SSHO will conduct integrated air monitoring during the loading of white phosphorus drums for transportation. This sampling will be conducted in accordance with NIOSH method 7300. At a minimum, personal samples will be taken of one individual operating the forklift and one individual physically handling the drums. Additionally, area samples will be taken in the white phosphorus drum storage area and inside the cargo area of the truck. Samples will be appropriately packaged with the specified number of blank samples and sent via overnight

carrier to an AIHA accredited laboratory. Sample analysis will take no longer than 5 days and sample results will be reported to the client via the Contractor Production Report.

## **11.0 PERSONNEL HYGIENE AND DECONTAMINATION**

A decontamination station will be set up in the CRZ for personnel to remove contaminated PPE and to wash when exiting the EZ. The decontamination process will be developed onsite and discussed at each day's tailgate safety meeting.

### **11.1 General First Aid Measures for White Phosphorus Injuries**

First aid for white phosphorus type of burns is complicated by the fact that white phosphorus particles ignite upon contact with air. Superficial burns caused by simple skin contact or burning clothes should be flushed with water and treated like thermal burns. Partially embedded white phosphorus particles must be continuously flushed with water while the first aid provider removes them with whatever tools are available (i.e., tweezers, pliers, forceps). Do this quickly but gently. Firmly or deeply embedded particles that cannot be removed by the first aid provider must be covered with a saline soaked dressing, which must be kept wet until the victim reaches a medical treatment facility.

- Eye:
  - Immediately remove the patient/victim from the source of exposure
  - Immediately wash eyes with large amounts of cool water for at least 15 minutes
  - Keep exposed eyes covered with wet compresses to prevent white phosphorus particles from re-igniting
  - Avoid application of any lipid-based or oil-based ointments, which may increase the absorption of white phosphorus
  - Seek medical attention immediately
- Ingestion:
  - Immediately remove the patient/victim from the source of exposure
  - Ensure that the patient/victim has an unobstructed airway
  - Do not induce vomiting
  - Seek medical attention immediately
- Inhalation:
  - Immediately remove the patient/victim from the source of exposure
  - Evaluate respiratory function and pulse
  - Seek medical attention immediately
- Skin:
  - Immediately remove the patient/victim from the source of exposure
  - Immerse areas of affected skin in cold water or cover them with wet dressings at all times
  - Vigorous irrigation with cold water is the best way to remove white phosphorus embedded in the skin or while the skin area is submerged in cold water
  - The use of cold water is critical, but care should also be taken to guard the patient/victim against hypothermia

- Seek medical attention immediately

## **11.2 Contamination Control Zones**

The three general contamination control zones that may be established in the CWZ are the EZ, CRZ, and SZ. These areas, if required, will be designated by SSHO and properly marked within the CWZ.

### **11.2.1 Exclusion Zone**

The EZ is defined as the area where contamination is either known or likely to be present, or because of activity, will provide a potential to cause harm to personnel. Entry into the EZ requires the use of PPE. The EZ for this project is considered to be the designated drum storage area located within the Wet Storage Area. Activities to take place inside of the EZ include white phosphorus drum handling, storage and loading.

### **11.2.2 Contamination Reduction Zone**

The CRZ is the area where personnel conduct personal and equipment decontamination. It is essentially a buffer zone between contaminated areas and clean areas. Activities to be conducted in this zone will require the same level of personal protection as those activities occurring inside the EZ.

### **11.2.3 Support Zone**

The SZ is situated in clean areas where the chance to encounter hazardous materials or conditions is minimal. The SZ is outside the CRZ. Activities to take place inside of the SZ include general administrative functions.

## **11.3 Personal Protective Equipment Decontamination**

Site personnel using PPE will keep their PPE clean and in good working condition. TolTest will provide cleansing wipes, wash sprays and clothes, towelettes, or equivalent cleaning supplies for cleaning PPE. Additionally, TolTest will establish and maintain a PPE storage area where field personnel may store their PPE. All site personnel will be responsible for daily inspections of their PPE to ensure that it is maintained in safe working order. PPE that is worn-out or defective will be brought to the attention of the SSHO. PPE that can be repaired by replacing parts (i.e., replacement of scratched lenses on safety glasses) will be maintained IAW manufacturer instructions, or replaced as needed. PPE that cannot be restored to operational condition will be discarded and replaced as needed.

## **12.0 EQUIPMENT DECONTAMINATION**

Shovels and other equipment potentially contaminated will be properly decontaminated with a damp cool cloth; absorbents, sand, and other debris removed from the equipment will be containerized in a 5-gallon steel salvage drum provided on site. The drum will be a clean, dry, and closeable container. Contaminated contents removed from the response equipment will be covered with dry sand before the 5-gallon steel salvage drum is closed and sealed.

If forklifts or vehicles on site become contaminated during the transportation process, operators shall carefully inspect and decontaminate equipment in the CRZ prior to leaving the site. The frame and tires of all vehicles and heavy equipment leaving the CRZ will be thoroughly

inspected and decontaminated. Vehicle and equipment decontamination requires the same level of protection as that required inside the EZ. Only cool, clean water will be used for decontamination of equipment and vehicles. Seats and flooring of equipment and vehicles that are used in the EZ will be covered to the extent possible with disposable polyethylene. It will be the responsibility of the SSHO to properly inspect and approve all vehicles, heavy equipment and hand-held equipment for general cleanliness prior to being taken out of the EZ. In order for a vehicle or piece of heavy equipment to pass inspection it must be in broom-clean condition, free of loose dirt or stabilized material on tailgates, axles, wheels, etc. Approval will be based on visual inspection of all exposed surfaces.

Decontamination water will be properly containerized and disposed of in accordance with all local, state and federal laws, rules and regulations.

### **13.0 EMERGENCY PROCEDURES AND EQUIPMENT**

TolTest will follow the White Phosphorus Disposal Contingency Plan Addendum 001 which complies with OSHA standards 29 CFR 1910.120(l). The safety practices, preparedness procedures, emergency telephone numbers and emergency response procedures are included in this Addendum..

The Addendum includes measures to prevent emergencies or, if any emergency occurs, to limit the negative impact. The three major aspects of this plan are:

- **Preventative measures** to prevent or limit emergency occurrences
- **Response actions** to be taken in response to an emergency situation
- **Notifications** to organizations or personnel in case of an emergency

#### **13.1 Preventative Measures**

The following measures will be implemented to prevent or limit emergency occurrence:

- Prescribed PPE will be used as specified during all onsite activities.
- At the start of field operations, the SSHO will inspect the evacuation route to verify it is available for use. Subsequent inspections will be conducted by the SSHO to ensure evacuation routes remain clear during site activities. The inspection results will be communicated to all field personnel during the first onsite meeting and periodically thereafter.
- Operations will be discontinued when inclement/hazardous weather conditions pose a threat to a safe working environment. Some of the items to be considered prior to determining if work should continue are:
  - Potential for heat/cold stress and heat/cold related injuries
  - Dangerous weather-related working conditions (e.g., fog, heavy rain)
  - Limited visibility
  - Potential for electrical storms
- Spill prevention control and countermeasures will be implemented during field operations.

Hospital routes will be posted in conspicuous areas, such as the on-site support truck and/or other appropriate locations deemed suitable by the SSHO. See that Attachment 12 of the APP is posted at the site and briefed during tailgate safety training.

## 13.2 Response Actions

In the event that any of the following response actions are implemented, immediately contact the Security Guard at Post #1 and follow the White Phosphorus Disposal Contingency Plan Addendum 001.

### 13.2.1 General Evacuation

General evacuation involving white phosphorus will be conducted in accordance with the approved White Phosphorus Disposal Contingency Plan Addendum 001.

### 13.2.2 Potential or Actual Fire or Explosion

Evacuation involving white phosphorus fire or explosion or the potential for fire or explosion will be conducted in accordance with approved White Phosphorus Disposal Contingency Plan Addendum 001.

### 13.2.3 Protective Equipment Failure

If any site worker experiences a failure of protective equipment that affects the protection ability of the equipment, that person and affected co-worker(s) will immediately leave the CWZ. Re-entry to the CWZ will not be permitted until the equipment has been repaired or replaced.

### 13.2.4 Physical Injury or Industrial Chemical Exposure

Emergency first aid may be administered onsite, provided it can be performed without exposure to the contaminant. For non-emergency physical injuries or industrial chemical exposure requiring medical treatment beyond onsite first aid, the victim will be transported to an off-base medical facility. Emergency response actions will follow the White Phosphorus Disposal Contingency Plan Addendum 001. Typical first aid responses to chemical exposure emergencies include:

- **Inhalation** – Move to fresh air and call for emergency assistance if needed by calling the Security Guard at Post #1.
- **Eye exposure** – Immediately remove the patient/victim from the source of exposure, and immediately wash eyes with large amounts of cool water for at least 15 minutes. Keep exposed eyes covered with wet compresses to prevent white phosphorus particles from re-igniting. Avoid application of any lipid-based or oil-based ointments, which may increase the absorption of white phosphorus, and get patient to medical attention immediately.
- **Skin** – First aid for white phosphorus type of burns is complicated by the fact that white phosphorus particles ignite upon contact with air. Superficial burns caused by simple skin contact or burning clothes should be flushed with water and treated like thermal burns. Wash and immerse areas of affected skin with cold water or cover them with wet dressings or specialized gel bandages. Partially embedded white phosphorus particles must be continuously flushed with water while the first aid provider removes them with whatever tools are available (i.e., tweezers, pliers, forceps). Do this quickly but gently. Firmly or deeply embedded particles that cannot be removed by the first aid provider must be covered with a saline soaked dressing, which must be kept wet until the victim reaches a medical treatment facility. Do not apply lipid- or oil-based ointments, which may increase the absorption of white phosphorus. Seek medical attention immediately.

- **Ingestion** – Decontaminate (only if it does not create additional harm to the victim) and transport to emergency medical facility identified in detailed in **Attachment 12** of the APP.
- **Puncture Wound or Laceration** – Decontaminate (only if it does not create additional harm to the victim) and transport to emergency medical facility identified in detailed in **Attachment 12** of the APP.

For emergency/critical physical injuries, medical assistance must be summoned by contacting the Security Guard at Post #1. The Security Guard at Post #1 will contact the Ravenna Fire Department for emergency medical services (EMS) personnel.

### **13.2.5 Injury in the CWZ**

In the event of an injury in the CWZ, all site personnel, except the injured party and the SSHO will exit the CWZ and assemble in the EZ. The SSHO will evaluate the nature of the injury and the injured party will be decontaminated to the extent practical prior to removal from the CWZ. Appropriate first aid will be initiated, an immediate request will be made for an ambulance, if necessary, and the designated medical facility will be notified as required. No persons will re-enter the CWZ until the cause of injury or symptoms are determined.

### **13.2.6 Injury Outside the CWZ**

In the event that an injury occurs outside of the CWZ, the SSHO and Security Guard at Post #1 will be notified immediately. Appropriate first aid will be administered and, if necessary, the injured individual will be sent to the designated medical facility. The injured associate may be transported for treatment using the posted directions to the nearest off-site medical facilities as detailed in **Attachment 12** of the APP. If the injury does not affect the safe performance of other site personnel, operations may continue. EMS personnel can be notified by contacting the Security Guard at Post #1.

## **13.3 Notifications**

The Onsite Technical Manager is primarily responsible for completing required notifications. The Onsite Technical Manager may call for assistance from the Project Manager and all other field personnel. The Security Guard at Post #1 will be called and they will contact the Ravenna Fire Department and inform them of the site emergency.

## **13.4 Critique of Response and Follow-Up**

After the emergency event is resolved, the SSHO will hold a debriefing session for all individuals involved. Response actions will be critiqued and response plans revised as necessary. Written follow-up to all phone calls will be initiated when required.

## **13.5 Emergency Equipment**

TolTest will provide appropriate emergency first aid equipment located in a TolTest support vehicle at the Wet Storage Area. Specific emergency equipment will be positioned as provided in **Exhibit 4**. The location of the emergency first aid equipment shall be changed if the SSHO deems necessary, based on any changes of hazards that are near their listed location. All affected workers will be notified of any location changes prior to the changes occurring. The first aid supplies listed below have been assessed and approved by SSHO.

#### Exhibit 4, Emergency Equipment Locations

Equipment	Location
Emergency Eyewash	TolTest support vehicle
First Aid Kits	TolTest support vehicle
Fire Extinguisher	TolTest support vehicle
Emergency Air Horn	TolTest support vehicle

- **Emergency Eyewash.** Emergency eyewash stations will be installed and maintained with tepid sterile isotonic solution and have documented monthly inspections.
- **First Aid Kits .** First-aid kits will comply with American National Standards Institute (ANSI) Z308.1. First aid kits are available and on site to ensure that adequate first aid supplies are available. The size and number of first aid kits will be sufficient to accommodate the maximum number of people (including government personnel and visitors) on-site at any given time in accordance with Section 3 of EM 385-1-1. All first aid kits will be provided with adequate water, gel burn bandages, and other supplies necessary to cleanse burns, wounds, or lesions. In addition, a standard 16-unit first aid kit stocked accordance with Table 3-1 of EM385-1-1 will be located in the TolTest support vehicle. TolTest will maintain at least one 16-Unit first aid kit by the SSHO. First aid kits will be inspected at least weekly and maintained in operational order.

The following first aid items will also be maintained on site:

- Bloodborne pathogen protection kit
  - Portable eye wash station
  - Two CPR Barriers
  - Burn kit with bandages
  - Spill containment kit
- **Fire Extinguisher.** For non-white phosphorus fires TolTest will ensure that two fire extinguishers rated not less than 10A:60BC will be maintained on site during each phase of the work. If work is being performed in more than one area simultaneously, TolTest will have a fire extinguisher at each location. These fire extinguishers will each carry a 10A: 60BC rating. In the event of a fire, the Security Guard at Post #1 will be contacted immediately and the Operating Contractor, Vista or designated representative will be contacted shortly after. If the fire is small enough to be extinguished using one extinguisher, a competent and trained associate may choose to combat the fire.
  - **Emergency Air Horn.** A portable air horn loud enough to notify associates working in and around the Wet Storage Area will be used to notify personnel of the need to immediately evacuate the site. It will be located in the TolTest support vehicle. Signal strength of these air horns is 120dB at 10 feet and can be heard up to 1/2 mile away.

### 13.6 Communication Systems

Two general types of communications systems should be available for all workers assigned to field projects: internal and external. Internal communication systems will ensure adequate communication between site personnel. External communication systems will ensure the ability to contact personnel and emergency assistance off the site.

### 13.6.1 Internal Communication Systems

When rapid egress is required, a hand-held horn will be sounded to signal an emergency situation. All personnel will exit the work area via designated evacuation routes as rapidly as possible. All emergency communications will be discussed by the SSHO during the first site meeting and periodically thereafter. Internal communication is used to:

- Alert team members to emergencies
- Pass along safety information, such as weather conditions that could affect heat stress, cold stress or general safety, etc.
- Maintain site control
- Facilitate site work by being able to call to the appropriate party for information, without having to decontaminate the work party and equipment and secure the site

Onsite background noise and the use of PPE can impede verbal communication. Thus, it is vital that pre-arranged signals of communication be arranged prior to the initiation of site activities. Emergency, non-verbal communication for personnel wearing respirators is described in **Exhibit 5**. Common types of internal communication devices include:

- Cellular Phones
- Two-way Radios
- Noisemakers: bells, compressed air horns, megaphones, sirens, whistles
- Hand/arm signals

**Exhibit 5, Emergency Non-Verbal Communication Signals**

<i>Signal</i>	<i>Translation</i>
Hand clutching throat.	Out of air/can't breathe.
Hands on top of head.	Need assistance.
Thumbs up.	OK; I'm all right; I understand.
Thumbs down.	No; negative.
Pointed finger or extended arm.	Look in indicated direction.
Wave hands over head from side to side.	Attention; stand-by for the next signal.
Swing hand from direction of person receiving signal to directly overhead and through in circle signal.	Come here.
Grip partner's wrist or place both hands around partner's waist.	Leave area immediately.

### 13.6.2 External Communications Systems

Primary means of external communication devices are telephones, radios, facsimile machines, and computer networks. These devices will be used to communicate with vendors, subcontractors, field personnel, and ToTTest support staff. External communication systems between onsite and off-site personnel are necessary to:

- Coordinate emergency response efforts with the Security Guard at Post #1
- Report to upper management about site activities
- Maintain contact with essential off-site personnel

## **14.0 LOGS, REPORTS, AND RECORD KEEPING**

### **14.1 Medical Surveillance:**

Medical surveillance records will be maintained in accordance with Section 6.0 above.

### **14.2 Reports and Logs**

A system of reports and logs will be used to document activities related to site Health and Safety. The Onsite Technical Manager/SSHO will generate a daily safety report summary of Health and Safety issues and resolutions. These reports will include injuries, accidents, near accidents, interpretations of the site SSHP, AHA's and APP or regulations, interactions with auditors/regulators/USACE personnel, and any off-normal events. Additionally, the following documents will be maintained and available for review.

- Training logs will contain information covered and the signatures of the trainer and those attending. These logs will contain documentation of pre-entry (project start) training, routine (tailgate.) safety briefings, and visitor training.
- Daily safety inspection logs will contain the dates of inspections, identity of the person doing the inspection, the areas/activities/equipment, any deficiencies, and any corrective actions taken.
- Equipment maintenance logs will contain the dates and types of routine maintenance performed on site equipment.
- Employee/visitor register will be a sign-in log for all site associates and visitors. It will contain the names of all personnel who perform on-site work or visit the site. It will not contain the names of delivery or similar personnel.
- Environmental and personal exposure monitoring/sampling results will be maintained in a log that will contain monitoring data, location and time of monitoring, types of work being done, calibration records, and the identities of personnel performing monitoring.
- Written Lock-Out/Tag-Out Program.
- Training records (annual, new employee).
- Inspections – Tests and inspections will be maintained at the site, made available upon request, and become part of the project file.

## **15.0 REFERENCES**

- 29 CFR 1910
- 29 CFR 1926
- 29 CFR 1910.120
- Executive Order 12196
- Federal Acquisition Regulation Clause 52.236-13
- Department of Defense Instruction 6055.1
- Army Regulation (AR) 40-5
- AR 385-10

- EM 385-1-1
- EM 385-1-97

## **16.0 SITE SAFETY DOCUMENTATION**

To ensure a safe work place, the SSHO will conduct and document regular safety inspections. The SSHO will inform all site workers of any applicable physical hazards related to each work zone during the daily tailgate safety meetings. Physical hazards and accident or injury preventative measures are discussed in the AHAs.

### **16.1 Construction Work Zone**

In addition to identifying the zones of exclusion as discussed in section 11.2, the following site features will be established:

- Work staging areas
- Decontamination areas
- Location of alarms
- Emergency response equipment locations
- Site entrances and exits
- Evacuation routes
- Location of telephones

### **16.2 Daily Pre-Work Safety Meetings**

Daily pre-work safety meetings will take place each morning prior to the start of work. These pre-work meetings (referred to as tailgate safety meetings) will be conducted and documented by the Onsite Technical Manager or SSHO. The briefings will address the day's planned activities and any pertinent H&S information the supervisor determines to be applicable and will serve as a daily reminder of safety responsibilities. The length of the pre-work safety briefings will vary depending on the complexity of the day's tasks.

Discussion at daily meetings may include the following topics:

- H&S considerations and the required PPE for current operations
- Any revisions to the plan
- Any new material safety data sheets (MSDS)
- Documented or observed unsafe acts committed at the work site, clarification of the safety requirements violated, and methods to prevent future violations
- Personal and equipment decontamination procedures

#### **16.2.1 Daily Safety Meetings**

Workers are required to attend the daily safety meetings and sign a roster that will be maintained by the SSHO. Meeting minutes will be documented and attached to the roster. The SSHO will review the meeting minutes with absentees and have them sign the attendance sheet. This documentation will be filed on the project and archived when the project is

completed. Safety meetings will be conducted daily at a minimum or more frequently as necessary.

### **16.3 Site Visitors**

Site visitors will be permitted to enter the project site with prior approval by the Onsite Technical Manager or the SSHO at the project site. Prior to entering the site, visitors are required to be on the approved site roster submitted to Vista, attend the project site orientation meeting, and be briefed of the project H&S requirements. Based on the discretion of the SSHO, visitors who revisit the site regularly may be required to attend the daily tailgate safety meetings. In accordance with EM385-1-1 TolTest will have the following PPE on site for use by visitors:

- ANSI Z87 approved chemical safety goggles
- Chemical splash shield
- Saranex (or equivalent) chemical protective clothing
- Cotton or leather work gloves
- Silvershield inner gloves
- Hard hat or bump cap as applicable

### **16.4 Equipment Inspections**

All machinery and equipment, including rental machinery and equipment, will be inspected and tested daily by the operator to ensure a safe operating condition. Inspections and tests will be in accordance with the manufacturer's recommendations and will be documented. Records of tests and inspections will be maintained at the site, made available upon request, and become part of the project file.

Safety materials, including eye wash solutions, hand washing solutions, etc. will be inspected for purity and volume prior to conducting any work on the sites. TolTest will ensure that sufficient safety washes are available on site at all times .

## **17.0 HAZARD ANALYSIS**

### **17.1 Chemical Hazards**

MSDS's will be kept onsite per TolTest HS301, *Hazard Communication Program*. TolTest procedures HS301 and HS-2840, *Hazardous Materials*, for transportation are provided in **Enclosure 1**.

#### **17.1.1 Chemical Exposures**

During completion of this DO, various tasks will be performed that potentially pose chemical and/or physical hazards. The known contaminant or hazardous waste material for this DO is white phosphorus and potentially phosphine as a byproduct of white phosphorus decomposition. This hazardous waste material will be drummed and temporarily stored at the drum staging area located within the Wet Storage Area. Potential chemical exposure hazards associated with this project involve exposure to white phosphorus and phosphine. Preventing exposure to toxic chemicals is a primary concern during any activity that may present an exposure potential to site personnel. This site is not anticipated to be of substantial concern with regard to chemical

exposure because the containers are sealed when delivered and shipped for disposal. However, TolTest personnel will be made aware of the potential to encounter chemical substances during storage, handling and transportation of containerized white phosphorus activities.

### **17.1.2 Biological Hazards**

RVAAP is the home for an abundant amount of wildlife that includes: snakes, ticks, bees, hornets, wasps, and biting insects. Employee awareness and the safe work practices outlined in the following paragraphs should reduce the risk associated with these hazards. Occupationally-induced infections can occur in any occupation as a result of exposure to bacteria, viruses, fungi, or parasites in soil. A simple laceration from a sharp edge can become secondarily infected. A thorn, a wood splinter, or a metal particle can pave the way for secondary infection of the skin. Cuts, scrapes, or other lacerations are to be cleaned, disinfected, and dressed immediately following standard first aid procedures.

### **17.1.3 Radiological Hazards**

Radiation hazards are not anticipated at either work site.

## **17.2 Physical Hazards**

The principal steps, potential hazards, and recommended controls to be implemented during the completion of operations for each project are outlined in the AHAs located in **Attachment 15**. Potential physical hazards associated with projects performed under this contract may include:

- Receiving and Storing White Phosphorus Drum Handling
- Operating Forklift, Loading, and Handling

Injuries that may result from physical hazards can range from simple slip-trip-fall types of accidents to fatalities. Injuries can generally be avoided by consistent safe work practices at all times, especially when operating or handling machinery and equipment. All work will be performed under the guidelines of OSHA regulations, EM385-1-1 and applicable TolTest policies where designated. To ensure a safe work place, the SSHO will conduct and document regular safety inspections. The SSHO will inform all site workers of any applicable physical hazards related to each work zone during the daily tailgate meetings.

### **17.2.1 Confined Space Entry**

No confined space entry is anticipated for this DO.

### **17.2.2 Excavation and Trenching**

No excavation or trenching is anticipated for this DO deeper than 3 feet.

### **17.2.3 Hot Work**

No hot work is anticipated in performing this DO.

### **17.2.4 Excessive Noise**

Detailed information is outlined in the AHAs.

#### **17.2.5 Cold Stress**

Detailed information is outlined in Section 8.14 of the APP.

#### **17.2.6 Heat Stress**

Detailed information is outlined in Section 8.14 of the APP.

#### **17.2.7 Inclement Weather**

Detailed information is outlined in Section 8.21 of the APP.

#### **17.2.8 Manual Lifting**

Detailed information is outlined in the AHAs.

#### **17.2.9 Drum Handling and Transportation**

This section of the SSHP applies to all site personnel, including contractor and subcontractor personnel, and operations involved in the conduct of inspecting or handling of drums and containers. This SSHP is not intended to contain all requirements needed for complete regulatory compliance. The purpose of this SSHP is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving the handling of drums or containers.

The requirements and procedures contained within the WMP will be strictly followed. The requirements and procedures contained within the White Phosphorus Disposal Contingency Plan Addendum 001 will be strictly followed for all response activities to all releases or leaking, distended, or reacting containers.

##### **17.2.9.1 Regulatory References**

The following OSHA standards and USACE requirements directly apply to the conduct of operations associated with the SSHP. In the event other hazards are associated with the conduct of this SSHP, consultation of other SSHPs and regulatory references may be needed.

- OSHA General Industry Standard 29 CFR Part 1910.120
- USACE EM 385-1-1, Section 28.H

##### **17.2.9.2 Responsibilities**

- **Project Manager** – The Project Manager shall be responsible for ensuring the availability of the personnel and equipment resources needed to implement this SSHP. The PM will also determine if the requirements in this SSHP are relevant to the site and will incorporate this SSHP into site specific plans, procedures and training where this SSHP is to be implemented.
- **Onsite Technical Manager** – The Onsite Technical Manager will implement this SSHP for operations involving drum and container handling and removal. The Onsite Technical Manager will also discuss the relevant sections of this SSHP in the daily safety briefings. The Onsite Technical Manager will document information related to the daily implementation of this SSHP in appropriate site documentation logs and forms.

- **Corporate Safety and Health Director** – The Corporate H&SD is responsible for the continued development, improvement, and implementation of the TolTest Safety and Health Program, to include this SSHP.
- **Site Safety and Health Officer** – The SSHO will be responsible for assisting the Onsite Technical Manager and site personnel with the identification of safety and health hazards and the use of control techniques associated with this SSHP. The SSHO will assist the Onsite Technical Manager with the discussion of the requirements in this SSHP during the initial site hazard training and the daily safety briefings. The SSHO will inspect site operations and conditions to determine their initial and continued compliance with this SSHP and other regulatory guidelines.

#### 17.2.9.3 Procedure

All personnel, including contractor and subcontractor personnel, involved in drum or container handling operations shall be familiar with the potential safety and health hazards associated with the conduct of this operation, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

- **Safety Hazards and Operational Control Techniques for Drum Handling and Removal**
  - This SSHP is designed to provide site personnel with effective means of controlling the hazards encountered during the handling, storage and transportation of drums. This SSHP also outlines the effective engineering controls, safe work practices, and PPE to be used in drum/container handling. This SSHP shall be applicable to site operations where the handling of drums and containers is required during the conduct of site activities. These procedures apply to both hazardous and non-hazardous waste drums/containers generated or managed during site activities.

#### 17.2.9.4 General Requirements

The following general requirements shall be followed or incorporated during the inspection, transportation and disposal of drums/containers of white phosphorus and white phosphorus soil and debris:

- Only drums containing white phosphorus and white phosphorus contaminated solids and debris generated as a result of the removal action at the RRA, conducted by PIKA, will be accepted at the drum staging area. All drums brought to the drum staging area must be clean, dry properly labeled and in acceptable condition for storage and transport as per the WMP. TolTest will not accept drums that do not meet these conditions. Rejected drums will remain in the possession of PIKA.
- White phosphorus waste will be packaged and sealed in drums by PIKA.
- Prior to handling drums or containers, all employees shall be warned of the potential physical and chemical hazards associated with the contents and the handling of the drums or containers.
- Drums/containers used for the collection or transfer of waste materials shall meet the appropriate, DOT, OSHA, and EPA regulations for storage and shipping of white phosphorus.
- The Onsite Technical Manager and SSHO will coordinate to organize drum/container operations to minimize the amount of drum or container movement.

- Drums and containers that cannot be moved without rupture, leakage, or spillage shall be overpacked according to the White Phosphorus Disposal Contingency Plan Addendum 001.
- Fire extinguishing equipment meeting the requirements of 29 CFR Part 1910, Subpart L, shall be on hand and ready for use to control incipient fires.
- Material handling equipment used to transfer drums and containers shall be selected, positioned and operated in such a manner as to minimize sources of ignition, related to the equipment, from igniting flammable gases and vapors.
- Section 7 of Waste Management Plan will be used as a guide to direct the course of drum/container handling, staging, and bulking procedures outlined in this SSHP.
- Drums containing white phosphorus and white phosphorus debris/soil will Not Be Opened!

#### 17.2.9.5 Inspection of Drums and Containers

Selection of drum handling and transportation procedures depends largely upon the contents and condition of the drum/container. Therefore, to the extent feasible, drums and containers shall be inspected prior to any handling, to gain as much information as possible related to their integrity, and labeled by PIKA. **Exhibit 6** provides information on the different types of drum configurations and possible contents. When assessing drum/container condition and integrity, the following items should be inspected and carefully documented:

- The drums are to be new, free of debris, clean, dry and appropriately labeled as per the WMP. Drums that do not meet these criteria or that show signs of deterioration, leaks, or bulging shall not be accepted.

**Exhibit 6, Drum Configurations**

Configuration	Information
Whole lid removable	Drum designed to contain solid materials.
Lid has a bung	Drum designed to contain liquids.
Drum contains a polyethylene or PVC liner	Drum may contain highly corrosive or volatile organic materials.

#### 17.2.9.6 Drum Labeling

Drums that do not have exterior labeling indicating their contents must be assumed to contain other hazardous materials until characterized through sampling. Unlabeled drums will not be accepted by TolTest for storage at the drum storage area.

#### 17.2.9.7 Opening Drums and Containers

Drums will not be opened by TolTest or TolTest subcontractor personnel.

#### 17.2.9.8 Handling of Pressurized Drums/Containers

Pressurized drums/containers, as evidenced by bulging or swelling, are extremely dangerous and whenever possible, should not be moved until such time as the cause for excess pressure is determined and appropriate containment procedures have been implemented to protect employees from explosive relief of the material. To minimize the hazards associated with pressurized drums/containers, the following shall be observe and/or implemented:

- Operations involving pressurized drums will only be conducted by PIKA.

#### **17.2.9.9 Handling Containers with White Phosphorus Hazardous Waste**

In addition to the requirements of the above paragraph of this SSHP, the following precautions shall be taken, as a minimum in handling white phosphorus containers:

- Drums will not be opened by TolTest or TolTest subcontractor personnel.
- Over-pack drums, first aid kits and water and sand (for extinguishing white phosphorus) shall be staged at the drum storage area where drums are inspected and stored.

#### **17.2.9.10 Sampling of Drum/Container Contents**

No drum sampling will be performed.

#### **17.2.9.11 Drum/Container Staging**

The staging of drums/containers within the Wet Storage Area is a critical element of the drum/container handling procedures. Along with the requirements outlined above, the following shall be implemented for drum/container staging:

- Drum or container staging areas shall be kept to the minimum number necessary to identify and classify materials safely and prepare them for transport.
- Staging areas shall be provided with adequate access and egress routes.

#### **17.2.9.12 Shipping and Transportation**

All hazardous waste drums/containers to be shipped off site shall be handled according to the procedures specified below:

- Drums and containers shall be identified and classified prior to packaging for shipment.
- All hazardous waste shall be contained and/or packaged in DOT approved drums/containers.
- All drums/containers shall be labeled according to EPA and DOT requirements prior to shipping.
- Site personnel shall use a fork lift with special attachments to facilitate the loading of drums/containers onto transport vehicles.
- All required documentation, such as the EPA required Uniform Hazardous Waste Manifest (EPA Form 8700-22), shall be prepared and available to the transporter prior to loading.

#### **17.2.9.13 Spill Prevention**

TolTest has contracted with PIKA to respond to any spill of white phosphorus hazardous waste which is in the custody or care of TolTest. TolTest will comply with all applicable requirements of Federal, state, local laws or regulations, and the RVAAP *Installation Spill Contingency Plan* regarding any spill incident. In the event of a spill or release of a drum containing white phosphorus or white phosphorus-contaminated soil and debris, TolTest will immediately notify the Security Guard at Post #1 at 330-358-2017. In the event of a spill TolTest will refer to the White Phosphorus Disposal Contingency Plan Addendum 001 for response action.

The handling and transport of drummed or containerized waste will be conducted in a controlled and safe manner which will minimize damage to the containers and prevent release of the

contents. Due to the potential for spills which may result from handling drums/containers, spill containment and collection equipment shall be located on site prior to initiating drum and container handling activities. The following waste management spill prevention guidelines will be followed.

- DOT specified drums or containers and suitable quantities of proper absorbent shall be kept available and used in areas where spills, leaks, or ruptures may occur for white phosphorus.
- Where major spills may occur, spill containment procedures, which are part of the White Phosphorus Disposal Contingency Plan Addendum 001 shall be implemented.
- Clean-up materials shall be spark proof and all ignition sources shall be removed or extinguished prior to personnel engaging in clean-up activities.

#### **17.2.9.14 Safety and PPE Requirements**

The following safety measures and PPE shall be used in preventing or reducing exposures associated with drum and container handling operations.

- Personnel will wear the Level of PPE specified in Section 5.0 and in the APP.
- All provisions and requirements specified in other SSHPs that apply to drum and container-handling operations shall be followed.

#### **17.2.9.15 Audit Criteria**

The following items related to drum and container-handling operations will be audited to determine compliance with this SSHP:

- The Daily Operational and Daily Safety Reports
- Verification of initial site hazard training
- Verification of Daily Tailgate Safety Briefings
- Daily Safety Inspection Checklists

#### **17.2.9.16 Moving Heavy Drums**

Pallets will be used for drum storage. A forklift will be used to move the drums for unloading from PIKA's truck, movement within the drum storage area and for loading onto trailers for transportation to the disposal facility. A single drum handling attachment is available onsite for use with the forklift to manage individual drums. A partially filled drum may not seem heavy, but shifting contents can make it difficult to handle. It may roll unpredictably and be difficult to control. Handle it carefully to avoid damage and accidents.

Empty drums may be moved by tilt-rolling or lifting and carrying the drum. Be alert for burred edges, lock rings and bungs that may catch gloves or clothing and throw the associate off balance.

- Tilt-Rolling: Have associates support the leaning drum with their thigh and face it the direction they will travel. Then roll the drum on its lower rim by rotating the upper rim hand over hand. When rolling an empty drum on its side, control it all the way by using a gloved hand. Never roll a drum out of a truck or past a blind corner without posting a guard.
- Lifting: To lift an empty drum, have the associate squat then straighten their legs, ensuring they DO NOT bend their back. Correct posture and placement of hands and feet is essential

when handling drums. Specially designed drum trucks are a much safer alternative for moving drums.

#### **17.2.10 Slips, Trips, and Falls**

Slip, trip and fall hazards are expected to be a major hazard encountered during work site activities. Common surface falls can be divided into the following four categories:

- Slip, trip and fall hazards occur when a worker encounters an unseen foreign object in his/her path. When a foot strikes the object, the employee trips and falls or slips.
- Slip and fall accidents occur when a worker's foot suddenly meets a sticky surface or a defect in the walking surface, or ice, snow or spilled fluids. Expecting to continue at the established pace, the worker falls when his or her foot is unable to respond properly.
- Slip and fall accidents occur when the foot encounters an unexpected step down. This can also happen when an employee thinks he or she has reached the bottom of the stairs when, in reality, there is one more step.
- Slip and fall accidents occur when the worker's center of gravity is suddenly thrown out of balance.

TolTest will use the following strategies to help prevent slip, trip and fall hazards:

- Practice good housekeeping. All working areas will be kept as clean and dry as possible. Housekeeping will be consistently maintained in order to minimize tripping hazards caused by debris, job supplies, and equipment.
- Require nonskid footwear. All associates will be required to wear footwear with nonskid soles.
- Inspect surfaces on, at a minimum, a daily basis.
- TolTest personnel and subcontractors will be reminded to maintain sure footing on all surfaces and to use extra caution due to slippery/wet conditions.

#### **17.2.11 Hand and Power Tools**

All hand and power tools and similar equipment, whether furnished by TolTest or its subcontractors, should be maintained in a safe condition and should only be used for the purposes it was designed for. Associates should be trained in the proper use and handling of tools and equipment. Associates are required to use the right tool in a correct manner. Using a tool in the correct manner, together with proper maintenance and storage of the tools, is necessary to prevent personal injury and property damage.

#### **17.2.12 Ropes, Slings, and Chains**

Equipment used for lifting, securing, or handling materials will be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective equipment will be removed from service. Equipment should not be loaded in excess of its recommended safe working load. Additional inspections will be performed during sling use, where service conditions warrant. Chains will not be used for lifting loads.

#### **17.2.13 Service and Utility Lines**

Before starting digging work, underground service and utility lines are to be marked to prevent possible personnel injuries, property damage, and service outages. Care should be taken when

operating equipment close to power lines, using an observer for operations where it is difficult for the operator to maintain the desired clearance by visual means.

#### **17.2.14 Vehicle Traffic**

Care should be taken by all associates to watch for vehicles moving in and around the work zone. All vehicles being used onsite should be checked to assure that they are in a safe operating condition. Vehicles being used in areas with limited visibility while in use (i.e., backing up) should have an observer for help moving safely in the work zone.

#### **17.2.15 Unseen Obstacles**

General housekeeping should be conducted during the course of work to avoid the possibility of leaving obstacles in the work area. During the course of work, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, will be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures.

Combustible scrap and debris will be removed at regular intervals during the course of work. Safe means will be provided to facilitate such removal. Work areas will be kept cleared from debris. Containers will be provided for the collection and separation of waste, trash, oily and used rags, and other refuse. Garbage and other waste will be disposed of at frequent and regular intervals.

### **17.3 Assessment and Evaluation**

Visual contact will be maintained between personnel at all times, and personnel must observe each other for signs of exposure to chemical or physical agents or weather exposures. Indications of adverse effects include, but are not limited to:

- Changes in complexion and skin coloration
- Changes in coordination
- Changes in demeanor
- Excessive salivation and pupillary response
- Changes in speech pattern

All personnel will inform their partners or team members of non-visible effects of overexposure to chemical or physical agents or weather exposures. Symptoms of overexposure may include:

- Headaches
- Dizziness
- Nausea
- Blurred vision
- Cramps
- Irritation of the eyes, skin, or respiratory tract

## **18.0 ACCIDENT INVESTIGATION AND REPORTING**

Accident investigation and reporting is referenced in Section 7.2 of the APP.

**ENCLOSURE 1**

**TOLTEST PROCEDURES  
HS0301, HAZARD COMMUNICATIONS PROGRAM, AND  
HS2840, HAZARDOUS MATERIALS**

Approved By:

Signature on File

Richard L. Barcum, CSP, CHMM  
Manager, Corporate Health and Safety

Signature on File

David D. Alleman, CPA  
Vice President, CFO

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## **Procedure**

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# **HAZARD COMMUNICATION PROGRAM**

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## **1.0 PURPOSE AND SUMMARY**

This procedure has been developed to ensure that all affected TolTest associates are provided with current information on the hazardous chemicals that they may encounter during their work. The basic principle of Hazard Communication (HAZCOM) is that anyone that works with hazardous chemicals has both a need and a right to know the identities and the hazards of any chemical to which they may be occupationally exposed. This principle has been promulgated by the Occupational Safety and Health Administration (OSHA) in 29 Code of Federal Regulations (CFR) 1910.1200 *Hazard Communication*.

Some company activities are likely to occur in states or localities that either have or will have requirements that differ from those contained within the federal standard. In such circumstances, the Group/Unit Manager or Project Manager, as applicable, will be responsible for ensuring that these requirements are included in either a site health and safety plan or a similar document and conveyed to all affected associates. If federal, state, or local regulations vary or conflict, the more protective requirements and practices will be followed.

## **2.0 RESPONSIBILITY MATRIX**

### **2.1 Procedure Responsibility**

The Manager, Corporate Health and Safety is responsible for the issuance, revision and maintenance of this procedure.

### **2.2 Action/Approval Responsibilities**

See Responsibility Matrix (See Attachment 1)

## **3.0 DEFINITIONS**

**Article** – A manufactured item other than a fluid or particle which is formed to a specific shape or design during manufacture, has end use function dependent in whole or in part upon its shape or design during end use, which under normal conditions of use does not release more than trace amounts of a hazardous substance and does not pose a physical hazard or health risk to employees.

**Affected Associate** – Any TolTest associate who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies.

**Company** – TolTest

**Hazardous Chemical** – Any chemical which poses a physical or health hazard.

**Health Hazard** – A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed associates. Health hazards include chemicals which are carcinogens, toxic, or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes or mucous membranes.

**Immediate Use** – When hazardous chemicals will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

**Label** – Any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

**Group Manager/Unit Manager/Project Manager** – The associate who is responsible for the management of activities within a particular workplace. This associate is ultimately responsible for health and safety responsibilities at his/her workplace. This associate does not necessarily need to be physically located at a workplace in which he/she is responsible for ensuring that the requirements of this procedure are fulfilled. The Group Manager/Unit Manager/Project Manager may designate another qualified individual to assume some or all of the responsibilities delineated in this procedure.

**Physical Hazard** – A chemical for which there is scientifically valid evidence that it is a combustible liquid, compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable, or reactive.

**Responsible Party** – The entity responsible for preparation or distribution of Material Safety Data Sheets (MSDS) that can provide additional information on the hazardous chemical and appropriate emergency procedures.

**Trade Secret** – Any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not currently know or use it.

**Workplace** – An establishment, job site, laboratory, office, or project at one geographic location containing one or more work areas.

#### 4.0 TEXT

In accordance with the requirements established in 29 CFR 1910.1200, TolTest is required to develop, implement, and maintain at each workplace a HAZCOM program. The program contained herein is intended to ensure that the hazards of all chemicals used by associates are evaluated and that information concerning the hazards of each chemical are conveyed to affected associates. The TolTest program generally consists of five provisions, including hazardous chemical inventories, procurement of hazardous chemicals, container labeling, MSDSs, and the development and implementation of associate training programs.

There are some types of materials that are specifically exempt from this procedure. These materials include:

- Any hazardous waste as defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1967, as amended (42 U.S.C. 6901 *et seq.*), when subject to regulations issued under that Act by the U.S. Environmental Protection Agency.
- Any hazardous chemical as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) when the hazardous chemical is the focus of remedial or removal actions being conducted under CERCLA in accordance with U.S. Environmental Protection Agency regulations.
- Tobacco or tobacco products.
- Wood or wood products, including lumber which will not be processed, where the manufacturer or importer can establish that the only hazard they pose to associates is the potential for flammability or combustibility. Wood or wood products which have been treated with a hazardous chemical and wood which may be subsequently sawed or cut, generating dust, are covered by this procedure.

- Articles.
- Food or alcoholic beverages which are sold, used, or prepared in a retail establishment, or foods intended for personal consumption by associates while in the workplace.
- Any drug, as defined by the Federal Food, Drug, and Cosmetic Act, when it is in solid, final form for direct administration to patient; drugs which are packaged by the manufacturer for sale to consumers in a retail establishment; and drugs intended for personal consumption by associates while in the workplace.
- Cosmetics which are packaged for sale to consumers in a retail establishment, and cosmetics intended for personal consumption by associates while in the workplace.
- Any consumer product or hazardous chemical, as defined by the Consumer Product Safety Act and Federal Hazardous Chemicals Act, where the employer can show that it is used in the workplace for the purpose intended by the manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended.
- Nuisance particles where the manufacturer, distributor, or importer can establish that they do not pose any physical or health hazard covered under this procedure.
- Ionizing and nonionizing radiation.
- Biological hazards.

#### **4.1 Hazardous Chemical Inventories**

A complete list of all hazardous chemicals known to be present in the workplace which may expose an associate to a physical or health hazard will be maintained. This list will be placed in the front section of the MSDS binder discussed in Section 4.4. The Group Manager/Unit Manager/Project Manager will be responsible for updating and revising the inventory list as new chemicals are procured or when chemicals are no longer used and have been removed from the workplace. The identity of the hazardous chemical maintained on the list will be consistent with that which appears on the MSDS. All affected associates will be made aware of the location of the MSDS binder.

#### **4.2 Procurement of Hazardous Chemicals**

Since TolTest does not manufacture, distribute, or import hazardous chemicals, procurement is the primary method of obtaining hazardous chemicals. The associate initiating the procurement of a hazardous chemical will be responsible for requesting a MSDS from the manufacturer or distributor. This MSDS is to be provided prior to or at the time of receipt of the chemical. Hazardous chemicals are strictly forbidden to be accepted without an accompanying MSDS. Upon receipt of a hazardous chemical, the person receiving the shipment shall notify the Group Manager/Unit Manager/Project Manager or designee so that a review of the MSDS can be conducted. Also, note that the supplier is only required to submit an MSDS with the initial shipment of a hazardous chemical to a specific location.

In the unlikely event that a hazardous chemical is either manufactured, imported, or distributed by TolTest, the Manager, Corporate Health and Safety will be notified so that required actions, as dictated by OSHA, can be implemented.

#### **4.3 Container Labeling**

Labeling on hazardous chemical containers is meant to provide immediate information to affected associates about the hazards of chemicals they will be expected to handle during the course of their job duties. It is the responsibility of the manufacturer, importer, or distributor of the chemical to ensure that each hazardous chemical leaving their place of business is labeled, tagged, or marked with the following information:

- Identity of the hazardous chemical (must be common to the label, the MSDS, and the chemical inventory list).
- Appropriate warnings of the hazardous effects of a chemical (words, pictures, symbols, or any combination that appears on the label and convey the specific physical or health hazards including target organ effects).
- Name and address of the chemical manufacturer, importer, or other responsible party.

The associate receiving the shipment is responsible to ensure that each container of hazardous chemical(s) has been provided with this labeling information. Hazardous chemicals that do not contain adequate labeling are not to be accepted. In the event that hazardous chemicals that do not contain adequate labeling are inadvertently received, they are not to be handled until the identity of the material and the appropriate hazard warnings are provided.

If the hazardous chemical is regulated by a chemical-specific health standard, then it must be labeled in accordance with the requirements of that standard.

As long as the hazardous chemicals are maintained in their original, properly labeled container and their composition is not altered, there is no need for additional labeling. In the event that the chemical is transferred from a labeled container to an unlabeled portable container, the user must label this secondary container unless the container is intended for immediate use of the associate who performs the transfer.

In locations where associates are present who only communicate in languages other than English, all labeling information must be presented in their language as well as in English.

#### **4.4 Material Safety Data Sheets (MSDS)**

MSDSs are written documents that convey specific, detailed information about the hazards associated with a specific chemical. It is the responsibility of the manufacturer, importer, or distributor to either provide MSDSs prior to shipment or with the shipped materials. The associate receiving the shipment of materials is responsible to ensure that a MSDS has been supplied. As described in Section 4.2, the associate initiating the procurement is responsible for requesting a MSDS from the manufacturer or distributor. In the event that a MSDS has not been provided, it is the responsibility of the receiving associate to obtain one from the manufacturer or distributor as soon as possible. The material shall not be handled prior to the receipt of a MSDS.

Each MSDS will be forwarded to the Group Manager/Unit Manager/Project Manager or designee who will then place a copy into the MSDS binder. This binder will be maintained in the workplace and updated as new materials arrive. The local health and safety representative will ensure that this binder is reviewed with all affected associates and is readily accessible during each work shift. A designated area for the storage of the binder will be established and associates are to be informed of its location. Associates can request a personal copy of a MSDS by asking the Group Manager/Unit Manager/Project Manager or designee. Where associates travel between workplaces during a work shift, the MSDSs may be kept at the primary workplace. Affected associates must be able to immediately obtain information from the MSDSs in the event of an emergency.

MSDSs will be in English and other languages, as necessary, for the particular associates in which the MSDSs will be used. MSDSs are to include the following information:

- Name, address, and telephone number of the responsible party
- Identity of the chemical as it appears on the label
- Hazardous ingredients
- Physical and chemical characteristics
- Physical and health hazards
- Primary route(s) of entry
- OSHA permissible exposure limit (PEL) or other applicable exposure limits
- Carcinogen information
- Safe handling and use information
- Control measures
- Emergency and first aid procedures
- Date of preparation and latest revision date.

#### **4.5 Training**

All affected associates will be provided with information and training on the hazardous chemicals in their work area at the time of their initial assignment, when new information about the hazards of a chemical is discovered, and whenever a new physical or health hazard that the associates have not previously been informed of is introduced into the workplace. The HAZCOM training record has been provided as Attachment 2.

Training on this HAZCOM program may be satisfied by the use of Health and Safety Meetings. These meetings will be used to convey the following information:

- The details of this HAZCOM program
  - This includes an explanation of labeling systems, the use of MSDSs, and how associates can obtain and use the appropriate hazard information.
- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the workplace.
- The physical and health hazards of the chemicals in the workplace
- The measures that can be taken to protect affected associates from these hazards.

The guidelines for these meetings are outlined in Procedure IPP150, Incident Prevention Program: Health and Safety Meetings. These meetings will be facilitated by the Group Manager/Unit Manager/Project Manager or other designee who is knowledgeable on the requirements of the HAZCOM program and the specific chemicals that are being discussed.

#### **4.6 Trade Secrets**

Some hazardous chemical manufacturers, importers, and distributors may withhold proprietary information required to be present on a MSDS. In such instances, the name and telephone number of the manufacturer, importer, or distributor will be forwarded to the Manager, Corporate Health and Safety for further action. It will be the responsibility of the Manager, Corporate Health and Safety to either obtain the necessary information or to decide to reject the chemical for use in TolTest workplaces.

#### **4.7 Contractors**

During the execution of our work, there will be situations when TolTest will be at locations where employees of other entities may be exposed to chemicals being used by TolTest. It will be the responsibility of the Group Manager/Unit Manager/Project Manager to provide the other entities' site representative(s) with copies of all MSDSs for materials to which their employees may be exposed, as well as the labeling system in place, the protective measures to be taken, safe handling procedures to be used, and the location and availability of the MSDS binder.

Periodically, TolTest work areas will be located on or adjacent to a facility operated by another entity. In these situations, the Group Manager/Unit Manager/Project Manager or designee will contact the other entity to obtain applicable MSDS(s) for hazardous chemicals that TolTest associates may be exposed to.

### **5.0 EXCEPTION PROVISIONS**

Variances to this procedure shall be requested in accordance with established variance procedures.

### **6.0 ATTACHMENTS**

1. Responsibility Matrix
2. Hazard Communication And Right-To-Know Standards Associate Training Record

## ATTACHMENT 1 RESPONSIBILITY MATRIX

Action	Procedure Section	Responsible Party				
		Purchaser	Receiver	Affected Associate	Group Manager/Unit Manager/Project Manager or Designee	Manager, Corporate Health & Safety
Understand and Comply with State and/or Local Regulations	1.0				X	
Issue, Revise, and Maintain Procedure	2.1					X
Review and Understand This Procedure	4.0	X	X	X	X	
Establish, Update, and Revise MSDS Binder	4.1				X	
Request MSDSs for Procured Chemicals	4.2	X				
Initial Review of MSDSs	4.2				X	
Implement Requirements For Company Manufactured, Imported, or Distributed Chemicals	4.2					X
Review Incoming Shipments for Hazard Labeling/MSDS	4.3		X			
Request Missing MSDSs From Manufacturer or Distributor	4.4		X			
Provide HAZCOM Training	4.5				X	
Receive HAZCOM Training	4.5			X		
Obtain Information on Proprietary Chemicals	4.6					X
Transmit MSDSs to Contractors	4.7				X	
Obtain MSDSs from Other Entities	4.7				X	

**ATTACHMENT 2**  
**HAZARD COMMUNICATION AND RIGHT-TO-KNOW STANDARDS**  
**ASSOCIATE TRAINING RECORD**

1. I have been informed about the Hazard Communication Program, Material Safety Data Sheets (MSDS), their use and location, and procedures to obtain copies.
2. I have been informed that some of my work may involve exposure to toxic substances, the hazards of which will be reviewed with me in subsequent safety meetings.
3. I have been informed about the right of associates to have access to relevant exposure and medical records, and the procedures for requesting access.
4. I understand that TolTest must act upon a request in a reasonable amount of time so as to avoid interruption of normal work operations.
5. I have been provided access to the applicable regulations governing hazard communication, and access to associate exposure and medical records


PRINT NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

Approved By:

Signature on File

Richard L. Barcum, CSP, CHMM  
Manager, Corporate Health and Safety

Signature on File

David D. Alleman, CPA  
Vice President, CFO

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## **Procedure**

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### **HAZARDOUS MATERIALS**

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#### **1.0 PURPOSE AND SUMMARY**

TolTest policy is to comply fully with all federal Hazardous Materials Regulations (HMR) as found in 49 CFR Parts 106 through 180, and in FMCSR Part 397, regarding the handling and transportation of hazardous materials. We believe that compliance and safety begin with the driver. Therefore, TolTest is committed to providing all driver associates with proper and complete hazardous materials training. All drivers are expected to have a thorough understanding of, and follow, the company's hazardous materials procedures.

#### **2.0 RESPONSIBILITY MATRIX**

##### **2.1 Procedure Responsibility**

The Manager, Corporate Health and Safety is responsible for the issuance, revision and maintenance of this procedure.

##### **2.2 Program Responsibility**

This program will be monitored by the Corporate Health and Safety Department

#### **3.0 DEFINITIONS**

"Commercial Motor Vehicle" means any vehicle with a Gross Vehicle Weight Rating greater than 10,000 pounds.

#### **4.0 TEXT**

4.1 TolTest's hazardous materials procedures have been developed to ensure the safety of drivers, customers, and the motoring public; to minimize the risks associated with hazardous materials handling; and to avoid fines and penalties for noncompliance. All driver associates will be trained in safe and proper handling and transporting of hazardous materials.

##### **4.2 At the Shipper**

4.2.1 TolTest drivers are expected to check each hazardous materials shipment for proper shipping papers, labels, markings, packaging, and placards (if applicable). Even though these items are requirements assigned to the

shipper, the driver is responsible for checking, accepting and signing for all hazardous materials shipments.

- 4.2.2 A TolTest driver should not accept or sign for any hazardous materials shipment unless it is in complete compliance with the Hazardous Materials Regulations (HMR) governing such shipments.

#### 4.3 Shipping Papers

- 4.3.1 Most hazardous materials shipments must be accompanied by proper shipping papers. The shipper is responsible for providing the shipping papers, but TolTest drivers are responsible for making certain that shipping papers are complete, accurate, and appropriate for shipment, before accepting or signing for any hazardous materials shipment.
- 4.3.2 Shipping papers, with some exceptions, must contain the following information:
- The proper shipping description of the material(s) in question, including proper shipping name, hazard class, identification (ID) number, packing group (if required), and total quantity of the shipment.
  - Emergency Response Telephone Number.
  - All pages of the shipping paper must be numbered as 1 of 3, 2 of 3, 3 of 3, etc., if multiple pages are involved in the document.
  - All shipping papers for hazardous materials shipments handled by TolTest must have a signed Shipper's Certification, with the signature of an authorized shipper's associate.
  - All hazardous materials included on the same shipping paper with nonhazardous items will be listed first, be in a color (usually red) which is not the color of the nonhazardous entries, or have an X or
  - RQ (Regulated Quantity) in a column designated HM (Hazardous Material).
- 4.3.3 TolTest drivers must not accept or sign for any hazardous materials shipment if discrepancies, inaccuracies, or incomplete entries are found on the shipping papers. Drivers are required to call the Manager, Corporate Health and Safety immediately for instructions, if problems or questions concerning hazardous materials shipping papers arise.
- 4.3.4 All shipping papers will be maintained on file in TolTest's Health and Safety Department for 12 months from the date of shipment.

#### 4.4 Labels

- 4.4.1 The shipper is responsible for determining the need for and application of all required primary and (if necessary) subsidiary labels to packaging containing hazardous materials. These labels provide critical information about package content, and warn of potential hazards associated with the materials contained. Labels are to be placed on the same surface as the proper shipping name marking, and must be placed on a surface contrasting in color to the label. An alternative is for the label to have a dotted or solid line outer border.
- 4.4.2 TolTest drivers will make certain that all hazardous material labels match the hazard class (es) or divisions entered on the shipping papers, and will only accept those packages that are properly labeled.
- 4.4.3 TolTest drivers will not accept packages if labels are missing, applied improperly, obscure, torn, unreadable, or otherwise defective. In this kind of situation, drivers should ask for replacement labels or call the Manager, Corporate Health and Safety for instructions.

#### 4.5 Marking

- 4.5.1 The shipper is responsible for properly marking all non-bulk and bulk packages. TolTest drivers are required to check all package markings for compliance. Most non-bulk packages must be marked with the proper shipping name, ID number, and consignor's or destination's name and address. The HMR define non-bulk packaging as packaging which has:
- A maximum capacity of 450 L (119 gallons) or less, as a receptacle for a liquid.
  - A maximum net mass of 400 kg (882 pounds) or less, and a maximum of 450 L (119 gallons) or less as a receptacle for a solid.
  - A water capacity of 454 kg (1000 pounds) or less, as a receptacle for a gas.
- 4.5.2 Bulk packages must be marked with the proper ID number displayed on a placard, an orange panel, or a plain white square-on-point configuration. The HMR defines bulk packaging as packaging, other than a vessel or barge, that has no intermediate form of containment and which has:
- A maximum capacity greater than 450 L (119 gallons), as a receptacle for a liquid.
  - A maximum net mass greater than 400 kg (882 pounds) and a maximum capacity greater than 450 L (119 gallons) as a receptacle for a solid.

- A water capacity greater than 454 kg (1000 pounds), as a receptacle for a gas.

4.5.3 Additional markings may be required for non-bulk and bulk shipments, depending on the type of hazard and type of packaging. Drivers shall refuse any shipment if it is improperly marked. Drivers are to call the Manager, Corporate Health and Safety if they are in doubt or have questions concerning proper marking.

#### 4.6 Packaging

4.6.1 TolTest drivers shall inspect all packages prior to loading to ensure they are in proper condition for transportation. TolTest drivers will accept for transportation only those hazardous materials packages which are in proper condition for transportation and that fully comply with the HMR. Drivers will refuse to accept or sign for damaged or leaking packages.

4.6.2 Drivers who are not satisfied with the packaging, marking, labeling, or compliance of any hazardous material package should refuse the shipment and call the Manager, Corporate Health and Safety immediately for instructions.

#### 4.7 Placarding

4.7.1 The shipper must provide the driver with any required placards for the hazardous material(s) indicated on the shipping papers, unless the vehicle is already placarded correctly. TolTest drivers will refuse any shipment or load in which the correct number and type of placards is not provided by the shipper when required.

4.7.2 Once received, TolTest drivers are to place placards on the vehicle: one on each side, one on the back, and one in front. The driver will maintain the integrity of the placards during all phases of transportation. At no time will a driver transport a hazardous material requiring placards without proper placards being affixed to the motor vehicle.

4.7.3 If there are problems at the shipper, lost or damaged placards occur in transit, or questions in general concerning placards, drivers should call the Manager, Corporate Health and Safety for guidance.

#### 4.8 Loading/Unloading Instructions

4.8.1 Before doing any loading or unloading, the driver should secure the vehicle from moving. Only after a driver is satisfied that the vehicle is safe from moving should loading or unloading be allowed to begin.

- 4.8.2 TolTest drivers will make certain the shipment is secured to prevent shifting and cargo movement during transit.
- 4.8.3 Smoking on or near a vehicle while loading/unloading is forbidden. All fire sources, such as lit matches, smoking, or carrying any flame, are not allowed in the vicinity.
- 4.8.4 After loading and before transport begins, TolTest drivers will make certain the shipment is secured to prevent shifting and cargo movement during transit, and is within legal weight limits.
- 4.8.5 Drivers will not unload or allow the unloading process to begin until the consignee or destination representative has accepted and signed for the shipment.
- 4.9 Accidents and Incidents
  - 4.9.1 TolTest drivers must report all accidents and incidents as soon as possible. With the added health and environmental risks associated with transporting hazardous materials, this requirement becomes even more important.
  - 4.9.2 The company has developed procedures for accidents and incidents involving hazardous materials. The purpose of these procedures is to minimize risk to the driver's personal safety, the health and safety of the general public, and the environment. All TolTest drivers and management are expected to know and follow these procedures.
  - 4.9.3 If an accident or incident involving hazardous materials occurs, the following procedures are to be implemented by the driver:
    - Secure the scene. Keep people away from the accident and/or spill
    - Do not touch or walk into or through any spilled material
    - Avoid inhalation of all gases, fumes, and smoke. (Remember that some gases are odorless and colorless. Do not assume fumes are not present simply because no odor or visible cloud is present.)
    - Consult the Emergency Response Information provided with the shipment and follow the guidelines.
    - Notify the local police and/or fire department, and Emergency Response Authorities immediately.
    - Call the Emergency Response Telephone Number provided on the shipping papers for additional guidance, if needed.

- Report the accident/incident to the Manager, Corporate Health and Safety immediately.
- Stay with the vehicle and supervise the cleanup procedures.
- Complete a company incident report or Hazardous Materials Incident Report and submit it to the Health and Safety Department.

#### 4.10 Supervisors

After receiving the accident/incident report from the driver and assessing the situation, Supervisors will provide any necessary immediate guidance, and contact the Health and Safety Department. The Health and Safety Department will assume coordination of cleanup and reporting.

#### 4.11 Health and Safety Department

- After initial notification by the driver or dispatch operations, the Health and Safety Department is responsible for the coordination of all aspects of the accident/incident response.
- The Health and Safety Department establishes contact with the driver and any officials at the scene. If possible, the Health and Safety Department will send a representative to the scene.
- The Health and Safety Department will be responsible for any follow up actions required by law enforcement officials.
- After verification that all the above items have been completed, the Health and Safety Department will do all required notifications and required reports.

#### 4.12 Emergency Response Overview

4.12.1 The shipper is responsible for providing emergency response information with all hazardous materials shipments. TolTest drivers shall verify that the following hazardous materials information is provided by the shipper:

- A basic description and technical name of the hazardous material (found on the shipping paper(s)).
- Immediate hazards to health.
- Risks of fire or explosion.
- Immediate precautions to be taken in the event of an accident or incident.
- Immediate methods of handling fires.
- Initial methods for handling spills or leaks in the absence office.
- Preliminary first aid measures.

- 4.13 TolTest drivers shall not transport any hazardous material without proper emergency response information. The Emergency Response Telephone Number must be properly documented on the shipping paper(s).
- 4.14 TolTest's Emergency Response Telephone Number for all hazardous materials shipments is 1-800-366-7175.

## **5.0 EXCEPTION PROVISIONS**

Variances to this procedure shall be requested in accordance with established variance procedures.

**ATTACHMENT 2**

**MATERIAL SAFETY DATA SHEETS**

# FLINN SCIENTIFIC, INC.

## Material Safety Data Sheet (MSDS)

MSDS #: 601.00

Revision Date: September 27, 2010

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### Phosphorus, Yellow

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

### SECTION 2 — COMPOSITION, INFORMATION ON INGREDIENTS

Phosphorus, Yellow

Synonym: yellow or white phosphorus.

CAS#: 7723-14-0

### SECTION 3 — HAZARDS IDENTIFICATION

White to off-white to yellow chunks; exhibits phosphorescence at room temperature. Odorless.

Highly toxic by ingestion, inhalation and skin absorption. May be fatal.

Corrosive to body tissues. Skin burns very possible. Avoid all body contact.

Spontaneously combustible solid. Extremely flammable.

#### FLINN AT-A-GLANCE

Health-3

Flammability-3

Reactivity-3

Exposure-3

Storage-3

0 is low hazard, 3 is high hazard

### SECTION 4 — FIRST AID MEASURES

Call a physician, seek medical attention for further treatment, observation and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.

Eye: Immediately flush with fresh water for 15 minutes.

External: Wash continuously with fresh water for 15 minutes.

Internal: Give large quantities of water. Call a physician or poison control at once.

### SECTION 5 — FIRE FIGHTING MEASURES

Extremely flammable solid.

Spontaneously combustible solid. Autoignition Temperature: 86 °F

When heated to decomposition, emits toxic fumes of PO<sub>x</sub> and/or phosphine.

**Fire Fighting Instructions:** Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

#### NFPA CODE

H-4

F-4

R-2

### SECTION 6 — ACCIDENTAL RELEASE MEASURES

Restrict unprotected personnel from area. Cover with wet sand; keep under cold water and follow disposal procedure.

Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

### SECTION 7 — HANDLING AND STORAGE

Flinn Suggested Chemical Storage Pattern: Inorganic #10. Store with sulfur and phosphorus.

Store in a dedicated flammables cabinet. If a flammables cabinet is not available, store in Flinn Saf-Stor can.

Store under water and away from heat. Use and dispense in a hood.

### SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION

Avoid contact with eyes, skin, and clothing. Wear chemical splash goggles, chemical-resistant gloves, and chemical-resistant apron. Use ventilation to keep airborne concentrations below exposure limits. Always wear a NIOSH-approved respirator with proper cartridges or a positive pressure, air-supplied respirator when handling this material in emergency situations (spill or fire).

Exposure guidelines: TWA 0.1 mg/m<sup>3</sup> (OSHA)

**SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES**

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White to off-white to yellow chunks.

Solubility: Insoluble in water and alcohol. Soluble in carbon disulfide.

Formula: P

Formula Weight: 123.88

Melting Point: 44.1 °C

Specific Gravity: 1.82

Vapor Density: 0.02 (Air=1)

Vapor Pressure: 1 mm @ 76.6 °C

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**SECTION 10 — STABILITY AND REACTIVITY**

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Avoid contact with halogens, halide, sulfur, oxidizers, copper, copper alloys, oxygen, reducers, heat, open flame, and all sources of ignition.

Shelf life: Poor; serious storage risk.

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**SECTION 11 — TOXICOLOGICAL INFORMATION**

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Acute effects: Highly toxic, harmful solid and fumes, stomach pain, vomiting, and diarrhea

Chronic effects: N.A.

Target organs: N.A.

ORL-HUMAN LD50: 1.4 mg/kg

IHL-RAT LC50: N.A.

SKN-RBT LD50: N.A.

---

N.A. = Not available, not all health aspects of this substance have been fully investigated.

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**SECTION 12 — ECOLOGICAL INFORMATION**

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Data not yet available.

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**SECTION 13 — DISPOSAL CONSIDERATIONS**

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Please consult with state and local regulations.

Flinn Suggested Disposal Method #27c is one option.

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**SECTION 14 — TRANSPORT INFORMATION**

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Shipping Name: Phosphorus, yellow, under water

Hazard Class: 4.2, Spontaneously combustible, poison

UN Number: UN1381

N/A = Not applicable

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**SECTION 15 — REGULATORY INFORMATION**

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TSCA-listed, EINECS-listed (231-768-7), RCRA code D001.

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**SECTION 16 — OTHER INFORMATION**

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This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific, Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. The data should not be confused with local, state, federal or insurance mandates, regulations, or requirements and CONSTITUTE NO WARRANTY. Any use of this data and information must be determined by the science instructor to be in accordance with applicable local, state or federal laws and regulations. The conditions or methods of handling, storage, use and disposal of the product(s) described are beyond the control of Flinn Scientific, Inc. and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THIS PRODUCT(S).

**Consult your copy of the *Flinn Science Catalog/Reference Manual*  
for additional information about laboratory chemicals.**

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# MATERIAL SAFETY DATA SHEET

## SECTION I – IDENTITY AND RESPONSIBLE PARTY INFORMATION

802090165

Responsible Party: **Canberra Corporation** Product Name: **HUSKY 802 High Fragrance Detergent Disinfectant**

Address: **3610 Holland-Sylvania Road  
Toledo, OH 43615** Date Prepared: 6-1-10

Emergency Telephone No. **1-419-841-6616** Prepared By Regulatory Affairs Department  
And Other Information

## SECTION II – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS #'s	OSHA PEL	Other Limits ACGIH TLV	Recommended	% Optional
Specific Chemical Identity: Common Name(s)					
Water	7732-18-5				85-90%
Alkyl dimethylbenzyl ammonium chloride	68391-01-5	N/A	N/A	N/A	0.7-0.9%
Alkyl dimethylethylbenzyl ammonium chloride	68956-79-6	N/A	N/A	N/A	0.7-0.9%
Alcohol Ethoxylate	68131-39-5	N/A	N/A	N/A	1-5%

**\*THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS FOR SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372.**

HMIS RATING - HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0 PERSONAL PROTECTION EQPT: B

## SECTION III – PHYSICAL / CHEMICAL CHARACTERISTICS

Boiling Point: Approx 190-212° F	Specific Gravity (H <sub>2</sub> O = 1): 1.000 ± 0.01
Vapor Pressure (mm Hg): N/E	Percent Volatile By Weight (%): <1%
PH (conc.): 8.5-10	Evaporation Rate (H <sub>2</sub> O=1): same as water
Solubility in Water: Complete	Appearance and Fragrance: Green/Pine

## SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used) – None (TCC) Flammable Limits – LEL – N/E UEL – N/E  
Extinguishing Media – Use water spray, dry chemical, carbon dioxide or foam extinguishing agents unless contraindicated by surrounding environment.  
Special Fire Fighting Procedures – Prevent human exposure to fire, smoke, fumes or products of combustion. Evacuate non-essential personnel from fire area.  
All ignition sources should be extinguished. Fire fighters should wear appropriate equipment, including self contained breathing apparatus and impervious clothing. Deep containers cooled with water spray to prevent rupture from excess heat. Unusual Fire and Explosion Hazards – None Known

## SECTION V – PHYSICAL HAZARDS

Stability Unstable Conditions to Avoid – None Known  
Stable **X**

Incompatibility (Materials to Avoid) – Do not mix with other chemicals.

Hazardous Decomposition Products or By-products – Thermal decomposition on burning may produce toxic vapors or gases.

Hazardous May Occur Conditions to Avoid – None Known

Polymerization Will not Occur **X**

## SECTION VI – HEALTH HAZARDS

Route(s) of Entry: Inhalation? Skin? **X** Ingestion? **X**  
Health Hazards (1. Acute and 2. Chronic) – **1. ACUTE:** Harmful if swallowed. Eye and skin irritant. **2. CHRONIC:** None Known.  
Chemical Listed as Carcinogen National Toxicology I.A.R.C. OSHA  
or Potential Carcinogen Program No **X** Monographs No **X** No **X**

Signs and Symptoms of Exposure – Irritation or burning sensation.

Medical Conditions Generally Aggravated by Exposure – May aggravate skin disorders or respiratory ailments.

Emergency and First Aid Procedures – **SKIN CONTACT:** Immediately remove contaminated shoes and clothing. Wash skin with soap and water for 15 minutes.

Wash contaminated clothing before reuse. **EYE CONTACT:** Flush Immediately with water and remove contact lenses, if applicable. Then flush with large quantities of running water for 15 minutes. Hold eyelids apart during flushing to ensure complete rinsing of entire surface of eye and lids with water. Get medical attention immediately. Continue flushing with water if physician is not immediately available. **INGESTION:** NO NOT induce vomiting. Rinse mouth with water. Then give 1-2 glasses of water and call a physician or poison control center immediately. If vomiting occurs, keep head below hips to reduce risk of aspiration. Give water again. NEVER give anything by mouth to a person who is unconscious or convulsing. Get medical attention immediately.

## SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled – Wear appropriate protective equipment. If possible, contain spill and collect in approved container. Rinse affected area thoroughly with water. Keep product out of storm sewers or waterways. Hold for disposal.

Waste Disposal Method – Dispose of in accordance with local, state and Federal regulations. If possible, triple rinse container, and recycle.

Precautions to be Taken in Handling and Storing – Avoid contact with skin or eyes. Avoid breathing vapor, spray or mist. Store in original container, in cool dry place with adequate ventilation. Keep out of reach of children. Keep container tightly closed when not in use.

Other Precautions – Use only according to label directions. If unsure about safe use, contact your supervisor immediately.

## SECTION VIII – CONTROL MEASURES

Respiratory Protection (Specify Type) – Not expected to be necessary under normal conditions of use.

Ventilation – Local Exhaust – As Necessary Mechanical (General) – Adequate Special – N/A Other – N/A

Protective Gloves – Water Impervious (Latex, Neoprene) Eye Protection – Chemical Resistant Goggles Other Protective Clothing or Equipment - Eye

Wash Work/Hygiene Practices – Follow OSHA mandated procedures. Never eat or smoke while working with chemicals. Good housekeeping practices apply. Wash thoroughly after handling.

**NOTICE: NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OF ANY OTHER NATURE, ARE MADE WITH RESPECT TO INFORMATION CONCERNING THE PRODUCT REFERRED TO IN THIS MATERIAL SAFETY DATA SHEET.**

The goal of defining precisely, in measurable terms, every possible health effect that may occur in the workplace as a result of chemical exposures cannot realistically be accomplished. The information and recommendation contained in this Material Safety Data Sheet are supplied pursuant to 29 C.F.R. 1910.1200 of the Occupational Safety and Health Standards Hazard Communication Rule. The information and recommendations set forth herein are presented in good faith and believed to be correct as of the date hereof. Canberra Corporation, however, makes no representations as to the completeness or accuracy thereof, and information is supplied upon the express condition that the persons receiving this same will be required to make their own determination as to its suitability for their purposes prior to use. In no event will Canberra Corporation be responsible for any damages of any nature whatsoever resulting from the use of, reliance upon, or the misuse of this information. The information as supplied herein is simply to be informative and intended solely to alert the user of the substance which is the subject matter of this Material Safety Data Sheet. The ultimate Compliance with federal, state and local regulations concerning the use of disposal of this compound, or compliance with respect to products liability, rests solely upon the purchaser thereof.

N/A (Not Applicable/Not Available) N/E (Not Established)

# MATERIAL SAFETY DATA SHEET

## SECTION I – IDENTITY AND RESPONSIBLE PARTY INFORMATION

902090165

Responsible Party:	<b>Canberra Corporation</b>	Product Name: <b>HUSKY 902 NON-BUTYL INDUSTRIAL DETERGENT COMPLEX</b>
Address:	<b>3610 Holland-Sylvania Rd. Toledo, Ohio 43615</b>	Date Prepared: 6-1-10
Emergency Telephone No. And Other Information	<b>1-419-841-6616</b>	Prepared By Regulatory Affairs Department

## SECTION II – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS #'s	OSHA PEL	ACGIH TLV	Other Limits Recommended	% Optional
Sodium Metasilicate	6834-92-0	N/A	N/A	N/A	1-5
Sodium Hydroxide	1310-73-2	2 mg/M <sup>3</sup>	2 mg/M <sup>3</sup>	N/A	1-5
Sodium Carbonate	497-19-8	N/A	N/A	N/A	1-5
Alcohol Ethoxylate	68439-46-3	N/A	N/A	N/A	1-5

**\*THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS FOR SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372.**

HMIS RATING - HEALTH: 2 FLAMMABILITY: 2 REACTIVITY: 0 PERSONAL PROTECTION EQPT: B

## SECTION III – PHYSICAL / CHEMICAL CHARACTERISTICS

Boiling Point: Approx 212° F	Specific Gravity (H <sub>2</sub> O = 1): 1.040
Vapor Pressure (mm Hg): Not Established	Percent Volatile By Weight (%): >90%
PH (conc.): 12.8	Evaporation Rate (H <sub>2</sub> O=1): Approx. 1
Solubility in Water: Complete	Appearance and Fragrance: Yellow Liquid / Balsam Fragrance

## SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used) – 143°F TCC	Flammable Limits –	LEL – N/E	UEL – N/E
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Extinguishing Media – Water, CO<sub>2</sub>, Foam or media suitable for surrounding fire.

Special Fire Fighting Procedures – Standard fire fighting procedures may be followed, including full protective gear, NIOSH approved self-contained breathing apparatus. Unusual Fire and Explosion Hazards – None Known

## SECTION V – PHYSICAL HAZARDS

Stability	Conditions to Avoid – None Known
Unstable	
Stable <b>X</b>	

Incompatibility (Materials to Avoid) – Do not mix with other chemicals.

Hazardous Decomposition Products or By-products – Thermal decomposition on burning may produce toxic vapors or gases.

Hazardous	Conditions to Avoid – None Known
May Occur	

Polymerization Will not Occur **X**

## SECTION VI – HEALTH HAZARDS

Route(s) of Entry:	Inhalation?	Skin? <b>X</b>	Ingestion? <b>X</b>
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Health Hazards (1. Acute and 2. Chronic) – **1. ACUTE:** Harmful if swallowed. Eye and skin irritant. May cause permanent damage if not promptly treated.

**2. CHRONIC:** None Known.

Chemical Listed as Carcinogen or Potential Carcinogen	National Toxicology Program	I.A.R.C. Monographs	OSHA
	No <b>X</b>	No <b>X</b>	No <b>X</b>

Signs and Symptoms of Exposure – Irritation or burning sensation.

Medical Conditions Generally Aggravated by Exposure – May aggravate skin disorders or respiratory ailments.

Emergency and First Aid Procedures – **EYE CONTACT:** Flush Immediately with water for 15 minutes. Get medical attention. **SKIN CONTACT:** Flush with water for 15 minutes. Remove and wash contaminated clothing. **INGESTION:** Rinse mouth with water. Then drink 1-2 glasses of water. Never give anything by mouth to an unconscious person. Get immediate medical attention.

## SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled – Wear appropriate protective equipment. If possible, contain spill and collect in approved container. Rinse affected area thoroughly with water. Keep product out of storm sewers or waterways. Hold for disposal.

Waste Disposal Method – Dispose of in accordance with local, state and Federal regulations. If possible, triple rinse container, and recycle.

Precautions to be Taken in Handling and Storing – Avoid contact with skin or eyes. Avoid breathing vapor, spray or mist. Store in original container, in cool dry place with adequate ventilation. Keep out of reach of children. Keep container tightly closed when not in use.

Other Precautions – Use only according to label directions. If unsure about safe use, contact your supervisor immediately.

## SECTION VIII – CONTROL MEASURES

Respiratory Protection (Specify Type) – Not expected to be necessary under normal conditions of use.

Ventilation – **X** Local Exhaust – As Necessary Mechanical (General) – As Adequate Special – N/A Other – N/A

Protective Gloves – Water Impervious (Latex, Neoprene) Eye Protection – Chemical Resistant Goggles or Face Shield Other Protective Clothing or Equipment - Eye wash station Work/Hygiene Practices – Follow OSHA mandated procedures. Never eat or smoke while working with chemicals. Good housekeeping practices apply. Wash thoroughly after handling.

**NOTICE: NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OF ANY OTHER NATURE, ARE MADE WITH RESPECT TO INFORMATION CONCERNING THE PRODUCT REFERRED TO IN THIS MATERIAL SAFETY DATA SHEET.**

The goal of defining precisely, in measurable terms, every possible health effect that may occur in the workplace as a result of chemical exposures cannot realistically be accomplished. The information and recommendation contained in this Material Safety Data Sheet are supplied pursuant to 29 C.F.R. 1910.1200 of the Occupational Safety and Health Standards Hazard Communication Rule. The information and recommendations set forth herein are presented in good faith and believed to be correct as of the date hereof. Canberra Corporation, however, makes no representations as to the completeness or accuracy thereof, and information is supplied upon the express condition that the persons receiving the same will be required to make their own determination as to its suitability for their purposes prior to use. In no event will Canberra Corporation be responsible for any damages of any nature whatsoever resulting from the use of, reliance upon, or the misuse of this information. The information as supplied herein is simply to be informative and intended solely to alert the user of the substance which is the subject matter of this Material Safety Data Sheet. The ultimate compliance with federal, state and local regulations concerning the use or disposal of this compound, or compliance with respect to products liability, rests solely upon the purchaser thereof.

N/A (Not Applicable/Not Available)      N/E (Not Established)

## **I. PRODUCT AND COMPANY IDENTIFICATION**

**Company:** Simpson Strong-Tie Company, Inc.  
**Address:** 5956 W. Las Positas Blvd.  
 Pleasanton, CA 94588

**Product Name:** **ETILV22, ETILV010R, ETILV020R, ETILV050R - ETILV Resin**

**Product Description:** Low Viscosity Injection Epoxy Resin

**Emergency Contact No.:** 1-800-535-5053 **USA**  
 1-352-323-3500 **International**

**Date Prepared or Revised:** March 2008. For most current MSDS, please visit our web site at  
[www.simpsonanchors.com](http://www.simpsonanchors.com)

## **II. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Names	CAS Numbers
BisPhenolA/Epichlorohydrin (Epoxy Resin)	25068-38-6
Titanium dioxide	1317-80-2

The remaining ingredients are designated as "trade secret".

## **III. HAZARD IDENTIFICATION**

### **EMERGENCY OVERVIEW**

Non-corrosive.  
 May cause eye and skin irritation.  
 May cause skin sensitization.

### **POTENTIAL HEALTH EFFECTS**

#### **ACUTE**

**Eye Contact:** May cause eye irritation, swelling, tearing, redness or cornea damage.  
**Skin Contact:** Moderate irritation. May cause skin sensitization, evidenced by rashes and hives.  
**Inhalation:** Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by headache, dizziness, and nausea.  
**Ingestion:** May cause irritation to the gastrointestinal tract. May cause Central Nervous System depression or other systemic effects.  
**Systemic Effects:** Lungs, eyes, and skin.

## **IV. FIRST AID MEASURES**

**Eye Contact:** Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN**.

**Skin Contact:** Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN**.

**Ingestion:** **DO NOT INDUCE VOMITING.** Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. **CONSULT A PHYSICIAN** if vomiting occurs spontaneously, keep head below hips to prevent aspiration.

**Inhalation:** Remove patient to fresh air. If patient continues to experience difficulty breathing, **CONSULT A PHYSICIAN**.

## V. FIRE-FIGHTING MEASURES

<b>Suitable Extinguishing Media:</b>	Water fog, carbon dioxide or dry chemical, aqueous foam.
<b>Fire And Explosion Hazard:</b>	Hazardous decomposition products may occur when materials polymerize at temperatures above 500°F. Do not allow run-off from fire fighting to enter drains or water courses.
<b>Fire Fighting Equipment and Procedures:</b>	Wear full protective clothing and self-contained breathing apparatus for fire fighting. Isolate fuel supply from fire. Clear fire area of all non-emergency personnel. Use water spray to cool fire-exposed surfaces and containers.

## VI. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
<b>Environmental Precautions:</b>	Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.
<b>Clean-up Methods:</b>	<b>Small spills:</b> Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal. <b>Large spills:</b> Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
<b>Additional Information:</b>	Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

## VII. STORAGE AND HANDLING

<b>Storage:</b>	Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage.
<b>Handling:</b>	To prevent skin and eye contact under the foreseeable conditions of use, wear appropriate protective clothing and safety eyewear. When handling, do not eat, drink, or smoke. Wash thoroughly after handling. Avoid breathing fumes. Handle in a well-ventilated work area.

## VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Protective Measure:</b>	Wear appropriate personal protective equipment.
<b>Eye Protection:</b>	Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.
<b>Hand Protection:</b>	Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
<b>Skin and Body Protection:</b>	Wear chemical-resistant gloves and other clothing as required to minimizing contact.
<b>Respirator Protection:</b>	Not required for properly ventilated areas.
<b>Exposure Limits:</b>	

COMPONENT	ACGIH (TLV)	OSHA (PEL)
BisPhenolA/Epichlorohydrin (Epoxy Resin)	N/E	N/E
Titanium dioxide	10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>

## IX. PHYSICAL AND CHEMICAL PROPERTIES

<b>Form:</b>	Liquid
<b>Color:</b>	White
<b>Odor:</b>	Sweet
<b>Vapor Pressure:</b>	Not Volatile
<b>Boiling Point:</b>	N/E
<b>Viscosity:</b>	2000 cP
<b>Flash Point:</b>	256°F (Close Cup)
<b>Specific Gravity:</b>	1.21@ 72°F
<b>Solubility In Water:</b>	Insoluble

**X. REACTIVITY DATA**

**Stability:** Stable under normal storage conditions.  
**Conditions To Avoid:** Incompatible chemicals, heat and open flame.  
**Materials To Avoid:** Oxidizing agents, acids, organic bases, and amines.  
**Hazardous Decomposition Products:** Combustion may produce carbon monoxide, carbon dioxide, aldehydes, acids and other organic substances.  
**Hazardous Polymerization:** Will not occur.

**XI. TOXICOLOGICAL PROPERTIES**

**Acute Oral (LD<sub>50</sub>, Rat):** N/E  
**Acute Dermal (LD<sub>50</sub>, Rabbit):** N/E  
**Acute Inhalation (LC<sub>50</sub>, Rat):** N/E  
**Chronic Health Hazard** The Diglycidyl Ether of Bisphenol A has shown weak carcinogenicity in 2-year mice bioassays. This material has shown activity in-vitro microbial mutagenicity screening and has produced chromosomal aberrations in cultured rat liver cells. No activity when tested by vivo mutagenicity assays.

**XII. DISPOSAL CONSIDERATIONS**

**Waste From Residues / Unused Products:** This material is not a hazardous waste by RCRA criteria (40 CFR 261). Dispose of container and unused contents in accordance with federal, state, and local requirements.

**XIII. TRANSPORTATION**

**US DOT (CFR):** Not Regulated For Transport.  
**IATA:** Not Regulated For Transport.  
**IMO:** Not Regulated For Transport.

**XIV. REGULATORY INFORMATION**

Country	Regulatory List
USA	TSCA

**EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification:**

Acute/Chronic Health Hazard.

**EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:**

None.

**US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65):**

This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other harm.

Component	Regulation	Concentration	Remarks
Phenylglycidyl ether*	ACGIH	Trace	Carcinogenic
Epichlorohydrin*	ACGIH	Trace	Carcinogenic

\* May be absorbed through skin.

**XV. OTHER INFORMATION**

**HMIS RATING**

Health	Flammability	Physical Hazard
2	1	0

N/E – Not Established

This Material Safety Data Sheet (MSDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this MSDS. This MSDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

**I. PRODUCT AND COMPANY IDENTIFICATION**

**Company:** Simpson Strong-Tie Company, Inc.  
**Address:** 5956 W. Las Positas Blvd.  
Pleasanton, CA 94588

**Product Name:** ETILV22, ETILV010H, ETILV020H, ETILV050H - ETILV Hardener

**Product Description:** Low Viscosity Injection Epoxy Hardener

**Emergency Contact No.:** 1-800-535-5053 **USA**  
1-352-323-3500 **International**

**Date Prepared or Revised:** March 2008. For most current MSDS, please visit our web site at  
www.simpsonanchors.com

**II. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Names	CAS Numbers
Phenol, 2,4,6- trisdimethylaminomethyl	90-72-2

The remaining ingredients are designated as "trade secret".

**III. HAZARD IDENTIFICATION****EMERGENCY OVERVIEW**

Corrosive.  
Severe irritation to eyes and skin.  
May cause skin sensitization.  
Components of the product may affect the nervous system.

**POTENTIAL HEALTH EFFECTS****ACUTE**

**Eye Contact:** Severe irritation, swelling, tearing, redness or cornea damage. May cause burns and tissue damage.

**Skin Contact:** Severe irritation. May cause burns and tissue damage. May cause skin sensitization evidenced by rashes and hives.

**Inhalation:** Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by giddiness, headache, dizziness, and nausea.

**Ingestion:** May cause irritation to the gastrointestinal tract. May cause headache nausea. May cause Central Nervous System depression or other systemic effects.

**Systemic Effects:** Lungs, eyes, and skin.

**IV. FIRST AID MEASURES**

**Eye Contact:** Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN**.

**Skin Contact:** Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN**.

**Ingestion:** **DO NOT INDUCE VOMITING.** Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. **CONSULT A PHYSICIAN** if vomiting occurs spontaneously, keep head below hips to prevent aspiration.

**Inhalation:** Remove patient to fresh air. If patient continues to experience difficulty breathing, **CONSULT A PHYSICIAN**.

## V. FIRE-FIGHTING MEASURES

<b>Suitable Extinguishing Media:</b>	Water spray, fog or foam, carbon dioxide, dry chemical, limestone powder.
<b>Fire And Explosion Hazard:</b>	Irritating and toxic fumes may be produced at high temperature. In a fire, may produce carbon monoxide, toxic nitrogen oxide, ammonia, and carbon dioxide. Use of water may result in the formation of very toxic aqueous solution. Do not allow run-off from fire fighting to enter drains or water courses.
<b>Fire Fighting Equipment and Procedures:</b>	Wear full protective clothing and self-contained breathing apparatus for fire fighting. Isolate fuel supply from fire. Clear fire area of all non-emergency personnel.

## VI. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
<b>Environmental Precautions:</b>	Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.
<b>Clean-up Methods:</b>	<b>Small spills:</b> Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal. <b>Large spills:</b> Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
<b>Additional Information:</b>	Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

## VII. STORAGE AND HANDLING

<b>Storage:</b>	Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage.
<b>Handling:</b>	To prevent skin and eye contact under the foreseeable conditions of use, wear appropriate protective clothing and safety eyewear. When handling, do not eat, drink, or smoke. Wash thoroughly after handling. Avoid breathing fumes. Handle in a well ventilated work area.

## VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Protective Measure:</b>	Wear appropriate personal protective equipment.
<b>Eye Protection:</b>	Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.
<b>Hand Protection:</b>	Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
<b>Skin and Body Protection:</b>	Wear chemical-resistant gloves and other clothing as required to minimize contact.
<b>Respirator Protection:</b>	Not required for properly ventilated areas.
<b>Exposure Limits:</b>	

Chemical Names	ACGIH (TLV)	OSHA (PEL)
Phenol, 2,4,6- trisdimethylaminomethyl	N/E	N/E

## IX. PHYSICAL PROPERTIES

<b>Form:</b>	Liquid
<b>Color:</b>	Black
<b>Odor:</b>	Ammonia
<b>Boiling Point:</b>	N/E
<b>Viscosity:</b>	2000 cP
<b>Vapor Pressure:</b>	N/E
<b>Flash Point:</b>	185°F Close cup
<b>Specific Gravity:</b>	1.01@ 72°F
<b>Solubility In Water:</b>	Slight

**X. REACTIVITY DATA**

<b>Stability:</b>	Stable under normal storage conditions.
<b>Conditions To Avoid:</b>	Incompatible chemicals, heat, and open flame.
<b>Materials To Avoid:</b>	Oxidizing agents and acids.
<b>Hazardous Decomposition Products:</b>	Combustion may produce carbon monoxide, carbon dioxide, and nitrogen oxide, and other organic substances.
<b>Hazardous Polymerization:</b>	Will not occur.

**XI. TOXICOLOGICAL PROPERTIES**

<b>Acute Oral (LD<sub>50</sub>, Rat):</b>	N/E
<b>Acute Dermal (LD<sub>50</sub>, Rabbit):</b>	N/E
<b>Acute Inhalation (LC<sub>50</sub>, Rat):</b>	N/E
<b>Chronic Health Hazard</b>	Components of this product are not listed as carcinogens in concentrations of 0.1% or greater. Repeated or prolonged exposure may cause allergic reaction and/or limited sensitization.

**XII. DISPOSAL CONSIDERATIONS**

<b>Waste From Residues / Unused Products:</b>	Dispose of container and unused contents in accordance with federal, state, and local requirements.
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**XIII. TRANSPORTATION**

<b>US DOT(CFR):</b>	UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.
<b>IATA:</b>	UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.
<b>IMO:</b>	UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.

**XIV. REGULATORY INFORMATION**

Country	Regulatory List
USA	TSCA

**EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification:**

Acute/Chronic Health Hazard.

**EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:**

None.

**US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65):**

This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other harm.

Component	Regulation	Concentration	Remarks
Carbon Black	ACGIH	Trace	Carcinogenic
Toluene *	OSHA	Trace	Toxic

\* May be absorbed through skin.

**XV. OTHER INFORMATION****HMIS RATING**

Health	Flammability	Physical Hazard
3	2	0

N/E – Not Established

This Material Safety Data Sheet (MSDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this MSDS. This MSDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

**I. PRODUCT AND COMPANY IDENTIFICATION**

**Company:** Simpson Strong-Tie Company, Inc.  
**Address:** 5956 W. Las Positas Blvd.  
Pleasanton, CA 94588

**Product Name:** ETIGV22, ETIGV010R, ETIGV020R, ETIGV050R - ETIGV Resin

**Product Description:** Gel Viscosity Injection Epoxy Resin

**Emergency Contact No.:** 1-800-535-5053 USA  
1-352-323-3500 International

**Date Prepared or Revised:** March 2008. For most current MSDS, please visit our web site at  
www.simpsonanchors.com

**II. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Names	CAS Numbers
BisPhenolA/Epichlorohydrin (Epoxy Resin)	25068-38-6
Silica, crystalline quartz	14808-60-7
Titanium dioxide	1317-80-2

The remaining ingredients are designated as "trade secret".

**III. HAZARD IDENTIFICATION****EMERGENCY OVERVIEW**

Non-corrosive.  
May cause eye and skin irritation.  
May cause skin sensitization.

**POTENTIAL HEALTH EFFECTS****ACUTE**

**Eye Contact:** May cause eye irritation, swelling, tearing, redness or cornea damage.  
**Skin Contact:** Moderate irritation. May cause skin sensitization, evidenced by rashes and hives.  
**Inhalation:** Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by headache, dizziness, and nausea.  
**Ingestion:** May cause irritation to the gastrointestinal tract. May cause Central Nervous System depression or other systemic effects.  
**Systemic Effects:** Lungs, eyes, and skin.

**IV. FIRST AID MEASURES**

**Eye Contact:** Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN**.

**Skin Contact:** Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN**.

**Ingestion:** **DO NOT INDUCE VOMITING.** Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. **CONSULT A PHYSICIAN** if vomiting occurs spontaneously, keep head below hips to prevent aspiration.

**Inhalation:** Remove patient to fresh air. If patient continues to experience difficulty breathing, **CONSULT A PHYSICIAN**.

**V. FIRE-FIGHTING MEASURES**

<b>Suitable Extinguishing Media:</b>	Water fog, carbon dioxide or dry chemical, aqueous foam.
<b>Fire And Explosion Hazard:</b>	Hazardous decomposition products may occur when materials polymerize at temperatures above 500°F. Do not allow run-off from fire fighting to enter drains or water courses.
<b>Fire Fighting Equipment and Procedures:</b>	Wear full protective clothing and self-contained breathing apparatus for fire fighting. Isolate fuel supply from fire. Clear fire area of all non-emergency personnel. Use water spray to cool fire-exposed surfaces and containers.

**VI. ACCIDENTAL RELEASE MEASURES**

<b>Personal Precautions:</b>	Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
<b>Environmental Precautions:</b>	Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.
<b>Clean-up Methods:</b>	<b>Small spills:</b> Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal. <b>Large spills:</b> Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
<b>Additional Information:</b>	Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

**VII. STORAGE AND HANDLING**

<b>Storage:</b>	Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage.
<b>Handling:</b>	To prevent skin and eye contact under the foreseeable conditions of use, wear appropriate protective clothing and safety eyewear. When handling, do not eat, drink, or smoke. Wash thoroughly after handling. Avoid breathing fumes. Handle in a well-ventilated work area.

**VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION**

<b>Protective Measure:</b>	Wear appropriate personal protective equipment.
<b>Eye Protection:</b>	Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.
<b>Hand Protection:</b>	Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
<b>Skin and Body Protection:</b>	Wear chemical-resistant gloves and other clothing as required to minimize contact.
<b>Respirator Protection:</b>	Not required for properly ventilated areas.
<b>Exposure Limits:</b>	

COMPONENT	ACGIH (TLV)	OSHA (PEL)
BisPhenolA/Epichlorohydrin (Epoxy Resin)	N/E	N/E
Silica, crystalline quartz (airborne particulates of respirable size)	0.1 mg/m <sup>3</sup>	0.4 mg/m <sup>3</sup>
Titanium dioxide (total dust)	10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>

**IX. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Form:</b>	Paste
<b>Color:</b>	White
<b>Odor:</b>	Sweet
<b>Vapor Pressure:</b>	Not Volatile
<b>Boiling Point:</b>	>500°F (> 260°C)
<b>Freezing Point:</b>	N/E
<b>Flash Point:</b>	>250°F (Open Cup)
<b>Specific Gravity:</b>	1.21@ 72°F
<b>Solubility In Water:</b>	Insoluble

**X. REACTIVITY DATA**

**Stability:** Stable under normal storage conditions.  
**Conditions To Avoid:** Incompatible chemicals, high heat and open flame.  
**Materials To Avoid:** Oxidizing agents, acids, organic bases, and amines.  
**Hazardous Decomposition Products:** Combustion may produce carbon monoxide, carbon dioxide, aldehydes, acids and other organic substances.  
**Hazardous Polymerization:** Will not occur.

**XI. TOXICOLOGICAL PROPERTIES**

**Acute Oral (LD<sub>50</sub>, Rat):** Non toxic  
**Acute Dermal (LD<sub>50</sub>, Rabbit):** N/E  
**Acute Inhalation (LC<sub>50</sub>, Rat):** N/E  
**Chronic Health Hazard** The Diglycidyl Ether of Bisphenol A has shown weak carcinogenicity in 2-year mice bioassays. This material has shown activity in-vitro microbial mutagenicity screening and has produced chromosomal aberrations in cultured rat liver cells. No activity when tested by vivo mutagenicity assays.

**XII. DISPOSAL CONSIDERATIONS**

**Waste From Residues / Unused Products:** This material is not a hazardous waste by RCRA criteria (40 CFR 261). Dispose of container and unused contents in accordance with federal, state, and local requirements.

**XIII. TRANSPORTATION**

**US DOT (CFR):** Not Regulated For Transport.  
**IATA:** Not Regulated For Transport.  
**IMO:** Not Regulated For Transport.

**XIV. REGULATORY INFORMATION**

Country	Regulatory List
USA	TSCA

**EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification:**

Acute/Chronic Health Hazard.

**EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:**

None.

**US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65):**

This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other harm.

Component	Regulation	Concentration	Remarks
Phenylglycidyl ether*	ACGIH	Trace	Carcinogenic
Epichlorohydrin*	ACGIH	Trace	Carcinogenic

\* May be absorbed through skin.

**XV. OTHER INFORMATION**

**HMIS RATING**

Health	Flammability	Physical Hazard
2	1	0

N/E – Not Established

This Material Safety Data Sheet (MSDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this MSDS. This MSDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

**I. PRODUCT AND COMPANY IDENTIFICATION**

**Company:** Simpson Strong-Tie Company, Inc.  
**Address:** 5956 W. Las Positas Blvd.  
Pleasanton, CA 94588

**Product Name:** ETIGV22, ETIGV010H, ETIGV020H, ETIGV050H - ETIGV Hardener

**Product Description:** Gel Viscosity Injection Epoxy Hardener

**Emergency Contact No.:** 1-800-535-5053 USA  
1-352-323-3500 International

**Date Prepared or Revised:** March 2008. For most current MSDS, please visit our web site at  
www.simpsonanchors.com

**II. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Names	CAS Numbers
Phenol, 2,4,6- trisdimethylaminomethyl	90-72-2

The remaining ingredients are designated as "trade secret".

**III. HAZARD IDENTIFICATION****EMERGENCY OVERVIEW**

Corrosive.  
Severe irritation to eyes and skin.  
May cause skin sensitization.  
Components of the product may affect the nervous system.

**POTENTIAL HEALTH EFFECTS****ACUTE**

**Eye Contact:** Severe irritation, swelling, tearing, redness or cornea damage. May cause burns and tissue damage.

**Skin Contact:** Severe irritation. May cause burns and tissue damage. May cause skin sensitization evidenced by rashes and hives.

**Inhalation:** Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by giddiness, headache, dizziness, and nausea.

**Ingestion:** May cause irritation to the gastrointestinal tract. May cause headache nausea. May cause Central Nervous System depression or other systemic effects.

**Systemic Effects:** Lungs, eyes, and skin.

**IV. FIRST AID MEASURES**

**Eye Contact:** Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN**.

**Skin Contact:** Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN**.

**Ingestion:** **DO NOT INDUCE VOMITING.** Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. **CONSULT A PHYSICIAN** if vomiting occurs spontaneously, keep head below hips to prevent aspiration.

**Inhalation:** Remove patient to fresh air. If patient continues to experience difficulty breathing, **CONSULT A PHYSICIAN**.

## V. FIRE-FIGHTING MEASURES

<b>Suitable Extinguishing Media:</b>	Water spray, fog or foam, carbon dioxide, dry chemical, limestone powder.
<b>Fire And Explosion Hazard:</b>	Irritating and toxic fumes may be produced at high temperature. In a fire, may produce carbon monoxide, toxic nitrogen oxide, ammonia, and carbon dioxide. Use of water may result in the formation of very toxic aqueous solution. Do not allow run-off from fire fighting to enter drains or water courses.
<b>Fire Fighting Equipment and Procedures:</b>	Wear full protective clothing and self-contained breathing apparatus for fire fighting. Isolate fuel supply from fire. Clear fire area of all non-emergency personnel.

## VI. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
<b>Environmental Precautions:</b>	Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.
<b>Clean-up Methods:</b>	<b>Small spills:</b> Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal. <b>Large spills:</b> Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
<b>Additional Information:</b>	Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

## VII. STORAGE AND HANDLING

<b>Storage:</b>	Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage.
<b>Handling:</b>	To prevent skin and eye contact under the foreseeable conditions of use, wear appropriate protective clothing and safety eyewear. When handling, do not eat, drink, or smoke. Wash thoroughly after handling. Avoid breathing fumes. Handle in a well ventilated work area.

## VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Protective Measure:</b>	Wear appropriate personal protective equipment.
<b>Eye Protection:</b>	Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.
<b>Hand Protection:</b>	Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
<b>Skin and Body Protection:</b>	Wear chemical-resistant gloves and other clothing as required to minimize contact.
<b>Respirator Protection:</b>	Not required for properly ventilated areas.
<b>Exposure Limits:</b>	

Chemical Names	ACGIH (TLV)	OSHA (PEL)
Phenol, 2,4,6- trisdimethylaminomethyl	N/E	N/E

## IX. PHYSICAL PROPERTIES

<b>Form:</b>	Paste
<b>Color:</b>	Black
<b>Odor:</b>	Ammonia
<b>Boiling Point:</b>	N/E
<b>Freezing Point:</b>	N/E
<b>Vapor Pressure:</b>	N/E
<b>Flash Point:</b>	175°F Close cup
<b>Specific Gravity:</b>	1.02@ 72°F
<b>Solubility In Water:</b>	Slight

**X. REACTIVITY DATA**

**Stability:** Stable under normal storage conditions.  
**Conditions To Avoid:** Incompatible chemicals, high heat, and open flame.  
**Materials To Avoid:** Oxidizing agents and acids.  
**Hazardous Decomposition Products:** Combustion may produce carbon monoxide, carbon dioxide, and nitrogen oxide, and other organic substances.  
**Hazardous Polymerization:** Will not occur.

**XI. TOXICOLOGICAL PROPERTIES**

**Acute Oral (LD<sub>50</sub>, Rat):** N/E  
**Acute Dermal (LD<sub>50</sub>, Rabbit):** N/E  
**Acute Inhalation (LC<sub>50</sub>, Rat):** N/E  
**Chronic Health Hazard** Components of this product are not listed as carcinogens in concentrations of 0.1% or greater. Repeated or prolonged exposure may cause allergic reaction and/or limited sensitization.

**XII. DISPOSAL CONSIDERATIONS**

**Waste From Residues / Unused Products:** Dispose of container and unused contents in accordance with federal, state, and local requirements.

**XIII. TRANSPORTATION**

**US DOT(CFR):** UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.  
**IATA:** UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.  
**IMO:** UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.

**XIV. REGULATORY INFORMATION**

Country	Regulatory List
USA	TSCA

**EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification:**

Acute/Chronic Health Hazard.

**EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:**

None.

**US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65):** This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other harm.

Component	Regulation	Concentration	Remarks
Carbon Black	ACGIH	Trace	Carcinogenic

\* May be absorbed through skin.

**XV. OTHER INFORMATION**

**HMIS RATING**

Health	Flammability	Physical Hazard
3	2	0

N/E – Not Established

This Material Safety Data Sheet (MSDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this MSDS. This MSDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

# TARKSOL GREEN

## Tarksol Superstrip

### Material Safety Data Sheet

**Trade Name:** Tarksol Superstrip

**Manufacturer:** Tarksol, Inc.

3400 Ridge Road West, S-300

Rochester, New York 14626

Tel: 585-663-3346

Fax: 585-621-2303

Emergency Telephone: 585-746-7350

**Date of M.S.D.S.** 2/12/99

### SECTION 1 - IDENTIFICATION

Trade Name: Tarksol Superstrip

Chemical Family: Tarksol 97 (Terpene Alcohol), Terpene Hydrocarbons, Ester, Ketone Mixture

Formula: Trade Secret

DOT Shipping Information: Flammable Liquid- Class 3.-Packaged Group II. All packaged material must be labeled in accordance with DOT and OSHA standards. Placards in accordance with DOT 49CFR173 and 49CFR243.

CAS Number: Not Applicable (Trade Secret Mixture)

NFPA Designation: This product has not been rated by the NFPA. The Tarksol Company has developed the following rating in accordance with the guidelines listed in NFPA 704, "Identification System-Fire Hazardous of Materials, 1985".

Hazard Rating:

		Health: 2
4 - Extreme	1 - Slight	Flammability: 3
3 - High	0 - None	Reactivity: 0
2 - Moderate	X - Blank	Specific: X

## SECTION II - HAZARDOUS INGREDIENTS

Material:	% By Weight	CAS Number	LC <sub>50</sub> / LD <sub>50</sub> of Material
Pyroacetic Ether	40%	67-64-1	TWA-500 ppm STEL-750 ppm OSHA-1000 ppm

Carcinogenicity Status: NTP-No OSHA-No IARC-NO

### Trade Secret Information\*

\* This product's specific chemical identify is being withheld as a trade secret and is withheld in accordance with the provisions of CFR 1910.1200.

## SECTION III - PHYSICAL DATA

Appearance:	Clear Liquid
Odor:	Ether (Sweetish Mint-Like)
pH:	N/A Solvent
Viscosity (cps.)	12.0 cps
% Volatile:	100 %
Solubility in Water:	Miscible
Specific Gravity (Water=1):	0.801
Vapor Density (Air=1):	2.0
Vapor Pressure (mm Hg):	180.0

## SECTION IV - FIRE AND EXPLOSION

Flash Point:	17.0 deg F. (Tag Closed Cup)
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Auto Ignition Temperature:	869 deg F (465 deg C)
Flammable Limits in Air (g/l)	Upper 13.0 Lower 2.5
Extinguishing Media:	For Small Fires: Dry chemical, carbon dioxide, water spray or alcohol resistant foam.  For Large Fires: Water spray, fog or alcohol resistant foam.
Special fire Procedures:	Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Vapor/Air mixtures are explosive. Consider evacuation downwind and wear appropriate protective equipment. If possible, move containers from fire area, apply cooling water to sides of containers, ensuring that you stay away from the ends of tanks. Evacuate immediately

## SECTION V - HEALTH HAZARD INFORMATION

### Medical Conditions

**Aggravated by Exposure:** Dermatitis or Skin Conditions, Chronic Respiratory Disease

### Routes of Exposure:

- Inhalation-** May cause irritation to mucus membrane, dizziness, drowsiness, and stupor
- Skin Contact-** May cause irritation or dermatitis, defatting, cracking.
- Skin Absorption-** May cause irritation or dermatitis
- Eye Contact-** May cause stinging or burning
- Ingestion-** May cause irritation to the digestive system, skin discoloration, nausea, diarrhea, bloody vomit, inebriation (drunkenness), liver and kidney damage, coma.

### Effects of Acute Over Exposure:

- Swallowing-** May cause irritation in the digestive system
- Skin Contact-** May cause irritation or dermatitis
- Inhalation-** May cause irritation to mucus membrane and inflammation of the Respiratory Track
- Eye Contact-** May cause stinging or burning

### Effects of Chronic Over Exposure:

- Eye-** May cause eye damage, cataracts

**Skin-** May cause dermatitis and skin defatting.

**Emergency First Aid  
Procedures:**

**Eyes-** If in eyes, flush with plenty of water for at least 15 minutes. Get medical attention.

**Skin-** If on skin, immediately remove contaminated clothing and wash skin thoroughly with soap and water. If irritation persists call a physician.

**Inhalation-** If inhaled, remove to area of fresh air. If irritation persists, call a physician.

**Ingestion-** If swallowed, Induce vomiting keeping head below hips to avoid aspiration. Never give anything by mouth to an unconscious person. Call a physician or the Poison Control Center immediately. NOTE TO PHYSICIAN: NO SPECIFIC ANTIDOTE, TREAT SYMPTOMATICALLY.

**SECTION VI - REACTIVITY DATA**

**Conditions Contributing to  
Instability:**

This product is stable under normal conditions. DO NOT EXPOSE TO HEAT, FLAME OR IGNITION SOURCE.

**Incompatibility:**

Strong oxidizing agents.

**Decomposition Products:**

None Known

**Conditions Contributing to  
Hazardous Polymerization:**

Will not occur

**SECTION VII - SPILL OR LEAK PROCEDURES**

**Steps to be taken if Material is  
Released or Spilled:**

Clean up personnel must wear proper protective equipment. Reclaim material into closed containers for disposal. Dike all spills. Shut off source, if without risk. Evacuate non-essential personnel. Eliminate any source of ignition. Shovel or pump to a salvage tank using non-sparking equipment. Absorb residual material with an inert absorbent and shovel absorbed residue into properly identified drums for later disposal.

**Waste Disposal:**

Contact local officials as required.

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

**Ventilation Requirements:**

Ensure that ventilation system used is designed to meet published exposure limits. Proper handling systems should be designed for specific handling operation.

Special Personal Protective  
Equipment:

Respiratory- Use NIOSH approved organic vapor respirator.

Eyes- Chemical splash goggles and / or face shield.

Gloves- Chemical resistant gloves.

Other- When handling large quantities, use of rubber apron and rubber boots is also recommended. Safety showers and eye wash facilities should be readily available. Wash thoroughly after handling.

## SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in  
Handling:

This product must be handled by properly trained personnel. Use proper handling equipment for specific handling operation. When transferring material from one container to another ensure bonding and grounding to prevent static discharge. Do not breath vapors. Avoid all skin and eye contact by wearing proper protective equipment. Handle away from all sources of ignition and incompatible materials.

Proper Storage, Handling and  
Disposal Requirements:

Store in cool dry area. Keep container closed when not in use. Store away from strong oxidizing agents. CAUTION: KEEP OUT OF REACH OF CHILDREN.

Other Precautions:

Prolonged contact with skin may cause chapping. Wear rubber or plastic gloves, chemical splash goggles and rubber apron when handling this product. Use in well ventilated area. Respiratory protection is required. Use NIOSH approved organic vapor respirator. The availability of eye washes and safety showers in work areas is recommended.

## Regulatory Information

All ingredients are included in the Toxic Substance Control Act (TSCA) Inventory of Chemical Substances.

SARA Section 302-----No

SARA Section 304-----No

SARA Hazard Catagories

Acute Hazard-----Yes

Chronic Hazard----No

Fire Hazard-----Yes

Reactivity Hazard-No



**ATTACHMENT 3**

**OSHA 300A**

OSHA'S Form 300A  
Log of Work-Related Injuries and Illnesses

Year 2009



U.S. Department of Labor  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no work-related injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

Under the Log, count the individual entries you make for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, write "0."

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or the equivalent. See 29CFR 1904.35, in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0 (G)	0 (H)	3 (I)	4 (J)

Number of Days

Total number of days of job transfer or restriction	Total number of days away from work
144 (K)	0 (L)

Injury and Illness Types

Total number of (M)			
(1) Injuries	2	(4) Respiratory conditions	0
(2) Musculoskeletal disorders	5	(5) Poisonings	0
(3) Skin Disorders	0	(6) Hearing loss cases	0
		(7) All other injuries	0

Post this Summary Page from February 1 to April 30 of the year following the year covered by the form. Public reporting burden for the collection of information is estimated to average 50 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send completed forms to this office.

Establishment Information

Your establishment name TolTest, Inc.

Street 1480 Ford St.

City Maumee State Ohio ZIP 43537

Industry description (e.g., Manufacturer of motor truck trailers).

Environmental, Construction and Engineering

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)

562910 233320

Employment Information (If you don't have these figures, see the worksheet on the back of this page to estimate.)

Annual average number of employees 340

Total hours worked by all employees last 748,246.00

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

	President
Company Executive <u>419-794-3500</u>	Title <u>01/08/2010</u>
Phone	Date

**ATTACHMENT 4**

**HEALTH AND SAFETY PROGRAM OVERVIEW**

Approved By:

Signature on File

Richard L. Barcum, CIH, CSP, CHMM  
Corporate Safety Director

Signature on File

David D. Alleman, CPA  
President

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## **Procedure**

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### **INCIDENT PREVENTION PROGRAM: HEALTH AND SAFETY PROGRAM OVERVIEW**

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#### **1.0 PURPOSE AND OBJECTIVE**

TolTest will develop and administer an overall health and safety program. This policy and procedures manual will serve to be the vehicle through which this program is implemented. Additionally, this manual will establish a measure against which the program may be audited.

This procedure describes the TolTest health and safety program and the responsibilities of the supervisors, associates, and subcontractors. This written safety and health program will address applicable United State Safety and Health Administration (OSHA) standards set forth in 29 CFR 1910 and 29 CFR 1926 as well as various consensus standards and TolTest policies.

#### **2.0 SAFETY ORGANIZATION**

The safety program for TolTest is administered by the Corporate Safety Director reporting directly to the Chief Executive Officer.

Both the Corporate Health and Safety Department and each individual office and project location are responsible for auditing safety procedures and protocols. The office General Manager/Operating Unit Manager is responsible for administration and enforcement of the safety procedures and protocols at office locations. Project Managers and Site Supervisors are responsible for administration and enforcement of the safety procedures and protocols at project locations. The Corporate Health and Safety Department is responsible for supporting and assisting the General Manager/Operating Unit Managers, Project Managers, and Site Supervisors in the execution of the health and safety program.

### **3.0 SAFETY RESPONSIBILITY**

At TolTest, the safety and protection of associates, clients, and the community is a core value. This concern for safety is not restricted to field operations but extends to the offices and shop facilities. If an activity or condition is unsafe, the task will not proceed until the situation is corrected.

The President and Vice Presidents are the primary operational safety officials in the company. The responsibility for safety is delegated and shared by General/Operation Unit Managers, Project Managers, Site Supervisors and the associates. Health and Safety Department personnel are responsible to ensure that the primary safety officials are implementing this health and safety program.

Every associate, regardless of job title, shares the responsibility for safety and should report any unsafe condition without fear of reprisal. Both favorable and unfavorable safety reports and audits will be entered into an associate's personnel file. This will be reviewed and weighed during salary and promotion evaluations.

### **4.0 ASSOCIATE INVOLVEMENT IN HEALTH AND SAFETY PROGRAM**

TolTest encourages and, in fact, requires each and every associate to be an active participant in the development, maintenance and enhancement of the Health and Safety Program. This includes but is not limited to the following:

- Attend and actively participate in all training programs
- Attend and actively participate in tailgate safety meetings
- Review programs and procedures and recommend improvements
- Review the health and safety aspects of the job prior to assignment and make recommendations for improvements
- Question those areas in which they do not have a full and complete understanding of the health and safety controls
- Work efficiently within the health and safety controls prescribed
- Remind others to work efficiently within the health and safety controls prescribed
- Notify supervision of unsafe conditions without fear of reprisal.

- Notify the Health and Safety Department or a member of senior management if a supervisor fails to adequately address an identified unsafe condition

## **5.0 PRIMARY HEALTH AND SAFETY PROGRAM FUNCTIONS**

The primary functions of the health and safety program are:

- Defining the health and safety responsibilities of TolTest personnel
- Administration of the medical surveillance program
- Preparation of site safety plans
- Providing safety training/maintaining training records
- Providing safety procedures and protocols to be used at project sites, shops, and offices
- Conducting accident investigations and maintaining records
- Verifying OSHA compliance under 29 CFR 1910 and 1926
- Providing guidance and assistance with preparation of safety protocols for specific tasks
- Promoting health and safety consciousness within the company
- Designating the functional organization of safety committees to serve corporate and operating unit health and safety program needs.

## **6.0 MULTI-EMPLOYER WORKSITES**

TolTest performs project work as either a prime contractor or a subcontractor, therefore TolTest projects fall under the auspices of OSHA's Multi-Employer Workplace Directive. This policy states: "On multi-employer worksites (in all industry sectors), more than one employer may be citable for a hazardous condition that violates an OSHA Standard" and categorizes employers into four primary groups--Controlling, Creating, Exposing, and Correcting--and outlines the safety responsibilities of these employer types. In order to comply with this directive, as a Prime (Controlling) Contractor, TolTest will:

- Create a site-specific safety program

- Enforce the safety policy for the project site
- Provide general supervision of project activity and safety
- Exercise authority to correct safety hazards
- Exercise authority to require other specialty employers to correct safety hazards
- Conduct and document frequent and regular inspections of subcontractor site-specific work
- Conduct and document frequent and regular safety meetings with subcontractors
- Require each subcontractor to implement their own safety and health program. Note: In the event that there is a contradiction between TolTest a subcontractor regarding health and safety policy, the subcontractor will be required to follow the more stringent and conservative requirement.
- Require each subcontractor to designate a health and safety representative for the project
- Require each subcontractor to share information about hazards, control, safety and health rules, and emergency procedures at the worksite with TolTest and other subcontractors
- Document that all of the above requirements are being performed as required

In order to comply with this directive, as a subcontractor (creating, exposing, or correcting employer) TolTest will:

- Create a site-specific safety program for TolTest work
- Enforce the safety policy for the project site as it pertains to TolTest associates
- Provide supervision of TolTest project activity and safety
- Exercise authority to correct safety hazards as they pertain to TolTest's scope of work
- Conduct frequent and regular inspections and safety meetings on a consistent and regular basis to protect their employees from safety hazards on the project site

- Provide an effective system to enforce the prompt correction of hazards, both recognized and foreseeable
- Inform the controlling contractor/employer of the hazard and take the appropriate steps to keep all associates away from the hazardous condition until it is fixed
- Designate a project health and safety representative
- Share information about hazards, control, safety and health rules, and emergency procedures at the worksite with the Prime Contractor and other subcontractors
- Document that all of the above requirements are being performed as required

## **7.0 REGULATORY COMPLIANCE POLICY**

The policy of TolTest is to comply with all federal, state, local, and client regulations. It is the responsibility of all personnel to perform all work in full compliance with appropriate regulations. Safety and health personnel will immediately bring any condition regarding health and safety compliance to the attention of supervisory operating personnel.

TolTest will ensure regulatory compliance by all of its subcontractors, including OSHA 300 forms, safety records, OSHA training and medical surveillance.

## **8.0 SAFETY GOALS**

The goal of the health and safety program is to ensure a safe working environment, protect workers from harm, and protect the company from liability associated with an unsafe working environment.

Other goals are to eliminate workplace incidents, gain associate acceptance through cooperation and training, and provide our clients with a responsible, well-trained, safety oriented work force.

## **9.0 SAFETY TRAINING**

TolTest will ensure that personnel have sufficient training to execute their jobs in a safe and healthy manner. If associates lack the required training, TolTest will provide it.

The supervisor is responsible to determine the training requirements of a task and ensure associates have the necessary training to complete the task safely. Health and safety personnel will assist with this determination and training.

The Corporate Health and Safety Department is responsible to audit compliance with training requirements and communicate this information to the General/Operating Unit Managers.

Training records and documentation will be maintained by the Corporate Health and Safety Department. Office locations may elect to maintain copies of training records but Corporate Health and Safety will be the central repository of all training records.

## **10.0 MEDICAL SURVEILLANCE**

All associates are subject to the TolTest medical surveillance program. This program conforms to federal OSHA requirements and is titled HS100: Medical Policies and Procedures.

## **11.0 INCIDENT INVESTIGATION**

All incidents will be thoroughly investigated by the supervisor of the associate(s) involved in the incident. Instructions for completing the investigation are contained in IPP200: Reporting, Investigation, Review.

Serious incidents, such as those involving hospitalization or injuries requiring more than one visit to a physician, may be investigated by the Corporate Health and Safety Department.

## **12.0 FIRST AID**

Each facility and work location must be evaluated to determine the potential requirement for medical emergencies. At a minimum, a first-aid kit will be provided. An adequate number of associates with current certification in first aid and cardiopulmonary resuscitation (CPR) will be maintained on project sites.

The Project Manager or designee shall ensure that emergency medical attention is readily available. If site conditions require, a subcontract emergency medical technician (EMT) and/or ambulance will be provided on site.

On every TolTest project or office location, the Project Manager, General Manager or designee is required to develop, document and communicate a site specific Emergency Response Plan. At a minimum, this plan will include a map of the project site depicting facility/project evacuation routes, evacuation procedures, evacuation

staging areas, a map to the nearest emergency medical facility, and the appropriate means to summon emergency medical services. The Emergency Response Plan will be communicated to each TolTest associate prior to beginning work on the project and addressed periodically during scheduled safety meetings. The plan will be provided to each TolTest subcontractor. TolTest subcontractors will be required to provide documentation that they communicated the plan to their employees prior to each employee starting work on the project site. The plan will be provided to each non-TolTest subcontractor working on the same project site as TolTest. The communication of the plan to non-TolTest subcontractors will be documented in the project daily logs.

### **13.0 POSITION STATEMENT ON MODIFIED WORK**

TolTest will attempt to eliminate all incidents through strict compliance with OSHA regulations and TolTest health and safety procedures, as well as supervisor and associate safety training, safety audits, and constant attention to safety. Should an associate be injured or become ill in the course of and arising from his/her employment, TolTest will attempt to provide modified work. Modified work (light duty) will be made available in order to bring the injured associate back to the work environment, for the benefit of the associate and the company, whenever medically appropriate.

Associates are expected to return to modified work when medically capable. The work assigned to the injured associate will meet the restrictions set forth by the treating and/or company physician. Examples of modified work include, but are not limited to office work and light shop work.

### **14.0 FIELD SAFETY INSPECTIONS**

Periodic safety inspections will be made of the work area. The inspection will be conducted according to the parameters outlined in IPP202: Health and Safety Inspections. Discrepancies found during inspections will be corrected as soon as practicable. Serious safety violations will be corrected immediately.

Additionally, the Corporate Health and Safety Department may make periodic unannounced inspections of work sites at their own discretion or at the request of an associate, supervisor, or manager.

### **15.0 REVIEW OF HEALTH AND SAFETY STATISTICS**

Group/Unit Managers are required to review incident statistics on the following schedule. These statistics will be furnished by the Corporate Health and Safety Department.

### Quarterly

Incident Rates by Division  
Summary of all incident for the following quarter

### Annually

OSHA 300 Form Summary (post February 1 through April 30)  
Incident Rates by Division  
Summary of all incidents for the following year

## **16.0 SPECIFIC WRITTEN SAFETY PROCEDURES**

Certain safety procedures, for example, confined space entry, have been established which require specific permits to be prepared prior to work in order to ensure that operations or tasks are conducted safely and in full compliance with OSHA and other applicable regulations.

All TolTest personnel who may be required to use these procedures will receive training and will be held accountable to comply with the permit requirements.

## **17.0 STATE OSHA AND OTHER REGULATIONS**

Where state, local, or client regulations differ from federal regulation cited in this manual, the more stringent regulation will apply. If necessary, the Manager, Corporate Health and Safety will modify this manual with a state specific procedure by attaching an amendment to this manual.

A list of states with their own OSHA regulations is included in Attachment 2.

## **18.0 CHANGES**

Any user of this manual is welcome to recommend changes. Any associate may recommend changes to this manual. Changes normally result from finding errors, regulatory changes, new regulations, equipment modification, new equipment purchases, and changes to operational procedures. The format for making a recommended change is:

- 18.1 Submit a written recommendation to the Corporate Health and Safety Department via your immediate supervisor.

- 18.2 The Corporate Health and Safety Department will review the recommendation. Recommendations warranting inclusion in this manual will be forwarded to the Manager, Corporate Health and Safety.
- 18.3 After review, the Manager, Corporate Health and Safety will determine if the suggestion(s) should be included as an amendment or new procedure in this manual.
- 18.4 Changes to this manual will be distributed immediately upon approval. Periodically, this manual will be republished.

## **19.0 EXCEPTION PROVISIONS**

Variances to this procedure shall be requested in accordance with established variance procedures.

## **20.0 ATTACHMENTS**

- 1. Regional OSHA Offices
- 2. State-Plan States

## **ATTACHMENT 1**

### **REGIONAL OSHA OFFICES**

#### **Federal OSHA**

##### **REGION 1**

**(CT\*, MA, ME, NH, RI, VT\*)**

##### **Regional Office**

JFK Federal Building, Room E340  
Boston, Massachusetts 02203  
(617) 565-9860  
(617) 565-9827 FAX

##### **REGION 3**

**(DC, DE, MD\*, PA, VA\*, WV)**

##### **Regional Office**

U.S. Department of Labor/OSHA  
The Curtis Center-Suite 740 West  
170 S. Independence Mall West  
Philadelphia, PA 19106-3309  
TELE: (215) 861-4900  
FAX: (215) 861-4904

##### **REGION 5**

**(IL, IN\*, MI\*, MN\*, OH, WI)**

##### **Regional Office**

230 South Dearborn Street, Room 3244  
Chicago, Illinois 60604  
(312) 353-2220  
(312) 353-7774 FAX

##### **Region 7**

**(IA\*, KS, MO, NE)**

##### **Regional Office**

City Center Square  
1100 Main Street, Suite 800  
Kansas City, MO 64105  
(816) 426-5861

##### **REGION 2**

**(NJ, NY\*, PR\*, VI\*)**

##### **Regional Office**

201 Varick Street, Room 670  
New York, New York 10014  
(212) 337-2378  
(212) 337-2371 FAX

##### **REGION 4**

**(AL, FL, GA, KY\*, MS, NC\*, SC\*, TN\*)**

##### **Regional Office**

61 Forsyth Street, SW  
Atlanta, Georgia 30303  
(404) 562-2300  
(404) 562-2295 FAX

##### **REGION 6**

**(AR, LA, NM\*, OK, TX)**

##### **Regional Office**

525 Griffin Street, Room 602  
Dallas, Texas 75202  
(214) 767-4731  
(214) 767-4137 FAX

##### **Region 8**

**(CO, MT, ND, SD, UT\*, WY\*)**

##### **Regional Office**

1999 Broadway, Suite 1690  
Denver, CO 80202  
303-844-1600)

**Region 9**

**(American Samoa, AZ\*, CA\*, Guam, HI\*, NV,  
Trust Territories of the Pacific)**

**Regional Office**

71 Stevenson Street  
Room 420  
San Francisco, CA 94105  
415-975-4310

**REGION 10**

**(AK\*, ID, OR\*, WA\*)**

**Regional Office**

1111 Third Avenue, Suite 715  
Seattle, Washington 98101-3212  
(206) 553-5930  
(206) 553-6499 FAX

\* These states and territories operate their own OSHA-approved job safety and health programs (Connecticut and New York plans cover public employees only). States with approved programs must have a standard that is identical to, or at least as effective, as the federal standard.

## ATTACHMENT 2

### STATE PLAN STATES

**Alaska** Department of Labor and Workforce  
Development  
P.O. Box 21149  
1111 W. 8th Street, Room 306  
Juneau, Alaska 99802-1149  
Ed Flanagan, Commissioner (907) 465-2700  
Fax: (907) 465-2784  
Richard Mastriano, Program Director (907) 269-4904  
Fax: (907) 269-4915

Industrial Commission of **Arizona**  
800 W. Washington  
Phoenix, Arizona 85007-2922  
Larry Etchechury, Director, ICA(602) 542-4411  
Fax: (602) 542-1614  
Darin Perkins, Program Director (602) 542-5795  
Fax: (602) 542-1614

**California** Department of Industrial Relations  
455 Golden Gate Avenue - 10th Floor  
San Francisco, California 94102  
Steve Smith, Director (415) 703-5050  
Fax:(415) 703-5114  
Dr. John Howard, Chief (415) 703-5100  
Fax: (415) 703-5114  
Vernita Davidson, Manager, Cal/OSHA Program  
Office (415) 703-5177 Fax: (415) 703-5114

**Hawaii** Department of Labor and Industrial Relations  
830 Punchbowl Street  
Honolulu, Hawaii 96813  
Leonard Agor, Director (808) 586-8844 Fax: (808)  
586-9099  
Jennifer Shishido, Administrator (808) 586-9116  
Fax: (808) 586-9104

**Connecticut** Department of Labor  
200 Folly Brook Boulevard  
Wethersfield, Connecticut 06109  
Shaun Cashman, Commissioner (860) 566-5123  
Fax: (860) 566-1520

Conn-OSHA (**Connecticut**)  
38 Wolcott Hill Road  
Wethersfield, Connecticut 06109  
Donald Heckler, Director (860) 566-4550 Fax: (860)  
566-6916

**Indiana** Department of Labor  
State Office Building  
402 West Washington Street, Room W195  
Indianapolis, Indiana 46204-2751  
John Griffin, Commissioner (317) 232-2378  
Fax: (317) 233-3790  
John Jones, Deputy Commissioner (317) 232-3325  
Fax: (317) 233-3790

**Iowa** Division of Labor  
1000 E. Grand Avenue  
Des Moines, Iowa 50319-0209  
Byron K. Orton, Commissioner (515) 281-6432  
Fax: (515) 281-4698  
Mary L. Bryant, Administrator (515) 281-3469  
Fax: (515) 281-7995

**Kentucky** Labor Cabinet  
1047 U.S. Highway 127 South, Suite 4  
Frankfort, Kentucky 40601  
Joe Norsworthy, Secretary (502) 564-3070  
Fax: (502) 564-5387  
William Ralston, Federal/State Coordinator  
(502) 564-3070 ext.240 Fax: (502) 564-1682

**Maryland** Division of Labor and Industry  
Department of Labor, Licensing and Regulation  
1100 North Eutaw Street, Room 613  
Baltimore, Maryland 21201-2206  
Kenneth P. Reichard, Commissioner (410) 767-2999  
Fax: (410) 767-2300  
Ileana O'Brien, Deputy Commissioner (410) 767-2992  
Fax: 767-2003  
Keith Goddard, Assistant Commissioner, MOSH  
(410) 767-2215 Fax: 767-2003

**Michigan** Department of Consumer and Industry  
Services - Bureau of Safety and Regulation  
P.O. Box 30643  
Lansing, MI 48909-8143  
Douglas R. Earle, Director  
(517) 322-1814 Fax: (517)322-1775

**Minnesota** Department of Labor and Industry  
443 Lafayette Road  
St. Paul, Minnesota 55155  
Gretchen B. Maglich, Commissioner (651) 296-2342  
Fax: (651) 282-5405  
Roslyn Wade, Assistant Commissioner  
(651) 296-6529 Fax: (651) 282-5293  
Patricia Todd, Administrative Director, OSHA  
Management Team  
(651) 282-5772 Fax: (651) 297-2527

**Nevada** Division of Industrial Relations  
400 West King Street, Suite 400  
Carson City, Nevada 89703  
Roger Bremmer, Administrator (775) 687-3032  
Fax: (775) 687-6305

**Nevada** Occupational Safety and Health Enforcement  
Section (OSHES)  
1301 N. Green Valley Parkway  
Henderson, Nevada 89014  
Tom Czehowski, Chief Administrative Officer  
(702) 486-9168 Fax: (702) 990-0358  
[Las Vegas (702) 687-5240]

**New Jersey** Department of Labor  
John Fitch Plaza - Labor Building  
Market and Warren Streets  
P.O. Box 110  
Trenton, New Jersey 08625-0110  
Mark B. Boyd, Commssioner (609) 292-2975  
Fax: (609) 633-9271  
Leonard Katz, Assistant Commissioner  
(609) 292-2313 Fax: (609) 1314  
Louis J. Lento, Program Director, PEOSH  
(609) 292-3923 Fax: (609) 292-4409

**New Mexico** Environment Department  
1190 St. Francis Drive  
P.O. Box 26110  
Santa Fe, New Mexico 87502  
Peter Maggiore, Secretary (505) 827-2850 Fax: (505)  
827-2836  
Sam A. Rogers, Chief (505) 827-4230 Fax: (505) 827-  
4422

**New York** Department of Labor  
W. Averell Harriman State Office Building - 12,  
Room 500  
Albany, NY 12240  
Linda Angello, Commissioner (518) 457-2746  
Fax: (518) 457-6908  
Richard Cucolo, Director, Division of Safety and  
Health  
(518) 457-3518 Fax: (518) 457-1519

**North Carolina** Department of Labor  
4 West Edenton Street  
Raleigh, North Carolina 27601-1092  
Cherie Berry, Commissioner (919) 807-2900  
Fax: (919) 807-2855  
John Johnson, Deputy Commissioner, OSH Director  
(919) 807-2861 Fax: (919) 807-2855  
Kevin Beauregard, OSH Assistant Director  
(919) 807-2863 Fax: (919) 807-2856

**Oregon** Occupational Safety and Health Division  
Department of Consumer & Business Services  
350 Winter Street, NE, Room 430  
Salem, Oregon 97310-0220  
Peter DeLuca, Administrator (503) 378-3272  
Fax: (503) 947-7461  
David Sparks, Deputy Administrator for Policy  
(503) 378-3272 Fax: (503) 947-7461  
Michele Patterson, Deputy Administrator for  
Operations (503) 378-3272 Fax: (503) 947-7461

**Puerto Rico** Department of Labor and Human  
Resources  
Prudencio Rivera Martínez Building  
505 Muñoz Rivera Avenue  
Hato Rey, Puerto Rico 00918  
Víctor Rivera Hernández, Secretary  
(787) 754-2119 Fax: (787) 753-9550  
Brenda Sepúlveda, Assistant Secretary for  
Occupational Safety and Health  
(787) 756-1100, 1106 / 754-2171 Fax: (787) 767-6051  
José Droz, Deputy Director for Occupational Safety  
and Health  
(787) 756-1100, 1106 / 754-2188 Fax: (787) 767-6051

**South Carolina** Department of Labor , Licensing, and  
Regulation  
Koger Office Park, Kingstree Building  
110 Centerview Drive  
PO Box 11329  
Columbia, South Carolina 29211  
Rita McKinney, Director (803) 896-4300  
Fax: (803) 896-4393  
William Lybrand, Program Director (803) 734-9644  
Fax: (803) 734-9772

**Tennessee** Department of Labor  
710 James Robertson Parkway  
Nashville, Tennessee 37243-0659  
Michael E. Magill, Commissioner (615) 741-2582  
Fax: (615) 741-5078  
John Winkler, Acting Program Director  
(615) 741-2793 Fax: (615) 741-3325

**Utah** Labor Commission  
160 East 300 South, 3rd Floor  
PO Box 146650  
Salt Lake City, Utah 84114-6650  
R. Lee Ellertson, Commissioner (801) 530-6901  
Fax: (801) 530-7906  
Jay W. Bagley, Administrator (801) 530-6898  
Fax: (801) 530-6390

**Vermont** Department of Labor and Industry  
National Life Building - Drawer 20  
Montpelier, Vermont 05620-3401  
Tasha Wallis, Commissioner (802) 828-2288  
Fax: (802) 828-2748  
Robert McLeod, Project Manager (802) 828-2765  
Fax: (802) 828-2195

**Virgin Islands** Department of Labor  
2203 Church Street  
Christiansted, St. Croix, Virgin Islands 00820-4660  
Cecil R. Benjamin, Acting Commissioner  
(340) 773-1990 Fax: (340) 773-1858  
Marcelle Heywood, Program Director (340) 772-1315  
Fax: (340) 772-4323

**Virginia** Department of Labor and Industry  
Powers-Taylor Building  
13 South 13th Street  
Richmond, Virginia 23219  
Jeffrey Brown, Commissioner (804) 786-2377  
Fax: (804) 371-6524  
Jay Withrow, Director, Office of Legal Support (804)  
786-9873 Fax: (804) 786-8418

**Washington** Department of Labor and Industries  
General Administration Building  
PO Box 44001  
Olympia, Washington 98504-4001  
Gary Moore, Director (360) 902-4200  
Fax: (360) 902-4202  
Michael Silverstein, Assistant Director [PO Box  
44600] (360) 902-5495 Fax: (360) 902-5529  
Steve Cant, Program Manager, Federal-State  
Operations [PO Box 44600]  
(360) 902-5430 Fax: (360) 902-5529

**Wyoming** Department of Employment  
Workers' Safety and Compensation Division  
Herschler Building, 2nd Floor East  
122 West 25th Street  
Cheyenne, Wyoming 82002  
Stephan R. Foster, Safety Administrator  
(307) 777-7786 Fax: (307) 777-3646

**ATTACHMENT 5**

**INCIDENT REPORTING FORMS**

(For Safety Staff only)	REPORT NO.	EROC CODE	<b>UNITED STATES ARMY CORPS OF ENGINEERS</b> <b>ACCIDENT INVESTIGATION REPORT</b> <i>(For Use of this Form See Help Menu and USACE Suppl to AR 385-40)</i>		REQUIREMENT CONTROL SYMBOL: CEEC-S-8(R2)
<b>1. ACCIDENT CLASSIFICATION</b>					
PERSONNEL CLASSIFICATION		INJURY/ILLNESS/FATAL		PROPERTY DAMAGE	MOTOR VEHICLE INVOLVED
GOVERNMENT <input type="checkbox"/> CIVILIAN <input type="checkbox"/> MILITARY		<input type="checkbox"/>		<input type="checkbox"/> FIRE INVOLVED <input type="checkbox"/> OTHER	<input type="checkbox"/>
<input type="checkbox"/> CONTRACTOR		<input type="checkbox"/>		<input type="checkbox"/> FIRE INVOLVED <input type="checkbox"/> OTHER	<input type="checkbox"/>
<input type="checkbox"/> PUBLIC		<input type="checkbox"/> FATAL <input type="checkbox"/> OTHER		X	
<b>2. PERSONAL DATA</b>					
a. Name (Last, First, MI)		b. AGE	c. SEX <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE		d. SOCIAL SECURITY NUMBER (Last 4 or 0000)
e. GRADE					
f. JOB SERIES/TITLE		g. DUTY STATUS AT TIME OF ACCIDENT		h. EMPLOYMENT STATUS AT TIME OF ACCIDENT	
		<input type="checkbox"/> ON DUTY <input type="checkbox"/> TDY  <input type="checkbox"/> OFF DUTY		<input type="checkbox"/> ARMY ACTIVE <input type="checkbox"/> ARMY RESERVE <input type="checkbox"/> VOLUNTEER <input type="checkbox"/> PERMANENT <input type="checkbox"/> FOREIGN NATIONAL <input type="checkbox"/> SEASONAL <input type="checkbox"/> TEMPORARY <input type="checkbox"/> STUDENT <input type="checkbox"/> OTHER (Specify) _____	
<b>3. GENERAL INFORMATION</b>					
a. DATE OF ACCIDENT	b. TIME OF ACCIDENT (Military time)	c. EXACT LOCATION OF ACCIDENT			d. CONTRACTOR'S NAME
	hrs				(1) PRIME:
e. CONTRACT NUMBER	f. TYPE OF CONTRACT		g. HAZARDOUS/TOXIC WASTE ACTIVITY		(2) SUBCONTRACTOR:
<input type="checkbox"/> CIVIL WORKS <input type="checkbox"/> MILITARY <input type="checkbox"/> OTHER (Specify) _____	<input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> SERVICE <input type="checkbox"/> A/E <input type="checkbox"/> DREDGE <input type="checkbox"/> OTHER (Specify) _____		<input type="checkbox"/> SUPERFUND <input type="checkbox"/> DERP <input type="checkbox"/> IRP <input type="checkbox"/> OTHER (Specify) _____		
<b>4. CONSTRUCTION ACTIVITIES ONLY (Fill in line and corresponding code number in box from list - see help menu)</b>					
a. CONSTRUCTION ACTIVITY (CODE)			b. TYPE OF CONSTRUCTION EQUIPMENT (CODE)		
<b>5. INJURY/ILLNESS INFORMATION (Include name on line and corresponding code number in box for items e, f &amp; g - see help menu)</b>					
a. SEVERITY OF ILLNESS/INJURY (CODE)			b. ESTIMATED DAYS LOST	c. ESTIMATED DAYS HOSPITALIZED	d. ESTIMATED DAYS RESTRICTED DUTY
e. BODY PART AFFECTED (CODE)			g. TYPE AND SOURCE OF INJURY/ILLNESS (CODE)		
PRIMARY			TYPE		
SECONDARY			SOURCE		
f. NATURE OF ILLNESS/INJURY (CODE)					
<b>6. PUBLIC FATALITY (Fill in line and correspondence code number in box - see help menu)</b>					
a. ACTIVITY AT TIME OF ACCIDENT (CODE)			b. PERSONAL FLOATATION DEVICE USED?		
			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		
<b>7. MOTOR VEHICLE ACCIDENT</b>					
a. TYPE OF VEHICLE		b. TYPE OF COLLISION		c. SEAT BELTS	USED    NOT USED    NOT AVAILABLE
<input type="checkbox"/> PICKUP/VAN <input type="checkbox"/> AUTOMOBILE <input type="checkbox"/> TRUCK <input type="checkbox"/> OTHER (Specify) _____		<input type="checkbox"/> SIDE SWIPE <input type="checkbox"/> HEAD ON <input type="checkbox"/> REAR END <input type="checkbox"/> BROADSIDE <input type="checkbox"/> ROLL OVER <input type="checkbox"/> BACKING <input type="checkbox"/> OTHER (Specify) _____		(1) FRONT SEAT	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
				(2) REAR SEAT	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>8. PROPERTY/MATERIAL INVOLVED</b>					
a. NAME OF ITEM		b. OWNERSHIP		c. \$ AMOUNT OF DAMAGE	
(1)					
(2)					
(3)					
<b>9. VESSEL/FLOATING PLANT ACCIDENT (Fill in line and correspondence code number in box from list - see help menu)</b>					
a. TYPE OF VESSEL/FLOATING PLANT (CODE)			b. TYPE OF COLLISION/MISHAP (CODE)		
<b>10. ACCIDENT DESCRIPTION (Use additional paper, if necessary)</b>					
Do Not Use - Go To Page 3 Accident Description					

<b>11. CAUSAL FACTOR(S)</b> <i>(Read Instruction Before Completing)</i>					
<b>a. (Explain YES answers in item 13)</b>  DESIGN: Was design of facility, workplace or equipment a factor? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> OPERATING PROCEDURES: Were operating procedures a factor? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/>		<b>a. (CONTINUED)</b>  CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident? <span style="float: right;">YES NO</span> <input type="checkbox"/> <input type="checkbox"/> <b>b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?</b> <input type="checkbox"/> YES <i>(If yes, attach a copy.)</i> <input type="checkbox"/> NO			
<b>12. TRAINING</b>					
<b>a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?</b> <input type="checkbox"/> YES <input type="checkbox"/> NO		<b>b. TYPE OF TRAINING.</b> <input type="checkbox"/> CLASSROOM <input type="checkbox"/> ON JOB		<b>c. DATE OF MOST RECENT FORMAL TRAINING.</b>	
<b>13. FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES</b> <i>(See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)</i>					
<b>a. DIRECT CAUSE</b> <div style="text-align: center;">Do Not Use - Go To Page 3 Direct Cause</div>					
<b>b. INDIRECT CAUSE(S)</b> <div style="text-align: center;">Do Not Use - Go To Page 4 Indirect Cause</div>					
<b>14. ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).</b>					
<b>DESCRIBE FULLY:</b>  <div style="text-align: center;">Do Not Use - Go To Page 4 Actions Taken...</div>					
<b>15. DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.</b>					
<b>a. BEGINNING</b>		<b>b. ANTICIPATED COMPLETION</b>			
<b>c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT</b> CORPS _____ CONTRACTOR _____		<b>d. DATE (Mo/Da/Yr)</b>		<b>e. ORGANIZATION IDENTIFIER (Div, Br, Sect)</b>	
				<b>f. OFFICE SYMBOL</b>	
<b>16. MANAGEMENT REVIEW (1st)</b>					
<b>a.</b> <input type="checkbox"/> CONCUR <b>b.</b> <input type="checkbox"/> NON CONCUR <b>c. COMMENTS</b>					
SIGNATURE		TITLE		DATE	
<b>17. MANAGEMENT REVIEW (2nd - Chief Operations, Construction, Engineering, etc.)</b>					
<b>a.</b> <input type="checkbox"/> CONCUR <b>b.</b> <input type="checkbox"/> NON CONCUR <b>c. COMMENTS</b>					
SIGNATURE		TITLE		DATE	
<b>18. SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW</b>					
<b>a.</b> <input type="checkbox"/> CONCUR <b>b.</b> <input type="checkbox"/> NON CONCUR <b>c. ADDITIONAL ACTIONS/COMMENTS</b>					
SIGNATURE		TITLE		DATE	
<b>19. COMMAND APPROVAL</b>					
COMMENTS					
COMMANDER SIGNATURE					DATE

10.	<b>ACCIDENT DESCRIPTION</b> <i>(Continuation)</i>
13a.	<b>DIRECT CAUSE</b> <i>(Continuation)</i>

13b.

**INDIRECT CAUSES** *(Continuation)*

14.

**ACTION(S) TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE(S)** *(Continuation)*

## ATTACHMENT 1 ASSOCIATE INJURY REPORT

This report is to be initiated by the associate's supervisor. Please answer all questions completely. This report must be forwarded to the Manager, Corporate Health and Safety within 24 hours of the injury/illness.

Injured's Name \_\_\_\_\_ Sex \_\_\_\_\_ SSN \_\_\_\_\_ Birth Date \_\_\_\_\_  
Home Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone ( ) \_\_\_\_\_  
Job Title \_\_\_\_\_ Hire Date \_\_\_\_\_ Hourly Wage \_\_\_\_\_

Date of Incident \_\_\_\_\_ Time \_\_\_\_\_ Time Reported \_\_\_\_\_ To Whom? \_\_\_\_\_

Project/Department Name \_\_\_\_\_ Address \_\_\_\_\_

Project No \_\_\_\_\_ Time Shift Began \_\_\_\_\_ Did Associate Leave Work? ☐ No ☐ Yes When? \_\_\_\_\_

Has associate returned to work? ☐ No ☐ Yes When \_\_\_\_\_ Did associate miss a regularly scheduled shift? ☐ No ☐ Yes

Doctor/Hospital Name \_\_\_\_\_ Address \_\_\_\_\_

Witness Name(s) \_\_\_\_\_ Statement Attached? ☐ No ☐ Yes

Nature of Injury \_\_\_\_\_ Exact Body Part \_\_\_\_\_

Medical Attention: ☐ None ☐ First Aid On Site ☐ Doctor's Office ☐ Hospital ER ☐ Hospitalized

Job Assignment at Time of Incident \_\_\_\_\_

Describe Incident \_\_\_\_\_

Associate: \_\_\_\_\_  
Print Signature Date

Comments on Incident and Corrective Action(s) \_\_\_\_\_

What Unsafe Condition(s) and/or Act(s) Contributed to the Incident? \_\_\_\_\_

What Corrective Action(s) Have Been Taken to Prevent Recurrence? \_\_\_\_\_

Supervisor: \_\_\_\_\_  
Print Signature Date

## ASSOCIATE INJURY REPORT

### CONTINUED

Manager, Corporate Health and Safety

Concur With Action Taken? ☐ Yes ☐ No Remarks \_\_\_\_\_

OSHA Classification: ☐ First Aid ☐ Recordable, No Lost/Restricted Workdays

☐ Recordable, Lost Workdays ☐ Recordable, Restricted Activity ☐ Fatality

Days Away From Work \_\_\_\_\_ Days Restricted Work \_\_\_\_\_

Worker's Compensation Claim Number (if applicable) \_\_\_\_\_

TolTest Tracking No. \_\_\_\_\_

Verbal Received (Date/Time) \_\_\_\_\_ Report Received (Date/Time) \_\_\_\_\_

Drug Screen ☐ Yes ☐ No Alcohol Screen ☐ Yes ☐ No

Manager, Corporate Health and Safety:

\_\_\_\_\_  
Print Signature Date

A. Type of Injury or Illness Code: \_\_\_\_\_ E. Agent Code: \_\_\_\_\_

B. Injured Body Part Code: \_\_\_\_\_ F. Safety Rule Violated Code: \_\_\_\_\_

C. Activity at Time of Incident Code: \_\_\_\_\_ G. Incident Prevention Code: \_\_\_\_\_

D. Injury Cause Code: \_\_\_\_\_ H. Instruction/RE-Instruction Code: \_\_\_\_\_

## ATTACHMENT 2 GENERAL LIABILITY, PROPERTY DAMAGE AND LOSS REPORT

This report is to be completed for all losses or damage to company property in excess of \$1000 and all third party damage, regardless of value, resulting from company activities.

Project/Department/Location \_\_\_\_\_ Project No. \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

How Did Damage or Loss Occur: \_\_\_\_\_

Description and Value (\$) of Damaged/Lost/Stolen Property: \_\_\_\_\_

Location of Damaged/Lost/Stolen Property (Before Loss): \_\_\_\_\_

Date and Time of Damage, Loss or Theft: \_\_\_\_\_

### Owner of Damaged/Lost/Stolen Property:

Name \_\_\_\_\_ Phone No. ( ) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

Employer and Address \_\_\_\_\_

### Injured Parties (Also completed a Supervisor's Associate Injury Report if a Company Associate):

Name \_\_\_\_\_ Phone No. ( ) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

Employer and Address \_\_\_\_\_

Description of Injury \_\_\_\_\_

### Witnesses:

1. Name \_\_\_\_\_ Phone No. ( ) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

Employer and Address \_\_\_\_\_

2. Name \_\_\_\_\_ Phone No. ( ) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

Employer and Address \_\_\_\_\_

Were Pictures Taken? ☐ Yes ☐ No

Were Police Notified? ☐ Yes ☐ No Dept \_\_\_\_\_ Report No. \_\_\_\_\_

### Completed By:

\_\_\_\_\_  
Print Signature Date

### Manager, Corporate Health and Safety:

\_\_\_\_\_  
Print Signature Date

### ATTACHMENT 3 INCIDENT INVESTIGATION REPORT

**\* MUST BE COMPLETED WITHIN 72 HOURS \***

Investigation Date \_\_\_\_\_ Date of Incident \_\_\_\_\_

Employee Name \_\_\_\_\_

Supervisor Name \_\_\_\_\_

Dept. Name/Project Number/Project Name \_\_\_\_\_

Location of Incident \_\_\_\_\_

▪ Incident Classification

Injury ☐ First Aid Vehicle ☐ Chargeable DOT ☐ DOT Vehicle  
☐ OSHA Recordable ☐ Non-Chargeable ☐ DOT Reportable  
☐ Lost Workday  
☐ Restricted Workday Near Miss ☐ General Liability ☐

- Description (Provide facts, describe how incident occurred, provide diagram [on back] or photos)

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- Analysis 1 (What unsafe acts or conditions contributed to the incident?)

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- Analysis 2 (What systematic or management deficiencies contributed to incident?)

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- Corrective Action(s) (List corrective action items, responsible person, scheduled completion date)

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- Witnesses (Attach statements or indicate why unavailable)

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Investigated By \_\_\_\_\_  
Print Signature Date

Manager, Corp.  
Health and Safety \_\_\_\_\_  
Print Signature Date

## ATTACHMENT 4 VEHICLE INCIDENT REPORT

This report is to be initiated by the associate involved in the incident or his/her direct supervisor. Please answer all questions completely. This report must be forwarded to the Manager, Corporate Health and Safety within 24 hours of the incident.

INCIDENT DESCRIPTION

INCIDENT DATE \_\_\_\_\_ TIME \_\_\_\_\_ A.M. or P.M.  
LOCATION OF INCIDENT (ADDRESS, CITY AND STATE) \_\_\_\_\_  
DESCRIPTION OF INCIDENT \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
WITNESS \_\_\_\_\_ PHONE NO. ( ) \_\_\_\_\_  
ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
POLICE OFFICER'S NAME \_\_\_\_\_ DEPARTMENT \_\_\_\_\_

COMPANY VEHICLE

DRIVER \_\_\_\_\_ DRIVERS LICENSE \_\_\_\_\_ STATE \_\_\_\_\_  
ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
WORK PHONE NO ( ) \_\_\_\_\_ SSN \_\_\_\_\_ PROJECT NAME/NO \_\_\_\_\_ OFFICE/DEPT \_\_\_\_\_  
VEHICLE NO \_\_\_\_\_ YEAR \_\_\_\_\_ MAKE \_\_\_\_\_ MODEL \_\_\_\_\_ LICENSE PLATE NO \_\_\_\_\_  
STATE \_\_\_\_\_ VEHICLE OWNER \_\_\_\_\_ COMPANY \_\_\_\_\_ LEASED/RENTED \_\_\_\_\_ PRIVATE VEHICLE \_\_\_\_\_  
VEHICLE TYPE \_\_\_\_\_ COMMERCIAL MOTOR VEHICLE \_\_\_\_\_ NON COMMERCIAL \_\_\_\_\_  
IF NOT COMPANY-OWNED: OWNER \_\_\_\_\_ PHONE NO ( ) \_\_\_\_\_  
ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
VEHICLE DAMAGE \_\_\_\_\_  
NO. OF VEHICLES TOWED FROM SCENE \_\_\_\_\_ NUMBER OF INJURIES \_\_\_\_\_ NUMBER OF FATALITIES \_\_\_\_\_  
WERE HAZARDOUS MATERIALS RELEASED? \_\_\_\_\_ YES \_\_\_\_\_ NO IF YES, DESCRIBE MATERIALS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

OTHER VEHICLE

DRIVER \_\_\_\_\_ DRIVERS LICENSE \_\_\_\_\_ STATE \_\_\_\_\_  
ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE NO ( ) \_\_\_\_\_ SSN \_\_\_\_\_  
OWNERS NAME (CHECK IF SAME AS DRIVER) \_\_\_\_\_  
ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
INSURANCE COMPANY \_\_\_\_\_ POLICY NO \_\_\_\_\_  
ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
VEHICLE: YEAR \_\_\_\_\_ MAKE \_\_\_\_\_ MODEL \_\_\_\_\_ PLATE NO \_\_\_\_\_ STATE \_\_\_\_\_  
VEHICLE IDENTIFICATION NUMBER \_\_\_\_\_  
VEHICLE DAMAGE \_\_\_\_\_  
PASSENGERS YES NO INJURIES YES (List names and telephone numbers below) NO  
\_\_\_\_\_  
\_\_\_\_\_

WEATHER \_\_\_\_\_ CLEAR \_\_\_\_\_ CLOUDY \_\_\_\_\_ FOG \_\_\_\_\_ RAIN \_\_\_\_\_  
\_\_\_\_\_ SLEET \_\_\_\_\_ SNOW \_\_\_\_\_ OTHER \_\_\_\_\_  
PAVEMENT \_\_\_\_\_ ASPHALT \_\_\_\_\_ STEEL \_\_\_\_\_ CONCRETE \_\_\_\_\_ WOOD \_\_\_\_\_  
\_\_\_\_\_ GRAVEL/DIRT \_\_\_\_\_ BRICK/STONE \_\_\_\_\_ OTHER \_\_\_\_\_  
CONDITION \_\_\_\_\_ DRY \_\_\_\_\_ WET \_\_\_\_\_ ICY \_\_\_\_\_ POTHOLES \_\_\_\_\_  
\_\_\_\_\_ OTHER \_\_\_\_\_  
TRAFFIC CONTROL \_\_\_\_\_ TRAFFIC LIGHT \_\_\_\_\_ STOP SIGN \_\_\_\_\_ RAILROAD \_\_\_\_\_  
\_\_\_\_\_ NO INTERSECTION \_\_\_\_\_ NO CONTROL \_\_\_\_\_

## VEHICLE INCIDENT REPORT (continued)

ROADWAY \_\_\_\_\_ NUMBER OF LANES EACH DIRECTION \_\_\_\_\_ RESIDENTIAL \_\_\_\_\_  
\_\_\_\_\_ DIVIDED HIGHWAY \_\_\_\_\_ UNDIVIDED HIGHWAY \_\_\_\_\_

Draw and name roadways showing each vehicle, direction of travel, and point of impact. Indicate travel direction before the incident with a solid line and post-incident movement with a broken line.

**SYMBOLS:**

Your Vehicle



Other Vehicle(s)



Pedestrian



Stop Sign



Yield



Railroad



ADDITIONAL INFORMATION: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ASSOCIATE	_____	_____	_____
	(Print)	(Signature)	(Date)
SUPERVISOR	_____	_____	_____
	(Print)	(Signature)	(Date)
CORPORATE HEALTH & SAFETY MNGR.	_____	_____	_____
	(Print)	(Signature)	(Date)

### HEALTH & SAFETY DEPARTMENT

TRACKING # \_\_\_\_\_ INCIDENT REPORT ORDERED \_\_\_\_\_ AT FAULT Y N  
ORIGINAL: \_\_\_\_\_ H&S FILE \_\_\_\_\_ D&A SCREEN \_\_\_\_\_ DEFENSIVE DRIVING Y N  
CC: \_\_\_\_\_ ASSOCIATE \_\_\_\_\_ DEPT. SAFETY REP \_\_\_\_\_ W/C FILE \_\_\_\_\_ DENISE

## Contractor Significant Incident Reporting

1. General Information		
Contracting Activity/ROICC Office:		
<b>Accident Classification:</b> <input type="checkbox"/> Injury <input type="checkbox"/> Fatality <input type="checkbox"/> Environment <input type="checkbox"/> Procedural Issues <input type="checkbox"/> Lessons Learned <input type="checkbox"/> Illness <input type="checkbox"/> Property Damage <input type="checkbox"/> Other _____		
<b>Involving:</b> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Confined Space</div> <div style="width: 33%;"><input type="checkbox"/> Equip/Mrt Handling (Heavy Construction Equipment)</div> <div style="width: 33%;"><input type="checkbox"/> Fire</div> <div style="width: 33%;"><input type="checkbox"/> Crane and Rigging</div> <div style="width: 33%;"><input type="checkbox"/> Equip/Mrt Handling (Material Handling)</div> <div style="width: 33%;"><input type="checkbox"/> Fall from Ladder</div> <div style="width: 33%;"><input type="checkbox"/> Diving</div> <div style="width: 33%;"><input type="checkbox"/> Equip/Mrt Handling (Manlift/Elevated Platform)</div> <div style="width: 33%;"><input type="checkbox"/> Fall from Scaffold/Work Platform</div> <div style="width: 33%;"><input type="checkbox"/> Demolition/Renovation</div> <div style="width: 33%;"><input type="checkbox"/> Waterfront/marine Operations</div> <div style="width: 33%;"><input type="checkbox"/> Fall from Roof</div> <div style="width: 33%;"><input type="checkbox"/> Electrical</div> <div style="width: 33%;"><input type="checkbox"/> Hazardous Material</div> <div style="width: 33%;"><input type="checkbox"/> Trenching Excavation</div> <div style="width: 33%;"><input type="checkbox"/> _____</div> </div>		
2. Personal Information		
Name (Last, First, MI):	Age:	Sex:
Job Description:	Employed By:	
Supervisor Name (Last, First, MI) & Title:	Was the person trained to perform this activity? <div style="text-align: center;"><input type="checkbox"/> Yes    <input type="checkbox"/> No</div>	
What type of training was received (OJT, Classroom, etc)?	Date of the most recent formal training and topics discussed?	
3. Witness Information		
Witness #1: Name (Last, First, MI):	Job Title/Description:	
Employed By:	Supervisor Name (Last, First, MI):	
Witness #2: Name (Last, First, MI):	Job Title/Description:	
Employed By:	Supervisor Name (Last, First, MI):	
Additional Witnesses: <span style="float: right;"><input type="checkbox"/> Yes    <input type="checkbox"/> No</span> <i>(List any additional witnesses on a separate sheet and attach.)</i> None		

<b>4. Contractor Information</b>		
Type of Contract: <input type="checkbox"/> A/E <input type="checkbox"/> BOS <input type="checkbox"/> Clean <input type="checkbox"/> Construction <input type="checkbox"/> JOC <input type="checkbox"/> RAC <input type="checkbox"/> Service <input type="checkbox"/> Other		
Prime Contractor Name/Address/Phone & Fax No:  TolTest, Inc 1480 Ford St. Maumee, OH 43537 Phone: (419) 794-3500 Fax: (419)-794-3906  Safety Manager (Last, First, MI)  Richard L. Barcum, CIH, CSP, CHMM  Insurance Carrier: Zurich, North America		Sub Contractor Name/Address/Phone & Fax No:       Safety Manager (Last, First, MI)    Insurance Carrier:
<b>5. Accident Description</b>		
Date of Accident:	Time of Accident:	Exact Location of Accident:
Describe the accident in detail in your words: <i>(Use the back page if you need additional space)</i>		
Direct Cause(s) of Accident:		
Indirect Cause(s) of Accident:		

Actions(s) taken to prevent re-occurrence or provide on-going corrective actions:	
Corrective Action Beginning Date:	Anticipated Completion Date:
Personal Protective Equipment:	
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Available and used  <input type="checkbox"/> Not related to Mishap         </div> <div> <input type="checkbox"/> Available and not used  <input type="checkbox"/> Wrong PPE for job         </div> <div> <input type="checkbox"/> Not Required         </div> </div> <p><i>List PPE Used: Level D. Hard Hats, Safety Glasses, Safety Toed Boots, Class II High Visibility Vests.</i></p>	
Type of Construction Equipment (Make, Model, Serial #, VIN #) Involved:	
<div style="display: flex; justify-content: space-between;"> <div>           Was Hazardous Material Spilled/Released:  <i>Please List Hazardous Material(s) Involved:</i> </div> <div> <input type="checkbox"/> Yes    <input type="checkbox"/> No         </div> </div>	
Who provided first aid or cleanup of mishap site?  Carl Freeman	
<div style="display: flex; justify-content: space-between;"> <div>           Any blood-borne pathogen exposure, other than EMT's:   <i>Who?</i> </div> <div> <input type="checkbox"/> Yes    <input type="checkbox"/> No         </div> </div>	
List OSHA and EM-385-1-1 standards that were violated:	
<div style="display: flex; justify-content: space-between;"> <div>           Was site secured and witness statements taken immediately:   <i>By Whom?</i> </div> <div> <input type="checkbox"/> Yes    <input type="checkbox"/> No         </div> </div>	
<b>6. Injury/Illness/Fatality Information</b>	
Severity of Injury:	
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Fatality         </div> <div> <input type="checkbox"/> Lost Workday Case Involving Days Away From Work         </div> </div>	

<input type="checkbox"/> Temporary Disability <input type="checkbox"/> Permanent Total Disability <input type="checkbox"/> Permanent Partial Disability		<input type="checkbox"/> Recordable Case Without Lost Workdays <input type="checkbox"/> Non-Recordable Injury <input type="checkbox"/> Recordable First Aid Case		<input type="checkbox"/> No Injury
Estimated Days Lost:		Estimated Days Hospitalized:		Estimated Days Restricted Duty:
List Primary Body Part Affected:		List Other Body Part(s) Affected:		
Nature of Injury/Illness for Primary Body Part (Examples: Amputation, Burn, Hernia):				
Type of Accident (Examples: Fall same level, Bitten, Exerted)				
Source of Accident (Examples: Crane, Carbon Monoxide, Ladder, Welding Equipment):				
<b>7. Causal Factors</b> <i>(Explain answers on supplementary sheet)</i>				
• Design – Design of facility, workplace, or equipment was a factor?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Inspection/Maintenance – Inspection & Maintenance procedures were a factor?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Persons Physical Condition – In your opinion, the physical condition of the person was a factor?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Operation Procedures – Operating procedures were a factor?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Job Practices – One or more job safety/health practices not being followed when the accident occurred contributed to the accident?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Human Factors – One or more human factors, such as a person's size or strength contributed to the accident?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Environmental Factors – Heat, cold, dust, sun, glare, etc. contributed to the accident?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Chemical and Physical Agent Factors – Exposure to chemical agents, such as dust, fumes, mist, vapors or physical agents such as noise, radiation, etc., contributed to the accident?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Office Factors – Office setting such as lifting office furniture, carrying, stooping, contributed to the accident?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Support Factors – Inappropriate tools/resources were provided to perform the task?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• PPE – Improper selection, use or maintenance of PPE contributed to the accident?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Drugs/Alcohol – In your opinion, were drugs or alcohol a factor?				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Job Hazard Analysis – The lack of an adequate (IAW-EM-385-1-1 Sec 01.A) activity hazard analysis was a contributing factor.				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Job Hazard Analysis – JHA was not site specific and/or did not address the type of work/operations performed when the mishap occurred.				<input type="checkbox"/> Yes <input type="checkbox"/> No
• Management – A lack of supervision contributed to the accident.				<input type="checkbox"/> Yes <input type="checkbox"/> No

• Management – Inadequate information was provided at the pre-con meeting.			<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>8. OSHA Information</b>			
Date OSHA was Notified:	Date(s) of Investigation:	Date of Citation: <i>(Attach Copy)</i>	Dollar amount of Penalties:
<b>9. Report Preparer</b>			
Name (Last, First, MI):		Date of Report:	
Title: Health and Safety Supervisor Employer: TolTest, Inc.		Signature:	
<b>10. Management Review</b>			
Accepted? <input type="checkbox"/> Yes <input type="checkbox"/> No	Amendments Required? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please describe:		
Comments <i>(Include program improvements required for your command, NAVFACHQ) construction safety program, and EM-385-I-1. Use back if additional space is needed):</i>			
Reviewing Official Name (Last, First, MI) & Title:		Date Completed:	
<b>11. Safety and Occupational Health Office Review</b>			
Concur: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Additional Comments:			
Reviewing Official Name (Last, First, MI) & Title:		Date Completed:	
Mishap Classifier:	Provided for JAGMAN: <input type="checkbox"/> Yes <input type="checkbox"/> No		

**ATTACHMENT 6**

**RESPIRATORY PROTECTION PROGRAM**

Approved By:

Signature on File

Richard L. Barcum, CSP, CHMM  
Manager, Corporate Health and Safety

Signature on File

David D. Alleman, CPA  
Vice President, CFO

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## **Procedure**

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# **RESPIRATORY PROTECTION PROGRAM**

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## **1.0 PURPOSE AND SUMMARY**

The purpose of this procedure is to provide information and guidelines for the selection, use, and care of respiratory protective equipment for all company and contractor personnel. This procedure complies with the requirements of 29 CFR 1910.134 Respiratory Protection (January, 1998).

No individual will enter an area where the use of respiratory protective equipment is required unless the person has been trained in the selection, use, care and limitations of the respirators, and the proper respirator has been selected for the task, and the individual is fit tested for that respirator.

## **2.0 RESPONSIBILITY MATRIX**

### **2.1 Procedure Responsibility**

The Manager, Corporate Health and Safety is responsible for the issuance, revision and maintenance of this procedure.

### **2.2 Action/Approval Responsibilities**

See Responsibility Matrix (See Attachment 1)

## **3.0 DEFINITIONS**

**Action Level (AL)** – Airborne contaminant concentration which is one-half of the Permissible Exposure Guideline (PEG).

**Air Purifying Respirator (APR)** – Negative Pressure Respirator (also referred to as a cartridge respirator) which filters contaminated air through chemical or mechanical filter elements. APRs include: cartridge, canister, gas masks, and single-use respirators (single-use respirators are not approved for use by the company).

**Approved Respirator** – Any respirator, identified by manufacturer and model, that has been approved by NIOSH 42 CFR Part 84 and has been incorporated into the List of Approved Respiratory Protective Equipment (Attachment 2)

**Assigned Protection Factor (APF)** – A term that is reserved in the OSHA Standard 1910.134 (January, 1998). Attachment 3 provides PFs for the respiratory protective equipment based upon type of device and method of fit testing. The company will continue to use the PFs established by NIOSH until OSHA issues their definition of APF.

**Company** – TolTest, Inc.

**Contractor Personnel** – A group of persons hired to perform a specific activity based on their expertise and ability to operate independent of direct supervision. Contractor personnel are supervised by their management group which reports to an associate of the company for project direction.

**End-of-Service-Life Indicator (ESLI)** – A system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer active.

**Emergency** – Emergency means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

**Exposure Limit** – Several published airborne concentration values exist which are used in establishing acceptable personnel exposures to contaminants. OSHA publishes Permissible Exposure Limits (PELs), NIOSH publishes the Recommended Exposure Limits (REL), and the ACGIH publishes the Threshold Limit Values (TLV). These values may vary from contaminant to contaminant as well as between publishing bodies.

**Field Office** – Any office or satellite office performing field activities which may require the use of respiratory protection.

**Filtering Facepiece (Dust Mask)** – A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

**Fit Factor (FF)** – This term means a quantitative estimate of the fit of a particular respirator to a specific individual and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn. The FF incorporates a safety factor of 10 because protection factors in the workplace tend to be much lower than the fit factors achieved during fit testing. Acceptable fit factors are 100 for a tight-fitting half facepiece and 500 for a tight-fitting full facepiece respirators.

**HASP** – Health and Safety Plan

**Immediately Dangerous to Life or Health (IDLH)** – An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

**Labor Pool Personnel** – Temporary personnel hired for a given expertise or ability. Labor pool personnel report directly to an associate of the company.

**Nuisance Level** – Level of airborne contaminants which is below one-half the action level for that contaminant and presents no other health or safety hazard.

**Permissible Exposure Guideline (PEG)** – This term designates a specific exposure limit and is based on the best available information. The PEG will be the lower (more protective) of the values for the PEL and TLV. However, the REL shall take precedence for Hazardous Waste Operations (subject to 29 CFR 1910.120) if no PEL exists, or for contaminants where no PEL or TLV exists. If there is no PEL, TLV, or REL, the Manager, Corporate Health and Safety shall determine an appropriate permissible exposure guideline.

**Permissible Exposure Limit (PEL)** – An occupational exposure index promulgated by OSHA which carries the force of law. This value represents the allowable concentration to which it is believed an associate may be exposed to 8 hours a day, 40 hours a week, for a 40-year working life without experiencing adverse health effects.

**Positive Pressure Respirator** – A respirator in which the pressure inside the respirator exceeds the ambient air pressure outside the respirator.

**Powered Air Purifying Respirator (PAPR)** – A positive pressure APR which incorporates a fan and battery pack unit. The system pulls contaminated air through the filter elements before delivery to the facepiece under positive pressure. Air pressure in the mask must remain above ambient pressure.

**Qualitative Fit Test** – A procedure for assuring that the respirator provides adequate protection based on a pass/fail fit test that relies on the individual's response to the test agent. Standard fit test protocol will utilize the irritant smoke methods as described in Attachment 4.

**Quantitative Fit Test** – A fit test that provides an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

**Respiratory Protection Program Coordinator (RPP Coordinator)** – An associate designated by the Group/Unit/Project Manager to administer and supervise the respiratory protection program at a local facility or project location. This associate will have the necessary training or credentials to execute this task. If an RPP Coordinator is not specifically designated, it shall be assumed that the Group/Unit/Project Manager will execute the responsibilities of this role for the local facility or project location.

**Respiratory Protection Program Manager (RPP Manager)** – The Manager, Corporate Health and Safety or designee.

**Recommended Exposure Limit (REL)** – An occupational exposure index published by NIOSH which is a recommended guideline for associate protection. This value represents the allowable concentration to which it is believed an associate may be exposed to 10 hours a day, 40 hours a week, for a 40-year working life without experiencing adverse health effects.

**Supplied Air Respirator (SAR)** – Positive pressure respirator which supplies an independent source of breathing air to the user. Two types of SARs are available: self-contained breathing apparatus (SCBA) and airline.

**Threshold Limit Value (TLV)** – An occupational exposure index published by ACGIH which is recognized as an industry guideline and represents the concentration to which it is believed that nearly all associates may be exposed to 8 hours a day, 40 hours a week, for a 40-year working life without experiencing adverse health effects.

## 4.0 TEXT

The company will employ engineering controls (e.g., enclosure, ventilation, material substitution, etc.) as the primary method to limit associate exposure. However, for those situations where engineering controls and administrative controls are ineffective at controlling associate exposure, the use of respiratory protection may be required.

The RPP provides specific requirements for selection, assignment, training, and medical evaluation for associates expected to wear respiratory protection.

### 4.1 Assignment of Equipment to Contractor/Labor Pool Personnel

Contractor personnel shall provide their own respiratory protective equipment and shall also confirm meeting all other requirements of their own RPP and that of the company's RPP (i.e. medical clearance, training, fit testing, etc.).

The company may provide the following respiratory protective equipment to Contractor Personnel:

- Disposable equipment such as filter elements
- Hardware for airline systems (up to, but not including, the airline and facepiece) which employees are sharing.

The company will not provide the following respiratory protective equipment to Contractor Personnel:

- APR or PAPR facepieces
- SCBAs, SAR respirators, or airline

The company may provide respiratory protective equipment to Labor Pool Personnel if the following have been established:

- The Labor Pool Personnel have successfully completed training as required by 29 CFR 1910.134 and other applicable regulations.
- The Labor Pool Personnel have been fit tested in relation to projected exposure levels and contaminants to be encountered.
- The Labor Pool Personnel have been medically approved to wear respirators.
- All other RPP requirements have been met.

## **4.2 Approval, Selection, and Purchase of Respiratory Protective Equipment**

The following requirements are designed to guide correct selection of respiratory protective equipment.

### **4.2.1 Approval**

The Manager, Corporate Health and Safety has approved respirators for use by company associates. The list of approved models of respirators is included in Attachment 2. Contractor personnel may select any respiratory protective equipment that has received approval from NIOSH.

### **4.2.2 Selection**

The RPP Coordinator shall base the selection of respiratory protective equipment upon an assessment of potential respiratory hazards that may be encountered. This assessment may utilize a variety of written information such as the NIOSH Pocket Guide to Chemical Hazards, Material Safety Data Sheets, analytical data, air monitoring results, or other applicable information. The selection process shall incorporate the following guidelines:

- Respiratory protection is to be selected by RPP Coordinators only. Full facepiece respirators are the usual preference because of the superior protection factor and the face/eye protection afforded. Half facepiece respirators can only be used in situations where less than one-half the PEG is expected or for asbestos or lead characterization or abatement assignments.
- Selection of the appropriate respiratory protective equipment shall include factors such as the chemical state and physical form of the chemical contaminant, atmospheric concentration during routine and emergency events, potential physical hazards, expected job task requirements, and the performance of the respirator in providing the appropriate level of protection against these hazards.

- Consideration shall be give to the nature of the hazardous operation, location of the hazardous area relative to nonhazardous breathing air supply, duration of wear, activities to be performed, and characteristics and functions of the respiratory protective equipment to be worn.
- Selected respirators shall be NOISH certified and used in compliance with the conditions of its certification when associates are exposed to toxic materials or other hazardous atmospheres.
- Respirators must provide adequate face and eye protection for the expected task.
- If an APR or PAPR is used, the respirator shall be equipped with an ESLI certified by NIOSH for the contaminant. If an ESLI is not available for the contaminant, a cartridge element change schedule shall be implemented which is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.
- The PF for the respirator selected (Attachment 3) shall be used according to the following relationship with the PEG to establish justification for selection:

$$PF \times PEG > \text{Maximum anticipated contaminant concentration}$$

If this equation is false, a respirator with a greater PF must be selected. Also review Attachment 3 to determine the required fit testing for the expected maximum anticipated contaminant concentration. The RPP Coordinator may determine that a more conservative approach may be needed.

- Manufacturer-established limitations of the APR filter elements relative to the contaminants of concern shall be used to establish further justification for the selected respirator should the APR's FF not disqualify its use (e.g., maximum anticipated contaminant concentration).

#### **4.2.3 Purchase**

The purchase of air purifying respiratory protective equipment must be authorized by the RPP Coordinator to ensure the that the material ordered meets established requirements.

The purchase of supplied air respiratory protective equipment must be authorized by the Manager, Corporate Health and Safety to ensure the that the material ordered meets established requirements.

**Under no circumstances may anyone purchase or provide other than the specific respiratory protection equipment selected by the RPP Coordinator or the Manager, Corporate Health and Safety.**

#### **4.3 Medical Evaluation**

No associate shall be assigned to a task that requires the use of a respirator unless it has been determined that he/she is physically able to perform the work while using the required respirator. The medical evaluation must be conducted prior to fit testing and work requiring the use of respiratory protective equipment.

The medical evaluation shall be performed to the requirements of 29 CFR 1910.120 (e) *Medical Evaluation*, although additional components may be required to meet other regulatory requirements (e.g., 29 CFR 1910.120). The physician will be informed of the type of work expected of the associate, the types of respiratory protection and personal protective equipment required, and other information indicating the expected stresses of the task. The company Medical Review Officer (MRO) shall be given a copy of the company RPP and a copy of 1910.134 (e) *Medical Evaluation*.

The company's MRO shall provide a written recommendation regarding the associate's ability to use respiratory protection. The company shall ensure that the associate is supplied with a copy of this recommendation.

Additional medical evaluations will be provided if:

- Any medical signs or symptoms due to respirator use are reported by the associate, supervisor, or health and safety personnel.
- A change in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an associate.

#### **4.4 General Program Requirements**

##### **4.4.1 Responsibilities**

The following information describes the responsibilities for the selection, use, and maintenance of respiratory protective equipment based upon job function:

###### Management

- Management shall take necessary and cost-effective measures to reduce, where possible, the need for respiratory protective equipment (e.g., enclosed cabs on heavy equipment to reduce airborne dust, operations performed upwind, local ventilation, etc.).

- Respiratory protective equipment shall be provided by management whenever it is determined that such equipment is necessary to protect the health of the associate or when requested by an associate and approved by the RPP Coordinator.
- Management shall assign work tasks requiring the use of respiratory protective equipment to only those associates who are medically qualified to wear respiratory protective equipment.
- Management shall ensure that associates are trained in the use of respiratory protection prior to being assigned to an activity that requires its use.
- Management shall provide the means for the maintenance of respiratory protection as required.
- Management shall appoint a RPP Coordinator for each location which uses or may have a need to use respiratory protection. Management shall assure that the RPP has the necessary training to fulfill his/her responsibilities.

#### RPP Manager

- The RPP Manager shall monitor compliance with the various aspects of this program, provide technical assistance regarding respirator selection and use, evaluate the effectiveness of the RPP, and support respirator training and fit testing as requested.
- The RPP Manager shall conduct regular audits to determine compliance with this procedure. This audit can include a review of maintenance, training, medical and air monitoring records, and review the status of this procedure with regard to current regulatory requirements.
- The RPP Manager shall maintain or oversee maintenance of all other records required by this RPP and shall provide for the training and fit testing of personnel assigned respiratory protective equipment, as requested.
- Records pertaining to training and fit testing will be maintained by the RPP Manager.

#### RPP Coordinator

- The RPP Coordinators shall monitor compliance with the various aspects of this program, provide technical assistance regarding respirator

selection and use, evaluate the effectiveness of the RPP, and support respirator training and fit testing.

- The RPP Coordinators shall conduct regular audits to determine compliance with this procedure. This audit can include a review of maintenance, training, medical and air monitoring records, and review the status of this procedure with regard to current regulatory requirements.
- The RPP Coordinators shall maintain or oversee maintenance of all other records required by this RPP and shall provide for the training and fit testing of personnel assigned respiratory protective equipment.
- The RPP Coordinators shall be responsible for cleaning, maintenance, and storage of all respirators not routinely used or not individually assigned.
- The RPP Coordinators shall maintain respirator supplies, including spare parts; submit purchase requests for new equipment; and assure that sufficient quantities of cartridges are available for each field project or office location.
- The RPP Coordinators shall assure that air supply and emergency respiratory protection is properly inspected and maintained.
- Respirators shall be repaired by either qualified personnel under the direction of the RPP Coordinators, or by a contracted supplier.
- The RPP Coordinators shall maintain models and size of respirators available for selection and fitting.
- The RPP Coordinators shall conduct fit testing.
- The RPP Coordinators shall conduct respiratory protection training.

Associate

- The associate shall use the provided respiratory protective equipment when instructed to do so in accordance with training received.

- The associate shall clean, disinfect, and properly store the assigned respirator, unless other arrangements are made on a project level.
- The associate shall guard against damage to the assigned respirator.
- The associate shall inspect the respirator before each use and after cleaning.
- The associate shall report any malfunction of the respirator immediately to their supervisor and/or RPP Coordinator.
- The associate shall report to their supervisor any change in their medical status that may impact their ability to wear a respirator safely.

#### **4.4.2 Use of Corrective Lens Eyewear**

In general, contact lenses are permitted to be worn when respiratory protection is used. Although in certain instances, client- or project-specific rules may not allow for their use.

If an associate chooses not to wear contact lenses, management shall assure that the appropriate prescription inserts are obtained and provided at no cost to the associate.

Refer to Procedure HS 902 Prescription Safety Glasses for information on obtaining prescription respirator inserts.

#### **4.4.3 Obstruction of Face Seal**

Associates who wear respirators are required to be clean shaven to the extent that there is no obstruction between the wearer's skin and the facepiece. Trimmed mustaches and facial hair which does not interfere with the seal are allowable.

In addition, respirators shall not be worn when conditions (e.g., corrective lenses or goggles, protective equipment, facial hair) prevent a good face-to-facepiece seal.

### **4.5 Instruction, Training, and Fit Test**

#### **4.5.1 Instruction and Training**

The RPP Manager shall provide a standard respiratory protective equipment training program for use by qualified personnel such as the RPP Coordinators.

The basic respirator training program shall include, as a minimum, the following:

- Training and annual retraining of associates in the selection, use, maintenance, and limitation of each respirator type used.
- Instruction on the nature of the respiratory hazards and potential health effects resulting from exposure.
- Opportunity for “hands on” experience with the respiratory protective equipment.
- Proper fitting, including demonstrations and practice in wearing, adjusting, and determining the fit of the respirator. A selection of respirators shall be available to determine the most comfortable respirator and the best fit.
- Instruction on how to test the face-to-facepiece seal.
- A familiarization period of wear in ambient air.
- For APRs, wearing the respirator in a test atmosphere (typically irritant smoke) for qualitative fit testing. The qualitative fit test shall follow the guidelines outlined in Section 4.5.2.
- Training to recognize and cope with emergency situations (including respirator failure).
- Training and fit testing shall be repeated annually, unless a specific OSHA regulation requires a more frequent time period. Each associate receiving training shall complete the Respirator Fit Test Form (Attachment 5)
- Training records will be maintained by the RPP Manager and the location RPP Coordinator. On-site records of training and fit testing will be maintained as required by aspecific regulation (e.g. asbestos) (refer to Section 4.8)
- It is the responsibility of the location RPP Coordinator to verify that all project personnel meet the requirements of this RPP.

#### **4.5.2 Fit Testing**

Prior to the use of any negative or positive pressure tight-fitting facepiece, the associate must be fit tested.

- All associates assigned to operations requiring the use of respiratory protective equipment shall have been fit tested within 12 months, or as required by specific regulations. Additionally, fit testing will be performed whenever a new respirator has been issued; there is a change in facial features, for example, weight loss/gain, accident or dental changes; or difficulty in achieving a satisfactory positive/negative fit test. Fit test and qualification cards (or a copy of the completed Attachment 5) must be available during operations.
- The associate shall be fit tested with the same size and model as they are expected to wear.
- Qualitative fit test (QLFT) shall be used when a protection factor of 10 or less is required for a negative pressure respirator.
- Quantitative fit test (QNFT) shall be used when a protection factor of greater than 10 is required for a negative pressure respirator. When executing the QNFT, the acceptable test result is 100 for tight fitting half-facepiece respirators and 500 for full-facepiece respirators.
- Fit testing for tight-fitting atmosphere supplying respirators and tight-fitting APRs shall be in negative pressure mode regardless of the mode of operation that is used for respiratory protection.
- Assessment of comfort shall be made after allowing adequate time for this evaluation. This evaluation shall include reviewing the following points with the associate: positioning of the mask on nose, room for eye protection if required, room to talk, and positioning of the mask on the face and cheeks.
- The following criteria shall be used to help determine the adequacy of the respirator fit: chin properly placed, strap tension, fit across the nose bridge, and tendency to slip.
- If physical obstruction (e.g. facial hair, eyeglasses) interferes with the face-to-facepiece seal, then it shall be altered or removed so as to eliminate any interference and allow for a satisfactory fit. If the associate refuses to alter the physical obstruction, then they shall be denied a satisfactory fit report and referred to his/her supervisor for consideration.
- The fit test protocol (Attachment 4) shall be followed. The RPP Coordinator and/or RPP Manager shall determine which fit test protocol shall be followed depending upon the situation.

## **4.6 Maintenance Program**

Each RPP Coordinator is responsible for verifying the respirator maintenance program is implemented in an effective manner for the facility or project site, the working conditions, and the potential hazards involved. As a minimum, the following aspects must be implemented:

- Inspection
- Cleaning and sanitizing
- Repair
- Respiratory Storage
- Inspection and repair documentation, as required
- Compliance with manufacturer recommendations

Detailed information regarding cleaning, inspection, maintenance, and storage is found in Attachment 7. The RPP Coordinator shall verify compliance with the maintenance program by periodic inspections and field audits.

### **4.6.1 Inspection**

- All respiratory protective equipment systems shall be inspected by the wearer for defects and/or deterioration immediately prior to and after each use.
- Any defects shall be reported their supervisor or RPP Coordinator immediately and the respirator removed from use until it can be repaired or replaced.
- Respiratory protective equipment systems not used routinely (including all SCBAs and equipment designated only for emergency use) shall be inspected before and after each use and at least every 30 days. Cylinders shall be recharged whenever the pressure falls below 90 percent of the manufacturer's recommended pressure level. This inspection shall be documented by some method on the unit (i.e. tag). Records of inspections shall be kept through appropriate documentation. Attachment 6 provides an example of inspection documentation for SCBAs. At a minimum, these records will include: date, inspector, and any unusual finding or condition. Any repairs or modifications shall be documented in detail.

- General field inspection shall include a check of the following: tightness of all connections, facepiece, valves, and any connecting tubes or filtering elements.
- **Specific inspection procedures are outlined in Attachment 7.**
- RPP Coordinators shall be used for all maintenance beyond field inspections, tests, and user-performed cleaning. Only manufacturer-qualified repair technicians may perform maintenance on supplied air respiratory protective equipment.
- Air supplied respiratory systems shall be inspected by a manufacturer's authorized representative at the manufacturer's recommended schedule. Manufacturer's typically require an annual flow test and a complete overhaul every 5 to 7 years.

#### **4.6.2 Cleaning and Sanitizing**

Associates maintaining their own respirators shall be thoroughly briefed on how to clean and disinfect them. On projects where associates clean their own respirator, the generally accepted procedure involves washing with detergent and warm water using a soft brush, submersion in sanitizing agent, thoroughly rinsing in clean water, drying in a clean place, and storage in sealed plastic bags or equivalent. Precautions to be taken to prevent damage from rough handling during this procedure are detailed in Attachment 7.

At locations where associates share respirators, a centralized cleaning and maintenance facility with specialized equipment and/or materials and personnel trained in respirator maintenance must be established. Cleaning and inspection is primarily the responsibility of the user.

#### **4.6.3 Repair**

The company will only use respiratory protective equipment that is physically sound.

- If defects are found during any inspection, two remedies are possible. If parts and trained personnel are available, repair and/or adjustment may be made immediately. If parts or trained repair people are unavailable, the device shall be removed from service until it can be repaired. Under no circumstances shall a device that is known to be defective remain in service.
- Replacement or repair shall be done by adequately trained personnel. For negative pressure respirators, the RPP Coordinator or RPP Manager may train or supervise personnel in the replacement of items such as inhalation/exhalation valves, head harness, cartridge adapters, and lenses.

For air-supplied respirators, field repairs are limited to replacement of head harness and lenses. All other work must be completed by a factory-certified repair technician.

Repair shall only be made with parts designed for the respirator. Substitution of parts from a different brand or type invalidates the respirator's approval and is prohibited.

#### **4.6.4 Storage**

Respirators must be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, damaging chemicals, and mechanical damage.

- Respirators shall be stored in such a manner that the facepiece, exhalation valve, and straps are not distorted.
- Respirators shall be stored in sealable containers (e.g. ziplock bags) after cleaning and disinfecting.
- The storage location of emergency respiratory protection shall be readily accessible and prominently identified.
- Respirators shall be stored in an area free of contamination.

### **4.7 Field Use**

The following guidelines for the use of respirators (or equivalent) shall be incorporated in the Project HASP as appropriate. Additional guidelines may be required based on working conditions and hazards involved.

#### **4.7.1 General Requirements**

The following general requirements shall be followed whenever respiratory protection is used:

- Associates shall be allowed to leave the regulated area to readjust the facepiece or to wash their faces and to wipe clean the facepieces of their respirators in order to minimize potential skin irritation associated with respirator use.
- Respiratory protective equipment shall not be passed on from one person to another until it has been cleaned and sanitized, per program requirements.
- Respirators will be inspected, and a positive/negative pressure test performed prior to each use.

- Entry into oxygen-deficient (< 19.5% O<sub>2</sub>) atmospheres, Immediately Dangerous to Life or Health (IDLH) atmospheres, or areas requiring EPA Level A protection is prohibited without the prior approval of the Manager, Corporate Health and Safety.
- Head coverings, such as Tyvek hoods, shall not be allowed to pass between the face-to-facepiece seal.
- The harness straps of tight-fitting respirators shall not be positioned or worn over hard hats.

#### **4.7.2 Specific Requirements**

The following information details specific requirements by respirator class:

##### Air Purifying Systems

- When APRs are worn, new filter elements shall be installed at the beginning of operations. The filter elements shall be changed whenever the ESLI (color indicators) indicates that cartridge life has expired (e.g., mercury cartridges). When no ESLIs are available, filter replacement will be based on the calculations performed by the RPP Coordinator. Additionally, the cartridges will be replaced if “breakthrough” is perceived or whenever an increase in breathing resistance is detected. In most cases, the cartridges will be replaced a minimum of once daily, usually at the end of the work shift

##### Powered Air Purifying Systems

- When PAPRs are worn, associates shall change filter elements after each day’s activities. The filter elements shall be changed whenever the ESLI (color indicators) indicates that cartridge life has expired (e.g. mercury cartridges). When no ESLIs are available, filter replacement will be based on the calculations performed by the RPP Coordinator. Additionally, the cartridges will be replaced if “breakthrough” is perceived or when airflow through filter elements decreases to an unacceptable level as indicated by the manufacturer’s test device.

##### Compressed Air

- Compressed air used for breathing shall meet at least the requirements of the specification for Grade D breathing air or better (D, E, or G; not A, K, or L) as described in the American National Standard Commodity Specification for Air, ANSI/CGA G-7.1-1989. Further information is provided in Attachment 7, Guide to Respiratory Protective Equipment Cleaning, Inspection, Maintenance, and Storage.

- Breathing air suppliers must provide certification of analysis stating conformance, as a minimum, to Grade D breathing air standards as previously referenced for each cylinder and/or air lot.
- Air delivered in bulk, e.g., tube trailers, shall have tube or unit, or a representative number of tubes or units verified as to oxygen content prior to using that tube.
- Pure oxygen shall NOT be used at any time in open-circuit SCBAs or airline respirators.
- Breathing air cylinders shall be legibly identified with the word “AIR” by means of stenciling, stamping, or labeling as near to the valve end as practical.
- Breathing air cylinders may be stored on their sides provided the valve caps are in place. If valve caps are not in place, breathing air cylinders are required to be stored in an upright and secured position.

#### Supplied Air Breathing Systems

- Airline couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of airline respirators with nonrespirable gases or oxygen.
- Standard airline couplings for breathing air systems are Foster quick connect fittings with locking dots. Hansen quick connect fittings may also be used, but must not be used where they can be inadvertently actuated and disconnected. For example, Hansen fittings could be used at the regulator connection, but not on the airline unless protected from disconnection by some other means.
- The hose line length shall not exceed 300 feet from the air bank regulator to the user.
- No more than three connections, excluding the connection to the regulator and final connection to the respirator, shall be between the breathing air cylinders and the user.
- Breathing air hose shall be protected from direct contact with chemical materials which may permeate the hose. Acceptable methods of protection include suspension of the hose from the surface or covering with a commercially available sleeve, visqueen or hose. Breathing air hose which has become contaminated will be removed from service and disposed of properly.

- The breathing air regulator shall be adjusted to provide 100 psi pressure  $\pm 10$  psi.
- Cascade systems shall be equipped with low pressure warning alarms or similar warning devices to indicate air pressure in the manifold below 500 psi.
- When a cascade system is used to supply breathing air, a worker outside the Exclusion Zone shall be assigned as safety standby within audible range of the low pressure alarm.
- When a cascade system is used to recharge SCBA air cylinders, it shall be equipped with a high-pressure supply hose and coupling rated at a capacity of at least 3,000 psi. The supply hose and coupling shall be relatively short ( $\leq 10$  feet) and secured to prevent whipping when pressurized.
- When a breathing air compressor is used to recharge SCBA air cylinders, it shall be equipped with a high-pressure supply hose and coupling rated at a capacity of at least 5,000 psi. The supply hose and coupling shall be relatively short ( $\leq 10$  feet) and secured to prevent whipping when pressurized.
- When a breathing air compressor is used to recharge large breathing air cylinders, it shall be equipped with a high-pressure supply hose and coupling rated at a capacity of at least 3,000 psi. The supply hose and coupling shall be relatively short ( $\leq 10$  feet) and secured to prevent whipping when pressurized.
- When a breathing air compressor is used to recharge large breathing air cylinders, it shall be equipped with a Carbon Monoxide (CO) alarm designed to alarm at a CO concentration level of 10 ppm.
- Breathing air compressors shall be certified as supplying Grade D breathing air or better (D, E, or G; not A, K, or L) as described in the American National Standard Commodity Specification for Air, ANSI/CGA G-7.1-1989 prior to each project on which it is used. In the event that the compressor is not in use, it shall be certified at least every 180 days.
- Only trained and qualified associates are permitted to fill SCBA cylinders or large breathing air cylinders from a breathing air compressor or SCBA bottles from a cascade system.
- Large supplied air cylinders shall be stored and handled to prevent damage to the cylinder or valve and in such a way as to prevent the cylinder from falling. Cylinders shall not be dropped, dragged, rolled, or

allowed to strike each other or to be struck violently. Cylinders shall never be exposed to temperatures exceeding 125 °F. Cylinders with visible external damage, evidence of corrosion, or exposure to fire shall not be accepted or used.

- Only cylinders within current hydrostatic test periods shall be used. For fiber wrapped bottles designated by the DOT-E label, hydrostatic testing shall be completed every 3 years. Maximum service life for these cylinders is 15 years. Steel or aluminum cylinders shall be hydrostatically tested every 5 years. No maximum service life is established for steel or aluminum cylinders.
- SCBAs shall only be used in the positive pressure mode when in the Exclusion Zone.
- Standby SCBA equipment must be present when air supply systems are used in IDLH or potentially IDLH atmospheres.

#### Escape/Egress Units

- These respirators are intended for use in areas where escape with a short-term (5 minute) air supply is necessary. They may be used as adjuncts to airline respirators as a backup air supply, or as independent emergency devices in areas where respiratory protective equipment is not normally required.
- Appropriate training shall be accomplished and documented prior to assigning associates to tasks or locations subject to the use of these respirators.
- Escape/egress units (5-minute air supply) shall never be used as primary standby respirators for confined space entry.
- Escape/egress units shall never be used to enter, or continue working in, a hazardous atmosphere.

#### **4.7.3 IDLH Atmospheres**

For all IDLH atmospheres, the company shall ensure that:

- One associate or, when needed, more than one associate is located outside the IDLH atmosphere.
- Visual, voice, or signal line communication is maintained between the associate(s) in the IDLH atmosphere and the associate(s) located outside the IDLH atmosphere.

- The associate(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- A replacement associate or designated authority (i.e. emergency medical service) is provided outside the IDLH atmosphere before the associate(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue.
- The replacement associate outside the IDLH atmosphere or designated authority (i.e. emergency medical service), once notified, provides necessary assistance appropriate to the situation.
- Associate(s) located outside the IDLH atmosphere are equipped with:
  - Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied air respirator with escape/egress unit.
  - Appropriate retrieval equipment for removing the associate(s) who enter these hazardous atmospheres where retrieval equipment would contribute to the rescue of the associate(s) and would not increase the overall risk resulting from entry. Equivalent means of rescue can be considered.

#### **4.8 Recordkeeping**

The following documents must be part of the site recordkeeping program:

- Associates' medical clearances for respirator use
- Respirator training and fit testing forms

#### **4.9 Program Evaluation**

This RPP shall be reviewed annually at the direction of the Manager, Corporate Health and Safety

### **5.0 EXCEPTION PROVISIONS**

Variances to this procedure shall be requested in accordance with established variance procedures.

### **6.0 ATTACHMENTS**

1. Responsibility Matrix
2. List of Approved Respiratory Protective Equipment

3. Respirator Type, Protection Factor, and Fit Testing Method
4. Mandatory Respirator Fit Test Protocol
5. Respirator Fit Test Form
6. Emergency Respiratory Protective Equipment Monthly Inspection Checklist
7. Guide to Respiratory Protective Equipment Cleaning, Inspection,  
Maintenance, and Storage

## ATTACHMENT 1 RESPONSIBILITY MATRIX

Action	Procedure Section	Responsible Party			
		Associate	RPP Coordinator	Management	Manager, Corporate Health & Safety
Issue, Revise, and Maintain Procedure	2.1				X
Assure Proper Selection of Respirators	4.2.2		X	X	
Review Purchase Requests for Respiratory Equipment	4.2.3		X		X
Conduct Fit Testing	4.4		X		
Assure Compliance with RPP	4.4		X	X	
Assure Training	4.4		X	X	
Audit Program Compliance	4.4		X		
Assist/Approve Local Training Program	4.4				X
Maintenance Program	4.6	X	X	X	
Field Use	4.7	X	X	X	
Recordkeeping	4.8	X	X		X
Program Evaluation	4.9				X

## ATTACHMENT 2

### LIST OF APPROVED RESPIRATORY PROTECTIVE EQUIPMENT

Respirator Class	Respirator Type	Respiratory Performance	Manufacturer	Model Name	Model Number
AIR PURIFYING RESPIRATORS (APR)					
Standard APR	Half-face	Negative Pressure	North  MSA	7700  Comfo Elite	7700-30S 7700-30M 7700-30L  490492 S 490491 M 490493 L
	Full Face	Negative Pressure	North  MSA	7600  Ultra Twin	7600-8AS S 7600-8A M/L  480263 S 480259 M 480267 L
Powered APR	Full-Face/ Hood	Continuous Positive Pressure	MSA	Optimair MM	487848 S 487846 M 487847 L
			Survivair	PAPR	5200-15
SUPPLIED AIR RESPIRATORS (SAR)					
Airline SAR	Full-Face	Positive Pressure Demand	Drager	ALE Lite with 5 min escape	4055260
			MSA	Premaire	497291
SCBA SAR	Full-Face	Positive Pressure Demand	Drager  MSA	Pro Air  MMR WorkMask 2216	4055739  Varies on Components

### ATTACHMENT 3

#### RESPIRATOR TYPE, PROTECTION FACTOR, AND FIT TESTING METHOD

Respirator Type	Protection Factor	QLFT	QNFT
Half-Face, Negative Pressure (<100 Fit Factor) <sup>1</sup>	10	Yes	Yes
Full-Face, Negative Pressure (<100 Fit Factor) Used in Atmosphere up to 10 Times the PEG	10	Yes	Yes
Full-Face, Negative Pressure (<100 Fit Factor) <sup>2</sup> Used in Atmosphere between 10 & 50 Times the PEG	50	No	Yes
PAPR	100	Yes	Yes
SCBA/SAR Used in Positive Pressure (Pressure Demand Mode)	10,000	Yes	Yes

**Footnotes:**

1. If quantitatively fit tested, the device must demonstrate a fit factor of at least 100.
2. If quantitatively fit tested, the device must demonstrate a fit factor of at least 500.

## **ATTACHMENT 4**

### **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

#### **OSHA-Accepted Fit Test Protocols**

##### **A. Fit Testing Procedures – General Requirements**

The company shall conduct fit testing using the following procedures. The requirements in this attachment apply to all OSHA-accepted fit test methods, both QLFT and QNFT. There are several OSHA-accepted fit test protocols for QLFT. This procedure includes only the irritant smoke protocol since it requires less equipment and is more practical for field use.

1. The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user. Refer to Attachment 2 for the preferred respirator selections.
2. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension, and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
3. The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.
5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following Item A.6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
6. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

- a. Position of the mask on the nose
  - b. Room for eye protection
  - c. Room to talk
  - d. Position of mask on face and cheeks
7. The following criteria shall be used to help determine the adequacy of the respirator fit:
- a. Chin properly placed
  - b. Adequate strap tension, not overly tightened
  - c. Fit across nose bridge
  - d. Respirator of proper size to span distance from nose to chin
  - e. Tendency of respirator to slip
  - f. Self-observation in mirror to evaluate fit and respirator position.
8. The test subject shall conduct a user seal check (the negative and positive seal checks). Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.
9. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache, or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.
10. If a test subject exhibits difficulty breathing during the tests, he/she shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear the respirator while performing his/her duties.
11. If the associate finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.
12. Exercise Regimen: Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.
14. Test Exercises:
  - a. The following test exercises are to be performed for all fit testing methods prescribed in this attachment, except for the controlled negative pressure (CNP) method. A separate fit testing exercise regimen is contained in the CNP protocol. The test subject shall perform exercises, in the test environment, in the following manner:
    1. Normal Breathing: In a normal standing position, without talking, the subject shall breathe normally.
    2. Deep Breathing: In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
    3. Turning Head Side to Side: Standing in place, the subject shall slowly turn his/her head side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
    4. Moving Head Up and Down: Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e. when looking toward the ceiling).
    5. Talking: The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared test such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

#### Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

6. Grimace: The test subject shall grimace by smiling or frowning. (This only applies to QNFT testing; it is not performed for QLFT)
  7. Bending Over: The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.
  8. Normal Breathing: Same as Item A.14.a.1.
- b. Each test exercise shall be performed for one minute, except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

### **B. Qualitative Fit Test (QLFT) Protocols**

1. General:
  - a. The company shall ensure that persons administering the QLFT are able to perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.
  - b. The company shall ensure that the QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

2. Irritant Smoke (Stannic Chloride) Protocol – This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.
  - a. General Requirements and Precautions:
    1. The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
    2. Only stannic chloride smoke tubes shall be used for this protocol.
    3. No form of test enclosure or hood for the test subject shall be used.
    4. The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.
    5. The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the buildup of irritant smoke in the general atmosphere.
  - b. Sensitivity Screening Check – The person to be tested must demonstrate his/her ability to detect a weak concentration of the irritant smoke.
    1. The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
    2. The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

3. The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.
- c. Irritant Smoke Fit Test Procedure:
1. The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).
  2. The test subject shall be instructed to keep his/her eyes closed.
  3. The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within 6 inches of the respirator.
  4. If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
  5. The exercises identified in Item A.14 of this attachment shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
  6. If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
  7. Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

8. If a response is produced during this second sensitivity check, then the fit test is passed.

#### **C. Quantitative Fit Test (QNFT) Protocols**

The following quantitative fit testing procedures have been demonstrated to be acceptable: quantitative fit testing using a nonhazardous test aerosol (such as corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS], or sodium chloride) generated in a test chamber, and employing instrumentation to quantify the fit of the respirator; quantitative fit testing using ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit; quantitative fit testing using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

1. General:

- a. The company shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly, and ensure that test equipment is in proper working order.
- b. The company shall ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

2. Ambient Aerosol Condensation Nuclei (CNC) Quantitative Fit Testing Protocol – The ambient aerosol CNC quantitative fit testing (Portacount <sup>TM</sup>) protocol quantitatively fit test respirators with the use of a probe. The probed respirator is only used for quantitative tests. A probed respirator has a special sampling device, installed on the respirator, that allows the probe to sample the air from inside the mask. A probed respirator is required for each make, style, model, and size that the company uses and can be obtained from the respirator manufacturer or distributor. The CNC instrument manufacturer, TSI Inc., also provides probe attachments (TSI sampling adapters) that permit fit testing in an associate's own respirator. A minimum fit factor pass level of at least 100 is necessary for a half-mask respirator and a minimum fit factor pass level of at least 500 is required for a full facepiece negative pressure respirator. The entire screening and testing procedure shall be explained to the test subject prior to conducting the screening test.

- a. Portacount <sup>TM</sup> Fit Testing Requirements:

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

1. Check the respirator to make sure the sampling probe and line are properly attached to the facepiece and that the respirator is fitted with a particulate filter capable of preventing significant penetration by the ambient particles used for the fit test (e.g., NIOSH 42 CFR 84 Series 100, Series 99, or Series 95 particulate filter) per manufacturer's instructions.
  2. Instruct the associate to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.
  3. Check the following conditions for the adequacy of the respirator fit: chin properly places; adequate strap tension, not overly tightened; fit across nose bridge; respirator of proper size to span distance from nose to chin; tendency of the respirator to slip; and self-observation in a mirror to evaluate fit and respirator position.
  4. Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting facepiece, try another size of the same model respirator, or another model of respirator.
  5. Follow the manufacturer's instructions for operating the Portacount™ and proceed with the test.
  6. The test subject shall be instructed to perform the exercises in Item A.14 of this attachment.
  7. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.
- b. Portacount™ Test Instrument:
1. The Portacount™ will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

2. Since the pass or fail criterion of the Portacount <sup>TM</sup> is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance in this attachment.
  3. A record of the test needs to be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.
3. Controlled Negative Pressure (CNP) Quantitative Fit Testing Protocol – The CNP protocol provides an alternative to aerosol fit test methods. The CNP fit test method technology is based on exhausting air from a temporarily sealed respirator facepiece to generate and then maintain a constant negative pressure inside the facepiece. The rate of air exhaust is controlled so that a constant negative pressure is maintained in the respirator during the fit test. The level of pressure is selected to replicate the mean inspiratory pressure that causes leakage into the respirator under normal use conditions. With pressure held constant, air flow out of the respirator is equal to air flow into the respirator. The CNP fit test method measures leak rates through the facepiece fit for negative pressure respirators. The CNP instrument manufacturer, Dynatech Nevada, also provides attachments (sampling manifolds) that replace the filter cartridges to permit fit testing in an associate's own respirator. To perform the test, the test subject closes his/her mouth and holds his/her breath, after which an air pump removes air from the respirator facepiece at a pre-selected constant pressure. The facepiece fit is expressed as the leak rate through the facepiece, expressed as milliliters per minute. The quality and validity of the CNP fit tests are determined by the degree to which the in-mask pressure tracks the test pressure during the system measurement time of approximately five seconds. Instantaneous feedback in the form of a real-time pressure trace of the in-mask pressure is provided and used to determine test validity and quality. A minimum fit factor pass level of 100 is necessary for a half-mask respirator and a minimum fit factor of at least 500 is required for a full facepiece respirator. The entire screening and testing procedure shall be explained to the test subject prior to conducting the screening test.
- a. CNP Fit Test Requirements:
    1. The instrument shall have a non-adjustable test pressure of 15.0 mm water pressure.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

2. The CNP system defaults selected for test pressure shall be set at 15 mm of water (-0.58 inches of water) and the modeled inspiratory flow rate shall be 53.8 liters per minute for performing fit tests.

(Note: CNP systems have built-in capability to conduct fit testing that is specific to unique work rate, mask, and gender situations that might apply in a specific workplace. Use of system default values, which were selected to represent wear with medium cartridge resistance at a low-moderate work rate, will allow inter-test comparison of the respirator fit).

3. The individual who conducts the CNP fit testing shall be thoroughly trained to perform the test.
4. The respirator filter or cartridge needs to be replaced with the CNP test manifold. The inhalation valve downstream from the manifold either needs to be temporarily removed or propped open.
5. The test subject shall be trained to hold his/her breath for at least 20 seconds.
6. The test subject shall don the test respirator without any assistance from the individual who conducts the CNP fit test.
7. The QNFT protocol shall be followed according to Item C.1 of this attachment with an exception for the CNP test exercises.

b. **CNP Test Exercises:**

1. **Normal Breathing:** In an normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject needs to hold their head straight ahead and hold his/her breath for 10 seconds during the test measurement.
2. **Deep Breathing:** In a normal standing position, the subject shall breathe slowly and deeply for 1 minute, being careful not to hyperventilate. After the deep breathing exercise, the subject shall hold his/her head straight ahead and hold his/her breathe for 10 seconds during test measurement.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

3. Turning Head Side to Side: Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side for 1 minute. The head shall be held at each extreme momentarily so the subject can inhale at each side. After turning their head side to side exercise, the subject needs to hold head full left and hold his/her breath for 10 seconds during test measurement. Next, the subject needs to hold head full right and hold his/her breath for 10 seconds during test measurement.
4. Moving Head Up and Down: Standing in place, the subject shall slowly move his/her head up and down for 1 minute. The subject shall be instructed to inhale in the up position (i.e. when looking toward the ceiling). After moving head up and down exercise, the subject shall hold his/her head full up and hold his/her breath for 10 seconds during test measurement. Next, the subject shall hold his/her head full down and hold his/her breath for 10 seconds during test measurement.
5. Talking: The subject shall talk out loudly slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared test such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song for 1 minute. After the talking exercise, the subject shall hold his/her head straight ahead and hold his/her breathe for 10 seconds during test measurement.
6. Grimace: The test subject shall grimace by smiling or frowning for 15 seconds.
7. Bending Over. The test subject shall bend at the waist as if he/she were to touch his/her toes for 1 minute. Jogging in place shall be substituted for this exercise in those test environments such as shroud-tyupe QNFT units that prohibit bending at the waist. After the bending over exercise, the subject shall hold his/her head straight ahead and hold his/her breathe for 10 seconds during test measurement.

## **MANDATORY RESPIRATOR FIT TEST PROTOCOL**

### **OSHA-Accepted Fit Test Protocols**

8. Normal Breathing: The test subject shall remove and re-don the respirator within a one-minute period. Then, in a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject shall hold his/her head straight ahead and hold his/her breathe for 10 seconds during test measurement. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.
- c. CNP Test Instrument:
1. The test instrument shall have an effective audio warning device when the test subject fails to hold his/her breath during the test. The test shall be terminated whenever the test subject failed to hold his/her breath. The test subject may be refitted and retested.
  2. A record of the test shall be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, and size of respirator used; and date tested.

## ATTACHMENT 5 RESPIRATOR FIT TEST FORM

NAME: \_\_\_\_\_ CONDUCTED BY: \_\_\_\_\_  
PLEASE PRINT

SIGNATURE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

SSN: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ HOME DEPT: \_\_\_\_\_ DATE: \_\_\_\_\_

### FIT TEST PROTOCOL

#### QUANTITATIVE:

Fit Factor: \_\_\_\_\_

#### QUALITATIVE:

Irritant Smoke: \_\_\_\_\_

Other: \_\_\_\_\_

Specify: \_\_\_\_\_

### TYPE OF RESPIRATOR

(Circle Appropriate One)

APR/HF APR/FF SCBA

SAR/EGS PAPR OTHER

Respirator Manufacturer: \_\_\_\_\_

Model: \_\_\_\_\_

Size: \_\_\_\_\_

1. I understand why respiratory protection is needed and where and when it should be used.
2. I know how to use this respirator properly.
3. I know how to clean and inspect this respirator.
4. I understand the limitations and restrictions of the respirator I will be using.
5. I wore this respirator in normal air and performed the user seal checks.
6. I work this respirator in a test atmosphere.
7. I understand that a good gas-tight face seal cannot be achieved with obstructions such as facial hair or glasses.
8. I understand that corrective lenses compatible with the full facepiece are available from my manager.

INITIAL


cc: Corp. H&S Dept.

**ATTACHMENT 6**  
**SCBA MONTHLY INSPECTION CHECKLIST**

SCBA NO. \_\_\_\_\_

YEAR \_\_\_\_\_

ITEM INSPECTED	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Connections are tight												
Face-piece is in good shape												
Rubber parts pliable												
Regulator functions properly												
Alarm bell functions properly												
Cylinder fully charged												
Cylinder hydrotest current (within 3 years)												
Unit is clean												
Emergency Bypass functions properly												
Inspectors initials and employee number												
Date												

**DEFICIENCIES IN THE ABOVE ITEMS REQUIRE UNIT TO BE TAGGED AND REMOVED FROM SERVICE.**

cc: Manager, Corporate Health and Safety

## **ATTACHMENT 7**

### **GUIDE TO RESPIRATORY PROTECTIVE EQUIPMENT CLEANING, INSPECTION, MAINTENANCE, AND STORAGE**

A program for the maintenance of respirators shall include the following:

- Cleaning and sanitizing
- Inspection for defects
- Maintenance and repair
- Storage
- Assurance of breathing air quality

The following maintenance, inspection, and storage program is recommended.

#### **1. Cleaning and Sanitizing**

Respirators issued to an individual shall be cleaned and sanitized regularly. Each respirator shall be cleaned and sanitized before being worn by different individuals. Respirators intended for emergency use shall be cleaned and sanitized after being used. The following shall be completed in addition to the manufacturer's instruction for cleaning:

- a. Remove, when necessary, the following components of respiratory inlet covering assemblies before cleaning and sanitizing:
  - 1) Filters, cartridges, canisters
  - 2) Speaking diaphragms
  - 3) Valve assemblies
  - 4) Any components recommended by the respirator manufacturer
- b. Wash respiratory inlet covering assemblies in warm (43°C or 110°F maximum temperature) cleaner sanitizer solution. A stiff bristle (not wire) brush may be used to facilitate removal of dirt or other foreign material.
- c. Rinse the respirator inlet covering assemblies in clean, warm (43°C or 110°F maximum temperature) water.
- d. Drain all water, and air dry the respiratory inlet covering assemblies.
- e. Clean and sanitize all parts removed from the respiratory inlet covering assemblies as recommended by the manufacturers.
- f. If necessary to remove foreign material, hand wipe respiratory inlet covering assemblies, all parts, and all gasket- and valve-sealing surfaces with damp, lint-free cloth.

## **GUIDE TO RESPIRATORY PROTECTIVE EQUIPMENT CLEANING, INSPECTION, MAINTENANCE, AND STORAGE**

- g. Inspect parts and replace any that are defective.
- h. Reassemble parts on respirator inlet covering assemblies.
- i. Visually inspect and, where possible, test parts and respirator assemblies for proper function.
- j. Place assembled respirators in appropriate containers for storage.

Machines may be used to expedite the cleaning, sanitizing, rinsing, and drying of large numbers of respirators. Extreme care shall be taken to ensure against tumbling, agitation, or exposure to temperatures above those recommended by the manufacturer (normally 43°C or 110°F maximum), as these conditions are likely to result in damage to the respirators.

Ultrasonic cleaners, clothes washing machines, dishwashers, and clothes dryers have been specially adapted and successfully used for cleaning and drying respirators.

Alternatively, respirators may be washed in a detergent solution and then sanitized by immersion in a sanitizing solution. Some sanitizing solutions that have proven effective are: (a) a hypochlorite (bleach) solution (50 ppm chlorine), 2-minute immersion; (b) an aqueous iodine solution (50 ppm iodine), 2-minute immersion; or (c) a quaternary ammonium solution (200 ppm of quaternary ammonium compounds in water with less than 500 ppm total hardness), 2-minute immersion.

Inflammation of the skin of the respirator user (dermatitis) may occur if the quaternary ammonium compounds are not completely rinsed from the respirator. The hypochlorite and iodine solutions are unstable and break down with time; they may cause deterioration of rubber or other elastomeric parts and may be corrosive to metallic parts. Immersion times should not be extended beyond the mentioned time periods, and the sanitizers shall be thoroughly rinsed from the respirator parts.

Respirators may become contaminated with toxic materials. If the contamination is light, normal cleaning procedures should provide satisfactory decontamination; otherwise, separate decontamination steps may be required before cleaning.

## **GUIDE TO RESPIRATORY PROTECTIVE EQUIPMENT CLEANING, INSPECTION, MAINTENANCE, AND STORAGE**

### **2. Inspection**

The user shall inspect the respirator immediately prior to each use to ensure that it is in proper working condition. After cleaning and sanitizing, each respirator shall be inspected to determine if it is in proper working condition, if it needs replacement parts or repairs, or if it should be discarded. Each respirator stored for emergency or rescue use shall be inspected at least monthly.

Respirator inspection shall include a check for tightness of connections; for the condition of the respiratory inlet covering, head harness, valves, connecting tubes, harness assemblies, hoses, filters, cartridges, canisters, end-of-service life indicators, electrical components, and shelf-life date(s); and for the proper function of regulators, alarms, and other warning systems. Each rubber or other elastomeric part shall be inspected for pliability and signs of deterioration. Each air and oxygen cylinder shall be inspected to ensure that it is fully charged according to the manufacturer's instructions.

A record of inspection dates shall be kept for each respirator maintained for emergency or rescue use. Respirators that do not meet applicable inspection criteria shall be immediately removed from service (a temporary replacement assigned) and repaired or permanently replaced.

Inspection of hoop-wrapped air cylinders will follow the recommendation set forth in the Compressed Gas Association, Inc. publication CGA C-6.2-1988, "Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders," and will be examined for the following five types of damage:

- Abrasion is damage caused by wearing, grinding, or rubbing away by friction. Abrasions less than 0.005 inch (0.127 mm) deep are acceptable and should have no adverse effects on the safety of the cylinder. Abrasions with isolated groups of fibers exposed or flat spots with a depth greater than 0.005 inch (0.127 mm) but less than 0.0075 inch (0.191 mm) are acceptable if the damage is repaired. Cylinders abraded in excess of 0.0075 inch (0.191 mm) should be taken out of service until professionally inspected.
- Cuts are damage inflicted by a sharp object. Cuts or scratches less than 0.005 inch (0.127 mm) deep are acceptable regardless of length, number, or direction. For cuts greater than 0.005 inch (0.127 mm) deep and up to a depth of 0.015 inch (0.38 mm) with a maximum 1- or 2-inch (25.4 mm or 50.8 mm) length transverse to the fiber direction, the cylinder should be removed from service until repaired. Cylinders with cuts greater than 0.015 inch (0.38 mm) with a length greater than 2 inches (50.8 mm) transverse to the fiber direction or with bare metal showing through must be condemned.

## **GUIDE TO RESPIRATORY PROTECTIVE EQUIPMENT CLEANING, INSPECTION, MAINTENANCE, AND STORAGE**

- Impact damage is caused by a cylinder striking or being struck by another object. Impact damage is considered slight if a frosted area is noted in the impact area. These cylinders may be returned to service. Impact damage is severe if evidence of fiber cutting, delamination, and possible structural damage is apparent. Cylinders sustaining severe impact damage should be evaluated using the guidelines for cuts and structural damage.
- Structural damage is damage which causes a visual change in original cylinder configuration. This change can include any evidence of bulges, a cocked end fitting, concave areas on the domes or on the cylinder section, or, if by visual inspection of the cylinder interior, there is evidence of damage involving deformation of the liner. Structurally damaged cylinders must be immediately removed from service and condemned.
- Heat or fire damage to a cylinder is evident by discoloration, charring, or burning of the composite, labels, paint, or plastic components of the valve. Such damage would cause a cylinder to be removed from service and condemned. Note: If the cylinder is only soiled from smoke or other debris and is found to be intact underneath, it may be returned to service.

### **3. Maintenance and repair**

Replacement of parts or repairs shall be done only by persons trained in proper respirator maintenance and assembly. Replacement parts shall be only those designated for the specific respirator repaired. Reducing or admission valves, regulators, and alarms shall be adjusted or repaired by the respirator manufacturer or a technician trained by the manufacturer. Instrumentation for valve, regulator, and alarm adjustments and tests should be calibrated to a standard traceable to the National Institute of Standards and Technology (NIST), at a minimum of every 3 years.

### **4. Storage**

Respirators shall be stored in a manner that will protect them against physical and chemical agents such as vibration, shocks, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Respirators shall be stored to prevent distortion of rubber or other elastomeric parts. Respirators shall not be stored in such places as lockers and tool boxes, unless they are protected from contamination, distortion, and damage. Emergency and rescue respirators that are placed in the work areas shall be quickly accessible at all times, and the storage cabinet or container in which they are stored shall be clearly marked.

## **GUIDE TO RESPIRATORY PROTECTIVE EQUIPMENT CLEANING, INSPECTION, MAINTENANCE, AND STORAGE**

### **5. Assurance of breathing air quality**

Compressed gaseous air, compressed gaseous oxygen, liquid air, and liquid oxygen used for respiration shall be of high purity. Compressed gaseous air shall meet at least the requirements of the specification for Type I-Grade D breathing air, and liquid air shall meet at least the requirements for Type II-Grade E breathing air as described in ANSI/CGA G-7.1-1989.

The CGA designation for Grade D and Grade E breathing air is as follows:

- Grade D breathing air, as per ANSI/CGA G-7.1-1989, shall contain between 19.5 and 23.5 percent oxygen with the balance predominantly nitrogen, a maximum of 5 mg/m<sup>3</sup> oil (condensed), a maximum of 10 ppm carbon monoxide, no pronounced odor, and a maximum of 1,000 ppm carbon dioxide.
- Grade E breathing air, as per ANSI/CGA G-7.1-1989, shall contain between 20 and 22 percent oxygen with the balance predominantly nitrogen, a maximum of 5 mg/m<sup>3</sup> oil (condensed), a maximum of 10 ppm carbon monoxide, no pronounced odor, a maximum of 500 ppm carbon dioxide, and 25 ppm total hydrocarbon content (as methane).
- Note: The quality verification for oil is not required for synthesized air whose oxygen and nitrogen components are produced by air liquefaction. Carbon monoxide quality verification is not required for Grade D breathing air if synthesized air when nitrogen component was previously analyzed and meets National Foundry (NF) specification and when the oxygen component was produced by air liquefaction and meets United States Pharmacopeia (USP) specification.

Compressed gaseous air may contain low concentrations of oil introduced from equipment introduced during processing or normal operation. If high-pressure oxygen passes through an oil- or grease-coated orifice, an explosion or fire may occur. Therefore, compressed gaseous oxygen shall not be used in supplied air respirators or in open-circuit type self-contained breathing apparatus that have previously used compressed air. Oxygen concentrations greater than 23.5 percent shall be used only in equipment designed for oxygen service or distribution.

The dew point of air used to recharge self-contained breathing apparatus shall be -65°F or lower (less than 25 ppm water vapor). The driest air obtainable (dew point of -100°F or lower) should be used for recharging SCBA cylinders to be used in environments with ambient temperatures below -25°F. The dew point of breathing air used with supplied air respirators should be lower than the lowest ambient temperature to which any regulator or control valve on the respirator or air-supplied system will be exposed.

## **GUIDE TO RESPIRATORY PROTECTIVE EQUIPMENT CLEANING, INSPECTION, MAINTENANCE, AND STORAGE**

Breathing air couplings shall be incompatible with outlets for nonrespirable plant air or other gas systems to prevent inadvertent servicing of supplied air respirators with nonrespirable gases. **IT IS RECOMMENDED THAT FOSTER OR HANSEN FITTINGS BE RESERVED FOR BREATHING AIR SYSTEMS.** Breathing air outlets shall be labeled.

Breathing air may be supplied to supplied air respirators from cylinders or air compressors. Cylinders shall be tested and maintained in accordance with applicable DOT specifications for shipping containers (49 CFR 173 and 178). Breathing gas containers shall be marked in accordance with ANSI/CGA C-4-1990. Specific test recommendations for purchased breathing air are given in the following table.

<b>Method of Preparation</b>	<b>Analysis Recommended</b>
Compression: Supplier does not fill cylinders with any other gases.	Check 10% of cylinders from each lot for ppm CO and odor
Compression: Supplier fills cylinders with gases other than air.	Analyze all cylinders for percent oxygen. Check 10% of cylinders from each lot for ppm CO and odor.
Reconstitution	Analyze all cylinders for percent oxygen. Check 10% of cylinders from each lot for ppm CO and odor.

A compressor shall be constructed so as to avoid entry of contaminated air. For all air compressors, including portable types, the air intake location shall be carefully selected, and monitored closely to ensure continued quality of air supply to the compressor. The system shall be equipped as necessary with a suitable in-line air-purifying sorbent bed and filter to further assure breathing air quality. Maintenance and replacement/refurbishment of compressor and associated air-purifying/filter media shall be performed periodically, by trained personnel following manufacturer's recommendations and instructions.

As part of acceptance testing, and prior to initial use, representative sampling of the compressor air output shall be performed to ensure that it complies with the requirements in Paragraph 1 of this section. To ensure a continued high-quality air supply, and to account for any distribution system contaminant input, a representative sample should be taken at distribution supply points. Samples should be collected on a period basis, as directed by the RPP Manager. Specific test recommendations are given in the following table.

## GUIDE TO RESPIRATORY PROTECTIVE EQUIPMENT CLEANING, INSPECTION, MAINTENANCE, AND STORAGE

Type/Sample	Oil Lubricated	Non-Oil Lubricated	Combustion Engine Powered
Water Vapor	3	3	3
Carbon Monoxide	3		3
Condensed Hydrocarbon	3		3
Carbon Dioxide			3
Odor	3	3	3
Notes:  1. When using air compressors, intake location shall be carefully selected and monitored closely to ensure air supplied to the compressor is of adequate quality.  2. No frequency for periodic checks of air quality is specified, due to wide variation in equipment types, use and working environments, and operating experience.  3. Continuous monitoring of temperature and carbon monoxide are not required.  4. For non-oil lubricated compressors that operate at less than 35 psi, no sampling for water is required.  5. These requirements apply to systems designed for breathing air, other air-supply systems need to be evaluated on a case-by-case basis for the type and frequency of testing.			

Further details on sources of compressed air and its safe use can be found in CGA G-7-1988 available from the Corporate Health and Safety Department.

**ATTACHMENT 7**

**PERSONAL PROTECTIVE EQUIPMENT**

Approved By:

Signature on File

Richard L. Barcum, CIH, CSP, CHMM  
Manager, Corporate Health and Safety

Signature on File

David D. Alleman, CPA  
Vice President, CFO

Procedure

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## **PERSONAL PROTECTIVE EQUIPMENT**

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### **1.0 PURPOSE AND SUMMARY**

The purpose of this procedure is to address the elements of the Personal Protective Equipment (PPE) program. This PPE program conforms to the requirements found in 29 CFR 1910.120(g) Engineering Controls, Work Practices, and Personal Protective Equipment for Employee Protection; 29 CFR 1910 Subpart I – Personal Protective Equipment, .132 General Requirements, .133 Eye and Face Protection, .135 Head Protection, .136 Foot Protection, .138 Hand Protection, and 29 CFR 1910.1200 Hazard Communication.

TolTest associates will be protected from chemical, physical, and environmental hazards by the appropriate PPE when engineering and administrative controls are not effective in controlling job hazards.

### **2.0 RESPONSIBILITY MATRIX**

#### **2.1 Procedure Responsibility**

The Manager, Corporate Health and Safety is responsible for the issuance, revision and maintenance of this procedure.

#### **2.2 Management**

Management has the responsibility to provide PPE appropriate for the hazards associated with expected work tasks.

#### **2.3 Supervisors**

Supervisors have the responsibility to conduct hazard assessments and to ensure associates use PPE in compliance with this procedure.

## **2.4 Health and Safety**

Health and safety personnel have the responsibility to assist supervisors in the ongoing hazard assessment, selection, and inspection of PPE. In the event of conflict, the health and safety personnel's recommendations shall prevail.

## **2.5 Associates**

Associates have the responsibility to use, inspect, and decontaminate PPE as directed by supervisors. Associates shall wear hard hats, eye protection, and safety toed foot protection (chemical resistant when required) at all TolTest job sites (excluding field offices) and industrial facilities, unless the Health and Safety Department has provided an exemption. It is the responsibility of all associates to report to any work site prepared to work in Level D PPE (see section 3.7 of this procedure). All other protective equipment is the responsibility of the project.

## **3.0 DEFINITIONS**

**ANSI** – American National Standards Institute

**Doff** – The process of removing protective clothing and equipment in a manner which minimizes the possibility of chemical contamination of the person wearing the clothing and equipment.

**Don** – The process of putting on protective clothing and equipment.

**Level A** – The highest available level of respiratory, skin, and eye protection. This level of protection includes the following:

- Pressure-demand, full-face piece SCBA or pressure-demand supplied-air respirator with escape SCBA.
- Fully-encapsulating, chemical-resistant suit.
- Inner chemical-resistant gloves.
- Chemical-resistant safety boots.
- Hardhat

This level of protection should be used when:

- The chemical substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on either:

- measured (or potential for) high concentration of atmospheric vapors, gases, or particulates, or
  - site operations and work functions involving a high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates of materials that are harmful to skin or capable of being absorbed through the intact skin.
- Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible.
  - Operations must be conducted in confined, poorly ventilated areas until the absence of conditions requiring Level A protection is determined.

**Level B** – This level of protection provides the same level of respiratory protection but less skin protection than Level A. It is the minimum level recommended for initial site entries until the hazards have been further identified. Level B protection includes the following:

- Pressure-demand, full-face piece SCBA or pressure-demand supplied-air respirator with escape SCBA.
- Chemical resistant clothing (overall and long-sleeved jacket; hooded, one- or two-piece chemical splash suit; disposable chemical resistant one-piece suite).
- Inner and outer chemical-resistant gloves.
- Chemical-resistant safety boots.
- Hardhat

This level of protection should be used when:

- The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection. This involves atmospheres:
  - with IDLH concentrations of specific substances that do not represent a severe skin hazard; or
  - that do not meet the criteria for use of air-purifying respirators.
- Atmosphere contains less than 19.5 percent oxygen.
- Presence of incompletely identified vapors or gases is indicated by direct-reading organic vapor detection instrument, but vapors and gases are not

suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.

**Level C** – This level of protection provides the same level of skin protection as Level B, but a lower level of respiratory protection. Level C protection includes the following:

- Full- or half-face piece, air purifying canister-equipped respirator.
- Chemical resistant clothing (overall and long-sleeved jacket; hooded, one- or two-piece chemical splash suit; disposable chemical resistant one-piece suite).
- Inner and outer chemical-resistant gloves.
- Chemical-resistant safety boots.
- ANSI approved eye protection with, half-face piece respirator.
- Hardhat

This level of protection should be used when:

- The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin.
- The types of air contaminants have been identified, concentrations measured, and a canister is available that can remove the contaminant.
- All criteria for the use of air-purifying respirators are met.

**Level D** – This level of protection provides no respiratory protection and minimal skin protection. This level of protection includes:

- Hardhat
- Safety toed boots
- ANSI approved eye protection
- Standard work clothing.

This level of protection should be used when:

- The atmosphere contains no known hazard

- Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

## 4.0 PROGRAM ELEMENTS

Program elements define the regulatory requirements of a PPE program.

- 4.1** Hazard Assessment. All tasks undertaken by TolTest personnel will be assessed for chemical, physical, and environmental hazards present or likely to be present which necessitate the use of PPE to ensure adequate protection. This assessment shall take place prior to commencement of work.
- 4.2** Hazard Reassessment. The level of protection of type of PPE shall be increased when additional information on site conditions indicates that increased protection is necessary to reduce associated exposures below permissible exposure limits, published exposure levels for hazardous substances and health hazards, or other physical and environmental hazards.
- 4.3** PPE Selection. The Project Manager or designee will initially select the level and types of PPE that will protect the affected associate(s) from the hazards identified in the initial hazard assessment.

On a periodic basis, the Manager, Corporate Health and Safety will establish specifications for commonly used PPE and review submissions for blanket order PPE suppliers. PPE items should be procured only from these approved vendors. A list of specifications and approved vendors is available through the Corporate Health and Safety Department.

- 4.4** Written Certification. The supervisor is responsible for ensuring that the workplace has been evaluated for hazards and that a written certification is provided for each task. This may be accomplished through a Health and Safety Plan (HASP), Job Hazard Analysis or the Tailgate Safety Form (IPP150).
- 4.5** Communication of Selection. Associates will be informed of the PPE selection decisions through reading or verbally reviewing the HASP, attending pre-project safety briefings, job safety analysis (JSA) review, or attending safety meetings.
- 4.6** PPE Use and Fit. The supervisor is responsible for the proper use and fit of PPE by associates under their direction and will monitor the effectiveness of these items. The Health and Safety Department will advise and assist the supervisor in these areas.
- 4.7** Work Mission Duration. The supervisor will be responsible for the establishment of the duration of specific work missions. The durations will be determined by the complexity of the assignment, PPE involved, physical factors, temperature,

humidity, inclement weather conditions, elevation of work, and acclimation of the demands of the assigned task.

A sufficient amount of rest breaks will be allowed in order to avoid overexertion or thermal stress by the associates while maintaining productive work practices.

**4.8** PPE Maintenance and Storage. Each associate is responsible for the proper maintenance and storage of PPE. The supervisor will assure that proper maintenance is carried out.

**4.9** PPE Decontamination. Each associate is responsible for daily cleaning and decontamination of reusable PPE such as outer gloves, outer boots, reusable chemically resistant clothing, and standard issue PPE such as hard hats and respirators.

TolTest will provide an area for decontamination operations, necessary cleaning agents, cleaning tools, such as brushes and wash basins, and a method to dispose of materials generated during decontamination activities.

**4.10** PPE Training. Associates will receive training in the proper use of PPE prior to wearing the equipment in a work situation. This training will be administered upon commencement of employment during Safety Orientation. The supervisor is responsible for ensuring that this training is conducted.

**4.11** PPE Donning and Doffing Procedures. Associates will receive training upon commencement of employment concerning the donning and doffing of PPE. The supervisor is responsible for ensuring that this training is conducted.

**4.12** PPE Inspection. Each associate shall inspect PPE for defects and proper function prior to use. Defective or damaged PPE shall not be used. Any PPE found to be defective or have missing parts will be replaced prior to use.

**4.13** PPE In Use Monitoring. The supervisor is responsible for monitoring the effectiveness of selected PPE. If at any time, the level of PPE is to be downgraded, it is mandatory that the change be approved by the Corporate Health and Safety Department.

**4.14** Evaluation of PPE Program. The Health and Safety Department will compile data of PPE to determine that the PPE performs to TolTest needs. This is to ensure that PPE is providing the necessary level of protection, quality, and is appropriate for the work performed.

If at any time the failure of PPE causes injury to an associate or fails to perform as expected, the supervisor will take the unit or item out of service, investigate the incident, and immediately report it to the Corporate Health and Safety Department. If after scrutiny, the unit or item is determined to have a

manufacturing defect, all identical units will be removed from use until corrective actions are taken.

**4.15** Limitations During Temperature Extremes. Extreme temperatures exert stress on personnel and may alter the performance characteristics of PPE. During periods of extreme temperature, work assignments will be adjusted to protect the associate from overexertion or exposure. The supervisor will evaluate if temperature extremes are effecting performance characteristics of PPE and report these findings to the Corporate Health and Safety Department.

**4.16** Unserviceable PPE. Any PPE which is no longer functioning properly or is no longer serviceable shall be removed from use and either repaired or destroyed.

## **5.0 SAFETY EQUIPMENT POLICY**

TolTest will provide, maintain, and replace personal protective equipment as detailed below.

**5.1** Standard Issue Safety Equipment. Standard issue safety equipment will be provided at no cost to field associates. These items consist of:

- Hard Hat
- Safety glasses with clear and shaded lenses
- Full-face respirator with nose cup and/or half-face respirator

**5.2** Company Provided Equipment. TolTest will provide, at no cost to the associate, the following items on a task specific or project specific basis:

- Chemical protective clothing equipment such as gloves, boots, and clothing.
- Safety glasses or goggles
- Face shields
- Flame resistant clothing
- Hearing protection
- Fall protection
- Respirator cartridges

**5.3** Associate Provided Equipment. The associate shall provide the following equipment:

- ANSI approved safety toed/shank boots (Note: Further guidance is provided in Section 9, Safety Footwear)
- Outerwear for cold weather

**5.4** Equipment Replacement. TolTest will replace worn-out or work-damaged equipment detailed in Sections 4.1 and 4.2. TolTest reserves the right to charge associates for the replacement cost of equipment which is lost or damaged through neglect or abuse.

**5.5** Additional PPE. The Health and Safety Department or the supervisor may require additional company provided PPE on a task specific basis.

## **6.0 WORK CLOTHES**

TolTest associates, subcontractors and visitors will observe the requirements for proper work clothing when on TolTest project sites, facilities, and shops.

**6.1** Pants. Long pants are required at all times. These pants must be in good repair. The use of shorts under protective clothing (i.e. tyvek) must be authorized by the Health and Safety Department on a project specific basis.

**6.2** Shirts. Shirts will be worn on the job. If button-down shirts are worn they will be buttoned up the front and at the cuff unless rolled up. Shirt tails must be kept in the trousers. Sleeveless shirts are prohibited at all work locations. T-shirts are permitted.

**6.3** Clothing. Loose or ragged clothing will not be worn.

**6.4** Modifications. The Health and Safety Department may modify work clothing requirements on a project specific basis.

**6.5** Contaminated Clothing. Clothing (including shoes) saturated with petroleum products or chemicals will be removed immediately to prevent irritation and possible dermal exposure.

**6.6** Jewelry. Rings and other jewelry (except watches) must be removed when working in areas where they could catch on moving objects, sharp protrusions, come in contact with electrical circuits or chemical agents, or compromise PPE (i.e. rings capable of cutting gloves). Additionally, the supervisor may deem other types of jewelry inappropriate for the work task.

**6.7** Hair Length. Hair long enough to constitute a hazard while working around moving machinery or rotating tools and equipment must be secured by a net or

tied back. Hair styles must not interfere with the ability to properly wear safety headgear, safety spectacles, and respiratory protection.

## **7.0 EYE/FACE PROTECTION**

All TolTest associates, subcontractors, and visitors shall wear eye and face protection meeting the requirements of ANSI document Z87.1 – 1989 titled “Practice of Occupational and Educational Eye and Face Protection” while on a TolTest project site or during tasks posing exposure to eye or face injury.

- 7.1**    Requirements. To protect the face and eyes against injuries from flying objects, splashing liquids, and harmful rays, safety spectacles with side shields, goggles, face shields, cutting goggles, and welding helmets will be used as appropriate. The supervisor will be responsible to identify the need for eye/face protection and specify the eye/face protection for each operation. A selection guide is attached in Attachment 2.
- 7.2**    Safety Spectacles. Safety spectacles with sideshields are protective devices intended to shield the wearer’s eyes from a variety of hazards. While they are primary protectors and may be used alone, they may also be used in conjunction with other protective devices such as goggles and face shields.
- 7.3**    Goggles. Goggles are protective devices intended to fit the face immediately surrounding the eyes in order to shield the eyes from a variety of hazards. While they are primary protectors and may be used alone, they also may be used in conjunction with other protectors.
- 7.4**    Face Shields. Face shields are protective devices intended to shield the wearer’s face, or portions thereof, in addition to the eyes, from certain hazards. Face shields are secondary protectors and shall not be used in place of safety glasses, tight fitting goggles, or other primary protective devices.
- 7.5**    Cutting Goggles. Cutting goggles are protective devices designed to protect the eyes from optical radiation and impact. Cutting goggles are primary protectors however, in some situations they must be supplemented with face shields. See Attachment 3 for selection guidelines.
- 7.6**    Welding Helmets. Welding helmets are protective devices intended to shield the eyes and face from optical radiation and impact. Welding helmets are secondary protectors and shall be used only in conjunction with primary protectors such as safety spectacles or goggles. See Attachment 4 for selection guidelines.
- 7.7**    Prescription Spectacles. For associates that wear prescription spectacles, TolTest will provide prescription safety spectacles with side shields. It is mandatory that prescription safety spectacles not be altered by the associate and worn at all times when safety spectacles are required. Refer to HS902, Prescription Safety Glasses.

**7.8** Contact Lenses. Contact lenses are not permitted to be worn where accidental eye contact with chemical agents or physical materials is possible. TolTest will provide prescription safety spectacles and other protective devices for use in these situations.

**7.9** Shaded Lenses. Shaded lenses are not to be worn indoors or under low light conditions.

**7.10** Modifications. Eye/face protection may not be altered or modified in any manner. For example, removing side shields on safety glasses.

## **8.0 SAFETY HEADGEAR**

All TolTest associates, subcontractors, and visitors shall wear appropriate safety headgear while on TolTest project sites or when exposed to overhead hazards.

**8.1** Requirements. Safety headgear shall be worn by all personnel while on a TolTest project site or engaged in work where there is a hazard of falling objects, low overhead restrictions, and other overhead hazards exist. Safety headgear may also be required to be worn by contractual requirements.

**8.2** Use. Safety headgear must be worn as prescribed by the manufacturer in the bill front position unless the headgear was approved to be worn in another position.

### **8.2.1 Hard Hats**

8.2.1.1 Hard hats are designed to protect against falling objects, flying objects, bumps and lacerations.

8.2.1.2 Hard hats must meet the requirements of ANSI document Z89.1-1986 titled "Protective Headwear for Industrial Workers – Requirements."

8.2.1.3 Only hard hats provided by the Corporate Health and Safety Department are authorized to be used by TolTest associates on TolTest projects.

8.2.1.4 Classes of Hard hats

- Class A Hard hats provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).
- Class B Hard hats provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards.
- Class C Hard hats provide lightweight comfort and impact protection but offer no protection from electrical hazards.

8.2.1.5 Hard hats must be utilized when protection is required from impact and penetration hazards from flying/falling objects or from electrical energy.

#### 8.2.2 Bump Caps

8.2.2.1 Bump caps are designed to protect against bumps and lacerations.

8.2.2.2 Bump caps do not meet the requirements of ANSI document Z89.1-1986 titled "Protective Headwear for Industrial Workers – Requirements"

8.2.2.3 Only bump caps provided by the Corporate Health and Safety Department are authorized to be used by TolTest associates on TolTest projects. The only approved bump cap is the Vulcan (V400) baseball cap insert bump cap.

8.2.2.4 Bump caps may only be worn with special baseball caps available from the Corporate Health and Safety Department. These caps are bright orange or bright yellow in color and have the slogan "Safety – Use Your Head" on the back of the cap. These hats may not be worn without the bump cap inserted.

8.2.2.5 Bump caps may not be utilized when protection is required from impact and penetration hazards from flying/falling objects or from electrical energy.

8.2.2.6 Bump caps may be utilized where protection is only needed from head bumps and lacerations.

**8.3** Modifications. Safety headgear shall not be painted, drilled or modified in any manner. Use of safety related headgear stickers are permitted.

**8.4** Life Expectancy. No maximum mandatory service life is specified by regulation for safety headgear. However, a hardhat should be removed from service if chemical corrosion, cracks, deformities, worn suspension, or discoloration is noted with the unit.

## **9.0 SAFETY FOOTWEAR**

All TolTest associates, subcontractors and visitors that enter TolTest project sites and are exposed to foot hazards shall wear footwear meeting the ANSI document Z41-1991 titled "Protective Footwear" while on a TolTest project site or during operations posing foot injury.

**9.1** Project Sites. Safety toe leather work boots shall be worn on all TolTest project sites. High top or low top sneakers, western style boots with riding heel, or other footwear even though ANSI approved are not appropriate for the activities typically encountered on TolTest project sites. The Project Manager is responsible for addressing additional or more stringent safety footwear requirements (i.e., chemical resistant boots).

- 9.2** TolTest Facilities and Shops. Personnel working at TolTest shops and facilities have the option of wearing other types of ANSI approved safety work shoes and boots provided they are appropriate for the tasks being performed. The supervisor of the work area is responsible to decide what type of footwear is appropriate.

## **10.0 HAND PROTECTION/GLOVES**

TolTest associates, subcontractors, and visitors will don appropriate gloves when engaged in any operation that presents a hazard to the hands.

- 10.1** Use. Appropriate work gloves shall be available for hand protection against heat and flame, cold, chemicals, petroleum products, corrosive materials, moisture, mechanical abrasion, electricity, and sharp and rough surfaces.
- 10.2** Selection. Glove selection for appropriate hand protection shall be based on an evaluation of the performance characteristic of the hand protection relative to the task(s) to be performed, chemical concentration and properties, physical conditions present, duration of use, and the hazards and potential hazards identified. When chemical contaminants are involved, the type of work glove used must be approved by the Health and Safety Department.
- 10.3** Electrical. When working on high voltage (480 volts and above) electrical equipment, electrically tested high voltage gloves will be worn. Leather protection will be worn over these gloves. (NOTE: Only authorized personnel are permitted to work on high voltage electrical equipment).

## **11.0 PROTECTIVE CLOTHING**

TolTest associates, subcontractors, and visitors will don appropriate protective clothing when engaged in any operation that presents a hazard to the body.

- 11.1** Use. Appropriate clothing shall be available for body protection against heat and flame, cold, chemicals, petroleum products, corrosive materials, moisture, mechanical abrasion, electricity, and sharp and rough surfaces.
- 11.2** Selection. Clothing selection of the appropriate body protection shall be based on an evaluation of the performance characteristic of the body protection relative to the task(s) to be performed, chemical concentration and properties, physical conditions present, duration of use, and the hazards and potential hazards identified. The type of protective clothing must be approved by the Health and Safety Department.

## **12.0 SUPPLIED AIR RESPIRATORS AND TOTALLY-ENCAPSULATING CHEMICAL PROTECTIVE SUITS**

Supplied air respiratory protection and/or totally-encapsulating chemical protective suits (Level A or B) shall be used in conditions where inhalation or skin absorption of a hazardous substance may result in a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.

**12.1** Use. TolTest will only use Level A or Level B protection when all other reasonable efforts of controlling associate exposure through engineering or administrative means are not possible.

**12.2** Authorization. Level A or Level B protection may only be used after authorization of the Manager, Corporate Health and Safety.

**12.3** Health and Safety Personnel. An appropriately experienced health and safety representative must be assigned to the project site where Level A or Level B is to be used. They must evaluate that the following items are ready:

- Communications
- Decontamination
- Emergency rescue procedures and personnel
- Emergency medical attention

**12.4** Training. Site specific training will be provided on donning, use, doffing, decontamination, and emergency procedures for all associates required to use Level A or Level B protective equipment.

**12.5** Decontamination and Disposal. TolTest will discard and properly dispose of any Level A or B equipment which has sustained chemical or physical damage.

## **13.0 LOANING PERSONAL PROTECTIVE EQUIPMENT**

TolTest associates should not loan TolTest personal protective equipment to any client, subcontractor, or visitor personnel. If there are urgent circumstances, such as an emergency response where the equipment cannot be obtained elsewhere and chemical exposure is possible, TolTest personnel can loan personal protective equipment such as respirators, protective clothing and other safety equipment to client personnel or personnel from other organizations. However, because of the potential liability involved, approval of senior TolTest management is required as well as that of the Manager, Corporate Health and Safety. Additionally, a representative of the company and the individual using the equipment are required to execute a TolTest Indemnification and Release Agreement. A copy of this agreement is included as Attachment 1.

**13.1** Execution of Indemnification and Release Agreement. In general, the following will be required BEFORE the personal protective equipment may be loaned:

- A TolTest Division Vice President must specifically authorize the loaning of personal protective equipment on the particular project.
- The TolTest Manager, Corporate Health and Safety must specifically authorize the loaning of personal protective equipment on the particular project.
- An authorized representative of the company whose personnel will use the equipment must sign the Indemnification and Release Agreement.
- The individual who will use the equipment must also sign the Indemnification and Release Agreement attesting to the fact that the individual is either experienced in the use of the equipment or has been given instruction on the safe use of the equipment and is medically qualified to wear the equipment.
- A TolTest representative must also sign the form as a witness to the above and forward the original of the agreement to the Manager, Corporate Health and Safety.

**13.2** Contractual Requirement. An Indemnification and Release Agreement is not required if providing personal protective equipment to clients or regulatory personnel is a contractual requirement.

**13.3** Exemptions. Hardhats, safety glasses, hearing protection, and protective clothing provided for cleanliness is exempted from the indemnification requirement. Instruction should be provided to the individual prior to wearing.

## **14.0 EXCEPTION PROVISIONS**

Variances to this procedure shall be requested in accordance with established variance procedures.

## **15.0 ATTACHMENTS**

1. TolTest, Inc. Indemnification And Release Agreement For Personal Protective Clothing
2. Face Protection Selection Guidelines
3. Guide For Cutting Shade Numbers
4. Guide For Welding Shade Numbers

**ATTACHMENT 1**  
**TOLTEST, INC.**  
**INDEMNIFICATION AND RELEASE AGREEMENT**  
**FOR PERSONAL PROTECTIVE CLOTHING**

FOR AND IN CONSIDERATION OF the use by the undersigned of property belonging to TolTest, Inc. (hereinafter referred to as "TolTest") and which may include full-face mask respirators, self-contained breathing apparatus, and other equipment and supplies, and other good and valuable consideration, the undersigned, for himself and his successors, and assigns, does hereby release and discharge TolTest, its officers, employees, agents and subcontractors from any and all claims, actions, demands, damages, costs, loss of services, expenses, compensation, third-party actions, or suits, including attorneys fees, arising and resulting from the aforementioned use of property, equipment, or supplies belonging to TolTest.

In addition, the undersigned, on behalf of his employer, principal, himself, and his successors, and assigns, agrees to release, save, and hold harmless, protect, indemnify, and defend TolTest, and its officers, employees, agents and subcontractors against any and all claims, actions, and expenses as above described, whether for bodily injury, property damage or destruction, or both, arising or resulting in any way from the use by the undersigned of property of TolTest and agrees to save, hold harmless, protect, indemnify, and defend TolTest against any such claims, actions, or expenses, referenced above, that might be brought against TolTest by any third persons or the heirs, successors, executors or assigns of the undersigned.

The undersigned acknowledges by signing that he has carefully read this Agreement, understands the contents thereof, and has freely and voluntarily signed the same.

EXECUTED on \_\_\_\_\_, 20\_\_\_\_\_.

1. TolTest Division Vice President (or designee) authorizing use of equipment:

\_\_\_\_\_

2. TolTest Manager, Corporate Health and Safety (or designee) authorizing use of equipment:

\_\_\_\_\_

3. CLIENT OR SUBCONTRACTOR REPRESENTATIVE AUTHORIZING EQUIPMENT USE:

I authorize the individual in 4. below to use TolTest provided personal protective equipment

Company Name \_\_\_\_\_

Sign Name \_\_\_\_\_

Print Name \_\_\_\_\_

Title \_\_\_\_\_

4. **INDIVIDUAL USE EQUIPMENT:** I certify that I am familiar with the equipment and medically qualified to wear the equipment.

Company Name \_\_\_\_\_

Sign Name \_\_\_\_\_

Print Name \_\_\_\_\_

Title \_\_\_\_\_

5. TolTest Representative Acknowledging Signatures:

Sign Name \_\_\_\_\_

## ATTACHMENT 2

### FACE PROTECTION SELECTION GUIDELINES

<b>Hazard</b>	<b>Protection</b>
Flying fragments, objects, large chips, particles, sand, and dirt from chipping, grinding, riveting and sanding	Safety spectacles or goggles Supplement with face machining, masonry shield for severe exposure
Chemical splash from corrosive and chemical handling, pressure washing operations	Chemical Splash Goggles Supplement with face shield for severe exposure
Nuisance dust from woodworking, buffing and general dusty conditions	Safety spectacles or goggles
Hot sparks from grinding operations	Safety spectacles or goggles Supplement with face shield for severe exposure
Molten metal from torch cutting operations	Shaded cutting goggles (see Attachment 3) and face shield
Welding operations	Safety spectacles and shaded welding hood (see Attachment 4)

### ATTACHMENT 3

#### GUIDE FOR CUTTING SHADE NUMBERS

<u>Operation</u>	<u>Plate Thickness</u>	<u>Minimum Protective Shade</u>
<u>Gas Welding</u>		
Light	Under 1/8	4 or 5
Medium	1/8 to 1/2	5 or 6
Heavy	Over 1/2	6 or 8
<u>Oxygen Cutting</u>		
Light	Under 1	3 or 4
Medium	1 to 6	4 or 5
Heavy	Over 6	5 or 6

**ATTACHMENT 4****GUIDE FOR WELDING SHADE NUMBERS**

<u>Operation</u>	<u>Electrode Size</u> <u>1/32 inch</u>	<u>Arc Current (A)</u>	<u>Minimum Protective Shade</u>	<u>Suggested* Shade No. (Comfort)</u>
Shielded metal arc welding	Less than 3	Less than 60	7	--
	3 – 5	60 – 160	8	10
	5 – 8	160 – 250	10	12
	More than 8	250 – 550	11	14
Gas metal arc welding and flux		Less than 60	7	--
Cored arc welding		60 – 160	10	11
		160 – 250	10	12
		250 – 550	10	14
Air carbon		150 – 500	10	14
Air cutting	(Light)	Less than 500	10	12
	(Heavy)	500 – 1000	11	14
Plasma arc welding		Less than 20	6	6 to 8
		20 – 100	8	10
		100 – 400	10	12
		400 – 800	11	14
Plasma arc cutting	(Light)	Less than 300	8	9
	(Medium)	300 – 400	9	12
	(Heavy)	400 – 800	10	14
Torch brazing		--	--	3 or 4
Torch soldering		--	--	2
Carbon arc welding		--	--	14

\* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

**ATTACHMENT 8**

**HAZARD COMMUNICATION PROGRAM**

Approved By:

Signature on File

Richard L. Barcum, CSP, CHMM  
Manager, Corporate Health and Safety

Signature on File

David D. Alleman, CPA  
Vice President, CFO

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## **Procedure**

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# **HAZARD COMMUNICATION PROGRAM**

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## **1.0 PURPOSE AND SUMMARY**

This procedure has been developed to ensure that all affected TolTest associates are provided with current information on the hazardous chemicals that they may encounter during their work. The basic principle of Hazard Communication (HAZCOM) is that anyone that works with hazardous chemicals has both a need and a right to know the identities and the hazards of any chemical to which they may be occupationally exposed. This principle has been promulgated by the Occupational Safety and Health Administration (OSHA) in 29 Code of Federal Regulations (CFR) 1910.1200 *Hazard Communication*.

Some company activities are likely to occur in states or localities that either have or will have requirements that differ from those contained within the federal standard. In such circumstances, the Group/Unit Manager or Project Manager, as applicable, will be responsible for ensuring that these requirements are included in either a site health and safety plan or a similar document and conveyed to all affected associates. If federal, state, or local regulations vary or conflict, the more protective requirements and practices will be followed.

## **2.0 RESPONSIBILITY MATRIX**

### **2.1 Procedure Responsibility**

The Manager, Corporate Health and Safety is responsible for the issuance, revision and maintenance of this procedure.

### **2.2 Action/Approval Responsibilities**

See Responsibility Matrix (See Attachment 1)

## **3.0 DEFINITIONS**

**Article** – A manufactured item other than a fluid or particle which is formed to a specific shape or design during manufacture, has end use function dependent in whole or in part upon its shape or design during end use, which under normal conditions of use does not release more than trace amounts of a hazardous substance and does not pose a physical hazard or health risk to employees.

**Affected Associate** – Any TolTest associate who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies.

**Company** – TolTest

**Hazardous Chemical** – Any chemical which poses a physical or health hazard.

**Health Hazard** – A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed associates. Health hazards include chemicals which are carcinogens, toxic, or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes or mucous membranes.

**Immediate Use** – When hazardous chemicals will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

**Label** – Any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

**Group Manager/Unit Manager/Project Manager** – The associate who is responsible for the management of activities within a particular workplace. This associate is ultimately responsible for health and safety responsibilities at his/her workplace. This associate does not necessarily need to be physically located at a workplace in which he/she is responsible for ensuring that the requirements of this procedure are fulfilled. The Group Manager/Unit Manager/Project Manager may designate another qualified individual to assume some or all of the responsibilities delineated in this procedure.

**Physical Hazard** – A chemical for which there is scientifically valid evidence that it is a combustible liquid, compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable, or reactive.

**Responsible Party** – The entity responsible for preparation or distribution of Material Safety Data Sheets (MSDS) that can provide additional information on the hazardous chemical and appropriate emergency procedures.

**Trade Secret** – Any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not currently know or use it.

**Workplace** – An establishment, job site, laboratory, office, or project at one geographic location containing one or more work areas.

#### 4.0 TEXT

In accordance with the requirements established in 29 CFR 1910.1200, TolTest is required to develop, implement, and maintain at each workplace a HAZCOM program. The program contained herein is intended to ensure that the hazards of all chemicals used by associates are evaluated and that information concerning the hazards of each chemical are conveyed to affected associates. The TolTest program generally consists of five provisions, including hazardous chemical inventories, procurement of hazardous chemicals, container labeling, MSDSs, and the development and implementation of associate training programs.

There are some types of materials that are specifically exempt from this procedure. These materials include:

- Any hazardous waste as defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1967, as amended (42 U.S.C. 6901 *et seq.*), when subject to regulations issued under that Act by the U.S. Environmental Protection Agency.
- Any hazardous chemical as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) when the hazardous chemical is the focus of remedial or removal actions being conducted under CERCLA in accordance with U.S. Environmental Protection Agency regulations.
- Tobacco or tobacco products.
- Wood or wood products, including lumber which will not be processed, where the manufacturer or importer can establish that the only hazard they pose to associates is the potential for flammability or combustibility. Wood or wood products which have been treated with a hazardous chemical and wood which may be subsequently sawed or cut, generating dust, are covered by this procedure.

- Articles.
- Food or alcoholic beverages which are sold, used, or prepared in a retail establishment, or foods intended for personal consumption by associates while in the workplace.
- Any drug, as defined by the Federal Food, Drug, and Cosmetic Act, when it is in solid, final form for direct administration to patient; drugs which are packaged by the manufacturer for sale to consumers in a retail establishment; and drugs intended for personal consumption by associates while in the workplace.
- Cosmetics which are packaged for sale to consumers in a retail establishment, and cosmetics intended for personal consumption by associates while in the workplace.
- Any consumer product or hazardous chemical, as defined by the Consumer Product Safety Act and Federal Hazardous Chemicals Act, where the employer can show that it is used in the workplace for the purpose intended by the manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended.
- Nuisance particles where the manufacturer, distributor, or importer can establish that they do not pose any physical or health hazard covered under this procedure.
- Ionizing and nonionizing radiation.
- Biological hazards.

#### **4.1 Hazardous Chemical Inventories**

A complete list of all hazardous chemicals known to be present in the workplace which may expose an associate to a physical or health hazard will be maintained. This list will be placed in the front section of the MSDS binder discussed in Section 4.4. The Group Manager/Unit Manager/Project Manager will be responsible for updating and revising the inventory list as new chemicals are procured or when chemicals are no longer used and have been removed from the workplace. The identity of the hazardous chemical maintained on the list will be consistent with that which appears on the MSDS. All affected associates will be made aware of the location of the MSDS binder.

#### **4.2 Procurement of Hazardous Chemicals**

Since TolTest does not manufacture, distribute, or import hazardous chemicals, procurement is the primary method of obtaining hazardous chemicals. The associate initiating the procurement of a hazardous chemical will be responsible for requesting a MSDS from the manufacturer or distributor. This MSDS is to be provided prior to or at the time of receipt of the chemical. Hazardous chemicals are strictly forbidden to be accepted without an accompanying MSDS. Upon receipt of a hazardous chemical, the person receiving the shipment shall notify the Group Manager/Unit Manager/Project Manager or designee so that a review of the MSDS can be conducted. Also, note that the supplier is only required to submit an MSDS with the initial shipment of a hazardous chemical to a specific location.

In the unlikely event that a hazardous chemical is either manufactured, imported, or distributed by TolTest, the Manager, Corporate Health and Safety will be notified so that required actions, as dictated by OSHA, can be implemented.

#### **4.3 Container Labeling**

Labeling on hazardous chemical containers is meant to provide immediate information to affected associates about the hazards of chemicals they will be expected to handle during the course of their job duties. It is the responsibility of the manufacturer, importer, or distributor of the chemical to ensure that each hazardous chemical leaving their place of business is labeled, tagged, or marked with the following information:

- Identity of the hazardous chemical (must be common to the label, the MSDS, and the chemical inventory list).
- Appropriate warnings of the hazardous effects of a chemical (words, pictures, symbols, or any combination that appears on the label and convey the specific physical or health hazards including target organ effects).
- Name and address of the chemical manufacturer, importer, or other responsible party.

The associate receiving the shipment is responsible to ensure that each container of hazardous chemical(s) has been provided with this labeling information. Hazardous chemicals that do not contain adequate labeling are not to be accepted. In the event that hazardous chemicals that do not contain adequate labeling are inadvertently received, they are not to be handled until the identity of the material and the appropriate hazard warnings are provided.

If the hazardous chemical is regulated by a chemical-specific health standard, then it must be labeled in accordance with the requirements of that standard.

As long as the hazardous chemicals are maintained in their original, properly labeled container and their composition is not altered, there is no need for additional labeling. In the event that the chemical is transferred from a labeled container to an unlabeled portable container, the user must label this secondary container unless the container is intended for immediate use of the associate who performs the transfer.

In locations where associates are present who only communicate in languages other than English, all labeling information must be presented in their language as well as in English.

#### **4.4 Material Safety Data Sheets (MSDS)**

MSDSs are written documents that convey specific, detailed information about the hazards associated with a specific chemical. It is the responsibility of the manufacturer, importer, or distributor to either provide MSDSs prior to shipment or with the shipped materials. The associate receiving the shipment of materials is responsible to ensure that a MSDS has been supplied. As described in Section 4.2, the associate initiating the procurement is responsible for requesting a MSDS from the manufacturer or distributor. In the event that a MSDS has not been provided, it is the responsibility of the receiving associate to obtain one from the manufacturer or distributor as soon as possible. The material shall not be handled prior to the receipt of a MSDS.

Each MSDS will be forwarded to the Group Manager/Unit Manager/Project Manager or designee who will then place a copy into the MSDS binder. This binder will be maintained in the workplace and updated as new materials arrive. The local health and safety representative will ensure that this binder is reviewed with all affected associates and is readily accessible during each work shift. A designated area for the storage of the binder will be established and associates are to be informed of its location. Associates can request a personal copy of a MSDS by asking the Group Manager/Unit Manager/Project Manager or designee. Where associates travel between workplaces during a work shift, the MSDSs may be kept at the primary workplace. Affected associates must be able to immediately obtain information from the MSDSs in the event of an emergency.

MSDSs will be in English and other languages, as necessary, for the particular associates in which the MSDSs will be used. MSDSs are to include the following information:

- Name, address, and telephone number of the responsible party
- Identity of the chemical as it appears on the label
- Hazardous ingredients
- Physical and chemical characteristics
- Physical and health hazards
- Primary route(s) of entry
- OSHA permissible exposure limit (PEL) or other applicable exposure limits
- Carcinogen information
- Safe handling and use information
- Control measures
- Emergency and first aid procedures
- Date of preparation and latest revision date.

#### **4.5 Training**

All affected associates will be provided with information and training on the hazardous chemicals in their work area at the time of their initial assignment, when new information about the hazards of a chemical is discovered, and whenever a new physical or health hazard that the associates have not previously been informed of is introduced into the workplace. The HAZCOM training record has been provided as Attachment 2.

Training on this HAZCOM program may be satisfied by the use of Health and Safety Meetings. These meetings will be used to convey the following information:

- The details of this HAZCOM program
  - This includes an explanation of labeling systems, the use of MSDSs, and how associates can obtain and use the appropriate hazard information.
- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the workplace.
- The physical and health hazards of the chemicals in the workplace
- The measures that can be taken to protect affected associates from these hazards.

The guidelines for these meetings are outlined in Procedure IPP150, Incident Prevention Program: Health and Safety Meetings. These meetings will be facilitated by the Group Manager/Unit Manager/Project Manager or other designee who is knowledgeable on the requirements of the HAZCOM program and the specific chemicals that are being discussed.

#### **4.6 Trade Secrets**

Some hazardous chemical manufacturers, importers, and distributors may withhold proprietary information required to be present on a MSDS. In such instances, the name and telephone number of the manufacturer, importer, or distributor will be forwarded to the Manager, Corporate Health and Safety for further action. It will be the responsibility of the Manager, Corporate Health and Safety to either obtain the necessary information or to decide to reject the chemical for use in TolTest workplaces.

#### **4.7 Contractors**

During the execution of our work, there will be situations when TolTest will be at locations where employees of other entities may be exposed to chemicals being used by TolTest. It will be the responsibility of the Group Manager/Unit Manager/Project Manager to provide the other entities' site representative(s) with copies of all MSDSs for materials to which their employees may be exposed, as well as the labeling system in place, the protective measures to be taken, safe handling procedures to be used, and the location and availability of the MSDS binder.

Periodically, TolTest work areas will be located on or adjacent to a facility operated by another entity. In these situations, the Group Manager/Unit Manager/Project Manager or designee will contact the other entity to obtain applicable MSDS(s) for hazardous chemicals that TolTest associates may be exposed to.

### **5.0 EXCEPTION PROVISIONS**

Variances to this procedure shall be requested in accordance with established variance procedures.

### **6.0 ATTACHMENTS**

1. Responsibility Matrix
2. Hazard Communication And Right-To-Know Standards Associate Training Record

## ATTACHMENT 1 RESPONSIBILITY MATRIX

Action	Procedure Section	Responsible Party				
		Purchaser	Receiver	Affected Associate	Group Manager/Unit Manager/Project Manager or Designee	Manager, Corporate Health & Safety
Understand and Comply with State and/or Local Regulations	1.0				X	
Issue, Revise, and Maintain Procedure	2.1					X
Review and Understand This Procedure	4.0	X	X	X	X	
Establish, Update, and Revise MSDS Binder	4.1				X	
Request MSDSs for Procured Chemicals	4.2	X				
Initial Review of MSDSs	4.2				X	
Implement Requirements For Company Manufactured, Imported, or Distributed Chemicals	4.2					X
Review Incoming Shipments for Hazard Labeling/MSDS	4.3		X			
Request Missing MSDSs From Manufacturer or Distributor	4.4		X			
Provide HAZCOM Training	4.5				X	
Receive HAZCOM Training	4.5			X		
Obtain Information on Proprietary Chemicals	4.6					X
Transmit MSDSs to Contractors	4.7				X	
Obtain MSDSs from Other Entities	4.7				X	

**ATTACHMENT 2**  
**HAZARD COMMUNICATION AND RIGHT-TO-KNOW STANDARDS**  
**ASSOCIATE TRAINING RECORD**

1. I have been informed about the Hazard Communication Program, Material Safety Data Sheets (MSDS), their use and location, and procedures to obtain copies.
2. I have been informed that some of my work may involve exposure to toxic substances, the hazards of which will be reviewed with me in subsequent safety meetings.
3. I have been informed about the right of associates to have access to relevant exposure and medical records, and the procedures for requesting access.
4. I understand that TolTest must act upon a request in a reasonable amount of time so as to avoid interruption of normal work operations.
5. I have been provided access to the applicable regulations governing hazard communication, and access to associate exposure and medical records


PRINT NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

**ATTACHMENT 9**

**HEARING CONSERVATION PROGRAM**

Approved By:

Signature on File

Richard L. Barcum, CSP, CHMM  
Manager, Corporate Health and Safety

Signature on File

David D. Alleman, CPA  
Vice President, CFO

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## **Procedure**

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# **HEARING CONSERVATION PROGRAM**

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## **1.0 PURPOSE AND SUMMARY**

The purpose of this procedure is to establish guidelines for the company hearing conservation program. Regulatory requirements mandate that the company administer a hearing conservation program whenever associate sound exposures equal or exceed an 8-hour time-weighted average (TWA) sound level of 85 decibels (dB).

Evidence is well established that worker exposure to sound of sufficient intensity and duration can result in hearing damage. This procedure prescribes the control measures required to prevent associate exposure to excessive sound levels and includes provisions for:

- Monitoring of the workplace to determine associate exposures
- An audiometric testing program which includes baseline and annual audiograms
- An associate training and information program
- Description of various control measures that can be used to decrease exposures.
- Providing hearing protection to all affected associates when administrative or engineering controls fail to reduce sound levels to below the action level.
- Recordkeeping requirements.

## **2.0 RESPONSIBILITY MATRIX**

### **2.1 Procedure Responsibility**

The Manager, Corporate Health and Safety is responsible for the issuance, revision and maintenance of this procedure.

## **2.2 Action/Approval Responsibilities**

See Responsibility Matrix (See Attachment 1)

## **3.0 DEFINITIONS**

**Action Level (AL)** – An 8-hour TWA of 85 dB or a dose of 50 percent.

**Company** –TolTest, Inc.

**Permissible Exposure Limit (PEL)** – A legally binding 8-hour TWA of 90 dB or a dose of 100 percent.

**Standard Threshold Shift (STS)** – Change in hearing threshold relative to the baseline audiogram of 10 dB or more at 2,000, 3,000, and 4,000 hertz (Hz) in either ear.

## **4.0 TEXT**

### **4.1 General**

The company hearing conservation program will be implemented and protection against the effects of sound exposure will be provided whenever sound levels exceed the action level.

### **4.2 Monitoring**

Monitoring of associate exposures to sound will be conducted whenever it is anticipated that exposure may exceed the action level. This monitoring will be conducted by a qualified associate who, through professional credentials, training, or experience, has the necessary qualifications to specify and use the type of monitoring equipment (area or personal) that will be represent associate exposures. This monitoring will be repeated whenever changes in the work environment lead to the possibility of additional exposures or inadequacy of selected hearing protection. Associates will be provided the opportunity to observe monitoring and will be notified when the results exceed the action level.

Sound level monitoring instrumentation will be operated on the A-weighted scale in slow response mode. Associate sound exposures will be computed in accordance with Attachment 2 without regard to any attenuation provided by the use of hearing protection.

### **4.3 Audiometric Testing**

Audiometric testing will be provided to all associates exposed at or above the action level.

#### **4.3.1 Baseline Audiogram**

Audiometric test results obtained from the pre-hire medical examination will be used as the baseline audiogram. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace sound. Associates will also be notified of the need to avoid high levels of non-occupational sound exposure during this 14-hour period.

#### **4.3.2 Annual Audiogram**

Annual audiograms will be conducted for all associates exposed at or above the action level during the preceding year. Each annual audiogram will be compared to that associate's baseline audiogram to determine if the audiogram is valid and if a STS has occurred.

### **4.4 Associate Training and Information**

All associates who are exposed to sound levels above the action level are required to participate in a formal training program. The program will be present by the appropriate Group/Unit Manager, or designee, during a monthly safety meeting and will include, at a minimum, the following information:

- The effects of sound on hearing
- The purpose of hearing protection; the advantages, disadvantages, and attenuation of various types; and instructions on selection, fitting, use, and care.
- The specific nature of operations which could result in exposure to excessive sound levels.
- The purpose of audiometric testing and an explanation of the test procedures.

- The engineering controls and administrative practices associated with the associate's job assignment.

This training program will be repeated annually. Participating associates are required to complete the Hearing Protection Training Completion Record (Attachment 3). This record will be maintained by the Corporate Health and Safety Department.

The company will make available to affected associates or their authorized representatives a copy of 29 Code of Federal Regulations (CFR) 1910.95 and will also post a copy in the workplace.

#### **4.5 Control Measures**

A straightforward method of controlling sound exposure is to examine the problem in terms of its three basic elements including:

- Sound arises from a source,
- Travels over a path, and
- Affects a receiver or listener.

The solution to a given sound problem might require alteration or modification of any or all of these three basic elements including:

- Modifying the source to reduce its sound output.
- Altering or controlling the transmission path to reduce the sound level reaching the listener.
- Providing the receiver with hearing protection (but only if the sound source or path cannot be controlled).

##### **4.5.1 Sound Control at the Source**

Perhaps the best method for controlling sound at its source is the initial equipment selection process. The following summarizes those features that the buyer should look for and steps to be taken in selecting equipment:

- Low-sound certification.

- Advertisement of “quiet” operation, evidence of sound control design.
- Evidence of “lower” and “slower” operating characteristics.
- Request an “on-site” or “in operation” inspection of mechanical equipment before purchase.

Most mechanical devices are complex sound generators. Though it is impractical to discuss all possible solutions to all sound problems, some general control measures and methods have been provided below:

- Reduce impact or impulse sound by reducing the weight, size, or height of fall of impacting mass.
- Reduce speed in machines and flow velocities and pressure in fluid conveyance systems.
- Balance rotating parts to control machinery sound and vibration of fans, fly wheels, pulleys, cams, shafts, etc.
- Reduce frictional resistance between rotating, sliding, or moving parts by frequent lubrication and proper alignment; static and dynamic balancing of rotating parts; and/or correction of eccentricity or “out-of-roundness” of wheels, gears, pulleys, etc.
- Reduce resistance in air or fluid systems by use of low flow velocities, smooth surfaces of duct or pipe systems, and long-radius turns and flared sections in pipes, etc., to reduce turbulence.
- Isolate vibration elements in machinery; install motors, pumps, etc., on most massive part of machine; use belt or roller drives in place of gear trains; use flexible hoses and wiring instead of rigid piping and stiff wiring; etc.
- Apply vibration damping materials such as liquid mastics; pads of rubber, felt, foam, or fibrous blankets; or sheet metal viscoelastic laminates or composites to vibrating machine surface.
- Reduce sound leakage from the interior of machines such as compressors by sealing or covering all openings or applying acoustical materials to machine interiors.

#### **4.5.2 Sound Control in the Transmission Path**

Another effective way to limit associate exposure to sound is through the use of transmission path controls. These controls may include, but are not necessarily limited to:

- Separation of the sound source and receiver.
- Use of sound absorbing materials on ceiling, floor, or wall surfaces.
- Use of sound barriers and deflectors in the sound path.
- Use of acoustical lining on inside surfaces of passageways, ducts, pipe chases, or electrical channels.
- Use of mufflers or silencers on all gasoline or diesel engines, regardless of size, and particularly on equipment when large quantities of high-pressure, high-velocity gases, liquids, steam, or air are discharged.
- Use vibration isolators and flexible couplers where the sound transmission path is structural in character.

#### **4.5.3 Protection for the Receiver**

When engineering controls fail to reduce sound levels to below the action level, hearing protection will be provided. Hearing protection will be provided at no cost to associates and will be replaced as necessary.

Supervisors will ensure that hearing protection is worn by all associates who are exposed at or above the action level. Associates will be given the opportunity to select their hearing protection from a variety of suitable protection devices that attenuate their exposure to the action level or below. Attenuations are determined by subtracting 7 dB from the noise reduction rating (NRR) of the protector and subtracting the remainder from the TWA sound level. The company provides a variety of suitable hearing protectors from which associates can choose and provides training in the use and care of these devices along with ensuring proper initial fitting.

#### **4.5.3.1 Work Areas**

Specific work areas may be identified as noise sensitive areas and signs have been posted to notify personnel that hearing protection is required. Associates should consult their supervisor for hearing protection requirements; and for appropriate devices.

#### **4.5.3.2 Tool Noise**

Hearing protectors are required to associates performing certain tasks or operating certain tools as listed below. Associates within 15 feet of such operations should also wear hearing protectors. Such work tasks include use of the following:

Jack hammer	Cup wheel air grinder
Pile driver	Skid units
Impact gun	Table saw
Impact wrench	Radial saw
Disc grinder	Sandblasting
Skill saw	Welding
High volume vacuums (guzzlers)	Chain saw
Concrete saw	Demolition saw

Are there any other jobs/tools/equipment which falls into this category?

#### **4.6 Posted Areas**

Areas where sound levels are greater than or equal to 85 dBA must be posted with appropriate signs to caution that hearing damage may result from working in these areas.

#### **4.7 Recordkeeping**

The Corporate Health and Safety Department will maintain an accurate record of associate exposure measurements which includes the following information:

##### **4.7.1 Audiometric Tests**

- Job classification

- Date of audiogram
- Examiner's name
- Date of last acoustic calibration of audiometer
- Associates' most recent noise exposure assessment
- Record of the measurement of the background sound pressure levels in the test room

#### **4.7.2 Record Retention**

- Noise exposure records must be kept for two years.
- Audiometric testing records must be kept for the length of employment plus 30 years.

#### **4.7.3 Access to Records**

Records must be provided on request to associates, former associates, representative designated by individual associates, and the Assistant Secretary of the Department of Labor.

### **5.0 EXCEPTION PROVISIONS**

None permitted.

### **6.0 ATTACHMENTS**

1. Responsibility Matrix
2. Sound Exposure Computation
3. Hearing Protection Training Completion Record

**ATTACHMENT 1  
RESPONSIBILITY MATRIX**

Action	Procedure Section	Responsible Party		
		Supervisor	Group/Unit/ Project Manager	Manager, Corporate Health & Safety
Issue, Revise and Maintain Procedure	2.1			X
Monitor Associate Exposures	4.2	X		X
Provide Training	4.4		X	
Make Available/Post 29 CFR 1910.95	4.4		X	

## ATTACHMENT 2 SOUND EXPOSURE COMPUTATION

### Computation of Associate Sound Exposure

- A. Sound dose is computed using Table 1 as follows:

When the sound level is constant over the entire work shift, the sound dose (D), in percent is given by:

$$D = 100 C/T$$

Where C is the total length of the work day, in hours, and T given in Table 1.

- B. When the work shift sound exposure is composed of two or more periods of sound at different levels, the total sound dose over the work day is given by:

$$D = 100 (C_1/T_1 + C_2/T_2 \dots C_n/T_n)$$

Where  $C_n$  indicates the total time of exposure at a specific sound level and  $T_n$  indicates the reference duration for that level as given by Table 1.

- C. The eight-hour TWA sound level, in decibels, may be computed from the dose, in percent, by means of the formula:

$$TWA = 16.61 \log_{10} (D/100) + 90$$

For an eight-hour work shift with the sound level constant over the entire shift, the TWA is equal to the measured sound level.

### Conversion Between “Dose” and “8-Hour TWA” Sound Level

Sound exposure is usually measured with an audio dosimeter which gives a readout in terms of “dose.” Dosimeter readings can be converted to an 8-hour TWA sound level.

In order to convert the reading of a dosimeter into TWA, use Table 2. This table applies to dosimeters that are set to calculate dose or percent exposure according to the relationships in Table 1. So, for example, a dose of 91 percent over an 8-hour day results in a TWA of 89.3 decibels and a dose of 50 percent corresponds to a TWA of 85 decibels.

If the dose as read on the dosimeter is less than or greater than the values found in Table 2, the TWA may be calculated by using the formula:

$$TWA = 16.61 \log_{10} (D/100) + 90$$

Where TWA equals 8-hour TWA sound level and D equals accumulated dose in percent exposure.

**Table 1**  
**Permissible Sound Exposure**

<b>A-Weighted Sound Level (decibels)</b>	<b>Permitted Duration Per Workday (T) (hours)</b>	<b>A-Weighted Sound Level (decibels)</b>	<b>Permitted Duration Per Workday (T) (hours)</b>
80	32.0	106	0.87
81	27.9	107	0.76
82	24.3	108	0.66
83	21.1	109	0.57
84	18.4	110	0.50
85	16.0	111	0.44
86	13.9	112	0.38
87	12.1	113	0.33
88	10.6	114	0.29
89	9.2	115	0.25
90	8.0	116	0.22
91	7.0	117	0.19
92	6.1	118	0.16
93	5.3	119	0.14
94	4.6	120	0.125
95	4.0	121	0.11
96	3.5	122	0.095
97	3.0	123	0.082
98	2.6	124	0.072
99	2.3	125	0.063
100	2.0	126	0.054
101	1.7	127	0.047
102	1.5	128	0.041
103	1.3	129	0.036
104	1.1	130	0.031
105	1.0		

**Table 2**  
**Conversion From “Percent Sound Exposure” or “Dose” To “8-Hour TWA Sound Level”**

Dose or Percent Sound Exposure (D)	TWA	Dose or Percent Sound Exposure (D)	TWA	Dose or Percent Sound Exposure (D)	TWA
10	73.4	116	91.1	510	101.8
15	76.3	117	91.1	520	101.9
20	78.4	118	91.2	530	102.0
25	80.0	119	91.3	540	102.2
30	81.3	120	91.3	550	102.3
35	82.4	125	91.6	560	102.4
40	83.4	130	91.6	570	102.6
45	84.2	135	92.2	580	102.7
50	85.0	140	92.4	590	102.8
55	85.7	145	92.7	600	102.9
60	86.3	150	92.9	610	103.0
65	86.9	155	93.2	620	103.2
70	87.4	160	93.2	630	103.3
75	87.9	165	93.6	640	103.4
80	88.4	170	93.8	650	103.5
81	88.5	175	94.0	660	103.6
82	88.6	180	94.2	670	103.7
83	88.7	185	94.4	680	103.8
84	88.7	190	94.6	690	103.9
85	88.8	195	94.8	700	104.0
86	88.9	200	95.0	710	104.1
87	89.0	210	95.4	720	104.2
88	89.1	220	95.7	730	104.3
89	89.2	230	96.0	740	104.4
90	89.2	240	96.3	750	104.5
91	89.3	250	96.6	760	104.6
92	89.4	260	96.9	770	104.7
93	89.5	270	97.2	780	104.8
94	89.6	280	97.4	790	104.9
95	89.6	290	97.7	800	105.0
96	89.7	300	97.9	810	105.1
97	89.8	310	98.2	820	105.2
98	89.9	320	98.4	830	105.3
99	89.9	330	98.6	840	105.4
100	90.0	340	98.8	850	105.4
101	90.1	350	99.0	860	105.5
102	90.1	360	99.2	870	105.6
103	90.2	370	99.4	880	105.7
104	90.3	380	99.6	890	105.8
105	90.4	390	99.8	900	105.8
106	90.4	400	100.0	910	105.9
107	90.5	410	100.2	920	106.0
108	90.6	420	100.4	930	106.1
109	90.6	430	100.5	940	106.2
110	90.7	440	100.7	950	106.2
111	90.8	450	100.8	960	106.3
112	90.8	460	101.0	970	106.4
113	90.9	470	101.2	980	106.5
114	90.9	480	101.3	990	106.5
115	91.1	490	101.5	999	106.6
		500	101.6		

**ATTACHMENT 3**

**HEARING PROTECTION TRAINING COMPLETION RECORD**

	<u>INITIAL</u>
1. I have been informed about the health hazards associated with exposure to excessive sound levels and its potential effect on hearing.	
2. I have been informed about the types of work that may result in exposure to excessive sound levels, and the necessary protective steps to prevent excessive exposure, including engineering controls and administrative practices.	
3. I understand the purpose for, proper use, and limitations of hearing protection devices, and I have received instructions on selection, fitting, use, and care of such devices.	
4. I have been informed about the purpose of audiometric testing and an explanation of the test procedures.	
5. Copies of the applicable regulations governing occupational exposure to excessive sound have been made available to me.	

PRINT NAME: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_

cc: Corporate Health and Safety Department

**ATTACHMENT 10**

**RVAAP FACILITY-WIDE SAFETY AND HEALTH PLAN**

**FINAL**

**FACILITY-WIDE  
SAFETY AND HEALTH PLAN**

FOR

**ENVIRONMENTAL INVESTIGATIONS**

AT THE

**RAVENNA ARMY AMMUNITION PLANT  
RAVENNA, OHIO**

*Prepared for*



**US Army Corps  
of Engineers®**

**U.S. Army Corps of Engineers – Louisville District  
Contract No. DACA 62-00-D-0001  
Delivery Order CY02**

**March 2001**



**FINAL**

**Facility-Wide  
Safety and Health Plan  
for  
Environmental Investigations  
at the  
Ravenna Army Ammunition Plant,  
Ravenna, Ohio**

**March 2001**

**Prepared for**

**U.S. Army Corps of Engineers  
Louisville District  
Contract No. DACA 62-00-D-0001  
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**Prepared by**

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**SCIENCE APPLICATIONS INTERNATIONAL CORPORATION**

contributed to the preparation of this document and should not  
be considered an eligible contractor for its review.

## **APPROVALS**

### **FACILITY-WIDE SAFETY AND HEALTH PLAN FOR ENVIRONMENTAL INVESTIGATIONS AT THE RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OHIO**

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U.S. Army Program Manager

Date

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U.S. Army Health and Safety Manager

Date

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## ACRONYMS

AOC	Area of Concern
CFR	<i>Code of Federal Regulations</i>
CIH	Certified Industrial Hygienist
CPR	cardiopulmonary resuscitation
EM	Environmental Management
EOD	explosive ordnance disposal
ESS	Explosives Safety Submission
FP	flash point
FSHP	Facility-wide Safety and Health Plan
GFCI	ground fault circuit interrupter
H&S	Health and Safety
HAZWOPER	Hazardous Waste Site Operations
IDW	investigation derived waste
IP	ionization potential
MSDSs	Material Safety Data Sheet
NIOSH	National Institute of Occupational Safety and Health
OJT	on-the-job training
OSHA	Occupational Safety and Health Administration
PPE	personal protective equipment
PVC	polyvinyl chloride
RVAAP	Ravenna Army Ammunition Plant
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
UXO	unexploded ordnance
VP	vapor pressure
WBGH	wet bulb glove temperature

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## INTRODUCTION

This Facility-wide Safety and Health Plan (FSHP) sets forth the minimum requirements for protecting personnel involved in environmental investigations at the Ravenna Army Ammunition Plant (RVAAP). Standard procedures must be used to minimize the potential for personnel injury or illness. These will include on-site training, routine inspections, visual and instrument (as appropriate) surveillance for unexploded ordnance, and enforcement of the health and safety requirements by project management. This plan is organized to follow and address the requirements in Appendix B to ER 385-1-92, "Safety and Occupational Health Document Requirements for Hazardous, Toxic, and Radioactive Waste and Ordnance and Explosive Waste Activities." It is designed to comply with the requirements of Environmental Management (EM) 385-1-1, "U.S. Army Corps of Engineers Safety and Health Requirements Manual," and relevant Occupational Safety and Health Administration (OSHA) regulations. This plan was prepared to provide contractors with guidance on health and safety hazards and controls. Nothing in this document relieves the contractor from the requirement to comply with all applicable portions of the EM 385-1-1 and OSHA regulations, and to provide a safe workplace.

This FSHP is intended to serve as an upper tier document addressing the hazards and controls expected to be common to the investigation of all RVAAP Areas of Concern (AOCs) and the anticipated on-site tasks. A contractor- and investigation-specific Site Safety and Health Plan (SSHP) addendum must be prepared to address the specific hazards and controls relevant to work at each AOC prior to beginning work at that particular AOC. Each addendum must reference the FSHP and Explosive Safety Submission (ESS) for all those items not duplicated in the addendum. Details such as a description of site conditions, maximum anticipated contaminant concentrations, and investigation-specific variations from the FSHP will be presented in these addenda. Work cannot be performed under the FSHP without being accompanied by an investigation-specific SSHP addendum for each AOC. A copy of the FSHP and the appropriate SSHP addendum will be present at each work site.

Anticipated environmental investigation tasks expected to be performed include:

- site visits,
- soil boring and sampling with drill rigs,
- installation of monitoring wells,
- soil boring and sampling with hand augers,
- sediment sampling with hand augers,
- surface water sampling,
- vegetation clearing,
- investigation-derived waste handling,
- soil excavation and sampling with trenching equipment, and
- sampling equipment decontamination.

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## **1.0 FACILITY DESCRIPTION AND CONTAMINATION CHARACTERIZATION**

### **1.1 SITE DESCRIPTION**

Ravenna Army Ammunition Plant (RVAAP) is located in northeastern Ohio within Portage and Trumbull Counties, approximately 4.8 km (3 miles) northeast of the town of Ravenna. The facility consists of 8668.3 ha (21,419 acres) in a 17.7-km (11-mile)-long, 5.6-km (3.5-mile)-wide tract bordered by sparsely inhabited private residences. The installation is an inactive government-owned Operations Support Command (OSC) facility maintained by a contracted caretaker, Tol-Test, Inc.

The facility was active from 1941 to 1992. On-site activities included loading, assembling, storing and packing military ammunition, demilitarization of munitions, production of ammonium nitrate fertilizer, and disposal of “off-spec” munitions. Munitions handled on the installation included artillery rounds of 90 mm or more and 2000-pound bombs. A number of Areas of Concern (AOCs) have currently been identified. A description of each AOC is included in the installation Preliminary Assessment (December 1995), the RVAAP Installation Action Plan (2000), and the Relative Risk Site Evaluation (USACHPPM 1998).

### **1.2 CONTAMINANTS**

The RVAAP AOCs were associated with the assembly, storage, shipment, and/or disposal of a variety of materials including munitions and wastes. The principal munitions assembled on the installation were artillery rounds of 90-mm or more and 2000-pound bombs. Contaminants of concern that are potentially present include explosive compounds (cyclonite, TNT, smokeless powder), propellants, polychlorinated biphenyls, petroleum hydrocarbons, and metals (aluminum, arsenic, barium, cadmium, chromium, lead, manganese, mercury, selenium, silver, and zinc). Contaminants that are potentially present at each AOC must be discussed in an investigation-specific addendum.

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## 2.0 HAZARD/RISK ANALYSIS

The purpose of the task hazard analysis is to identify and assess potential hazards that may be encountered by personnel and to prescribe required controls. Table 2-1 is a checklist of common hazards that may be posed during the investigation of AOCs. It indicates whether a particular major type of hazard is present. The tasks are expected to consist of clearing vegetation; trenching, collecting surface soil samples, subsurface soil samples, sediment samples, and surface water samples; installing piezometers and monitoring wells; and managing investigation-derived waste (IDW). In general, given these tasks, the potential for unacceptable exposure to contaminants appears to be low. Expected tasks present a variety of physical hazards including unexploded ordnance (UXO), contact with equipment, falls into excavations, engulfment by loose soil in an excavation, noise, and heat/cold stress. The Contractor must include an assessment of project-specific hazards in the Site Safety and Health Plan (SSHP) Addendum.

**Table 2-1. Hazards Inventory**

Yes	No	Hazard
	X	Confined space entry [Not anticipated. Any confined space entry will require assessment in the SSHP Addendum and compliance with Section 9.4
	X	Excavation entry (Not anticipated. Any excavation entry will require sloping or shoring excavation and compliance with all other applicable requirements)
X		Heavy equipment (drill rigs, backhoes)
X		Potential dangerous tools (brush clearing with chainsaws, machetes, sling blades)
X		Heavy lifting (IDW handling)
X		Fire (fuels)
X		Explosion (unexploded ordnance)
X		Electrical shock (electrical equipment)
X		Exposure to chemicals (site contaminants and chemicals used during site work)
X		Temperature extremes
X		Biological hazards (poison ivy, Lyme disease, Histoplasmosis)
	X	Radiation or radioactive contamination
X		Noise (equipment)

Specific sampling tasks considered in this document are as follows:

- soil and sediment sampling with hand augers or scoops,
- vegetation clearing,
- soil boring and sampling with drill rigs,
- soil excavation and sampling with excavation equipment,
- installation of monitoring wells and groundwater sampling,
- surface water sampling,
- handling IDW, and
- equipment decontamination.

## **2.1 TASK-SPECIFIC HAZARD ANALYSIS**

Table 2-2 presents task-specific hazards, minimum hazard controls, and required monitoring, if appropriate, for all of the planned tasks. This assessment is based on the U.S. Army expectations and some assumptions regarding the planned tasks. It is ultimately the Contractor's responsibility to ensure that the hazards of each task are adequately controlled. In cases where the following controls are not appropriate or sufficient for the specific task(s) to be performed by the Contractor, the Contractor must specify additional appropriate and sufficient controls.

## **2.2 POTENTIAL EXPOSURES**

Information on the significant suspected contaminants and the chemical tools that may be used to investigate all AOCs is provided in Table 2-3. Note that this list includes contaminants known or suspected to occur at any of the AOCs at concentrations sufficient to pose a risk of overexposure. Information on contaminants and chemical tools for work at a specific AOC must be included in each investigation-specific addendum.

Table 2-2. Hazards Analysis

Safety and Health Hazards	Controls	Monitoring
<i>Soil Sampling Using Excavation Equipment</i>		
Safety hazards associated with excavation equipment	Level D PPE including hardhat (see Section 5.0). Unnecessary personnel will stay well clear of operating equipment. Functional back-up alarm. Exclusion zone around excavation areas. Only experienced operators will be allowed to operate equipment. Hazardous waste safety training.	Daily safety inspections of operations. Initial and at least weekly inspections of excavation equipment.
Potential excavation cave-in	Personnel will keep at least 0.9 meters (3 feet) distance from excavation edges during excavation. Samples will be collected from outside the excavation by sampling soil in the backhoe bucket or soil from the bottom of the excavation using an auger extension. Prior to sampling from excavations deeper than 1.5 meters (4 feet) deep, excavation edges will be visually examined and approached only at points that are clearly cohesive and show no signs of collapse. If there is any doubt about the safety of the edge, plywood sheeting will be placed over the edge to spread the weight of the person collecting the sample. See Section 9.7.	Daily safety inspections of operations. Examine excavation edge for signs of spalling or collapse.
Contact with unexploded ordnance	On-site training in ordnance recognition for all field personnel. Clearance of sites by EOD personnel for intrusive work. Withdrawal of all non-EOD personnel if ordnance or suspected ordnance is discovered.	Visual surveys for ordnance. Instrument surveys by EOD technicians in munitions disposal areas.
Gunfire (deer hunting with shotguns loaded with slugs allowed on Friday and Saturday during season)	No contractors permitted on site on hunt days.	None.
Fire (vehicle fuels and flammable contaminants)	Fuels stored in safety cans with flame arrestors. Bonding and grounding during fuel transfers. Fuel storage areas marked with no smoking or open flames signs.  Fire extinguishers in all fuel use areas.	Daily safety inspection. Combustible gas indicator if buried organic material or other source of flammable gas suspected.
Noise	Hearing protection within 7.6 meters (25 feet) of backhoe or similar equipment unless equipment-specific monitoring indicates exposures less than 90 decibels.	Daily safety inspections.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Exposure to chemicals	PPE (Level D) plus nitrile or equivalent gloves for contact with contaminated material. Washing face and hands prior to taking anything by mouth. Staying upwind of any dust-generating activities. Minimal contact. Hazard communication training. MSDS for chemical tools on site. Chemical containers labeled to indicate contents and hazard. Medical clearance for hazardous waste work Decontamination of potentially contaminated equipment prior to servicing.	Photoionization detector or other sampling as appropriate.
Biological hazards (bees, ticks, Lyme disease, histoplasmosis, wasps, snakes)	PPE (boots, work clothes). Insect repellent, as necessary. Pant legs tucked into boots or otherwise closed to minimize tick entry. Inspect for ticks during the day and at the end of each work day (See Section 9.0). Avoidance of accumulations of bird or bat droppings (See Section 9.0).	Visual survey.
Electric shock	Identification and clearance of overhead and underground utilities.	Visual of all work areas.
Temperature extremes	Administrative controls (see Section 8.0). Cooled (shaded) or warmed break area depending on the season. Routine breaks in established break area (See Section 8.0) Chilled drinks if temperature exceeds 70°F.	Temperature measurements at least twice daily. Pulse rates at the start of each break if wearing impermeable clothing.
<b><i>Soil Boring, Soil Sampling, and Monitoring Well Installation Using Drill Rig; Groundwater Sampling</i></b>		
General safety hazards (rotating machinery, suspended loads, moving equipment, slips, falls)	Level D PPE (see Section 5.0) plus hard hat. No employees under lifted loads. At least two functional kill switches. Functional back-up alarm. Drill rig manual on site. Only experienced operators. Exclusion zone at least equal to mast height. Hazardous waste safety training.	Daily site safety inspections. Weekly drill rig inspections.
Noise	Hearing protection within 7.6 meters (25 feet) of rig unless rig-specific monitoring indicates noise exposure of less than 90 decibels.	Daily safety inspections.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Fire (vehicle fuels or subsurface contaminants)	Fuels stored in safety cans with flame arrestors. Bonding and grounding during fuel transfers. Fuel storage areas marked with no smoking or open flames signs. Fire extinguishers in all fuel use areas.	Combustible gas indicator if buried organic material or other source of flammable gas is suspected.
Contact with unexploded ordnance	On-site training in ordnance recognition for all field personnel. Clearance of sites by EOD personnel for intrusive work. Withdrawal of all non-EOD personnel if ordnance or suspected ordnance is discovered.	Visual surveys for ordnance. Instrument surveys by EOD technicians in munitions disposal areas.
Exposure to chemicals	PPE (Level D) plus nitrile or equivalent gloves for contact with contaminated material. Washing face and hands prior to taking anything by mouth. Staying upwind of any dust-generating activities. Minimal contact. Hazard communication training. MSDSs for chemical tools on site. Chemical containers labeled to indicate contents and hazard. Medical clearance for hazardous waste work. Decontamination of potentially contaminated equipment prior to servicing.	Photoionization detector or other sampling as appropriate.
Gunfire (deer hunting with shotguns loaded with slugs allowed on Friday and Saturday during season)	No contractors permitted on site on hunt days.	None.
Temperature extremes	Administrative controls (see Section 8.0). Cooled (shaded) or warmed break area depending on the season. Routine breaks in established break area (See Section 8.0). Chilled drinks if temperature exceeds 70°F.	Temperature measurements at least twice per day. Pulse rates at the start of each break if wearing impermeable clothing.
Biological hazards (bees, ticks, Lyme disease, Histoplasmosis, wasps, snakes)	PPE (boots, work clothes). Insect repellent, as necessary. Pant legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspect for ticks during the day and at the end of each work day (See Section 9.0). Avoidance of accumulations of bird or bat droppings (See Section 9.0).	Visual survey.
Electric shock	Identification and clearance of overhead and underground utilities.	Visual of all work areas.
<b><i>Soil and Sediment Sampling Using Hand Augers or Scoops</i></b>		
General safety hazards (manual lifting, slips, falls)	Level D PPE (see Section 5.0). Buddy system. Hazardous waste safety training.	Daily site safety inspections.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Contact with unexploded ordnance	On-site training in ordnance recognition for all field personnel. Clearance of sites by EOD personnel for intrusive work. Withdrawal of all non-EOD personnel if ordnance or suspected ordnance is discovered.	Visual surveys for ordnance. Instrument surveys by EOD technicians in munitions disposal areas.
Exposure to chemicals	PPE (Level D) plus nitrile or equivalent gloves for contact with contaminated material. Washing face and hands prior to taking anything by mouth. Staying upwind of any dust-generating activities. Minimal contact. Hazard communication training. MSDSs for chemical tools on site. Chemical containers labeled to indicate contents and hazard. Medical clearance for hazardous waste work.	Photoionization detector or other sampling as appropriate.
Gunfire (deer hunting with shotguns loaded with slugs allowed on Friday and Saturday during season)	No contractors permitted on site on hunt days.	None.
Temperature extremes	Administrative controls (see Section 8.0). Cooled (shaded) or warmed break area depending on the season. Routine breaks in established break area (See Section 8.0). Chilled drinks if temperature exceeds 70°F.	Temperature measurements at least twice daily. Pulse rates at the start of each break if wearing impermeable clothing.
Biological hazards (bees, ticks, Lyme disease, Histoplasmosis, wasps, snakes)	PPE (boots, work clothes). Insect repellant, as necessary. Pant legs tucked into boots or otherwise closed to minimize tick entry. Snake chaps for work in heavy underbrush during warm weather.	Visual survey.
<b>Surface Water and Sediment Collection From a Boat Using Hand Augers and Hand Tools</b>		
General safety hazards (water safety concerns, slips, trips, falls, equipment handling, boat and motor safety, and weather.	Level D PPE. Hazardous waste safety (40 hour) and site-specific training, buddy system, Personal Flotation Devices (PFDs), properly trained personnel to operate boat and motor, and housekeeping.	Daily site safety inspections. Daily boat inspections.
Noise	Hearing protection within 25 feet of operating outboard motor unless site-specific monitoring indicates noise <85 dBA.	Daily safety inspections.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Fire	Fire extinguisher (serviced annually and inspected monthly) on board. Fuels stored in closed safety cans with flame arrestors, fire extinguisher (rated at least 20B) 8 – 23 meters from flammables storage area, no ignition sources within 15 meters of flammables storage area, flammables cabinet for storage of >25 gallons of flammables indoors, ignition sources prohibited in flammables storage and handling areas, fuel storage areas marked with No Smoking or Open Flame signs, bonding (metal to metal contact) for pouring fuels, gasoline-powered motor shut down during fueling.	Daily safety inspections.
Exposure to chemicals	PPE (level D) plus nitrile gloves for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth. Hazardous waste medical clearance. Hazard communication training. MSDS for chemical tools on site. Chemical containers labeled to indicate contents and hazard.	PID or equivalent and other sampling as appropriate.
Temperature extremes	Administrative controls (see Section 8.0). Shaded or warmed break area depending on the season. Routine breaks in established break area (see Section 8.0). Chilled drinks if temperature exceeds 70 degrees F.	Temperature measurements at least twice daily. Pulse rates at the start of each break if wearing impermeable clothing.
Biological hazards (bees, ticks, wasps, snakes, poison ivy)	PPE (boots, work clothes). Insect repellent, as necessary. Pant legs tucked into boots or otherwise closed. Inspect for ticks during the day and at end of work day. Avoidance of accumulations of bird or bat droppings (see Section 9.0).	Visual survey.
<i>Surface Water Sampling on Foot</i>		
General safety hazards (moving equipment, slips, falls)	Level D PPE (see Section 5.0). Hazardous waste safety training.	Daily site safety inspections.
Noise	None.	None.
Fire	None.	None.
Contact with unexploded ordnance	On-site training in ordnance recognition for all field personnel. Clearance of sites by EOD personnel for intrusive work. Withdrawal of all non-EOD personnel if ordnance or suspected ordnance is discovered.	Visual surveys for ordnance. Instrument surveys by EOD technicians in munitions disposal areas.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Exposure to chemicals	PPE (Level D) plus nitrile or equivalent gloves for contact with contaminated material. Washing face and hands prior to taking anything by mouth. Staying upwind of any dust-generating activities. Minimal contact. Hazard communication training for chemical tools. MSDSs for chemical tools on site. Chemical containers labeled to indicate contents and hazard. Medical clearance for hazardous waste work	None.
Gunfire (deer hunting with shotguns loaded with slugs allowed on Friday and Saturday during season)	No contractors permitted on site on hunt days.	None.
Temperature extremes	Administrative controls (see Section 8.0). Cooled (shaded) or warmed break area depending on the season. Routine breaks in established break area (See Section 8.0). Chilled drinks if temperature exceeds 70°F.	Temperature measurements at least twice a day. Pulse rates at the start of each break if wearing impermeable clothing.
Biological hazards (bees, ticks, Lyme disease, Histoplasmosis, wasps, snakes)	PPE (boots, work clothes). Insect repellent, as necessary. Pant legs tucked into boots or otherwise closed to minimize tick entry. Snake chaps for work in heavy underbrush during warm weather. PPE (boots, work clothes). Insect repellent, as necessary. Inspect for ticks during the day and at the end of each work day (See Section 9.0). Avoidance of accumulations of bird or bat droppings (See Section 9.0).	Visual survey.
<b><i>Vegetation Clearing with Chainsaws, Machetes, and Sting Blades</i></b>		
General safety hazards (rotating machinery, contact with sharp edges, slips, falls)	Level D PPE (see Section 5.0) plus hard hat. Only experienced operators. Personnel operating brush-clearing tools must maintain separation of at least 4.5 meters (15 feet). Tools must be inspected daily and taken out of service if damaged. Exclusion zone if there is a potential for entry of unauthorized personnel. Hazardous waste safety training.	Daily site safety inspections.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Chainsaw kickback and related hazards	Saws must have automatic chain brake or kickback device. Idle speed adjusted so chain does not move when idling. Saws must not be used to cut above shoulder height. Saws must be held with both hands when operating. Additional requirements at 385-1-1 Section 31.	Daily inspection.
Noise (chainsaw)	Hearing protection within 7.6 meters (25 feet) of operating chainsaw unless rig-specific monitoring indicates noise exposure of less than 90 decibels.	Daily safety inspections.
Fire (fuels)	Fuels stored in safety cans with flame arrestors. Bonding and grounding during fuel transfers. Fuel storage areas marked with No Smoking or Open Flames signs. Fire extinguishers in all fuel use areas. Gasoline powered equipment turned off and allowed to cool for at least five minutes prior to fueling.	Daily safety inspection.
Contact with unexploded ordnance	On-site training in ordnance recognition for all field personnel. Clearance of sites by EOD personnel for intrusive work. Withdrawal of all non-EOD personnel if ordnance or suspected ordnance is discovered.	Visual surveys for ordnance. Instrument surveys by EOD technicians in munitions disposal areas.
Exposure to chemicals	PPE (Level D) plus nitrile or equivalent gloves for contact with contaminated material. Washing face and hands prior to taking anything by mouth. Minimal contact. Hazard communication training. Chemical containers labeled to indicate contents and hazard. Medical clearance for hazardous waste work.	Daily safety inspection.
Gunfire (deer hunting with shotguns loaded with slugs allowed on Friday and Saturday during season)	No contractors permitted on site on hunt days.	None.
Temperature extremes	Administrative controls (see Section 8.0). Cooled (shaded) or warmed break area depending on the season. Routine breaks in established break area (See Section 8.0). Chilled drinks if temperature exceeds 70°F.	Temperature measurements at least twice per day. Pulse rates at the start of each break if wearing impermeable clothing.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Biological hazards (bees, ticks, Lyme disease, Histoplasmosis, wasps, snakes)	PPE (boots, work clothes). Insect repellent, as necessary. Pant legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspect for ticks during the day and at the end of each work day (See Section 9.0). Avoidance of accumulations of bird or bat droppings (See Section 9.0).	Visual survey.
Electric shock	Electrical tools must be double insulated or connected through heavy duty power cord to GFCI.	Daily safety inspection.
<b>Investigation-Derived Waste Handling</b>		
General hazards (lifting equipment, manual lifting, slips)	Level D PPE including heavy duty gloves for materials handling (see Section 5.0). Unnecessary personnel will stay well clear of operating equipment. Functional back-up alarm on fork trucks, bobcats, trucks, etc. Documented forklift training for forklift operators. Only experienced operators will be allowed to operate equipment. No personnel allowed under lifted loads. Lifts of over 50 pounds will be made with two or more personnel or with lifting equipment. Hazardous waste safety training. Compliance with EM 385-1-1 Sections 14 and 16.	Daily safety inspections of operations. Daily inspection of equipment to verify brakes and operating systems are in proper working condition.
Contact with unexploded ordnance	On-site training in ordnance recognition for all field personnel. Clearance of sites by EOD personnel for intrusive work. Withdrawal of all non-EOD personnel if ordnance or suspected ordnance is discovered.	Visual surveys for ordnance. Instrument surveys by EOD technicians in munitions disposal areas.
Exposure to chemicals	PPE (Level D) plus nitrile or equivalent gloves for contact with contaminated material. Washing face and hands prior to taking anything by mouth. Minimal contact. Medical clearance for hazardous waste work.	Daily safety inspections.
Gunfire (deer hunting with shotguns loaded with slugs allowed on Friday and Saturday during season)	No contractors permitted on site on hunt days.	None.
Fire (vehicle fuels and flammable contaminants)	Fuels stored in safety cans with flame arrestors. Bonding and grounding during fuel transfers. Fuel storage areas marked with No Smoking or Open Flames signs. Fire extinguishers in all fuel use areas.	Daily safety inspection.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Noise	Hearing protection within 7.6 meters (25 feet) of any noisy drum moving equipment unless equipment-specific monitoring indicates exposures less than 90 decibels.	Daily safety inspections.
Biological hazards (bees, ticks, Lyme disease, Histoplasmosis, wasps, snakes)	PPE (boots, work clothes). Insect repellent, as necessary. Pant legs tucked into boots or otherwise closed to minimize tick entry. Inspect for ticks during the day and at the end of each work day (See Section 9.0). Avoidance of accumulations of bird or bat droppings (See Section 9.0).	Visual survey.
Electric shock	Identification and clearance of overhead utilities.	Visual of all work areas.
Temperature extremes	Administrative controls (see Section 8.0). Cooled (shaded) or warmed break area depending on the season. Routine breaks in established break area (See Section 8.0). Chilled drinks if temperature exceeds 70°F.	Temperature measurements at least twice daily. Pulse rates at the start of each break if wearing impermeable clothing.
<b><i>Equipment Decontamination (Hot Water Washing, Soap and Water Washing, HCl, and Methanol Rinse)</i></b>		
General equipment decontamination hazards (hot water, slips, falls, equipment handling)	Level D PPE (see Section 5.0) plus nitrile or PVC gloves. Face shield and Saranex or rain suit (when operating steam washer). Hazardous waste safety training.	Daily safety inspections.
Noise (spray washer)	Hearing protection when washer is operating unless equipment-specific monitoring indicates that exposure is less than 90 decibels.	None.
Fire (decontamination solvents and gasoline)	Flammable material stored in original containers or in safety cans with flame arrestors. Fire extinguisher kept near decon area.	Daily safety inspection.
Contact with unexploded ordnance	On-site training in ordnance recognition for all field personnel. Clearance of sites for intrusive work. Withdrawal of all non-EOD personnel if ordnance or suspected ordnance is discovered.	Visual surveys for ordnance. Instrument surveys by EOD technicians in munitions disposal areas.
Exposure to chemicals	PPE (Level D) plus nitrile or equivalent gloves for contact with contaminated material. Washing face and hands prior to taking anything by mouth. Minimal contact. Hazard communication training for chemical tools. MSDS on site. All chemical containers labeled to indicate contents and hazard. Medical clearance for hazardous waste work.	None.

Table 2-2 (continued)

Safety and Health Hazards	Controls	Monitoring
Temperature extremes	Administrative controls (see Section 8.0). Cooled (shaded) or warmed break area depending on the season. Routine breaks in established break area (See Section 8.0). Chilled drinks if temperature exceeds 70°F.	Temperature measurements at least twice a day. Pulse rates at the start of each break if wearing impermeable clothing.

EOD = explosive ordnance disposal.  
GFCI = ground fault circuit interrupter.  
MSDS = Material Safety Data Sheet.  
PPE = personal protective equipment.  
PVC = polyvinyl chloride.

Table 2-3. Potential Exposures

Chemical <sup>a</sup>	Health Effects/ Potential Hazards <sup>b</sup>	Chemical and Physical Properties <sup>b</sup>	Exposure Route(s) <sup>b</sup>
Chromium	Eye irritation, sensitization	Solid; properties vary depending upon specific compound	Inhalation Congestion Contact
DNT (dinitrotoluene)	Suspected human carcinogen, anorexia, cyanosis, reproductive effects	Orange-yellow solid, VP: 1 mm; FP: 404°F	Inhalation Absorption Ingestion Contact
Gasoline (used for fuel)	Potential carcinogen per NIOSH, dizziness, eye irritation, dermatitis	Liquid with aromatic odor; FP: -45°F; VP: 38-300 mm	Inhalation Absorption Ingestion Contact
Hydrochloric acid (HCl)	Eye and skin irritation and/or destruction	Liquid with acrid odor; FP: NA; IP: NA	Inhalation Absorption Ingestion Contact
Lead	Weakness, anorexia, abdominal pain, anemia	Solid metal; VP: 0 mm; FP: NA; IP: NA	Inhalation Ingestion Contact
Liquinox (used for decontamination)	Inhalation of powder may cause local irritation of mucus membranes	White powder, odorless, nonflammable	Inhalation Ingestion Contact
Mercury	Irritation of eyes and skin; coughing, GI disturbance, anorexia	Silver liquid; FP: NA; VP: 0.0012 mm	Inhalation Absorption Ingestion Contact
Methanol (potentially used for equipment decontamination)	Eye and skin irritation, headache, cough; optic nerve damage	Liquid; VP: 96 mm; FP: 52°F; IP: 10.84 eV	Inhalation Absorption Ingestion Contact

Table 2-3. (continued)

Chemical <sup>a</sup>	Health Effects/ Potential Hazards <sup>b</sup>	Chemical and Physical Properties <sup>b</sup>	Exposure Route(s) <sup>b</sup>
RDX (cyclonite)	Explosive; irritation of eyes and skin, dizziness, weakness	White powder; FP: explodes; VP: 0.0004 mm at 230°F	Inhalation Absorption Ingestion Contact
Smokeless powder (nitrocellulose)	Low toxicity	Amorphous solid; FP: 55°F	Not given
TNT	Irritation of skin and mucus membranes, liver damage, kidney damage	Pale solid; FP: explodes; VP: 0.0002 mm	Inhalation Absorption Ingestion Contact
Arsenic	Dermatitis, nasal tissue damage, stomach upset, potential cancer	Solid; VP: 0 mm; FP: NA	Inhalation Indigestion Absorption Contact
Barium	Irritation of eyes, skin, lungs; muscle spasm	Solid; VP: Low; FP: NA	Inhalation Ingestion Contact
Cadmium	Breathing difficulty, cough, chest tightness, pain beneath the sternum, headache, chills, aches, vomiting	Solid; VP: 0 mm; FP: NA	Inhalation Ingestion Contact
Selenium	Irritation of eyes, skin, throat; liver and/or spleen damage	Solid; FP: NA; VP: 0 mm	Inhalation Ingestion Contact
Zinc	Irritant to eyes	Soft white metal with a bluish tinge	NA
Propellant (containing nitrocellulose and potentially nitroglycerin)	Faintness, rapid pulse, dizziness, muscle twitch, damage to blood cells, vomiting	Solid; VP: 0 mm; FP: NA May burn or explode if exposed to high temperatures or shock	Inhalation Ingestion Absorption Contact

<sup>a</sup> The potential chemicals were obtained from the Draft Action Plan for the Ravenna Army Ammunition Plant, May 5, 1995.

<sup>b</sup> From 1997 NIOSH Pocket Guide to Chemical Hazards, the Condensed Chemical Dictionary, Tenth Edition.

FP = flash point.

IP = ionization potential.

NA = not available.

NIOSH = National Institute for Occupational Safety and Health.

VP = vapor pressure.

## **3.0 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES**

This section presents the general lines of authority, responsibilities, and communication procedures concerning site safety and health and emergency response. It includes key Contractor positions.

### **3.1 CONTRACTOR PROGRAM MANAGER**

The Program Manager is responsible for ensuring conformance with Corporate, and U.S. Army policies and procedures. Specific responsibilities of the Program Manager include:

- coordinating with U.S. Army personnel,
- ensuring that project managers satisfy U.S. Army health and safety requirements,
- ensuring that project staff implement the SSHP,
- ensuring that projects have the necessary resources to operate safely, and
- ensuring that project personnel have the appropriate regard for safe job performance.

### **3.2 CONTRACTOR CERTIFIED INDUSTRIAL HYGIENIST**

The Contractor Certified Industrial Hygienist (CIH) manages the health and safety program. This includes establishing health and safety policies and procedures, supporting project and office activities, and verification of safe work practices and conditions. The specific responsibilities of the CIH include:

- coordinating with U.S. Army health and safety personnel,
- reviewing and approving SSHPs,
- approving downgrades in personal protective equipment (PPE) or protective procedures, and
- interfacing with project personnel through routine communications and audits of selected projects.

### **3.3 CONTRACTOR PROJECT MANAGER**

The Project Manager is responsible for overall project execution. The responsibilities of the Project Manager include:

- coordinating with U.S. Army personnel, including reporting accidents and incidents to the U.S. Army Project Manager immediately and submitting written reports within 2 working days;
- ensuring implementation of the Facility-wide Safety and Health Plan (FSHP) and addenda;
- maintaining auditable project documentation of all required records;
- ensuring that a qualified Site Safety and Health Officer (SSHO) is designated; and
- maintaining a current copy of the FSHP and addenda.

### **3.4 CONTRACTOR FIELD OPERATIONS MANAGER OR TASK LEADER**

The Field Operations Manager or Task Leader will oversee the field activities associated with a project and will be responsible for site accessibility, safety, and quality assurance. He/she is responsible for enforcing the field requirements of the FSHP and its addendum. Specific responsibilities of the Field Operations Manager or Task Leader are:

- enforcing compliance with the FSHP and its addendum;
- coordinating on-site operations, including subcontractor activities;
- ensuring that subcontractors follow the requirements of the FSHP and its addendum;
- coordinating and controlling any emergency response actions;
- ensuring that at least two persons currently certified in first aid/cardiopulmonary resuscitation are on-site during site operations; and
- maintaining current copies of the FSHP and its addendum, Environmental Management (EM) 385-1-1, "U.S. Army Corps of Engineers Safety and Health Requirements Manual," and the SSHP Addendum on-site.

### **3.5 SITE SAFETY AND HEALTH OFFICER**

The SSHO is responsible for implementing the FSHP, making health and safety decisions for specific health and safety activities and for verifying the effectiveness of the health and safety program. The SSHO's qualifications include, at a minimum, experience with similar projects, knowledge of and understanding of the FSHP and its addendum, and the ability to use the required monitoring equipment. The SSHO has primary responsibility for the following:

- stopping work or upgrading protective measures (including protective clothing) if uncontrolled health and safety hazards are encountered. Indications of uncontrolled health and safety hazards include monitoring instrument readings in excess of the established action limits, heavy equipment without back-up alarms, exposed unexploded ordnance, unguarded moving/rotating equipment, exposed electrical connections, non-compliance with Health and Safety (H&S) requirements, encountering liquids other than water, soil staining suggestive of unexpectedly high concentrations of nonvolatile contaminants, etc. The SSHO must also authorize resumption of work following correction of the adverse condition(s);
- implementing and verifying compliance with this FSHP and its addendum and reporting to the Field Operations Manager or Task Leader, Project Manager, and Health and Safety Manager any deviations from anticipated conditions;
- conducting daily safety inspections;
- documenting deficiencies identified in the daily inspections and responsible parties, procedures, and timetables for correction;
- ensuring that site personnel have access to this plan and are aware of its provisions;

- conducting a site-specific pre-entry health and safety briefing covering potential chemical and physical hazards, safe work practices, and emergency procedures;
- maintaining on-site auditable documentation of
  - Material Safety Data Sheets (MSDS) for applicable materials utilized at the site;
  - training for site workers and visitors;
  - calibration/maintenance of field instruments such as photoionization detectors, combustible gas indicators, etc.;
  - environmental and personal exposure monitoring results;
  - notification of accidents/incidents;
  - reports of any overexposure or excessive levels;
  - notification of employees of exposure data; and
  - medical surveillance.
- confirming that all on-site personnel have received the training listed in the Training Requirements section (Section 4.0) of this FSHP;
- issuing respirators, as necessary, and ensuring that all respirator users have received medical clearance within the last year, have been properly trained, and have been successfully fitted for respiratory protection;
- verifying that the FSHP's emergency points of contact are correct and supplying correcting information as necessary;
- ensuring that all monitoring equipment is operating according to the manufacturer's specifications and performing field checks of instrument calibration;
- ensuring monitoring for potential on-site exposures is conducted in accordance with the FSHP and its addendum;
- investigating accidents and near accidents and reporting (in concert with Field Operations Manager or Task Leader) same to Project Manager and CIH;
- conducting daily "tailgate" safety briefings; and
- controlling visitor access to the exclusion zone.

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## 4.0 TRAINING

Personnel who participate in the investigation of an AOC are subject to the following training requirements, which are presented in Table 4-1.

**Table 4-1. Training Requirements**

<b>Training</b>	<b>Worker</b>	<b>Supervisor</b>	<b>Site Visitor (exclusion zone)</b>
HAZWOPER (40-hour, 3-day OJT)	√	√	√
HAZWOPER Annual Refresher (8 hour)	√	√	√
HAZWOPER Supervisors Training (8 hour)		√	
American Red Cross Standard First Aid (5.5 hours)	√	√	
General Hazard Communication Training (Contained in 40-hour and 8-hour courses)	√	√	
Respiratory Protection Training (required only if respirators are worn; contained in 40-hour course)	√	√	√
Hearing Conservation Training (for workers in hearing conservation program; contained in 40-hour and 8-hour courses)	√	√	√
Pre-entry Briefing	√	√	√
Site Specific Hazard Communication (contained in pre-entry briefing)	√	√	
Safety Briefing (daily and whenever conditions or tasks change)	√	√	√
Emergency Responder (43.5 hr)	√	√	

√ = Required

HAZWOPER = Hazardous Waste Site Operations

OJT = on-the-job training

The following paragraphs present brief summaries of the training requirements. These summaries include a course description and guidance on who must take each course.

### 4.1 OFF-SITE TRAINING

The 40-hour Hazardous Waste Site Worker course is required for hazardous, toxic, and radioactive waste activities in the exclusion (contamination) zone, contamination reduction (buffer) zone, or other hazardous areas on-site. Three days of relevant field experience are required in conjunction with this training.

The 8-hour Hazardous Waste Refresher course is required annually to maintain currency in the 40-hour course.

The Hazardous Waste Supervisor's Training is required for personnel who directly supervise hazardous waste site workers. This course must address the health and safety program and procedural requirements of the supervisor's company. Note that the 40-hour course is a prerequisite.

General Hazard Communication Training is required for all site workers. This training must communicate the risks and protective measures for chemicals that employees may encounter. This requirement is met by taking Hazardous Waste training and site-specific hazard communication training addressing the chemicals in use on the project. MSDS must be kept on-site during field investigations, for all chemicals expected to be encountered or used on-site.

All on-site employees must be certified in the 5.5-hour. American Red Cross Standard First Aid course. At least one on-site individual, preferably the SSHD, must be currently certified in the 43.5-hour. American Red Cross Emergency Response.

Respiratory Protection Training is required for all individuals who wear respirators. This requirement can be met by taking the 40-hour Hazardous Waste Site Worker course, annual refreshers, and site-specific training covering the types of respirators to be used on site. Respirator fit-test certifications must be kept on-site for anyone who might wear one.

Hearing Conservation Training is required on an annual basis by 29 *Code of Federal Regulations (CFR)* 1910.95 for all employees enrolled in a hearing conservation program. This will include all employees exposed to occupational noise in excess of 85 decibels on a time weighted average.

## 4.2 SITE-SPECIFIC TRAINING

Personnel on-site must have received the investigation-specific safety training. Two versions of this training will be used. The site worker version will contain full information regarding site hazards, hazard controls, and emergency procedures. A shortened version will be used for visitors who will be on-site for short times and who will not do hands-on work. This shortened version will contain the hazard information that is directly relevant to the purpose of the visit. Signatures of those attending and the type of briefing must be entered in the field logbook before site access will be granted. Note that casual visitors (package deliverers, observers, etc.) to the support zone will not be required to have the site-specific training. The site-specific training will include the following site-specific information:

- names of site health and safety personnel and alternates;
- contents of the FSHP and appropriate addendum;
- hazards and symptoms of contaminant exposure;
- hazards and symptoms of exposure to chemicals present in the workplace;
- physical hazards in the workplace;
- recognition and avoidance of live ordnance;
- site and task PPE (including purpose, donning, doffing, proper use);
- safe work practices to minimize risks;
- safe use of engineering controls and equipment;
- medical surveillance requirements;
- site control measures;
- reporting requirements for spills and emergencies;
- personnel decontamination procedures;
- contingency plans (communications, phone numbers, emergency exits, assembly point, etc.);
- spill containment procedures (reporting, clean-up methods, etc.); and
- emergency equipment locations and use (fire extinguishers, spill kits, etc.).

Safety Briefings will be held at least daily and also when conditions or tasks change. These briefings will be conducted by the SSHO and/or operations manager and will be attended by all site workers and supervisors. These briefings will address site-specific safety issues and will be used as an opportunity to refresh workers on specific procedures and to address new hazards and controls.

#### **4.3 DOCUMENTATION**

Documentation of the required training must be maintained in the on-site project files. This documentation will include copies of 40-hour, 8-hour refresher, respirator fit-test certifications, and supervisor training certificates, copies of medical clearance reports, and entries in project logs showing the topics covered, trainer, and signatures of those attending on-site training.

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## 5.0 PERSONAL PROTECTIVE EQUIPMENT

PPE for site tasks is based on potential site-specific hazards. In cases where multiple hazards are present, a combination of protective equipment will be selected so that adequate protection is provided for each hazard. When a conflict exists with the PPE requirements, the more restrictive shall apply. This section emphasizes the programmatic requirements for PPE. For task-specific equipment see the Hazard/Risk Analysis section.

### 5.1 PPE PROGRAM

PPE use must comply with 29 *CFR* 1910 Subpart I and EM 385-1-1 Section 5. The level of protection and types of materials selected for a particular task must be based on the following:

- potential for exposure because of work being done;
- route of exposure;
- measured or anticipated concentration in the medium of concern;
- toxicity, reactivity, or other measure of adverse effect; and
- physical hazards such as falling objects, flying projectiles, etc.

In situations where the type of contamination, concentration, and probability of contact are not known, the appropriate protection is selected based on the professional judgment of the Contractor's CIH until the hazards are further evaluated.

The SSHO may raise or lower the level of PPE worn by the teams, depending upon the site-specific hazards encountered in the field. Prior to lowering the level of PPE, the Field Task Leader and the Contractor CIH must be contacted/consulted and approval given and documented. If site conditions are such that the level of PPE is insufficient or work must be stopped, the SSHO will take appropriate action immediately and the appropriate personnel (see above) will be contacted afterwards. Criteria indicating a possible need for reassessment of the PPE selection include the following:

- introduction of new types of equipment;
- commencement of an unplanned (hazard not previously assessed) work phase;
- working in unplanned temperature extremes;
- evidence of contamination such as discolored soil or elevated instrument readings near the soil;
- exceeding the action limits; or
- changing the work scope so that the degree of contact with contaminants changes.

### 5.2 TYPES OF EQUIPMENT

This section presents the types of protective clothing that may be used for the project. Requirements for task-specific levels of protective clothing are presented in the Hazards Analysis table (Table 2-2). Levels of protection that will be used to protect against chemical and physical hazards at this site include:

- Level C Protective Equipment
  - full-face respirator and air purifying cartridges capable of filtering out organic vapors, acid gasses, and radionuclides

- hooded chemical-resistant clothing (Polyethylene-coated Tyvek® or equivalent) with all openings taped
  - two pair chemical-resistant gloves (nitrile and exam gloves)
  - heavy duty leather or equivalent gloves (in addition to chemical resistant gloves) for materials handling or other tasks that pose physical hazards to the hands
  - safety boots
  - shoe covers
  - hard hat (if overhead hazards are present)
- Level D+ Protective Equipment
    - Tyvek® or equivalent coveralls
    - nitrile or polyvinyl chloride (PVC) gloves
    - heavy duty leather or equivalent gloves (in addition to chemical resistant gloves) for materials handling or other tasks that pose physical hazards to the hands
    - safety boots
    - boot covers
    - hard hat (if overhead hazards are present)
    - safety glasses with side shields
- Level D Protective Equipment
    - coveralls/field clothes
    - safety boots
    - safety glasses with side shields
    - hard hat (if overhead hazards are present)
    - nitrile or equivalent gloves if contaminated materials are handled
    - heavy duty leather or equivalent gloves (in addition to chemical resistant gloves) for materials handling or other tasks that pose physical hazards to the hands

### 5.3 CLEANING, STORAGE, AND PROGRAM VERIFICATION

If site tasks require the use of chemical protective clothing, disposable clothing will be used and will be disposed as part of project generated waste. Unused chemical protective clothing will be stored in clean staging areas until needed. The SSHO will verify that the PPE in use is appropriate and is being used properly.

## **6.0 MEDICAL SURVEILLANCE**

All employees performing on-site hazardous waste-related work will be enrolled in a medical surveillance program to meet the requirements of 29 *CFR* 1910.120(f), 1910.134, 1910.20 to assess and monitor workers' health and fitness for employment in this field. Employees must be provided with summaries of medical examination results following each examination and must be provided more detailed information upon written request.

### **6.1 FREQUENCY OF EXAM**

The frequency of employee medical exams shall be as follows:

- prior to assignment;
- once every 12 months for each employee covered unless the attending physician believes a shorter or longer interval (not to exceed 2 years) is appropriate;
- at termination of employment or reassignment to an area where the employee would not be covered, if the employee has performed field work since his/her last examination and has not had an examination within the last 6 months;
- as soon as possible upon notification by an employee that he/she has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limit or published exposure levels in an emergency situation.

### **6.2 MEDICAL EXAM CONTENT**

Medical examinations shall include a medical and work history (or updated history if one is available in the employee's file) with special emphasis on symptoms related to the handling of hazardous substances. The examination will determine potential health impairments and fitness for duty, including the ability to wear any required PPE. As a minimum, the exam will include:

- collection of information on the employee's medical and work history;
- hands-on examination;
- audiometry;
- blood screen such as Sequential Multiple Analyzer with Computer 24;
- chest P/A X-ray at intervals specified by attending physician;
- complete blood count;
- electrocardiogram for persons older than 45 or where medically indicated;
- physical examination;
- spirometry (forced expiratory volume/forced vital capacity); and
- urinalysis (dipstick and microscopic).

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## **7.0 EXPOSURE MONITORING/AIR SAMPLING PROGRAM**

Assessment of airborne chemical concentrations will be performed, as appropriate, to ensure that exposures do not exceed acceptable levels. Action levels, with appropriate actions, will be established for this monitoring and be listed in the project-specific addendum to this FSHP. The deployment of monitoring equipment will depend on the activities being conducted and the potential exposures. All personal exposure monitoring records will be maintained in accordance with 29 *CFR* 1910.20. The investigation-specific addenda will contain the minimum monitoring requirements and action levels for each AOC. In the event that a determination is made that no monitoring is necessary, the justification for this determination must be incorporated into the SSHP Addendum.

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## 8.0 HEAT/COLD STRESS

### 8.1 MONITORING AND CONTROLS

Important factors in preventing heat stress-induced illnesses are acclimatization, consumption of copious quantities of fluids, and appropriate work/rest cycles. General controls will consist of making fluids readily available, use of the buddy system, and taking scheduled and unscheduled breaks in a temperature-controlled environment as necessary. The following specific steps will be taken to reduce the potential for heat stress-induced illness.

- If ambient temperatures exceed 70° F, site training will include heat stress control, recognition of heat stress induced illness, and first aid for heat stress.
- If ambient temperatures exceed 70° F, cool Gatorade or equivalent drink or water will be made conveniently available to site workers.
- If ambient temperatures exceed 70° F, workers will be instructed to monitor their own and their buddy's condition relative to heat stress.
- If ambient temperatures exceed 70° F, an initial work/rest cycle based on the American Conference of Governmental Industrial Hygienists heat stress threshold limit value will be instituted per the following table. These requirements may be modified based on site specific conditions and the capabilities of the work crew.

Work-Rest Regimen	Work Load		
	Light	Moderate	Heavy
Continuous work	86 <sup>a</sup>	80	77
45 min. work/15 min. rest <sup>a</sup>	87	82	78
30 min. work/30 min. rest	89	85	82
15 min. work/45 min. rest	90	88	86

<sup>a</sup> Non-work, sitting in the shade or air conditioned area.

<sup>b</sup> Wet bulb globe temperature (WBGT) index expressed in degrees Fahrenheit or standard dry bulb temperature if WBGT is unavailable.

- Workers will be allowed to take unscheduled breaks, if needed.
- Workers wearing Tyvek® or other impermeable clothing when ambient temperatures exceed 70° F will be monitored for heat stress by taking their pulses at the beginning of each rest period. If any worker's heart rate exceeds 110 beats per minute, the next work period will be shortened by one third [From National Institute of Occupational Safety and Health (NIOSH)/Occupational Safety and Health Administration (OSHA)/United States Coast Guard/U.S. Environmental Protection Agency; Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities].

Critical factors in preventing cold stress disorders are adequate clothing and staying dry. The SSHO and Field Task Leader will ensure the capability to quickly move individuals who become wet to a sheltered, warm area. The following specific steps will be taken (adapted from American Conference of Governmental Industrial Hygienists Threshold Limit Values booklet).

- If ambient temperatures are less than 40° F, site training will include prevention of cold injury, cold injury symptoms, and cold injury first aid.
- A heated break area will be provided if ambient temperatures are less than 32° F.
- As a minimum, breaks will be taken in a warm area every 120 minutes if ambient temperatures are less than 32° F.
- Workers will be allowed to take unscheduled breaks, if needed, in a warm area.
- No outdoor work will be performed if the equivalent chill temperature (temperature combined with the effect of wind) is less than -29° F.

## 8.2 HEAT/COLD STRESS INDUCED ILLNESS

Heat cramps are caused by heavy sweating and inadequate electrolyte replacement. Signs and symptoms include muscle spasms and pain in the hands, feet, and abdomen.

Heat exhaustion occurs from increased stress on various body organs. Signs and symptoms include:

- Pale, cool, moist skin
- Heavy sweating
- Dizziness, nausea
- Fainting

Heat stroke is the most serious form of heat-related illness and should always be treated as a medical emergency. The body's temperature regulation system fails, and the body temperature rapidly rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Signs and symptoms of heat stroke include:

- Red, hot, usually dry skin
- Lack of or reduced perspiration
- Nausea
- Dizziness and confusion
- Strong, rapid pulse and confusion
- Coma

Hypothermia is the uncontrolled loss of body heat. As the body's core temperature decreases, bodily functions are slowed. The victim becomes weak and disoriented and may become comatose if steps are not taken to return the core temperature to the normal range. Hypothermia can occur whenever temperatures are below 45° F and is most common during wet, windy conditions, with temperatures between 40 to 30° F. The principal cause of hypothermia in these conditions is loss of insulating properties of clothing due to moisture, coupled with heat loss due to wind and evaporation of moisture on the skin.

Frostbite is the freezing of body tissue, which ranges from superficial freezing of surface skin layers to deep freezing of underlying tissue. Frostbite will only occur when ambient temperatures are below 32° F. The risk of frostbite increases as the temperature drops and wind speed increases.

## **9.0 STANDARD OPERATING SAFETY PROCEDURES**

This section presents general safety rules applicable to the anticipated tasks. The provisions of the plan are mandatory for all on-site employees and visitors. This includes employees engaged in initial site reconnaissance, preliminary field investigations, mobilization, project operations, and demobilization. These standard operating procedures are offered for guidance. It is the Contractor's responsibility to ensure that appropriate and sufficient procedures are used to protect its employees.

### **9.1 SITE RULES**

The following rules apply to all site activities.

- All work will be conducted in compliance with EM 385-1-1, the "U.S. Army Corps of Engineers Safety and Health Requirements Manual."
- Daily safety briefings ("tailgate") will be held during field activities to inform personnel of new hazards or procedures.
- The SSHO or Field Operations Manager or Task Leader will conduct and document daily safety inspections.
- Personnel will notify the SSHO of any medical conditions (e.g., allergic to bee stings, diabetes, pregnancy) that require special consideration.
- Personnel will maintain proper workplace housekeeping to minimize the potential for tripping and other accidents.
- Contact with potentially contaminated substances will be avoided. Site personnel in the exclusion zone will avoid walking through puddles, pools, mud, kneeling on the ground, and placing equipment on the ground.
- Spills will be prevented to the extent possible. In the event that a spill occurs, the material will be contained.
- All injuries and accidents requiring first aid will be reported to the SSHO, Field Operations Manager or Task Leader, Contractor CIH, and the U.S. Army Project Manager.
- All workers in the exclusion zone or other hazardous areas will abide by a buddy system. Members of a buddy team will maintain verbal or visual contact.

### **9.2 PERMIT REQUIREMENTS**

Contractor will obtain and/or coordinate with U.S. Army to obtain, as necessary, all permits necessary for the safe execution of this project. As a minimum, this will include digging permits/clearance from local utilities prior to any drilling, excavation, etc.

### 9.3 DRUM/CONTAINER HANDLING

No drums of unknown material are expected to be addressed as part of this project. Should it become necessary to address drums of unknown materials, this work will be performed in accordance with 29 *CFR* 1910.120(j) and EM 385-1-1 Section 28.H. Any drums used for the project will meet the requirements of the Facility-wide Sampling and Analysis Plan and its addenda.

### 9.4 CONFINED SPACE ENTRY

Any confined space entry will be performed in conformance with the requirements of 29 *CFR* 1910.146, and EM 385-1-1 Section O6I. The minimum applicable requirements are: completion of an entry permit, atmospheric testing for oxygen (must be 19.5 to 22%), atmospheric testing for toxic gases (must be less than 5 ppm or chemical-specific limit), atmospheric testing for flammable gases (must be less than 10% of the lower explosive limit and stationing an attendant nearby but outside the excavation).

### 9.5 HOT WORK, SOURCES OF IGNITION, FIRE PROTECTION

- This work will be conducted in accordance with EM 385-1-1 Section 9.
- Hot work (oxyfuel cutting) will be conducted using welder's helmet or shaded goggles, leather gloves, and long-sleeved shirt.
- A fire extinguisher rated not less than 10-ABC will be immediately available in the vicinity of hot work.
- Sources of ignition will be kept at least 15.2 meters (50 feet) from flammables storage areas.
- Flammables storage areas will be posted with signs indicating "No smoking or open flame."
- At least one fire extinguisher with a rating of not less than 20-B will be kept 7.6 to 22.9 meters (25 to 75 feet) from all flammables storage areas.
- An approved flammables cabinet will be used to store 94.6 or more liters (25 or more gallons) of flammable liquid.
- Flammable liquids (other than decontamination solvents) will be kept in safety containers with flame arresters.

### 9.6 ELECTRICAL SAFETY

- This work will be conducted in accordance with 29 *CFR* 1910 Subpart S and EM 385-1-1 Section 11.
- All portable electrical equipment will be double insulated or grounded and connected through a ground fault circuit interrupter.

- Conductive materials (drill rigs) will be kept clear of energized power lines. The following minimum distances will be observed: 0 to 50 kV (10 feet); 51 to 100 kV (12 feet); 101 to 200 kV (15 feet); 201 to 300 kV (20 feet); 301 to 500 kV (25 feet); 501 to 750 kV (35 feet); 750 to 1000 kV (45 feet).

## 9.7 EXCAVATION AND TRENCH SAFETY

Trench excavation potentially poses the following hazards: contact with buried utilities, trench cave-in and engulfment, confined space hazards such as hazardous airborne concentrations of toxic chemicals, flammable concentrations of vapors or gases, and oxygen deficiency. The depth of the excavation and the nature of the excavated material significantly impact the potential hazard—the greater the depth, the greater the hazard.

Prior to opening an excavation, the site will be verified free of underground utilities by contacting the local utility companies or appropriate base personnel. If underground utilities are present, they will be located and protected from damage or movement. Other location-specific hazards, such as the potential for unexploded ordnance, building foundations, unstable rocks, etc., will also be controlled.

Cave-in hazards will be controlled by excluding personnel from inside or near (within 3 feet) excavations 5 feet deep or deeper. This restriction will not be applied to excavations less than 5 feet deep if the SSHO or Field Manager has examined the excavations and determined there is no potential for cave-in.

If it becomes necessary for personnel to enter trenches deeper than 1.2 meters (4 feet), the requirements of 29 *CFR* 1926.651 and EM 385-1-1 Section 25 will be applied. This will include daily inspections of the excavation and shoring or sloping the trench sides to meet the requirements of EM 385-1-1 25.C. Shoring will be accomplished using a trench box with rigid sides to prevent engulfment. If a trench box is not utilized, the trench sides will be sloped at a 34° angle (one and one-half horizontal to one vertical). All spoils will be located at least 0.6 meters (2 feet) from the edge of the excavation. Such entry will also be treated as confined space entry and procedures will comply with the confined space entry section of this plan.

## 9.8 MACHINE GUARDING

All equipment will be operated with all guards provided by the manufacturer and in compliance with 29 *CFR* 1910 Subpart O and EM 385-1-1 Section 16B. If any guarding must be removed for servicing, the equipment will be disabled to preclude movement or release of energy.

## 9.9 LOCKOUT/TAGOUT

All potentially hazardous servicing or equipment repair will be governed by 29 *CFR* 1910.147 and EM 385-1-1 Section 12. No such activities are anticipated for this project.

## 9.10 FALL PROTECTION

Work areas with the potential for a fall of 1.2 meters (4 feet) or more will be provided with fall protection in compliance with EM 385-1-1 Section 21.A.15. This fall protection will consist of guardrails or personal fall protection. Personal fall protection will be used if it is necessary for drilling personnel to climb the upright mast or derrick.

## 9.11 HAZARD COMMUNICATION

Hazard communication will be governed by 29 *CFR* 1910.1200 and EM 385-1-1 Section 8. As a minimum, the following steps will be taken.

- All hazardous materials on-site will be labeled to comply with the hazard communication standard.
  - clear labeling as to the contents,
  - the appropriate hazard warning, and
  - the name and address of the manufacturer.
- MSDS will be available on site for all hazardous materials that are present.
- Site-specific training will include the hazards posed by site chemicals, protective measures, and emergency procedures.
- Copies of MSDS for all hazardous chemicals (chemicals brought on-site) will be maintained in the work area. MSDS will be available to all employees for review during each work shift.

## 9.12 ILLUMINATION

All site field work will be conducted during daylight hours (no earlier than 15 minutes after sunrise and no later than 15 minutes before sunset) and natural illumination will be used. Non-field work conducted in buildings will be illuminated to meet the following minimums stated in 29 *CFR* 1910.120 (meters) and EM 385-1-1 Section 7: general outdoors 3-foot candles, stairs and ladders 10-foot candles, offices 50-foot candles, and first aid areas 30-foot candles.

## 9.13 SANITATION

- Sanitation will comply with 29 *CFR* 1910.120(n) and EM 385-1-1 Section 2.
- Means for washing hands and faces prior to eating will be provided at the work site.
- Potable drinking water will be provided in labeled, sanitary dispensers.
- Toilets shall be provided according to the following: 20 employees = 2 toilets, 21 to 199 employees = 1 toilet seat and 1 urinal per 40 workers.

## 9.14 DRILL RIG OPERATIONS

General Drilling Practices will comply with EM 385-1-1 Section 16M

- Operating manuals will be present on-site for each type of drill rig in use.
- Drill rigs will have at least two functional kill switches, one for the driller and one for the driller's helper. These switches will be confirmed to be functional each day that the rig is used.
- Drill rigs will have functional backup alarms.

- Drill rigs will be inspected weekly by the driller, and this inspection will be confirmed by the SSHO.
- Only the driller, driller's helper, and personnel who have a critical need will be allowed near moving parts of the drill rig.
- Drill sites will be verified free of underground utilities by clearing each site with local utilities or appropriate installation personnel prior to beginning drilling.
- Drill-mounted fire-fighting equipment will not be tampered with and will not be removed for other than the intended fire-fighting purposes or for servicing.
- Drilling crews and personnel who work near the drill rig will be trained in the location and use of the kill switches.
- If lubrication fittings are not accessible with guards in place, machinery will be stopped and disabled (locked out or ignition key removed) for oiling and greasing.
- Work areas and walkways will not be obstructed.

#### **Hoisting Operations**

- The derrick (mast) will not be raised unless the area is free of overhead obstructions and far enough (see Electrical Safety) from power lines.
- The derrick will not be raised until the rig has been blocked, leveled, and chocked.
- Rigging equipment for material handling will be checked prior to use on each shift and as often as necessary to ensure it is safe. Defective rigging will be removed from service.
- A hoisting line with a load imposed will not be permitted to be in direct contact with any derrick member or stationary equipment, unless it has been specifically designed for line contact.
- Workers will stand clear of the well bore when any wire line device is being run.
- No loads will be lifted over workers.

#### **Cat Line Operations**

- The cat head area will be kept free of obstructions and entanglements.
- The operator will not use more wraps than necessary to pick up the load. More than one layer of wrapping is not permitted.
- Personnel will not stand near, step over, or go under a cable or cat line that is under tension.

### **9.15 UNEXPLODED ORDNANCE**

Work that involves, or may involve, exposure to ordnance will be conducted in compliance with LTR 385-98-1, June 1998, "Explosives Safety Policy for Real Property Containing Conventional

Ordnance and Explosives.” The Contractor will, at a minimum, follow the UXO procedures listed below for work in all areas at RVAAP. If UXO is identified or a potential hazard at an AOC to be investigated by the Contractor, specific procedures for UXO avoidance will be added to the investigation-specific SSHP addendum.

- All on-site workers will be trained to recognize and avoid the types of ordnance that may be present.
- Contractor and its subcontractors will not handle, move, or otherwise disturb ordnance or any items that cannot be identified as non-ordnance without specific authorization from the U.S. Army.
- If ordnance or potential ordnance is discovered, work will be stopped, and the area will be evacuated and cordoned off.
- If ordnance or potential ordnance is discovered, the facility security organization will be notified immediately.
- If ordnance or potential ordnance is discovered, the U.S. Army project manager will be notified immediately.
- For work in areas where UXO may reasonably be expected (former ordnance disposal sites), qualified explosive ordnance disposal (EOD) personnel or qualified UXO personnel will survey (visual and magnetometer) prior to other work and establish appropriate controls.

#### 9.16 HISTOPLASMOSIS

Histoplasmosis is an infectious disease caused by inhaling the spores of a fungus called *Histoplasma capsulatum*. Histoplasmosis is not contagious; it cannot be transmitted from an infected person or animal to someone else. Histoplasmosis primarily affects a person’s lungs, and its symptoms vary greatly. The vast majority of infected people are asymptomatic (have no apparent ill effects), or they experience symptoms so mild they do not seek medical attention and may not even realize that their illness was histoplasmosis. If symptoms do occur, they will usually start within 3 to 17 days after exposure, with an average of 10 days. Histoplasmosis can appear as a mild, flu-like respiratory illness and has a combination of symptoms, including malaise (a general ill feeling), fever, chest pain, dry or nonproductive cough, headache, loss of appetite, shortness of breath, joint and muscle pains, chills, and hoarseness. Chronic lung disease due to histoplasmosis resembles tuberculosis and can worsen over months or years. Special antifungal medications are needed to arrest the disease. The most severe and rarest form of this disease is disseminated histoplasmosis, which involves spreading of the fungus to other organs outside the lungs. Disseminated histoplasmosis is fatal if untreated, but death can also occur in some patients even when medical treatment is received.

*H. capsulatum* grows in soils throughout the world. In the United States, the fungus is endemic (more prevalent) and the proportion of people infected by *H. capsulatum* is higher in central and eastern states, especially along the valleys of the Ohio, Mississippi, St. Lawrence rivers, and the Rio Grande. The fungus seems to grow best in soils having a high nitrogen content, especially those enriched with bat droppings or bird manure. Disturbances of contaminated material cause small *H. capsulatum* spores to become airborne or aerosolized. Once airborne, spores can easily be carried by wind currents over long distances. For additional information, see HISTOPLASMOSIS: *Protecting Workers at Risk*, Department of Health and Human Services (NIOSH) Publication, No. 97-146 September 1997.

The following actions must be taken to minimize the potential for infection.

- Workers who will disturb collections of bird or bat droppings must be trained in the potential hazard and control measures.
- Avoid disturbing collections of bird or bat droppings in any way that causes airborne dust.
- If collections of bird or bat droppings will be disturbed, wet droppings with water and surfactant before disturbing and continuously during disturbance.
- Stop work and take additional corrective action if visible airborne dust is observed.
- Use particulate respirators and disposable coveralls for work that may involve potentially significant or uncontrolled exposure to collections of droppings.

### 9.17 LYME DISEASE

Lyme disease is an infection caused by the corkscrew-shaped bacteria *Borrelia burgdorferi* that is transmitted by the bite of deer (*Ixodes scapularis*) and western black-legged (*Ixodes pacificus*) ticks. The deer tick, which normally feeds on the white-footed mouse, the white-tailed deer, other mammals, and birds, is responsible for transmitting Lyme disease bacteria to humans in the northeastern and north-central United States. On the Pacific Coast, the bacteria are transmitted to humans by the western black-legged tick. *Ixodes* ticks are much smaller than common dog and cattle ticks. In their larval and nymphal stages, they are no bigger than a pinhead. Adult ticks are slightly larger. Ticks feed on blood by inserting their mouth parts (not their whole bodies) into the skin of a host animal. They are slow feeders: a complete blood meal can take several days. As they feed, their bodies slowly enlarge.

The number of annually reported cases of Lyme disease in the United States has increased about 25-fold since national surveillance began in 1982, and a mean of approximately 12,500 cases annually were reported by states to the Centers for Disease Control and Prevention from 1993-1997. In the United States, the disease is mostly localized to states in the northeastern, mid-Atlantic, and upper north-central regions, and to several counties in northwestern California. Personnel who engage in outdoor occupations, such as landscaping, brush clearing, forestry, and wildlife and parks management in endemic areas may be at risk of getting Lyme disease.

For Lyme disease to exist in an area, at least three closely interrelated elements must be present in nature: (1) the Lyme disease bacteria, (2) ticks that can transmit the bacteria, and (3) mammals (such as mice and deer) to provide food for the ticks in their various life stages. Ticks that transmit Lyme disease can be found in temperate regions that may have periods of very low or high temperature and a constant high relative humidity at ground level. The life cycle of these ticks requires 2 years to complete. Adult ticks feed and mate on large animals, especially deer, in the fall and early spring. Female ticks then drop off these animals to lay eggs on the ground. By summer, eggs hatch into larvae. Larvae feed on mice and other small mammals and birds in the summer and early fall and then are inactive until the next spring when they molt into nymphs. Nymphs feed on small rodents and other small mammals and birds in the late spring and summer and molt into adults in the fall, completing the 2-year life cycle. Larvae and nymphs typically become infected with Lyme disease bacteria when they feed on infected small animals, particularly the white-footed mouse. The bacteria remain in the tick as it changes from larva to nymph or from nymph to adult. Infected nymphs and adult ticks then bite and transmit Lyme disease bacteria to other small rodents, other animals, and humans, all in the course of their normal feeding behavior.

Ticks search for host animals from the tips of grasses and shrubs (not from trees) and transfer to animals or persons that brush against vegetation. Ticks only crawl; they do not fly or jump. Ticks found on the scalp usually have crawled there from lower parts of the body. Ticks can attach to any part of the human body but often attach to the more hidden and hairy areas such as the groin, armpits, and scalp. Research in the eastern United States has indicated that, for the most part, ticks transmit Lyme disease to humans during the nymph stage, probably because nymphs are more likely to feed on a person and are rarely noticed because of their small size. Thus, the nymphs typically have ample time to feed and transmit the infection (ticks are most likely to transmit infection after approximately 2 or more days of feeding). Tick larvae are smaller than the nymphs, but they rarely carry the infection at the time of feeding and are probably not important in the transmission of Lyme disease to humans. Adult ticks can transmit the disease, but since they are larger and more likely to be removed from a person's body within a few hours, they are less likely than the nymphs to have sufficient time to transmit the infection. Moreover, adult *Ixodes* ticks are most active during the cooler months of the year, when outdoor activity is limited. For additional information, see the Centers for Disease Control, Division of Vector-Borne Diseases, multiple Lyme Disease publications.

The following control measures must be followed.

- Whenever possible, avoid entering areas that are likely to be infested with ticks, particularly in spring and summer when nymphal ticks feed. Ticks favor a moist, shaded environment, especially that provided by leaf litter and low-lying vegetation in wooded, brushy or overgrown grassy habitat.
- Wear light-colored clothing so that ticks can be spotted more easily and removed before becoming attached.
- Wear long pants and tuck pant legs into socks or boot tops or close the pant legs with tape or other means.
- Apply insect repellents containing DEET (n,n-diethyl-m-toluamide) to clothes and exposed skin.
- If it is necessary to enter areas with known heavy infestation, consider applying permethrin (which kills ticks on contact) to clothes.
- Conduct daily checks for ticks. Embedded ticks should be removed using fine-tipped tweezers. DO NOT use petroleum jelly, a hot match, nail polish, or other products. Grasp the tick firmly and as closely to the skin as possible. With a steady motion, pull the tick's body away from the skin. The tick's mouthparts may remain in the skin, but do not be alarmed. The bacteria that cause Lyme disease are contained in the tick's midgut. Cleanse the area with an antiseptic.
- Note the date of removal of any imbedded tick and seek medical attention if any signs and symptoms of early Lyme disease, ehrlichiosis, or babesiosis develop over the ensuing days or weeks.

## 9.18 ROCKY MOUNTAIN SPOTTED FEVER

Rocky Mountain Spotted Fever is a rickettsial disease caused by the organism, *Rickettsia rickettsii*. It is transmitted by the bite of an infected tick and results in a systemic, febrile illness. Several ticks are responsible for the spread of this disease, and these vary by geographic region. The dog tick, *Dermacentor variabilis*, is probably the most common vector. According to the Ohio Department of Health, the incidence of Rocky Mountain Spotted Fever has increased in recent years.

The organism becomes infectious after the tick has been attached to the skin for at least four to six hours. It can also be transmitted in the process of tick removal if the tick is crushed, allowing infectious material to escape.

Symptoms of Rocky Mountain Spotted Fever include the sudden onset of a moderate to high fever (which can last two to three weeks if untreated), muscle pain, severe headache, and chills. A rash occurs in about half of the cases. It starts with the extremities and soon spreads to the palms of the hands and soles of the feet, then quickly spreads to the trunk and rest of the body.

Rocky Mountain Spotted Fever is treated by daily oral or intravenous doses of tetracyclines (usually doxycycline) for five to seven days and for at least 48 hours after an infected person is afebrile (without a fever). Treatment should be initiated (unless tetracyclines are contraindicated) on clinical and epidemiological considerations without waiting on laboratory confirmation of the diagnosis.

Control measures are the same as those for Lyme disease ticks.

## **9.19 IONIZING RADIATION**

All work involving regulated radiation sources must be conducted in accordance with the requirements of EM 385-1-1, Section 06.E, Ionizing Radiation. Requirements include, but are not limited to:

- A Department of Defense form 3337, Application for Army Radiation Authorization, must be completed and approved by RVAAP prior to bringing a source onto RVAAP.
- All regulatory requirements, including source security, must be met during the period the source is on RVAAP.
- RVAAP must be notified when the source is removed.

## **9.20 FUELS**

RVAAP procedures for use and storage of fuels, such as gasoline and diesel fuel, must be followed. These include, but are not limited to:

- Secondary containment for containers with a capacity of 100 gallons or more.
- All spills must be immediately reported to RVAAP.
- Spill response must comply with the current Installation Spill Contingency Plan for the Ravenna Army Ammunition Plant.

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## **10.0 SITE CONTROL MEASURES**

The SSHO will be responsible for establishing the site control zones, as necessary, around Contractor-controlled areas that present physical or chemical hazards. Implementation of the site control zones will help to minimize the number of employees potentially exposed and to minimize the potential for the spread of contamination. The SSHO will monitor the implementation of the required site control work rules and will report any deviations from prescribed practice to the Field Operations Manager or Task Leader or stop work, as appropriate.

Site control zones will be established in multiple locations over the site. The exact locations will vary depending on site conditions; therefore, it is not possible to predetermine the size or exact locations of site control zones. As a general rule, an exclusion zone will be established around any task or area that poses a potential to spread contamination or injure personnel. Examples of tasks or areas that will require site control include drilling/excavation sites, areas of known contamination, etc.

### **10.1 EXCLUSION ZONE**

The exclusion (contamination) zone is the area where the greatest potential exists for exposure to contamination or physical hazards. The periphery of the exclusion zone will be identified by barricade tape or rope suspended above the ground. An entry and exit checkpoint will be visually defined to regulate the flow of personnel and equipment. The entry and exit checkpoint will be delineated with barricade tape/rope and signs. Signs may include "Construction Area," or "High Noise Area," as deemed appropriate by the SSHO. The number of people and equipment in the exclusion zone will be minimized to control physical hazards and the spread of contamination.

The following standard rules will apply to all entry into the exclusion zone.

- The SSHO or Field Task Leader must approve (and log) entry into the exclusion zone.
- All personnel entering the exclusion zone will wear the prescribed level of protective clothing.
- All items and related paraphernalia intended to be placed on the face or in the mouth (cigarettes, lighters, matches, chewing tobacco, food, cosmetics, etc.) are prohibited in the exclusion zone.
- All personnel in the exclusion zone will follow the buddy system.

Exclusion zones will be established around drilling sites, areas of heavy equipment use, and all activities where contamination is a potential hazard. As a minimum, the exclusion zone will extend 25 feet from the hazard. For drilling operations, the exclusion zone will also be at least equal to the mast height in radius so that no part of an overturned drill rig will fall outside the zone. A larger exclusion zone will be used, as necessary, to protect bystanders and the public from chemical or other hazards. Exclusion zones for other activities will be appropriate to the hazard and surroundings.

### **10.2 CONTAMINATION REDUCTION ZONE**

A contamination reduction (buffer) zone will be established, as necessary, outside the exclusion zone to provide a transition from and a buffer between the exclusion zone and the support zone. A formal

contamination reduction zone for personnel will not be established unless Level D+ PPE or higher level (A, B, C) is used, or significant surface contamination is present or suspected. An entry and exit checkpoint will be visually defined at the periphery of the zone to regulate the flow of personnel and equipment. The entry and exit checkpoint and the perimeter of the zone will be delineated with the use of ropes/barricade tape and signs. A contamination reduction zone will be established around the central equipment decontamination pad.

All personnel entering the contamination reduction zone will wear the prescribed level of protective clothing required for that zone. All items intended to be placed on the face or in the mouth (e.g., cigarettes, chewing tobacco, food, cosmetics, etc.) are prohibited in the contamination reduction zone. Doffing of protective clothing and personnel decontamination will occur in the contamination reduction zones.

### **10.3 SUPPORT ZONE**

The support zone is the clean and relatively safe area surrounding the exclusion and contamination reduction zones. Entry requirements for the support zone consist of those required for entry into the general area of the facility. Primary functions of the support zone are:

- staging area for clean equipment and supplies; and
- location for support services [e.g., office trailers, laboratory trailers, eating area(s), toilet facilities, parking, visitor area(s), etc.].

### **10.4 SITE VISITORS**

Visitors will not be allowed inside areas controlled by the Contractor without specific approval of the SSHO and Field Manager. Visitors must meet all regulatory (specifically 29 *CFR* 1910.120) and site H&S requirements (proof of training, medical surveillance, etc.) to be considered for entry into an exclusion or contamination reduction zone. Visitors will sign in on the site entry log and will receive a health and safety briefing appropriate to the nature of the visit and the potential hazards associated with the visit.

### **10.5 SITE COMMUNICATION**

Field personnel will be capable of contacting other field personnel and outside agencies. Communication on-site will be assured by hand-held radio, portable air horns, or vehicle horns. Short blasts (less than 1/2 second) of an air horn or car horn will be used to request assistance. Prolonged blasts (more than 2 seconds) will be used to signal an evacuation. If phone service is not immediately available on the site, the crew will be equipped with a cellular phone.

## **11.0 PERSONNEL HYGIENE AND DECONTAMINATION**

A system of procedures will be used to control the spread of contamination from the exclusion (contamination) zone and to ensure that workers are sufficiently free of contamination to preclude adverse health effects. PPE doffing and personnel decontamination are part of this system. The SSHO will ensure the construction of a decontamination station, as necessary, instruct personnel on its proper use, and verify that personnel follow the appropriate steps. This section presents basic requirements for personnel decontamination keyed to the level of protective clothing in use. Note that the levels of protective clothing required for particular tasks are specified in the Hazards Analysis Table (Table 2-2). These requirements may be modified by the SSHO if improvements are needed.

### **11.1 LEVEL D PROTECTION DECONTAMINATION**

Station 1: Removal of disposable gloves and boot covers, if worn

Deposit disposable gloves and boot covers in a designated container. Note that this step is necessary only if gloves and boot covers are in use.

Station 2: Field wash

Wash face and hands prior to taking anything by mouth. This may be done with soap and water or disposable disinfectant towels.

### **11.2 LEVEL D+ PROTECTION DECONTAMINATION**

Station 1: Tape removal

Remove all tape (if used) from outer clothing and place in appropriate waste container.

Station 2: Boot covers, outer disposable garment, and gloves removal

Carefully remove boot covers, outer contamination-resistant garment, and gloves.

Station 3: Field wash

Wash hands and face prior to eating, drinking, smoking, etc. This step may be accomplished with soap and water or disposable disinfectant wipes.

### 11.3 LEVEL C PROTECTION DECONTAMINATION

#### Station 1: Segregated equipment drop

Deposit equipment used on-site (tools, sampling devices, containers, monitoring instruments, clipboards, etc.) on plastic sheets or in different containers with plastic liners. Segregation of the equipment at the drop site reduces the possibility of cross-contamination.

#### Station 2: Outer boot and glove removal

Remove tape from outer boots and outer gloves. Remove outer boot covers and outer gloves. Deposit gloves and boot covers in plastic trash bags.

#### Station 3: Cartridge change

If a worker has left the exclusion zone for the sole purpose of changing a canister/cartridge of the respirator, this is the last step of the decontamination procedure. Once the worker's canister/cartridge has been replaced, the outer boots and gloves will be replaced and retaped so that all potential pathways to the skin are sealed.

#### Station 4: Disposable outer garment removal

Remove disposable outer garment, deposit in a plastic trash bag, and dispose in accordance with the project Field Sampling Plan.

#### Station 5: Respiratory protection and disposable inner glove removal

The respirator is the next-to-last item for removal. The cartridges/canisters are placed in a plastic trash bag and disposed of in accordance with the project Field Sampling Plan. The respirator is placed in a plastic bag dedicated for used respirators only. Remove disposable inner gloves last and deposit them in a plastic trash bag, in accordance with the project Field Sampling Plan.

#### Station 6: Field wash

Wash hands and face prior to eating, drinking, smoking, etc. This step may be accomplished with soap and water or disposable disinfectant wipes.

## **12.0 EMERGENCY PROCEDURES AND EQUIPMENT**

The Contractor must establish sufficient emergency procedures and equipment to allow a safe and effective response to credible emergencies. If an emergency occurs, the Field Operations Manager or Task Leader, the SSHO, and the field team will participate in a post-emergency briefing to discuss the event, identify the causes, identify corrective measures, and evaluate the responses.

In the event of an accident or incident, the Field Operations Manager or Task Leader must first notify RVAAP's security personnel, who will, in turn, contact the proper authorities. The field supervisor should then notify the U.S. Army Project Manager immediately according to the requirements of EM 385-1-1. The required Accident Report (ENG Form 3394) must be completed and submitted to the U.S. Army Project Manager within two days.

All personnel working on-site will be trained in the applicable emergency response requirements. This will include recognizing emergencies, reporting emergencies to the Field Operations Manager or Task Leader or SSHO, and responding to emergencies. Employees will also be informed of any changes in potential emergencies or response plans.

### **12.1 POTENTIAL EMERGENCIES**

Credible potential emergencies for this project include fires, minor chemical spills, and personnel injury.

#### **12.1.1 Fires**

Small quantities of flammable solvents [typically less than 18.9 liters (5 gallons)], gasoline, and diesel fuel may be present on-site. In the event of a fire, the local fire department will be notified immediately. If it is safe to do so, on-site personnel may attempt to extinguish the fire with the available fire extinguishers and isolate any nearby flammable materials. If there is any doubt about the safety of extinguishing the fire, site personnel will evacuate the area. The supervisor or knowledgeable employee will provide the fire department with relevant information when they arrive.

#### **12.1.2 Spills**

Potential spills include releases of fuels, lubricants, hydraulic fluids, and decontamination solvents. In the event of a spill or leak, the employee making the discovery will immediately notify the SSHO and/or the Field Operations Manager or Task Leader. The Field Operations Manager or Task Leader will determine whether the leak poses an environmental risk or will exceed the capacity of on-site personnel and equipment. In the unlikely event that there is a probability that the spill will extend beyond the immediate area, result in an environmental insult, or exceed the capabilities of the on-site personnel, the Field Operations Manager or Task Leader will inform the local fire department and hazardous materials response team. If this is not the case, the on-site spill kit will be utilized to clean up the spill.

#### **12.1.3 Medical Emergencies**

Field crews will use a variety of equipment that could cause injuries. In the event of a medical emergency, the Field Operations Manager or Task Leader will notify the local emergency medical service immediately. At least two first aid/cardiopulmonary resuscitation (CPR)-trained individuals will be on site at all times and these personnel will provide first aid pending release of the injured person to

emergency medical staff. Contaminated injured personnel will be decontaminated to the extent feasible. Personnel with minor injuries will follow normal decontamination procedures. Personnel with serious injuries will be decontaminated, if necessary, by disrobing and wrapping in a blanket. Decontamination may be bypassed in the event of life-threatening injuries or illnesses.

## 12.2 EMERGENCY PHONE NUMBERS

Listed below are emergency groups and their telephone numbers. A telephone and 2-way radio will be present in the field and available for use. Tol-Test Co., Inc. will be contacted first for any emergency service. Tol-Test Co., Inc. will then coordinate the response.

At least one person (i.e., project manager or Field Operations Manager) must have a working 2-way radio on the RVAAP frequency. The radio must be tested each morning before the start of work, by radioing Security with a communication check. Each team must have direct radio or telephone communication with the Project Manager or Field Operations Manager. For the purposes of this requirement, a team is any individual(s) not having a line of sight or within normal voice range of another individual(s) having means of communication with the Field Operations Manager.

Emergency Group	Telephone No.
Police (Tol-Test Inc./Mid-American Security)	330-338-7406 Pager: 261-626-0825
Emergency medical service (Borowski Funeral Home, Ravenna)	330-872-5050
Hospital (Robinson Memorial, Ravenna)	330-297-2449/0811
Fire department (City of Ravenna)	330-297-5738
Hazardous materials response (Tol-Test Co., Inc.)	330-358-7406/7409
RVAAP Environmental Coordinator	330-358-7311

Robinson Memorial Hospital is located approximately 32 km (20 miles) from the site at 6847 N. Chestnut Street in Ravenna, Ohio. It can be reached by taking Highway 5 E. approximately 11 km (7 miles), Highway 5 approximately 3.2 km (2 miles), Highway 59, then right onto Highway 44 (Chestnut Street).

## 12.3 EMERGENCY ALERTING

Each team will have a means for generating an audible alarm, which will consist of a compressed gas horn or vehicle horn. These devices will be used to signal to other project personnel in the event of accidents or emergencies. Short blasts (less than 1/2 second) of the horn will be used to request assistance, while extended blasts (more than 2 seconds) will signal an evacuation.

## 12.4 EVACUATION

The SSHO or Field Operations Manager or Task Leader will designate the evacuation routes and an assembly area. All employees will be familiar with the evacuation routes and assembly area.

## 12.5 EMERGENCY EQUIPMENT

Several items of emergency equipment will be maintained at the work site. Any incident that is not clearly controllable by personnel wearing standard site clothing plus protective gloves and using the listed

equipment will require reevaluation by the SSHO. If the SSHO does not feel that on-site personnel can safely control the emergency with the available equipment, the crew will use an alternate approach such as allowing a small fire to burn out or evacuating the site. The required emergency equipment includes:

- fully stocked first aid kit indoors or in weatherproof container, inspected weekly;
- compressed gas horns;
- emergency eye wash to meet American National Standards Institute standard if corrosives (water sample preservatives) are being poured;
- fire extinguisher(s) (at least 20-B) 7.6 to 22.9 meters (25 to 75 feet) from outside flammables storage (or use) area;
- basic spill kit suitable to handle small spills of decontamination fluids, hydraulic fluid, or fuels and containing sorbent pads, tubes, and nitrile or similar gloves; and
- telephone and 2-way radios.

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### **13.0 LOGS, REPORTS, AND RECORD KEEPING**

A system of reports and logs will be used to document activities related to site Health and Safety. Field team leaders and the SSHO will generate a brief weekly summary of Health and Safety issues and resolutions. These reports will include injuries, accidents, near accidents, interpretations of the FSHP or regulations, interactions with auditors/regulators/U.S. Army personnel, and any off-normal events. These reports will be limited to one page or less.

In addition to the weekly reports, the following documents will be generated and submitted to the U.S. Army Project Manager.

- Training logs will contain information covered and the signatures of the trainer and those attending. These logs will contain documentation of pre-entry (project start) training, routine (“tailgate”) safety briefings, and visitor training.
- Daily safety inspection logs will contain the dates of inspections, identity of the person doing the inspection, the examined areas/activities/equipment, any deficiencies, and any corrective actions taken.
- Equipment maintenance logs will contain the dates and types of routine maintenance performed on site equipment.
- Employee/visitor register will be a sign-in log for all site employees and visitors. It will contain the names of all personnel who perform on-site work or visit the site. It will not contain the names of delivery or similar personnel.
- Environmental and personal exposure monitoring/sampling results will be maintained in a log that will contain monitoring data, location and time of monitoring, types of work being done, calibration records, and the identities of personnel performing monitoring.

Sample reporting forms are included in Appendix C.

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## **APPENDIX A**

### **SITE MAP**

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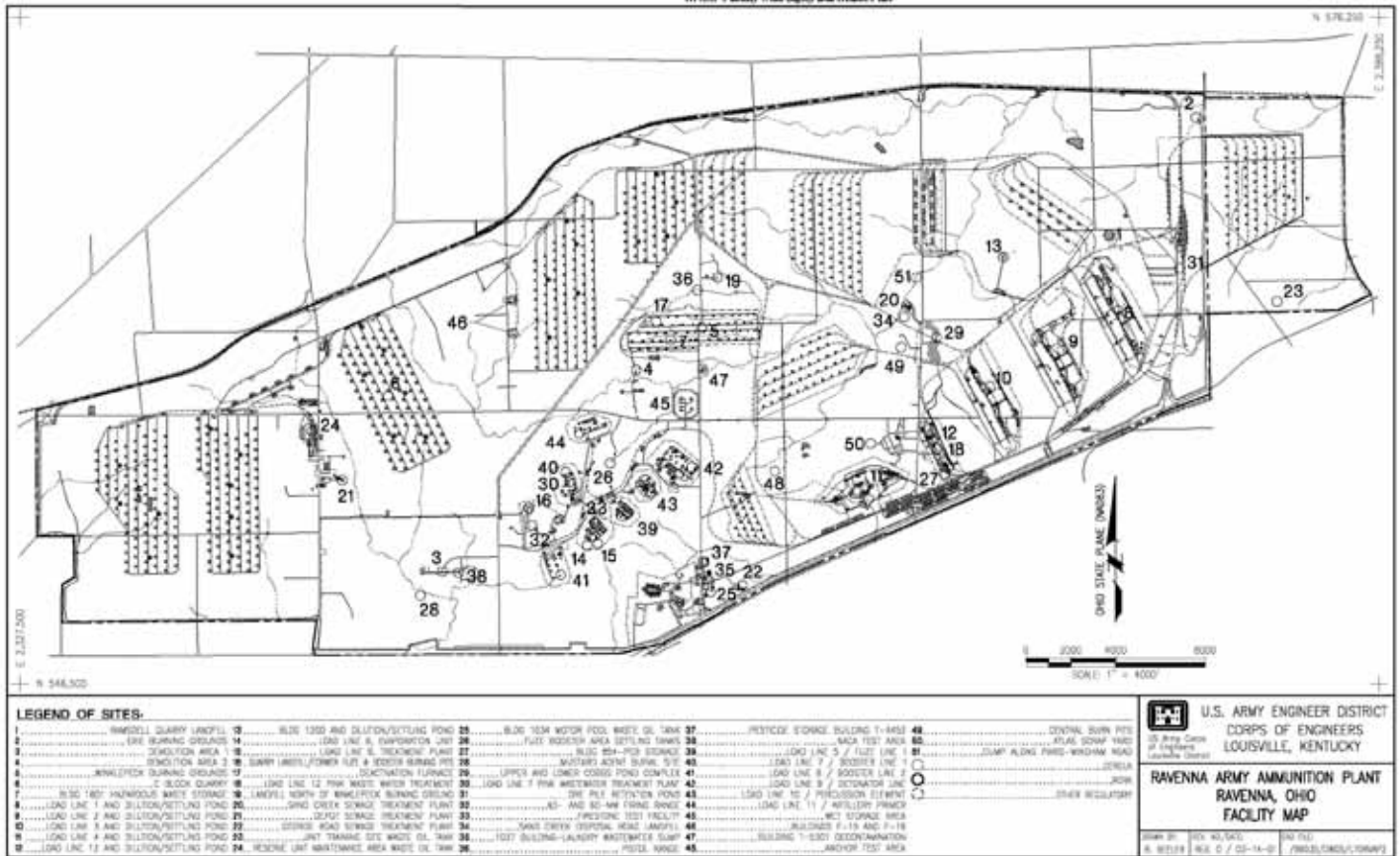


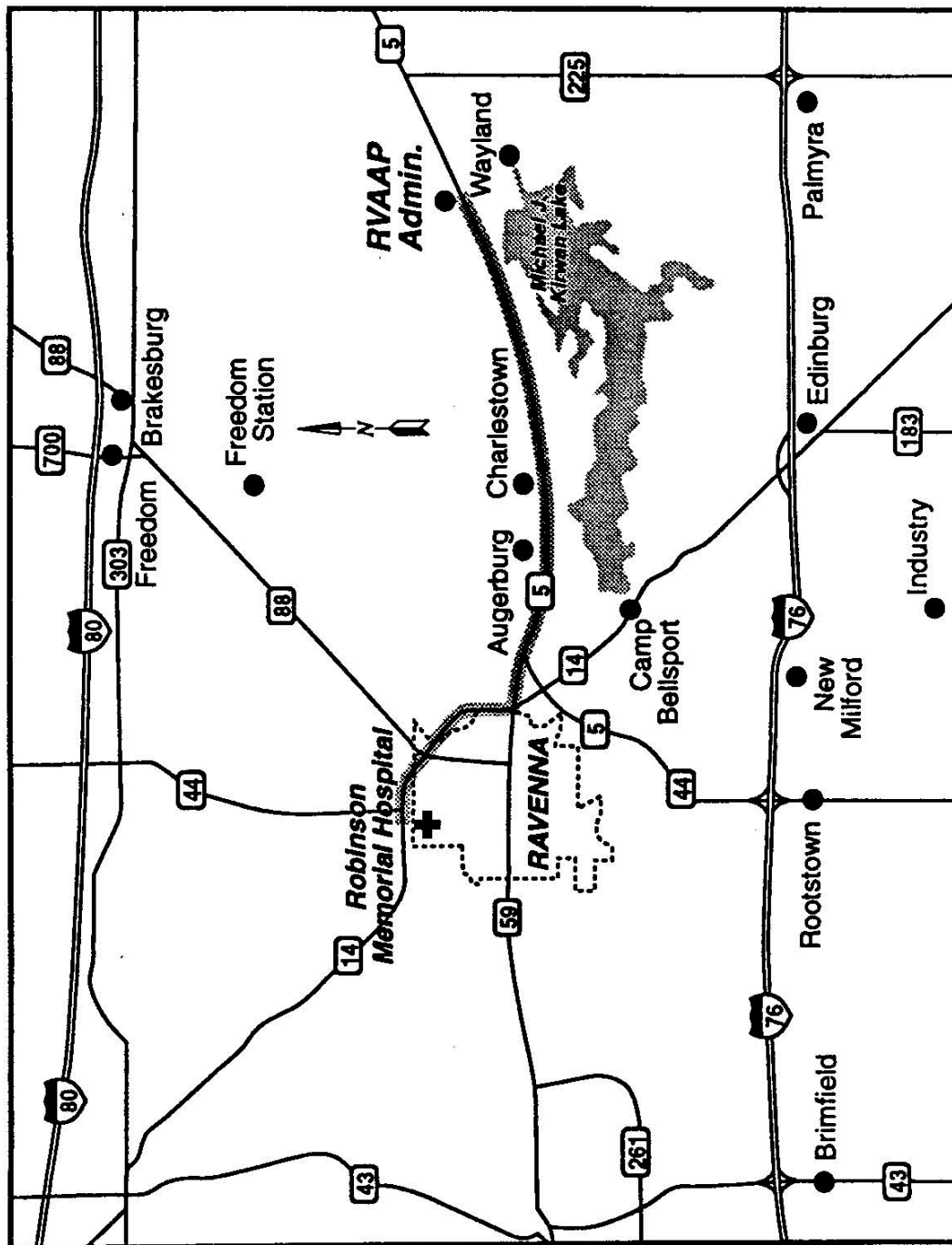
Fig. A-1. RYAAP Installation Map

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**APPENDIX B**

**ROUTE MAP TO PRE-NOTIFIED MEDICAL FACILITY**

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COE NASH RV 031

Figure B-1. Route Map to Pre-Notified Medical Facility

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**APPENDIX C**  
**REPORTING FORMS**

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# OSHA Form 200

U.S. Department of Labor

For Calendar Year 20

Page of

Company Name													Form Approved O.M.B. No. 1220-0029	
Establishment Name														
Establishment Address														
Extent of and Outcome of Injury													Type, Extent, of, and Outcome of ILLNESS	
Injury Related													Illness Related	
Nonfatal Injuries													Nonfatal Illness	
Injuries With Lost Workdays													Illnesses With Lost Workdays	
Injuries Without Lost Workdays													Illnesses Without Lost Workdays	
Enter a CHECK if injury involves days away from work, or days of restricted work activity, or both.													Enter a CHECK if illness involves days away from work, or days of restricted work activity, or both.	
Enter number of DAYS away from work.													Enter number of DAYS away from work.	
Enter number of DAYS of restricted work activity.													Enter number of DAYS of restricted work activity.	
Enter a CHECK if no entry was made in columns 1 or 2 but the injury is re-ordable as defined above.													Enter a CHECK if no entry was made in columns 8 or 9.	
Occupational skin diseases or disorders													All other occupational illnesses	
Dust diseases of the lungs														
Respiratory conditions due to toxic agents														
Poisoning (systemic effects of toxic materials)														
Disorders due to physical agents														
Disorders associated with repeated trauma														
(7)														
(a) (b) (c) (d) (e) (f) (g)														
(1) (2) (3) (4) (5) (6)													(8) (9) (10) (11) (12) (13)	

Certification of Annual Summary Totals By \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

OSHA No. 200

POST ONLY THIS PORTION OF THE LAST PAGE NO LATER THAN FEBRUARY 1.

**RECORDABLE CASES:** You are required to record information about every occupational death, every nonfatal occupational illness, and those nonfatal occupational injuries which involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment (other than first aid). (See definitions on the other side of form.)

Case or File Number	Date of Injury or Onset of Illness	Employee's Name	Occupation	Department	Description of Injury or Illness
Enter a nonduplicating number which will facilitate comparisons with supplementary records.	Enter Mo./day.	Enter first name or initial, middle initial, last name.	Enter regular job title, not activity employee was performing when injured or at onset of illness. In the absence of a formal title, enter a brief description of the employee's duties.	Enter department in which the employee is regularly employed or a description of normal workplace to which employee is assigned, even though temporarily working in another department at the time of the injury or illness	Enter a brief description of the injury or illness and indicate the part or parts of body affected.  Typical entries for this column might be: Amputation of 1 <sup>st</sup> joint right forefinger; Strain of lower back; Contact dermatitis on both hands; Electrocution—body.
(A)	(B)	(C)	(D)	(E)	(F)
					PREVIOUS PAGE TOTALS
					TOTALS (Instructions on other side of form)

PROJECT: _____			DAILY SAFETY INSPECTION	Page 1 of 2
N	Y	NA	Item	
			Daily safety briefing conducted	
			Emergency numbers and route to hospital posted	
			SSHP onsite, available to employees, and complete	
			Required exposure monitoring conducted and documented	
			Monitoring instruments (PID, OVA, CGI) calibrated daily against known standard and documented	
			First aid kit available and inspected weekly	
			Personnel wearing PPE required by SSHP for field work (at least safety shoes or boots, safety glasses with side shields, and nitrile or similar gloves to handle potentially contaminated material)	
			Personnel using buddy system (maintain visual or verbal contact and able to render aid)	
			If temperature >70°F: heat stress training conducted, cool fluids available, pulse rates of personnel wearing Tyvek are being monitored, work/rest cycle in SSHP being followed	
			If temperature <40°F: cold stress training conducted, controls in SSHP implemented	
			Personnel using appropriate biological hazard controls (See SSHP)	
			Drill rig operating manual on site	
			Drill rigs inspected weekly and documented	
			Personnel near drill rig or other overhead hazards wearing hardhats	
			Each of two drill rig kill switches tested daily	
			Employees excluded from under lifted loads	
			Unnecessary personnel excluded from hazardous areas, specifically near drill rigs	
			Radius of exclusion zone around drill rig at least equal to mast height	
			Personnel wearing hearing protection when within 25 feet of drill rigs, generators, or other noisy equipment	
			Containers of flammable liquids closed and labeled properly	
			Fully charged fire extinguisher available 25 to 50 feet from flammables storage area and inspected monthly	
			Personnel exiting potentially contaminated areas washing hands and face before eating	
			Personnel using steam washer wearing faceshield, hearing protection, heavy duty waterproof gloves, Saranex or rainsuit	

DAILY SAFETY INSPECTION			
PROJECT:			
		Page 2 of 2	
			Portable electrical equipment double insulated or plugged to a GFCI
			Electrical wiring covered by insulation or enclosure
			Three wire, UL approved, extension cords used
			Housekeeping adequate (walkways clear of loose, sharp or dangerous objects and trip hazards, work areas clear of objects that might fall on employees)
			Walking/working surfaces safe (not slippery, no unguarded holes, no trip hazards)
			Excavations deeper than 5 feet shored or sloped (if personnel will enter) and in compliance with SSHP
			Moving (rotating) machinery guarded to prevent employee contact
			Fall protection provided for work at elevations greater than 4 feet
			All containers of hazardous material labeled to indicate contents and hazards
			MSDSs for hazardous materials on site
			If work is conducted in areas open to hunting (and during season) high visibility vests and other alerting systems such as lights, noise devices (radios) in use
			15-minute eyewash (accessible and full) within 100 feet of areas where corrosive sample preservatives are poured
			Potable and non-potable water labeled
			Chainsaws have anti kick-back protection, personnel wearing cut resistant gloves, protective chaps
			Visitor access controlled
			Site hazards and controls consistent with SSHP
			Site hazard controls appropriate and sufficient
Actions taken to correct or control any "N" responses			
Name		Signature	
		Date	





[illegible]

[illegible]

[illegible]

[illegible]

(For Safety Staff only)	REPORT NO	EROC CODE	<b>UNITED STATES ARMY CORPS OF ENGINEERS ACCIDENT INVESTIGATION REPORT</b> <i>(For Use of this Form See Attached Instructions and USACE Suppl to AR 385-40)</i>			<b>REQUIREMENT CONTROL SYMBOL: CEEC-S-8(R2)</b>
<b>1 ACCIDENT CLASSIFICATION</b>						
PERSONNEL CLASSIFICATION		INJURY/ILLNESS/FATAL		PROPERTY DAMAGE		MOTOR VEHICLE INVOLVED
GOVERNMENT <input type="checkbox"/> CIVILIAN <input type="checkbox"/> MILITARY		<input type="checkbox"/>		<input type="checkbox"/> FIRE INVOLVED <input type="checkbox"/> OTHER		<input type="checkbox"/>
<input type="checkbox"/> CONTRACTOR		<input type="checkbox"/>		<input type="checkbox"/> FIRE INVOLVED <input type="checkbox"/> OTHER		<input type="checkbox"/>
<input type="checkbox"/> PUBLIC		<input type="checkbox"/> FATAL <input type="checkbox"/> OTHER		<div style="border: 1px solid black; width: 100px; height: 100px; transform: rotate(45deg); margin: 0 auto;"></div>		<div style="border: 1px solid black; width: 100px; height: 100px; transform: rotate(45deg); margin: 0 auto;"></div>
<b>2 PERSONAL DATA</b>						
a. NAME (Last,First,MI)		b. AGE	c. SEX <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE		d. SOCIAL SECURITY NUMBER ____ / ____ / ____	
f. JOB SERIES/TITLE		g. DUTY STATUS AT TIME OF ACCIDENT  <input type="checkbox"/> ON DUTY <input type="checkbox"/> TDY  <input type="checkbox"/> OFF DUTY		i. EMPLOYMENT STATUS AT TIME OF ACCIDENT <input type="checkbox"/> ARMY ACTIVE <input type="checkbox"/> ARMY RESERVE <input type="checkbox"/> VOLUNTEER <input type="checkbox"/> PERMANENT <input type="checkbox"/> FOREIGN NATIONAL <input type="checkbox"/> SEASONAL <input type="checkbox"/> TEMPORARY <input type="checkbox"/> STUDENT <input type="checkbox"/> OTHER (Specify) _____		
<b>3 GENERAL INFORMATION</b>						
a. DATE OF ACCIDENT (month/day/year)		b. TIME OF ACCIDENT (Military time)		c. EXACT LOCATIONS OF ACCIDENT		d. CONTRACTOR'S NAME
e. CONTRACT NUMBER _____  <input type="checkbox"/> CIVIL WORKS <input type="checkbox"/> MILITARY <input type="checkbox"/> OTHER (Specify) _____		f. TYPE OF CONTRACT <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> SERVICE <input type="checkbox"/> A/E <input type="checkbox"/> DREDGE <input type="checkbox"/> OTHER (Specify) _____		g. HAZARDOUS/TOXIC WASTE ACTIVITY <input type="checkbox"/> SUPERFUND <input type="checkbox"/> DERP <input type="checkbox"/> IRP <input type="checkbox"/> OTHER (Specify) _____		(1) PRIME   (2) SUBCONTRACTOR
<b>4 CONSTRUCTION ACTIVITIES ONLY (Fill in line and corresponding code number in box from list - see instructions)</b>						
a. CONSTRUCTION ACTIVITY _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>				b. TYPE OF CONSTRUCTION EQUIPMENT _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>		
<b>5 INJURY/ILLNESS INFORMATION (Include name on line and corresponding code number in box for items e, f, &amp; g - see instructions)</b>						
a. SEVERITY OF ILLNESS/INJURY _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>				b. ESTIMATED DAYS LOST	c. ESTIMATED DAYS HOSPITALIZED	d. ESTIMATED DAYS RESTRICTED DUTY
e. BODY PART AFFECTED PRIMARY _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span> SECONDARY _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>				g. TYPE AND SOURCE OF INJURY/ILLNESS TYPE _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span> SOURCE _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>		
f. NATURE OF ILLNESS/INJURY _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>						
<b>6 PUBLIC FATALITY (Fill in line and corresponding code number in box - see instructions)</b>						
a. ACTIVITY AT TIME OF ACCIDENT _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>				b. PERSONAL FLOTATION DEVICE USED? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A		
<b>7 MOTOR VEHICLE ACCIDENT</b>						
a. TYPE OF VEHICLE <input type="checkbox"/> PICKUP/VAN <input type="checkbox"/> AUTOMOBILE <input type="checkbox"/> TRUCK <input type="checkbox"/> OTHER (Specify) _____		b. TYPE OF COLLISION <input type="checkbox"/> SIDE SWIPE <input type="checkbox"/> HEAD ON <input type="checkbox"/> REAR END <input type="checkbox"/> BROADSIDE <input type="checkbox"/> ROLL OVER <input type="checkbox"/> BACKING <input type="checkbox"/> OTHER (Specify) _____		c. SEAT BELTS	USED	NOT USED
				(1) FRONT SEAT		
				(2) REAR SEAT		
<b>8 PROPERTY/MATERIAL INVOLVED</b>						
a. NAME OF ITEM		b. OWNERSHIP			c. \$ AMOUNT OF DAMAGE	
(1)						
(2)						
(3)						
<b>9 VESSEL/FLOATING PLANT ACCIDENT (Fill in line and corresponding code number in box from list. See instructions)</b>						
a. TYPE OF VESSEL/FLOATING PLANT _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>				b. TYPE OF COLLISION/MISHAP _____ (CODE) # <span style="border: 1px solid black; padding: 2px 10px;"> </span>		
<b>10 ACCIDENT DESCRIPTION (Use additional paper, if necessary)</b>						

<b>11 CAUSAL FACTOR(S) (Read Instruction Before Completing)</b>					
<b>a. (Explain YES answers in item 13)</b>  <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> DESIGN Was design of facility workplace or equipment a factor?   INSPECTION MAINTENANCE Were inspection and maintenance procedures a factor?   PERSON'S PHYSICAL CONDITION In your opinion, was the physical condition of the person a factor?   OPERATING PROCEDURES Were operating procedures a factor?   JOB PRACTICES Were any job safety/health practices not followed when the accident occurred?   HUMAN FACTORS Did any human factors such as size or strength of person, etc. contribute to accident?   ENVIRONMENTAL FACTORS Did heat, cold, dust, sun, glare, etc. contribute to the accident? </div> <div style="width: 15%; text-align: center;"> YES           NO           </div> </div>		<b>a. (CONTINUED)</b>  <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> CHEMICAL AND PHYSICAL AGENT FACTORS Did exposure to chemical agents, such as dust, fumes, mists, vapors, or physical agents such as noise, radiation, etc. contribute to accident?   OFFICE FACTORS Did office setting such as lifting office furniture, carrying, stooping, etc. contribute to the accident?   SUPPORT FACTORS Were inappropriate tools/resources provided to properly perform the activity/task?   PERSONAL PROTECTIVE EQUIPMENT Did the improper selection, use, or maintenance of personal protective equipment contribute to the accident?   DRUGS/ALCOHOL In your opinion was drugs or alcohol a factor to the accident? </div> <div style="width: 15%; text-align: center;"> YES           NO           </div> </div>			
		<b>b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?</b> <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> YES (If yes, attach a copy) <input type="checkbox"/> NO </div>			
<b>12 TRAINING</b>					
<b>a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?</b>  <input type="checkbox"/> YES <input type="checkbox"/> NO		<b>b. TYPE OF TRAINING</b>  <input type="checkbox"/> CLASSROOM <input type="checkbox"/> ON JOB		<b>c. DATE OF MOST RECENT FORMAL TRAINING</b>  <div style="display: flex; justify-content: space-around;"> <div>(Month) /</div> <div>(Day) /</div> <div>(Year)</div> </div>	
<b>13 FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES (See instruction for definition of direct and indirect causes) (Use additional paper, if necessary)</b>					
<b>a. DIRECT CAUSE</b>  					
<b>b. INDIRECT CAUSE(S)</b>  					
<b>14 ACTION(S) TAKEN ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S)</b>					
DESCRIBE FULLY					
<b>15 DATES FOR ACTIONS IDENTIFIED IN BLOCK 14</b>					
<b>a. BEGINNING (Month/Day/Year)</b> /      /			<b>b. ANTICIPATED COMPLETION (Month/Day/Year)</b> /      /		
<b>c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT</b> CORPS _____ SUBCONTRACTOR _____		<b>d. DATE (Mo/Da/Yr)</b> ____ / ____ / ____ ____ / ____ / ____		<b>e. ORGANIZATION IDENTIFIER (Div. Br. Sect.)</b> 	
				<b>f. OFFICE SYMBOL</b> 	
<b>16 MANAGEMENT REVIEW (1st)</b>					
<b>a.</b> <input type="checkbox"/> CONCUR <b>b.</b> <input type="checkbox"/> NON CONCUR <b>c.</b> COMMENTS					
SIGNATURE		TITLE		DATE	
<b>17 MANAGEMENT REVIEW (2nd - Chief Operations, Construction, Engineering, etc.)</b>					
<b>a.</b> <input type="checkbox"/> CONCUR <b>b.</b> <input type="checkbox"/> NON CONCUR <b>c.</b> COMMENTS					
SIGNATURE		TITLE		DATE	
<b>18 SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW</b>					
<b>a.</b> <input type="checkbox"/> CONCUR <b>b.</b> <input type="checkbox"/> NON CONCUR <b>c.</b> ADDITIONAL ACTIONS/COMMENTS					
SIGNATURE		TITLE		DATE	
<b>19 COMMAND APPROVAL</b>					
COMMENTS					
COMMANDER SIGNATURE				DATE	

**GENERAL.** Complete a separate report for each person who was *injured, caused, or contributed* to the accident (excluding uninjured personnel and witnesses). Use of this form for reporting USACE employee first-aid type injuries not submitted to the Office of Workers' Compensation Programs (OWCP) shall be at the discretion of the FOA Commander. Please type or print legibly. Appropriate items shall be marked with an "X" in box(es). If additional space is needed, provide the information on a separate sheet and attach to the completed form. Ensure that these instructions are forwarded with the completed report to the designated management reviewers indicated in sections 16 and 17.

#### INSTRUCTIONS FOR SECTION 1 — ACCIDENT

##### CLASSIFICATION. (Mark All Boxes That Are Applicable.)

- a. **GOVERNMENT.** Mark "CIVILIAN" box if accident involved government civilian employee; mark "MILITARY" box if accident involved U.S. military personnel.
  - (1) **INJURY/ILLNESS/FATALITY**—Mark if accident resulted in any government civilian employee injury, illness, or fatality that requires the submission of OWCP Forms CA-1 (injury), CA-2 (illness), or CA-6 (fatality) to OWCP; mark if accident resulted in military personnel lost-time or fatal injury or illness.
  - (2) **PROPERTY DAMAGE**—Mark the appropriate box if accident resulted in any damage of \$1000 or more to government property (including motor vehicles).
  - (3) **VEHICLE INVOLVED**—Mark if accident involved a motor vehicle, *regardless* of whether "INJURY/ILLNESS/FATALITY" or "PROPERTY DAMAGE" are marked.
  - (4) **DIVING ACTIVITY**—Mark if the accident involved an in-house USACE diving activity.
- b. **CONTRACTOR.**
  - (1) **INJURY/ILLNESS/FATALITY**—Mark if accident resulted in any contractor lost-time injury/illness or fatality.
  - (2) **PROPERTY DAMAGE**—Mark the appropriate box if accident resulted in any damage of \$1000 or more to contractor property (including motor vehicles).
  - (3) **VEHICLE INVOLVED**—Mark if accident involved a motor vehicle, *regardless* of whether "INJURY/ILLNESS/FATALITY" or "PROPERTY DAMAGE" are marked.
  - (4) **DIVING ACTIVITY**—Mark if the accident involved a USACE Contractor diving activity.
- c. **PUBLIC.**
  - (1) **INJURY/ILLNESS/FATALITY**—Mark if accident resulted in public fatality or permanent total disability. (The "OTHER" box will be marked when requested by the FOA to report an unusual non-fatal public accident that could result in claims against the government or as otherwise directed by the FOA Commander).
  - (2) **VOID SPACE**—Make no entry.
  - (3) **VEHICLE INVOLVED**—Mark if accident resulted in a fatality to a member of the public and involved a motor vehicle, *regardless* of whether "INJURY/ILLNESS/FATALITY" is marked.
  - (4) **VOID SPACE**—Make no entry.

#### INSTRUCTIONS FOR SECTION 2 — PERSONAL DATA

- a. **NAME**—(MANDATORY FOR GOVERNMENT ACCIDENTS. OPTIONAL AT THE DISCRETION OF THE FOA COMMANDER FOR CONTRACTOR AND PUBLIC ACCIDENTS). Enter last name, first name, middle initial of person involved.
- b. **AGE**—Enter age.
- c. **SEX**—Mark appropriate box.
- d. **SOCIAL SECURITY NUMBER**—(FOR GOVERNMENT PERSONNEL ONLY) Enter the social security number (or other personal identification number if no social security number issued).
- e. **GRADE**—(FOR GOVERNMENT PERSONNEL ONLY) Enter pay grade. Example: 0-6; E-7; WG-8; WS-12; GS-11; etc.
- f. **JOB SERIES/TITLE**—For *government civilian employees* enter the pay plan, full series number, and job title, e.g., GS-0810/Civil

Engineer. For *military personnel* enter the primary military occupational specialty (PMOS), e.g., 15A40 or 11G50. For *contractor employees* enter the job title assigned to the injured person, e.g., carpenter, laborer, surveyor, etc.

- g. **DUTY STATUS**—Mark the appropriate box.
  - (1) **ON DUTY**—Person was at duty station during duty hours or person was away from duty station during duty hours but on official business at time of the accident.
  - (2) **TDY**—Person was on official business, away from the duty station and with travel orders at time of accident. Line-of-duty investigation required.
  - (3) **OFF DUTY**—Person was not on official business at time of accident.
- h. **EMPLOYMENT STATUS**—(FOR GOVERNMENT PERSONNEL ONLY) Mark the most appropriate box. If "OTHER" is marked, specify the employment status of the person.

#### INSTRUCTIONS FOR SECTION 3 — GENERAL INFORMATION

- a. **DATE OF ACCIDENT**—Enter the month, day, and year of accident.
- b. **TIME OF ACCIDENT**—Enter the local time of accident in military time. Example: 1430 hrs (not 2:30 p.m.).
- c. **EXACT LOCATION OF ACCIDENT**—Enter facts needed to locate the accident scene (installation/project name, building number, street, direction, and distance from closest landmark, etc.).
- d. **CONTRACTOR NAME**
  - (1) **PRIME**—Enter the exact name (title of firm) of the prime contractor.
  - (2) **SUBCONTRACTOR**—Enter the name of any subcontractor involved in the accident.
- e. **CONTRACT NUMBER**—Mark the appropriate box to identify if contract is civil works, military, or other: if "OTHER" is marked, specify contract appropriation on line provided. Enter complete contract number of prime contract, e.g., DACW 09-85-C-0100.
- f. **TYPE OF CONTRACT**—Mark appropriate box. A/E means architect/engineer. If "OTHER" is marked, specify type of contract on line provided.
- g. **HAZARDOUS/TOXIC WASTE ACTIVITY (HTW)**—Mark the box to identify the HTW activity being performed at the time of the accident. For Superfund, DERP, and Installation Restoration Program (IRP) HTW activities include accidents that occurred during inventory, predesign, design, and construction. For the purpose of accident reporting, DERP Formerly Used DoD Site (FUDS) activities and IRP activities will be treated separately. For Civil Works O&M HTW activities mark the "OTHER" box.

#### INSTRUCTIONS FOR SECTION 4 — CONSTRUCTION ACTIVITIES

- a. **CONSTRUCTION ACTIVITY**—Select the *most appropriate* construction activity being performed at time of accident from the list below. Enter the activity name and place the corresponding code number identified in the box.

##### CONSTRUCTION ACTIVITY LIST

- |                         |                            |
|-------------------------|----------------------------|
| 1. MOBILIZATION         | 14. ELECTRICAL             |
| 2. SITE PREPARATION     | 15. SCAFFOLDING/ACCESS     |
| 3. EXCAVATION/TRENCHING | 16. MECHANICAL             |
| 4. GRADING (EARTHWORK)  | 17. PAINTING               |
| 5. PIPING/UTILITIES     | 18. EQUIPMENT/MAINTENANCE  |
| 6. FOUNDATION           | 19. TUNNELING              |
| 7. FORMING              | 20. WAREHOUSING/STORAGE    |
| 8. CONCRETE PLACEMENT   | 21. PAVING                 |
| 9. STEEL ERECTION       | 22. FENCING                |
| 10. ROOFING             | 23. SIGNING                |
| 11. FRAMING             | 24. LANDSCAPING/IRRIGATION |
| 12. MASONRY             | 25. INSULATION             |
| 13. CARPENTRY           | 26. DEMOLITION             |

- b. TYPE OF CONSTRUCTION EQUIPMENT—Select the equipment involved in the accident from the list below. Enter the name and place the corresponding code number identified in the box. If equipment is not included below, use code 24, "OTHER," and write in specific type of equipment.

#### CONSTRUCTION EQUIPMENT

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| 1. GRADER<br>HIGHWAY)                 | 13. DUMP TRUCK (OFF               |
| 2. DRAGLINE                           | 14. TRUCK (OTHER)                 |
| 3. CRANE (ON VESSEL/BARGE)            | 15. FORKLIFT                      |
| 4. CRANE (TRACKED)                    | 16. BACKHOE                       |
| 5. CRANE (RUBBER TIRE)                | 17. FRONT-END LOADER              |
| 6. CRANE (VEHICLE MOUNTED)            | 18. PILE DRIVER                   |
| 7. CRANE (TOWER)                      | 19. TRACTOR (UTILITY)             |
| 8. SHOVEL                             | 20. MANLIFT                       |
| 9. SCRAPER                            | 21. DOZER                         |
| 10. PUMP TRUCK (CONCRETE)             | 22. DRILL RIG                     |
| 11. TRUCK (CONCRETE/TRANSIT<br>MIXER) | 23. COMPACTOR/VIBRATORY<br>ROLLER |
| 12. DUMP TRUCK (HIGHWAY)              | 24. OTHER                         |

#### INSTRUCTIONS FOR SECTION 5—INJURY/ILLNESS INFORMATION

- a. SEVERITY OF INJURY/ILLNESS—Reference para 2-10 of USACE Suppl 1 to AR 385-40 and enter code and description from list below.

NOI	NO INJURY
FAT	FATALITY
PTL	PERMANENT TOTAL DISABILITY
PPR	PERMANENT PARTIAL DISABILITY
LWD	LOST WORKDAY CASE INVOLVING DAYS AWAY FROM WORK
NLW	RECORDABLE CASE WITHOUT LOST WORKDAYS
RFA	RECORDABLE FIRST AID CASE
NRI	NON-RECORDABLE INJURY

- b. ESTIMATED DAYS LOST—Enter the estimated number of workdays the person will lose from work.
- c. ESTIMATED DAYS HOSPITALIZED—Enter the estimated number of workdays the person will be hospitalized.
- d. ESTIMATED DAYS RESTRICTED DUTY—Enter the estimated number of workdays the person, as a result of the accident, will not be able to perform all of their regular duties.
- e. BODY PART AFFECTED—Select the most appropriate primary and when applicable, secondary body part affected from the list below. Enter body part name on line and place the corresponding code letters identifying that body part in the box.

GENERAL BODY AREA	CODE	BODY PART NAME
ARM/WRIST	AB	ARM AND WRIST
	AS	ARM OR WRIST
TRUNK, EXTERNAL	B1	SINGLE BREASTS
MUSCULATURE	B2	BOTH BREASTS
	B3	SINGLE TESTICLE
	B4	BOTH TESTICLES
	BA	ABDOMEN
	BC	CHEST
	BL	LOWER BACK
	BP	PENIS
	BS	SIDE
	BU	UPPER BACK
	BW	WAIST
	BZ	TRUNK OTHER
HEAD, INTERNAL	C1	SINGLE EAR INTERNAL
	C2	BOTH EARS INTERNAL
	C3	SINGLE EYE INTERNAL
	C4	BOTH EYES INTERNAL
	CB	BRAIN
	CC	CRANIAL BONES
	CD	TEETH
	CJ	JAW

ELBOW

FINGER

TOE

HEAD, EXTERNAL

KNEE

LEG, HIP, ANKLE,  
BUTTOCK

HAND

FOOT

TRUNK, BONES

SHOULDER

THUMB

TRUNK, INTERNAL ORGANS

CL THROAT, LARYNX  
CM MOUTH  
CN NOSE  
CR THROAT, OTHER  
CT TONGUE  
CZ HEAD OTHER INTERNAL

EB BOTH ELBOWS  
ES SINGLE ELBOW

F1 FIRST FINGER  
F2 BOTH FIRST FINGERS  
F3 SECOND FINGER  
F4 BOTH SECOND FINGERS  
F5 THIRD FINGER  
F6 BOTH THIRD FINGERS  
F7 FOURTH FINGER  
F8 BOTH FOURTH FINGERS

G1 GREAT TOE  
G2 BOTH GREAT TOES  
G3 TOE OTHER  
G4 TOES OTHER

H1 EYE EXTERNAL  
H2 BOTH EYES EXTERNAL  
H3 EAR EXTERNAL  
H4 BOTH EARS EXTERNAL  
HC CHIN  
HF FACE  
HK NECK/THROAT  
HM MOUTH/LIPS  
HN NOSE  
HS SCALP

KB BOTH KNEES  
KS KNEE

LB BOTH LEGS/HIPS/  
ANKLES/BUTTOCKS  
LS SINGLE LEG/HIP  
ANKLE/BUTTOCK

MB BOTH HANDS  
MS SINGLE HAND

PB BOTH FEET  
PS SINGLE FOOT

R1 SINGLE COLLAR BONE  
R2 BOTH COLLAR BONES  
R3 SHOULDER BLADE  
R4 BOTH SHOULDER BLADES  
RB RIB  
RS STERNUM (BREAST BONE)  
RV VERTEBRAE (SPINE, DISC)  
RZ TRUNK BONES OTHER

SB BOTH SHOULDERS  
SS SINGLE SHOULDER

TB BOTH THUMBS  
TS SINGLE THUMB

V1 LUNG, SINGLE  
V2 LUNGS, BOTH  
V3 KIDNEY, SINGLE  
V4 KIDNEYS, BOTH  
VH HEART  
VL LIVER  
VR REPRODUCTIVE ORGANS  
VS STOMACH  
VV INTESTINES  
VZ TRUNK, INTERNAL; OTHER

- f. NATURE OF INJURY/ILLNESS—Select the most appropriate nature of injury/illness from the list below. This nature of injury/illness shall correspond to the primary body part selected in 5e, above. Enter the nature of injury/illness name on the line and place the corresponding CODE letters in the box provided.

**CODE SOURCE OF INJURY NAME**

0200 ENVIRONMENTAL CONDITION  
 0210 TEMPERATURE EXTREME (INDOOR)  
 0220 WEATHER (ICE, RAIN, HEAT, ETC.)  
 0230 FIRE, FLAME, SMOKE (NOT TOBACCO)  
 0240 NOISE  
 0250 RADIATION  
 0260 LIGHT  
 0270 VENTILATION  
 0271 TOBACCO SMOKE  
 0280 STRESS (EMOTIONAL)  
 0290 CONFINED SPACE  
 0300 MACHINE OR TOOL  
 0310 HAND TOOL (POWERED: SAW, GRINDER, ETC.)  
 0320 HAND TOOL (NONPOWERED)  
 0330 MECHANICAL POWER TRANSMISSION APPARATUS  
 0340 GUARD, SHIELD (FIXED, MOVEABLE, INTERLOCK)  
 0350 VIDEO DISPLAY TERMINAL  
 0360 PUMP, COMPRESSOR, AIR PRESSURE TOOL  
 0370 HEATING EQUIPMENT  
 0380 WELDING EQUIPMENT  
 0400 VEHICLE  
 0411 AS DRIVER OF PRIVATELY OWNED/RENTAL VEHICLE  
 0412 AS PASSENGER OF PRIVATELY OWNED/RENTAL VEHICLE  
 0421 DRIVER OF GOVERNMENT VEHICLE  
 0422 PASSENGER OF GOVERNMENT VEHICLE  
 0430 COMMON CARRIER (AIRLINE, BUS, ETC.)  
 0440 AIRCRAFT (NOT COMMERCIAL)  
 0450 BOAT, SHIP, BARGE  
 0500 MATERIAL HANDLING EQUIPMENT  
 0510 EARTHMOVER (TRACTOR, BACKHOE, ETC.)  
 0520 CONVEYOR (FOR MATERIAL AND EQUIPMENT)  
 0530 ELEVATOR, ESCALATOR, PERSONNEL HOIST  
 0540 HOIST, SLING CHAIN, JACK  
 0550 CRANE  
 0551 FORKLIFT  
 0560 HANDTRUCK, DOLLY  
 0600 DUST, VAPOR, ETC.  
 0610 DUST (SILICA, COAL, ETC.)  
 0620 FIBERS  
 0621 ASBESTOS  
 0630 GASES  
 0631 CARBON MONOXIDE  
 0640 MIST, STEAM, VAPOR, FUME  
 0641 WELDING FUMES  
 0650 PARTICLES (UNIDENTIFIED)  
 0700 CHEMICAL, PLASTIC, ETC.  
 0711 DRY CHEMICAL-CORROSIVE  
 0712 DRY CHEMICAL-TOXIC  
 0713 DRY CHEMICAL-EXPLOSIVE  
 0714 DRY CHEMICAL-FLAMMABLE  
 0721 LIQUID CHEMICAL-CORROSIVE  
 0722 LIQUID CHEMICAL-TOXIC  
 0723 LIQUID CHEMICAL-EXPLOSIVE  
 0724 LIQUID CHEMICAL-FLAMMABLE  
 0730 PLASTIC  
 0740 WATER  
 0750 MEDICINE  
 0800 INANIMATE OBJECT  
 0810 BOX, BARREL, ETC.  
 0820 PAPER  
 0830 METAL ITEM, MINERAL  
 0831 NEEDLE  
 0840 GLASS  
 0850 SCRAP, TRASH  
 0860 WOOD  
 0870 FOOD  
 0880 CLOTHING, APPAREL, SHOES  
 0900 ANIMATE OBJECT  
 0911 DOG  
 0912 OTHER ANIMAL  
 0920 PLANT  
 0930 INSECT  
 0940 HUMAN (VIOLENCE)

0950 HUMAN (COMMUNICABLE DISEASE)  
 0960 BACTERIA, VIRUS (NOT HUMAN CONTACT)

**CODE SOURCE OF INJURY NAME**

1000 PERSONAL PROTECTIVE EQUIPMENT  
 1010 PROTECTIVE CLOTHING, SHOES, GLASSES, GOGGLES  
 1020 RESPIRATOR, MASK  
 1021 DIVING EQUIPMENT  
 1030 SAFETY BELT, HARNESS  
 1040 PARACHUTE

**INSTRUCTIONS FOR SECTION 6—PUBLIC FATALITY**

- a. **ACTIVITY AT TIME OF ACCIDENT**—Select the activity being performed at the time of the accident from the list below. Enter the activity name on the line and the corresponding number in the box if the activity performed is not identified on the list. Select from the most appropriate primary activity area (water related, non-water related or other activity), the code number for "Other," and write in the activity being performed at the time of the accident.

**WATER RELATED RECREATION**

- |                                   |   |
|-----------------------------------|---|
| 1. Sailing                        | 9. Swimming/designated area                         |
| 2. Boating - powered              | 10. Swimming/other area                             |
| 3. Boating - unpowered            | 11. Underwater activities (skin diving scuba, etc.) |
| 4. Water skiing                   | 12. Wading  |
| 5. Fishing from boat              | 13. Attempted rescue                                |
| 6. Fishing from bank dock or pier | 14. Hunting from boat                               |
| 7. Fishing while wading           | 15. Other   |
| 8. Swimming/supervised area       |   |

**NON-WATER RELATED RECREATION**

- |  |  |
|--|--|
| 16. Hiking and walking                   | 23. Sports/summer (baseball, football, etc.)             |
| 17. Climbing (general)                   | 24. Sports/winter (skiing, sledding, snowmobiling, etc.) |
| 18. Camping/picnicking authorized area   | 25. Cycling (bicycle, motorcycle, scooter)               |
| 19. Camping/picnicking unauthorized area | 26. Gliding  |
| 20. Guided tours                         | 27. Parachuting  |
| 21. Hunting                              | 28. Other non-water related                              |
| 22. Playground equipment                 |  |

**OTHER ACTIVITIES**

- |  |                                  |
|--|----------------------------------|
| 29. Unlawful acts (fights, riots, vandalism, etc.) | 33. Sleeping                     |
| 30. Food preparation/serving                       | 34. Pedestrian struck by vehicle |
| 31. Food consumption                               | 35. Pedestrian other acts        |
| 32. Housekeeping                                   | 36. Suicide                      |
|  | 37. "Other" activities           |

- b. **PERSONAL FLOTATION DEVICE USED**—If fatality was water-related was the victim wearing a personal flotation device? Mark the appropriate box.

**INSTRUCTIONS FOR SECTION 7—MOTOR VEHICLE ACCIDENT**

- a. **TYPE OF VEHICLE**—Mark appropriate box for each vehicle involved. If more than one vehicle of the same type is involved, mark both halves of the appropriate box. USACE vehicle(s) involved shall be marked in left half of appropriate box.
- b. **TYPE OF COLLISION**—Mark appropriate box.
- c. **SEAT BELT**—Mark appropriate box.

**INSTRUCTIONS FOR SECTION 8—PROPERTY/MATERIAL INVOLVED**

- a. **NAME OF ITEM**—Describe all property involved in accident. Property/material involved means material which is damaged or whose use or misuse contributed to the accident. Include the name, type, model; also include the National Stock Number (NSN) whenever applicable.
- b. **OWNERSHIP**—Enter ownership for each item listed. (Enter one of the following: *USACE; OTHER GOVERNMENT; CONTRACTOR; PRIVATE*)
- c. **\$ AMOUNT OF DAMAGE**—Enter the total estimated dollar amount of damage (parts and labor), if any.

\* The injury or condition selected below must be caused by a specific incident or event which occurred during a single work day or shift.

GENERAL NATURE CATEGORY	CODE	NATURE OF INJURY NAME
*TRAUMATIC INJURY OR DISABILITY	TA	AMPUTATION
	TB	BACK STRAIN
	TC	CONTUSION, BRUISE, ABRASION
	TD	DISLOCATION
	TF	FRACTURE
	TH	HERNIA
	TK	CONCUSSION
	TL	LACERATION, CUT
	TP	PUNCTURE
	TS	STRAIN, MULTIPLE
POISONING	TU	BURN, SCALD, SUNBURN
	TI	TRAUMATIC SKIN DISEASES/ CONDITIONS INCLUDING DERMATITIS
	TR	TRAUMATIC RESPIRATORY DISEASE
DISEASE	TQ	TRAUMATIC FOOD
	TW	TRAUMATIC TUBERCULOSIS
VASCULAR	TX	TRAUMATIC VIROLOGICAL/ INFECTIVE/PARASITIC
	T1	TRAUMATIC CEREBRAL
CONDITION	T2	CONDITION/STROKE
	T3	TRAUMATIC HEARING LOSS
	T3	TRAUMATIC HEART
DISORDER	T4	TRAUMATIC MENTAL
		STRESS, NERVOUS
CONDITION	T8	TRAUMATIC INJURY - OTHER (EXCEPT DISEASE, ILLNESS)

\*\* A nontraumatic physiological harm or loss of capacity produced by systematic infection; continued or repeated stress or strain; exposure to toxins, poisons, fumes, etc., or other continued and repeated exposures to conditions of the work environment over a long period of time. For practical purposes, an occupational illness/disease or disability is any reported condition which does not meet the definition of traumatic injury or disability as described above.

GENERAL NATURE CATEGORY	CODE	NATURE OF INJURY NAME
**NON-TRAUMATIC ILLNESS/DISEASE OR DISABILITY RESPIRATORY DISEASE	RA	ASBESTOSIS
	RB	BRONCHITIS
	RE	EMPHYSEMA
	RP	PNEUMOCONIOSIS
	RS	SILICOSIS
	R9	RESPIRATORY DISEASE,
OTHER VIROLOGICAL, INFECTIVE & PARASITIC DISEASES	VB	BRUCELLOSIS
	VC	COCCIDIOMYCOSIS
	VF	FOOD POISONING
	VH	HEPATITIS
	VM	MALARIA
	VS	STAPHYLOCOCCUS
	VT	TUBERCULOSIS
	V9	VIROLOGICAL/INFECTIVE/ PARASITIC - OTHER
DISABILITY, OCCUPATIONAL	DA	ARTHRITIS, BURSITIS
	DB	BACK STRAIN, BACK SPRAIN
	DC	CEREBRAL VASCULAR CONDITION: STROKE
	DD	ENDEMIC DISEASE (OTHER THAN CODE TYPES R&S)
	DE	EFFECT OF ENVIRONMENTAL CONDITION
	DH	HEARING LOSS
	DK	HEART CONDITION
	DM	MENTAL DISORDER, EMOTIONAL STRESS, NERVOUS CONDITION
	DR	RADIATION
	DS	STRAIN, MULTIPLE

GENERAL NATURE CATEGORY	CODE	NATURE OF INJURY NAME
SKIN DISEASE OR CONDITION	DU	ULCER
	DV	OTHER VASCULAR CONDITIONS
	D9	DISABILITY, OTHER
	SB	BIOLOGICAL
	SC	CHEMICAL
	S9	DERMATITIS, UNCLASSIFIED

g. TYPE AND SOURCE OF INJURY/ILLNESS (CAUSE) - Type and source Codes are used to describe what caused the incident. The Type Code stands for an ACTION and the Source Code for an OBJECT or SUBSTANCE. Together, they form a brief description of how the incident occurred. Where there are two different sources, code the initiating source of the incident (see example 1, below). Examples

(1) An employee tripped on carpet and struck his head on a desk.  
TYPE: 210 (fell on same level) SOURCE: 0110 (walking/working surface)

NOTE: This example would NOT be coded 120 (struck against) and 0140 (furniture).

- (2) A Park Ranger contracted dermatitis from contact with poison ivy/oak.  
TYPE: 510 (contact) SOURCE: 0920 (plant)
- (3) A lock and dam mechanic punctured his finger with a metal sliver while grinding a turbine blade  
TYPE: 410 (punctured by) SOURCE: 0830 (metal)
- (4) An employee was driving a government vehicle when it was struck by another vehicle.  
TYPE: 800 (traveling in) SOURCE: 0421 (government-owned vehicle, as driver)

NOTE: The Type Code 800, "Traveling In" is different from the other type codes in that its function is not to identify factors contributing to the injury or fatality, but rather to collect data on the type of vehicle the employee was operating or traveling in at the time of the incident.

Select the most appropriate TYPE and SOURCE identifier from the list below and enter the name on the line and the corresponding code in the appropriate box.

CODE	TYPE OF INJURY NAME
	STRUCK
0110	STRUCK BY
0111	STRUCK BY FALLING OBJECT
0120	STRUCK AGAINST
	FELL, SLIPPED, TRIPPED
0210	FELL ON SAME LEVEL
0220	FELL ON DIFFERENT LEVEL
0230	SLIPPED, TRIPPED (NO FALL)
	CAUGHT
0310	CAUGHT ON
0320	CAUGHT IN
0330	CAUGHT BETWEEN
	PUNCTURED, LACERATED
0410	PUNCTURED BY
0420	CUT TY
0430	STUNG BY
0440	BITTEN BY
	CONTACTED
0510	CONTACTED WITH (INJURED PERSON MOVING)
0520	CONTACTED BY (OBJECT WAS MOVING)
	EXERTED
0610	LIFTED, STRAINED BY (SINGLE ACTION)
0620	STRESSED BY (REPEATED ACTION)
	EXPOSED
0710	INHALED
0720	INGESTED
0730	ABSORBED
0740	EXPOSED TO
0800	TRAVELING IN
CODE	SOURCE OF INJURY NAME
0100	BUILDING OR WORKING AREA
0110	WALKING/WORKING SURFACE (FLOOR, STREET, SIDEWALKS, ETC.)
0120	STAIRS, STEPS
0130	LADDER
0140	FURNITURE, FURNISHINGS, OFFICE EQUIPMENT
0150	BOILER, PRESSURE VESSEL
0160	EQUIPMENT LAYOUT (ERGONOMIC)
0170	WINDOWS, DOORS
0180	ELECTRICITY

## INSTRUCTIONS FOR SECTION 9—VESSEL/ FLOATING PLANT ACCIDENT

- a. TYPE OF VESSEL/FLOATING PLANT — Select the most appropriate vessel/floating plant from list below. Enter name and place corresponding number in box. If item is not listed below, enter item number for "OTHER" and write in specific type of vessel/floating plant.

### VESSEL/FLOATING PLANTS

- |                        |                             |
|------------------------|-----------------------------|
| 1. ROW BOAT            | 7. DREDGE/DIPPER            |
| 2. SAIL BOAT           | 8. DREDGE/CLAMSHELL, BUCKET |
| 3. MOTOR BOAT          | 9. DREDGE/PIPELINE          |
| 4. BARGE               | 10. DREDGE/DUST PAN         |
| 5. DREDGE/HOPPER       | 11. TUG BOAT                |
| 6. DREDGE/SIDE CASTING | 12. OTHER                   |

- b. COLLISION/MISHAP— Select from the list below the object(s) that contributed to the accident or were damaged in the accident.

### COLLISION/MISHAP

- |                             |                       |
|-----------------------------|-----------------------|
| 1. COLLISION W/OTHER VESSEL | 7. HAULAGE UNIT       |
| 2. UPPER GUIDE WALL         | 8. BREAKING TOW       |
| 3. UPPER LOCK GATES         | 9. TOW/BREAKING TOW   |
| 4. LOCK WALL                | 10. SWEEP DOWN ON DAM |
| 5. LOWER LOCK GATES         | 11. BUOY/DOLPHIN/CELL |
| 6. LOWER GUIDE WALL         | 12. WHARF OR DOCK     |
|                             | 13. OTHER             |

## INSTRUCTIONS FOR SECTION 10—ACCIDENT DESCRIPTION

DESCRIBE ACCIDENT—Fully describe the accident. Give the sequence of events that describe what happened leading up to and including the accident. Fully identify personnel and equipment involved and their role(s) in the accident. Ensure that relationships between personnel and equipment are clearly specific. Continue on blank sheets if necessary and attach to this report.

## INSTRUCTIONS FOR SECTION 11—CAUSAL FACTORS

- a. Review thoroughly. Answer each question by marking the appropriate block. If any answer is yes, explain on item 13 below. Consider, as a minimum, the following:

- (1) DESIGN— Did inadequacies associated with the building or work site play a role? Would an improved design or layout of the equipment or facilities reduce the likelihood of similar accidents? Were the tools or other equipment designed and intended for the task at hand?
- (2) INSPECTION/MAINTENANCE — Did inadequately or improperly maintained equipment, tools, workplace, etc. create or worsen any hazards that contributed to the accident? Would better equipment, facility, work site, or work activity inspections have helped avoid the accident?
- (3) PERSON'S PHYSICAL CONDITION — Do you feel that the accident would probably not have occurred if the employee was in "good" physical condition? If the person involved in the accident had been in better physical condition, would the accident have been less severe or avoided altogether? Was overexertion a factor?
- (4) OPERATING PROCEDURES— Did a lack of or inadequacy within established operating procedures contribute to the accident? Did any aspect of the procedures introduce any hazard to, or increase the risk associated with the work process? Would establishment or improvement of operating procedures reduce the likelihood of similar accidents?
- (5) JOB PRACTICES — Were any of the provisions of the Safety and Health Requirements Manual (EM 381-1) violated? Was the task being accomplished in a manner which was not in compliance with an established job hazard analysis or activity hazard analysis? Did any established job practice (including EM 385-1-1) fail to adequately address the task or work process? Would better job practices improve the safety of the task?

- (6) HUMAN FACTORS — Was the person under undue stress (either internal or external to the job)? Did the task tend toward overloading the capabilities of the person, i.e., did the job require tracking and reacting to many external inputs such as displays, alarms, or signals? Did the arrangement of the workplace tend to interfere with efficient task performance? Did the task require reach, strength, endurance, agility, etc. at or beyond the capabilities of the employee? Was the work environment ill-adapted to the person? Did the person need more training, experience, or practice in doing the task? Was the person inadequately rested to perform safely?
- (7) ENVIRONMENTAL FACTORS — Did any factors such as moisture, humidity, rain, snow, sleet, hail, ice, fog, cold, heat, sun, temperature changes, wind, tides, floods, currents, dust, mud, glare, pressure changes, lightning, etc. play a part in the accident?
- (8) CHEMICAL AND PHYSICAL AGENT FACTORS — Did exposure to chemical agents (either single shift exposure or long-term exposure) such as dusts, fibers (asbestos, etc.), silica, gases (carbon monoxide, chlorine, etc.), mists, steam, vapors, fumes, smoke, other particulates, liquid or dry chemicals that are corrosive, toxic, explosive or flammable, by-products of combustion or physical agents such as noise, ionizing radiation, non-ionizing radiation (UV radiation created during welding, etc.) contribute to the accident/incident?
- (9) OFFICE FACTORS — Did the fact that the accident occurred in an office setting or to an office worker have a bearing on its cause? For example, office workers tend to have less experience and training in performing tasks such as lifting office furniture. Did physical hazards within the office environment contribute to the hazard?
- (10) SUPPORT FACTORS — Was the person using an improper tool for the job? Was inadequate time available or utilized to safely accomplish the task? Were less than adequate personnel resources (in terms of employee skills, number of workers, and adequate supervision) available to get the job done properly? Was funding available, utilized, and adequate to provide proper tools, equipment, personnel, site preparation, etc.?
- (11) PERSONAL PROTECTIVE EQUIPMENT— Did the person fail to use appropriate personal protective equipment (gloves, eye protection, hard-toed shoes, respirator, etc.) for the task or environment? Did protective equipment provided or worn fail to provide adequate protection from the hazard(s)? Did lack of or inadequate maintenance of protective gear contribute to the accident?
- (12) DRUGS/ALCOHOL— Is there any reason to believe the person's mental or physical capabilities, judgment, etc. were impaired or altered by the use of drugs or alcohol? Consider the effects of prescription medicine and over the counter medications as well as illicit drug use. Consider the effect of drug or alcohol induced "hangovers."

- b. WRITTEN JOB/ACTIVITY HAZARD ANALYSIS — Was a written Job/Activity Hazard Analysis completed for the task being performed at the time of the accident. Mark the appropriate box. *If one was performed, attach a copy of the analysis to the report.*

## INSTRUCTIONS FOR SECTION 12 — TRAINING

- a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK? — For the purpose of this section, "trained" means the person has been provided the necessary information [either formal and/or on-the-job (OJT) training] to competently perform the activity/task in a safe and healthful manner.
- b. TYPE OF TRAINING — Mark the appropriate box that best indicates the type of training (classroom or on-the-job) that the injured person received before the accident happened.
- c. DATE OF MOST RECENT TRAINING — Enter the month, day, and year of the last *formal* training completed that covered the activity-task being performed at the time of the accident.

#### INSTRUCTIONS FOR SECTION 13—CAUSES

- a. **DIRECT CAUSES** — The direct cause is that single factor which most directly lead to the accident. See examples below.
- b. **INDIRECT CAUSES** — Indirect causes are those factors which contributed to but did not directly initiate the occurrence of the accident.

Examples for section 13:

- a. Employee was dismantling scaffold and fell 12 feet from unguarded opening.  
*Direct cause:* failure to provide fall protection at elevation.  
*Indirect causes:* failure to enforce USACE safety requirements; improper training/motivation of employee (possibility that employee was not knowledgeable of USACE fall protection requirements or was lax in his attitude towards safety); failure to ensure provision of positive fall protection whenever elevated; failure to address fall protection during scaffold dismantling in phase hazard analysis.
- b. Private citizen has stopped his vehicle at intersection for red light when vehicle was struck in rear by USACE vehicle (note USACE vehicle was in proper/safe working condition).  
*Direct cause:* failure of USACE driver to maintain control of and stop USACE vehicle within safe distance.  
*Indirect cause:* failure of employee to pay attention to driving (defensive driving).

#### INSTRUCTIONS FOR SECTION 14—ACTION TO ELIMINATE CAUSE(S)

**DESCRIPTION** — Fully describe all the actions taken, anticipated, and recommended to eliminate the cause(s) and prevent reoccurrence of similar accidents/illnesses. Continue on blank sheets of paper if necessary to fully explain and attach to the completed report form.

#### INSTRUCTIONS FOR SECTION 15—DATES FOR ACTION

- a. **BEGIN DATE** — Enter the date when the corrective action(s) identified in Section 14 will begin.
- b. **COMPLETE DATE** — Enter the date when the corrective action(s) identified in Section 14 will be completed.
- c. **TITLE AND SIGNATURE** — Enter the title and signature of supervisor completing the accident report. For a GOVERNMENT employee accident/illness the immediate supervisor will complete and sign the report. For PUBLIC accidents the USACE Project Manager/Area Engineer responsible for the USACE property where the accident happened shall complete and sign the report. For CONTRACTOR accidents the Contractor's project manager shall complete and sign the report and provide to the USACE supervisor responsible for oversight of that contractor activity. This USACE supervisor shall also sign the report. Upon entering the information required in 15.d, 15.e, and 15.f below, the responsible USACE supervisor shall forward the report for management review as indicated in Section 16.
- d. **DATE SIGNED** — Enter the month, day, and year that the report was signed by the responsible supervisor.
- e. **ORGANIZATION NAME** — For GOVERNMENT employee accidents enter the USACE organization name (Division, Branch, Section, etc.) of the injured employee. For PUBLIC accidents enter the USACE organization name for the person identified in block 15.c. For CONTRACTOR accidents enter the USACE organization name for the USACE office responsible for providing contact administration oversight.
- f. **OFFICE SYMBOL** — Enter the latest complete USACE Office Symbol for the USACE organization identified in block 15.e.

#### INSTRUCTIONS FOR SECTION 16—MANAGEMENT REVIEW (1st)

**1st REVIEW** — Each USACE FOA shall determine who will provide 1st management review. The responsible USACE supervisor in section 15.c shall forward the completed report to the USACE office designated as the 1st Reviewer by the FOA. Upon receipt, the Chief of the Office shall review the completed report, mark the appropriate box, provide substantive comments, sign, date, and forward to the FOA Staff Chief (2nd review) for review and comment.

#### INSTRUCTIONS FOR SECTION 17—MANAGEMENT REVIEW (2nd)

**2nd REVIEW** — The FOA Staff Chief (i.e., FOA Chief of Construction, Operations, Engineering, Planning, etc.) shall mark the appropriate box, review the completed report, provide substantive comments, sign, date, and return to the FOA Safety and Occupational Health Office.

#### INSTRUCTIONS FOR SECTION 18—SAFETY AND OCCUPATIONAL HEALTH REVIEW

**3rd REVIEW** — The FOA Safety and Occupational Health Office shall review the completed report, mark the appropriate box, ensure that any inadequacies, discrepancies, etc. are rectified by the responsible supervisor and management reviewers, provide substantive comments, sign, date, and forward to FOA Commander for review, comment, and signature.

#### INSTRUCTIONS FOR SECTION 19—COMMAND APPROVAL

**4th REVIEW** — The FOA Commander shall (to include the person designated Acting Commander in his absence) review the completed report, comment if required, sign, date, and forward the report to FOA Safety and Occupational Health Office. Signature authority should not be delegated.

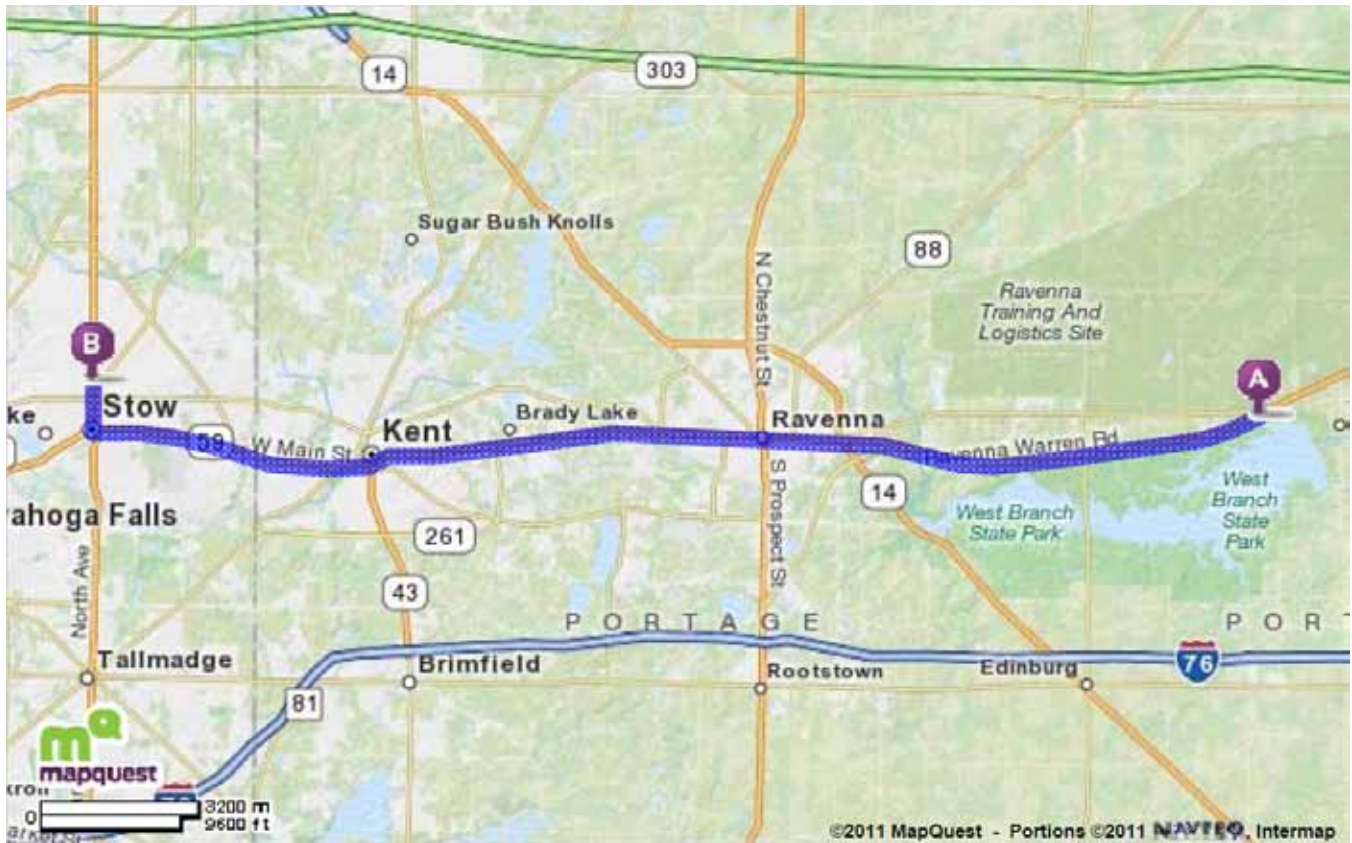
**ATTACHMENT 11**

**HOSPITAL DIRECTIONS**



**Robinson Memorial Hospital**  
 6847 N. Chestnut Street  
 Ravenna, OH 44266  
 Phone: (330) 297-0811

Instructions	Distance
Depart Post #1 to exit site on SR-5 [Ravenna Warren Road] (West)	7.0 mi
Turn Right (North) on SR-14	2.7 mi
Turn Left on North Chestnut Street	0.1 mi
Arrive Robinson Memorial Hospital 6847 N Chestnut Street, Ravenna, OH 44266, Tel (303) 297-0811	



### Med Group

3913 Darrow Road, Suite 100  
 Stow, Ohio 44224  
 (330) 688-7900

Instructions	Distance
Depart Post #1 to exit site on SR-5	
Start out going west on Ravenna Warren Rd/OH-5 West toward Greenleaf Road. Continue to follow Ravenna Warren Rd	6.6 mi
Ravenna Warren Road becomes OH-59	11.7 mi
Turn right onto Darrow Road/OH-91	0.8 mi
Arrive Med Group 3913 Darrow Road, Suite 100, Stow, OH 44224	0.1 mi

**ATTACHMENT 12**

**ALCOHOL AND DRUG FREE WORKPLACE PROGRAM**

Approved By:

Signature on File

Richard L. Barcum, CIH, CSP, CHMM  
Manager, Corporate Health and Safety

Signature on File

David D. Alleman  
President

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## **Procedure**

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# **ALCOHOL AND DRUG FREE WORKPLACE PROGRAM**

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## **1.0 PURPOSE AND SUMMARY**

This section summarizes TolTest's alcohol and drug abuse policy and programs to promote and maintain an alcohol and drug free workplace, and to comply with federal regulations governing substance abuse.

## **2.0 SCOPE**

The Alcohol and Drug Free Workplace Program applies to all associates.

## **3.0 RESPONSIBILITY MATRIX**

### **3.1 Procedure Responsibility**

The Manager, Corporate Health and Safety is responsible for the issuance, revision and maintenance of this procedure.

### **3.2 Program Responsibility**

This program will be monitored by the Corporate Health and Safety Department

## **4.0 GENERAL**

TolTest recognizes that substance abuse in the workplace is a major concern. It affects not only job performance and the work environment but could also undermine our clients' confidence in TolTest and the safety of its operations. TolTest believes that by identifying and correcting substance abuse, the safety, health, and general well-being of associates at all levels of employment will be maintained.

TolTest is required to notify each associate of its commitment to an alcohol and drug free workplace. To comply with policy, TolTest will (a) establish an ongoing program to ensure an alcohol and drug free workplace; and (b) provide direction for alcohol and drug abuse assistance.

## **5.0 PROGRAM IMPLEMENTATION**

TolTest will take the following steps to implement the program:

- 5.1** Inform its associates of the hazards of using alcohol and illegal substances.
- 5.2** Screen its associates for the misuse of alcohol, and use of illegal substances consistent with federal and state laws and TolTest policy.
- 5.3** Not employ substance abusers consistent with federal and state laws and TolTest policy.
- 5.4** Implement disciplinary action, consistent with this policy.
- 5.5** Within policy, assist associates with substance abuse problems and rehabilitation efforts.

## **6.0 DEFINITIONS**

- 6.1** Alcohol – The intoxicating agent in beverage alcohol. The substance known as ethyl alcohol, hydrated oxide of ethyl, or spirit of wine which is commonly produced by the fermentation or distillation of grain, starch, molasses, sugar, potatoes or other substances, and includes all dilutions and mixtures of these substances.
- 6.2** Controlled Substance – Amphetamines, cocaine metabolites, marijuana metabolites, opiates, and phencyclidine (PCP). Controlled substances include any of the drugs listed above which are legally obtainable but have not been legally obtained by the associate involved. This includes prescribed drugs not legally obtained and prescribed drugs not being used as prescribed.
- 6.3** Legal Drugs – Prescribed drugs and over-the-counter drugs which have been (under U.S. law) legally obtained and are being used for their intended purpose, or as prescribed and manufactured.
- 6.4** Medical Review Officer – A licensed physician responsible for receiving laboratory results generated by an employer's drug testing program (third party reviewer). This physician has knowledge of substance abuse disorders and related toxicology. The physician has appropriate medical training to interpret and evaluate an individual's confirmed positive test results together with either his or her medical history and/or any other relevant biomedical information.

- 6.5** TolTest Supplied Vehicle – Any TolTest owned/leased/rented motor vehicle or heavy equipment or a personally owned vehicle utilized for company business purposes.
- 6.6** Pending Result – A laboratory result which required input from the associate for resolution by the MRO. The designation “pending” should be used if the MRO is unable to contact the associate after (5) days.
- 6.7** Unfit for Duty – For the purpose of this Program, “unfit for duty” shall mean an associate who is adversely affected by alcohol, drugs or any combination of alcohol and drugs, in an observable manner. The symptoms are not confined to misbehavior, nor to obvious impairment of physical or mental ability, such as slurred speech or difficulty maintaining balance.
- 6.8** Reasonable Suspicion - For there to be reasonable suspicion of alcohol or drug use, a TolTest Supervisor must articulate specific observations about the associate’s appearance, behavior, speech, or body odors at the time of the suspicion. The person making those observations must be a properly trained supervisor or company official, and that person may not conduct the drug and/or alcohol test.
- 6.9** Random Testing – A blind selection process in which all eligible associates in a prescribed drug and alcohol testing pool has an equal opportunity/chance/probability of being selected from the larger population of the prescribed drug and alcohol testing pool.
- 6.10** Illicit Drugs - Illicit drugs are controlled substances that possess a high potential for abuse, have no currently accepted medical use in the United States, and demonstrate a lack of accepted safety for use under medical supervision.
- 6.11** Dilute Specimen - Dilution is the process of reducing the concentration of drug or drug metabolites in the sample. A dilute specimen, by definition, is a urine specimen that has a creatinine of less than 20 g/dl and a specific gravity of 1.003 or less.
- 6.12** Adulterated Specimen - where chemical adulterants are directly added to a urine specimen for the purposes of attempting to provide a false negative on a drug test.

## **7.0 PROGRAM**

### **7.1 Prohibitions – TolTest Policy prohibits the following with regard to alcohol or drugs:**

- 7.1.1** Use, possession, manufacture, distribution, dispensation or sale of illegal drugs or paraphernalia associated with such, or excessive alcohol on TolTest premises; TolTest business; at project sites at which TolTest is working; any housing facility maintained by or paid for by TolTest; in TolTest supplied vehicles; or during working hours.
- 7.1.2** Unauthorized use, possession, manufacture, distribution, dispensation or sale of a controlled substance on TolTest premises; TolTest business; at project sites at which TolTest is working; any housing facility maintained by or paid for by TolTest; in TolTest supplied vehicles; or during working hours. This includes use of prescribed medications and narcotics without a valid prescription.
- 7.1.3** Unauthorized storage in a locker, desk, automobile (including personal) or other repository on TolTest premises; at any project site at which TolTest is working; or any housing facility maintained by or paid for by TolTest, of any illegal drug or the paraphernalia associated with such, or any controlled substance or alcohol.
- 7.1.4** Being under the influence of: illegal drugs or a controlled substance; alcohol on TolTest premises; TolTest business; at any project site at which TolTest is working; any housing facility maintained by or paid for by TolTest; in TolTest supplied vehicles; or during working hours.
- 7.1.5** Use of alcohol off TolTest premises that adversely affects the associate's work performance; his/her own or others' safety at work; or TolTest's regard or reputation in the community or with its customers.
- 7.1.6** Possession, use, manufacture, distribution, dispensation or sale of illegal drugs or a controlled substance off TolTest premises that adversely affects the associate's work performance, his/her own or others' safety at work, or TolTest's regard or reputation in the community or with its customers.
- 7.1.7** Switching or adulterating any urine and/or blood sample submitted for testing.
- 7.1.8** Refusing consent to testing or refusing to submit a urine and/or blood sample for testing when requested by the company or its agent.

- 7.1.9** Refusing to submit to a search when requested by the company or its agent in accordance with this policy.
- 7.1.10** Failure to adhere to the requirements of any alcohol or drug treatment or counseling program in which the associate is enrolled.
- 7.1.11** Continuance of employment for any associate convicted under any criminal drug statute for a violation occurring in the workplace.
- 7.1.12** Continuance of employment for any associate arrested or convicted under any criminal drug statute under circumstances which adversely affects the company's regard or reputation in the community or with its customers.
- 7.1.13** Continuance of employment for any associate who refuses to sign a statement agreeing to abide by TolTest's Alcohol and Drug Free Workplace Program.

## **8.0 SUBSTANCE SCREENING – NON-RAPID TESTING**

TolTest reserves the right to require associates to undergo alcohol or drug screening as described in this procedure.

- 8.1** Laboratory – TolTest will utilize a U.S. Department of Health and Human Services (DHHS) accredited laboratory which is able to assure that appropriate methods will be used. Laboratory procedures will follow the context of a quality assurance program. Trained personnel will be used in the analysis and interpretation of the results. When selecting a laboratory, TolTest will consider equipment, personnel, quality assurance, standardized procedures, quality control, and certification.
- 8.2** Collection of Specimens – Urine specimens will be used to determine the presence of illegal drugs. The collection of urinary specimens from the associate (donor) will be accomplished to assure each donor that personal dignity and privacy will be respected.

Specimens will be collected by trained personnel. The donor will be present until the container is sealed and the donor writes his/her initial across the seal. The chain of custody will be documented thereafter.

- 8.3** Test Results – If the results of the initial screening exceed the specified cut-off levels, a confirmation test will automatically be conducted by Gas Chromatograph/Mass Spectrometry (GC/MS) to confirm the initial results. If this confirmation is negative, then the results will be reported as negative and entered into the donor's file.

However, if the confirmation test exceeds the prescribed limits and the result is positive, the MRO will contact the donor to evaluate valid explanations for the test result. If none are identified, the results will be reported as positive. Test results will be handled in a confidential manner and available only to those individuals who need to know the results to administer this program or other TolTest policies as they apply.

When the MRO is unable to contact the associate after five (5) days to discuss the valid explanations, the MRO shall report the test results as “pending.” Associates with “pending” results shall be suspended without pay until the MRO is contacted and the test results resolved.

When the MRO is unable to contact the donor after three (3) attempts in twenty four (24) hours, they will have the designated TolTest representative assist. If the donor has not contacted the MRO within 72 hours of contact from the designated TolTest representative, the test will be reported as “positive.” If neither the MRO nor the designated TolTest representative are able to contact the donor within ten (10) days, the test will be reported as positive.

- 8.4** Dilute Samples –All non-DOT donors whose samples are determined to be dilute will be given the opportunity to retest or be placed into the Alternative Random Pool described in paragraph 17.0 below. All DOT donors whose samples are determined to be dilute will be given the opportunity to retest a maximum of one time. Refusal to retest for DOT donors will be reported as a positive. Subsequent dilute samples for DOT donors will be reported as dilute negative.

**8.5** Testing Limits

<b>Substance</b>	<b>Initial Screen Level</b>	<b>GC/MS Confirmation Test Level</b>
Opiates	2000 ng/ml	2000 ng/ml
Phencyclidine	25 ng/ml	25 ng/ml
Marijuana Metabolites	50 ng/ml	15 ng/ml
Cocaine Metabolites	300 ng/ml	150 ng/ml
Amphetamines*	1000 ng/ml	500ng/ml

\* includes Methamphetamines

**9.0 SUBSTANCE SCREENING – RAPID TESTING**

Where allowed by state and federal regulation, TolTest may elect to utilize Rapid Drug Testing to streamline the process.

- 9.1** Collection of Specimens – Urine specimens will be used to determine the presence of illegal drugs. The collection of urinary specimens from the associate (donor) will be accomplished to assure each donor that personal dignity and privacy will be respected.

Specimens will be collected by trained personnel. The rapid test kit will be utilized according to the manufacturer's instructions.

- 9.2** Test Results – If the results of the initial screening exceed the specified cut-off levels (non-negative), the sample will be sealed with the donor present and the donor will write his/her initial across the seal. The chain of custody will be documented thereafter. The sample will then be sent to a U.S. Department of Health and Human Services (DHHS) accredited laboratory which is able to assure that appropriate methods will be used. Laboratory procedures will follow the context of a quality assurance program. Trained personnel will be used in the analysis and interpretation of the results. When selecting a laboratory, TolTest will consider equipment, personnel, quality assurance, standardized procedures, quality control, and certification. A confirmation test will be conducted by Gas Chromatograph/Mass Spectrometry (GC/MS) to confirm the initial results. If this confirmation is negative, then the results will be reported as negative and entered into the donor's file.

However, if the confirmation test exceeds the prescribed limits and the result is positive, the MRO will contact the donor to evaluate valid explanations for the test result. If none are identified, the results will be reported as positive. Test results will be handled in a confidential manner and available only to those individuals who need to know the results to administer this program or other TolTest policies as they apply.

When the MRO is unable to contact the associate after five (5) days to discuss the valid explanations, the MRO shall report the test results as "pending." Associates with "pending" results shall be suspended without pay until the MRO is contacted and the test results resolved.

When the MRO is unable to contact the donor after three (3) attempts in twenty four (24) hours, they will have the designated TolTest representative assist. If the donor has not contacted the MRO within 72 hours of contact from the designated TolTest representative, the test will be reported as "positive." If neither the MRO nor the designated TolTest representative are able to contact the donor within ten (10) days, the test will be reported as positive.

- 9.3** Dilute Samples – All donors whose samples are determined to be dilute will be given the opportunity to retest or be placed into the Alternative Random Pool described in paragraph 17.0 below.

## 9.4 Testing Limits

Substance	Initial Screen Level	GC/MS Confirmation Test Level
Opiates	2000 ng/ml	2000 ng/ml
Phencyclidine	25 ng/ml	25 ng/ml
Marijuana Metabolites	50 ng/ml	15 ng/ml
Cocaine Metabolites	300 ng/ml	150 ng/ml
Amphetamines	1000 ng/ml	500ng/ml

\* includes Methamphetamines

## 10.0 ASSOCIATE ASSISTANCE PROGRAM

TolTest encourages the earliest possible diagnosis and treatment for alcohol or drug abuse and supports sound treatment efforts. However, the decision to seek diagnosis and accept treatment for alcohol or drug abuse is the associate's responsibility.

Associates with an alcohol or drug abuse problem should request assistance from the Manager, Corporate Health and Safety or Manager, Human Resources. Associates who voluntarily request assistance in dealing with an alcohol or drug abuse problem may do so without jeopardizing their continued employment with TolTest, provided they undergo evaluation by a qualified Substance Abuse Professional (SAP) strictly adhere to the recommendations of the SAP, and immediately cease abuse of alcohol or drugs. Additionally, the associate will be placed into the Alternative Random pool for a period of up to a twenty-four (24) months following enrollment in the program.

## 11.0 IDENTIFICATION OF SUBSTANCE ABUSERS

The following screening (testing) procedures are used to detect the abuse of alcohol and controlled substances by TolTest associate (Substance Abusers). Compliance with this program is considered to be a condition of employment.

At a minimum, TolTest will utilize some or all of the following components to assure a "drug-free" workplace.

- Employment testing is required for all new associates, and is a condition of employment. An offer of employment will not be valid if the test is positive or if the applicant or associate does not submit to testing.
- Post incident testing may be utilized following an incident that results in an OSHA Recordable Injury/Illness, an At-Fault Vehicle Incident, or damage to TolTest or client equipment or property.

- Associates may be selected, using a random selection process, at any time in their employment with TolTest and will likely be selected more than once.
- DOT testing is required by the Federal Department of Transportation for drivers of vehicles governed by DOT regulations. DOT testing consists of random, pre-employment, follow-up, return-to-duty, reasonable suspicion and post-incident testing.
- Reasonable Cause Testing is utilized when a supervisor, with the concurrence of Health and Safety, determines that an associate's observable behavior is out of the ordinary.
- Customer/Client and Regulatory required testing shall be conducted as required by the customer/client or regulatory authority (i.e. Department of Energy or Pipeline Operations under RSPA). If an associate tests positive in a client conducted test, he or she shall be removed from the client's premises and will be subject to disciplinary action, up to and including termination of employment.

## **12.0 EMPLOYMENT TESTING**

Employment substance abuse testing is performed after an offer has been accepted, either verbally or in writing, and prior to an associate starting work.

NOTE: New associates in non-safety sensitive positions may be authorized by the Corporate Health and Safety Department to begin work prior to submitting a controlled substance test. In such instances, the test must be obtained within one (1) week of the start date. An offer for employment is invalid if the test is positive or the associate does not submit to testing.

### **12.1 Procedures for Employment Testing**

- 12.1.1** The new associate (donor) will sign a consent to an employment/post-offer drug test and release of test results.
- 12.1.2** The donor will provide the sample as directed by the medical personnel conducting the test.
- 12.1.3** The medical personnel will confirm the identity of the donor by requesting to view a picture I.D. The sample may not be collected if the donor does not provide a picture I.D.
- 12.1.4** After the sample container is closed, it shall be sealed in accordance with instructions from the laboratory.
- 12.1.5** The donor shall sign the tamper seal.

**12.1.6** The medical provider shall complete the chain of custody form, package the sample and send it overnight express delivery to the laboratory.

### **13.0 POST-INCIDENT**

An associate involved in an incident may be required to submit to tests for alcohol and controlled substances following an incident. Any TolTest management or supervisory associate is authorized to request post-incident testing.

Associates are prohibited from using alcohol for eight (8) hours following any incident or until the required post-incident alcohol test is administered, whichever occurs first. Every effort should be made to conduct the post-incident drug and alcohol tests within two (2) hours following any incident. At a minimum post-incident alcohol tests are required to be administered within eight (8) hours following any incident; drug tests are required to be administered within twenty four (24) hours following any incident. Any associate involved in an incident must therefore remain readily available for testing and may be considered to have refused to submit to testing if he or she fails to do so. This requirement will not, however, require an associate to delay any necessary medical attention following an incident or to remain at the scene of an incident when his/her absence is necessary to obtain assistance in responding to the incident or to obtain necessary emergency medical care. When an injury is involved, the post-incident testing must take place in conjunction with an examination by a physician. The physician must make note of the presence of any clinical signs or symptoms of substance abuse. In addition to being eligible for disciplinary action under Section 21 of this policy, any associate who is determined to have been under the influence of drugs or alcohol in violation of this policy may also jeopardize their Workers Compensation Benefits.

**13.1** Post-incident DOT alcohol and drug testing is mandatory under DOT regulation in incidents involving:

- A fatality.
- When a driver receives a citation for a moving traffic violation.
- A vehicle which is towed from the scene or in which someone is treated medically away from the scene and a citation for a moving violation is issued to the Commercial Motor Vehicle driver.

**13.2** Alcohol and drug testing may be required, at the discretion of the Manager, Corporate Health and Safety, of associates involved in the following incidents:

- An incident requiring first aid treatment (any incident not requiring offsite medical treatment).
- When a driver receives a citation for a moving traffic violation while operating a TolTest supplied vehicle.
- Damage to a TolTest supplied vehicle, or property damage.
- Near miss incidents – Any incident where no injury or property damage occurred, but where the potential for injury or property damage existed.

**13.3** The following associates would typically be chosen for testing (for alcohol and controlled substances) following an incident or near miss:

- The associate directly involved in the incident (e.g., injured associate).
- The operator of any TolTest supplied vehicle which was directly involved in the incident.
- The associate who was signaling or directing an equipment operator (as referenced above).
- Any other associate who was directly involved in work activities which led to the incident, and had an opportunity to influence the occurrence or prevention of the incident.

## **14.0 LAW ENFORCEMENT DIRECTED TESTING**

This section applies to any drug and/or alcohol testing including, but not limited to, breath alcohol testing, field sobriety testing, blood testing, etc., ordered and/or administered by law enforcement personnel for TolTest associates engaged in work time activities or operating a TolTest owned, rented, or leased vehicle during non-working hours.

- The above mentioned testing will be sufficient to meet TolTest's Post-Incident Drug and Alcohol Testing Requirements.
- Negative results will be viewed as a negative TolTest drug and/or alcohol test.
- Positive results will be viewed as a positive TolTest drug and/or alcohol test and the associate will be subject to disciplinary action as outlined in this policy.

- Refusal to submit to testing will be viewed as a positive TolTest drug and/or alcohol test and the associate will be subject to disciplinary action as outlined in this policy.

Note: TolTest reserves the right to perform additional drug and/or alcohol subsequent to testing ordered and/or administered by law enforcement personnel.

## **15.0 RANDOM TESTING**

Random substance abuse testing is applicable to all associates within the United States and any United States Territory. The random selection process will be completely objective and anonymous. All tests will be unannounced to the involved associates and the dates for testing will be reasonably spread throughout the course of the year.

Any associate notified of selection for random alcohol and/or controlled substances testing will be expected to proceed to the test site by 2:00 pm on the day they are notified. Every effort will be made by Health and Safety to coordinate random testing with supervisors to minimize operational impacts.

Placement into the various random test pools will be at the discretion of the Manager, Corporate Health and Safety. The following schedule of random alcohol and controlled substance testing will be adhered to:

### **15.1 Administrative Positions**

TolTest will conduct random controlled substance tests at a minimum annual percentage rate of 5% of the average number of associates in non-safety positions (i.e. administrative positions).

### **15.2 Department of Transportation Requirements**

TolTest will conduct random controlled substance tests at a minimum annual percentage rate of 50% of the average number of associates operating Commercial Motor Vehicles for TolTest. Random alcohol abuse testing at a minimum annual percentage rate of 10% of the average number of associates operating Commercial Motor Vehicles for TolTest. This is a requirement of the Federal Department of Transportation.

### **15.3 Non-Administrative Positions**

TolTest will randomly select at least one (1) associate in a non-administrative position every month. All non-administrative associates located at the office or project location of the selected associate will be subjected to the random drug testing program. On the day of the test, the Manager, Corporate Health

and Safety or their representative will randomly select by social security number the total number of non-administrative associates to be tested based upon the table in Attachment 1.

#### 15.4 Random Testing

Random testing will be conducted on a project by project and/or office by office basis based on the individual selected in the random selection process mentioned above. Random testing for projects and/or offices may be conducted utilizing on-site collection via a third-party collector, a previously selected TolTest approved medical facility or properly trained TolTest collectors within the Health and Safety Department.

Note: On-site collection is not meant to imply that collection will always take place at the physical project site. Due to entry restrictions onto some project locations, off-site collection may be necessary. In all cases, a collection location as close as possible to the project/office location will be selected.

### 16.0 **REASONABLE CAUSE TESTING**

An associate may be screened for alcohol or drug abuse for reasonable cause only when TolTest has determined that reasonable cause for screening exists. Justification must be performance oriented and determined by direct and documented observation of the associate, with concurrence from the Manager, Corporate Health and Safety (Attachment 2).

- If a supervisor observes that an associate's performance abnormally varies from performance standards, or that the associate's on-the-job conduct endangers the associate or others, the supervisor may bring the observation to the attention of the Health and Safety Department. Before screening, the supervisor must document the observation in writing and review the observation and evidence with the Manager, Corporate Health and Safety or Manager, Human Resources. In the absence of written documentation, prior to screening, all reasonable cause cases will be thoroughly investigated by the Corporate Health and Safety or Human Resources Departments.

Note: This process will remain anonymous.

- Upon determination that Reasonable Cause is justified, the Manager, Corporate Health and Safety or Manager, Human Resources will consult with the suspected individual and review the observations and evidence. The associate will be given the opportunity to submit to an immediate drug or alcohol test or be placed into the Associate Assistance Program.

- Submit to immediate drug or alcohol test – If the associate submits to an immediate drug test and the results are negative for illicit drugs, no further action will take place. If the associate submits to an immediate drug test and the results are positive for illicit drugs, the associate will be subject to disciplinary action, up to and including termination.
- Enter the Associate Assistance Program – If the associate elects to enter the Associate Assistance Program, the requirements as outlined in paragraph 9.0 above will take precedence.

## **17.0 ALTERNATIVE RANDOM POOL**

A separate Alternative Random Pool will be populated by those associates who submit dilute samples and those enrolled in an Associate Assistance Program as defined in 10.0 above. A third party will randomly select at least one (1) associate in the Alternative Random Pool every month. If the associate selected is in the Associate Assistance Program, the associate will remain in the Alternative Random Pool until their obligation under the Associate Assistance Program is fulfilled. If the associate selected is in the pool as a result of Reasonable Cause, the guidelines outlined in paragraph 16.0 will take precedence.

## **18.0 TESTING UPON RE-HIRE**

An associate, whose employment with TolTest is interrupted for greater than 3 months, will be required to undergo additional post-offer substance abuse testing.

## **19.0 CUSTOMER AND REGULATORY REQUIREMENTS**

When necessary, TolTest will supplement the Alcohol and Drug Free Workplace Program to meet testing required by regulatory, contract, or customer requirements for access to a facility, site, or operation.

## **20.0 CONTRACTORS/SUBCONTRACTORS AND OWNER-OPERATORS**

Because this drug and alcohol testing program is required by the Drug-Free Workplace Act of 1988, and Federal Acquisition Regulations (FAR), its provisions will apply to any individual who performs any safety sensitive services on behalf of TolTest pursuant to any contract, lease or other agreement with TolTest, even though such individual may not be an associate of TolTest. Moreover, mere compliance with the provisions of this procedure or the application of this procedure to any person shall not operate to convert any independent contractor or other person into an associate of TolTest unless such other circumstances indicate the existence of the employer-associate relationship.

Whenever required of TolTest by contractual agreement, all contractors and subcontractors providing services to TolTest will be required to certify the establishment of or existence of a program which minimally complies with the Drug-Free Workplace Act of 1988. Contractors and subcontractors must execute their certification of compliance before commencing services at TolTest project sites.

## **21.0 DISCIPLINARY ACTION**

TolTest reserves the right and authority to initiate disciplinary actions, up to and including termination, in accordance with current Human Resource policy against any associate found to have violated the Alcohol and Drug Free Workplace Program.

The associate may be eligible for re-hire after a period of 12 months following termination provided that there is evidence, acceptable to TolTest, of the successful completion of an approved substance abuse rehabilitation program; the associate successfully passes each subsequent alcohol and/or drug test; the associate continues to participate in the follow-up maintenance program as recommended by the rehabilitation facility; and the associate agrees to be subject to unannounced substance abuse tests from time to time for a period of not to exceed twenty-four (24) months following completion of the rehabilitation program.

## **22.0 ASSOCIATE RESPONSIBILITY**

It is a condition of employment that all associates abide by the terms of the Alcohol and Drug Free Workplace Program. In the event of any conviction for a criminal drug violation occurring on a TolTest job site, in a TolTest facility, or while in or operating a TolTest vehicle, the associate must notify the Manager, Corporate Health and Safety or Manager, Human Resources within five (5) days of the date of the conviction.

## **23.0 PROGRAM CLARIFICATION AND ADMINISTRATION**

A copy of the Alcohol and Drug Free Workplace will be provided to all applicants and made available to all associates. Each applicant and associate shall read and understand this policy and sign the Alcohol and Drug Free Workplace Acknowledgement Form (Attachment 3). This acknowledgement will then be retained in the associate's personnel file.

All classified advertisements for employment with TolTest will advise prospective applicants that TolTest has an Alcohol and Drug Free Workplace Program.

Questions regarding any provision of this program should be forwarded to the TolTest Corporate Health and Safety Department or the TolTest Human Resources Department.

## **24.0 TRAINING**

**24.1** Associate Awareness – In its efforts to develop associate awareness of the hazards of substance abuse, TolTest will provide associates annual awareness training consisting of components covered during health and safety meetings and distribution of written materials. Information contained within these components will be made available to associates.

**24.2** Supervisor Training – Supervisory training will consist of initial skill-building and informational training and annual refresher training. This training will be a combination of classroom training, safety meetings and written material.

## **25.0 EXCEPTION PROVISIONS**

Variances to this procedure shall be requested in accordance with established variance procedures.

## **26.0 ATTACHMENTS**

1. Non-Administrative Random Drug Testing Percentages
2. Observed Behavior Reasonable Cause Record
3. Alcohol and Drug Free Workplace Acknowledgement Form

**ATTACHMENT 1**  
**NON-ADMINISTRATIVE RANDOM DRUG TESTING PERCENTAGES**

<b>No. of Associates</b>	<b>Maximum No. of Tests</b>
1 – 10	3
11 – 20	6
21 – 30	9
31 – 40	12
41 – 50	15
51 – 60	18
61 – 70	21
71 – 80	24
81 – 90	27
91 – 100	30
> 100	25%

**ATTACHMENT 2**  
**OBSERVED BEHAVIOR REASONABLE CAUSE RECORD**

Associate's Name:	Date Observed:	Time Observed:
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Address of Incident (Street/City/State/Zip Code):
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Observed associate behavior for reasonable cause for the use of alcohol or controlled substances must be witnessed by at least two supervisors, if at all feasible. If only one supervisor is available, only one supervisor need witness the conduct. The witnesses must have received training in the detection of probably drug use by observing a person's behavior. The documentation of the associate's conduct must be prepared and signed by the witnesses within 24 hours of the observed behavior or before the results of the tests are released, whichever is earlier.

**MARK ITEMS THAT APPLY AND DESCRIBE SPECIFICS**

1. APPEARANCE Normal \_\_\_\_ Sleepy \_\_\_\_ Tremors \_\_\_\_

Description: \_\_\_\_\_

2. BEHAVIOR Normal \_\_\_\_ Erratic \_\_\_\_ Irritable \_\_\_\_

Inappropriate Gait \_\_\_\_ Mood Swings \_\_\_\_ Lethargic \_\_\_\_

Description: \_\_\_\_\_

3. MOTOR SKILLS Normal \_\_\_\_ Impaired \_\_\_\_

Description: \_\_\_\_\_

4. OTHER OBSERVATIONS FOR REASONABLE CAUSE \_\_\_\_\_

SUPERVISOR:

Signature	Title	Preparation Date	Time
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MANAGER, CORPORATE HEALTH AND SAFETY

Signature	Title	Preparation Date	Time
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☐ Submit to Test      ☐ Refuse to Test      ☐ Associate Assistance Program

**ATTACHMENT 3**  
**ALCOHOL AND DRUG FREE WORKPLACE ACKNOWLEDGEMENT FORM**

I have been provided with a copy and have read TolTest Procedure HS102 Alcohol and Drug Free Workplace Program. Additionally, I understand that as a condition of my employment with TolTest, I am required to abide by the requirements of this procedure.

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Associate/Applicant's Printed Name

---

Associate/Applicant's Signature

---

Date

**ATTACHMENT 13**

**LEAD ABATEMENT PLAN**

# **LEAD ABATEMENT PLAN**

**RVAAP-004-R-01 Open Demolition Area #2 MRS  
White Phosphorus Disposal at the Rocket Ridge Area**

**Ravenna Army Ammunition Plant  
Ravenna, Ohio**

**Contract Number: W912QR-04-D-0038  
Delivery Order Number: 0011**

**Prepared For:**



**U.S. Army Corps of Engineers  
Louisville District  
600 Dr. Martin Luther King, Jr. Place  
Louisville, Kentucky 40202**

**Prepared By:**



**1480 Ford Street  
Maumee, Ohio 43537**

## LEAD ABATEMENT PLAN

Prepared For:

**RVAAP-004-R-01 Open Demolition Area #2 MRS  
White Phosphorus Disposal at the Rocket Ridge Area**

**Ravenna Army Ammunition Plant  
Ravenna, Ohio**

Prepared By:

ToITest, Inc.  
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Reviewed/Approved By:



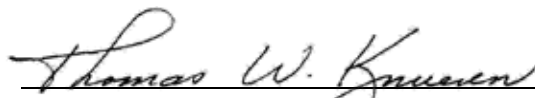
3/1/2011

Corporate Health & Safety Manager

Richard L. Barcum, CIH, CSP, CHMM

Date

Reviewed/Approved By:



3/1/2011

Project Manager

Thomas W. Knueven, CHMM

Date

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## LIST OF ACRONYMS

AHA	Activity Hazard Analysis
AIHA	American Industrial Hygiene Association
BZ	Benzene
CFR	Code of Federal Regulations
CHMM	Certified Hazardous Materials Manager
CHST	Certified Health and Safety Technician
CIH	Certified Industrial Hygienist
CP	Competent Person
CSP	Certified Safety Professional
DO	Delivery Order
ECM	Earth Covered Magazines
EPA	Environmental Protection Agency
H&SD	Health and Safety Director
HEPA	high efficiency particulate air
HUD	U.S. Department of Housing and Urban Development
LBP	Lead-Based Paint
MARC	Multiple Award Remediation Contract
NIOSH	National Institute for Occupational Safety and Health
ODA2	Open Demolition Area #2
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyls
PEL	Permissible Exposure Limit
POC	Point of Contact
PPE	Personal Protective Equipment
REL	Recommended Exposure Limits
RVAAP	Ravenna Army Ammunition Plant
SSHO	Site Safety and Health Officer
SSHP	Site Safety Health Plan
TLV	Threshold Limit Value
TWA	Time Weighted Average
USACE	United States Army Corps of Engineers
WMP	Waste Management Plan
ZPP	Zinc Protoporphryn

## 1.0 INTRODUCTION

This procedure has been prepared by TolTest for Delivery Order (DO) 0011 for White Phosphorus Disposal at the Rocket Ridge Area of Open Demolition Area #2 (ODA2), Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio for the United States Army Corps of Engineers (USACE) Louisville District under the Small Business Multiple Award Remediation Contracts (MARC) for the Louisville District.

The scope of work for this project includes the removal of lead-based paint (LBP) from the doors on the earth covered magazines (ECM). The doors will be abated using Peel Away and repainted.

This procedure addresses LBP hazards and controls that will be implemented to prevent workers from being exposed to lead over the action level which is 30 micrograms per cubic centimeter and 20 micrograms per cubic centimeter below the permissible exposure limit (PEL) during paint removal activities. In addition to requirements set forth in this Procedure, all provisions of the Waste Management Plan (WMP) are incorporated by reference.

The LBP controls for this project are as follows:

- Provide Base notification of LBP activities at least 24 hours, but no more than 10 calendar days, before beginning paint removal activities.
- Mobilization of staff.
- Placement of plastic sheeting underneath the doors and establishing a containment area over the doors.
- Set-up of the decontamination area to include a three-stage process to decontaminate workers:
  1. High efficiency particulate air (HEPA) vacuum the outer suit.
  2. Remove outer suit and wash hands using a foot pump hand washing station.
  3. Remove inner suit and then go to clean area and take off respirator.
- Use of appropriate respiratory and dermal personal protective equipment (PPE).
- Implementation of engineering controls to minimize emissions.
- Air monitoring during work activities to evaluate the effectiveness of the engineering controls implemented to control emissions.

## 2.0 TRAINING, EQUIPMENT, AND PERSONNEL

The following section details the equipment, key TolTest personnel, and training that will be needed to safely complete this task project activity. TolTest will manage all disposal activities and provide supervision during the paint removal activities.

The duties of Competent Person (CP) will be performed by Mike Hovis. Mr. Hovis will perform the daily briefings, air monitoring, and evaluation of engineering controls and work practices for portion of the project where LBP will be removed. Mr. Hovis holds a certification for Lead Awareness Training and has been trained on identifying the hazards associated with this type of operation and is familiar with the air monitoring procedures.

Richard Barcum, CIH, CSP, CHMM, is the Corporate Health and Safety Director (H&SD) and will evaluate the air monitoring results, calculate the time weighted average (TWA) exposure, and determine if the level of PPE can be downgraded. TolTest will provide lead-in-air sampling, review of personal and other exposure data, and perform environmental sampling during the pipe demolition/cutting activities.

TolTest will conduct lead in air monitoring using NIOSH Method 7300 and will utilize an American Industrial Hygiene Association (AIHA) certified lab for lead air sample analysis. Personnel assigned to this project may change to efficiently complete the tasks defined in this Procedure. Any personnel changes that may be required will be with comparable personnel.

The following tools and materials will be used by TolTest during this project:

- Assorted hand tools, scrapers, sanders, etc.
- Visqueen (6-mil poly) Peel Way
- Hard hats & safety glasses
- Half face air purifying respirators with P100 filters
- Poly spun disposable suits, safety toed boots, and gloves
- Lead paint hazard caution tape
- First aid kit
- Air sampling pumps and filter cassettes

### 2.1 Correspondence

The following points of contact (POC) are provided as requested:

**Project Manager:**

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Cell: 419-908-9506  
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**Corporate Health and Safety Director:**

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Mike Hovis

Phone: 419-481-1296

Email: [mike.hovis@toltest.com](mailto:mike.hovis@toltest.com)

TolTest, Inc.

508 W. Elnora St.

Odon, IN 47562

### **3.0 WORK SEQUENCE AND OPERATIONAL APPROACH**

This section addresses the specific operational tasks required to accomplish this project. The following is a listing of major regulations and/or standards that will be adhered to, as applicable, during the execution of the project:

- 29 Code of Federal Regulations (CFR) 1926.62, OSHA Construction Lead Standard
- 29 CFR 1910.134, OSHA Respiratory Protection Program
- 29 CFR 1910.120, OSHA Hazardous Waste Operations and Emergency Procedures
- 40 CFR 745, Environmental Protection Agency (EPA) Lead-Based Paint Poisoning Prevention In Certain Residential Structures
- 24 CFR 35, U.S. Department of Housing and Urban Development (HUD) Lead-Based Paint Poisoning Prevention In Certain Residential Structures
- 40 CFR Part 61, United States EPA National Emissions Standards for Hazardous Air Pollutants
- Code of Federal Regulations, 1 July 2004, Title 40 – Protection of Environment Chapter I – Environmental Protection Agency Part 261 Identification and Listing of Hazardous Waste Subpart C Characteristics of Hazardous Waste
- HUD, Office of Healthy Homes and Lead Hazard Control. March 2001. Lead Paint Safety: A Field Guide for Painting, Home Maintenance, and Renovation Work
- EPA, 2004, Lead in Paint, Dust, and Soil

#### **3.1 Scope of Work**

The scope of work covered by this plan includes the scraping of LBP from the doors on the ECMs. The OSHA and NESHAP regulations stipulate that if cold cutting methods are used to cut materials coated with LBP, the employer must provide adequate PPE to prevent exposure to lead above the PEL, train the employee on the work practices used, and train the employee on the hazards of lead.

Cutting (either hot or cold) techniques will not be used. The LBP will be scrapped using a wetting agent and hand tools to remove. The LBP will be containerized and properly disposed of in accordance with applicable federal, state, and local laws and regulations. There are five doors that will require scraping and repainting. It is anticipated that one small container will be used to contain all of the LBP waste.

#### **3.2 Permitting and Notification**

A 10-day notification will be submitted to the local Ohio Department of Health prior to starting the LBP removal from the doors in accordance with the Division (A)(4) of section 3742.07 of the Ohio Revised Code.

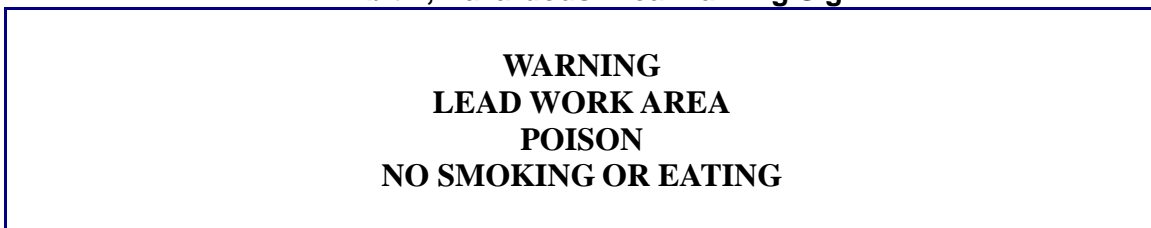
### 3.3 Mobilization and Site Set-Up

ToITest personnel will conduct a walk-through to review the methods to be utilized to perform the following tasks: site set-up; removal, transportation and disposal; site tear down; and demobilization.

The principal steps, potential hazards, and recommended controls to be implemented during the completion of operations are outlined in the Activity Hazard Analysis (AHA) located in the Accident Prevention Plan (APP).

An inspection of the immediate area will be conducted to identify any hazards or unusual conditions in the vicinity of the work areas. General work areas will be segregated with caution tape utilized to delineate the work zones and to deter the intrusion of unauthorized personnel. Caution tape will be used to demarcate the regulated areas and signage will be used to limit unauthorized entry. Signs, similar to the one in **Exhibit 1**, will be placed at appropriate locations to label the area as a hazardous area for authorized personnel only. Personnel protective equipment will be required in this area.

#### Exhibit 1, Hazardous Area Warning Sign



### 3.4 Lead Based Paint Removal Preparation

The door will first be prepped by setting-up the containment area around the doors. The door will be blocked to prevent them from closing while it is being scrapped and repainted. Plastic sheeting will be placed underneath the door to collect any debris or paint chips that may fall to the ground.

#### 3.4.1 Personal Protection Equipment

The general conditions described herein are based on the assumption that exposure to all abatement workers can be maintained at levels below the action level. If exposure above the action level occurs, this plan will be modified to reflect additional OSHA requirements. Level C Personal Protective Equipment (PPE) will be worn during initial removal activities. All personnel entering the work area will be required to wear PPE as provided in **Exhibit 2** on page 6.

The disposable coverall suit, head cover, boots, and gloves will be HEPA vacuumed and removed in a remote decontamination unit and disposed of as lead-contaminated waste.

A portable hand and face wash system will be setup just outside the work area. The wash area will have fresh water with soap, hand cleaner and paper towels to maintain cleanliness of workers hands and face prior to fully departing to the remote decontamination area.

No use of tobacco products, eating, drinking or application of cosmetics are permitted within the work area. Personnel are required to wash their hands, face and neck upon exit of a contaminated area.

### Exhibit 2, Personal Protective Equipment Requirements

Work Activity	Minimum PPE Required
Lead/PCB Paint Abatement	<p>Level C PPE:</p> <ul style="list-style-type: none"><li>▪ Disposable fabric protective coveralls (Tyvek or similar)</li><li>▪ Inner gloves</li><li>▪ Appropriate work gloves</li><li>▪ Safety Toed Boots</li><li>▪ ANSI Z87 approved safety glasses</li><li>▪ Hard hat or bump cap as applicable</li><li>▪ NIOSH Approved half face air purifying respirator with P100 filter</li><li>▪ Taped interfaces</li></ul>

#### 3.4.1.1 Training and Medical Qualifications

Only those individuals trained in lead awareness and having the medical qualifications to wear respiratory protection will be permitted in the work area where door scraping work activities are occurring. All provisions of Section 8.6 of the APP are required to be implemented for this activity.

#### 3.4.1.2 Engineering Controls

Loose and peeling paint, if any, will first be wetted and removed using hand scrapers followed by the application of "Peel Away." This will remove a portion of the lead hazard and potentially lower the exposure risk. If lead concentrations are elevated as indicated in the air monitoring results, additional wetting agent will be applied to the doors to reduce emissions which will also lower the airborne concentration of lead.

#### 3.4.1.3 Air Monitoring

Representative personal air samples will be collected for the TolTest associates performing the Pb/PCB abatement using wet scraping and "Peel Away" for lead paint removal. The air samples will be collected from the breathing zone. Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR 1926.62. Air sampling reports will be reviewed by the H&SD and PPE will be adjusted if required. The samples taken will be representative of the employee's work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of 150 mm to 225 mm (6 to 9 inches) and the center at the nose or mouth of an employee. Samples will be collected in accordance with NIOSH Method 7300 and submitted to the approved laboratory for analysis.

Any subsequent personal sampling will be based upon the results of this initial exposure sampling and will be specified by TolTest SSHO and H&SD. Within five (5) days of receiving the analytical results, the TolTest site SSHO and Director of Safety will review them and communicate the results, in writing, to all applicable personnel. The results of all-personal air monitoring will be maintained on-site for viewing and notification to site personnel and forwarded to the client via the Daily Report. Calibration of the equipment is required prior to daily for sampling and will be logged by the SSHO and kept on file.

#### 3.4.1.4 Instrument Calibration and Maintenance

Instrumentation used for air monitoring will be calibrated and maintained by the SSHO or other qualified individual per instruction provided by the instrument manufacturer.

Calibration of instruments will be checked before and after use and maintained in accordance with the manufacturer's instructions. Calibration data, including the instrument model, serial number, calibration data, and site conditions, will be recorded and placed in the project file.

#### 3.4.1.5 Air Monitoring Guidelines and Action Levels

If unexpected hazards at a site indicate the need for a different level of PPE than that listed in the APP, the plan will be modified, subject to the approval of the Corporate H&SD or designee, in accordance with the air monitoring guidelines presented in **Exhibit 3** below.

**Exhibit 3, Air Monitoring and Action Level Guidelines**

<i>Detection Method</i>	<i>Action Level</i>	<i>Action</i>
Pb	Above 30 ug/m <sup>3</sup>	Evaluate work methods to ensure that the Permissible Exposure Limit (PEL) is not exceeded
	Above 50 ug/m <sup>3</sup> (PEL)	Continue work in Level C with half face respirator with P100 cartages and continue air monitoring.
	Above 500 ug/m <sup>3</sup> (PEL)	Upgrade respiratory protection to full face respirator (OSHA/NIOSH approved) with P100 cartridges
PCB	Above 0.5 mg/m <sup>3</sup>	Continue work in Level C with half face respirator (OSHA/NIOSH approved) with combination organic vapor and P100 cartridges when working
	Above 5.0 mg/m <sup>3</sup>	Upgrade respiratory protection to full face respirator (OSHA/NIOSH approved) with combination organic vapor and P100 cartridges

#### 3.4.1.6 Time-Integrated Personal Sampling

Time-integrated air sampling may be performed during activities when site characterization data and real-time instrumentation indicate that chemical and/or dust exposures to personnel are suspected to be approaching established limits (Permissible Exposure Limits [PEL]/Threshold Limit Value [TLV]) for target compounds, such as, lead. Personal air samples will be collected for each job classification to initially determine if any employee may be exposed to these chemical/materials at or above the action levels. Additional periodic monitoring may be performed based on the results of the initial monitoring. Samples will be collected and analyzed following OSHA or NIOSH methods. All time-integrated, personal air samples will be analyzed using a laboratory accredited by the American Industrial Hygiene Association. Air monitoring results will be submitted to the client as an attachment to the Daily Report.

Personal air monitoring will be used during the Lead abatement to determine an individual's exposure to airborne Lead. A sampling device will be placed on the associate within his/her breathing zone. The sampling will be a full-shift sampling when feasible. The sampling results are compared to regulatory standards to ascertain whether corrective action is needed to ensure the health of the employee. Full-shift exposure limits are found on **Exhibit 2** above. Exceeding these limits requires re-evaluation of the work site and work methods and possible corrective action.

The ToITest SSHO will monitor associates involved in Pb paint removal on the first day using NIOSH Analytical Method 7300. The purpose of sampling is to monitor associates' exposure to Pb dust and/or fume over his/her shift.

- Instruct the employee to wear the sample the entire shift.
- Attach the pump to the employee. This can be done several ways:
  - Attach the pump to the employee's belt
  - Use the carrying case & straps that usually come with a sampling pump
  - Use a vest, such as a fishing vest to carry the pump
- Attach the tube assembly to the employee's collar. This should be within the employee's breathing zone (within 12-inches around the employee's head).

If the results of the sampling determine that lead exposure is a potential, personal exposure monitoring will continue. Monitoring and sampling analysis will be performed in accordance with NIOSH Method 7300. Analysis will be conducted by an American Industrial Hygiene Association (AIHA) accredited laboratory. Results in excess of the Permissible Exposure Limit (PEL) will require additional employee protection measures in accordance with OSHA 29 CFR 1926.62.

Copies of the results of all industrial hygiene monitoring must be forwarded to the employees and posted on site as well as forwarded to the client as an attachment to the Daily Report.

#### **3.4.1.7 Biological Monitoring**

Personnel with the potential for exposure to lead are required to be tested for Blood Lead and Zinc Protoporphryn (ZPP) levels prior to starting the project and upon completion. This monitoring shall be coordinated with the Corporate Health and Safety Coordinator. Due to the short duration of this portion of the project, additional biological monitoring for lead is not anticipated.

#### **3.4.2 Waste Management**

Waste will be managed in accordance with ToITest's Waste Management Plan.

#### **3.4.3 Worker Protection**

Workers engaged in LBP abatement or with potential exposure to lead will be covered by OSHA 29 CFR 1926.62. These employees will be covered by respiratory protection and medical surveillance requirements as described in the APP. Training of workers shall consist of a two hour Lead Awareness Training. Training for the workers will also consist of site specific awareness training prior to initial entry to the project, which will cover lead, hazard communication, and site specific safety rules and procedures.

#### **3.4.4 Protection of Other Subcontractor Employees**

ToITest associates will be the only ones performing this activity and potentially exposed to the LBP removal activities.

#### **3.5 Transportation and Disposal Services**

Waste will be managed in accordance with ToITest's Waste Management Plan.

## **4.0 ENVIRONMENTAL PROTECTION PLAN**

TolTest will provide and maintain environmental protection through the completion of this project. A pre-construction meeting and site walk-through will be held prior to the commencement of project activities to discuss the proposed environmental protection. The meeting will develop a mutual understanding relative to required reports and measures to be taken should there be an incident that requires a response.

Should there be accidental release of lead resulting from this work, work will stop immediately in the affected area and the situation will be evaluated by the Competent Person for appropriate corrective action and implementation of appropriate personal protection measures.

Environmental protection will be provided to correct conditions that develop during abatement or that are required to control pollution that develops during normal construction practices. TolTest's operations will comply with applicable federal, state, and local regulations pertaining to water, air, solid waste, hazardous waste and substances, oily substances and noise pollution. TolTest will at all times be aware of and adhere to all environmental protection policies in force at RVAAP. TolTest will maintain compliance at all times with pertinent regulations as well as EPA lead regulations by performing area air monitoring.

### **4.1 Spill Prevention**

TolTest will build a secondary containment and collect all waste water and other abatement waste, paint, and materials into 55 gallon drums to be held on site until shipping and disposal is arranged in accordance with EPA standards to prevent hazardous substances from entering the ground, drainage areas, or local bodies of water. For hazardous substance spills that may be large enough to be a reportable quantity under federal, state, or local regulations, the RVAAP Facility Manager and Operating Contractor office will be notified immediately and appropriate agency notifications will be made.

TolTest will preserve the integrity of the natural resources of the project area. This includes, ensuring that the surrounding area is not environmentally damaged in any way, and preventing the release of hazardous substances into the surrounding air, land, and water.

### **4.2 Hazardous Waste Storage**

Waste will be managed in accordance with TolTest's Waste Management Plan.

**ATTACHMENT 14**

**ACTIVITY HAZARD ANALYSIS (AHA)**

### Activity Hazard Analysis (AHA)

<b>Activity/Work Task: Operating a Fork Lift and Loading of White Phosphorus Containing Drums</b>	<b>Overall Risk Assessment Code (RAC) (Use highest code)</b>					<b>M</b>
<b>Project Location: Ravenna Army Ammunitions Plant</b>	<b>Risk Assessment Code (RAC) Matrix</b>					
<b>Contract Number: W912QR-04-D-0038</b>	<b>Severity</b>	<b>Probability</b>				
<b>Date Prepared: 01/28/2011</b>		Frequent	Likely	Occasional	Seldom	Unlikely
<b>Prepared by (Name/Title): Malcolm D. Jacobs, MSM, STS, Health and Safety Supervisor</b>	Catastrophic	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>
	Critical	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>
<b>Reviewed by (Name/Title): Richard L. Barcum, CIH, CSP, CHMM Corporate Health and Safety Director</b>	Marginal	<b>H</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>
	Negligible	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Notes:</b> (Field Notes, Review Comments, etc.) 1. For all Emergencies call Post #1 at <b>330-358-2017</b> 2. Fork Lift Competent person is: TolTest: Chris Warren Triad: Seth Leech, John Maltu 3. HAZMAT Competent persons are: TolTest: Chris Warren, Karen Radomski, Triad: Scott Bundy, Seth Leech, John Maltu PIKA: TBD  Use Caution when handling drums the weight may shift causing drums balance to shift.	Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)					
	<b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.					<b>RAC Chart</b>
	<b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					<b>E = Extremely High Risk</b>
						<b>H = High Risk</b>
						<b>M = Moderate Risk</b>
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.					<b>L = Low Risk</b>	

Activity	Hazard	Recommended Controls	RAC
General Safety Requirements all Posted Construction Work Zones	General Work Zone Hazards	1. Personal Protective Equipment for daily duties: Modified Level D <ul style="list-style-type: none"> <li>Long Pants</li> <li>Shirts with Sleeves</li> <li>Hard hat or bump cap as applicable</li> <li>Saranex (or equivalent) chemical protective clothing</li> <li>Cotton or leather work gloves</li> <li>Silvershield inner gloves</li> <li>Taped interfaces</li> <li>Safety Toed Boots.</li> <li>ANSI Z87 approved chemical safety goggles</li> <li>Class II High Visibility Vest (When Working Around Moving Equipment)</li> <li>Knee Pads as needed</li> <li>Chemical splash shield</li> </ul>	L

Activity	Hazard	Recommended Controls	RAC
Pre-Operation Safety Check of Forklifts	Chemical Use (Grease, Fuels, and Lubricants)	<ol style="list-style-type: none"> <li>To protect against eye hazards use ANSI approved safety glasses or goggles.</li> <li>Avoid contact with skin; if there is contact wash affected areas with water and mild soap immediately.</li> <li>Review MSDS of all chemicals prior to use and ensure MSDS is accessible to all associates who are affected by the chemical in use.</li> </ol>	L
	Chemical Spills (Fuel and Motor Fluids)	<ol style="list-style-type: none"> <li>Spills will be contained and cleaned up immediately with absorbents.</li> <li>Potential spills anticipated for this project will be small (&lt; 5 gal).</li> <li>Large scale spills must be handled by experienced personnel only.</li> <li>Report large scale spills to the SSHO.</li> <li>Report all spills to your Supervisors.</li> </ol>	L
	Noise Hazards	<ol style="list-style-type: none"> <li>Wear approved ANSI hearing protection.</li> <li>Observe all posted signs requiring hearing protection.</li> <li>Hearing protection will be available and used when needed.</li> </ol>	L
	Use of Hand Tools for Equipment Maintenance	<p><b>USE THE CORRECT TOOL FOR THE JOB!</b></p> <p><b>DAMAGED TOOLS MUST BE REPAIRED OR REPLACED!</b></p> <ol style="list-style-type: none"> <li>When using a hammer of any kind use safety glasses and request all other affected workers around you to wear them.</li> <li>Refer to manufacturer's manual for safe operation of any tool.</li> <li>Use tools with good body mechanics, and according to manufacture recommendations.</li> <li>Tools will be inspected before each use.</li> <li>Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand.</li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
<b>Pre-Operation Safety Check of Forklifts (Cont'd)</b>	Use of Improperly Maintained Equipment	<ol style="list-style-type: none"> <li>1. Equipment must be checked by a competent mechanic as per manufacturer's specifications. Document the inspection prior to use.</li> <li>2. All belts, gears, shafts, pulleys, sprockets, chains, rotating or moving parts will have guards in place.</li> <li>3. Ensure housekeeping around machines is done daily or as needed.</li> <li>4. Wipe up any spilled oils/grease on and around the machines.</li> <li>5. Look for any fluid leaks and have repaired and cleaned up.</li> <li>6. <b>Damaged Equipment shall be tagged out until proper repairs can be made.</b></li> </ol>	<b>L</b>
	Falls from Fixed Steps or Ladders on Equipment	<ol style="list-style-type: none"> <li>1. Inspect all steps on equipment ladders for damage before climbing onto them.</li> <li>2. Always face the equipment when ascending and descending from equipment.</li> <li>3. Maintain three points of contact when ascending and descending from equipment fixed ladders, and steps.</li> </ol>	<b>L</b>
	Fires during Refueling	<ol style="list-style-type: none"> <li>1. Fire extinguishers to be maintained of appropriate size and type (Minimum 10A:60BC required).</li> <li>2. Personnel potentially utilizing fire extinguishers must be adequately trained.</li> <li>3. In the event of a fire, the Contact the Guard at Post #1 to contact the Fire Department immediately.</li> <li>4. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>5. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> <li>6. Shut down vehicle and allow the engine to cool down before fueling.</li> </ol>	<b>L</b>



Activity	Hazard	Recommended Controls	RAC
Operating the Forklift	Incident Involving the Starting and Driving of the Fork Lift	<ol style="list-style-type: none"> <li>1. Buckle your seat belt when you're in the truck.</li> <li>2. Stay well back from the edges and drop offs.</li> <li>3. Never turnaround on the slope.</li> <li>4. Drive with your load on the uphill side. This means you drive up slopes with your load in front and drive down slopes in reverse.</li> <li>5. Obstructions will be removed from the immediate work area to prevent incident contact whenever feasible.</li> <li>6. A lookout person will be used when maneuvering, loading, and unloading forklifts.</li> <li>7. Perform equipment inspections prior to use.</li> <li>8. Always be aware of carbon monoxide. Use electric or LP powered forklifts inside the building.</li> <li>9. Do not disable back up alarms.</li> <li>10. Observe weight restrictions and lifting capacity of the lift. Transport loads while the forks are low to ground.</li> <li>11. Ensure only qualified operators with current training operate the forklift.</li> <li>12. Ensure loads are secure and lowered to the lowest possible point prior to transporting.</li> </ol>	<b>M</b>
	Injuries Due to Improper Mechanical Material Handling	<ol style="list-style-type: none"> <li>1. The operator shall not cause the hoist to lift, lower, or travel while anyone is on the load or hook.</li> <li>2. The operator will avoid carrying loads over people.</li> <li>3. Bolts, nuts, and rivets shall be checked to ensure that they are not loose.</li> </ol>	<b>L</b>
	Worker and Pedestrian Traffic	<ol style="list-style-type: none"> <li>1. Secure the area with cones, caution tape, and warning signs.</li> <li>2. Control public, visitors and workers not involved in the work tasks from entering the areas where heavy equipment is operating.</li> <li>3. Be aware of surroundings.</li> </ol>	<b>L</b>
	Noise Hazards	<ol style="list-style-type: none"> <li>1. When associates are subjected to sounds requiring them to raise their voice to speak, check decibel levels with a sound monitor. If noise exceeds 85 decibels, feasible administrative or engineering controls shall be utilized.</li> <li>2. If such controls fail to reduce sound levels to acceptable levels, personal protective equipment shall be provided and used to reduce sound levels.</li> <li>3. All observers should be kept at a safe distance away from the work area.</li> <li>4. Hearing protection will be available and used when needed.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Operate the Forklift (Cont'd)</b>	Forklift Incidents	<ol style="list-style-type: none"> <li>1. Inspect heavy equipment each day. Inspection should include items such as fluid levels, hoses, working condition, lights, horn, back up alarm, tire pressure, worn out parts, etc. Make repairs as necessary.</li> <li>2. Do not use damaged or compromised equipment.</li> <li>3. Stand clear of equipment swing radius. Maintain visual contact with equipment operator. Do not approach working equipment without making eye contact with operator.</li> <li>4. Ensure warning alarms are working properly. Check for overhead hazards. Use spotters when loading and unloading heavy equipment.</li> <li>5. Observe local traffic laws, speed limits, and weight limits.</li> <li>6. Personnel working around heavy equipment must wear reflective vests.</li> <li>7. Maintain fire extinguisher and safety triangles.</li> <li>8. Turn off engine while refueling.</li> <li>9. Remove loose debris from truck prior to traveling to avoid spilling load or creating road hazards.</li> <li>10. Only Trained and authorized associates who can provide proof of training may operate heavy equipment.</li> </ol>	<b>M</b>
<b>Drum Handling</b>	Injuries Handling Drums	<ol style="list-style-type: none"> <li>1. Always use protective clothing as prescribed in this AHA and the SSHP.</li> <li>2. Eliminate risk factor such as trip hazards.</li> <li>3. Be alert for burred edges, lock rings and bungs that may catch your gloves or clothing and throw you off balance.</li> <li>4. Use Mechanical devices to lift and move drums.</li> <li>5. Get assistance as a 55-gallon drum can weigh 400-800 pounds.</li> <li>6. Protect your hands, feet, back and face during this work.</li> <li>7. Do not move drums with bare forks, use a drum rack designed for the job.</li> <li>8. Do not lay drums on sides for storage.</li> <li>9. Use ergonomic drum handlers that securely hold the drum. Mobile drum handlers, forklift drum carriers and below-hook drum carriers are available.</li> </ol>	<b>M</b>
<b>Loading Drums On to Transport Truck</b>	Load Falling Off Forklift, Damage to Material by Loading Improperly, Overloading, or Pinching/Crushing of Hands	<ol style="list-style-type: none"> <li>1. Inspect containers before moving and spread forks as wide as possible for transporting the load.</li> <li>2. Tilt the mast slightly forward and align the forks with the base of the load.</li> <li>3. Proceed slowly and insert the forks into the base of the load.</li> <li>4. Ensure that at least 2/3rd the length of the fork enter the base of the load.</li> <li>5. Lift forks approximately 8 inches for the load to clear the floor.</li> <li>6. Tilt mast back in preparation for traveling.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Loading Drums On to Transport Truck (Cont'd)</b>	Running Into Objects or Collisions With Other Equipment	<ol style="list-style-type: none"> <li>1. Be alert.</li> <li>2. Watch for other equipment.</li> <li>3. Keep your arms and hands in the truck.</li> <li>4. Keep the controls and your hands clean and dry.</li> <li>5. Stay in the center of the aisles.</li> <li>6. Ensure good visibility at all times.</li> </ol>	<b>L</b>
	Spills	<ol style="list-style-type: none"> <li>1. Air monitoring and air sampling will be conducted as outlined in the SSHP (Section 7.0 and Section 10.3).</li> <li>2. In the event that air monitoring indicates an uncontrolled emission of WP or Phosphine or a visible leak is observed, all personnel are required to evacuate the area immediately as outlined in the SSHP (Section 7.2). The Onsite Technical Manager and the SSHO will immediately implement the contingencies outlined in the WP Disposal Contingency Plan.</li> <li>3. Section 17.2.9 of the SSHP addresses Drum Handling and Transportation. Prior to working on this activity, all personnel involved are required to thoroughly re-review Section 17.2.9 of the SSHP.</li> </ol>	<b>M</b>
<b>Parking the Forklift</b>	Running over and crushing the operator or pedestrians	<ol style="list-style-type: none"> <li>1. Ensure parking brake is engaged and machine is turned off before leaving the equipment.</li> <li>2. Do not allow anyone between load and forklift.</li> <li>3. Conduct daily equipment checks to ensure, horn, brakes and backup alarm are all working.</li> <li>4. Sound horn and reduce speed when entering doorways or approaching vehicle to be loaded.</li> </ol>	<b>L</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
1. Personal Protective Equipment	1a. Subcontractor – Proof of Construction PPE Training. 1b. TolTest personnel - Web-Based Eye Safety Training, Web-Based Personal Protective Equipment Training, Web-Based Hand Safety.	1a. PPE must be inspected prior to use, damaged PPE must be replaced immediately. 1b. An adequate supply of PPE must be available for workers and visitors.
2. Miscellaneous Hand Tools and Power Tools	2a. Subcontractors – Proof of training to operate tools/equipment. 2b. TolTest personnel - Web Based Hazard Recognition Training, Web Based Hand and Power Tools – Construction Training.	2. Check tools according to manufacturer's guidelines. 2. Hand tools should be check for nicks, chips. 2. Power tools should be checked to ensure that all guards are in place.
3. All Workers	3a. Subcontractors – Proof of Hazard Communication Training, Company Certification of Drug and Alcohol Free Workplace, Proof of Safe Lifting Training. 3b. TolTest personnel – Web-Based Hazard Communication Training, Web-Based Drug Testing Awareness Training, Web-Based Back Safety and Muscles Strains and Sprains Courses.	
4. Fire Extinguishers	4a. Subcontractors – Proof of Fire Extinguisher Training. 4b. TolTest personnel - Web-Based Fire Safety Training.	4a. Documented monthly inspections are to be done. <ul style="list-style-type: none"> <li>▪ Check to see if charged</li> <li>▪ Check to see if pin has been removed</li> <li>▪ Check hose</li> </ul>
5. First Aid Kits <ul style="list-style-type: none"> <li>▪ Cintas 4 Shelved First Aid Kit contents meet EM 385 1-1 Section B/ Table 3-1.</li> <li>▪ Two CPR Barriers</li> <li>▪ Bio-Hazrd Bag</li> </ul>	5a. First Aid CPR Certified Competent Persons - Karen Radomski and Chris Warren. 5b. Subcontractor provide proof of blood borne pathogen training. 5c. TolTest personnel – Annual Web Based Blood Borne Pathogen Training.	5a. Inspect every three months, after each use, and replenish first aid supplies as needed.
6. Eye Wash Station		6a. Documented monthly inspections. 6b. Ensure that eye wash solution has not frozen if temperature in the storage container at the Wet Storage Area cannot be kept at 50 degrees.
7. Equipment: Forklifts for Drum Loading	7a. Operators must be trained and certified. Proof of training must be available upon request.	7a. Perform daily documented inspections according to the manufacturer's recommendations on all components and accessories.

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
8. Manual Material Handling	8a. Subcontractors -Proof of Back Safety Training and Proper Lifting Techniques Training. 8b. TolTest Personnel – Web Based Back Safety Training Course.	8a. During daily site safety inspections the superintendent/SSHO observed lifting techniques practiced by TolTest and subcontractor personnel.

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	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
Reviewed By:	Richard L. Barcum, CIH, CSP, CHMM		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
SSHO / Presented By:			
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
AHA Discussed with Crew at Preparatory Meeting Held On: _____.			
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
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<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	



**Activity Hazard Analysis (AHA)**

Activity/Work Task: Repair of Existing Chain Link Fence		Overall Risk Assessment Code (RAC) (Use highest code)				L	
Project Location: Ravenna Army Ammunitions Plant		Risk Assessment Code (RAC) Matrix					
Contract Number: W912QR-04-D-0038		Severity	Probability				
Date Prepared: 01/28/2010			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Malcolm Jacobs, MSM, STS, Health and Safety Supervisor		Catastrophic	E	E	H	H	M
		Critical	E	H	H	M	L
Reviewed by (Name/Title): Richard L. Barcum, CIH, CSP, CHMM Corporate Health and Safety Director		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
<b>Notes:</b> (Field Notes, Review Comments, etc.) Competent Person is Mike Hovis For all Emergencies call the Security Guard at Post #1 at 330-358-2017		Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)					
		<b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				<b>RAC Chart</b>  <b>E = Extremely High Risk</b> <b>H = High Risk</b> <b>M = Moderate Risk</b> <b>L = Low Risk</b>	
		<b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each <b>“Hazard”</b> on AHA. Annotate the overall highest RAC at the top of AHA.					
		Activity		Hazard		Recommended Controls	
General Safety Requirements for all Posted Construction Work Zones		Exposure to all Work Activities in the Construction Work Zone.		1. Personal Protective Equipment: <ul style="list-style-type: none"> <li>Long Pants</li> <li>Shirts with Sleeves</li> <li>Hardhat</li> <li>Safety-Toed Boots (Rubber Boots during spill clean ups)</li> <li>Safety Glasses (Potential Eye Hazard Areas)</li> <li>Class II High Visibility Vest (When Working Around Moving Equipment)</li> <li>Knee Pads as needed</li> <li>Face shields (during spill cleanup Activities)</li> </ul>		L	

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Heat Stress	<ol style="list-style-type: none"> <li>1. Personnel will be monitored for heat stress and will maintain adequate hydration.</li> <li>2. An adequate supply of drinking water shall be provided in all places of employment. Cool water with disposable cup shall be provided during hot weather.</li> <li>3. Adjust work schedules, rotate personnel, and add additional personnel if needed.</li> <li>4. Replenish fluids (e.g. – water, electrolytes) as needed.</li> <li>5. Consider personnel and environmental monitoring plans.</li> <li>6. Know the warning signs of heat related illnesses.</li> <li>7. Provide shelter for personnel in shaded areas.</li> <li>8. Where possible, block out sun or other direct sources of heat from fixed work locations.</li> <li>9. Prevent sun related overexposure to skin by using a sunscreen lotion with a significant sun protection factor (SPF) of 15 or greater.</li> <li>10. Review the APP Heat Stress Section.</li> </ol>	<b>L</b>
	Cold Stress	<ol style="list-style-type: none"> <li>1. When Temperatures are below 61°F, TolTest implement Cold Stress Prevention, and personnel will be monitored for cold stress.</li> <li>2. When working in cold environments monitor your work.</li> <li>3. Wear layered clothing as it helps maintain body heat.</li> <li>4. Personnel will be evaluated daily to ensure they are properly clothed and able to work in the anticipated cold/wet conditions anticipated for that day by the HSSO and supervisors.</li> <li>5. Get into heated shelter as necessary to maintain body temperature.</li> <li>6. Replace wet clothing immediately.</li> <li>7. Drink warm fluids often.</li> <li>8. Wear adequate clothing to reduce threat of cold stress.</li> <li>9. Know the signs of cold stress.</li> <li>10. Wear gloves when touching metal.</li> <li>11. Check face and finger tips for signs of cold injuries.</li> <li>12. Do not re-warm extremities with direct heat.</li> <li>13. Review the APP Cold Stress section.</li> </ol>	<b>L</b>
	Incidents	<ol style="list-style-type: none"> <li>1. All incidents, including near misses, regardless of severity shall be reported according to the APP.</li> </ol>	<b>L</b>



Activity	Hazard	Recommended Controls	RAC
General Safety Requirements all Posted Construction Work Zones (Cont'd)	Insect Bites and Biological hazards	<ol style="list-style-type: none"> <li>1. Use insect repellent when necessary to avoid insect bites.</li> <li>2. Report insect bites/stings in accordance with the APP.</li> <li>3. Monitor victims of insect bites/stings for allergic reactions.</li> <li>4. During both mobilization and demobilization, it is anticipated that biological hazards will exist. Biological hazards that may be encountered include stinging and biting insects, hazardous plants, and snakes.</li> <li>5. Insect repellent will be used by site personnel as needed to repel hazardous insects.</li> <li>6. Site personnel will report to the HSSO and their supervisor the presence of any hazardous animals, insects or plants.</li> <li>7. Do not feed or pet any wildlife.</li> </ol>	L
	Sanitation	<ol style="list-style-type: none"> <li>1. Housekeeping: <ul style="list-style-type: none"> <li>▪ Work site should be kept as clean as possible.</li> <li>▪ Regular cleaning of the site shall be conducted to maintain safe and sanitary conditions in the workplace.</li> <li>▪ Walking and working surfaces shall be kept as dry as possible to reduce slip hazards.</li> <li>▪ Every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, clutter, and unnecessary holes and openings.</li> </ul> </li> <li>2. Drinking Water: <ul style="list-style-type: none"> <li>▪ An adequate supply of potable water shall be available to workers for drinking and cleaning.</li> <li>▪ Water must be cool drinking water especially in hot environments.</li> <li>▪ Drinking water shall be dispensed by means that prevent contamination between the consumer and the water source.</li> <li>▪ All drinking water shall be clearly marked "Drinking Water."</li> </ul> </li> <li>3. Toilets: <ul style="list-style-type: none"> <li>▪ Toilets shall be provided according to EM-385-1-1-02 E.</li> <li>▪ Where hand washing stations are not feasible, portable toilets on site shall be equipped with at least hand sanitizer.</li> <li>▪ Adequate lighting and ventilation must be provided in portable toilets.</li> <li>▪ Portable toilets must be serviced on a regular basis.</li> <li>▪ Toilet facilities shall be inspected daily as part of the regular daily site safety inspection to identify sanitation, supplies and housekeeping needs.</li> </ul> </li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Unauthorized Personnel in the Construction Zone	<ol style="list-style-type: none"> <li>1. Establish perimeters by barricading work areas and erecting warning signs on a security fence.</li> <li>2. Access to the fence demolition areas will be restricted using barricades if needed.</li> <li>3. All visitors and workers must be briefed by the SSHO and review and sign the project APP prior to entering the construction work zone.</li> <li>4. All associates on site must be familiar with the APP.</li> <li>5. All associates on site will review site specific AHA's.</li> <li>6. Remove non-essential personnel from the work zone immediately.</li> </ol>	<b>L</b>
	Smoking in The Construction Work Zone	<ol style="list-style-type: none"> <li>1. Smoking and tobacco products can only be done in areas approved by RVAAP.</li> </ol>	<b>L</b>
	Fires	<ol style="list-style-type: none"> <li>1. ABC fire extinguisher, rated not less than 10B, shall be provided within 50 feet Personnel potentially utilizing fire extinguishers must be adequately trained. Subcontractors shall provide proof of training. In the event of a fire, immediately contact the Security Guard at Post #1 who will contact the Fire Department.</li> <li>2. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>3. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> <li>4. All fire extinguishers must be inspected monthly to ensure that they are in proper working condition.</li> </ol>	<b>L</b>
	Injures from Contact	<ol style="list-style-type: none"> <li>1. First Aid: Seek medical attention for further treatment, observation and support after first aid. <ul style="list-style-type: none"> <li>▪ Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.</li> <li>▪ Eye: Immediately flush with fresh water for 15 minutes.</li> <li>▪ External: Wash continuously with fresh water for 15 minutes.</li> </ul> </li> </ol>	<b>L</b>
<b>Mobilization: Travel to the Project Site</b>	Loading Equipment and Attachments	<ol style="list-style-type: none"> <li>1. Tie down and secure all materials, equipment and loads.</li> <li>2. Inspect load prior to leaving work shop.</li> </ol>	<b>L</b>
	Hazards Traveling to the Work Site, Road Hazards such as Wet Pavement, Traffic Construction, and Speed Limits	<ol style="list-style-type: none"> <li>1. Be Aware of all conditions while driving.</li> <li>2. Keep safe distances from vehicles in front.</li> <li>3. Adhere to all traffic laws.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Mobilization: Travel to the Project Site (Cont'd)</b>	Pedestrians, Other Workers, and Parking	<ol style="list-style-type: none"> <li>1. Park only where permitted.</li> <li>2. Keep heavy equipment from pedestrian traffic until site is setup.</li> </ol>	<b>L</b>
	Not knowing Project Conditions or Safety Hazards	<ol style="list-style-type: none"> <li>1. Meet with Project SSHO to review project scope, hazards, and procedures.</li> <li>2. Read, know and sign HASP/ AHA's.</li> <li>3. Do not start any work activity before reviewing the AHA and applicable MSDS for that specific activity.</li> </ol>	<b>L</b>
	Manual Material Handling	<ol style="list-style-type: none"> <li>1. Personnel shall ensure that they observe proper lifting techniques and shall minimize movements such as over reaching, bending and twisting.</li> <li>2. Personnel shall not lift more than 50 lbs without help from a co-worker(s) or mechanical assistance. Items weighing less may need assistance as well if they are large, bulky or cumbersome.</li> <li>3. Use a dolly or other mechanical method when practical.</li> </ol>	<b>L</b>
<b>Install New Section of Chain Link Fence To Include:</b> <ul style="list-style-type: none"> <li>▪ Cutting of the New Fence Material</li> <li>▪ Installation of New Fence Section</li> </ul>	Injuries from Hand and Power Tools While Cutting the Chain Link Fence to Size; Attaching Tension Wire and Chain Link Fencing to Existing Poles	<ol style="list-style-type: none"> <li>1. Tools will be used according to the manufacturer's instructions.</li> <li>2. Associates will be familiar with the proper use of the tool being used.</li> <li>3. Tools will be maintained according to manufacturer's recommendations.</li> <li>4. Tools will be inspected before each use.</li> <li>5. Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>6. Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand.</li> <li>7. All grinders and tools that can throw off sparks shall be properly guarded.</li> <li>8. Face Shields in combination with safety glasses must be worn with grinding and cutting with hand grinders.</li> </ol>	<b>L</b>
	Slip Trip and Fall Hazards from Material to be Installed	<ol style="list-style-type: none"> <li>1. The work area shall be maintained in a clean condition so far as possible.</li> <li>2. Associates should be aware of the condition of work and surrounding areas.</li> <li>3. Personnel shall complete slips, trips and fall hazard training.</li> <li>4. Subcontractors shall provide proof of training.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Install New Section of Chain Link Fence (Cont'd)</b>	Electrical Shock Hazards (Power Tools and Extension Cords)	<ol style="list-style-type: none"> <li>1. Operate according to the manufacturer's instructions.</li> <li>2. Associates will be familiar with the proper use of the tool being used.</li> <li>3. Tools will be inspected before each use.</li> <li>4. Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>5. Use GFCI for all electrical tools.</li> <li>6. Never carry a tool by the cord or hose.</li> <li>7. Never yank the cord or the hose to disconnect it from the receptacle.</li> <li>8. Keep cords and hoses away from heat, oil, and sharp edges.</li> <li>9. Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.</li> </ol>	<b>L</b>
	Particles and Debris in the Eyes	<ol style="list-style-type: none"> <li>1. Suitable eye protectors will be provided where there is a potential for eye injury from machines, flying objects, glare, liquids, injurious radiation, or a combination of these. Protectors must meet the following minimum requirements: <ul style="list-style-type: none"> <li>▪ Adequately protect against the particular hazards for which they are designed</li> <li>▪ Be reasonably comfortable when worn under the designated conditions</li> <li>▪ Fit snugly without interfering with the movements or vision of the wearer</li> <li>▪ Be durable</li> <li>▪ Be capable of being disinfected</li> <li>▪ Be easily cleanable</li> <li>▪ Be kept clean and in good repair</li> </ul> </li> </ol>	<b>L</b>
	Falls from Step Ladders	<ol style="list-style-type: none"> <li>1. Ensure that every step ladder has slip resistant feet and is placed securely on the ground; remove debris from under the feet before placement.</li> <li>2. Body should stay within the plane of the ladder legs, move ladder rather than excessive leaning to the sides.</li> <li>3. The top of a regular stepladder shall not be used as a step.</li> <li>4. Maintain 3 points of contact at all times.</li> </ol>	<b>L</b>
	Lacerations to Hands from Contact with Sharp Edges	<ol style="list-style-type: none"> <li>1. Associates should be aware of sharp edges and use caution while making contact with these areas.</li> <li>2. Cut and puncture resistance gloves should be worn.</li> <li>3. PPE Requirements: Work gloves (Cut and puncture resistance while handling material with sharp edges).</li> </ol>	<b>L</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
1. Hand and Power Tools (Hammers, Pliers, Screw Drivers, Tin Snips, Grinders, Saws, Drills)	1a. Subcontractors – Proof of training to operate tools/equipment. 1b. TolTest personnel - Web Based Hazard Recognition Training, Web Based Hand and Power Tools – Construction Training.	1a. Inspect all tools according to manufacturer’s instructions prior to use.
2. Fire Extinguisher	2a. Subcontractors – Proof of Fire Extinguisher Training. 2b. TolTest personnel - Web-Based Fire Safety Training.	2. Check to see if charged. 2. Check to see if pin has been removed. 2. Check hose. 2. Ensure monthly inspections are conducted and documented on the tag affixed to the extinguisher.
3. First Aid Kit	3a. First Aid CPR Certified – Mike Hovis, Karen Radomski, and Chris Warren Competent Persons. 3b. Subcontractors - proof of blood borne pathogen training. 3c. TolTest Personnel – Annual Web Based Blood Borne Pathogen Training.	3a. Inspect every three months, after each use, and replenish first aid supplies as needed.
4. Personal Protective Equipment	4a. Subcontractor – Proof of Construction PPE Training. 4b. TolTest personnel - Web-Based Eye Safety Training, Web-Based Personal Protective Equipment Training, Web-Based Hand Safety.	4a. PPE must be inspected prior to use, damaged PPE must be replaced immediately.
5. All Workers	5a. Subcontractors – Proof of Hazard Communication Training, Company Certification of Drug and Alcohol Free Workplace, Proof of Safe Lifting Training. 5b. TolTest personnel – Web-Based Hazard Communication Training, Web-Based Drug Testing Awareness Training, Web-Based Back Safety and Muscles Strains and Sprains Courses.	
6. Ladders	6a. Subcontractors: Proof of Ladder Training. 6b. TolTest personnel –Web Based Ladder Safety Training.	6a. All Ladders are to be inspected prior to use. 6b. Damaged ladders are not permitted on site.

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	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
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AHA Discussed with Crew at Preparatory Meeting Held On: _____.			
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
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<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	



### Activity Hazard Analysis (AHA)

<b>Activity/Work Task: Lead Abatement</b>	<b>Overall Risk Assessment Code (RAC) (Use highest code)</b>					<b>L</b>
<b>Project Location: Ravenna Army Ammunition Plant</b>	<b>Risk Assessment Code (RAC) Matrix</b>					
<b>Contract Number: W912QR-04-D-0038</b>	<b>Severity</b>	<b>Probability</b>				
<b>Date Prepared: 01/28/2011</b>		Frequent	Likely	Occasional	Seldom	Unlikely
<b>Prepared by (Name/Title): Christopher W. Warren, CHST Health and Safety Supervisor</b>	Catastrophic	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>
	Critical	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>
<b>Reviewed by (Name/Title): Richard L. Barcum, CIH, CSP, CHMM Corporate Health and Safety Director</b>	Marginal	<b>H</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>
	Negligible	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Notes: (Field Notes, Review Comments, etc.)</b> <b><u>Minimum Personal Protective Equipment Dress:</u></b> Level C PPE: <ul style="list-style-type: none"> <li>▪ Disposable fabric protective coveralls (Tyvek or similar)</li> <li>▪ Inner gloves</li> <li>▪ Appropriate work gloves</li> <li>▪ Safety Toed Boots</li> <li>▪ ANSI Z87 approved safety glasses</li> <li>▪ Hard hat or bump cap as applicable</li> <li>▪ NIOSH Approved half face air purifying respirator with P100 filter</li> <li>▪ Taped interfaces</li> </ul>	Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)					
	<b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				<b>RAC Chart</b>	
	<b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				<b>E = Extremely High Risk</b>	
					<b>H = High Risk</b>	
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.				<b>M = Moderate Risk</b>	
					<b>L = Low Risk</b>	
<b>Activity</b>	<b>Hazard</b>	<b>Recommended Controls</b>				<b>RAC</b>
<b>General Safety Requirements all Posted Construction Work Zones</b>	Cold Weather.	<ul style="list-style-type: none"> <li>▪ When Temperatures are below 61°F, TolTest implement Cold Stress Prevention, and personnel will be monitored for cold stress.</li> <li>▪ When working in cold environments monitor your work.</li> <li>▪ Wear layered clothing as it helps maintain body heat.</li> <li>▪ Personnel will be evaluated daily to ensure they are properly clothed and able to work in the anticipated cold/wet conditions anticipated for that day by the HSSO and supervisors.</li> <li>▪ Get into heated shelter as necessary to maintain body temperature.</li> <li>▪ Replace wet clothing immediately.</li> <li>▪ Drink warm fluids often.</li> <li>▪ Wear adequate clothing to reduce threat of cold stress.</li> <li>▪ Know the signs of cold stress.</li> <li>▪ Wear gloves when touching metal.</li> <li>▪ Check face and finger tips for signs of cold injuries.</li> <li>▪ Do not re-warm extremities with direct heat.</li> <li>▪ Review the APP Cold Stress section.</li> </ul>				<b>L</b>

<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Incidents	<ul style="list-style-type: none"> <li>All incidents, including near misses, regardless of severity shall be reported according to the APP.</li> </ul>	<b>L</b>
	Insect Bites/ Biological Hazards	<ul style="list-style-type: none"> <li>Use insect repellent when necessary to avoid insect bites.</li> <li>Report insect bites/stings in accordance with the APP.</li> <li>Monitor victims of insect bites/stings for allergic reactions.</li> <li>During both mobilization and demobilization, it is anticipated that biological hazards will exist. Biological hazards that may be encountered include stinging and biting insects, hazardous plants, and snakes.</li> <li>Insect repellent will be used by site personnel as needed to repel hazardous insects.</li> <li>Site personnel will report to the SSHO and their supervisor the presence of any hazardous animals, insects or plants.</li> <li>Do not feed or pet any wild life.</li> </ul>	<b>L</b>
	Sanitation	<ol style="list-style-type: none"> <li>Housekeeping: <ul style="list-style-type: none"> <li>Work site should be kept as clean as possible.</li> <li>Regular cleaning of the site shall be conducted to maintain safe and sanitary conditions in the workplace.</li> <li>Walking and working surfaces shall be kept as dry as possible to reduce slip hazards.</li> <li>Every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, clutter, and unnecessary holes and openings.</li> </ul> </li> <li>Drinking Water: <ul style="list-style-type: none"> <li>An adequate supply of potable water shall be available to workers for drinking and cleaning.</li> <li>Water must be cool drinking water especially in hot environments.</li> <li>Drinking water shall be dispensed by means that prevent contamination between the consumer and the water source.</li> <li>All drinking water shall be clearly marked "Drinking Water."</li> </ul> </li> <li>Toilets: <ul style="list-style-type: none"> <li>Toilets shall be provided according to EM-385-1-1-02 E.</li> <li>Where hand washing stations are not feasible, portable toilets on site shall be equipped with at least hand sanitizer.</li> <li>Adequate lighting and ventilation must be provided in portable toilets.</li> <li>Toilet facilities shall be inspected daily as part of the regular daily site safety inspection to identify sanitation, supplies and housekeeping needs.</li> <li>Portable toilets must be serviced on a regular basis.</li> </ul> </li> </ol>	<b>L</b>

<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Unauthorized Personnel in the Construction Zone	<ul style="list-style-type: none"> <li>Establish perimeters by barricading work areas and erecting warning signs on a security fence.</li> <li>Access to the fence demolition areas will be restricted using barricades if needed.</li> <li>All visitors and workers must be briefed by the SSHO and review and sign the project APP prior to entering the construction work zone.</li> <li>All associates on site must be familiar with the APP.</li> <li>All associates on site will review site specific AHA's.</li> <li>Remove non-essential personnel from the work zone immediately.</li> </ul>	<b>L</b>
	Smoking in The Construction Work Zone.	<ul style="list-style-type: none"> <li>Smoking and tobacco products can only be done in areas approved by RVAAP.</li> </ul>	<b>L</b>
	Fires	<ul style="list-style-type: none"> <li>ABC fire extinguisher, rated not less than 10B, shall be provided within 50 feet Personnel potentially utilizing fire extinguishers must be adequately trained. Subcontractors shall provide proof of training. In the event of a fire, immediately contact the Security Guard at Post #1 who will contact the Fire Department.</li> <li>Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A:B:C extinguisher.</li> <li>If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> <li>All fire extinguishers must be inspected monthly to ensure that they are in proper working condition.</li> </ul>	<b>L</b>
<b>Mobilization: Travel to the Project Site.</b>	Loading Equipment and Attachments.	<ul style="list-style-type: none"> <li>Tie down and secure all materials, equipment and loads.</li> <li><b>Inspect</b> load prior to leaving shop.</li> </ul>	<b>L</b>
	Hazards Traveling to the Work Site, Road Hazards such as wet pavement, traffic construction, and speed limits.	<ul style="list-style-type: none"> <li><b>Be Aware</b> of all conditions while driving.</li> <li>Keep safe distances from vehicles in front.</li> <li>Adhere to all traffic laws.</li> </ul>	<b>L</b>
	Pedestrians, Other Workers, and Parking	<ul style="list-style-type: none"> <li>Park only where permitted.</li> <li>Keep heavy equipment from pedestrian traffic until site is setup.</li> </ul>	<b>L</b>
<b>Mobilization: Travel to the Project Site. (Cont'd)</b>	Not knowing project conditions or safety hazards	<ul style="list-style-type: none"> <li>Meet with Project SSHO to review project scope, hazards, and procedures.</li> <li>Read, know and sign HASP/ AHA's.</li> <li><b>Do not</b> start any work activity before reviewing the AHA for that specific activity.</li> </ul>	<b>L</b>

<b>Constructing and Removing Containment</b>	Falls from Portable Ladders	<ul style="list-style-type: none"> <li>▪ Ladders shall be placed with a secure footing, or they shall be lashed, or held in position.</li> <li>▪ Ladders used to gain access to a roof or other area shall extend at least 3 feet above the point of support.</li> <li>▪ Associate shall always face the ladder when climbing up or down.</li> <li>▪ Associate will keep three points of contact while on ladders.</li> <li>▪ Ladders shall never be used in the horizontal position as scaffolds or work platforms.</li> <li>▪ The top of a regular stepladder shall not be used as a step.</li> <li>▪ Metal ladders shall never be used near electrical equipment.</li> <li>▪ Portable stepladders longer than 20 feet shall not be used.</li> <li>▪ Single ladders longer than 30 feet shall not be used.</li> <li>▪ Extension ladders longer than 60 feet shall not be used.</li> <li>▪ Ladders shall be inspected frequently and those which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use."</li> </ul>	<b>L</b>
	Injury from Hand Tools	<ul style="list-style-type: none"> <li>▪ Operate according to the manufacturer's instructions.</li> <li>▪ Associates will be familiar with the proper use of the tool being used.</li> <li>▪ Tools will be maintained according to manufacturer's recommendations.</li> <li>▪ Tools will be inspected before each use.</li> <li>▪ Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>▪ Secure work with clamps or a vise, freeing both hands to operate the tool.</li> <li>▪ Be sure to keep good footing and maintain good balance.</li> <li>▪ The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.</li> <li>▪ Work areas should be well lighted.</li> <li>▪ Tools should never be pointed at other associate.</li> <li>▪ Use the right tool for the job.</li> </ul>	<b>L</b>
	Electrical Shock Hazards (Power Tools and Extension Cords)	<ul style="list-style-type: none"> <li>▪ Operate according to the manufacturer's instructions.</li> <li>▪ Associates will be familiar with the proper use of the tool being used.</li> <li>▪ Tools will be inspected before each use.</li> <li>▪ Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>▪ Use GFCI for all electrical tools.</li> <li>▪ Never carry a tool by the cord or hose.</li> <li>▪ Never yank the cord or the hose to disconnect it from the receptacle.</li> <li>▪ Keep cords and hoses away from heat, oil, and sharp edges.</li> <li>▪ Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.</li> </ul>	<b>L</b>



<b>Constructing and Removing Containment (Cont'd)</b>	Eye Hazards	<ul style="list-style-type: none"> <li>Suitable eye protection will be provided where there is a potential for eye injury from machines, flying objects, glare, liquids, injurious radiation, or a combination of these. Eye Protection must meet the following minimum requirements: <ul style="list-style-type: none"> <li>Adequately protect against the particular hazards for which they are designed</li> <li>Be reasonably comfortable when worn under the designated conditions</li> <li>Fit snugly without interfering with the movements or vision of the wearer</li> <li>Be durable</li> <li>Be capable of being disinfected</li> <li>Be easily cleanable</li> <li>Be kept clean and in good repair</li> </ul> </li> </ul>	L
	Manual Material Handling	<ul style="list-style-type: none"> <li>Personnel shall ensure that they observe proper lifting techniques and shall minimize movements such as over reaching, bending and twisting.</li> <li>Personnel shall not lift more than 50 lbs. without help from a co-worker(s) or mechanical assistance.</li> <li>Use a dolly or other mechanical method when practical.</li> </ul>	L
<b>Removal of Lead Based Paint</b>  <b>Note: Lead is most dangerous when it is in the air as a fume or dust. Ensure only trained personnel are performing lead abatement activities and all safety precautions are being followed.</b>	Exposure to Lead	<ul style="list-style-type: none"> <li>All associates exposed to lead based paint will review and have a clear understanding of the Lead Abatement Plan that has been developed by TolTest for this project.</li> <li>All associates will complete all task in accordance with the guidelines set forth in the Lead Abatement Plan.</li> <li>Whenever possible TolTest will remove materials coated with lead based paint as a whole component with the paint firmly adhered.</li> <li>The removal of lead based paint will be performed inside a lead control area identified by posting lead hazard signs and red danger tape.</li> <li>Lead paint will be removed from the surface of an item to be saw cut using Peel Away chemical paint remover.</li> <li>Grinding, sanding, heating, torching, and other actions that may cause the lead constituent of the paint to become airborne will be prohibited.</li> <li>All associates performing Lead Paint Removal Activities will be required to wear Level C PPE to include: <ul style="list-style-type: none"> <li>Disposable fabric protective coveralls (Tyvek or similar)</li> <li>Inner gloves</li> <li>Appropriate work gloves</li> <li>Safety Toed Boots</li> <li>ANSI Z87 approved safety glasses</li> <li>Hard hat or bump cap as applicable</li> <li>NIOSH Approved half face air purifying respirator with P100 filter</li> <li>Taped interfaces</li> </ul> </li> </ul>	L

	Respiratory Hazards	<ul style="list-style-type: none"> <li>▪ Air monitoring will include the collection of personal and excursion air samples as described in OSHA 29 CFR 1926.1101.</li> <li>▪ Air monitoring samples will be collected in accordance with NIOSH 7300 or 7082 and OSHA 29 CFR 1926.62</li> <li>▪ All associates required to wear air purifying respirators must have a current (within one year) Physician's Written Opinion being medically cleared to wear a respirator.</li> <li>▪ Associates will also have a current fit test (within one year) to wear a respirator.</li> <li>▪ <b>Work Wet, Work Smart, and Work Clean. DO NOT GENERATE DUSTS.</b> It is easier to effectively clean an area when dusts are not being generated to resettle on previously cleaned areas! Worker exposures may be high during wet sweeping.</li> </ul>	<b>L</b>
<b>Removal of Lead Based Paint (Cont'd)</b>  <b>Note: Lead is most dangerous when it is in the air as a fume or dust. Ensure only trained personnel are performing lead abatement activities and all safety precautions are being followed.</b>	Injury from Hand Tools	<ul style="list-style-type: none"> <li>▪ Operate according to the manufacturer's instructions.</li> <li>▪ Associates will be familiar with the proper use of the tool being used.</li> <li>▪ Tools will be maintained according to manufacturer's recommendations.</li> <li>▪ Tools will be inspected before each use.</li> <li>▪ Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>▪ Secure work with clamps or a vise, freeing both hands to operate the tool.</li> <li>▪ Be sure to keep good footing and maintain good balance.</li> <li>▪ The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.</li> <li>▪ Work areas should be well lighted.</li> <li>▪ Tools should never be pointed at other associate.</li> <li>▪ <b>Use the right tool for the job.</b></li> </ul>	<b>L</b>
	Manual Material Handling During Load Out of Materials Removed.	<ul style="list-style-type: none"> <li>▪ Personnel shall ensure that they observe proper lifting techniques and shall minimize movements such as over reaching, bending and twisting.</li> <li>▪ Personnel shall not lift more than 50 lbs. without help from a co-worker(s) or mechanical assistance.</li> <li>▪ Use a dolly or other mechanical method when practical.</li> </ul>	<b>L</b>

	Falls from Portable Ladders	<ul style="list-style-type: none"> <li>▪ Ladders shall be placed with a secure footing, or they shall be lashed, or held in position.</li> <li>▪ Ladders used to gain access to a roof or other area shall extend at least 3 feet above the point of support.</li> <li>▪ Associate shall always face the ladder when climbing up or down.</li> <li>▪ Associate will keep three points of contact while on ladders.</li> <li>▪ Ladders shall never be used in the horizontal position as scaffolds or work platforms.</li> <li>▪ The top of a regular stepladder shall not be used as a step.</li> <li>▪ Metal ladders shall never be used near electrical equipment.</li> <li>▪ Portable stepladders longer than 20 feet shall not be used.</li> <li>▪ Single ladders longer than 30 feet shall not be used.</li> <li>▪ Extension ladders longer than 60 feet shall not be used.</li> <li>▪ Ladders shall be inspected frequently and those which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use."</li> </ul>	L
<b>Removal of Lead Based Paint (Cont'd)</b>  <b>Note: Lead is most dangerous when it is in the air as a fume or dust. Ensure only trained personnel are performing lead abatement activities and all safety precautions are being followed.</b>	Eye Hazards	<ul style="list-style-type: none"> <li>▪ Suitable eye protection will be provided where there is a potential for eye injury from machines, flying objects, glare, liquids, injurious radiation, or a combination of these. Eye Protection must meet the following minimum requirements: <ul style="list-style-type: none"> <li>▪ Adequately protect against the particular hazards for which they are designed</li> <li>▪ Be reasonably comfortable when worn under the designated conditions</li> <li>▪ Fit snugly without interfering with the movements or vision of the wearer</li> <li>▪ Be durable</li> <li>▪ Be capable of being disinfected</li> <li>▪ Be easily cleanable</li> <li>▪ Be kept clean and in good repair</li> </ul> </li> </ul>	L

Decontaminate from Contaminated Work Area	Exposure to Lead While Decontaminating	<ul style="list-style-type: none"> <li>▪ Use a HEPA (high-efficiency particulate air) vacuum – never use a conventional vacuum. A HEPA vacuum removes 99.97% of particles that are less than 0.3 microns in size.</li> <li>▪ Be familiar with the Decon procedures.</li> <li>▪ Never use compressed air; never dry sweep.</li> <li>▪ Workers must wear a respirator which is approved by NIOSH and has N100, P100 or R100 filters (the cartridges are usually purple); respirators must be fit-tested to insure proper seal, and employees must be medically screened and trained prior to wearing a respirator (see the OSHA Respirator Standard, 29 CFR 1910.134).</li> <li>▪ Workers must wear full-body protective clothing, head covering and shoes (or shoe covers). </li> <li>▪ Eating, drinking and smoking are prohibited in work areas. Workers must wash hands and face before eating, drinking or smoking.</li> <li>▪ Workers must remove work clothes and shoes before leaving the work area, and seal work clothes in plastic.</li> <li>▪ Shower and wash hair as soon as possible after leaving the work area.</li> <li>▪ Non-disposable work clothes must be washed separately from other clothes.</li> <li>▪ Ensure that the respirator is the last piece of PPE to be removed in the clean room.</li> </ul>	<b>L</b>
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Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Hand and Power Tools	Subcontractors – Proof of training to operate tools/equipment TolTest personnel – Web Based Hazard Recognition Training, Web Based Hand and Power Tools – Construction Training.	Inspect all tools according to manufacturer’s instructions prior to use.
Fire Extinguisher	Subcontractors – Proof of Fire Extinguisher Training. TolTest personnel – Web-Based Fire Safety Training.	Check to see if charged. Check to see if pin has been removed. Check hose. Ensure monthly inspections are conducted and documented on the tag affixed to the extinguisher.
First Aid Kit	First Aid CPR Certified – Chris Warren/Karen Radomski Competent Persons. Subcontractors – Proof of blood borne pathogen training. TolTest personnel – Annual Web-Based Blood Borne Pathogen Training.	Inspect every three months, after each use, and replenish first aid supplies as needed.
Personal Protective Equipment	Subcontractor – Proof of Construction PPE Training. TolTest personnel – Web-Based Eye Safety Training, Web-Based Personal Protective Equipment Training, Web-Based Hand Safety	PPE must be inspected prior to use, damaged PPE must be replaced immediately.
All Workers	Subcontractors – Proof of Hazard Communication Training, Company Certification of Drug and Alcohol Free Workplace, Proof of Safe Lifting Training. Proof of two-hour Lead Awareness Training. TolTest personnel – Web-Based Hazard Communication Training, Web-Based Drug Testing Awareness Training, Web-Based Back Safety and Muscles Strains and Sprains Courses. Web Based Lead Awareness Training, Web Based Respiratory Protection Training	
Ladders	Subcontractors – Proof of Ladder Training TolTest Personnel –Web Based Ladder Safety Training	<b>All</b> Ladders are to be inspected prior to use. <b>Damaged</b> ladders are not permitted on site.

Prepared By:	Christopher Warren		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
Reviewed By:	Richard L. Barcum, CIH, CSP, CHMM		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
SSHO / Presented By:			
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
AHA Discussed with Crew at Preparatory Meeting Held On: _____.			
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
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<i>Print Name</i>	<i>Signature</i>	<i>Date</i>

### Activity Hazard Analysis (AHA)

<b>Activity/Work Task: Store and Transport White Phosphorus Contaminated Soil</b>	<b>Overall Risk Assessment Code (RAC) (Use highest code)</b>					<b>M</b>
<b>Project Location: Ravenna Army Ammunition Plant (RVAAP)</b>	<b>Risk Assessment Code (RAC) Matrix</b>					
<b>Contract Number: W912QR-04-D-0038</b>	<b>Severity</b>	<b>Probability</b>				
<b>Date Prepared: 1/28/2011</b>		Frequent	Likely	Occasional	Seldom	Unlikely
<b>Prepared by (Name/Title): Malcolm D. Jacobs, MSM, STS, Health and Safety Supervisor</b>	Catastrophic	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>
	Critical	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>
<b>Reviewed by (Name/Title): Richard L. Barcum, CIH, CSP, CHMM Corporate Health and Safety Director</b>	Marginal	<b>H</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>
	Negligible	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Notes:</b> (Field Notes, Review Comments, etc.) 1. Smoking and tobacco products can only be done in areas approved by RVAAP 2. For all Emergencies call Post #1 at <b>330-358-2017</b> 3. Fork Lift Competent person is: 4. HAZMAT Competent persons are: Chris Warren, Karen Radomski, Scott Bundy, Seth Leech, John Maltu 5. PIKA Competent person for spills is: TBD	Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)					
	<b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				<b>RAC Chart</b>	
	<b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				<b>E = Extremely High Risk</b>	
					<b>H = High Risk</b>	
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.				<b>M = Moderate Risk</b>	
<b>L = Low Risk</b>						

Activity	Hazard	Recommended Controls	RAC
General Safety Requirements for all Posted Construction Work Zones	Exposure to all Work Activities in the Construction Work Zone	1. Personal Protective Equipment for daily duties: Modified Level D <ul style="list-style-type: none"> <li>Long Pants</li> <li>Shirts with Sleeves</li> <li>Hard hat or bump cap as applicable</li> <li>Saranex (or equivalent) chemical protective clothing</li> <li>Cotton or leather work gloves</li> <li>Silvershield inner gloves</li> <li>Taped interfaces</li> <li>Safety Toed Boots.</li> <li>ANSI Z87 approved chemical safety goggles</li> <li>Class II High Visibility Vest (When Working Around Moving Equipment)</li> <li>Knee Pads as needed</li> <li>Chemical splash shield</li> </ul>	L

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Heat Stress	<ol style="list-style-type: none"> <li>1. Personnel will be monitored for heat stress and will maintain adequate hydration.</li> <li>2. An adequate supply of drinking water shall be provided in all places of employment. Cool water with disposable cup shall be provided during hot weather.</li> <li>3. Adjust work schedules, rotate personnel, and add additional personnel if needed.</li> <li>4. Replenish fluids (e.g. – water, electrolytes) as needed.</li> <li>5. Consider personnel and environmental monitoring plans.</li> <li>6. Know the warning signs of heat related illnesses.</li> <li>7. Provide shelter for personnel in shaded areas.</li> <li>8. Where possible, block out sun or other direct sources of heat from fixed work locations.</li> <li>9. Prevent sun related overexposure to skin by using a sunscreen lotion with a significant sun protection factor (SPF) of 15 or greater.</li> <li>10. Review the APP Heat Stress Section.</li> </ol>	<b>L</b>
	Cold Stress	<ol style="list-style-type: none"> <li>1. When Temperatures are below 61°F, TolTest implement Cold Stress Prevention, and personnel will be monitored for cold stress.</li> <li>2. When working in cold environments monitor your work.</li> <li>3. Wear layered clothing as it helps maintain body heat.</li> <li>4. Personnel will be evaluated daily to ensure they are properly clothed and able to work in the anticipated cold/wet conditions anticipated for that day by the HSSO and supervisors.</li> <li>5. Get into heated shelter as necessary to maintain body temperature.</li> <li>6. Replace wet clothing immediately.</li> <li>7. Drink warm fluids often.</li> <li>8. Wear adequate clothing to reduce threat of cold stress.</li> <li>9. Know the signs of cold stress.</li> <li>10. Wear gloves when touching metal.</li> <li>11. Check face and finger tips for signs of cold injuries.</li> <li>12. Do not re-warm extremities with direct heat.</li> <li>13. Review the APP Cold Stress section.</li> </ol>	<b>L</b>
	Incidents	<ol style="list-style-type: none"> <li>1. All incidents, including near misses, regardless of severity shall be reported according to the APP.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
General Safety Requirements all Posted Construction Work Zones (Cont'd)	Insect Bites and Biological hazards	<ol style="list-style-type: none"> <li>1. Use insect repellent when necessary to avoid insect bites.</li> <li>2. Report insect bites/stings in accordance with the APP.</li> <li>3. Monitor victims of insect bites/stings for allergic reactions.</li> <li>4. During both mobilization and demobilization, it is anticipated that biological hazards will exist. Biological hazards that may be encountered include stinging and biting insects, hazardous plants, and snakes.</li> <li>5. Insect repellent will be used by site personnel as needed to repel hazardous insects.</li> <li>6. Site personnel will report to the SSHO and their supervisor the presence of any hazardous animals, insects or plants.</li> <li>7. Do not feed or pet any wild life.</li> </ol>	L
	Sanitation	<ol style="list-style-type: none"> <li>1. Housekeeping: <ul style="list-style-type: none"> <li>▪ Work site should be kept as clean as possible.</li> <li>▪ Regular cleaning of the site shall be conducted to maintain safe and sanitary conditions in the workplace.</li> <li>▪ Walking and working surfaces shall be kept as dry as possible to reduce slip hazards.</li> <li>▪ Every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, clutter, and unnecessary holes and openings.</li> </ul> </li> <li>2. Drinking Water: <ul style="list-style-type: none"> <li>▪ An adequate supply of potable water shall available to workers for drinking and cleaning.</li> <li>▪ Water must be cool drinking water especially in hot environments.</li> <li>▪ Drinking water shall be dispensed by means that prevent contamination between the consumer and the water source.</li> <li>▪ All drinking water shall be clearly marked "Drinking Water."</li> </ul> </li> <li>3. Toilets: <ul style="list-style-type: none"> <li>▪ Toilets shall be provided according to EM-385-1-1-02 E.</li> <li>▪ Where hand washing stations are not feasible, portable toilets on site shall be equipped with at least hand sanitizer.</li> <li>▪ Adequate lighting and ventilation must be provided in portable toilets.</li> <li>▪ Toilet facilities shall be inspected daily as part of the regular daily site safety inspection to identify sanitation, supplies and housekeeping needs.</li> <li>▪ Portable toilets must be serviced on a regular basis.</li> </ul> </li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Unauthorized Personnel in the Construction Zone	<ol style="list-style-type: none"> <li>1. Establish perimeters by barricading work areas and erecting warning signs on a security fence.</li> <li>2. Access to the fence demolition areas will be restricted using barricades if needed.</li> <li>3. All visitors and workers must be briefed by the SSHO and review and sign the project APP prior to entering the construction work zone.</li> <li>4. All associates on site must be familiar with the APP.</li> <li>5. All associates on site will review site specific AHA's.</li> <li>6. Remove non-essential personnel from the work zone immediately.</li> </ol>	<b>L</b>
	Smoking in The Construction Work Zone	<ol style="list-style-type: none"> <li>1. Smoking and tobacco products can only be done in areas approved by RVAAP.</li> </ol>	<b>L</b>
	Fires	<ol style="list-style-type: none"> <li>1. ABC fire extinguisher, rated not less than 10B, shall be provided within 50 feet Personnel potentially utilizing fire extinguishers must be adequately trained. Subcontractors shall provide proof of training. In the event of a fire, immediately contact the Security Guard at Post #1 who will contact the Fire Department.</li> <li>2. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>3. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> <li>4. All fire extinguishers must be inspected monthly to ensure that they are in proper working condition.</li> </ol>	<b>M</b>
	Injures from contact	<ol style="list-style-type: none"> <li>1. <b>First Aid:</b> Seek medical attention for further treatment, observation and support after first aid.</li> <li>2. Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.</li> <li>3. Eye: Immediately flush with fresh water for 15 minutes.</li> <li>4. External: Wash continuously with fresh water for 15 minutes.</li> <li>5. Internal: In case of any accidental ingestion of chemicals call poison control at once at <b>800-222-1222</b> or a physician. Provide information from label of product and MSDS.</li> </ol>	<b>M</b>
<b>Mobilization: Travel to the Project Site</b>	Loading Equipment and Attachments	<ol style="list-style-type: none"> <li>1. Tie down and secure all materials, equipment and loads.</li> <li>2. Inspect load prior to leaving work shop.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Mobilization: Travel to the Project Site (Cont'd)</b>	Hazards Traveling to the Work Site, Road Hazards such as Wet Pavement, Traffic Construction, and Speed Limits	<ol style="list-style-type: none"> <li>1. Be aware of all conditions while driving.</li> <li>2. Keep safe distances from vehicles in front.</li> <li>3. Adhere to all traffic laws.</li> </ol>	<b>L</b>
	Pedestrians, Other Workers, and Parking	<ol style="list-style-type: none"> <li>1. Park only where permitted.</li> <li>2. Keep heavy equipment from pedestrian traffic until site is setup.</li> </ol>	<b>L</b>
	Not Knowing Project Conditions or Safety Hazards	<ol style="list-style-type: none"> <li>1. Meet with Project SSHO to review project scope, hazards, and procedures.</li> <li>2. Read, know and sign HASP/ AHA's.</li> <li>3. Do not start any work activity before reviewing the AHA or applicable MSDS for that specific activity.</li> </ol>	<b>L</b>
<b>White Phosphorus Storage, Shipping, and Container Management</b> a. Properly labeled in accordance with the Waste Management Plan section 2.0 b. Properly stored at the RVAAP drum staging area located within the Wet Storage Area for future transportation disposal c. Inspect containers	General	<ol style="list-style-type: none"> <li>1. Site personnel will be given task-specific briefings daily regarding the hazards associated with the task and the procedures used to control/mitigate the hazards. All personnel inside exclusion zone will wear a minimum of Modified Level D PPE as specified in this AHA and the SSHP. All TolTest subcontractors will be required to read and sign-off on the APP and AHA's.</li> </ol>	<b>L</b>
	Unauthorized Entry/Site Access Control	<ol style="list-style-type: none"> <li>1. Site personnel will maintain a constant watch for intrusion of unauthorized personnel.</li> <li>2. Positive site access control will be established prior to on-site operations using barricades, signs or other methods to prevent unauthorized access during tasks that could cause exposure to WP or other ES&amp;H hazards.</li> </ol>	<b>L</b>



Activity	Hazard	Recommended Controls	RAC
	Adverse Weather	<ol style="list-style-type: none"> <li>1. When there are warnings or indications of impending severe weather, conditions will be monitored and appropriate precautions taken to protect personnel and property as specified in the APP.</li> <li>2. When there are warnings or indications of impending severe weather (heavy rains, thunderstorms, damaging winds, tornados, hurricanes, floods, lightning, etc.), weather conditions shall be monitored using a weather station that is part of the National Oceanic and Atmospheric Administration (NOAA) weather radio all hazards network or similar notification system. Appropriate precautions shall be taken to protect personnel and property from the effects of the severe weather.</li> <li>3. Stop work will be reviewed by site supervisors for other limiting weather conditions such as high winds, rain, etc.</li> <li>4. The determination to restart operations will be the responsibility of the site supervisor after ensuring site conditions are safe for re-entry and continuation of operations.</li> </ol>	L
<b>White Phosphorus Storage and Shipping Container Management (Cont'd)</b>	Slips Trips and Falls	<ol style="list-style-type: none"> <li>1. All personnel will maintain clean work areas to remove trip hazards and will be aware of uneven walking and working surfaces.</li> <li>2. Good housekeeping procedures will be implemented.</li> <li>3. Use three points of contact when entering/exiting equipment.</li> </ol>	L
	Physical Strain	<ol style="list-style-type: none"> <li>1. Personnel will be cautioned about physical strain associated with strenuous activities that may be conducted at the site.</li> <li>2. Personnel will use caution to not over exert themselves or overstrain muscles and joints.</li> <li>3. Proper lifting techniques will be emphasized.</li> <li>4. Personnel will be cautioned of the higher potential for straining muscles in cold weather and for the need to stretch and work at a controlled pace.</li> </ol>	L
	WP Spills, Leaking Containers/Drums during storage	<ol style="list-style-type: none"> <li>1. Air monitoring and air sampling will be conducted as outlined in the SSHP (Section 7.0 and Section 10.3).</li> <li>2. In the event that air monitoring indicates an uncontrolled emission of WP or Phosphine or a visible leak is observed, all personnel are required to evacuate the area immediately as outlined in the SSHP (Section 7.2). The Onsite Technical Manager and the SSHO will immediately implement the contingencies outlined in the WP Disposal Contingency Plan.</li> <li>3. Section 17.2.9 of the SSHP addresses Drum Handling and Transportation. Prior to working on this activity, all personnel involved are required to thoroughly re-review Section 17.2.9 of the SSHP.</li> </ol>	M

Activity	Hazard	Recommended Controls	RAC
	Leaking drums during transportation	<ol style="list-style-type: none"> <li>1. Do not touch material.</li> <li>2. Wear the proper PPE as specified in the SSHP.</li> <li>3. If there is smoke immediately evacuate the area and activate the spill plan.</li> <li>4. In event of emergency spill, leak, or other emergency during transportation Triad Transport is monitored 24 hours by GPS tracking Driver will notify dispatch who in turn notifies the local police and fire departments first to help secure the area. Following notification of police Triad will notify the names provided on the manifest to include Ohio EPA, and TolTest.</li> <li>5. In the event of an accident or incident while the truck is in route from Ravenna to Sauget, the Triad driver will call the following people in this order: <ol style="list-style-type: none"> <li>1. Security Guard at Post #1 <b>330-358-2017</b> – Fire and Rescue.</li> <li>2. Safety Director Houston Brittain <b>800-324-1139</b> X417 or 918-916-6944 Cell, The Safety Director for Triad will be responsible for contacting the National Spill Response Hotline, Veolia's Emergency Response Team and the Triad Operations Manager. The Triad Operations Manager will contact the Regional Vice President for Triad who in turn will notify the Veolia team.</li> </ol> </li> </ol>	<b>M</b>
<b>White Phosphorus Storage and Shipping Container Management (Cont'd)</b>	Struck by Caught Between Hazards	<ol style="list-style-type: none"> <li>1. Persons exposed to vehicular or equipment traffic at speeds up to 45 mph. including signal between persons, spotters, or inspectors, shall wear high visibility vests meeting ANSI/SEA 107 Class 2 requirements. Workers exposed to vehicle traffic in excess of 45 mph shall wear ANSI 107 Class III vests.</li> <li>2. Operators of heavy equipment shall ensure that back up alarms are in working order prior to the start of their shift. If equipment is not equipped with a back up alarm or if the back- up alarm is not working, a spotter shall be used anytime the equipment is moving.</li> <li>3. Workers, supervisors, inspectors and visitors shall pay attention to their body positioning at all times to prevent being struck by or caught between equipment and materials on site.</li> <li>4. Ensure only qualified and authorized equipment operators are permitted to operate equipment.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
	Storage and reaction with other Chemicals	<ol style="list-style-type: none"> <li>1. Store all WP containers with labels plainly visible.</li> <li>2. Air monitoring and air sampling will be conducted as outlined in the SSHP (Section 7.0 and Section 10.3).</li> <li>3. Containers should be checked daily to ensure that lids are tight and containers are not damaged or each time handled.</li> <li>4. They should be stored in rows to provide effective access.</li> <li>5. Provide complete inventory of the WP contained in the storage area. This should be conspicuously posted at the work site and given to the local fire department along with the name and phone number of the superintendent, TolTest Health and safety department as well as the RVAAP points of contact.</li> <li>6. RVAAP personnel will be given a brief regarding the hazards associated with the stored material and the procedures used to control/mitigate hazards so they understand the risk and will responded to emergencies following their procedures and emergency action plans.</li> <li>7. White Phosphorus reacts violently with oxidizers halogens, some metals, nitrites, sulfur, and many other compounds, causing a fire and explosion hazards. <b>Do not store other hazardous material with the WP containers.</b></li> <li>8. Segregate from other chemicals.</li> <li>9. Modified Level D PPE as specified in this AHA and the SSHP is required for this activity.</li> </ol>	M
<b>White Phosphorus Storage and Shipping Container Management (Cont'd)</b>	Eye Exposure Eye during inspection of staged drums	<ol style="list-style-type: none"> <li>1. Wear protective glasses while handling drums.</li> <li>2. Wet material before cleaning or moving to prevent dust.</li> <li>3. Avoid splashing or getting debris in eyes.</li> <li>4. Inventorying and check drums safety glasses with side shields.</li> <li>5. Opening of drums is strictly prohibited.</li> <li>6. Modified Level D PPE as specified in this AHA and the SSHP is required for this activity.</li> </ol>	M
	Fork Lift Accident While Handling WP	<ol style="list-style-type: none"> <li>1. Operate equipment in strict accordance with Manufacturer's instructions.</li> <li>2. Report any observed defect or safety hazard to your supervisor immediately.</li> <li>3. Keep hands, hair and loose clothing clear of all moving parts.</li> <li>4. Ensure load is secure to prevent from accidently tipping and falling from fork left.</li> <li>5. Ensure that area is clear of hazards before transporting and loading drums.</li> <li>6. Wear seatbelts.</li> <li>7. Do not operate cell phone.</li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
	Transport of WP	<ol style="list-style-type: none"> <li>1. Check to ensure containers are not damaged before loading.</li> <li>2. Transport only the amount of containers of WP that the truck or equipment is rated for.</li> <li>3. Secure containers with straps before transporting.</li> </ol>	<b>L</b>
	Injuries From Not Being Alert	<ol style="list-style-type: none"> <li>1. Take personal responsibility for your safety.</li> <li>2. Maintain self awareness of your activities and surroundings.</li> <li>3. Always be alert and communicate your activities to your co-workers so that they understand what is taking place near their work areas.</li> <li>4. Mentally assess tasks before proceeding.</li> <li>5. First Aid: Seek medical attention for further treatment, observation and support after first aid.               <ol style="list-style-type: none"> <li>a. Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.</li> <li>b. Eye: Immediately flush with fresh water for 15 minutes.</li> <li>c. External: Wash continuously with fresh water for 15 minutes.</li> </ol> </li> <li>6. Internal: In case of accidental ingestion of chemicals call poison control at once at <b>800-222-1222</b> or a physician. Provide information from label of product and MSDS.</li> <li>7. When giving first aid wear protective gloves and safety glasses.</li> </ol>	<b>L</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
1. Personal Protective Equipment	1a. Subcontractor – Proof of Construction PPE Training. 1b. TolTest personnel - Web-Based Eye Safety Training, Web-Based Personal Protective Equipment Training, Web-Based Hand Safety	1a. PPE must be inspected prior to use, damaged PPE must be replaced immediately. 1b. An adequate supply of PPE must be available for workers and visitors.
2. Misc. Hand Tools and Power Tools	2a Subcontractors – Proof of training to operate tools/equipment 2b. TolTest personnel - Web Based Hazard Recognition Training, Web Based Hand and Power Tools – Construction Training.	2b. Check tools according to manufacturer's guidelines. 2b. Hand tools should be check for nicks, chips. 2b. Power tools should be checked to ensure that all guards are in place.
3. All Workers	3a. Subcontractors – Proof of Hazard Communication Training, Company Certification of Drug and Alcohol Free Workplace, Proof of Safe Lifting Training. 3b. TolTest personnel – Web-Based Hazard Communication Training, Web-Based Drug Testing Awareness Training, Web-Based Back Safety and Muscles Strains and Sprains Courses	
4. Fire Extinguishers	4a. Subcontractors – Proof of Fire Extinguisher Training. 4b. TolTest personnel - Web-Based Fire Safety Training.	4a. Documented monthly inspections are to be done: a. Check to see if charged b. Check to see if pin has been removed c. Check hose
5. First Aid Kits	5a. First Aid CPR Certified – Karen Radomski, and Chris Warren -Competent Persons. 5b. Subcontractors provide proof of blood borne pathogen training. 5c. TolTest personnel – Annual Web Based Blood Borne Pathogen Training.	5a. Inspect every three months, after each use, and replenish first aid supplies as needed.
6. Eye Wash Station		6a. Documented monthly Inspections
7. Heavy Equipment to Include, but Not Limited to Forklift, Skid Steers and Dump Trucks	7a. Operators must be trained and certified by an accredited agency. Proof of training must be available upon request	7a. Perform daily documented inspections according to the manufacturer's recommendations on all components and accessories
8. Manual Material Handling	8a. Subcontractors -Proof of Back Safety Training and Proper Lifting Techniques Training 8b. TolTest Personnel – Web Based Back Safety Training Course.	

Prepared By:	Malcolm D. Jacobs, MSM, STS, Health and Safety Supervisor		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
Reviewed By:	Richard L. Barcum, CIH, CSP, CHMM		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
SSHO / Presented By:			
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
AHA Discussed with Crew at Preparatory Meeting Held On:			
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	



### Activity Hazard Analysis (AHA)

<b>Activity/Work Task: Repair Cracks in the Concrete Wall</b>	<b>Overall Risk Assessment Code (RAC) (Use highest code)</b>					<b>L</b>
<b>Project Location: Ravenna Army Ammunitions Plant</b>	<b>Risk Assessment Code (RAC) Matrix</b>					
<b>Contract Number: W912QR-04-D-0038</b>	<b>Severity</b>	<b>Probability</b>				
<b>Date Prepared: 01/28/2010</b>		Frequent	Likely	Occasional	Seldom	Unlikely
<b>Prepared by (Name/Title): Malcolm D. Jacobs, MSM, STS, Health and Safety Supervisor</b>	Catastrophic	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>
	Critical	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>
<b>Reviewed by (Name/Title): Richard L. Barcum, CIH, CSP, CHMM Corporate Health and Safety Director</b>	Marginal	<b>H</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>
	Negligible	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Notes:</b> (Field Notes, Review Comments, etc.) 1. For all Emergencies call Post #1 at <b>330-358-2017</b> 2. Competent Supervisor is: Mike Hovis 3. Review the MSDS's for the Epoxy ( <b>ETILV Adhesive</b> ) used to repair concrete.	Step 1: Review each <b>"Hazard"</b> with identified safety <b>"Controls"</b> and determine RAC (See above)					
	<b>"Probability"</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				<b>RAC Chart</b>	
	<b>"Severity"</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				<b>E = Extremely High Risk</b>	
					<b>H = High Risk</b>	
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				<b>M = Moderate Risk</b>	
<b>L = Low Risk</b>						

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones</b>	Exposure to all Work Activities in the Construction Work Zone	1. Personal Protective Equipment: <ul style="list-style-type: none"> <li>▪ Long Pants</li> <li>▪ Shirts with Sleeves</li> <li>▪ Hardhat</li> <li>▪ Covered Shoes (Steel Toe Preferred) (Rubber Boots During during spill clean ups)</li> <li>▪ Safety Glasses (Potential Eye Hazard Areas)</li> <li>▪ Class II High Visibility Vest (When Working Around Moving Equipment)</li> <li>▪ Knee Pads as needed</li> <li>▪ Face shields (during spill cleanup Activities)</li> </ul> 2. PPE for working with site approved Cleaner and Resins: <ul style="list-style-type: none"> <li>▪ <b>HUSKY 902 NON-BUTYL INDUSTRIAL DETERGENT COMPLEX:</b> Level D and Splash goggles when pouring work in ventilated area</li> <li>▪ <b>ETILV22, ETILV010R, ETILV020R, ETILV050R - ETILV Resin :</b> Level D safety glasses and protective gloves</li> </ul>	<b>L</b>



Activity	Hazard	Recommended Controls	RAC
General Safety Requirements all Posted Construction Work Zones (Cont'd)	Heat and Cold Stress	<p>3. Hot Weather:</p> <ul style="list-style-type: none"> <li>Personnel will be monitored for heat stress and will maintain adequate hydration.</li> <li>An adequate supply of drinking water shall be provided in all places of employment. Cool water with disposable cup shall be provided during hot weather.</li> <li>Adjust work schedules, rotate personnel, and add additional personnel if needed.</li> <li>Replenish fluids (e.g. – water, electrolytes) as needed.</li> <li>Consider personnel and environmental monitoring plans.</li> <li>Know the warning signs of heat related illnesses.</li> <li>Provide shelter for personnel in shaded areas.</li> <li>Where possible, block out sun or other direct sources of heat from fixed work locations.</li> <li>Prevent sun related overexposure to skin by using a sunscreen lotion with a significant sun protection factor (SPF) of 15 or greater.</li> <li>Review the APP Heat Stress Section.</li> </ul> <p>4. Cold Weather</p> <ul style="list-style-type: none"> <li>When Temperatures are below 61°F, TolTest implement Cold Stress Prevention, and personnel will be monitored for cold stress.</li> <li>When working in cold environments monitor your work.</li> <li>Wear layered clothing as it helps maintain body heat.</li> <li>Personnel will be evaluated daily to ensure they are properly clothed and able to work in the anticipated cold/wet conditions anticipated for that day by the HSSO and supervisors.</li> <li>Get into heated shelter as necessary to maintain body temperature.</li> <li>Replace wet clothing immediately.</li> <li>Drink warm fluids often.</li> <li>Wear adequate clothing to reduce threat of cold stress.</li> <li>Know the signs of cold stress.</li> <li>Wear gloves when touching metal.</li> <li>Check face and finger tips for signs of cold injuries.</li> <li>Do not re-warm extremities with direct heat.</li> <li>Review the APP Cold Stress section.</li> </ul>	L
	Incidents	<p>1. <b>All incidents</b>, including near misses, regardless of severity shall be reported according to the APP.</p>	L

Activity	Hazard	Recommended Controls	RAC
General Safety Requirements all Posted Construction Work Zones (Cont'd)	Insect Bites and Biological hazards	<ol style="list-style-type: none"> <li>1. Use insect repellent when necessary to avoid insect bites.</li> <li>2. Report insect bites/stings in accordance with the APP.</li> <li>3. Observe victims of insect bites/stings for allergic reactions.</li> <li>4. During both mobilization and demobilization, it is anticipated that biological hazards will exist. Biological hazards that may be encountered include stinging and biting insects, hazardous plants, and snakes.</li> <li>5. Insect repellent will be used by site personnel as needed to repel hazardous insects.</li> <li>6. Site personnel will report to the HSSO and their supervisor the presence of any hazardous animals, insects or plants.</li> <li>7. Do not feed or pet any wildlife.</li> </ol>	L
	Sanitation	<ol style="list-style-type: none"> <li>1. Housekeeping: <ul style="list-style-type: none"> <li>▪ Work site should be kept as clean as possible.</li> <li>▪ Regular cleaning of the site shall be conducted to maintain safe and sanitary conditions in the workplace.</li> <li>▪ Walking and working surfaces shall be kept as dry as possible to reduce slip hazards.</li> <li>▪ Every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, clutter, and unnecessary holes and openings.</li> </ul> </li> <li>2. Drinking Water: <ul style="list-style-type: none"> <li>▪ An adequate supply of potable water shall available to workers for drinking and cleaning.</li> <li>▪ Water must be cool drinking water especially in hot environments.</li> <li>▪ Drinking water shall be dispensed by means that prevent contamination between the consumer and the water source.</li> <li>▪ All drinking water shall be clearly marked "Drinking Water."</li> </ul> </li> <li>3. Toilets: <ul style="list-style-type: none"> <li>▪ Toilets shall be provided according to EM-385-1-1-02 E.</li> <li>▪ Where hand washing stations are not feasible, portable toilets on site shall be equipped with at least hand sanitizer.</li> <li>▪ Adequate lighting and ventilation must be provided in portable toilets.</li> <li>▪ Portable toilets must be serviced on a regular basis.</li> <li>▪ Toilet facilities shall be inspected daily as part of the regular daily site safety inspection to identify sanitation, supplies and housekeeping needs.</li> </ul> </li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Unauthorized Personnel in the Construction Zone	<ol style="list-style-type: none"> <li>1. Establish perimeters by barricading work areas and erecting warning signs on a security fence.</li> <li>2. Access to the fence demolition areas will be restricted using barricades if needed.</li> <li>3. All visitors and workers must be briefed by the SSHO and review and sign the project APP prior to entering the construction work zone.</li> <li>4. All associates on site must be familiar with the APP.</li> <li>5. All associates on site will review site specific AHA's.</li> <li>6. Remove non-essential personnel from the work zone immediately.</li> </ol>	<b>L</b>
	Smoking in The Construction Work Zone	<ol style="list-style-type: none"> <li>1. Smoking and tobacco products can only be done in areas approved by RVAAP.</li> </ol>	<b>L</b>
	Fires	<ol style="list-style-type: none"> <li>1. ABC fire extinguisher, rated not less than 10B, shall be provided within 50 feet Personnel potentially utilizing fire extinguishers must be adequately trained. Subcontractors shall provide proof of training. In the event of a fire, immediately contact the Security Guard at Post #1 who will contact the Fire Department.</li> <li>2. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>3. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> <li>4. All fire extinguishers must be inspected monthly to ensure that they are in proper working condition.</li> </ol>	<b>L</b>
<b>Mobilization: Travel to the Project Site</b>	Loading Equipment and Attachments	<ol style="list-style-type: none"> <li>1. Tie down and secure all materials, equipment and loads.</li> <li>2. Inspect load prior to leaving work shop.</li> </ol>	<b>L</b>
	Hazards Traveling to the Work Site, Road Hazards such as Wet Pavement, Traffic Construction, and Speed Limits	<ol style="list-style-type: none"> <li>1. Be Aware of all conditions while driving.</li> <li>2. Keep safe distances from vehicles in front.</li> <li>3. Adhere to all traffic laws.</li> </ol>	<b>L</b>
	Pedestrians, Other Workers, and Parking	<ol style="list-style-type: none"> <li>1. Park only where permitted.</li> <li>2. Keep heavy equipment from pedestrian traffic until site is setup.</li> </ol>	<b>L</b>
	Not Knowing Project Conditions or Safety Hazards	<ol style="list-style-type: none"> <li>1. Meet with Project SSHO to review project scope, hazards, and procedures.</li> <li>2. Read, know and sign HASP/ AHA's.</li> <li>3. Do not start any work activity before reviewing the AHA or applicable MSDS for that specific activity.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Mobilization: Travel to the Project Site. (Cont'd)</b>	Slip, Trip, and Fall Hazards	<ol style="list-style-type: none"> <li>1. The work area shall be maintained in a clean condition so far as possible.</li> <li>2. Associates should be aware of the condition of work and surrounding areas.</li> <li>3. Personnel shall complete slips, trips and fall hazard training.</li> <li>4. Subcontractors shall provide proof of training.</li> </ol>	<b>L</b>
	Chemical Spills	<ol style="list-style-type: none"> <li>1. Review MSDS and follow the spill controls listed for: <ul style="list-style-type: none"> <li>▪ <b>HUSKY 902 NON-BUTYL INDUSTRIAL DETERGENT COMPLEX:</b> Use absorbent and return to container.</li> <li>▪ <b>ETILV22, ETILV010R, ETILV020R, ETILV050R - ETILV Resin:</b> Soak up with absorbent material such as clay, sand or other suitable nonreactive material. Place in leak-proof containers. Seal tightly for proper disposal.</li> <li>▪ <b>HUSKY 802 High Fragrance Detergent Disinfectant:</b> Contain spill and collect in plastic container. Rinse affected area thoroughly with water.</li> <li>▪ <b>Tarksol Superstrip:</b> Absorb residual material with an inert absorbent and shovel absorbed residue into properly identified drums for later disposal.</li> </ul> </li> <li>2. Spills will be contained and cleaned up immediately with the proper absorbents.</li> <li>3. Potential spills anticipated for this project will be small (&lt; 5 gal).</li> <li>4. Report spills to the SSHO.</li> <li>5. PPE requirements to clean up spills will be Level D - hardhat, safety glasses, steel-toe shoes, nitrile or neoprene gloves.</li> <li>6. Report all spills to your supervisors.</li> </ol>	<b>L</b>
<b>Install the Backer Rod and Apply Epoxy to Cracks</b>	Lacerations to Hands from Contact with Sharp Edges	<ol style="list-style-type: none"> <li>1. Associates should be aware of sharp edges and use caution while making contact with these areas.</li> <li>2. Cut and puncture resistance gloves should be worn.</li> <li>3. Work gloves (Cut and puncture resistance while handling material with sharp edges).</li> </ol>	<b>L</b>
	Falls from Step Ladders	<ol style="list-style-type: none"> <li>1. Ensure that every step ladder has slip resistant feet and is placed securely on the ground; remove debris from under the feet before placement.</li> <li>2. Body should stay within the plane of the ladder legs, move ladder rather than excessive leaning to the sides.</li> <li>3. The top of a regular stepladder shall not be used as a step.</li> <li>4. Maintain 3 points of contact at all times.</li> </ol>	<b>L</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
1. Personal Protective Equipment	1a. Subcontractor – Proof of Construction PPE Training. 1b. TolTest personnel - Web-Based Eye Safety Training, Web-Based Personal Protective Equipment Training, Web-Based Hand Safety	1a. PPE must be inspected prior to use, damaged PPE must be replaced immediately. 1b. An adequate supply of PPE must be available for workers and visitors.
2. Miscellaneous Hand Tools and Power Tools (Scrappers, Utility Knives, etc.)	2a. Subcontractors – Proof of training to operate tools/equipment. 2b. TolTest personnel - Web Based Hazard Recognition Training, Web Based Hand and Power Tools – Construction Training.	2. Check tools according to manufacturer's guidelines 2. Hand tools should be check for nicks, chips. 2. Power tools should be checked to ensure that all guards are in place.
3. All Workers	3a. Subcontractors – Proof of Hazard Communication Training, Company Certification of Drug and Alcohol Free Workplace, Proof of Safe Lifting Training. 3b. TolTest personnel – Web-Based Hazard Communication Training, Web-Based Drug Testing Awareness Training, Web-Based Back Safety and Muscles Strains and Sprains Courses.	
4. Fire Extinguishers	4a. Subcontractors – Proof of Fire Extinguisher Training. 4b. TolTest personnel - Web-Based Fire Safety Training.	4a. Documented monthly inspections are to be done. <ul style="list-style-type: none"> <li>▪ Check to see if charged</li> <li>▪ Check to see if pin has been removed</li> <li>▪ Check hose</li> </ul>
5. First Aid Kits	5a. First Aid CPR Certified Competent Persons: Mike Hovis, Karen Radomski, and Chris Warren. 5b. Subcontractors - proof of blood borne pathogen training. 5c. TolTest personnel – Annual Web Based Blood Borne Pathogen Training.	5a. Inspect every three months, after each use, and replenish first aid supplies as needed
6. Eye Wash Station		6a. Documented monthly Inspections
7. Manual Material Handling	7a. Subcontractors - Proof of Back Safety Training and Proper Lifting Techniques Training. 7b. TolTest Personnel – Web Based Back Safety Training Course.	7a. During daily site safety inspections the superintendent/SSHO observed lifting techniques practiced by TolTest and subcontractor personnel.
8. Chemicals (Epoxy)	8a. Subcontractors –Proof of HazCom Training. 8b. TolTest Personnel - Web Based HazCom Training.	8a Inspect all chemical to ensure that they are properly labeled. 8b. Inspect storage areas of chemicals for potential hazards. 8c. Ensure spill response equipment is on site and available near chemical storages and areas where chemicals are used.

Prepared By:	Malcolm Jacobs, MSM, STS		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
Reviewed By:	Richard L. Barcum, CIH, CSP, CHMM		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
SSHO / Presented By:			
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
AHA Discussed with Crew at Preparatory Meeting Held On: _____.			
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
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<i>Print Name</i>	<i>Signature</i>	<i>Date</i>

**Activity Hazard Analysis (AHA)**

<b>Activity/Work Task: Installation of Geo Textile, Gravel and Grading</b>	<b>Overall Risk Assessment Code (RAC) (Use highest code)</b>					<b>L</b>						
<b>Project Location: Ravenna Army Ammunition Plant</b>	<b>Risk Assessment Code (RAC) Matrix</b>											
<b>Contract Number: W912QR-04-D-0038</b>	<b>Severity</b>	<b>Probability</b>										
<b>Date Prepared: 01/28/2011</b>		Frequent	Likely	Occasional	Seldom	Unlikely						
<b>Prepared by (Name/Title): Christopher W. Warren, CHST Health and Safety Supervisor</b>	Catastrophic	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>						
	Critical	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>						
<b>Reviewed by (Name/Title): Richard L. Barcum, CIH, CSP, CHMM Corporate Health and Safety Director</b>	Marginal	<b>H</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>						
	Negligible	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>						
<b>Notes: (Field Notes, Review Comments, etc.)</b>	<p>Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)</p> <table border="1"> <tr> <td><b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.</td> <td align="center"><b>RAC Chart</b></td> </tr> <tr> <td><b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible</td> <td align="center"> <b>E = Extremely High Risk</b>  <b>H = High Risk</b>  <b>M = Moderate Risk</b> </td> </tr> <tr> <td>Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.</td> <td align="center"><b>L = Low Risk</b></td> </tr> </table>						<b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	<b>RAC Chart</b>	<b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	<b>E = Extremely High Risk</b> <b>H = High Risk</b> <b>M = Moderate Risk</b>	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.	<b>L = Low Risk</b>
<b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	<b>RAC Chart</b>											
<b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	<b>E = Extremely High Risk</b> <b>H = High Risk</b> <b>M = Moderate Risk</b>											
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.	<b>L = Low Risk</b>											

Activity	Hazard	Recommended Controls	RAC
General Safety Requirements all Posted Construction Work Zones	Exposure to Hot and Cold Weather	1. Personal Protective Equipment: <ul style="list-style-type: none"> <li>▪ Long Pants</li> <li>▪ Shirts with Sleeves</li> <li>▪ Hardhat</li> <li>▪ Safety-Toed Boots (Rubber Boots during spill clean ups)</li> <li>▪ Safety Glasses (Potential Eye Hazard Areas)</li> <li>▪ Class II High Visibility Vest (When Working Around Moving Equipment)</li> <li>▪ Knee Pads as needed</li> <li>▪ Face shields (during spill cleanup Activities)</li> </ul>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Fatigue, Heat Stress, Heat Stroke, and Sun Burn.	<ol style="list-style-type: none"> <li>1. Personnel will be monitored for heat stress and will maintain adequate hydration.</li> <li>2. An adequate supply of drinking water shall be provided in all places of employment. Cool water with disposable cup shall be provided during hot weather.</li> <li>3. Adjust work schedules, rotate personnel, and add additional personnel if needed.</li> <li>4. Replenish fluids (e.g. – water, electrolytes) as needed.</li> <li>5. Consider personnel and environmental monitoring plans.</li> <li>6. Know the warning signs of heat related illnesses.</li> <li>7. Provide shelter for personnel in shaded areas.</li> <li>8. Where possible, block out sun or other direct sources of heat from fixed work locations.</li> <li>9. Prevent sun related overexposure to skin by using a sunscreen lotion with a significant sun protection factor (SPF) of 15 or greater.</li> <li>10. Review the APP Heat Stress Section.</li> </ol>	<b>L</b>
	Incidents	<ol style="list-style-type: none"> <li>1. All incidents, including near misses, regardless of severity shall be reported according to the APP.</li> </ol>	<b>L</b>
	Biological Hazards: Airborne, bloodborne, animals, insects, and vegetation	<ol style="list-style-type: none"> <li>1. Use insect repellent when necessary to avoid insect bites.</li> <li>2. Report insect bites/stings in accordance with the APP.</li> <li>3. Monitor victims of insect bites/stings for allergic reactions.</li> <li>4. During both mobilization and demobilization, it is anticipated that biological hazards will exist. Biological hazards that may be encountered include stinging and biting insects, hazardous plants, and snakes.</li> <li>5. Insect repellent will be used by site personnel as needed to repel hazardous insects.</li> <li>6. Site personnel will report to the HSSO and their supervisor the presence of any hazardous animals, insects or plants.</li> <li>7. Do not feed or pet any wildlife.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Sanitation	<ol style="list-style-type: none"> <li>Housekeeping: <ul style="list-style-type: none"> <li>Work site should be kept as clean as possible.</li> <li>Regular cleaning of the site shall be conducted to maintain safe and sanitary conditions in the workplace.</li> <li>Walking and working surfaces shall be kept as dry as possible to reduce slip hazards.</li> <li>Every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, clutter, and unnecessary holes and openings.</li> </ul> </li> <li>Drinking Water: <ul style="list-style-type: none"> <li>An adequate supply of potable water shall available to workers for drinking and cleaning.</li> <li>Water must be cool drinking water especially in hot environments.</li> <li>Drinking water shall be dispensed by means that prevent contamination between the consumer and the water source.</li> <li>All drinking water shall be clearly marked "Drinking Water."</li> </ul> </li> <li>Toilets: <ul style="list-style-type: none"> <li>Toilets shall be provided according to EM-385-1-1-02 E.</li> <li>Where hand washing stations are not feasible, portable toilets on site shall be equipped with at least hand sanitizer.</li> <li>Adequate lighting and ventilation must be provided in portable toilets.</li> <li>Portable toilets must be serviced on a regular basis.</li> <li>Toilet facilities shall be inspected daily as part of the regular daily site safety inspection to identify sanitation, supplies and housekeeping needs.</li> </ul> </li> </ol>	<b>L</b>
	Unauthorized Personnel in the Construction Zone	<ol style="list-style-type: none"> <li>Establish perimeters by barricading work areas and erecting warning signs on a security fence.</li> <li>Access to the fence demolition areas will be restricted using barricades if needed.</li> <li>All visitors and workers must be briefed by the SSHO and review and sign the project APP prior to entering the construction work zone.</li> <li>All associates on site must be familiar with the APP.</li> <li>All associates on site will review site specific AHA's.</li> <li>Remove non-essential personnel from the work zone immediately.</li> </ol>	<b>L</b>
	Smoking in The Construction Work Zone.	<ol style="list-style-type: none"> <li>Smoking is prohibited near building entrances, fuel storage areas, and re-fueling areas.</li> <li>Smoking is only permitted in designated smoke areas designated by the SSHO personnel.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>General Safety Requirements all Posted Construction Work Zones (Cont'd)</b>	Fires	<ol style="list-style-type: none"> <li>1. ABC fire extinguisher, rated not less than 10B, shall be provided within 50 feet Personnel potentially utilizing fire extinguishers must be adequately trained. Subcontractors shall provide proof of training. In the event of a fire, immediately contact the Security Guard at Post #1 who will contact the Fire Department.</li> <li>2. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>3. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> <li>4. All fire extinguishers must be inspected monthly to ensure that they are in proper working condition.</li> </ol>	L
	Inclement Weather	<ol style="list-style-type: none"> <li>1. Job activity will be shut down if weather poses imminent danger.</li> </ol>	L
<b>Mobilization: Travel to the Project Site</b>	Loading Equipment and Attachments.	<ol style="list-style-type: none"> <li>1. Tie down and secure all materials, equipment and loads.</li> <li>2. Inspect load prior to leaving.</li> <li>3. Employ safe lifting techniques such as bending from the knees (not at the waist) and reducing twisting/side to side motion.</li> <li>4. Request assistance when lifting heavy objects (&gt;50 lbs).</li> </ol>	L
	Hazards Traveling to the Work Site, Road Hazards such as wet pavement, traffic construction, and speed limits.	<ol style="list-style-type: none"> <li>1. Be Aware of all conditions while driving.</li> <li>2. Keep safe distances from vehicles in front.</li> <li>3. Adhere to all traffic laws.</li> </ol>	L
	Pedestrians, Other Workers, and Parking	<ol style="list-style-type: none"> <li>1. Park only where permitted.</li> <li>2. Keep heavy equipment from pedestrian traffic until site is setup.</li> </ol>	L
	Not knowing project conditions or safety hazards	<ol style="list-style-type: none"> <li>1. Meet with Project SSHO to review project scope, hazards, and procedures.</li> <li>2. Read, know and sign HASP/ AHA's.</li> <li>3. Do not start any work activity before reviewing the AHA and applicable MSDS for that specific activity.</li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
<b>Inspection and Maintenance of Heavy Equipment Prior to Use</b>	Chemical Use (Grease, Fuels, and Lubricants)	<ol style="list-style-type: none"> <li>1. To protect against eye hazards ANSI approved safety glasses, goggles or shield shall be worn.</li> <li>2. To protect from spill hazards Wear nitrile or neoprene gloves and disposable suit.</li> <li>3. Avoid contact with skin. Wash affected areas with water and mild soap immediately.</li> <li>4. Close container when not in use.</li> <li>5. Review MSDS of all chemicals prior to use and ensure MSDS is accessible to all associates who are affected by the chemical in use.</li> </ol>	<b>L</b>
	Chemical Spills	<ol style="list-style-type: none"> <li>1. Spills will be contained and cleaned up immediately with absorbents.</li> <li>2. Potential spills anticipated for this project will be small - &lt; 5 gal.</li> <li>3. Large scale spills must be handled by experienced personnel only.</li> <li>4. Report large scale spills to the SSHO.</li> <li>5. Report all spills to your Supervisors.</li> </ol>	<b>L</b>
	Noise Hazards	<ol style="list-style-type: none"> <li>1. When associates are subjected to sound exceeding 85 decibels, feasible administrative or engineering controls shall be utilized.</li> <li>2. If such controls fail to reduce sound levels to acceptable levels, personal protective equipment shall be provided and used to reduce sound levels.</li> <li>3. All observers should be kept at a safe distance away from the work area.</li> <li>4. Hearing protection will be available and used when needed.</li> </ol>	<b>L</b>
	Use of Hand Tools for Equipment Maintenance	<p><b>USE THE CORRECT TOOL FOR THE JOB!</b></p> <p><b>DAMAGED TOOLS MUST BE REPAIRED OR REPLACED!</b></p> <ol style="list-style-type: none"> <li>1. When using a hammer of any kind use safety glasses and request all other affected workers around you to wear them.</li> <li>2. Refer to manufacturer's manual for safe operation of any tool.</li> <li>3. Use tools with good body mechanics, and according to manufacture recommendations.</li> <li>4. Tools will be inspected before each use.</li> <li>5. Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>6. Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Inspection of Heavy Equipment Prior to Use (Cont'd)</b>	Use of Improperly Maintained Equipment	<ol style="list-style-type: none"> <li>1. Equipment must be checked by a competent mechanic as per manufacturer's specifications. Document the inspection prior to use.</li> <li>2. All belts, gears, shafts, pulleys, sprockets, chains, rotating or moving parts will have guards in place.</li> <li>3. Ensure housekeeping around machines is done daily or as needed.</li> <li>4. Wipe up any spilled oils/grease on and around the machines.</li> <li>5. Look for any fluid leaks and have repaired and cleaned up.</li> <li>6. <b>Damaged Equipment shall be tagged out until proper repairs can be made.</b></li> </ol>	<b>L</b>
	Falls from Fixed Ladders on Equipment	<ol style="list-style-type: none"> <li>1. Inspect all ladders for damage before climbing onto them.</li> <li>2. Always face the ladder when ascending and descending from ladders.</li> <li>3. Maintain three points of contact when ascending and descending from fixed ladders.</li> </ol>	<b>L</b>
	Fires during Refueling	<ol style="list-style-type: none"> <li>1. Fire extinguishers to be maintained of appropriate size and type (Minimum 10A:60BC required).</li> <li>2. Personnel potentially utilizing fire extinguishers must be adequately trained.</li> <li>3. In the event of a fire, the Contact the Guard at Post #1 to contact the Fire Department immediately.</li> <li>4. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>5. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
Smooth Shape and Compact Sub Grade	Incidences Involving Heavy Equipment	<ol style="list-style-type: none"> <li>1. Inspect heavy equipment each day. Inspection should include items such as fluid levels, hoses, working condition, lights, horn, back up alarm, tire pressure, worn out parts, etc. Make repairs as necessary. Do not use damaged or compromised equipment.</li> <li>2. Stand clear of equipment swing radius. Maintain visual contact with equipment operator. Do not approach working equipment without making eye contact with operator.</li> <li>3. Wear ear plugs if noise levels exceed 85 decibels.</li> <li>4. Ensure warning alarms are working properly. Check for overhead hazards. Use spotters when loading and unloading heavy equipment.</li> <li>5. Observe local traffic laws, speed limits, and weight limits.</li> <li>6. Personnel working around heavy equipment must wear reflective vests.</li> <li>7. Maintain fire extinguisher and safety triangles.</li> <li>8. Turn off engine while refueling.</li> <li>9. Remove loose debris from truck prior to traveling to avoid spilling load or creating road hazards.</li> <li>10. Only Trained and Authorized associates who can provide proof of training may operate heavy equipment.</li> </ol>	L
	Terrain, Public Traffic Flow, Pedestrians, and Workers	<ol style="list-style-type: none"> <li>1. Secure the area with cones, caution tape, and warning signs</li> <li>2. Control public, visitors and workers not involved in the work tasks from entering the areas where heavy equipment is operating.</li> <li>3. Be aware of surroundings.</li> </ol>	L
	Noise Hazards	<ol style="list-style-type: none"> <li>1. When associates are subjected to sound exceeding 85 decibels, feasible administrative or engineering controls shall be utilized.</li> <li>2. If such controls fail to reduce sound levels to acceptable levels, personal protective equipment shall be provided and used to reduce sound levels.</li> <li>3. All observers should be kept at a safe distance away from the work area.</li> <li>4. Hearing protection will be available and used when needed.</li> </ol>	L
	Trip Hazards /Walking and Working Surfaces.	<ol style="list-style-type: none"> <li>1. The work area shall be maintained in a clean condition.</li> <li>2. Associates should be aware of the condition of work and surrounding areas.</li> <li>3. Personnel shall complete slips, trips and fall hazard training.</li> <li>4. Subcontractors shall provide proof of training.</li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
<b>Smooth Shape and Compact Sub Grade (Cont'd)</b>	Overhead Electric or Underground Utilities causing Shock Hazards, Explosion or Sudden Release of Energy, Gases, or Liquids	<ol style="list-style-type: none"> <li>1. Review utility locations, request utility locates as needed.</li> <li>2. Obtain an excavation permit and mark underground utilities.</li> <li>3. Inspect the site and locate overhead utilities for low clearance concerns. Mark low overhead utilities to avoid contact.</li> <li>4. Ensure that structure utilities have been disconnected by visual inspection and testing.</li> <li>5. Implement power outages as necessary.</li> </ol>	<b>L</b>
	Falls from Fixed Ladders on Equipment	<ol style="list-style-type: none"> <li>1. Inspect all ladders for damage before climbing onto them.</li> <li>2. Always face the ladder when ascending and descending from ladders.</li> <li>3. Maintain three points of contact when ascending and descending from fixed ladders.</li> </ol>	<b>L</b>
	Fires during Refueling	<ol style="list-style-type: none"> <li>1. Fire extinguishers to be maintained of appropriate size and type (Minimum 10A:60BC required).</li> <li>2. Personnel potentially utilizing fire extinguishers must be adequately trained.</li> <li>3. In the event of a fire, the Contact the Guard at Post #1 to contact the Fire Department immediately.</li> <li>4. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>5. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> </ol>	<b>L</b>
	Improperly Guarded Equipment and Tools	<ol style="list-style-type: none"> <li>1. All moving parts must be safeguarded.</li> <li>2. The safeguard must prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts.</li> <li>3. Associates should not be able to easily remove or tamper with the safeguard.</li> <li>4. The safeguard should ensure that no objects can fall into moving parts.</li> <li>5. A safeguard should not create a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration.</li> <li>6. Safeguards should not impede an associate from performing the task.</li> <li>7. If possible, one should be able to lubricate the machine without removing the safeguards.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
Placing Fabric on the Sub Graded Areas	Incidences Involving Heavy Equipment	<ol style="list-style-type: none"> <li>1. Inspect heavy equipment each day. Inspection should include items such as fluid levels, hoses, working condition, lights, horn, back up alarm, tire pressure, worn out parts, etc. Make repairs as necessary. Do not use damaged or compromised equipment.</li> <li>2. Stand clear of equipment swing radius. Maintain visual contact with equipment operator. Do not approach working equipment without making eye contact with operator.</li> <li>3. Wear ear plugs if noise levels exceed 85 decibels.</li> <li>4. Ensure warning alarms are working properly. Check for overhead hazards. Use spotters when loading and unloading heavy equipment.</li> <li>5. Observe local traffic laws, speed limits, and weight limits.</li> <li>6. Personnel working around heavy equipment must wear reflective vests.</li> <li>7. Maintain fire extinguisher and safety triangles.</li> <li>8. Turn off engine while refueling.</li> <li>9. Remove loose debris from truck prior to traveling to avoid spilling load or creating road hazards.</li> <li>10. Only Trained and Authorized associates who can provide proof of training may operate heavy equipment.</li> </ol>	L
	Noise Hazards	<ol style="list-style-type: none"> <li>1. When associates are subjected to sound exceeding 85 decibels, feasible administrative or engineering controls shall be utilized.</li> <li>2. If such controls fail to reduce sound levels to acceptable levels, personal protective equipment shall be provided and used to reduce sound levels.</li> <li>3. All observers should be kept at a safe distance away from the work area.</li> <li>4. Hearing protection will be available and used when needed.</li> </ol>	L
	Trip Hazards /Walking and Working Surfaces.	<ol style="list-style-type: none"> <li>1. Be aware of your surrounds.</li> <li>2. The work area shall be maintained in a clean so far as possible.</li> <li>3. Associates should be aware of the condition of work and surrounding areas.</li> <li>4. Personnel shall complete slips, trips and fall hazard training.</li> <li>5. Subcontractors shall provide proof of training.</li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
Placing Fabric on the Sub Graded Areas (Cont'd)	Back Strain from Using a Shovel	<ol style="list-style-type: none"> <li>1. Keep your feet well separated for good balance. Always keep your knees flexed.</li> <li>2. Use the proper type of shovel for the task: <ul style="list-style-type: none"> <li>▪ Short handle shovels are used for spreading or laying asphalt, dirt, etc. Hold this shovel with one hand close to the load for proper balance and to reduce stress on your back.</li> <li>▪ Long handle, pointed shovels are used for digging. This shovel should also be held close to the load when carrying material.</li> </ul> </li> <li>3. Load your shovel sparingly on your first load and gradually increase your next load size until you reach the capacity, which you can handle in a safe and efficient manner.</li> <li>4. Keep your arms and elbows close to your body while handling loads. This will set your body in balance and in a power position.</li> <li>5. Never twist your body when spreading or laying asphalt, dirt, materials, etc.</li> <li>6. Twisting will only increase the risk of an injury. Always turn your forward foot and body in the direction you will spread or lay the material.</li> <li>7. For digging, use the ball of your foot (not the arch) to press the shovel into dirt, asphalt, gravel, etc. If the instep/arch is used and the foot slips off the shovel, the sharp corner of the shovel may cut through your shoe and into foot or leg.</li> </ol>	L
	Lacerations to hands from Contact with Sharp Edges	<ol style="list-style-type: none"> <li>1. Associates should be aware of sharp edges and use caution while making contact with these areas.</li> <li>2. Cut and puncture resistance gloves should be worn.</li> <li>3. PPE Requirements: <ul style="list-style-type: none"> <li>▪ Work clothing (as dictated by the weather)(No tank tops or muscle shirts)</li> <li>▪ Safety toe boots</li> <li>▪ Safety glasses with side shields</li> <li>▪ Hard hat</li> </ul> </li> <li>4. Work gloves (Cut and puncture resistance while handling material with sharp edges)</li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
<b>Placing Fabric on the Sub Graded Areas (Cont'd)</b>	Falling/Flying Debris (Geo Textile Materials)	<ol style="list-style-type: none"> <li>1. Ensure there is adequate distance between the equipment and falling debris.</li> <li>2. Access to the work area will be restricted using additional fencing.</li> <li>3. Only authorized personnel will be allowed in the construction work area.</li> <li>4. Eye protection will be worn at all times.</li> <li>5. Hard hats will be worn on site at all times.</li> <li>6. All on-site personnel will be familiar with task to be completed on site, and will be sure they maintain safe distance during work activities.</li> <li>7. Superintendent will ensure that all associates on site are aware of these activities and that no one that is not directly involved will be in the area.</li> <li>8. Recommend not trying to rollout geo textile material on windy days or in windy conditions.</li> </ol>	<b>L</b>
	Eye Hazards	<ol style="list-style-type: none"> <li>1. Wear ANSI approved safety glasses with side shields.</li> <li>2. Goggles and/or face shield may be used for additional protection.</li> <li>3. Eye wash solution will be available to aid in removing particles from eyes.</li> </ol>	<b>L</b>
	Use of Hand Tools to Pin Geo Textile Material to the Ground	<ol style="list-style-type: none"> <li>1. Tools will be used according to the manufacturer's instructions.</li> <li>2. Associates will be familiar with the proper use of the tool being used.</li> <li>3. Tools will be maintained according to manufacturer's recommendations.</li> <li>4. Tools will be inspected before each use.</li> <li>5. Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>6. Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand.</li> </ol>	<b>L</b>
	Crushing Hazards	<ol style="list-style-type: none"> <li>1. Keep hands clear of operating equipment.</li> <li>2. Position hands carefully so fingers can't get caught.</li> <li>3. Feed spinning or feeding machines with a stick.</li> <li>4. Always use machine safety guards.</li> <li>5. Be alert – look for falling objects.</li> <li>6. Never take short cuts.</li> <li>7. Ensure bench-mounted machines are secured before starting.</li> <li>8. Make sure gloves or other loose materials don't get caught in machines.</li> <li>9. Remove rings or other jewelry before operating machines.</li> </ol>	<b>L</b>
	Injuries from Manually Handling Textile Materials	<ol style="list-style-type: none"> <li>1. Personnel shall ensure that they observe proper lifting techniques and shall minimize movements such as over reaching, bending and twisting.</li> <li>2. Personnel shall not lift more than 70 lbs. without help from a co-worker(s) or mechanical assistance.</li> <li>3. Use a dolly or other mechanical method when practical.</li> </ol>	<b>L</b>



Activity	Hazard	Recommended Controls	RAC
<b>Placement of Gravel</b>	Traffic Concerns Involving Heavy Equipment	<ol style="list-style-type: none"> <li>1. Use flag person or other means to control traffic.</li> <li>2. Provide high visibility outer garments for workers exposed to vehicle traffic.</li> <li>3. Erect barricades, stop logs, and/or warning signals where mobile equipment operators have obstructed view of the excavation edge.</li> </ol>	<b>L</b>
	Chemical Use (Grease, Fuels, and Lubricants)	<ol style="list-style-type: none"> <li>1. Designate an area where only pesticides are to be stored. This area should be locked and at each entrance a sign should be posted stating: "Warning – Pesticides-Keep Out."</li> <li>2. Storage areas should be cool and dry and have an exhaust fan for proper ventilation.</li> <li>3. NEVER store pesticides near food, feed seeds, or animals.</li> <li>4. Ensure that herbicides, fungicides, and insecticides are stored separately.</li> <li>5. Keep storage areas clean and orderly.</li> <li>6. Have absorptive clay or activated charcoal or pet litter, or saw dust readily available at the storage site to help clean up any spills.</li> <li>7. Have a shovel, broom, and dust pan available for spill clean-up.</li> <li>8. In case of a fire, always keep a fire extinguisher in the storage area.</li> </ol>	<b>L</b>
	Vehicular Accidents	<ol style="list-style-type: none"> <li>1. Park all personal vehicles in the designated areas and use caution when entering site on foot.</li> <li>2. Trucks must be equipped with backing alarms.</li> <li>3. Drivers should always pay attention when operating a vehicle.</li> </ol>	<b>L</b>
	Falling/Flying Debris	<ol style="list-style-type: none"> <li>1. Ensure there is adequate distance between the equipment and falling debris.</li> <li>2. Access to the work area will be restricted using additional fencing.</li> <li>3. Only authorized personnel will be allowed in the construction work area.</li> <li>4. Eye protection will be worn at all times.</li> <li>5. Hard hats will be worn on site at all times.</li> <li>6. All on-site personnel will be familiar with task to be completed on site, and will be sure they maintain safe distance during work activities.</li> <li>7. Superintendent will ensure that all associates on site are aware of these activities and that no one that is not directly involved will be in the area.</li> <li>8. Recommend not trying to rollout geo textile material on windy days or in windy conditions.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
Placement of Gravel (Cont'd)	Accidental Spills of Fuels	<ol style="list-style-type: none"> <li>1. Confine all spills to prevent them from spreading by using an absorbent, such as cat litter, saw dust, etc.</li> <li>2. Have a shovel and dust pan readily available to clean up spills in a timely manner.</li> <li>3. Notify your supervisor immediately of spills that occur.</li> <li>4. When cleaning up spills wear the proper PPE as stated in the MSDS</li> <li>5. Long sleeved shirts</li> <li>6. Long pants</li> <li>7. Chemical resistant boots</li> <li>8. Eye Protection(Recommend Goggles)</li> <li>9. Chemical Resistant Gloves (Nitrile Rubber or Neoprene)</li> <li>10. Review MSDSs first to ensure proper clean- up methods and PPE are used by spill responders.</li> </ol>	L
	Trip Hazards /Walking and Working Surfaces	<ol style="list-style-type: none"> <li>1. Be aware of your surroundings.</li> <li>2. The work area shall be maintained in a clean condition.</li> <li>3. Associates should be aware of the condition of work and surrounding areas.</li> <li>4. Personnel shall complete slips, trips and fall hazard training.</li> <li>5. Subcontractors shall provide proof of training.</li> </ol>	L
	Back Strain from Using a Shovel	<ol style="list-style-type: none"> <li>1. Keep your feet well separated for good balance. Always keep your knees flexed.</li> <li>2. Use the proper type of shovel for the task: <ul style="list-style-type: none"> <li>▪ Short handle shovels are used for spreading or laying asphalt, dirt, etc. Hold this shovel with one hand close to the load for proper balance and to reduce stress on your back.</li> <li>▪ Long handle, pointed shovels are used for digging. This shovel should also be held close to the load when carrying material.</li> </ul> </li> <li>3. Load your shovel sparingly on your first load and gradually increase your next load size until you reach the capacity, which you can handle in a safe and efficient manner.</li> <li>4. Keep your arms and elbows close to your body while handling loads. This will set your body in balance and in a power position.</li> <li>5. Never twist your body when spreading or laying asphalt, dirt, materials, etc.</li> <li>6. Twisting will only increase the risk of an injury. Always turn your forward foot and body in the direction you will spread or lay the material.</li> <li>7. For digging, use the ball of your foot (not the arch) to press the shovel into dirt, asphalt, gravel, etc. If the instep/arch is used and the foot slips off the shovel, the sharp corner of the shovel may cut through your shoe and into foot or leg.</li> </ol>	L

Activity	Hazard	Recommended Controls	RAC
<b>Placement of Gravel (Cont'd)</b>	Terrain, Public Traffic Flow, Pedestrians, and Workers Exposed to Dumping and Spreading of Gravel	<ol style="list-style-type: none"> <li>1. Secure the area with cones or tape.</li> <li>2. Control public, visitors and workers not involved in the work tasks from entering the areas where equipment is operating.</li> <li>3. Be aware of surroundings.</li> </ol>	<b>L</b>
	Manual Material Handling	<ol style="list-style-type: none"> <li>1. Personnel shall ensure that they observe proper lifting techniques and shall minimize movements such as over reaching, bending and twisting.</li> <li>2. Personnel shall not lift more than 50 lbs. without help from a co-worker(s) or mechanical assistance.</li> <li>3. Use a dolly or other mechanical method when practical.</li> </ol>	<b>L</b>
	Eye Hazards	<ol style="list-style-type: none"> <li>1. Wear ANSI approved safety glasses with side shields.</li> <li>2. Goggles and/or face shield may be used for additional protection.</li> <li>3. Eye wash station will be available to aid in removing particles and chemicals from eyes.</li> </ol>	<b>L</b>
<b>Grade Newly Installed Gravel</b>	Injuries to Operator or Others from the Misuse of Equipment	<ol style="list-style-type: none"> <li>1. Do not operate equipment until you are completely trained by a qualified operator in how to use the controls and know its capabilities, dimensions, and all safety requirements.</li> <li>2. Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.</li> <li>3. Only allow workers directly involved in with this activity to be around the equipment when it is operating.</li> <li>4. Do not allow riders on the attachment or the prime mover.</li> <li>5. Do not operate the equipment from anywhere other than the correct operator's position.</li> <li>6. Never leave equipment unattended with the engine running or with this attachment in a raised position.</li> <li>7. Do not alter or remove any safety feature from the prime mover or this attachment.</li> </ol>	<b>L</b>
	Particles and debris in the eyes	<ol style="list-style-type: none"> <li>1. Work area should be properly identified and marked to keep unauthorized personnel from walking though.</li> <li>2. Authorized workers that are not directly involved in compacting should not be in work zone during this activity.</li> <li>3. Always wear proper safety glasses, goggles, or a face shield when driving pins in or out, or when any operation causes dust or flying debris.</li> <li>4. Eye wash station will be available to aid in removing particles from eyes.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Grade Newly Installed Gravel (Cont'd)</b>	Hands, body parts, or clothing caught in equipment during operation	<ol style="list-style-type: none"> <li>1. All moving parts will be safeguarded to prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts.</li> <li>2. The safeguard will ensure that no objects can fall into moving parts.</li> <li>3. Safeguards will not create a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration.</li> <li>4. Safeguards will not impede an associate from performing the task.</li> <li>5. Equipment will be inspected before use to ensure manufacture installed safeguards are in place and working properly.</li> <li>6. Loose clothing and jewelry should not be worn around equipment.</li> </ol>	<b>L</b>
	Terrain, Public Traffic Flow, Pedestrians, and Workers Exposed to Grader	<ol style="list-style-type: none"> <li>1. Secure the area with cones or tape.</li> <li>2. Control public, visitors and workers not involved in the work tasks from entering the areas where equipment is operating.</li> <li>3. Be aware of surroundings.</li> </ol>	<b>L</b>
	Use of Improperly Maintained Equipment	<ol style="list-style-type: none"> <li>1. Equipment must be checked by a competent mechanic as per manufacturer's specifications, and document the inspection prior to use.</li> <li>2. All belts, gears, shafts, pulleys, sprockets, chains, rotating or moving parts will have guards in place.</li> <li>3. Ensure housekeeping around machines is done daily or as needed.</li> <li>4. Wipe up any spilled oils/grease on and around the machines.</li> <li>5. Look for any fluid leaks and have repaired and cleaned up.</li> <li>6. Damaged Equipment shall be tagged out until proper repairs can be made.</li> </ol>	<b>L</b>
	Falls from Fixed Ladders on Equipment	<ol style="list-style-type: none"> <li>1. Inspect all ladders for damaged before climbing onto them.</li> <li>2. Always face the ladder when ascending and descending from ladders.</li> <li>3. Maintain three points of contact when ascending and descending from fixed ladders.</li> </ol>	<b>L</b>
	Fires during Refueling	<ol style="list-style-type: none"> <li>1. Fire extinguishers to be maintained of appropriate size and type (Minimum 10A:60BC required).</li> <li>2. Personnel potentially utilizing fire extinguishers must be adequately trained.</li> <li>3. In the event of a fire, the Contact the Guard at Post #1 to contact the Fire Department immediately.</li> <li>4. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>5. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> <li>6. Shut down vehicle and allow the engine to cool down before fueling.</li> </ol>	<b>L</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
1. Personal Protective Equipment	1a. Subcontractor – Proof of Construction PPE Training. 1b. TolTest personnel - Web-Based Eye Safety Training, Web-Based Personal Protective Equipment Training, Web-Based Hand Safety.	1a. PPE must be inspected prior to use, damaged PPE must be replaced immediately. 1b. An adequate supply of PPE must be available for workers and visitors.
2. Miscellaneous Hand Tools and Power Tools	2a. Subcontractors – Proof of training to operate tools/equipment 2b. TolTest personnel - Web Based Hazard. Recognition Training, Web Based Hand and Power Tools – Construction Training.	2. Check tools according to manufacturer's guidelines. 2. Hand tools should be check for nicks, chips. 2. Power tools should be checked to ensure that all guards are in place.
3. All Workers	3a. Subcontractors – Proof of Hazard Communication Training, Company Certification of Drug and Alcohol Free Workplace, Proof of Safe Lifting Training. 3b. TolTest personnel – Web-Based Hazard Communication Training, Web-Based Drug Testing Awareness Training, Web-Based Back Safety and Muscles Strains and Sprains Courses.	
4. Fire Extinguishers	4a. Subcontractors – Proof of Fire Extinguisher Training. 4b. TolTest personnel - Web-Based Fire Safety Training.	4a. Documented monthly inspections are to be done. <ul style="list-style-type: none"> <li>▪ Check to see if charged</li> <li>▪ Check to see if pin has been removed</li> <li>▪ Check hose</li> </ul>
5. First Aid Kits	5a. First Aid CPR Certified John Lyttle -Competent Person. 5b. Subcontractor s-proof of blood borne pathogen training. 5c. TolTest personnel – Annual Web Based Blood Borne Pathogen Training.	5a. Inspect every three months, after each use, and replenish first aid supplies as needed.
6. Eye Wash Station		6a. Documented monthly Inspections.
7. Heavy Equipment To Include by not Limited to Skid Steers, Excavators, and Graders	7a. Operators must be trained and certified by an accredited agency. Proof of training must be available upon request.	7a. Perform daily documented inspections according to the manufacturer's recommendations on all components and accessories.
8. Manual Material Handling	8a. Subcontractors -Proof of Back Safety Training and Proper Lifting Techniques Training. 8b. TolTest Personnel – Web Based Back Safety Training Course.	8a. During daily site safety inspections the superintendent/SSHO observed lifting techniques practiced by TolTest and subcontractor personnel.

Prepared By:	Christopher W. Warren, CHST H&S Supervisor		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
Reviewed By:	Richard L. Barcum, CIH, CSP, CHMM		1/28/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
SSHO / Presented By:			
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
AHA Discussed with Crew at Preparatory Meeting Held On: _____.			
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
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<i>Print Name</i>	<i>Signature</i>	<i>Date</i>

### Activity Hazard Analysis (AHA)

<b>Activity/Work Task: Generator and Sump Pump Operation</b>	<b>Overall Risk Assessment Code (RAC) (Use highest code)</b>					<b>L</b>
<b>Project Location: Ravenna Army Ammunitions Plant</b>	<b>Risk Assessment Code (RAC) Matrix</b>					
<b>Contract Number: W912QR-04-D-0038</b>	<b>Severity</b>	<b>Probability</b>				
<b>Date Prepared: 03/01/2011</b>		Frequent	Likely	Occasional	Seldom	Unlikely
<b>Prepared by (Name/Title): Christopher W. Warren, CHST, Health and Safety Supervisor</b>	Catastrophic	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>
	Critical	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>
<b>Reviewed by (Name/Title): Richard L. Barcum, CIH, CSP, CHMM Corporate Health and Safety Director</b>	Marginal	<b>H</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>
	Negligible	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Notes: (Field Notes, Review Comments, etc.)</b> Personal Protective Equipment for this work activity : Level D <ul style="list-style-type: none"> <li>▪ Long Pants</li> <li>▪ Shirts with Sleeves</li> <li>▪ Hard hat or bump cap as applicable</li> <li>▪ Cotton or leather work gloves</li> <li>▪ Safety Toed Boots.</li> <li>▪ ANSI Z87 approved chemical safety goggles</li> <li>▪ Class II High Visibility Vest (When Working Around Moving Equipment)</li> </ul>	Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)					
	<b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				<b>RAC Chart</b>	
	<b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				<b>E = Extremely High Risk</b>	
					<b>H = High Risk</b>	
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.				<b>M = Moderate Risk</b>	
<b>L = Low Risk</b>						

Activity	Hazard	Recommended Controls	RAC
Pre-Operation Safety Check of Portable Generator and Sump Pump	Chemical Use (Grease, Fuels, and Lubricants)	1. To protect against eye hazards use ANSI approved safety glasses or goggles. 2. Avoid contact with skin; if there is contact wash affected areas with water and mild soap immediately. 3. Review MSDS of all chemicals prior to use and ensure MSDS is accessible to all associates who are affected by the chemical in use.	<b>L</b>
	Chemical Spills (Fuel and Motor Fluids)	1. Spills will be contained and cleaned up immediately with absorbents. 2. Potential spills anticipated for this project will be small (< 5 gal). 3. Large scale spills must be handled by experienced personnel only. 4. Report large scale spills to the SSHO. 5. Report all spills to your Supervisors.	<b>L</b>



Activity	Hazard	Recommended Controls	RAC
<b>Pre-Operation Safety Check of Portable Generator and Sump Pump (Cont'd)</b>	Noise Hazards	<ol style="list-style-type: none"> <li>1. Wear approved ANSI hearing protection.</li> <li>2. Observe all posted signs requiring hearing protection.</li> <li>3. Hearing protection will be available and used when needed.</li> </ol>	<b>L</b>
	Use of Hand Tools for Equipment Maintenance	<p><b>USE THE CORRECT TOOL FOR THE JOB!</b>  <b>DAMAGED TOOLS MUST BE REPAIRED OR REPLACED!</b></p> <ol style="list-style-type: none"> <li>1. When using a hammer of any kind use safety glasses and request all other affected workers around you to wear them.</li> <li>2. Refer to manufacturer's manual for safe operation of any tool.</li> <li>3. Use tools with good body mechanics, and according to manufacture recommendations.</li> <li>4. Tools will be inspected before each use.</li> <li>5. Damaged or defective tools will be placed out of operation until repaired or replaced.</li> <li>6. Gloves will be worn to protect hands and aid in keeping tools from slipping out of the hand.</li> </ol>	<b>L</b>
	Use of Improperly Maintained Equipment	<ol style="list-style-type: none"> <li>1. Equipment must be checked by a competent mechanic as per manufacturer's specifications. Document the inspection prior to use.</li> <li>2. All belts, gears, shafts, pulleys, sprockets, chains, rotating or moving parts will have guards in place.</li> <li>3. Ensure housekeeping around machines is done daily or as needed.</li> <li>4. Wipe up any spilled oils/grease on and around the machines.</li> <li>5. Look for any fluid leaks and have repaired and cleaned up.</li> <li>6. <b>Damaged Equipment shall be tagged out until proper repairs can be made.</b></li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Operating the Portable Generator and Sump Pump</b>	Fires during Refueling	<ol style="list-style-type: none"> <li>1. Fire extinguishers to be maintained of appropriate size and type (Minimum 10A:60BC required).</li> <li>2. Personnel potentially utilizing fire extinguishers must be adequately trained.</li> <li>3. In the event of a fire, the Contact the Guard at Post #1 to contact the Fire Department immediately.</li> <li>4. Vehicles used to haul flammable or combustible fuel shall be equipped with 20 lbs A: B: C extinguisher.</li> <li>5. If the fire is small enough to be extinguished using one extinguisher a competent and trained associate may choose to combat the fire.</li> <li>6. Shut down vehicle and allow the engine to cool down before fueling.</li> </ol>	<b>L</b>
	Shocks and Electrocution from Improper use of Power or Accidentally Energizing other Electrical Systems.	<ol style="list-style-type: none"> <li>1. Never attach a generator directly to the electrical system of a structure unless a qualified electrician has properly installed the generator with a transfer switch.</li> <li>2. Use a GFCI with all extension cords and tools.</li> <li>3. Always plug electrical appliances directly into the generator using the manufacturer's supplied cords or extension cords that are grounded. Never use frayed or damaged extension cords, and make sure cords are appropriately rated in watts or amps for intended use.</li> <li>4. Use ground fault circuit interrupters, especially where electrical equipment is used in or around wet or damp locations.</li> <li>5. Make sure generator is properly grounded and the grounding connections are tight.</li> <li>6. Keep generator dry.</li> <li>7. Do not use electrical equipment that has been submerged in water, has strange odors, or begins smoking.</li> </ol>	<b>L</b>
	Carbon Monoxide Poisoning	<ol style="list-style-type: none"> <li>1. Never use a generator indoors or in enclosed spaces.</li> <li>2. Make sure a generator has 3 to 4 feet of clear space on all sides and above it to ensure adequate ventilation.</li> <li>3. Do not use a generator outdoors if its placement near doors, windows, and vents could allow CO to enter and build up in occupied spaces.</li> <li>4. If symptoms such as dizziness, headaches, nausea, tiredness occur—get to fresh air immediately and seek medical attention.</li> </ol>	<b>L</b>

Activity	Hazard	Recommended Controls	RAC
<b>Operate the Portable Generator and Sump Pump (Cont'd)</b>	Fire Hazards	<ol style="list-style-type: none"> <li>1. Generators become hot while running and remain hot for long periods after they are stopped. Generator fuels can ignite when spilled on hot engine parts.</li> <li>2. Before refueling, shut down the generator and allow it to cool.</li> <li>3. Gasoline and other generator fuels should be stored and transported in approved containers that are properly designed and marked for their contents, and vented.</li> <li>4. Keep fuel containers away from flame producing and heat generating devices. Do not smoke around fuel containers.</li> </ol>	<b>L</b>
	Noise and Vibration Hazards	<ol style="list-style-type: none"> <li>1. Generator engines vibrate and create noise. Excessive noise and vibration could cause hearing loss and fatigue that may affect job performance.</li> <li>2. Keep portable generators as far away as possible from work areas and gathering spaces.</li> <li>3. Wear hearing protection if this is not possible.</li> </ol>	<b>L</b>
	Manual Material Handling	<ol style="list-style-type: none"> <li>1. Personnel shall ensure that they observe proper lifting techniques and shall minimize movements such as over reaching, bending and twisting.</li> <li>2. Personnel shall not lift more than 50 lbs without help from a co-worker(s) or mechanical assistance. Items weighing less may need assistance as well if they are large, bulky or cumbersome.</li> <li>3. Use a dolly or other mechanical method when practical.</li> </ol>	<b>L</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
1. Personal Protective Equipment <ul style="list-style-type: none"> <li>▪ Long Pants</li> <li>▪ Shirts with Sleeves</li> <li>▪ Clear Z-87 rated safety glasses or Goggles</li> <li>▪ Hard hat or bump cap as applicable</li> <li>▪ Cotton or leather work gloves</li> <li>▪ Safety Toed Boots.</li> <li>▪ ANSI Z87 approved chemical safety goggles</li> <li>▪ Class II High Visibility Vest (When Working Around Moving Equipment)</li> </ul>	1a. Subcontractor – Proof of Construction PPE Training. 1b. TolTest personnel - Web-Based Eye Safety Training, Web-Based Personal Protective Equipment Training, Web-Based Hand Safety.	1a. PPE must be inspected prior to use, damaged PPE must be replaced immediately. 1b. An adequate supply of PPE must be available for workers and visitors.
2. Miscellaneous Hand Tools and Power Tools	2a. Subcontractors – Proof of training to operate tools/equipment. 2b. TolTest personnel - Web Based Hazard Recognition Training, Web Based Hand and Power Tools – Construction Training.	2. a Check tools according to manufacturer's guidelines. 2. b Hand tools should be check for nicks, chips. 2. c Power tools should be checked to ensure that all guards are in place.
3. All Workers	3a. Subcontractors – Proof of Hazard Communication Training, Company Certification of Drug and Alcohol Free Workplace, Proof of Safe Lifting Training. 3b. TolTest personnel – Web-Based Hazard Communication Training, Web-Based Drug Testing Awareness Training, Web-Based Back Safety and Muscles Strains and Sprains Courses.	
4. Fire Extinguishers	4a. Subcontractors – Proof of Fire Extinguisher Training. 4b. TolTest personnel - Web-Based Fire Safety Training.	4a. Documented monthly inspections are to be done. <ul style="list-style-type: none"> <li>▪ Check to see if charged</li> <li>▪ Check to see if pin has been removed</li> <li>▪ Check hose</li> </ul>
5. First Aid Kits <ul style="list-style-type: none"> <li>▪ Cintas 4 Shelved First Aid Kit contents meet EM 385 1-1 Section B/ Table 3-1.</li> <li>▪ Two CPR Barriers</li> <li>▪ Bio-Hazrd Bag</li> </ul>	5a. First Aid CPR Certified Competent Persons - Karen Radomski and Chris Warren. 5b. Subcontractor provide proof of blood borne pathogen training. 5c. TolTest personnel – Annual Web Based Blood Borne Pathogen Training.	5a. Inspect every three months, after each use, and replenish first aid supplies as needed.
6. Eye Wash Station		6a. Documented monthly inspections. 6b. Ensure that eye wash solution is not frozen.

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
7. Manual Material Handling	8a. Subcontractors -Proof of Back Safety Training and Proper Lifting Techniques Training. 8b. TolTest Personnel – Web Based Back Safety Training Course.	8a. During daily site safety inspections the superintendent/SSHO observed lifting techniques practiced by TolTest and subcontractor personnel.
8. Equipment: Portable Generator, Sump Pump, and GFCI.	8a. Workers shall review the manufacturer's instruction manual and be familiar with the equipment and its safety features.	8a. Inspect generators and sump pumps prior to use for damage, leaks, damaged electrical cords or outlets. 8b. Ensure the GFCI is used with portable generators and sump pumps. 8c. Test GFCI's to ensure they are working properly.

Prepared By:	Christopher W. Warren		3/1/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
Reviewed By:	Richard L. Barcum, CIH, CSP, CHMM		3/1/2011
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
SSHO / Presented By:			
	<i>Print Name</i>	<i>Signature</i>	<i>Date</i>
AHA Discussed with Crew at Preparatory Meeting Held On: _____.			
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
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<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	
<i>Print Name</i>	<i>Signature</i>	<i>Date</i>	



**Final Contractor Quality Control Plan for  
RVAAP-004-R-01 Open Demolition Area #2 MRS for the  
White Phosphorus Disposal at the Rocket Ridge Area**

**Ravenna Army Ammunition Plant  
Ravenna, Ohio**

**Contract Number: W912QR-04-D-0038  
Delivery Order Number: 0011**

**Prepared For:**



**U.S. Army Corps of Engineers  
Louisville District  
600 Dr. Martin Luther King, Jr. Place  
Louisville, Kentucky 40202**

**Prepared By:**



**1480 Ford Street  
Maumee, Ohio 43537**

**March 2, 2011**

# CONTRACTOR QUALITY CONTROL PLAN

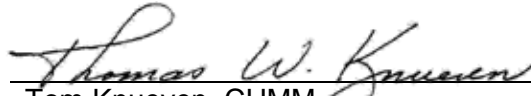
## RVAAP-004-R-01 Open Demolition Area #2 White Phosphorus Disposal at the Rocket Ridge Area

### Ravenna Army Ammunition Plant Ravenna, Ohio

Submitted by:

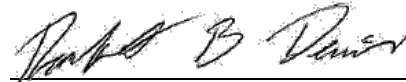
**TOLTEST, INC.**  
1480 Ford St.  
Maumee, Ohio 43537

Reviewed by:

  
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Tom Knueven, CHMM  
Project Manager

Date: 3/1/2011

Approved by:

  
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Robert Densic, RA  
Corporate Quality Assurance Manager

Date: 3/1/2011

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Attachment 3	Forms

## LIST OF ACRONYMS

AHA	Activity Hazard Analysis
CADD	Computer-Aided Design and Drafting
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Contracting Officer
COC	Chain of Custody
COR	Contracting Officer Representative
CQCP	Contractor Quality Control Plan
DFOW	Definable Features of Work
DO	Delivery Order
DOT	U.S. Department of Transportation
ECM	Earth Covered Magazines
EPA	Environmental Protection Agency
HAZWOPER	Hazardous Waste Operations and Emergency Response
MARC	Multiple Award Remediation Contracts
MEC	Munitions and Explosives of Concern
OAC	Ohio Administrative Code
ODA2	Open Demolition Area #2
PIKA	PIKA International
PPE	Personal Protective Equipment
PWS	Performance Work Statement
QAM	Quality Assurance Manager
QC	Quality Control
QCP	Quality Control Plan
QMS	TolTest Quality Management System
RCRA	Resource Conservation and Recovery Act
RFC	Request for Change
RFI	Request for Information
RRA	Rocket Ridge Area
RVAAP	Ravenna Army Ammunition Plant
SSHO	TolTest Site Safety and Health Officer
SSHP	Site Safety and Health Plan
Triad	Triad Transportation Inc.
USACE	United States Army Corps of Engineers
Veolia	Veolia Environmental Services
WMM	Waste Military Munitions
WMP	Waste Management Plan

## **1.0 INTRODUCTION**

TolTest is providing this Contractor Quality Control Plan (CQCP) to execute the Performance Work Statement (PWS), Delivery Order (DO) 0011 for White Phosphorus Disposal generated from the Rocket Ridge Area (RRA) of Open Demolition Area #2 (ODA2), Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio for the United States Army Corps of Engineers (USACE) Louisville District under the Small Business Multiple Award Remediation Contracts (MARC) Louisville District.

The overall objective of this CQCP is to establish a means of ensuring tasks performed under this DO meet contract requirements and specifications. The quality control (QC) activities presented within this plan follow TolTest's Quality Management System (QMS) and are suitable to cover contract quality requirements. TolTest is committed to establishing and maintaining acceptable levels of measurable quality in its services.

### **1.1 Project Description**

The scope of work covered under this CQCP is the temporary storage, inspection, transportation and disposal of hazardous waste drums generated from the RRA. The drums will contain white phosphorus and white phosphorus-contaminated soil and debris that will be generated by PIKA International, Inc. (PIKA) under a separate government contract. In addition, five Earth Covered Magazines (ECMs) were repaired to comply with the standards and specifications contained in DoD 60550.9-STD so that Waste Military Munitions (WMM) can be stored during the execution of Munitions and Explosives of Concern (MEC) investigations and MEC removal activities. Contract Modification #1 Disposal of MEC and Material Potentially Presenting an Explosive Hazard removal is not included in this CQCP but will be addressed under separate plans.

This CQCP focuses on the white phosphorus waste due to the hazardous characteristics of the waste. The white phosphorus wastes that will be transported and disposed include approximately 1,000 drums of:

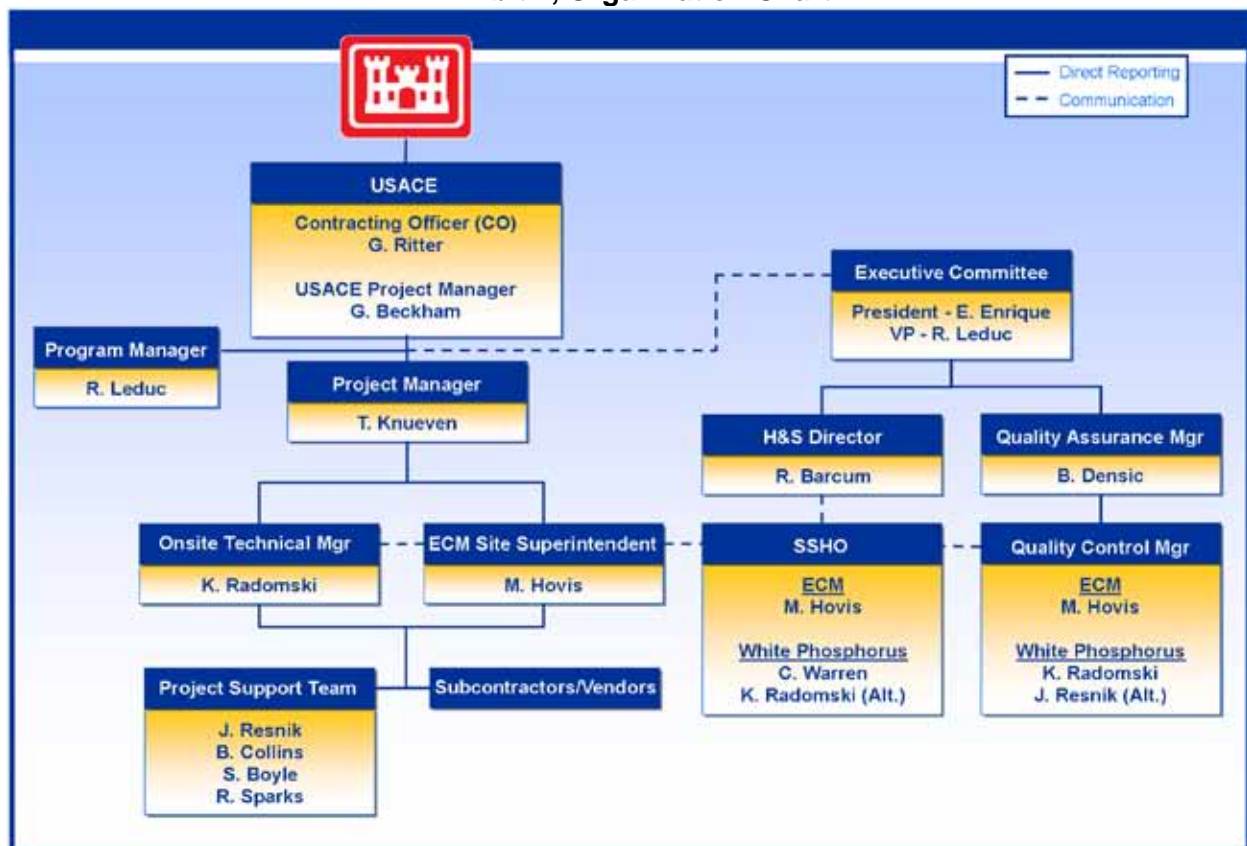
- Pure or bulk white phosphorus wastes in 30-gallon drums and topped off with water.
- White phosphorus-contaminated soils and debris in 55-gallon drums and topped off with water.

## 2.0 RESPONSIBILITIES AND AUTHORITIES

### 2.1 Organization

Team members, their position titles, and the reporting relationships are provided in the organizational chart in **Exhibit 1**. TolTest will have a primary and alternate QC Manager for each phase of the project. Mr. Hovis was the primary Site Superintendent/QC Manager/Site Safety and Health Officer (SSHO) for the ECM portion of the contract. Ms. Radomski will be the primary QC Manager/Onsite Technical Manager and alternate SSHO during the white phosphorus waste management activities. Ms. Resnik will be the alternate QC Manager and make periodic site visits to support the Onsite Technical Manager. Mr. Warren will be the primary SSHO during the white phosphorus waste management activities

**Exhibit 1, Organization Chart**



### 2.2 Key Personnel Responsibilities and Authorities

Each of the key personnel presented above has responsibilities and authorities as it relates to their position, to ensure quality and to meet contract requirements for project scope, cost, schedule, and communication. Key personnel responsibilities and authorities are provided in the following sections.

### **2.2.1 Program Manager**

The Program Manager will ensure the successful and efficient use of contractor resources executing DOs under this contract. Specific Program Manager responsibilities include but are not limited to the following:

- Ensuring the physical execution and control of processes are adequate to provide the client with the product, which was contracted.
- Ensuring each project proceeds in accordance with the policies and procedures outlined in the QMS.
- Oversees and manages overall contract program.

The Program Manager has the following authority:

- Hire/fire authority.
- Sign authority for the full value of the contract, including change orders.
- Commit resources at the program level.
- Stop work authority for any reason on the project.

### **2.2.2 Project Manager**

The Project Manager reports to Program Manager. Specific Project Manager responsibilities include but are not limited to the following:

- Ensuring successful execution of the project and adequate time and resources are available for the proper operation of the quality function.
- Ensuring elements of plans and specifications are satisfied within planned scope, cost, and schedule.
- Identifying the Definable Features of Work (DFOW), testing, sampling, and includes them on the schedule.
- Ensuring compliance with Safety and QC requirements, applicable regulations, and codes.
- Performing submittal and inspection reviews.

The Project Manager has the authority to:

- Supervise and evaluate project staff
- Approve deliverables, DO work plans, subcontractor selection, and preparing of DO budgets and schedules.
- Discuss and prepare contract modifications.
- Stop work for unsafe work environment or quality issues.

### **2.2.3 Site Superintendent**

The Site Superintendent reports to Project Manager. Specific Site Superintendent responsibilities include but are not limited to the following:

- Planning and documenting daily/weekly look ahead work schedules and production activities/goals.

- Ensuring execution of site activities are in accordance with approved SOW, work plans, and applicable laws and regulations.
- Maintaining and updating project field documentation.
- Coordinating site work, including subcontractor activities.
- Reporting immediately to the Project Manager any variance in production rates that would adversely affect cost or schedule.
- Ensuring day-to-day implementation and enforcement of approved safety plan.

The Site Superintendent has the authority to:

- Sequence work activities to meet project schedule.
- Sign daily reports.
- Sign to receive, inventory, and store materials and equipment required for DO execution.
- Stop work for unsafe work environment or quality issues.

#### **2.2.4 Quality Assurance Manager**

The Quality Assurance Manager (QAM) reports to Vice President of Quality. Specific QAM responsibilities include but are not limited to the following:

- Ensuring TolTest's QMS is implemented in the contract quality program.
- Reviewing and approving CQCP.
- Ensuring technically qualified and trained QC personnel are assigned to this DO.
- Providing assistance to QC Manager.
- Conducting on-site training, if required.
- Performing subcontractor and supplier evaluations.

The QAM has the authority to:

- Stop work for unsafe work environment or quality issues.

#### **2.2.5 Quality Control Manager**

The QC Manager Reports to TolTest Vice President of Quality through the QAM. Specific QC Manager responsibilities include but are not limited to the following:

- Verifying the project submittals are reviewed and approved as appropriate.
- Inspecting materials and equipment received on-site to assure compliance with contract requirements.
- Coordinating tracking and storing of materials on-site.
- Conducting daily QC inspections of field activities.
- Implementing corrective action for QC deficiencies.
- Performing and documenting the three phase QC process on identified DFOWs.
- Managing and controlling the three phase QC process performed by any QC Specialists, laboratory testing or inspection personnel.

- Verifying QC testing procedures comply with contract requirements.
- Conducting weekly QC meeting and attends weekly progress meetings.
- Enforcing compliance with the project CQCP.
- Enforcing correction of non-compliance work.

The QC Manager has the authority to:

- Sign QC reports.
- Stop work for quality issues including nonconformance to CQCP and procedures.

### **2.2.6 Onsite Technical Manager**

The Onsite Technical Manager reports to Project Manager. Specific Onsite Technical Manager responsibilities include but are not limited to the following:

- Plans and documents daily/weekly look ahead work schedules and production activities/goals.
- Ensures execution of site activities are in accordance with approved SOW, work plans, and applicable laws and regulations.
- Maintains and updates the Project Field Manual.
- Coordinates site work, including subcontractor activities.
- Reports immediately to the Project Manager any variance in production rates that would adversely affect cost or schedule.
- Ensures day-to-day implementation and enforcement of approved safety plan.
- Attends safety tailgate briefings.
- Observes site personnel for symptoms of exposure.
- Assists in conducting daily safety inspections.
- Performs all three phase QC processes for the white phosphorus disposal process.

The Onsite Technical Manager has the authority to:

- Sequence work activities to meet project schedule.
- Sign daily reports.
- Sign to receive, inventory, and store materials and equipment required for DO execution.
- Stop work for unsafe or unsatisfactory work environment, quality issues including nonconformance to the CQCPs and procedures.

### **2.2.7 Site Safety and Health Officer**

The SSHO reports to TolTest Health & Safety Director. Specific SSHO responsibilities include but are not limited to the following:

- Conducting safety tailgate briefings.
- Observing site personnel for symptoms of exposure.
- Arranging for onsite emergency/first aid care, if needed.

- Directing emergency response program and maintains work zone delineation within the project site.
- Enforcing compliance with the project Site Safety and Health Plan (SSHP).
- Assisting in conducting daily safety inspections.

The SSHO has the authority to:

- Stop work for unsafe work environment, unacceptable safety conditions.

### **2.3 Quality Personnel Qualification Summaries**

Personnel qualification summaries are provided in **Exhibit 2**. Prior to changing key personnel, TolTest will notify the Contracting Officer (CO) and follow contract requirements for change out practices. TolTest will ensure that only qualified, competent personnel carry out the tasks outlined in the PWS. Competent is defined as registered professional or, where registration is not applicable, trained and/or certified in their respective field. Personnel for the white phosphorus activities of the project are required to have the appropriate training to complete assigned tasks which includes but is not limited to OSHA 40-hr Hazardous Waste Operations and Emergency Response (HAZWOPER), 8-hr HAZWOPER annual refresher, DOT Hazardous-waste training and be certified in CPR/First Aid Response.

TolTest will review and verify the personnel qualifications of all onsite personnel. The Onsite Technical Manager will maintain records indicating the registrations, certifications and the related expiration dates.

### **2.4 Appointment Letters**

**Attachment 1** provides the letters delegating authority to the QC Managers to manage and implement the CQCP for this DO. TolTest will have a primary and alternate QC Manager for each phase of the project. Mr. Hovis was the primary Site Superintendent/QC Manager for the ECM portion of the contract and Ms. Radomski will be the primary QC Manager and Onsite Technical Manager during the white phosphorus waste management activities. Ms. Resnik will be the alternate QC Manager and make periodic site visits to support the Onsite Technical Manager. Included in these letters are the QC Manager's responsibilities to implement and manage the three phases of control to ensure compliance with the DO.

## Exhibit 2, Quality Personnel Qualification Summaries

<b>Jennifer Resnik</b> <b>Quality Control Manager</b>	<b>BS – Environmental Sciences, 1998</b>
<ul style="list-style-type: none"> <li>▪ Certified, Permit Required Confined Space Standard 20CFB1910.146</li> <li>▪ OSHA 40-hour HAZWOPER &amp; Supervisor Training</li> <li>▪ First Aid/CPR, American Red Cross</li> <li>▪ Blood Borne Pathogens</li> <li>▪ Lock-out/Tag-out training</li> <li>▪ USACE CQM for Contractors</li> </ul>	<p>Ms. Resnik brings over 10 years experience in environmental field sampling and QC. Her work as Environmental Scientist with TolTest has provided direct field, supervision and QC experience in multiple remediation projects. She also has provided service as a logistics coordinator for waste removal and handling on several federal projects.</p>
<b>Karen Radomski, CHMM, CSS, CPG</b> <b>On-Site Technical Manager</b>	<b>BS – Earth Science, 1988</b>
<ul style="list-style-type: none"> <li>▪ Certified Professional Geologist, AIPG</li> <li>▪ Certified Hazardous Materials Manager, CHMM</li> <li>▪ Certified Safety Specialist, WSO</li> <li>▪ ISO 14000 Certified EMS Lead Auditor</li> <li>▪ ISO 9001 Certified Quality Lead Auditor</li> <li>▪ USACE CQM for Contractors</li> <li>▪ OSHA 40-hour HAZWOPER &amp; 8 hour Supervisor Training &amp; 8 hour Refresher</li> <li>▪ First Aid/CPR, American Red Cross</li> <li>▪ Blood Borne Pathogens</li> <li>▪ OSHA 30 Hr Construction Safety and Health</li> <li>▪ DOT Hazardous Materials Training</li> </ul>	<p>Ms. Radomski is a specialist in regulatory compliance for federal, state, and local governments for environmental investigations, regulatory compliance studies and audits, permit preparation, support closure and remediation of hazardous waste sites. She has coordinated the logistics for hazardous waste removal and handling on several federal projects. Her expertise on regulatory support issues includes RCRA, CERCLA, CWA, CAA and OSHA,</p> <p>Ms. Radomski has also led the regulatory training and compliance for Team Members and for the QC management of environmental projects.</p>
<b>Robert Densic, RA,</b> <b>Quality Assurance Manager</b>	<b>BS - Architecture, Kent State University, 1990</b> <b>Bachelor of Architecture, Kent State University, 1991</b>
<ul style="list-style-type: none"> <li>▪ USACE Construction Quality Management for Contractors</li> <li>▪ OSHA 30 Hr Construction Safety and Health</li> <li>▪ Registered Architect (Ohio)</li> </ul>	<p>Mr. Densic has more than 23 year experience in Architecture, Construction, Project Facilities Management, and QA/QC serving in capacities ranging from Designer of Record, Project Architect, Construction Project Manager, Quality Control Manager and Corporate Quality Assurance Manager.</p>

### **3.0 QUALITY ASSURANCE**

Quality Assurance activities are defined in the following subsections and include;

- Developing Quality Control Plans (QCPs)
- Providing Quality Assurance Audits
- Developing Preventative and Corrective Actions
- Establishing procedures for Data Management

#### **3.1 Quality Control Plan**

The QCP outlines procedures implemented to verify the work is carried out in a quality manner, safely, effectively and in accordance with the PWS for the ECM site activities and white phosphorus waste management activities. The QCP includes audit procedures, corrective/preventative action procedures, field operations oversight, criteria for quality audits and records generated. The QCP also addresses how lessons learned are communicated to the government, procedures for contract submittals (including changes), and process/training plan.

The QAM oversees the creation of this plan in compliance with project scope, requirements, rules, law and regulations.

#### **3.2 Auditing Procedures**

Project quality audits are designed to verify compliance with project and contract requirements. Audits are intended to be independent, objective quality assurance activities designed to improve our organization's operations and to add project value by helping to ensure accountability, interdepartmental consistency and the free exchange of ideas. The audits are intended to help meet TolTest's quality service objectives, and to reduce risks, by bringing a systematic, uniform approach to the evaluation and control of the effectiveness of the processes used to complete projects and conduct our business.

The QC Manager is responsible for verifying compliance with the QCP through audits, onsite inspections and surveillance. The CQM is to inspect the quality of work being performed for all phases of work, along with the appropriate documentation. The CQM verifies that procedures used conform to applicable specifications and contract requirements. Documentation will be reviewed on a weekly basis by the QAM. Regular coordination between the Onsite Technical Manager, QC Manager, QAM and Project Manager will occur during the entire project duration. Topics for review include documentation for the ECM portion, and weekly inspection logs, inventory sheets, drum labeling, safety, transportation logs, chain of custody (COC) for the white phosphorus waste management activities. In addition, the QAM will perform random audits of all procedures outlined within the CQCP. Results will be reported to the project team for correction or address of any deficiencies.

#### **3.3 Preventative and Corrective Action**

TolTest's Preventative Action and Corrective Action procedures establish the methods and responsibilities for determining, documenting and initiating preventative and corrective action. These procedures also include the verification of corrective actions to ensure their effectiveness.

### **3.3.1 Internal Audit**

TolTest has developed an internal audit program to verify the overall performance and correct operation of the QMS. This program is also used to determine if the established QMS is being adhered to and if the quality objectives are being met. This program ensures the following;

- An adequate process is implemented for ensuring policies and procedures comply with applicable rules and regulations
- Established policies and procedures are being followed
- Prior internal audit findings have been properly disseminated

### **3.3.2 Control of Nonconformance**

TolTest has developed procedures for identifying and controlling work product and procedures that do not meet established specifications, rules and regulations.

Associates within each department or service area are responsible for identifying and reporting nonconformance's to their Supervisor, the Project Manager or appropriate Manager. The responsible Manager ensures nonconformance's are identified and corrected and all appropriate associates affected are notified.

### **3.3.3 Corrective Action**

TolTest has developed procedures for implementation and recording of corrective action.

- Corrective action is initiated upon detection of any quality-related problem considered to be significant in nature. This input is generated from performance data – including, but not limited to peer reviews, internal audits, quality records, customer communication, suppliers, management reviews and personal observations.
- The investigation of significant nonconformities is conducted, using quality control methods, so as to determine the root cause of each problem. The investigation and analysis of nonconformities is documented and recorded.
- Appropriate corrective action is selected based on effectiveness, and on the overall impact to the customer and on business operations.
- Managers monitor implementation of corrective action and verify the effectiveness of the corrective action where appropriate.
- Internal audit procedures are utilized to support the corrective action program.

Project team members are to notify the QC Manager, Onsite Technical Manager and project management of any noted deficiencies, as well as to strive for continuous improvement in the work product or processes. Project personnel are encouraged to offer suggestions for improvements in the defined work process, materials, labor or operations that provide for a better work product, simplification of the process, or a safer work environment. All such recommendations are presented to the staff members' immediate supervisor with copies provided to the QAM and Project Manager. The QAM and Project Manager shall consider the recommendations considering contract requirements, rules, laws and regulations.

Deficiencies in workmanship are tracked on site through the three-phase control. For the ECM site activities, Deficiency Logs were maintained. Deficiencies within Definable Features of Work (DFOW) are tracked on the Follow-Up phase of the Quality Control reports until such time the deficiency is corrected. For the white phosphorus waste management activities, documentation and notification of deficiencies will be in accordance with the approved Waste Management

Plan (WMP). A deficiency that would warrant an immediate action include emergency situations such as leaks, spills, drum damage or drum integrity compromised, security concern or personal injury. In such instances the immediate response will be to implement the White Phosphorus Disposal Contingency Plan Addendum 001 provided as Appendix A of the WMP and contact the designated Emergency Point of Contact. Deficiencies that would warrant a change in scope will be discussed as they occur with the USACE Project Manager and Contracting Officer's Representative (COR).

### **3.3.4 Preventative Action**

Preventive action is taken to eliminate the cause of actual or potential nonconformities. Situations where preventive actions may be taken to eliminate potential nonconformities include, but are not limited to:

- Actions identified during management reviews
- Areas that are prone to creating problems, and
- Nonconformance identified in another area or department.

### **3.4 Data Management**

Rigid control must be maintained over the project data and documentation.

- All sections of forms shall be completed in full or marked N/A.
- Time and date formats will be consistent on all documentation.
- All signatures will include the date of the signature.
- Any incorrect entries shall be marked, initialed and dated.

Electronic data and records will be managed to prevent accidental loss of information. Data will be backed up periodically and stored on multiple media sources. The following additional guidelines will be followed for all electronic QC records.

- Once an electronic record is completed and saved to disk, the file name will be used as the registration number for that document and shall appear on each page of the electronic record such that it also appears on printed copies.
- Changes, additions, late entries and corrections to completed electronic records will be accomplished by creating a revision to the previously completed record. Included in the file name of the completed record will be the sequential revision number of that record. The first such revision of any record will be designated as R1 at the end of the file name. Subsequent revisions will be designated R2, R3, etc.
- The original record will not be deleted electronically, and each revised record will include a description of the changes made on that particular revision as well as retaining the description of any previous revisions.
- Any document that is revised after any required distribution either off-site or to any electronic or hard copy file will be likewise distributed to all recipients as the original document. The revision will be filed along with the original and any previous revisions.
- Electronic forms, which require signatures, will be printed, and the printed original signed and dated in black ink as required. The words "signature on file" shall be entered on the electronic copy, in the signature space, of all documents requiring signatures. The signed

original will be filed in the proper location. Subsequent revisions to forms requiring signatures will also be printed, signed and filed.

- Logs maintained electronically may be updated as required for daily activities without going through the above revision process. Each day's log however shall be saved electronically with the date included in the file name. Previous day's logs will not be deleted from the database and will serve as additional back up should the current day's log be damaged or lost.

## 4.0 QUALITY CONTROL

Site QC activities are defined in the following subsections and include:

- Reviewing DFWO prior to implementation of task schedule activity.
- Conducting necessary inspection of work activity.
- Completing applicable monitoring, testing and sampling.
- Documenting the QC activity.

### 4.1 Definable Features of Work

The contract specifications were reviewed and a work flow activity schedule was created to complete this DO. DFWO line item activities are to be individually controlled for quality. **Exhibit 3** lists the DFWOs for this project, the corresponding specification sections being controlled as applicable, and the referenced schedule activity identification (ID). Each of these inspections is conducted and documented by the QC Manager using the Quality Control Report (Form F235), provided in **Attachment 3**.

**Exhibit 3, Definable Features of Work**

<i>Definable Features of Work</i>	<i>Specification Section</i>	<i>Schedule Activity ID</i>
Earthwork / Clearing & Grubbing	PWS 2.13	1120,1220
Repair ECMs	PWS 2.15	1270
Lightning Protection System	PWS 2.15 (NFPA 780)	1260
Temporary Storage, Transport & Dispose White Phosphorus Drums	PWS 2.11	1439

#### 4.1.1 Phase 1 – Preparatory Inspection

(ECM and white phosphorus waste management activities)

Preparatory inspection meetings are held prior to beginning onsite activities for each DFWO provided in Table 1. The results are documented on the QC Report. The following preparatory inspection activities are performed:

- Review submittal requirements and other contract requirements with the specific trade subcontractor/supplier /tradesman directly responsible for the performance of the work.
- Check to ensure provisions are made for field control testing and inspection.
- Examine the work area to ensure required preliminary work is complete and in compliance with the contract.
- Verify field dimensions and advising the CO of any discrepancies.
- Examine required materials, equipment, and sample work to ensure conformance to approved shop drawings or submittal data.
- Ensure materials and/or equipment is on hand and properly stored.
- Review appropriate activity hazard analysis (AHA) to ensure safety requirements are met.
- Review procedures for conducting the work including elimination of repetitive deficiencies.
- Document tolerances and workmanship standards for that phase of work.

#### **4.1.2 Phase 2 – Initial Inspection**

(ECM and white phosphorus waste management activities)

Initial inspection meetings are performed as soon as work begins on a representative portion of the particular DFOW. The QC Manager conducts the initial phase with the Superintendent or Onsite Technical Manager and other project personnel responsible for that DFOW. The results are documented on the QC Report. The following initial inspection activities are performed for each DFOW:

- Examine quality of workmanship, observe sampling activities, and evaluate performance for compliance with DO documents and requirements.
- Review control testing for compliance with contract requirements.
- Ensure calibration, testing and monitoring are performed by qualified personnel/approved laboratory.
- Resolve conflicts, if any.
- Check work procedures for compliance with the SSHP and appropriate AHA.

This phase is repeated when the appropriate quality standards are not met or a new crew is onsite to perform the work. This inspection is made a matter of record on the QC Report.

#### **4.1.3 Phase 3 – Follow-Up Inspection**

(ECM site activities only. White phosphorus waste management activities QC reporting will be through specific documentation.)

Follow-up inspections were performed as a particular DFOW progressed to ensure continuing compliance with contract requirements, including control testing, until completion of that DFOW. Each inspection performed was made a matter of record on the QC Report. Final follow-up inspections were conducted and deficiencies were corrected prior to the start of a schedule successor activity that may have been affected by the deficient work, if any.

### **4.2 Waste Management Quality Control**

(White phosphorus waste management activities)

Waste Management procedures are outlined in the WMP. The procedures themselves include inspection checklists, recording and documentation of items by the Onsite Technical Manager. The quality control for these activities will be performed by the QC Manager. Specific activities are listed below:

#### **4.2.1 Drum Inspections**

Drums are inspected prior to acceptance, while in storage (weekly), prior to loading and while on the truck. TolTest will use checklists and document information on the Contractor Production Report. The white phosphorus drums will be inspected by TolTest Onsite Technical Manager prior to acceptance for management, handling, transport and offsite disposal. The Onsite Technical Manager will personally inspect all drums that are delivered to the drum staging area within the Wet Storage Area and examine certifications for acceptance for storage and for release for disposal. The drums will be visually inspected in accordance with the approved WMP, Section 5.0. Photographic documentation of each drum prior to being sealed will be examined; however, no drums will be opened to verify the correct amount of water. PIKA will

provide this photographic documentation to the Onsite Technical Manager prior to final acceptance by TolTest.

#### **4.2.2 Drum Labeling/Inventory/Tracking**

The drums will be labeled, and marked "Hazardous Waste" for the specified materials contained, and in accordance with referenced regulations: Ohio Administrative Code (OAC) rule 3745-52-30 requires generator to package the hazardous waste as required by the DOT regulations found in 49 Code of Federal Regulations (CFR) Parts 173, 178, and 179. The drums will meet these requirements for packaging. Markings will be completed in accordance with the approved WMP, Section 7.0.

The drums will be labeled initially by PIKA to include the PIKA inventory number and the hazardous waste label with date of accumulation. TolTest will retain and use the PIKA inventory number and DOT hazard labels on the drums for their inventory tracking system. The inventory tracking system will allow the project staff to verify the proper sequence of the drums through handling, loading and transport. Inventory and Tracking will be in compliance with the approved WMP, Section 5.0.

Chain of custody forms or Hazardous Waste Manifests will be utilized to document the acceptance and transfer of containers from PIKA, to TolTest, to Triad Transportation Inc. (Triad), to Veolia Environmental Services (Veolia) as per WMP, Section 5.0.

The drums will transfer custody three times before final disposal.

- PIKA will transport the sealed and labeled white phosphorus and white phosphorus contaminated soils and debris drums to the drum staging area from the RRA.
- Upon inspection and acceptance, TolTest will maintain custody of the drums while in temporary storage. Prior to loading the drums onto the transport truck, TolTest Onsite Technical Manager and the Veolia Representative will jointly inspect the drums.
- Veolia Representative will then load the drums onto the Triad transport truck.
- Triad will transport the drums by direct, predetermined route to Veolia.
- Veolia will unload and inspect the drums and accept custody of the drums.

#### **4.2.3 Drum Loading**

Drum handling will be in compliance with the approved WMP, Section 7.0. Quality Control procedures will verify compliance with the included checklist and safety procedures. All drums will be inspected prior to handling or loading. A final inspection will be performed prior to the transporter leaving the site.

#### **4.2.4 Transporting**

Transportation of drums will be in accordance with the approved WMP, Section 8.6. All safety procedures outlined will be verified and documented prior to the transport vehicle departing the loading site. Transportation primary routing and information will be in compliance with the approved WMP, Section 8.6. Waste manifests and COC documents will be prepared according to the approved WMP, Section 6.0.

#### 4.2.5 Disposal, Recording and Reporting

Disposal of white phosphorus waste and white phosphorus contaminated soils and debris will be through Veolia. All procedures will be per the approved WMP, Section 8.0, including the following:

- Disposal requirements
- Status of Facility
- Packaging Certifications and Records
- Waste Manifests
- Certificates of Destruction as required

#### 4.2.6 Daily QC Review

Daily QC Audits will be performed by the QC Manager including inspection and review of the drum staging area, any instruments, equipment and posting of documentation. Items of concern will be elevated to the QAM and Project Manager for review and action.

#### 4.3 TolTest QC Organization Responsibility

TolTest will perform monitoring tests, observations, and/or special inspections specified by this DO, and otherwise deemed required by TolTest, to ensure a product conforms to the contract requirements. For those third party services, TolTest is using those firms listed below in **Exhibit 5** to complete these services.

- Certification from a nationally recognized agency
- Affidavits for special inspections (for lightning protection) are submitted to the CO before progress payments for the work are approved

#### 4.4 Outside Organizations Responsibility

**Exhibit 4** provides a list of third party firms TolTest plans to use. As applicable to this DO, copies of certifications for Falls Electric are provided in **Attachment 2**. Copies of certificates and permits for Veolia and Triad are provided in Attachments 9 and 10 of the Waste Management Plan.

**Exhibit 4, List of Outside Organizations**

Company / Firm / Agency	Responsibility	Applicable Certifications
Veolia Environmental Services	Disposal	Illinois EPA Hazwaste license (RCRA Part B) Illinois Solid Waste Management Title V Permit, NPDES Storm Water BATF Explosives Magazine License CERCLA approved
Triad Transporters	Transportation of White Phosphorus	DOT HazMat and DOT license
Falls Electric Inc.	Lightning Protection	NEC certification through contractor's license

## **4.5 Equipment Calibrations/Maintenance Requirements**

Calibration and maintenance of tools, equipment, instruments, cell phones, vehicles, machinery, etc., will be performed per manufacturer's specifications. Records of these activities are to be generated by the individual performing the activity with copies provided to the Onsite Technical Manager and QC Manager for retention in the project QC file.

Calibration of instruments will be checked before and after use or maintenance in accordance with the manufacturer's instructions. Calibration data, including the instrument model, serial number, calibration data, and site conditions, will be recorded on the Instrument Calibration Log prior to obtaining monitoring data.

### **4.5.1 Machinery and Equipment**

All machinery and equipment, including rental machinery and equipment, will be inspected and tested daily by the operator to ensure a safe operating condition. Inspections and tests will be in accordance with the manufacturer's recommendations and will be documented. Records of tests and inspections will be maintained at the site, made available upon request, and become part of the project file.

Safety materials, including eye wash solutions, hand washing solutions, etc. will be inspected for purity and volume prior to conducting any work on the sites. ToITest will ensure that sufficient safety washes are onsite at all times for use should an exposure incident occur.

### **4.5.2 Respirators**

Respirators should be cleaned and inspected before and after each use. Respirators should be cleaned and sanitized after each use in accordance with the manufacturer's instructions.

During inspection, respirators should be checked for defects in the connections, face piece, valves and canisters, and filters/cartridges.

Any defective parts should be replaced or taken out of service if found unserviceable by cracks, broken straps, or unable to seal during donning and doffing. Respirators should be stored in an easily accessible and sanitary location so that they are protected against physical and chemical agents that could damage and distort elastomeric parts. Respirators left in the open in the work environments where they are used are subject to contamination from settling airborne materials. It is necessary to store respirators in labeled plastic bags out of direct contact with potential contaminants.

- Test Frequency – Daily before and after use

### **4.5.3 Personal Protective Equipment**

All personal protective equipment (PPE) should be cleaned and inspected before and after each use. Disposable PPE should be disposed after each use. Other PPE (Hard hat, gloves, Boots, Face Shields, Safety Glasses, Aprons), should be cleaned and sanitized after each use in accordance with the manufacturer's instructions.

During inspection, all PPE should be checked for defects. Any defective PPE should be replaced or taken out of service if found unserviceable by rips, broken zippers, straps, holes excessive wear, cracks, broken straps.

PPE should be stored in an easily accessible and sanitary location so that they are protected against physical and chemical agents that could damage and distort the equipment for what they are designed.

PPE left in the open in the work environments where they are used are subject to contamination from settling airborne materials. It is necessary to store PPE in lockers or suitable storage out of direct contact with potential contaminants.

- Test Frequency – Daily before and after use

#### **4.6 Pass/Fail Criteria**

Pass/Fail criteria for drums received are outlined in the WMP. Damaged or visual soil on drums, incorrect or incomplete labeling, improper Chain of Custody records, or any discrepancies in documentation will result in a failure with the drum being rejected.

#### **4.7 Lessons Learned**

Lessons learned are an important part of the continuous improvement process and can provide vital information to prevent similar problems from occurring. Lessons learned from daily activities and from the occurrence of nonconforming conditions will be documented by any member of the team, as appropriate. Lessons learned as a result of nonconforming conditions are captured and documented immediately, and noted on the Weekly Field Report. Other lessons learned, from both positive and negative events will be documented in the Contractor Production Report and/or Safety Log. These items will be included in the Final Closeout Report. The QAM maintains a database of Lessons Learned for communication to the client, to other sites and for incorporation into training requirements.

## 5.0 DOCUMENTATION (Logs and Records)

In order to record QC activities, select documentation efforts are prepared and communicated. This documentation is intended to ensure quality and meet DO requirements concerning quality communication efforts. Forms attached may be completed in paper or electronic format. Documentation activities that are communicated to the project team during this project are provided in **Exhibit 5**.

**Exhibit 5, Project Documentation**

<i>Form</i>	<i>Document</i>	<i>Distribution</i>	<i>Frequency</i>
n/a	Appointment Letters	TolTest, Client	Once
n/a	Outside Organization Certifications	TolTest, Client	Once
F-235	Quality Control Report	TolTest, Client	Per DFOV
F-229	Rework Items List	TolTest, Subs/Vendors, Client	As required
F-210	Punch-Out Inspection	TolTest, Subs/Vendors	As required
F-211	Pre-Final Inspection	TolTest, Subs/Vendors, Client	Once
F-212	Final Inspection	TolTest, Subs/Vendors, Client	Once
F-206	Material Submittal Register	TolTest, Subs/Vendors, Client	Once
F-207	Material Submittal Approval	TolTest, Client	Per submittal
F-217	RFI / RFC	TolTest, Client	As required
n/a	Contractor Production Report	TolTest, Client	Daily
n/a	Chain of Custody	TolTest, Subs/Vendors, Client	As required per transfer of waste
n/a	Weekly Inspection Report	TolTest, Client	Weekly
n/a	RVAAP Weekly Inventory Sheet	TolTest, Client	Weekly
	Hazardous Waste Manifest	TolTest, Client, Subs, Vendors	As required
n/a	Contract Modifications	TolTest	As required
n/a	Meeting Minutes	TolTest, Client	As required
n/a	Red-Line Drawings	TolTest, Client	At project close-out

Documentation not previously discussed in earlier sections is explained below.

### 5.1 Contract Submittal Procedures

(ECM site activities)

Prior to work execution, the material submittals were prepared and provided to the USACE and RVAAP Facility Manager for approval. Material submittals were submitted utilizing the Material Submittal Register (Form F206) and Material Approval Submittal (Form F207) provided in **Attachment 2**. Submittals, shop drawings, catalog cuts, samples, etc., unless otherwise noted, were approved and certified by the Project Manager or QC Manager, as conforming to the drawings and specifications. Any submittal which required Government approval was identified in the specifications and on the Material Submittal Register.

Materials received at field locations were subject to inspection by the QC Manager. The detail, depth, and documentation requirements of receipt inspection were dependent on the type of material and equipment being received. The QC Manager oversaw the onsite receipt and control of materials to ensure that the materials purchased were correct, properly stored and

handled. Materials and equipment received were identified with appropriate markings as described in field procedures.

## **5.2 Daily Report**

The Contractor Production Report is submitted for each day of work, for every seven consecutive calendar days of no work, and on the last day of a no-work period. Each calendar day is accounted for during the life of the contract. The reporting of work is consistent with the project schedule. These reports contain, at a minimum, the following information:

- TolTest personnel and equipment onsite
- Subcontractors/suppliers onsite
- Work performed
- Weather conditions
- Safety issues
- Material(s) received
- Schedule impacts or delays
- Unresolved issues
- Photographs

The Contractor Production Report form is submitted by the Project Manager to the CO/COR at the completion of each day's site activities.

## **5.3 Quality Control Report**

The QC Report (Form F235) covers daily activities of the three phases of the QC procedures for each ongoing DFOW. QC Reports are updates daily for the duration of each DFOW.

## **5.4 Safety Report**

Daily Safety Tailgate Reports will be compiled weekly by the onsite SSHO. Safety incidents will be reported immediately in accordance with the SSHP and as required by local, state and federal laws and regulations.

## **5.5 Photographic Records**

Periodic photographic documentation will be taken to record unloading, storage, loading, handling and pre-transport activities. Electronic copies will be made available to the client per contract requirements. Photographic evidence of proper water levels within drums will be provided by PIKA and included with TolTest photographic records.

## **5.6 Disposal/Chain of Custody**

(White phosphorus waste management activities)

Custody of the white phosphorus and white phosphorus contaminated soil and debris drums will be documented on a COC form. PIKA has created a COC form to track the white phosphorus and white phosphorus contaminated soil and debris drums from RRA to TolTest at the drum

staging area. A copy of this form is provided in the WMP. The Hazardous Waste Manifest will be used to document COC for transportation and disposal activities.

### **5.7 Weekly Inspection Reports**

(White phosphorus waste management activities)

Weekly Inspection Reports will be compiled by the Onsite Technical Manager, reviewed by the QC Manager and submitted to the Project Manager for review and approval. The reports include all inspection items listed in the WMP, Section 5.0.

### **5.8 Project Correspondence**

Project correspondence will be electronically stored by TolTest and made available to the client upon request. Bi-Weekly coordination meetings will be held either on site or through teleconference with interested parties and will be coordinated by RVAAP staff.

### **5.9 Change Tracking**

As the project progresses, technical issues may arise that are not clearly defined in the contract documents. In such instances, the Request for Information (RFI) / Request for Change (RFC) form (Form F217) is used to provide clarification and grant final decisions on technical matters. RFI/RFC(s) are entered and tracked using the RFI/RFC Tracking Log.

An RFI can be either mandatory or non-mandatory depending upon how the technical issue affects the final product. For example, for technical issues that affect performance or how something works, the RFI is mandatory. However, for technical issues that enhance the final product or add additional value to the final product, the RFI is non-mandatory. RFIs are prepared in the field by the Superintendent or Onsite Technical Manager, and sent to the Project Manager for review/approval. The Project Manager submits the RFI to the CO/COR for final approval. No work that is tied to the RFI is complete until final resolution of the RFI is received. The RFI pertains to technical matters only and does not affect contractual obligations.

### **5.10 Contract Modifications**

The QC Manager ensures project personnel are aware of and are properly implementing contract modifications. Copies of the modifications are maintained on-site electronically and in the Project Field Manual.

### **5.11 As-Built Drawings**

(ECM Site Activities only)

As-Built record drawings for construction work will be compiled from onsite “red-line drawings” maintained by the Site Superintendent. Information will be transferred to computer-aided design and drafting (CADD) files and submitted to the client in accordance with contract requirements.

## **6.0 TRAINING**

### **6.1 Training Process**

The Project Manager has ultimate responsibility to ensure project personnel have the proper certifications and training. The QAM will ensure QC personnel are certified by USACE or NAVFAC in Construction Quality Control for Contractors, and all personnel are aware and understand their responsibilities and authorities. The SSHO ensures all safety personnel hold the appropriate safety certifications and training. The Onsite Technical Manager verifies the approval of all personnel before allowing that person to begin work onsite.

#### **6.1.1 On-Site Personnel**

The Onsite Technical Manager verifies the approval of all personnel with the QAM and SSHO before allowing that person to begin work on site. In addition, the Onsite Technical Manager will conduct site-specific training as outlined by the SSHP for all new arrivals. All onsite personnel will be documented with day and time of activities.

#### **6.1.2 Contractors, Subcontractors, Suppliers Vendors and Visitors**

All contractors, subcontractors, suppliers, vendors and visitors are required to register with the Onsite Technical Manager prior to proceeding within the areas of work. Training will be determined for personnel in compliance with the SSHP.

## **7.0 PROJECT RECORDS**

TolTest will maintain electronic records of correspondence, completed forms, reports, drawings and other material. Electronic copies of relevant documents will be provided to the client in accordance with contract documents.

### **7.1 Weekly Reports and Project Completion Report**

Copies of records will be presented in the Weekly Reports and Project Completion Report. Weekly Reports will provide information of the activities conducted during the week including: the number of drums removed, inspection records, disposal manifests, and any other pertinent information about the weekly activities.

Once every drum of white phosphorus and white phosphorus contaminated soil and debris has been properly disposed, TolTest will prepare a Project Completion Report. The report will document that all containerized drums of white phosphorus and white phosphorus contaminated soil and debris has been transported off-site and properly disposed in accordance with all rules, laws and regulations. The report will include official documentation of the disposal of the drums of white phosphorus and white phosphorus contaminated soil and debris.

### **7.2 Onsite Records**

Per DID OE-005-11.01 (4) QC records and documentation for current white phosphorus waste activities will be kept onsite and available for government inspection upon request.

**ATTACHMENT 1**

**APPOINTMENT LETTERS**



*Solutions for Your Site Development,  
Construction, and Environmental Projects.*

January 26, 2011

TolTest Project No. 23343

Ms. Karen Radomski  
Environmental & Quality Services, LLC  
5511 Pierce Road  
Warren, OH 44481

Ms. Jennifer Resnik  
TolTest, Inc.  
1480 Ford Street  
Maumee, OH 43537

**Subject: Contract No. W912QR-04-D-0038, 0011  
RVAAP-004-R-01 Open Demolition Area #2  
White Phosphorus Disposal at the Rocket Ridge Area  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Appointment as Primary and Alternate Contractor Quality Control Manager**

Dear Ms. Radomski and Ms. Resnik:

Ms. Radomski you are assigned as the Primary Contractor Quality Control Manager (QCM) and Ms. Resnik you are assigned as the Alternate QCM. During work on site, either the Primary QCM or Alternate QCM is required to be on site at all times and will report to the Corporate Quality Assurance (QA) Manager. As the QCM, you are responsible for overall management of QC. You have the authority to act in all QC matters for TolTest and have complete authority and responsibility to take action necessary to ensure contract compliance.

As the QCM, you are responsible for the management and implementation of the CQC Plan. It is your responsibility to conduct and document QC activities on site and be the point of contact to the client for QC-related matters. You have the authority to stop work due to QC concerns.

If you have any questions or need more information, please contact TolTest's Operations Director, Mr. Dave Streeter, at 419-794-3500 or by email at [dave.streeter@toltest.com](mailto:dave.streeter@toltest.com) or Project Manager, Mr. Thomas Knueven, at 317-856-8555 or by email at [tom.knueven@toltest.com](mailto:tom.knueven@toltest.com)

Sincerely,

**TOLTEST, INC.**

A handwritten signature in black ink, appearing to read "R. Leduc".

Robert J. Leduc, PE  
USACE Program Manager

Cc: File Copy  
Mr. Thomas Knueven – TolTest  
Robert Densic, RA, QA Manager – TolTest

# Karen Radomski, CPG, CHMM, CSS

## Onsite Technical Manager

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### Education:

- BS, 1988, Earth Science

### Active Registrations:

- Certified Professional Geologist, AIPG #10066
- Certified Hazardous Materials Manager, IHMM #7121
- Certified Safety Specialist, WSO #906
- USACE Construction Quality Management for Contractors, 2006
- ISO 9001, Certified Lead Auditor #6258
- ISO 1400, Advanced EMS Lead Auditor #E2167

### Health & Safety Training:

- OSHA 40-Hr. HAZWOPER & Supervisor, 1988 (and annual refreshers)
- OSHA 30-Hr Construction Safety and Health
- DOT HM-126 HAZMAT Shipping and Handling
- CPR and First Aid, American Red Cross
- Formal education and training in field sampling at remedial action and hazardous waste sites
- Specialized training in PPE, implementation, instrument use, sampling methods, interpretation

### Experience and Qualifications

Ms. Radomski is a specialist in quality, safety and regulatory compliance for federal and state governments for environmental investigations, regulatory compliance studies and audits, hydrogeologic investigations, permit preparation, support closure and remediation of hazardous waste sites. Her expertise on regulatory support issues includes RCRA, CERCLA/SARA, CWA, CAA, OSHA, and AHERA.

***President, Environmental & Quality Services, LLC. 2010 – present.*** Ms. Radomski provides project management for environmental remediation projects including site safety and quality. She also conducts facility audits and develops programs for ISO 9001 and ISO 14000.

***Corporate Quality Manager 2000-2009, Project Manager 1995-2000 TolTest, Inc.,.*** As TolTest's Corporate Quality Manager, Ms. Radomski was responsible for regulatory training and compliance for team members and for QC management for federal, state, and local environmental as well as construction and design/build projects. She was responsible for developing, maintaining, and enforcing TolTest's Corporate QA and QC programs company-wide. She provided corporate oversight of QC field operations, ensuring contract requirements were met. Her experience includes 12 years working experience at sites with EPA Level C and above.

In her Corporate QA role, she conducted quality and safety audits throughout the company, at individual project sites, laboratories and waste disposal facilities. She issued audit reports and assisted internal units in the preparation of timelines and improvements for compliance measures. She developed and enforced the use of standard operating procedures (SOPs) from project acquisition thru execution and closeout. These procedures included field safety SOPs. Ms. Radomski established, implemented, and maintained programs that provided for verification and control of quality-related activities company-wide. She provided senior-level QC review and approval of QC documentation and had overall responsibility for development and approval of QC Plans. She ensured adequate QC staffing for contract compliance and developed, implemented, and enforced environmental QC programs. In her corporate role, she oversaw QC compliance on

## **Karen Radomski, CPG, CHMM, CSS**

### **Onsite Technical Manager**

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federal contracts, including highly relevant environmental ID/IQ contracts such as the examples provided.

She has instituted a quarterly Quality Award system to maintain high levels of motivation among TolTest associates to deliver consistently high quality products and service. Under her leadership, TolTest received 70 “Outstanding” and “Above Average” CCASS ratings and 29 “Blue” (Excellent) ratings for Quality on 22 AFCEE projects. Many of these ratings attest to the quality of our work, project deliverables, and the final end product.

Ms. Radomski is a member of the American Institute of Professional Geologists; Institute of Hazardous Material Management and; Academy of Certified Hazardous Materials Managers; World Safety Organization.

**Project Manager/Safety Officer, Meridian Naval Air Station, Mississippi.** Managed this \$1M RCRA intermediate measure for the remediation of two fire training areas and a pesticide storage area. Responsible for cost estimates, change orders, supervision and safety oversight for subcontractors and project personnel. Project included excavation, removal, manifesting, transportation, and disposal of liquids and solids classified as hazardous waste; soils, drums, UST and oil/water separator waste characterization and removals; on-site laboratory for soil screening, confirmatory sampling for PCBs, metals, pesticides, TPH and VOCs, and auditing of waste disposal facility. Site restoration included compaction of over 11,000 cy of soil, geotechnical testing and surveying of final grades. Alternative treatment of chemical oxidation instead of incineration for soils contaminated with pesticides resulted in a client savings of \$70,000.

**Program Quality Control Manager, Environmental Job Order Contract (EJOCS I and II), US Navy, NSA, Crane, IN.** In this role, Ms. Radomski provided QC management and oversight on these two very successful ID/IQ contracts, comprising 361 TOs valued at \$42.4 million. The contracts covered Navy and Marine facilities within a 15-state area (Midwestern US). Scopes on these contracts included: remediation of metals, acids, bases, reactives (e.g., lithium), PCBs, pesticides, explosives (e.g., RDX), POL, asbestos, and lead. Media affected include soil, sediments, groundwater, sludge, surface water, air, and man-made structures. Remediation activities took place at landfills, tanks (ASTs and USTs), buildings (e.g., indoor firing ranges, military housing, various military installations and facilities, hospitals, maintenance and storage facilities, etc.), solid waste management units (SWMUs), contaminated soil and groundwater sites, Nike missile sites, ponds, and spill sites. TOs ranged in value from \$1,000 to over \$3.6 million, and up to 38 projects at 11 installations were performed simultaneously.

**Program Quality Control Manager, Environmental Multiple Award Contract (EMAC), NAVFAC Southern Division, Region 4.** In this role, Ms. Radomski provided QC management and oversight. This large ID/IQ contract has a \$20 million ceiling covering remedial action projects in Mississippi, Tennessee, Georgia, South Carolina, and Kentucky. To date, TolTest has been awarded five projects on this contract at Navy and Marine facilities in Georgia and South Carolina involving green demolition of 34 structures; interim measures and confirmatory sampling at various SWMU sites; installation of groundwater monitoring wells; asbestos abatement; and sewer line replacement. Contaminants removed include mixed hazardous wastes, asbestos, Freon, fuel oil, concrete, septic tanks, heavy metals, PCBs, pesticides, and explosives. Media affected include soil, groundwater, air, and

## **Karen Radomski, CPG, CHMM, CSS**

### **Onsite Technical Manager**

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man-made structures. Remediation activities took place at a hazardous waste storage facility, pond, and other facilities.

**Program Quality Control Manager, NAVFAC Washington Environmental Multiple Award Contract (EMAC).** In this role, Ms. Radomski provided QC management and oversight. This contract covered remediation of solvents, metals, acids, bases, reactives, PCBs, pesticides, explosives, low-level radiological, and POL in soil, sediments, groundwater, air, sludge, and man-made structures. Remediated sites include landfill, hazardous waste storage facility, tanks, and other facilities. Under this contract up to 4 projects were performed simultaneously at 4 installations, all with high quality results leading to high levels of client satisfaction. TolTest was issued 6 DOs whose scopes ranged in value from \$78K to \$2.3M.

**Project Manager/Safety Officer, Wright-Patterson AFB Environmental Restoration/Support Programs.** Work under these contracts took place primarily at WPAFB, OH, and other GO/CO facilities nationwide. Projects covered remediation of metals, PCBs, low-level radiological, asbestos, lead and POL in soil, sediments, groundwater, sludge, air, and man-made structures. Up to 6 projects were performed simultaneously at sites including landfill, tanks, spill sites, wastewater treatment facilities, low-level radiological burial site, fuel farm, and other facilities. Ms. Radomski provided project management, quality and safety. Our quality performance on the ERP program led to award of the follow-on ESP program to TolTest.

**Program Quality Control Manager, Environmental Statewide Indiana and Ohio Contracts, USACE, Louisville District.** Provided QC Management for 7 concurrent TOs under this contract including remedial investigations, drilling and installation of recovery wells, removal of UST systems, permits, and remediation of impacted soils. Projects were completed with attention to quality control and well within the anticipated performance schedules.

***Environmental Consultant, Environmental Consulting Services, 1993 to 1995.*** Provided environmental and regulatory expertise for groundwater investigations and assessments, developed safety and health programs, and conducted regulatory compliance audits. On one example project, she served as Project Manager/QC Manager in conducting a geologic study and hazard analysis at a Solid Waste Landfill Permit and Modification for the Village of Woodridge, Illinois. She reviewed the permit modifications and long-term groundwater monitoring plan, provided environmental compliance recommendations and liaison for the Village Board and ILEPA.

***Project Hydrogeologist, IT Corporation, 1991 to 1993.*** Performed research on horizontal wells (RCRA IM) and groundwater fate and transport study to accumulate and organize plume and chemical degradation data for 200 monitoring wells. An example project was at a Chemical Manufacturing facility in Ohio. Responsibilities included performing detailed engineering and cost analysis for an interim measure/remedial design, development of horizontal well technology to capture DNAPLs, completion of a detailed sampling plan for over 40 sampling techniques. In addition, she directed the performance of a fate and transport study of over 200 monitoring wells with eight years of chemical data. The results were used in a feasibility study for long-term remediation. Development of the horizontal well technology to capture DNAPLs resulted in considerable cost savings to the client.

## **Karen Radomski, CPG, CHMM, CSS**

### **Onsite Technical Manager**

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**Hydrogeologist, OHM Corporation, 1990 to 1991.** Developed and implemented hydrogeologic investigations, provided WPS, SSHPS, and technical support to client's legal department. One example project at the Manitowoc Army Reserve Center, Wisconsin, comprised activities to determine the source of TCE contamination in a Ranney Well, including development of an Action/Maintenance Plan for storage of hazardous materials, preparation of a scope of work and Sampling Design Plan, permit preparation, and monitoring well field design. She supervised the field investigation to ensure compliance with USTHMA, CERCLA, OSHA, and Wisconsin DER regulations. Since protection of a public water supply was an issue, the Action/Maintenance Plan was developed quickly to avoid further risk of a release.

**Geologist, TRC Environmental Consultants, Inc., 1988 to 1990.** Performed UST removals, asbestos inspections, CAA air monitoring, wrote work plans, and performed field investigations at HTRW sites including five Superfund NPL locations. On one example project, RI/FS at Times Beach HTRW Superfund Site, Missouri, she developed work plans and performed field investigation for delineation of dioxin-contaminated soil. Site activities included sample collection, air monitoring, dust control measures, and site security. Decontamination of PPE and sampling equipment comprised nine stations.

#### **Technical Documents**

“Application of Horizontal Well Systems to Groundwater and Soil Remediation.” In *Proceedings of the Technology Exchange Symposium*, Scottsdale, AZ, Volume III, Paper 13-3, June 1992.

## JENNIFER RESNIK

### **EDUCATION AND SPECIALIZED TRAINING**

- BS, Environmental Sciences, 1998
- OSHA 40-hour HAZWOPER, 1999
- OSHA 8-hour Annual Refresher, 2005
- OSHA 8-hour HAZWOPER Site Supervisor Training, 1999
- CPR/First Aid, American Red Cross
- Confined-space Entry
- Lock-out/Tag-out Training
- First Aid/CPR, American Red Cross
- Blood Borne Pathogens
- U.S. Navy – Courses in Advanced Electrical/Electronic Measurement, Basic and Advanced Electronics, and Advanced Microwave Measurement Course

### **PROJECT EXPERIENCE**

#### **Project Manager/ Environmental Scientist, TolTest, Inc.(2000-present)**

Responsible for project management and project support for various federal contracts which include quality control support, environmental/chemical data analysis and interpretation, technical report writing, project plan and procedural writing, statistical reports, proposal writing, regulatory reporting, submittal management, cost tracking, schedule monitoring, contract management, subcontractor management, and record maintenance.

#### **Summary of Qualifications**

- ✓ 6 years of experience in environmental field sampling and QC
- ✓ 6 years experience in the quality control of environmental construction and service projects
- ✓ Demonstrable expertise in construction and service quality control
- ✓ Demonstrable expertise in field and laboratory techniques
- ✓ Provides QC of remediated soil samples for NSWC Crane bioremediation project
- ✓ Working knowledge of applicable federal, state, and local occupational safety and health regulations
- ✓ Formal education and training in field sampling, laboratory techniques, and field instrument calibration
- ✓ 8 years of military service

#### **Project Manager, TolTest, Inc. Building 390 Remedial Action at Pope AFB, NC.**

Managed remediation activities under two separate task order contracts. Responsibilities included managing schedule performance, personnel management, technical reporting, cost tracking, contract management, stakeholder/client coordination and subcontract management for remediation activities on eight ground water recovery wells using Aggressive Fluid Vapor Recovery (AFVR) technology to remove petroleum hydrocarbons in the groundwater.

#### **Assistant Project Manager, TolTest, Inc. Remedial Action-Construction at Site SS019 at Pope AFB, NC.**

Responsibilities include providing management oversight such as schedule performance monitoring, personnel management, and technical report preparation for the construction of 10 ground water monitoring wells and O&M activities using AFVR and passive skimmers to remediate groundwater contaminated with petroleum hydrocarbons.

**Quality Control Specialist, TolTest, Inc. Replace Hydrant Fuel Systems at Lajes Field, Azores and various construction projects in Iraq.** Responsibilities include providing project support and quality control support for the hydrant fuel systems project and several construction projects located in Iraq. Specific responsibilities include submittal management for over 1100 material submittals, technical report preparation, subcontractor coordination, statistical reporting, and record maintenance.

**Assistant Project Manager, TolTest, Inc. Remedial Action at Building 407, Former BX Gas Station, Grissom Air Reserve Base, IN.** Responsibilities included providing management oversight such as cost tracking, schedule performance monitoring, maintaining disposal records, personnel management, stakeholder/client coordination, procurement, subcontractor management, and technical reporting for the remediation of contaminated soil and ground water. The project involved excavation and disposal of contaminated soils and water, verification sampling, replacement and development of monitoring wells, data validation, backfilling and restoration of the affected areas. This project was critical in coordinating remedial activities which hindered upon not impacting the property owner's ability to remain operational throughout the course of the project.

**QC Coordinator/Project QA/QC Analyst, TolTest, Inc., at Naval Surface Warfare Center (NSWC) Crane, IN.** Responsibilities included: collecting compost/soil and water samples for chemical analysis, conducting laboratory field screening tests for explosive analytes and percent moisture in compost and soil samples, monitoring compost windrows for temperature and percent oxygen, maintaining field daily logs, and training new personnel on fieldwork activities. In addition, responsibilities included performing data validation and verification on chemical laboratory analytical data reports. Reviewed chemical data of remediated soil samples, and pond water samples verifying that laboratory procedures and analyses met established method criteria and project/client requirements. In addition, the validation and verification efforts included enforcing QC programs, plans and procedures, issuing non-compliance findings, enforcing corrections, issuing stop work orders, tracking samples, summarizing data, and ensuring all forms, packages, chain-of-custody (COC) forms, receipt logs, etc. were maintained.

**QC Coordinator at Ravenna Army Ammunition Plant, Ravenna, OH.** Performed statistical analysis and interpretation of chemical data for U.S. Army at Ravenna, OH. Enforces QC programs, plans and procedures, issues non-compliance findings, enforces corrections, issues stop work orders, tracks samples, summarizes data, and ensures all forms, packages, chain-of-custody (COC) forms, receipt logs, etc. are kept on file.

**Environmental Health and Safety Technician, Pall Gelman Sciences (1999 to 2000).** Responsible for implementing, administering, and updating health and safety programs. Responsible for reviewing and implementing federal and state safety regulations; updating written safety procedures and employee safety training; and administering orientation safety training and safety records. Played a key role in accident prevention and worker's compensation program. Wrote operational guidelines for the department water testing laboratory. Involved with the company water

remediation project - assisted with the collection of monitoring well samples and participated on the hazardous materials emergency spill response team. Also, assisted with employee hazardous materials training, explaining the proper use and storage of hazardous materials. Maintained hazardous waste inventory, removal, and manifest documentation.

**Undergraduate Studies, University of Toledo, OH (1997 to 1998).** Biological undergraduate research under Dr. D. Neher. Collected, analyzed, and recorded experimental data on soil microbial organisms. Experimental study investigated soil microorganisms as indicator species for soil ecosystems, specifically decomposition and nutrient cycling within soils.

**Undergraduate Internship, Fuchs Chemical Company, OH (1998 to 1998).** Undergraduate internship for analyzing lubricant fluid used at Ford Automotive Stamping Plant.

**Petty Officer, 2<sup>nd</sup> Class, U.S. Navy (1987 to 1996).** Served active duty as a cryptologic maintenance technician performing corrective and preventative maintenance on communication circuits and equipment, as well as calibration and repair on test equipment.

**ATTACHMENT 2**

**SUBCONTRACTOR CERTIFICATIONS**

**Ted Strickland**  
Governor

**Kimberly A. Zurz**  
Director

**Electrical**  
**CONTRACTOR'S LICENSE**  
**FRANK G MAURIC JR**  
**FALLS ELECTRICAL CONTRACTING INC**

Ohio License# **21897**  
Expiration Date: **June 30, 2011**

*Carol Ross*

**Carol A. Ross**  
Executive Secretary

*William Koester*

**William Koester**  
Administrative Chairperson

**ATTACHMENT 3**

**FORMS**

TolTest Inspection Checklist				Report Number
				Week Ending Date
Inspection Item	Satisfactory	Unsatisfactory	Not Acceptable	Comment Number
Ensure drum has inventory number and listed on drum inventory sheet				
Ensure only authorized and trained personnel onsite				
Check drums are securely closed and lids are intact				
Check each drum for ruptures, leaks, bulging, or deterioration Note: An obnoxious odor of rotting fish and garlic indicates a leak whether a seal, bung plug or lid is not closed all of the way or the drum is leaking.				
Check drums are properly stored drums not stacked on top of each other drums staged on pallets				
Check drum labeled, appropriate labels attached, and labels legible				
Check drums for tampering- bung plugs missing or loose damage to drum drum ring locks missing or undone				
Check spill kits and all emergency equipment against the inventory missing items? Spill kit filled? Emergency equipment operational?				
Check dates on labels accumulation start date listed? stored longer than 90 days?				
Inspect equipment used to move the drums using the manufacturer's manual.				
Check drums attached to equipment prior to moving;				
Inspect the straps, ties, or wraps used to secure the drums to the equipment for wear, tears, fragmentation, or general deterioration				
Inspect the staging area integrity of berms access way free of obstacles, garbage, debris general maintenance				
Only drums containing WP or WP-contaminated soils in the staging area? other wastes present in the staging area?				
Drums protected from freezing temperatures/excess heat				
Signature of inspector				
Name Printed	Signature		Date	

**Provide photos of staging area for each weekly inspection.**


Comments should be numbered by S, UNS, or NAC followed by a sequential number example UNS-1 for first "Unsatisfactory" item UNS-2 for the next and so on

"Satisfactory" means a good and acceptable condition without any impact to the HW treatment or storage operations that would violate EPA regulations or create stress to the environment or human health.

"Unsatisfactory" means a deteriorating or unfavorable condition that has a good potential for violating EPA regulations or standards, but does not yet create stress to the environment or human health.

"Not Acceptable: means a situation that is present, which poses a violation to EPA regulations or standards, or a situation, which creates stress to the environment or humanhealth.



<b>F207</b>		<b>MATERIAL APPROVAL SUBMITTAL</b>				
<small>(See Instructions on reverse)</small>						
TO: (Contracting Officer)		FROM: (Contractor)			DATE (YYYYMMDD)	
CONTRACT NUMBER		SUBMISSION NUMBER			SUBMITTAL <input type="checkbox"/> NEW <input type="checkbox"/> RESUBMITTAL	
PREVIOUS SUBMISSION NUMBER			PROJECT NUMBER			

TO BE COMPLETED BY CONTRACTOR			FOR GOVERNMENT USE ONLY			
ITEM NO.	SPECIFICATION SECTION / PARA NO. / DRAWING NO.	DESCRIPTION OF MATERIAL <small>(Include Type, Model Number, Catalog Number, Mfg., etc.)</small>	Approved	Dis-Approved	See Reverse	Initials
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<div style="border: 1px solid black; width: 40px; height: 20px;"></div>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<div style="border: 1px solid black; width: 40px; height: 20px;"></div>
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			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<div style="border: 1px solid black; width: 40px; height: 20px;"></div>

**BY COMPLETING THIS FORM, THE UNDERSIGNED CONTRACTOR CERTIFIES THAT  
THE MATERIAL COMPLIES WITH ALL SPECIFICATIONS OF SUBJECT CONTRACT.**

DATE (YYYYMMDD)	TYPE OR PRINT NAME AND TITLE (Contractor)	SIGNATURE
-----------------	---	-----------

**FOR GOVERNMENT USE ONLY**

TO: (Base Civil Engineering Officer)		
For Evaluation and Action:		
DATE (YYYYMMDD)	TYPE OR PRINT NAME AND GRADE	SIGNATURE

TO: (Contracting Officer)		
RECOMMEND	<input type="checkbox"/> APPROVAL	<input type="checkbox"/> DISAPPROVAL AS INDICATED ABOVE AND SUBJECT TO ANY APPLICABLE COMMENTS ON THE REVERSE
DATE (YYYYMMDD)	TYPE OR PRINT NAME AND GRADE	SIGNATURE

TO: (Contractor)		
<input type="checkbox"/> APPROVED	<input type="checkbox"/> DISAPPROVED AS INDICATED ABOVE AND SUBJECT TO ANY APPLICABLE COMMENTS ON THE REVERSE SIDE. REQUEST RESUBMITTAL ON DISAPPROVED ITEMS WITHIN ____ DAYS OF DATE SHOWN BELOW.	
DATE (YYYYMMDD)	TYPE OR PRINT NAME AND GRADE	SIGNATURE

## COMMENTS

(Number to correspond with applicable Item Number on reverse)

### INSTRUCTIONS TO CONTRACTORS


1. The term "material" is defined as articles, supplies, raw materials, equipment, parts, components, and end items that are to be incorporated into the work required by the contract.
2. This form is to be used by contractors for submitting Shop Drawings, Equipment Data, Manufacturer's Literature and Certificates and Samples of Materials to the Government for approval in accordance with the provisions of this contract. Unless otherwise specified, it is to be prepared in 4 copies, signed, and provided to the contracting officer with appropriate attachments.
3. Item(s) to be approved will be clearly tabbed or identified. Data pertaining to item(s) to be approved will be clearly identified or tabbed, particularly where documents are voluminous, in order to properly evaluate the materials or articles to be incorporated in the work. Each attachment will be numbered to correspond with the item number shown on the face of this form.
4. Requests submitted shall be numbered consecutively, by contract, in the space entitled "Submission Number." This number, in addition to the Contract No., will be used to identify each Material Approval Submittal. Resubmissions will be indicated in the appropriate block and the insertion of previous submission number and date in addition to a new submission number. A single submission should be used for all work of a section of the specifications, but in NO instance should the submission include work for more than one (1) contract. Submittals requiring priority handling will be submitted by separate submittal using the form and so marked across the face of the form.
5. This material Approval Submittal is not valid unless it is **signed by the Contracting Officer**. This approval is required as called for by the contracting officer under the terms of this contract.







F213 INSPECTION AND TESTING PLAN										
Contract No:			Project Name:				Date:			
No.	Specification		Required Test or Inspection	Test or Inspection Frequency	Responsible Party (TolTest and)	Schedule Activity ID	Off Site	On Site	Date Completed	Remarks
	Section	Subpart								
1										
2										
3										
4										
5										
6										
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<b>F217</b>		<b>REQUEST FOR INFORMATION or CHANGE</b>			
<b>TO:</b>		<b>FROM:</b>		<b>DATE:</b>	
Contract, TO/DO No:		Project Title:			
RFI / RFC Title:		RFI / RFC Number:			
<input type="checkbox"/> <b>Request for Information (RFI)</b>		<input type="checkbox"/> <b>Request for Change (RFC)</b>			
Regarding:					
<input type="checkbox"/> Drawing(s):		<input type="checkbox"/> Specifications:		<input type="checkbox"/> Other:	
Sheet:		Section:			
Information / Change Requested:					
Rationale for Request:					
Existing Conditions:					
Available Options / Evaluation:					
Recommended Option:					
Schedule Impact:					
Cost Impact:					
<input type="checkbox"/> Field Change Order Request: Costs unknown at this time, to be forwarded by Project Manager.					
<input type="checkbox"/> No change in contract required.					
<input type="checkbox"/> No change in contract amount presently anticipated; however, final contract amount may required increase/decrease to accommodate this change upon project completion.					
<input type="checkbox"/> Change in Contract Amount:					
Original Contract Amount:				\$	_____
Previous Change Orders(s) - Total:				\$	_____
Current Change Order Increase / Decrease:				\$	_____
Revised Contract Amount:				\$	_____
Submitted By:					
DATE		TYPE OR PRINT NAME AND TITLE		SIGNATURE	
<input type="checkbox"/> Approved		<input type="checkbox"/> Disapproved		Comments:	
DATE		TYPE OR PRINT NAME AND TITLE		SIGNATURE	





## COMMENT REVIEW TABLES

**Final Waste Management Plan at the  
Ravenna Army Ammunition Plant, Ravenna, OH  
Comment Response Table  
March 18, 2011**

Page 1 of 10

Item No.	Plan	Page/ Line	Sec/ Para	Comment	Recommendations	Response
<b>GENERAL REMARKS</b>						
1	Gen			Spines were marked wrong; correct titles; correct acronyms list		Corrections were made to covers and spines per direction from G. Harris. Corrections made to acronyms lists
2	Gen			CD-ROM did not match the hard copies		CD-ROM corrected to match the hard copy
3	Gen			Missing tab for Appendix A		Revised Tabs have been included with the page changes.
4	Gen			Appendices and TOC need to match Tab names		Appendices and TOC have been changed to match tab names
5	Gen			For Final plans need to remove the disclaimer statement		Disclaimer statement has been removed
<b>WASTE MANAGEMENT PLAN</b>						
6	WMP	Gen		Copy waste determination to be sent to Jim McGee		Copy sent to Jim
7	WMP	Gen		Global change revise document of 213 drums to drawing capacity of 180		Plans have been revised to 180 drums
8	WMP	Gen		Add another drawing to show fence around ECM and add G-101		Map added
9	WMP	TOC	Acronym List	Correct acronym list		Acronym list has been corrected
10	WMP	6, 12		The plan should be revised to include all changes to how containers will be accumulated in the wet storage area (i.e., location) since plan issuance on March 2, 2011. All affected sections, drawings and attachments should be revised accordingly.		The plan was revised to show location of drum accumulation in the Wet Storage Area.

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11	WMP	2	Top para.	Change “consist” to “consists” in the following sentence: “The cleaning rinseate consist of two 55-gallon drums containing water and bleach collected during the final cleaning of the ECMs.” Add rinseates after cleaning in the following sentence: “The cleaning will be disposed of in accordance with all state, federal and local rules, laws and regulations.”	Add an “s” at end of consist and add rinseates after cleaning.	Sentences changed to read as follows: “The cleaning rinseate consists of two 55-gallon drums containing water and bleach collected during the final cleaning of the ECMs.” “The cleaning rinseates will be disposed of in accordance with all state, federal and local rules, laws and regulations.”
12	WMP	3	Sec. 1.5	Change Glen Beckham’s cell # to 502-645-7353		Cell number was changed as noted
13	WMP	10	Sec. 3.0	Section 3.0, please submit a copy of the waste evaluation information to Ohio EPA for the ECM waste streams consisting of paint chips and cleaning rinseate. If determined to be a hazardous waste, the wastes are subject to all on-site accumulation requirements under Ohio Administrative Code (OAC) rule 3745-52-34.		The waste evaluation information will be submitted to Ohio EPA when it is available.
14	WMP	11	2 <sup>nd</sup> para.	Remove in the ballasts from “The fluorescent light fixtures contain asbestos, mercury, and PCBs in the ballasts.”	Remove “in the ballasts”	The sentence was changed to read as follows: “The fluorescent light fixtures contain asbestos, mercury, and PCBs.”
15	WMP	12	2 <sup>nd</sup> para.	2 <sup>nd</sup> sentence replace “of” with “or”		Sentence corrected
16	WMP	13	1 <sup>st</sup> para./last sent	Revise sentence “The lead/PCB paint waste, cleaning rinseate will be stored in the ECM until ready for transport.” handled and disposed of according to all state, federal, and local regulations.	Revise sentence to read “The lead/PCB paint waste, cleaning rinseate will be handled and disposed of according to all state, federal, and local regulations.”	Sentence was revised to read: “The lead/PCB paint waste, cleaning rinseate will be handled and disposed of according to all state, federal, and local regulations.”
17	WMP	13	Sec. 4.2	Remove “Old” in ‘Old Newton Falls Rd’ need to perform a global check for this		Sentence revised and global check performed.
18	WMP	14		On map remove “Old” in “Old Newton Falls Rd”		Maps have been revised to reflect correct road name.

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19	WMP	14		Put North arrow and scale on drawings and show continuous haul route		Maps have been revised with North arrow, scale, and to show continuous haul route.
20	WMP	17	Sec. 5.1.2	Add to end of sentence in 1 <sup>st</sup> paragraph- and the drums are clean		Sentence revised to read: "Each drum will be inspected for overall integrity, signs of leaks, to ensure the lids are closed tightly, to ensure the bungs are closed and the drums are clean, to inspect for drum damage, and verify each drum has a label and inventory number."
21	WMP	17	Sec. 5.1.4	2 <sup>nd</sup> paragraph 2 <sup>nd</sup> sentence add after Contractor within "45 calendar days"		Sentence revised to read "The inspection forms and Certificate of Destruction forms will be provided to the TolTest Onsite Technical Manager who will submit them to the RVAAP Operating Contractor within 45 calendar days."
22	WMP	18	Sec. 5.2	Section 5.2, all emergency equipment, consistent with what is presented in the Contingency Plan (i.e., Section 2.4.1), must be inspected under OAC rule 3745-65-33. Please review the TolTest inspection checklist, as presented in Attachment 5, to ensure that all emergency equipment is inspected.		The inspection checklist was reviewed and compared to OAC 3745-65-33 to ensure emergency equipment will be inspected. The checklist states: "Check spill kits and all emergency equipment against the inventory missing items? Spill kit filled?"
23	WMP	18	Sec. 5.2	EPA comment Attachment 5 ensure inspect emergency equipment IAW OAC 3745-65-33		Attachment 5 was verified with OAC 3745-65-33 which requires emergency equipment to be inspected weekly. Inspection of emergency equipment was added to the line for spill kit inspections. On page 19 it is stated: "The emergency equipment inspections will be conducted weekly by the Onsite Technical Manager and recorded on the TolTest Inspection Checklist (Attachment 5)."
24	WMP	19	Sec. 5.3	Project Completion report needs to be completed IAW RCRA requirements		Sentence changed to read: "Once every drum of white phosphorus and white phosphorus contaminated soil and debris has been properly disposed, TolTest will prepare a Project Completion Report in accordance with applicable RCRA regulations."

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25	WMP	22		Bottom of page under "Manifests-Hazardous and Non-hazardous" add within 45 calendar days after Contractor		The sentence was revised to state: "The waste carrier/transporter provides the appropriate manifest to the disposal facility upon arrival with the waste. The disposal facility will send the generator copy to the RVAAP Operating Contractor within 45 calendar days."
26	WMP	25	Sec. 7.4	Remove "?" after G102		"?" was removed
27	WMP	25	Sec. 7.5	Misspell rinseates		Corrected spelling
28	WMP	29	Sec. 8.6.1	Remove (Akron bypass) 177 south to 1-277 north to 1-76 west		Sentence revised to state: "State Route 5 west to State Route 44 south to I-76 west to I-71 south to (Columbus bypass) I-270 west to I-70 west to (Indianapolis by-pass) I-465 south to I-70 west to Route 3 south into Sauget, IL."
31	WMP	Att. 2		Add new drawing; add scale		Map revised
29	WMP	Att. 3		Remove Inert Certification and replace with Form 1348		Revised as stated
30	WMP	Att. 4		Remove sheet # from drawing; add north arrow; add scale; add haul route from Wet Storage to Post 1; correct spelling of "Fuse" to "Fuze"; remove "Old" from "Old Newton Falls Road"		Map corrected
32	WMP	Att.5		Inventory sheet split date transported to Veolia split column date shipped from RVAAP/Date Received at Veolia		Table corrected to show date shipped from RVAAP and Date Received at Veolia
33	WMP	Att. 7		Need signature		Signed forms provided
34	WMP	Att. 9		TWI Processing Procedure line 4 correct spelling of "pre-maid" to pre-made		Spelling was corrected
35	WMP	Att. 12		Section 1.0 primary route be consistent with the WMP		Corrected in attachment to match WMP
<b>CONTINGENCY SPILL PLAN</b>						
36	Cont Plan	Gen		Covers match with changes to covers on WMP		Covers were revised to be consistent

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37	Cont Plan	Gen		EPA comment #4 and #5 make sure everyone apprised of all changes Emergency authorities; another coordination meeting let them know new location		Another coordination meeting has been scheduled for March 24, 2011.
38	Cont Plan	Gen		As required by OAC rule 3745-65-53, the contingency plan must be revised to include all changes since plan issuance on March 2, 2011. Additionally, any change to the contingency plan must be communicated and distributed to emergency authorities as required under OAC rule 3745-65-54.		The plan has been revised to include all changes and the plan will be distributed to emergency authorities and another meeting will be held.
39	Cont Plan	Gen		Section 2.7 indicates that training on the plan was conducted through a meeting and table top drill. It should be noted that the training was conducted when the proposed accumulation area was Building 1047. Due to recent changes, the proposed accumulation area was moved to the wet storage area. Accordingly, all emergency authorities must be informed of the change as required by OAC rule 3745-65-54.		Another meeting will be held to notify emergency authorities on March 24, 2011.
40	Cont plan	1 and 2		Remove "Old" from "Old Newton Rd."		Old was removed
41	Cont Plan	3	Sec. 1.5	Correct Glen Beckham's cell number		Cell number corrected
42	Cont Plan	6	Sec. 2.3	Top change OHARNG personnel to Camp Ravenna Range Control at 614-336-6041		The sentence was revised to read: "OHARNG Security Guard will notify the Camp Ravenna Range Control (614) 336-6041 who are responsible for making all internal necessary contacts and evacuation of their personnel, if necessary via established routes"

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Item No.	Plan	Page/ Line	Sec/ Para	Comment	Recommendations	Response
43	Cont Plan	6	Sec. 2.3	Remove text indicate OHARNG keep track of personnel on RVAAP		The following sentence was removed: "The OHARNG will keep track of all of their personnel on RVAAP."
44	Cont Plan	7, 8, 9	Exh. 1, 2, and 3	North arrow, scale, sheet, location change; show location storage area; add new G-102; add revised drawings		Drawings were revised
45	Cont Plan	11	Sec. 2.4.1	1 <sup>st</sup> sentence remove "and" after "horn"; 2 <sup>nd</sup> sentence remove TolTest support vehicle and replace with storage container located within the Wet Storage Area 3 <sup>rd</sup> bullet remove ?? Last sentence add "be" after also		The sentences were revised to read: "Activation of the air horn will serve as the alarm system. In addition, verbal communication and cell phones will be used to notify personnel of an emergency. Emergency response equipment is stored in a temporary storage container located within the Wet Storage Area." ?? were removed Sentence was revised: "Two 10A:60BC fire extinguishers will also be located in the storage container."
46	Cont Plan	11	Sec. 2.4.1	Section 2.4.1 must be revised to clearly describe where emergency response equipment will be located (i.e., support vehicle or drum staging area). If emergency equipment is located in a support vehicle, the location of the support vehicle on the facility's premises must be identified.		See Item 44 above. Drawings G-101 and G-102 show the location of the equipment staging area where the emergency equipment will be stored.
47	Cont Plan	11	Sec. 2.5	1 <sup>st</sup> paragraph last sentence cross reference H&S Plan Section 7.0		Section was compared to SSHP and are consistent with each other
48	Cont Plan	14, 15		Add Camp Ravenna Range Control number to the Emergency Response Coordinator for OHARNG		Number was added
49	Cont Plan	15		Correct Lew Kovarik's cell number (740) 632-1143		Number was corrected
50	Cont Plan	15	Sec. 3.3	Emergency EPA hotline add		Number was added

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51	Cont Plan	15	Sec. 3.3	Section 2.3 and Section 3.3 should be revised to include the same information under each section. For example, Section 3.3 cross-references to Section 2.3 which contains emergency notification information.		The following sentence was removed: "After the Security Guard at Post #1 contacts the Ravenna Fire Department, the procedures discussed in Section 2.3 "Evacuation Plan" will be implemented." The following sentence was added: "OHARNG security guard will notify Camp Ravenna Range Control at 614-336-6041." The following was added after the last bullet: "The OSC, RVAAP Facility Contractor will contact the Ohio EPA's Emergency Response Hotline at (800) 282-9378."
52	Cont Plan	15	Sec. 3.3	Section 3.3 and Attachment 3 must be revised to include notification to Ohio EPA's Emergency Response Hotline at (800) 282-9378.		The following was added after the last bullet: "The OSC, RVAAP Facility Contractor will contact the Ohio EPA's Emergency Response Hotline at (800) 282-9378." The Ohio EPA is included in the ISCP Notification Requirements in Attachment 3.
53	Cont Plan	15	Sec. 3.4.1 and 3.4.2	Removed two subsections why?		The sections were removed because they were a duplication of information presented in the plan.
54	Cont Plan	15	Sec. 3.4.1 and 3.4.2	Please identify the basis for deleting Section 3.4.1 – Spills with No Reaction Occurring and Section 3.4.2 – Spills with Reaction Occurring (Smoke/Fire) that appeared in the previous contingency plan dated January 3, 2011.		The sections were removed because they were a duplication of information presented in the plan and was addressed with the Att. 3 flowchart
55	Cont Plan	Att. 2		Combine into one sheet and use updated map with added north arrow, added scale, remove sheet, and "Old"		Att. 2 was combined into one sheet.
56	Cont Plan	Att. 3		Flowchart changes		Flowchart was revised.
57	Cont Plan	Att. 3		Attachment 3 must be revised to include notification to the alternate OSC in the event that the primary OSC is not able to be contacted.		Att. 3 was revised to include notification of Alternate and Facility Manager.

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<b>ACCIDENT PREVENTION PLAN</b>						
58	APP			Title cover pages match to WMP		Title cover page matches WMP title page.
59	APP			Remove disclosure statement at bottom of APP		Disclosure statement removed.
60		Gen		Air monitoring results need to sent to Jerry Simms within 24 hours		The air monitoring results will be included in the Daily Reports that will be submitted to USACE and the RVAAP Facility Manager each day.
61	APP	12, 14, 18, 20, 22		References to attachments need to change due to removal of Attachment 11		References to attachments changed due to removal of Attachment 11
62	APP	16	Sec. 7.2	3 <sup>rd</sup> sentence change days to hours; add after transmitted USACE RVAAP		The sentence was changed as follows: "The SSHO will be responsible for performing incident investigations and completing incident investigation reports using Form 3394 to be transmitted to the USACE, RVAAP Operating Contractor, Vista or designated representative as soon as possible but no later than 24 hours following the occurrence.
63	APP	16	Sec. 7.3	1 <sup>st</sup> sentence add USACE, RVAAP after major accidents to the...		The sentence was changed to read: "The SSHO will make immediate notification of all major accidents to the USACE, RVAAP Operating Contractor, Vista or designated representative and will follow up this notification with written reports within 4 hours of the occurrence."
64	APP	18	Sec. 8.2.1.4	Delete Post #1 contact local hospital and add Ravenna Fire Department		Sentence was changed to read: "For emergency/critical physical injuries, medical assistance must be summoned by dialing the Security Guard at Post #1 (330-358-2017) from any available phone; and the Security Guard at Post #1 will contact the Ravenna Fire Department."
65	APP	21	Sec. 8.4	Top bullet remove "will use Bldg 1038"		Removed from section.

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66	APP	21	Sec. 8.5	Global change to correct for OHARNG and Army National Guard not Air National Guard		Sentence was revised and global check completed. No other changes were found to be required.
67	APP	22		Top line add at end of exposure		Bullet was revised to read: "How to recognize medical signs and symptoms of exposure. "
68	APP	Att. 11		Need to pull out		Removed Attachment 11 with training certifications
69	APP	Att. 12		Revise map as noted previously		Map has been revised, Attachment 12 is now Attachment 11 due to removal of Attachment 11
70	LBP	Att. 14		Correct date on signature page to 2011		Date corrected. Attachment 14 is now Attachment 13 due to removal of Attachment 11
71	APP	Att. 15	Contam Soil	Remove Containerize from title		Title was changed to state Store and Transport White Phosphorus Contaminated Soil. Attachment 15 is now Attachment 14 due to removal of Attachment 11
72	APP	Att. 15	Contam Soil	Page 5 of 12 – Under Activity a. to c. not doing so need to remove		Lines a-c were removed, Attachment 15 is now Attachment 14 due to removal of Attachment 11
73	APP	Att. 15	Install geotextile	Page 14 of 18 – Change 70 to 50 lbs. and fix format		Change was made, Attachment 15 is now Attachment 14 due to removal of Attachment 11
<b>SITE SAFETY AND HEALTH PLAN</b>						
74	SSHP			Title cover pages match to WMP		SSHP title page now matches WMP title page
75	SSHP			Global change to remove Bldg 1038		Completed no other sections referenced Bldg 1038
76	SSHP	8		Post exterior of Bldg add where posted		Sentence was changed to read: "This should be conspicuously posted at the work site and given to the local fire department along with the name and phone number of the superintendent, TolTest Health and safety department as well as the RVAAP points of contact."
77	SSHP	18	Sec. 10.3.2	Report air monitoring to associates add discussion at end of paragraph		The following sentence was added to the end of the 2 <sup>nd</sup> paragraph: "Results will also be discussed with onsite personnel during tailgate safety meeting."

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78	SSHP	21	Sec. 12.0	Need to address decontamination water		The following sentence was added: “Decontamination water will be properly containerized and disposed of in accordance with all local, state and federal laws, rules and regulations.”
79	SSHP	23	Sec. 13.2.4, 13.3	Top page remove Post #1 contact local hospital and emergency medical		The sentence was revised to state: “The Security Guard at Post #1 will contact the Ravenna Fire Department for emergency medical services (EMS) personnel.”
80	SSHP	26	Sec. 14.2	Training certs all documents submit separately from plans and remove from plans; remove reference		Training certifications were removed from the plan, reference removed from document
81	SSHP	27	Sec. 16.1	Training certs all documents submit separately from plans and remove from plans; remove reference		Training certifications were removed from the plan, reference removed from document
82	SSHP	33	Sec. 17.2.9.13	Spill Prevention-fuel spill? Add white phosphorus to first sentence		The sentence was revised to read: “TolTest has contracted with PIKA to respond to any spill of white phosphorus which is in the custody or care of TolTest.”
83	SSHP	31	Sec. 17.2.9.4	Spill Prevention-fuel spill? Add white phosphorus to first sentence		The sentence was revised to read: “TolTest has contracted with PIKA to respond to any spill of white phosphorus which is in the custody or care of TolTest.”
84	SSHP					A revised SSHP is being sent because the Draft SSHP had the wrong dates in the headers and covers. The attachments to the SSHP were not affected.
<b>CONTRACTOR QUALITY CONTROL PLAN</b>						
85	CQCP	Att.5		Inventory sheet split date transported to Veolia split column date shipped from RVAAP/Date Received at Veolia		Table corrected to show date shipped from RVAAP and Date Received at Veolia

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Item No.	Plan	Page No.	Sec/Para	Comment	Recommendations	Response
<b>RVAAP / VISTA</b>						
1	Gen			No tabs	Please add tabs to all Attachments/APP/Sections per the formatting guidelines	Tabs added
2	WMP	i		Distribution List BRACO, OEPA, RTLS-ENV	Change BRACO to BRAC-D, OEPA to Ohio EPA, who is RTLS-ENV? Need to check distribution list and revise accordingly	Spelling errors corrected, extra office references removed.
3	WMP	v		Acronym list format/font not consistent; number on first line	Revise format/font to be consistent	Font corrected
4	WMP	2	1.4	Title of Quality Control Plan not matching		Corrected titles in each plan to be consistent with each plan
5	WMP	3	1.5	James McGee email address	Correct email address for James McGee <a href="mailto:Jim.d.mcgee@us.army.mil">Jim.d.mcgee@us.army.mil</a>	Corrected
6	WMP	5	2.2	Training Requirements	Add sentence that all required training certifications will be provided to Operating Contractor Vista Sciences. Etc. (Vista Record Maintenance Requirements for RVAAP)	Sentence added (need to check reference)
7	WMP	6	2.3	Table TolTest Management Roles and Responsibilities	Provide name next to position title	Names added
8	WMP	8	3.2 2nd para.	Line 419	Confirm total number of drums to be stored in Building 1047	Re-evaluated site layout for drum storage and total amount possible is 150 with new layout

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9	WMP	9	4.1	Line 477	Add ISCP Addendum (TolTest)	Added White Phosphorus Disposal Contingency Plan Addendum after applicable plans,
10	WMP	9	4.1	Lines 481 and 482	Want to mention that Security Officers check the building? Does TolTest have a sign in&out building procedures?	The RVAAP Security Officers perform regular routine inspections of buildings to check the locks for tampering. TolTest will utilize the sign-in sheet provided for each person that enters the building.
11	WMP	9	4.1	Line 481	After Post 1 remove "or Vista Science Corp. and add with preapproval from Vista Sciences	Corrected as stated
12	WMP	10	4.3 4th para.	Line 506	Containment building highlighted	The sentence was changed to read as follows: OAC rule 3745-52-34(A)(1)(a) allows generators to manage hazardous waste in containers provided the generator complies with the applicable requirements in rules 3745-66-70 to 3745-66-77 of the Administrative Code for no more than 90 days without obtaining a permit or interim status.
13	WMP	9	4.0		Should Section 8.1, Layout Plans, of the APP be included in the WMP storage location 4.0, pg. 9 forklift storage? Spill kit	Section 8.1 of the APP refers to the layout Attachment 2 drawing of the WMP
14	WMP	11	5.1.3	Inspection	Refer to Att. 4 inspection sheet	The following sentence was added "The inspection will be documented on the TolTest Inspection Checklist included in Attachment 5."

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15	WMP	13	5.3	Weekly reports	Project on-going Who will the weekly reports go to? How frequent –to Jim McGee on a weekly basis?	The paragraph was renumbered it is now paragraph 5.2. The following sentence was already stated: “A weekly inspection report will be submitted to Mr. Jim McGee, Operating Contractor with Vista Science Corp.” The sentence has been clarified to state: “A weekly inspection report will be submitted each Monday for the previous week inspections to Mr. Jim McGee, Operating Contractor with Vista Science Corp at Building 1037.”
16	WMP	14	6.1 3rd and 4th para.	Lines 741 and 747	Highlighted sentence accumulation start dates... A 180-day exposure to conditions.... Both sentences questioned.	Removed “a 180-day”
17	WMP	15	6.2	Manifest submittal	...profiles will be submitted to the Operating Contractor for review and approval and then the Operating Contractor will submit to the Facility Manager for signature	Sentence revised as stated
18	WMP	15	6.3 4th bullet	Manifest signatures	Refer to the HW Shipment Guidelines for signature approval	Section was copied directly from the Waste Management Guidelines. Added for further clarification the following: Prior to scheduling the white phosphorus drums for disposal, the Onsite Technical Manager will coordinate the shipment as stated below: <input type="checkbox"/> Coordinate all waste generation and shipments with Jim McGee, RVAAP Operating Contractor at (330) 358-3005 or (330) 221-4543. <input type="checkbox"/> Insure all labels include: Date, Contractor and Product Type.

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19	WMP	15	6.3 5th bullet	Waste profile	Add bullet before line 797 Provide waste characterization/waste profile to Operating Contractor	Added the bullet as stated
20	WMP	17	7.3.1	Shock sensitive waste	Line 863 states will not be an explosive hazard-conflict with title	Removed paragraph
21	WMP	25		Emergency Response Agencies	Incorrect numbers-need to provide correct US National Response Center numbers etc.	Numbers corrected.
22	WMP	27		State Agencies	Incorrect State Agency contacts for IL, IN, OH	corrected
23	WMP	29	9.4	Title	Leaks and Drips from Drums/How Control Accomplished (needs rewording)	The paragraph title was renamed to Control of Leaks/Drips from Drums
24	WMP	Att. 3		Title description	Misspelled ODAZ should be ODA2	Spelling corrected
25	WMP	Att. 4		Inspection forms	Add dates of drums on list especially since loads will be in batches	An inventory sheet was added and includes dates of accumulation
26	SCP		TOC	Training requirements	Training requirements section added to TOC	Training requirements are included in the WMP
27	SCP			Acronyms	Change OANG to OHARNG	Revision made.
28	SCP		1.4	MSDS	Provide MSDS for white phosphorus	Provided as Attachment 1.
29	SCP		2.1	Haz waste storage facility	Change "hazardous waste container accumulation area" to "hazardous waste storage area"	Revision made.
30	SCP		2.1		Building 1047 does not have the capacity to hold 300 drums.	Revised to 150 drums.
31	SCP		2.1	Fire extinguishers	What type and amount of fire extinguishers?	Two 10lb A-60BC
32	SCP		2.2		Add post #1 after security guard.	Revision made
33	SCP		2.2	PIKA contract	Is PIKA contract in place?	

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34	SCP		2.3	Operating contractor	Change Operation Contractor to operating contractor	Revision made.
35	SCP		2.3	ISCP section	Include ISCP Section 6.0 Spill Alert Procedures.	Revision made.
36	SCP		2.3	Phone numbers	Add Jim McGee and Christy Esler's office numbers as well.	Office numbers added.
37	SCP		2.4	Evacuation plan details	Include evacuation plan details—drawing of building showing location of phone, spill response equipment, fire extinguishers, and exit doors.	This is included as Exhibits 1 through 3.
38	SCP		2.4/III	Post #1	Add Post #1.	Revision made.
39	SCP		2.4	Emergency Response Guidebook	Update using 2008 Emergency Response Guidebook instead of 2004	Reference removed.
40	SCP		2.5	Mock drill	No mention of mock drill/dry run.	Mock Emergency Drill details were added in section 2.6.
41	SCP		2.5	Decontamination zone	What is the set up and location of the decontamination zone?	Decontamination zone to be set up and determined by PIKA.
42	SCP		2.7	Evacuation details	Provide evacuation map, route, and offsite location	Evacuation maps provided as Exhibits 1 through 3.
43	SCP		Attach 1	ISCP update	Update header to September 2010 ISCP instead of August 2009	Attachment removed.
44	APP	3	3.0	Header	Correct header	Corrected header to read APP only.
45	APP	9	5.0	Training	Add training records will be supplied to RVAAP Operating Contractor prior to commencement of onsite work	Added remarks
46	APP	10	5.6	First Aid/CPR Training	Eye wash station?	Added training on eye wash station

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47	APP	12	6.2	USACE POC listed?	Does RVAAP want Jerry Simms, USACE listed?	Removed Mr. Simms.
48	APP	14	8.2	Emergency response	Refer readers to SSHP	Reference changed to White Phosphorus Disposal Contingency Plan Addendum.
49	APP	14	8.2.1.1	General Evacuation	Highlighted RVAAP alarm-there isn't an alarm; circled rally point Lines 670 & 671 RVAAP alarm? Line 672 typo Line 674 onsiteAT (needs to space word) Line 676 Rally point?	Paragraph was reworded to state: "Due to the toxicity characteristic of the white phosphorus, should a reaction or fire occur the area will be evacuated a minimum of half a mile and depending on wind speed and direction, evacuation distance may be further. Post #1 will be contacted to notify personnel on base that the base should be evacuated. Coordination with the State Highway Patrol, Sheriff Departments and Portage County Emergency Response to setup barricades on public roadways and detour traffic will follow the procedures and processes outlined in the White Phosphorus Disposal Contingency Plan Addendum."
50	APP	16	8.2.3	Fire Fighting Plan	Line 749 RVAAP does not have a Base operator; Should be Post #1.	Changed reference to Post #1.
51	APP	16	8.2.3	Fire Fighting Plan-line 761	Change Post one to Post #1	Changed reference to Post #1.
52	APP	16	8.2.4 2nd paragraph	Line 773	...notify the operator-Change to notify the on-duty RVAAP Security Guard	Changed to RVAAP Guard.

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53	APP	17		Line 779 table	Police-old info; Tol-Test Inc/Mid-American Security-need to update Hazardous Materials Response- who is this? RVAAP Environmental Coordinator should be changed to RVAAP Facility Manager-correct phone number TolTest Project Manager-update	Updated table.
54	APP	17	8.2.6	Medical support	Include a map to Robinson Memorial Hospital	Included in Attachment 12
55	APP	19	8.8	Line 845	...being are present-remove are	Reworded per OH EPA to "hazardous materials are present."
56	APP	23	8.21	Contingency Plan Severe Weather	RVAAP Severe Weather Plan? Evacuation Route Where is this? (PPP) need to refer to Plan	Changed reference to EM 385-1-1.
57	APP	25	8.33	Line 1092	Need to address	Provided information on HTRW work.
58	APP	26	9.1	Line 1112	"TolTest will attempt to exhaust all options to protect personnel before requiring the use of PPE." White Phosphorus is level C or was level D approved due to drum packaging? (downgraded) White Phosphorus PPE-level C to include: Flame/chemical resistant coveralls or safety supervisor approved downgrading? App should be specific to work activities	Reworded section.
59						
60	LBP	6	3.4.2	Waste Management Plan	Who's Waste Management Plan? Section TolTest WMP Section 5.0, 5.2	Revised.
61	LBP	7	4.1	Spill Prevention line 346	.. full (secondary?) containment	Revised to read full.

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62	LBP	7	4.1	Line 349	<p>...substance spills that may be large enough to be a reportable</p> <p>-location of containment</p> <p>-map indicating area to Jim c/o Mark P.</p> <p>What if a spill takes place?</p> <p>-immediately notify....</p> <p>-isolate the hazardous area</p> <p>-stop site operations...</p> <p>Etc.</p> <p>This refers back to the RVAAP Installation Spill Contingency Plan Section to discuss Spill Response Equipment and location (in truck, job trailer)</p>	Revised to read as follows: "TolTest will build a full secondary containment and collect all waste water and other abatement waste, paint, and materials into 55 gallon drums to be held on site until shipping and disposal is arranged in accordance with EPA standards to prevent hazardous substances from entering the ground, drainage areas, or local bodies of water. For hazardous substance spills that may be large enough to be a reportable quantity under federal, state, or local regulations, the RVAAP Facility Manager and Operating Contractor office will be notified immediately and appropriate agency notifications will be made. TolTest will preserve the integrity of the natural resources of the project area. This includes, ensuring that the surrounding area is not environmentally damaged in any way, and preventing the release of hazardous substances into the surrounding air, land, and water."
63	HSP	i		Header	Correct header	Corrected headers to read SSHP only.
64	HSP	1	Line 239	White phosphorus	Hazardous waste storage facility Bldg 1047 ...White Phosphorus chunks? Both (sets of) drums	Revised description.
65	HSP	2	Section 2.1	General facility info	Please change general information; When the RVAAP IRP began in 1989, RVAAP was identified as a 21,419 acre installation. The property boundary was resurveyed by OHARNG.	Corrected reference.

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66	HSP	5	Sections 3.2.3 and 3.2.4	Karen's resp. outline		
67	HSP	6	Section 3.3	Exhibit 1	Exhibit 1 location in document?	Exhibit 1 in document.
68	HSP	16	Section 10.3.2	Line 830	If circled	Revised sentence.
69	HSP	16	Section 11	Line 862 lipid	Lipid circled-check White Phosphorus injuries	Revised bullet.
70	HSP	17	Section 12	Line 910 reference	Refer to correct section. Decontamination area?	Section is not applicable and noted.
71	HSP	19		Line 962	The RVAAP alarm –there is no RVAAP alarm remove and discuss other means	Reference changed to air horn.
72	HSP	19	Section 13.2.4	Line 1002	Emergency underlined Post 1 circled First bullet RAVENNA crossed out	Corrected sentence.
73	HSP	24	Section 16.4	Line 1190-1193	Refers to another base	Removed incorrect reference.
74	HSP	24	Section 17.1	Lines 1196-1198	White phosphorus MSDS sheet?	Included in Attachment 2 of the APP
75	HSP	24	Section 17.1.2	Line 1208	Misspelled Ravenna	Corrected spelling.
76	HSP	24	Section 17.1.2	Line 1209	Scorpions not at RVAAP, where is infectious waste?	Removed scorpions.
77	HSP	25	Section 17.2.1-17.2.8	lines 1238, 1240, 1242, 1244, 1246	Spell out prevention	Corrected wording.
78	HSP	27	Section E	Line 1319	Add debris at end of sentence	Added wording. Renumbered section to match document (Section 17.2.9.4).
79	HSP	28	Section H	Line 1371	Explosion-resistant barrier circled	Corrected. Renumbered section to match document (Section 17.2.9.7).

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80	HSP	29	Section L	Line 1433	Correct building number	Corrected reference. Renumbered section to match document (Section 17.2.9.11).
81	HSP	30	Section Q	Line 1498	Pallets will not be used?	Renumbered section to match document (Section 17.2.9.16).
<b>OHIO EPA</b>						
82	Gen				Please provide the corresponding reference to the Ohio Administrative Code (OAC), if applicable, when citing any federal Resource Conservation and Recovery Act (RCRA) requirements.	References provided
83	Gen				No catastrophic stuff where needs to be added	Discussed in the White Phosphorus Disposal Contingency Plan Addendum
84	Gen				Need to get PIKA in the loop	PIKA PO has been issued
85	Gen				Dry run with emergency forces	It was included in Section 2 of the White Phosphorus Disposal Contingency Plan Addendum
86	Gen				Evac routes	Provided in White Phosphorus Disposal Contingency Plan Addendum
87	Gen				Throughout document-remove all extraneous dots, dashes etc	Corrected
88	Gen				Throughout-references to storing up to 300 drums. 1047 diagram shows room for only about 92 drums. If wet storage is to be used—need more info about that area, especially not climate controlled as much at 1047	Reference to 300 drums has been changed to reflect total number of drums shown in the drum layout diagram.

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89	Gen				Use tabs	Tabs were added to the plans
90	WMP				Remove dots throughout document	Corrected
91	WMP			Cover Letter	Address letter to Ms. Beckham, not Mr.	Corrected
92	WMP			No reviewing signature from Program Manager	Need to get Program Manager's approval	Approval was obtained
93	WMP			Report Document Page	Remove extra period from Block 14	Corrected
94	WMP	iv		List of Acronyms	Need to capitalize acronym descriptions	Corrected
95	WMP	1	1.1	Line 169	Need to check correct number of TCRA.	The number was provided in our Performance Work Statement. The number was removed to be consistent with the PIKA Final Project Work Plan dated May 7, 2010 which did not identify the number of TCRA.
96	WMP	1, 7	1.1	Line 173, Lines 384-386	Who will handle subsequent addendum?	TolTest will subcontract this addendum to a qualified UXO firm who will prepare the project plans.
97	WMP	1	1.1	Line 184 and 188	Spell out CFR at first showing and fix to acronym at second.	Corrected

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98	WMP	2	1.2	Lines 208, 210, 213, 217	Add reference to first TCRA and add second to Rocket Ridge TCRA. Fix second to read as third	Corrected. Was unable to find information regarding the first TCRA.
99	WMP	2	1.3	Lines 220-221	Fix sentence. Add correct acreage and reword description of border	Deleted section 1.3 wording and inserted accepted language from PIKA Project Work Plan
100	WMP	2	1.3	Lines 228-229	Fix description of Korean and Vietnam conflicts	Deleted section 1.3 wording and inserted accepted language from PIKA Project Work Plan
101	WMP	2	1.3	Lines 237-239	Last sentence is incorrect	Deleted section 1.3 wording and inserted accepted language from PIKA Project Work Plan
102	WMP	2	1.3	Lines 241-245	Use most current accepted language for this descriptive paragraph	Deleted section 1.3 wording and inserted accepted language from PIKA Project Work Plan
103	WMP	3	1.5		Correct Eileen Mohr's email address	Corrected
104	WMP	5	2.2	Lines 328-329	Use correct title of 40-hour OSHA training	Corrected
105	WMP	6	2.3	Responsibilities table	Fix formatting on table and correct edits	Corrected
106	WMP	7	3.1	Line 393	Insert missing period	Corrected
107	WMP	7	3.0	Lines 384-386 addendum	TolTest is doing this and not PIKA?	TolTest will subcontract the disposal of MEC and MPPEH to a qualified UXO firm.

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108	WMP	8	3.2	Lines 419	Disconnect if waste goes offsite when there are 80 drums why do you expect (potentially) 300? That is almost 4 weeks of accumulation	The following clarification was added and reference to 300 drums was removed: Should delays be encountered with transport of the drums such as weather delays or additional drums are generated, the total number of drums that would be accumulated at the temporary storage area will not exceed 150 drums.
109	WMP	9	4.1	Line 454	Correct word	Corrected
110	WMP	9	4.1	Line 459	Spell out acronyms	Corrected
111	WMP	10	4.3	Line 488	Correct the heading. Not storing military munitions	Heading was corrected to state RCRA and TSCA Requirements for Storage
112	WMP	10	4.3	Line 513	Add return for new paragraph	Corrected
113	WMP	11	5.1.1	Lines 551-556	Correct edits	Corrected

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114	WMP	11	5.1.2	Lines 563-565	Only can know this if you open drums which isn't going to happen. Just verify with PIKA.	<p>The following was added to clarify verification of the drums being topped off with water: "Upon delivery of the drums to Building 1047 and prior to acceptance, the TolTest On-site Technical Manager and PIKA will perform a joint inspection of the drums and review the documentation which includes: the Inert Certificate (<b>Attachment 1</b>), Chain of Custody form (<b>Attachment 3</b>), and Inspection Checklist (<b>Attachment 5</b>), to ensure that the drums were properly packaged and topped off with water prior to securing the lids. Each drum will be inspected for overall integrity, signs of leaks, to ensure the lids are closed tightly, to ensure the bungs are closed, to inspect for drum damage, and verify each drum has a label and inventory number."</p> <p>The COC form states "This COC is to be used solely to document the receipt of drums containing white phosphorous and/or white phosphorous contaminated soil and debris generated as a result of the RRA TCRA performed by PIKA. Only drums that have been inspected by the TolTest Onsite Technical Manager and found to be compliant with the acceptance criteria contained in the WMP will be accepted. Additionally, the Inert Certification for each drum must be properly executed and provided with this COC. By relinquishing these drums, PIKA certifies that the drums have been topped off with water, as required by the WMP."</p>

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115	WMP	11	5.1.3	Lines 573-574	Sentence poorly written, needs rewording	Sentence was rephrased to state: Building 1047 is a secure building which will be kept locked at all times when not loading or unloading drums to prevent the drums from being tampered with during storage.
116	WMP	12	5.1.3	Line 584	Insert period as marked	Corrected
117	WMP	12	5.1.4	2nd paragraph	Correct edits as noted	Corrected
118	WMP	12	5.2	Line 607		Corrected
119	WMP	12	5.3	Line 613	Delete text as noted	Corrected
120	WMP	12	5.3	Lines 623-624	Why would you even consider opening? What are the appropriate safety measures?	Sentence was corrected to state: "Drums will not be opened due to the hazardous nature of the white phosphorus. Note: To ensure the drums are topped off with water it is presumed that if there are no leaks or drips observed from the drums during the inspections, the white phosphorus waste and contaminated soil and debris are adequately covered with water."
121	WMP	13	5.3	Line 634	Capitalize first word	Corrected
122	WMP	13	5.4	Lines 649-650	Correct edits as noted	Corrected
123	WMP	13	5.5	Lines 662-664	Correct edits as noted calendar or business days?	Corrected to state business days
124	WMP	14	6.1	Line 690	Insert word as noted	Corrected
125	WMP	15	6.1	Line 724	Correct edits as noted	Corrected
126	WMP	15	6.3	Lines 748, 755, 757, 761, 762, 763	Correct edits as noted	Corrected

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127	WMP	16	7.2	Line 783	Correct wording as noted	Corrected; minimized was replaced with prevent
128	WMP	16	7.2	Line 787	Specify class of fire extinguisher	Corrected. 10 pound A-60BC.
129	WMP	16	7.3	Lines 798, 802	Correct edits as noted	Corrected
130	WMP	17	7.3	Line 812	Correct edits as noted	Corrected
131	WMP	17	7.3.2	Line 835	Will the drum be handled onsite with a grapppler unit? Will the grapppler unit constructed for explosive containment be onsite?	The Section 7.3.2 was removed and Section 7.3.1 was changed to Emergency Procedures referring back to the White Phosphorus Disposal Contingency Plan Addendum.
132	WMP	17	7.3.3	Lines 842, 850	Correct edits as noted	Section was removed and Section 7.3.1 was changed to Emergency Procedures referring back to the White Phosphorus Disposal Contingency Plan Addendum.
133	WMP	18	7.6	Line 892	Who will supply training certificates?	by Triad for their drivers
134	WMP	18	7.6	Lines 888, 901	Correct edits as noted	Section 7.6 was revised to state the following: "Triad will be the licensed hazardous waste transporter and will be responsible securing of the drums for transport. The Veolia Technical Representative will be responsible for the operation of the forklift and loading the drums onto the Triad truck. The forklift and portable yard ramp will be utilized to load the drums. Triad will be responsible for ensuring that the drums are adequately secured and positioned within the truck. The Triad Contingency Response Procedures are included in <b>Section 8.</b> "

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135	WMP	19	7.6	Line 904	Does ERG have procedure to transport fluorescent light fixtures waste?	Yes. Information is provided in Attachment 8.
136	WMP	20	8.2	Lines 922-923	Is information included in Appendix 7?	Revised to state: Additionally, the facility's status and document information necessary to satisfy the requirements of the EPA Off-Site policy is included in Attachment 9.
137	WMP	21	8.2	Line 954	Designate if calendar or business days	Business days
138	WMP	21	8.3	Entire Section	Correct edits as noted	Corrected to show business days
139	WMP	21	8.4	Entire Section	Correct edits as noted	Corrected to show business days
140	WMP	21	8.5.1	Line 997	Correct location name, correct road name.	Corrected
141	WMP	21	8.5.1		Is there a Secondary Route?	Yes. Provided in Section 8.6.1.
142	WMP	23	8.5.3	Line 1031	Correct reference to non-generic	Corrected
143	WMP	23	8.5.4	Entire Section	Correct edits as noted, provide names of facility personnel	Section 8.5.4 was revised, Triad's <i>White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste</i> is included in Attachment 11
144	WMP	24	8.5.4	Contact Personnel	Provide names of noted organizations	Section 8.5.4 was revised Triad's <i>White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste</i> is included in Attachment 11
145	WMP	25	8.5.4	Emergency Response Agencies, Lines 1160-1162	Provide who will do sampling, dictate lab, and provide procedures	Section 8.5.4 was revised
146	WMP	26	8.5.4	Line 1182	Specify class of fire extinguisher	Section 8.5.4 was revised Triad's <i>White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste</i> is included in Attachment 11

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147	WMP	26	8.5.4	Line 1183	Provide driver PPE	Section 8.5.4 was revised Triad's <i>White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste</i> is included in Attachment 11
148	WMP	26	8.5.4	Decontamination	Correct edits as noted	Section 8.5.4 was revised Triad's <i>White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste</i> is included in Attachment 11
149	WMP	26	8.5.4	Equipment	Description doesn't sound feasible for a tool	Section 8.5.4 was revised Triad's <i>White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste</i> is included in Attachment 11
150	WMP	26	8.5.4	Training Program	Correct edits as noted	Triad's <i>White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste</i> is included in Attachment 11
151	WMP	27	8.5.4	State Agencies	Correct edits as noted	Corrected
152	WMP	28	9.0	Line 1261	Add paint chips etc	Added
153	WMP	28	9.1	Line 1274	Provide desired visqueen thickness	4 mil
154	WMP	28	9.2	Line 1290	Correct edits as noted	Corrected
155	WMP	29	9.4	Lines 1317, 1318, 1319	Correct edits as noted	Corrected
156	WMP		Att. 3	Cover Page	Correct ODAZ to ODA2	Corrected
157	WMP		Att. 4	Inventory Sheet	Correct title to White Phosphorus Storage at Building 1047, correct edits as noted	Corrected

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158	WMP		Att. 4	Weekly Inspection Checklist	Correct edits as noted	Corrected
159	WMP		Att. 6	Bldg 1047 Storage Area Map	Correct edits as noted	Drawing G-101 was reevaluated and layout reconfigured
160	WMP		General		Please provide the corresponding reference to the Ohio Administrative Code (OAC), if applicable, when citing any federal Resource Conservation and Recovery Act (RCRA) requirements.	OAC references added, where applicable.
161	WMP		Section 1.1, 3.0, 6.0, 8.0	Lines 183 & 184; 378 & 379;	Waste paint chips must be evaluated in accordance with OAC 3745-52-11 to determine if the waste is a hazardous waste. Due to the presence of lead, the waste paint chips may be regulated as a D008 (lead) hazardous waste, in addition to TSCA waste for PCBs.	The following was added to Section 3.0 sixth paragraph: "As stated in 40 CFR 761.1 substances that are regulated under 40 CFR 761 include paints or coatings containing PCBs, and dielectric fluids containing PCBs such as those found in the ballasts of the light fixtures. The lead/PCB paint chips and fluorescent light fixtures are regulated as PCB wastes."
162	WMP		2.0		This section indicates that no more than 300 drums will be accumulated at the temporary storage area (i.e., Building 1047) at any given time. Please evaluate whether compliance with all hazardous waste container management requirements (e.g., aisle space per OAC 3745-65-35) can be maintained if 300 drums are accumulated at one time.	This was re-evaluated and text was changed from 300 drums to 150 drums. Figure G101 was reconfigured to allow for appropriate aisle space, drums spacing, and inspection requirements.

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Item No.	Plan	Page No.	Sec/Para	Comment	Recommendations	Response
163	WMP		2.2		Personnel involved with hazardous waste management must meet the training requirements found in OAC 3745-65-16.	<p>The following text was added to this paragraph: In accordance with the OAC 3745-65-16, an on-the-job training session which overlaps the 29 CFR 1910.(e)(4) requirements will be held with all onsite TolTest associates and subcontractors to include contingency plan implementation, emergency procedures, emergency equipment, and emergency systems including the following:</p> <ul style="list-style-type: none"> <li>a. Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment)</li> <li>b. Communications or alarm systems;</li> <li>c. Response to fires or explosions;</li> <li>d. Response to ground water contamination incidents.</li> </ul> <p>All required training certifications and records will be provided to the Operating Contractor Vista Sciences.</p>

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Item No.	Plan	Page No.	Sec/Para	Comment	Recommendations	Response
164	WMP		3.0 and 6.0		Identify the applicable hazardous waste numbers (e.g., D001/D003) for the WP related wastes. Please provide the basis for the hazardous waste numbers in accordance with the waste evaluation requirements found in OAC 3745-52-11. Additionally, please provide the waste profile submitted to Veolia Environmental Services (Sauget, IL facility) for the WP related hazardous wastes.	The following test was added to 3.0 after the third paragraph: The white phosphorus drums will also have the EPA hazardous waste numbers of D001 and D003. The hazardous waste numbers for the white phosphorus were determined in accordance with the waste evaluation requirements found in OAC 3745-52-11. As stated in paragraph 3745-52-11 (C) For purposes of compliance with Chapter 3745-270 of the Administrative Code, or if the waste is not listed as a hazardous waste in rules 3745-51-30 to 3745-51-35 of the Administrative Code, the generator must then determine whether the waste is identified in rules 3745-51-20 to 3745-51-24 of the Administrative Code by either: (1) Testing the waste according to the methods set forth in rules 3745-51-20 to 3745-51-24 of the Administrative Code, or according to an equivalent method approved by the U.S. EPA region V regional administrator pursuant to 40 CFR 260.21; or (2) Applying knowledge of the hazardous characteristic of the waste in light of the materials or the processes used.

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165	WMP		3.0 and 6.0			<p>The white phosphorus waste is not a listed waste per the rules in the OAC 3745-51-30 to 3745-51-35, however based on the hazardous characteristic of the white phosphorus, the white phosphorus waste is classified as a hazardous waste. A waste exhibits the hazardous waste characteristic of ignitability if it has the following property as stated in 40 CFR 261.21 and OAC 3745-51-21: "It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard." White phosphorus is highly energetic and ignites once exposed to oxygen producing a toxic smoke. Therefore, the drums containing white phosphorus will have the EPA hazardous waste number of D001. In addition, white phosphorus exhibits the hazardous waste characteristic of reactivity if it has the following property as stated in 40 CFR 261.23 and OAC 3745-51-23: "It is normally unstable and readily undergoes violent change without detonating." White phosphorus readily reacts when exposed to air, therefore the drums containing white phosphorus will have the EPA hazardous waste number of D003.</p> <p>The following was added to Section 6.0 after the second and third bullets: The EPA hazardous waste codes are D001 and D003.</p>

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166	WMP		4.0		Storage of WP drums must meet aisle space requirements found in OAC 3745-65-35, as well as allow for adequate inspection under OAC 3745-66-74. Based on figure G101 found in Attachment 6, these requirements will not be met.	This was re-evaluated and text was changed from 300 drums to 150 drums. Figure G101 was reconfigured to allow for appropriate aisle space, drums spacing, and inspection requirements.
167	WMP		4.3	Line 506	Hazardous waste is proposed to be accumulated in accordance with OAC 3745-52-34 (A)(1)(d) [containment building]. No information was provided to demonstrate that Building 1047 meets the requirements found in this rule, as well as OAC 3745-256-100 to 3745-256-102.	The sentence was changed to read as follows: OAC rule 3745-52-34(A)(1)(a) allows generators to manage hazardous waste in containers provided the generator complies with the applicable requirements in rules 3745-66-70 to 3745-66-77 of the Administrative Code for no more than 90 days without obtaining a permit or interim status.
168	WMP		5.3	Lines 623 & 624	Please describe the appropriate safety measures for opening containers of WP	The sentence was changed to read as follows: Drums will not be opened due to the hazardous nature of the white phosphorus.
169	WMP		5.3		In accordance with OAC 3745-65-33, all emergency equipment (see comment 20) must be inspected and maintained. The emergency equipment inspections must be recorded in a log or summary.	Added the following sentence to the last paragraph as the last sentence: In addition, the emergency equipment provided by TolTest will be inspected in accordance with OAC 3745-65-33. The emergency equipment inspections will be conducted weekly by the Onsite Technical Manager and recorded on the Weekly Hazardous and Non-Hazardous Waste Inventory Sheet ( <b>Attachment 5</b> )
170	WMP		6.2		Manifesting of hazardous waste by the generator must meet the requirements found under OAC 3745-52-20 to 3745-52-23.	Corrected the OAC reference as stated.

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171	WMP		8.3	Lines 945 & 949	Clarify if TolTest or the receiving TSD facility will be treating hazardous waste to meet the Land Disposal Restriction requirements.	The following sentence was added to the paragraph for clarification: The disposal facility will be treating the white phosphorus wastes to meet the land disposal restriction requirements.
172	WMP		8.4		Please note the exception report requirements found in OAC 3745-52-42(A)(1)(2)	The following was added to Section 8.5: “Per OAC 3745-52-42 Exception report, the exception report will include the following:  (a) A legible copy of the manifest for which the generator does not have confirmation of delivery; and  (b) A cover letter signed by the generator or his authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts.”
173	WMP		8.5.4	Line 1130	Identify applicability of phone number (800) 843-0699 which corresponds to the Alabama Emergency Management Agency	Not applicable to this project. The number was inadvertently put in the document from another document. Emergency numbers have been confirmed that are listed in this revision.
174	WMP		8.5.4	Starting with line 1132	This section should be revised to identify the response actions for a WP related transportation emergency	General emergency procedures summarized in this section. Section 8.5.4 was revised. Triad’s <i>White Phosphorus Transportation Protocol and Contingency Plan for Transportation of Hazardous Waste</i> is included in Attachment 11

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175	WMP		8.5.4	Lines 1243, 1251, and 1258	Notification of transportation related emergencies should be made to the following Agencies (based on location of emergency): Illinois Emergency Management Agency at (217) 782-7860/ Illinois Environmental Protection Agency at (217) 782-3637; Indiana Department of Environmental Management, Emergency Response Section at (888) 233-7745; Ohio Environmental Protection Agency, Emergency Response Section at (800) 282-9378	Section has been revised to reflect correct numbers for these agencies.
176	SCP			Plan organization	The plan's organization and functionality could be improved through including all applicable response steps under the relevant section. For example, spill response steps are identified under two different sections (2.4 and 2.5); fire response steps are identified under the response to a large spill (line 243); evacuation procedures are identified under two different sections (2.4 and 2.7) and first aid/medical emergencies are identified under two different sections (2.4 and 3.7). Please revise the plan accordingly.	Plan reorganized accordingly.
177	SCP		2.3	Emergency notification	Please revise this section to include the emergency notification requirements to Ohio EPA in accordance with OAC 3745-65-56.	Added to Section 3.3 the Ohio EPA emergency response team 24 hour phone number as part of the notification process, along with the information that must be provided on the call.
179	SCP		2.7	Evacuation distances	Please include the necessary evacuation distances under this section.	Distances included: 1000 ft for spill, 2640 ft for fire.

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180	SCP		3.4	Emergency equipment	In accordance with OAC 3745-65-52, please include a list of all emergency equipment (fire extinguishing systems, spill control equipment, communications and alarm systems and decontamination equipment). The list must include the location, physical description of each item on the list and a brief outline of its capabilities.	A detailed list is provided in Section 2.4.2 and locations of emergency equipment can be seen in Exhibit 3.
181	SCP		3.6	PPE	Please identify the basis for Level C PPE when responding to a spill where smoke is present. In particular, is an air purifying respirator appropriate when a SCBA is required for fire response?	The full face respirators with combination acid gas, P-100 filters are appropriate for non-fire related responses.
182	SCP		3.7	First aid	This section should be revised to identify the response actions for a WP related first aid/medical emergency.	Specific white phosphorus first aid procedures added to Section 3.5.
183	SCP		4.1	Emergency reporting	Please note the emergency reporting requirements for contingency plan implementation under OAC 3745-65-56(I).	Requirements under OAC 3745-65-56(I) were added in Section 3.8.
184	SCP		Attach 1	Emergency response phone list	Emergency Response Telephone List, p. 1: Please revise this list to include the phone number for the National Response Center at (800) 424-8802 and accurately identify Ohio EPA's Emergency Response Hotline at (800) 282-9378.	National Response Center number added, Ohio EPA's Emergency Response revised. Refer to Section 3.3.

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185	SCP		Attach 1	Emergency response phone list	Emergency Response Telephone List, p. 2: Please review the emergency response contractors list for applicability and accuracy. In particular, the emergency phone number listed for Safety-Kleen corresponds to the National Response Center. Additionally, General Environmental Management no longer operates.	Emergency contacts revised. Refer to Section 3.3.
186	SCP		Gen	Formatting “dots”	Need to get rid of all the extra dots.	Revision made.
187	SCP		Dist list	Distribution list clarification	Define ISCP first time used	Defined as “Installation Spill Contingency Plan”
188	SCP		TOC	Spelling	Change personnel to personal in section 3.6	Revision made.
189	SCP		Acronyms		Change OANG to OHARNG	Revision made.
190	SCP		Acronyms		Make sure list is complete.	Added BRACD
191	SCP		1.2		Change “of storm sewers” to “from”	Revision made
192	SCP		1.3	Spacing	Need spacing between line 148 and 149.	Revision made.
193	SCP		1.4	Storage of drums	Can 1047 really handle 300 drums? Why would there be this potential?	Revised to 150 drums.
194	SCP		2.1	Storage of drums		Revised to 150 drums

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195	SCP		2.2	Phone numbers	Give phone number of security guard.	Phone number (330) 358-2017 added.
196	SCP		2.2	Phone numbers	revise Alternate Pika Responder Mr. Lew Kovarik's phone number...use dash instead of dot.	Revision made.
197	SCP		2.4	Definitions	Define immediate area.	1000 ft from spill.
198	SCP		2.4	Emergency response guidebook	2008 Emergency Response Guidebook instead of 2004.	Reference removed.
199	SCP		2.5	Grammer/spelling	Need space and comma between radiotelephone	Reference removed.
200	SCP		2.5/II	Grammer/spelling	Add "the" before Toltest onsite tech manager	Revision made.
201	SCP		2.5	Grammer/spelling	add colons after main bullet points. Add "the" after "...operator will place..."	Grammar/spelling revised.
202	SCP		2.5	Redundancy	"if no reaction or fire" is redundant	Phrase removed.
203	SCP		2.5	Third bullet point	There is no "alarm"	Section 2.4.2 discusses use of air horn as alarm.
204	SCP		2.5	fourth bullet point	No incompatible waste should be stored period	Section 2 completely revised.
205	SCP		2.5	6 <sup>th</sup> bullet point	Remove 6 <sup>th</sup> bullet point...it is part of 5 <sup>th</sup> .	Section 2 completely revised.
206	SCP		2.6	Grammer/spelling	"the" before evacuation distance may be further.	Section 2 completely revised.

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207	SCP		2.7	Grammer/spelling	remove (1) in first sentence.	Section 2 completely revised.
208	SCP		2.7	Offsite location	“offsite location” could most likely remain on installation.	Added details on evacuation routes and rendezvous points. Now Section 2.3 & Exhibits 1 through 3.
209	SCP		2.7	Second bullet	trenches, pits, tanks, drums...??	Section 2 completely revised.
210	SCP		2.7	5 <sup>th</sup> bullet	No cliffs in area	Section 2 completely revised.
211	SCP		2.8	Line 348	change “laws” to “rules, laws, and regulations”	Section 2 completely revised.
212	SCP		3.1	Grammer/spelling	Add “they” after who is on site and...(line 428)	Section 2 completely revised.
213	SCP		3.3	Acronym	Change OANG to OHARNG	Revision made.
214	SCP		3.6	Respirator	if smoke is present, why would you want a half face respirator when the smoke is irritating—no eye protection	Removed half-face and left only full face respirator.
215	SCP		3.8	Communication	there could be personnel in any number of places on post...all teams should have a radio so post 1 can broadcast a message.	Refer to revised Section 2.2.
216	SCP		4.1	Acronym	change BRACO to BRACD	Revision made.
217	SCP		4.2		change Camp Ravenna Environmental Supervisor to Camp Ravenna Facility Manager.	Revision made.
218	SCP		5.0	Distribution list	add Eileen Mohr/Ohio EPA...1 copy	Revision made.

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219	SCP			Emergency response phone list	add Post 1, 330-358-2017.	added
220	SCP			Emergency response phone list	change State of Emergency Response to State of Ohio Spill Emergency Response number.	Revision made.
221	SCP			Spill alert flow diagram	What happens if contact is not made?	Refer to revised flow chart in Attachment 2.
222	SCP			Property owners page.	Property owners page: provide source of information. Any phone numbers? This is public information...how should it be handled? Does Portage county have any emergency reporting systems (auto dialing for example)?	Page removed. Should utilize ISCP directly for this information.
223	SCP			Evacuation plan diagram	type of fire extinguishers. 500 feet changed to 1000 feet...specify upwind.	Diagram revised. 10lb A-60BC fire extinguishers.
224	SCP		Attach 3	Memorandum of Agreement for Fire and EMS	When will this be finalized?	Obtained latest version of ISCP and the Memorandum of Agreement is finalized.
225	APP	iv	Acronyms List		Correct edits as noted and verify acronyms to ensure completeness	Updated and verified acronyms.
226	APP	1	1.4	AHA List	Correct edits as noted	Corrected as noted.
227	APP	6	3.3	Lines 425-426	Correct edits as noted	Corrected to SSHO.
228	APP	6	3.5	Org Chart	Correct edits as noted	PM corrected and spelling corrected.

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229	APP	7	3.6	Lines 454-455	Correct edits as noted	Corrected edits.
230	APP	8	4.2	Lines 484-485	Correct edits as noted	Corrected edits.
231	APP	9	5.0	Lines 509, 521	Correct edits as noted	Corrected edits.
232	APP	13	7.1	Lines 622, 631	Correct CO references	Corrected CO references.
233	APP	14	8.2.1	Entire Section	Correct edits as noted	Corrected edits.
234	APP	14	8.2.1.1	General Evacuation Procedures	Correct edits as noted, address lack of alarm system at RVAAP	Corrected section to reflect references to alarm system, meeting place, and Post #1.
235	APP	15	8.2.1.2	Lines 695-696	How long will alarm sound? What is range of air horn?	The alarm will sound for 10 seconds, can air horn emits a 120dB horn at 10 feet and can be heard up to 1/2 mile.
236	APP	15	8.2.1.4	1st paragraph	Weak on dealing with chemical exposure to WP	Added more information on dealing with chemical exposure to WP.
237	APP	15	8.2.1.4	Lines 707-708, 725-726	Post 1 is called, not 911	Corrected to Post #1.
238	APP	15	8.2.1.4	Line 713	Correct edits as noted	Corrected edits.
239	APP	15	8.2.1.4	Skin Bullet	Check out gel bandages, ask Pika	Gel bandages addressed.
240	APP	17	8.2.6	Entire Section	Hospital direction unclear	Provided better directions to hospital. See Section 8.2.6, pg 17.
241	APP	17	8.3	Entire Section	Correct font as noted	Corrected font.
242	APP	18	8.5	Line 821	Correct edits as noted	Corrected edits.
243	APP	19	8.8, 8.14	Lines 845, 865	Correct edits as noted	Corrected edits.
244	APP	20	8.14.1	Lines 900-903	Update stress factors as noted	Added more information on cold injuries.

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245	APP	21	8.14.2		Note stress factors	Added more information on cold injuries.
246	APP	23	8.17	Line 997	Post #1, not local fire department	Corrected to Post #1.
247	APP	24	8.21	Lightning, Lines 1022-1027	Remove reference to drill rigs, add waiting 30 minutes after lightning or thunder claps	Corrected edits.
248	APP		App. C	Map to Robinson Hospital	Need better map to hospital	New map provided. See Appendix C.
249	APP		App. J	Schedule	Revise schedule as noted	Revised schedule provided. See Appendix J.
250	LBP	1	1.0	Lines 106, 113	Correct edits as noted, add sentence to 2nd paragraph that indicates paint most likely to contain PCBs as well as other heavy metals	Corrected to add PCB and metal.
251	LBP	4	3.4.1.1	Line 252	Door scraping or pipe demolition?	Changed to door scraping
252	LBP	5	3.4.1.3	Lines 275, 276, 279	Correct HSSO to SSHO	Corrected
253	HSP	vi	Acronym List		Put in alphabetical order and verify acronyms to ensure completeness	Corrected and verified acronyms.
254	HSP	1	1.0	Lines 238, 239, 240, 246, 247	Correct edits as noted	Hazardous Materials Waste warehouse Building 1047 (90 day storage area).
255	HSP	3	2.2.1	Lines 315, 321-322	Make corrections to training notations	Corrected notations.
256	HSP	4	3.2	Line 366, Org Chart	Remove bracket, provide contact phone numbers	Added phone numbers to Org Chart.
257	HSP	5	3.2.3	Line 394	Correct Karen Radomski's name	Corrected name.
258	HSP	5	3.2.4	Line 406	Correct Karen Radomski's name	Corrected name..
259	HSP	5	3.2.4	Lines 409, 410	Verify correct acronyms	Corrected and added to Acronyms section.
260	HSP	5	3.2.5	Lines 422, 424	Correct edits as noted	Corrected edits.

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261	HSP	6	Entire Page	Lines 434, 442, 451, 465	Correct edits as noted	Corrected edits.
262	HSP	7	4.2.2	Lines 513	What about personnel out in field?	Information added.
263	HSP	8	4.2.2	Line 523	Is there a newer version of guidebook?	Reference updated to <i>2008 Emergency Response Guidebook</i> .
264	HSP	8	4.2.2	Large Spills, Line 542	Seems to contradict APP	No contradiction found.
265	HSP	8	4.2.2	First Aid, Line 544	Change to Post #1	Changed to Post #1.
266	HSP	12	5.4.1	Doffing Guidelines, Line 649	Correct edits as noted	Corrected edits.
267	HSP	13	7.0	Lines 713, 714, 717	Correct HSSO to SSHO	Corrected SSHO.
268	HSP	14	10.1	Line 763	Correct reference	Corrected reference to Section 11.
269	HSP	15	10.3	Lines 791, 797, 806, 819	Correct edits as noted	Corrected edits.
270	HSP	16		Lines 836, 849	Correct edits as noted	Corrected edits.
271	HSP	16	11.0	Line 853	Will any decon water be disposed of?	Revised to clarify disposal of water.
272	HSP	17	11.0	Lines 879, 891, 903, 905	Correct edits as noted	Corrected edits.
273	HSP	19	13.2	Lines 962, 964, 968, 969, 977, 980, 986, 991, 1004-1005	Correct edits as noted	Corrected edits.
274	HSP	20		Lines 1011-1012, 1019, 1033, 1034, 1043	Correct edits as noted	Corrected edits.
275	HSP	21	13.5	Lines 1052, 1055-1056	Correct edits as noted	Revised Emergency Equipment section.
276	HSP	21	13.6.1	Line 1067	When will designated routes be provided?	All emergency communications will be discussed by the SSHO during the first site meeting.

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**\*\*A meeting was held on January 19<sup>th</sup>, 2011 at Ravenna in which comments were directly incorporated to the plans. Therefore, records of those comments are not available.**

**\*\*The location for drum storage was changed from building 1047 to the Wet Storage Area on February 3<sup>rd</sup>, 2011. All plans were revised accordingly. Comments provided previous to the change in location are provided below, however, some may no longer be applicable.**

Item No.	Plan	Page No.	Sec/Para	Comment	Recommendations	Response
277	HSP	22	14.2	Line 1100	Correct edits as noted	Corrected edits.
278	HSP	24	17.1.2	Line 1211	Correct edits as noted	Removed scorpions.
279	HSP	26	C.3	Line 1286	Sentence is unclear	Revised sentence. Position should be Corporate H&SD. Renumbered section to match document (Section 17.2.9.2).
280	HSP	27	D	Line 1314	Scenario is unlikely	Revised section. Renumbered section to match document (Section 17.2.9.3).
281	HSP	27	E	Lines 1327, 1333	Review labeling instructions and correct edits as noted	Revised instructions and corrected edits. Renumbered section to match document (Section 17.2.9.4).
282	HSP	27	F	Lines 1347-1348, 1350	Correct edits as noted	Removed reference to rusting drums. Renumbered section to match document (Section 17.2.9.5).
283	HSP	28	H	Line 1359	Drums not to be opened	Corrected. Renumbered section to match document (Section 17.2.9.7).
284	HSP	28	I	Line 1397	Sampling not to be performed	Corrected to remove sampling. Renumbered section to match document (Section 17.2.9.8).
285	HSP	29	J	Entire Section	Correct edits as noted	Revised section. Renumbered section to match document (Section 17.2.9.9).
286	HSP	29	K	Entire Section	Drums are not to be sampled	Revised section. Renumbered section to match document (17.2.9.10).
287	HSP	29	L	Entire Section	Correct building reference	Corrected reference. Renumbered section to match document (Section 17.2.9.11).
288	HSP	30	M	Line 1452	Specific forklift was designated for this task	Forklift referenced. Renumbered section to match document (Section 17.2.9.12).
289	HSP	30	N	Lines 1459, 1463-1464	Correct edits as noted	Corrected edits. Renumbered section to match document (Section 17.2.9.13).
290	HSP	31	Q	Lines 1504-1505	Correct edits as noted	Corrected. Renumbered section to match document (Section 17.2.9.16).

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291	HSP	31	17.2.10		What about slips on ice and snow?	Added information.
292	HSP	31	17.2.10	Lines 1535-1543	Text applies to pollution, does not belong in this section	Removed text.
293	HSP	31	17.2.11	Line 1548	Correct edits as noted	Corrected edits.
294	QCP	iii-iv	Acronyms List		Correct edits as noted and verify acronyms to ensure completeness	Corrected
295	QCP	1	1.0	Lines 97, 108	Correct edits as noted	Corrected
296	QCP	2	2.2	Line 132	Correct edits as noted	Corrected
297	QCP	4	Responsibilities Chart	QCM	Correct edits as noted	Corrected
298	QCP	5	2.5	Lines 155-156	Determine designated SSHO and match to APP	Corrected
299	QCP	6	3.3	Lines 190, 204	Correct edits as noted and provide name of RVAAP designated emergency POC	Corrected
300	QCP	7	4.1.1	Line 239	Correct edits as noted	Corrected
301	QCP	8	4.2.2	Line 281	Correct edits as noted	Corrected
302	QCP	9	4.2.6	Lines 310-311	Correct edits as noted	Corrected
303	QCP	15	7.2	Lines 476-477	Correct edits as noted	Corrected
<b>USACE</b>						
304	APP/HSP		Gen	EM385-1-1	Needs to be 9/15/2008 version	Corrected

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305	APP/HSP		Gen	SSHO	Please provide SSHO qualifications	Provided
306	APP/HSP		Gen	Training	Please provide training documentation	Provided in Attachment 11 in APP
307	APP/HSP		Gen	PPE	Please ensure all levels of PPE are displayed correctly—it is not level D if a respirator is worn.	Corrected
308	APP/HSP		Gen	Medical surveillance	Certain criteria is required to be appended. Please provide.	Corrected
309	APP/HSP		Gen	Exposure monitoring	Explain air monitoring rationale. If no monitoring is to be performed for a particular contaminant, it must be justified.	Corrected
310	APP/HSP		Gen	OEL	Please provide discussion of USACE position and enforcement – See EM385-1-1	Provided
311	APP/HSP		Gen	Typos	Strongly recommend someone give the plan a thorough read from front to back for typos and names/objects left over from the last plan	Corrected
312	APP/HSP		Gen	Phone numbers	Please be certain all phone numbers in the plan are valid	Verified numbers