

APPENDIX G

IDW DISPOSAL LETTER REPORT

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February 8, 2013

Mr. Eric Cheng, P.E.
Technical Manager
U.S. Army Corps of Engineers, Louisville District
600 Martin Luther King Jr. Place
Louisville, Kentucky 40202-0059

Subject: Investigation-Derived Waste Letter Report
2011 Performance-Based Acquisition
Environmental Investigation and Remediation
14 Compliance Restoration Sites
Ravenna Army Ammunition Plant, Ravenna, Ohio
Contract No. W912QR-04-D-0039
Delivery Order No. 0004
Project No. 5161.004

Dear Mr. Cheng:

Investigation activities in accordance with the Site Inspection and Remedial Investigation Work Plan (October 2012) were conducted from November 5, 2012 through December 12, 2012. These activities resulted in the generation of Investigation-Derived Waste (IDW) consisting of soil cuttings from direct push borings and equipment decontamination fluids. The purpose of this letter report is to characterize and classify IDW for disposal and to propose methods for disposing the IDW.

This letter report includes a summary of IDW generated, the origin of the IDW (Table 1), as well as proposed classification and recommendations for disposal of the IDW (Table 2). This letter report follows guidance established by the following:

- 1.) The Facility-Wide Sampling and Analysis Plan (SAIC 2011), and
- 2.) Final Site Inspection and Remedial Investigation (SI/RI) Work Plan (ECC 2012).

Three distinct IDW streams were sampled as part of the SI/RI Work Plan field activities. Each waste stream was composited and sampled per requirements outlined in Section 7.0 of the Facility-Wide Sampling and Analysis Plan (FWSAP) and SI/RI Work Plan. IDW streams generated are:

- One (1) 55-gallon drum containing equipment decontamination fluids (Liquinox, distilled water [DI], and diluted hydrochloric/nitric acids), sampled on December 12, 2012,
- Three (3) 55-gallon drums containing soils from SI/RI sampling activities, sampled on December 12, 2012, and
- One (1) 20-gallon drum containing soils from RI sampling activities, sampled on December 21, 2012.

Per Section 7.0 of the Facility-Wide SAP, three composite samples were collected for Toxicity Characteristic Leaching Procedure (TCLP) parameters and submitted for laboratory analysis to characterize the following waste streams for disposal:

- Liquid IDW

The liquid sample (070-0059-0001-IDW TCLP) characterized one drum of decontamination fluid containing 2% hydrochloric/10% nitric acids, DI water, and Liquinox.

- Solid IDW

The solid sample (070-0058-0001-IDW TCLP) was composited from three, 55-gallon drums containing soil cuttings.

A third solid sample (076-0146-0001-IDW-TCLP) was composited from one, 20-gallon drum containing soil cuttings. This drum was sampled separately as the soils may have been impacted with poly chlorinated biphenyls (PCBs). These soils originated from drill cuttings collected at Building U-20 at CC-RVAAP-76 Depot Area. Building U-20 is a former incinerator.

Table 1 summarizes the IDW samples collected.

Table 1 – Summary of Site Inspection/Remedial Investigation Investigation-Derived Waste

Container Type and Size	Contents	Generation Dates	Sample ID
55- Gallon Closed Top Drum	De-con fluids from sampling equipment and decontamination	5 November 2012 through 12 December 2012	070-0059-0001-IDW TCLP
55- Gallon Closed Top Drum	Soil Cuttings	5 November 2012 through 12 December 2012	070-0058-0001-IDW TCLP
55- Gallon Closed Top Drum	Soil Cuttings	5 November 2012 through 12 December 2012	070-0058-0001-IDW TCLP
55- Gallon Closed Top Drum	Soil Cuttings	5 November 2012 through 12 December 2012	070-0058-0001-IDW TCLP
20-Gallon Closed Top Drum	Soil Cuttings	21 December 2012	076-0146-0001-IDW-TCLP

Per Section 8.0 of the FWSAP, non-indigenous IDW is characterized for disposal on the basis of composite samples collected and submitted for laboratory analysis to characterize the waste stream for disposal. Upon receipt of analytical results from the laboratory, the analytical data was reviewed to determine if the waste was potentially hazardous. This review consisted of a comparison of the analytical results against the TCLP criteria presented in Table 8-1 and 8-2, Maximum Concentration of Contaminants for the Toxicity Characteristic (40 Code of Federal Regulation (CFR) 261.24), as presented in the FWSAP. The results of this review are summarized below.

IDW –FLUIDS

One liquid composite sample (070-0059-0001-IDW TCLP) was collected. **Attachment 1** presents the analytical laboratory data for TCLP analysis for IDW fluids generated during the November 5 through December 12, 2012 field activities. All analytical results were below regulatory levels as presented in Tables 8-1 and 8-2 in the FWSAP.

IDW –SOLIDS

Two solid composite samples (070-0059-0001-IDW TCLP, and 076-0146-0001-IDW TCLP) were collected. **Attachment 2** presents the analytical laboratory data for TCLP analysis for IDW solids generated during the November 5 through December 12, 2012 field activities. All analytical results were below regulatory levels as presented in Tables 8-1 and 8-2 in the FWSAP.

Please note the IDW addressed in this letter report has been characterized under provisions of the FWSAP using TCLP analysis and process knowledge. Unless RVAAP has additional information that would result in the IDW meeting, or containing materials that meet, the definition of a listed hazardous waste as defined in 40 CFR Part 261 Subpart D, it is recommended that the IDW, as presently characterized, be disposed as summarized in Table 2.

Table 2 - Summary of Final Waste Classification and Recommended Options

Medium	Waste Criterion	Disposal Recommendation
Water	Inorganics, Organics	Permitted Wastewater Treatment Facility or Permitted Solid Waste Facility
Soils	Inorganics, Organics	Permitted Wastewater Treatment Facility or Permitted Solid Waste Facility
Soils	Inorganics, Organics	Permitted Wastewater Treatment Facility or Permitted Solid Waste Facility

Since RVAAP, under RCRA, is the generator of this material, ECC requests concurrence or direction on the waste classification prior to disposal to ensure materials are properly disposed. Following your direction and immediate approval, ECC will proceed with appropriate waste disposal.

Should you have any questions or wish to discuss the proposed activities further, please do not hesitate to contact the undersigned at 508-229-2270, ext. 109, or via email.

Regards,

ECC



Alexander Easterday
Sr. Project Manager

Copy: Ann Wood, ARNGD
Katie Tait, OHARNG
Mark Patterson, RVAAP Facility Manager
Eileen Mohr, Ohio EPA
Kevin Palombo, Ohio EPA

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ATTACHMENTS

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Attachment 1 – IDW Analytical Results – Fluids

Analysis Type	Chemical	Units	Reporting Limit (mg/L)	TCLP Criteria (mg/L)	Results
					070-0059-0001-IDW-TCLP
Semi-Volatile Organics	1,4-Dichlorobenzene	mg/L	0.0040	7.50	0.00080 U
Semi-Volatile Organics	2,4,5-Trichlorophenol	mg/L	0.020	400.00	0.00080 U
Semi-Volatile Organics	2,4,6-Trichlorophenol	mg/L	0.020	2.00	0.00080 U
Semi-Volatile Organics	2,4-Dinitrotoluene	mg/L	0.020	0.13	0.00080 U
Semi-Volatile Organics	Hexachlorobenzene	mg/L	0.020	0.13	0.00010 U
Semi-Volatile Organics	Hexachlorobutadiene	mg/L	0.020	0.50	0.00080 U
Semi-Volatile Organics	Hexachloroethane	mg/L	0.020	3.00	0.00080 U
Semi-Volatile Organics	Nitrobenzene	mg/L	0.0040	2.00	0.00010 U
Semi-Volatile Organics	Pentachlorophenol	mg/L	0.040	100.00	0.0024 U
Semi-Volatile Organics	Pyridine	mg/L	0.020	5.00	0.00080 U
TCLP Metals	Arsenic	mg/L	2.0	5.00	0.0040 U
TCLP Metals	Barium	mg/L	40	100.00	0.24 J
TCLP Metals	Cadmium	mg/L	0.40	1.00	0.0040 U
TCLP Metals	Chromium	mg/L	2.0	5.00	0.012 J
TCLP Metals	Lead	mg/L	2.0	5.00	0.015 J
TCLP Metals	Mercury	mg/L	0.0020	0.20	0.00020 J
TCLP Metals	Selenium	mg/L	1.0	1.00	0.040 U
TCLP Metals	Silver	mg/L	2.0	5.00	0.0020 U
TCLP Herbicides	2,4,5-TP (Silvex)	mg/L	0.050	1.00	0.00010 U
TCLP Herbicides	2,4-D	mg/L	0.25	10.00	0.00039 J
TCLP Pesticides and/or PCBs	Chlordane	mg/L	0.030	0.03	0.000079 U
TCLP Pesticides and/or PCBs	Endrin	mg/L	0.010	0.02	0.000026 U
TCLP Pesticides and/or PCBs	Gamma-BHC (Lindane)	mg/L	0.010	0.40	0.000024 U
TCLP Pesticides and/or PCBs	Heptachlor	mg/L	0.010	0.01	0.000024 U
TCLP Pesticides and/or PCBs	Heptachlor Epoxide	mg/L	0.010	0.01	0.000024 U
TCLP Pesticides and/or PCBs	Methoxychlor	mg/L	0.030	10.00	0.000077 U
TCLP Pesticides and/or PCBs	Toxaphene	mg/L	0.50	0.50	0.0012 U
Volatile Organics	1,1-Dichloroethene	mg/L	0.050	0.7	0.025 U
Volatile Organics	1,2-Dichloroethane	mg/L	0.050	0.50	0.025 U
Volatile Organics	2-Butanone	mg/L	0.50	200	0.050 U
Volatile Organics	Benzene	mg/L	0.050	0.50	0.025 U
Volatile Organics	Carbon Tetrachloride	mg/L	0.050	0.50	0.025 U
Volatile Organics	Chlorobenzene	mg/L	0.050	100.00	0.025 U
Volatile Organics	Chloroform	mg/L	0.050	6.00	0.027 J
Volatile Organics	Tetrachloroethylene	mg/L	0.050	0.70	0.025 U
Volatile Organics	Trichloroethene	mg/L	0.050	0.50	0.025 U
Volatile Organics	Vinyl Chloride	mg/L	0.050	0.2	0.025 U

Notes:

J – Estimated Value

mg/L – milligrams per liter

U- Undetected above laboratory reporting limit

Attachment 2 – IDW Analytical Results – Solids

Analysis Type	Chemical	Units	Reporting Limit (mg/L)	TCLP Criteria (mg/L)	Results	
					070-0058-0001-IDW- TCLP	076-0146-0001-IDW-TCLP ¹
Semi-Volatile Organics	1,4-Dichlorobenzene	mg/L	0.0040	7.50	0.00080 U	0.00080 U
Semi-Volatile Organics	2,4,5-Trichlorophenol	mg/L	0.020	400.00	0.00080 U	0.00080 U
Semi-Volatile Organics	2,4,6-Trichlorophenol	mg/L	0.020	2.00	0.00080 U	0.00080 U
Semi-Volatile Organics	2,4-Dinitrotoluene	mg/L	0.020	0.13	0.00080 U	0.00080 U
Semi-Volatile Organics	Hexachlorobenzene	mg/L	0.020	0.13	0.00010 U	0.00010 U
Semi-Volatile Organics	Hexachlorobutadiene	mg/L	0.020	0.50	0.00080 U	0.00080 U
Semi-Volatile Organics	Hexachloroethane	mg/L	0.020	3.00	0.00080 U	0.00080 U
Semi-Volatile Organics	Nitrobenzene	mg/L	0.0040	2.00	0.00010 U	0.00010 U
Semi-Volatile Organics	Pentachlorophenol	mg/L	0.040	100.00	0.0024 U	0.0024 U
Semi-Volatile Organics	Pvidine	mg/L	0.020	5.00	0.00080 U	0.00080 U
TCLP Metals	Arsenic	mg/L	0.50	5.00	0.0044 J	0.0045 J
TCLP Metals	Barium	mg/L	10	100.00	0.29 J	0.28 J
TCLP Metals	Cadmium	mg/L	0.10	1.00	0.0016 J	0.00089 J
TCLP Metals	Chromium	mg/L	0.50	5.00	0.0024 J	0.0035 J
TCLP Metals	Lead	mg/L	0.50	5.00	0.0090 J	0.0050 J
TCLP Metals	Mercury	mg/L	0.0020	0.20	0.00020 J	0.00020 J
TCLP Metals	Selenium	mg/L	0.25	1.00	0.0066 J	0.0054 J
TCLP Metals	Silver	mg/L	0.50	5.00	0.0050 U	0.0050 U
TCLP Herbicides	2,4,5-TP (Silvex)	mg/L	0.050	1.00	0.00010 U	0.00010 U
TCLP Herbicides	2,4-D	mg/L	0.25	10.00	0.00025 U	0.00025 U
TCLP Pesticides	Chlordane	mg/L	0.030	0.03	0.000079 U	0.000079 U
TCLP Pesticides	Endrin	mg/L	0.010	0.02	0.000026 U	0.000026 U
TCLP Pesticides	Gamma-BHC (Lindane)	mg/L	0.010	0.40	0.000024 U	0.000024 U
TCLP Pesticides	Heptachlor	mg/L	0.010	0.01	0.000024 U	0.000024 U
TCLP Pesticides	Heptachlor Epoxide	mg/L	0.010	0.01	0.000024 U	0.000024 U
TCLP Pesticides	Methoxychlor	mg/L	0.030	10.00	0.000077 U	0.000077 U
TCLP Pesticides	Toxaphene	mg/L	0.5	0.50	0.0012 U	0.0012 U
Volatile Organics	1,1-Dichloroethene	mg/L	0.025	0.7	0.013 U	0.013 U
Volatile Organics	1,2-Dichloroethane	mg/L	0.025	0.50	0.013 U	0.013 U
Volatile Organics	2-Butanone	mg/L	0.25	200	0.025 U	0.025 U
Volatile Organics	Benzene	mg/L	0.025	0.50	0.013 U	0.013 U
Volatile Organics	Carbon Tetrachloride	mg/L	0.025	0.50	0.013 U	0.013 U
Volatile Organics	Chlorobenzene	mg/L	0.025	100.00	0.013 U	0.013 U
Volatile Organics	Chloroform	mg/L	0.025	6.00	0.013 U	0.013 U
Volatile Organics	Tetrachloroethylene	mg/L	0.025	0.70	0.025 U	0.025 U
Volatile Organics	Trichloroethene	mg/L	0.025	0.50	0.013 U	0.013 U
Volatile Organics	Vinyl Chloride	mg/L	0.025	0.20	0.013 U	0.013 U
PCBs	Aroclor – 1221	µg/Kg	60	NC	NA	30 U
PCBs	Aroclor – 1016	µg/Kg	78	NC	NA	30 U
PCBs	Aroclor – 1232	µg/Kg	54	NC	NA	30 U
PCBs	Aroclor – 1242	µg/Kg	48	NC	NA	30 U
PCBs	Aroclor – 1248	µg/Kg	66	NC	NA	30 U
PCBs	Aroclor – 1254	µg/Kg	66	NC	NA	30 U
PCBs	Aroclor – 1260	µg/Kg	68	NC	NA	30 U

Notes:

1 – Sample analysis included PCBs. IDW originated from Building U-20 located at CC-RVAAP-76 Depot Area.

NA – Not Analyzed

J – Estimated Value

mg/L – milligrams per liter

U- Undetected above laboratory reporting limit

µg/Kg – micrograms per kilogram

NC – No Criteria



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

March 15, 2013

CERTIFIED MAIL
7012 1010 0000 9467 5335

Mr. Mark Patterson, Facility Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

Re: Investigation-Derived Waste Report 2011 Performance-Based Acquisition Environmental Investigation and Remediation 14 Compliance Restoration Sites, Ravenna Army Ammunition Plant (Ohio EPA ID # 267-000859-155)

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the Investigation-Derived Waste Report 2011 Performance-Based Acquisition Environmental Investigation and Remediation 14 Compliance Restoration Sites, Ravenna Army Ammunition Plant. The document was received at Ohio EPA, Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) on March 7, 2013. The document was prepared for the U.S. Army Corps of Engineers (USACE), Louisville District by Environmental Chemical Corporation (ECC), under contract No. W912QR-04-D-0039.

This report is approved and Ohio EPA concurs that the IDW (soil cuttings) from the December 12, 2012 sampling event may be disposed as contaminated, non-hazardous waste and that it be sent off-site for disposal to a permitted water treatment facility.

If you have any questions, please call Eileen Mohr, NEDO, DERR at (330) 963-1221.

Sincerely,

Nancy Zikmanis, CHMM, Environmental Supervisor
Division of Environmental Response and Revitalization

ED:NZ/kss

cc: Katie Tate, OHNGB
Ann Wood, NGB

ec: Vicki Deppisch, Ohio EPA, NEDO, DERR
Eileen Mohr, Ohio EPA, NEDO, DERR
Justin Burke, Ohio EPA, NEDO, DERR

3-15-2013 GH
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Date: 3-15-2013

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2110 EAST AURORA ROAD
TWINSBURG OH 44087

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**MARK PATTERSON
RAVENNA ARMY AMMUNITION PLANT
8451 STATE ROUTE 5
RAVENNA OH 44266**

COMPLETE THIS SECTION ON DELIVERY

A. Signature

x *Gail Harris*

Agent

Addressee

B. Received by (*Printed Name*)

Gail Harris

C. Date of Delivery

3-18-2013

D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

3. Service Type

Certified Mail

Express Mail

Registered

Return Receipt for Merchandise

Insured Mail

C.O.D.

4. Restricted Delivery? (*Extra Fee*)

Yes

2. Article Number **7012 1010 0000 9467 5335 (03/15/13 K.Schillo for ED)**
(*Transfer from service label*)

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

COPY

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number
OH5 210 020 736

2. Page 1 of
1

3. Emergency Response Phone
330-677-0785

4. Waste Tracking Number
040513-01

5. Generator's Name and Mailing Address
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266

330-358-2920

Generator's Site Address (if different than mailing address)
Same

Generator's Phone:

6. Transporter 1 Company Name
Emerald Environmental Services, Inc

U.S. EPA ID Number
OHR-000 102 053

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Vexor Technology
955 West Smith Road
Medina, Ohio 44256

330-721-9773

U.S. EPA ID Number
OHD 077 772 895

Facility's Phone:

9. Waste Shipping Name and Description

10. Containers

11. Total Quantity

12. Unit Wt./Vol.

No.

Type

1. Non DOT Regulated, Non Hazardous Material (Decon Fluid)

001

DM

EST 40
300 G

2. Non DOT Regulated, Non Hazardous Material (Soil Cuttings)

004

DM

EST
1100 P

3.

4.

13. Special Handling Instructions and Additional Information

9. 1.) Approval # VEX25095
9. 2.) Approval # VEX25094
Alternative Emergency Contact: John Miller 508-509-1794

Job Number 13-0081 EES

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offor's Printed/Typed Name

Signature

Month Day Year

Christy Esler

Christy Esler

4 | 5 | 2013

15. International Shipments

Import to U.S.

Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

SCOTT PFAHL

Scott Pfahl

4 | 5 | 13

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

Quantity

Type

Residue

Partial Rejection

Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

JOE MURKIND

[Signature]

4 | 5 | 13

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

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March 20, 2018

Ms. Katie Tait, OHARNG
Camp Ravenna Environmental Office
1438 State Route 534 SW
Newton Falls, OH 44444

References: Contract No. W912QR-12-D-0002 Delivery Order 0003

Subject: Additional Sampling for CC RVAAP-69, CC RVAAP-70, and CC RVAAP-74 Solid Investigation-Derived Waste Characterization and Disposal

Dear Ms. Tait,

The purpose of this letter is to characterize and classify solid investigation-derived waste (IDW) generated at CC RVAAP-69 Building 1048 Fire Station, CC RVAAP-70 East Classification Yard, and CC RVAAP-74 Building 1034-Motor Pool Hydraulic Lift for disposal. Investigation activities were conducted in accordance with the *Work Plan Additional Sampling for CC RVAAP-69 Building 1048 Fire Station, CC RVAAP-70 East Classification Yard, and CC RVAAP-74 Building 1034-Motor Pool Hydraulic Lift*. These field activities have resulted in the generation of solid IDW consisting of auger soil cuttings. This letter includes a summary of IDW generated, the origin of the IDW, proposed recommendation for disposal, a summary of the analytical results (Attachment A, Table A.1), and the laboratory data package (Attachment B). In addition to the specified work plan, this letter follows guidance established by the *Facility-Wide Sampling and Analysis Plan* (FWSAP, USACE 2011).

Site Activities

On February 8, 2018 through February 20, 2018, investigation activities were performed at CC RVAAP-69, CC RVAAP-70, and CC RVAAP-74, including drilling and sampling. The last borehole was drilled on February 20, 2018, but the auger cuttings from decontamination from that borehole were not added to container 28 until February 21, 2018. No new boreholes were drilled after February 20, 2018. Drilling was performed by EnviroCore with oversight by Parsons. Soil cuttings were containerized in twenty-three 55-gallon steel, open-top drums. Solid waste characterization sample IDW-SOLID-02202018-01 was collected from the IDW solid waste on February 20, 2018 and analyzed for the following:

Table 1. Summary of Solid IDW Sampling

Container Numbers	Container Type and Size	Contents	Locations of Generation	Dates of Generation	Sample ID	Date Sampled	Analysis Performed	Disposal Recommendation
1-18, 22-25, 28	55 Gallon, Steel, Open Top Drum	Auger Soil Cuttings	CC RVAAP-69 CC RVAAP-70 CC RVAAP-74	2/8/2018 – 2/21/2018	IDW-SOLID-022018-01	2/20/2018	TCLP-VOCs; TCLP-SVOCs; TCLP-Pesticides; TCLP-Herbicides; TCLP- Metals; TCLP-Mercury; Ignitability; Total Cyanide; Sulfide; and pH.	Non-Hazardous

Analytical Screening of Results

Upon receipt from the laboratory, the analytical data was reviewed to determine if the solid IDW is hazardous. The data were compared to disposal screening criteria, which are from three sources:

1. Concentration of Contaminants for Toxicity Characteristic (40 Code of Federal Regulations [CFR] 261.24), as listed in Table 8-1 of the FWSAP;
2. Table 8-2 of the FWSAP; and
3. 40 CFR 261.23 – Characteristic of Reactivity.

Table A.1 presents the analytical data for the solid IDW sample. The results are summarized below.

1. All analytical results were below the Maximum Concentration for Toxicity Characteristic per 40 CFR 261.24.
2. The pH for the solid IDW is 8.5 and is considered neutral ($2 \leq \text{pH} \leq 12.5$).
3. The flash point is $>60^{\circ}\text{C}$ (140°F).

Recommendations

Based on the analytical data, Parsons recommends that the solid IDW be disposed off-site as non-hazardous waste. Because the former RVAAP, under RCRA, is the generator of this material, Parsons requests concurrence regarding this waste classification. Following your concurrence, we will proceed with generating a waste profile, waste manifest, and coordination with a waste disposal facility.

Table 2. Summary of Final Waste Classification and Recommended Disposal

Non-Hazardous Waste			
Container Numbers	Container Type and Size	Contents	Disposal Recommendation
1 through 18, 22 through 25, and 28	55 Gallon, Steel, Open Top Drum	Auger Soil Cuttings	Permitted Waste Facility

If you have any questions or require additional information, please do not hesitate to contact me at 256-217-2573.

Parsons



Edward Heyse, PhD, PE
Project Manager

Cc: Mark Leeper, ARNG
Kevin Sedlak, ARNG, Camp Ravenna
Kevin Mieczkowski, USACE Louisville
Nathaniel Peters, USACE Louisville

ATTACHMENT A
SUMMARY OF ANALYTICAL RESULTS

Table A.1 Solid Investigation-Derived Waste Sample Results (IDW-SOLID-022018-01)

Analyte	CAS Number	Units	Analytical Method	Basis	Regulatory Level Citation	Regulatory Level	Result	Laboratory Flag
Sulfide	18496-25-8	mg/Kg	9034	Total/NA	40 CFR 261.23	See Note 1	57	U
Flashpoint	NA	Deg C	1010A	Total/NA	40 CFR 261.21	<60°C (140°F)	>60	
Percent Moisture	NA	%	160.3 MOD	Total NA	-	-	17.8	
Percent Solids	NA	%	160.3 MOD	Total NA	-	-	82.2	
Arsenic	7440-38-2	mg/L	6010C	TCLP	40 CFR 261.24	5	0.023	U
Barium	7440-39-3	mg/L	6010C	TCLP	40 CFR 261.24	100	0.68	J
Cadmium	7440-43-9	mg/L	6010C	TCLP	40 CFR 261.24	1	0.011	U
Chromium	7440-47-3	mg/L	6010C	TCLP	40 CFR 261.24	5	0.023	U
Lead	7439-92-1	mg/L	6010C	TCLP	40 CFR 261.24	5	0.023	U J1
Selenium	7782-49-2	mg/L	6010C	TCLP	40 CFR 261.24	1	0.035	U
Silver	7440-22-4	mg/L	6010C	TCLP	40 CFR 261.24	5	0.023	U
Mercury	7439-97-6	mg/L	7470A	TCLP	40 CFR 261.24	0.2	0.00065	U
Endrin	72-20-8	mg/L	8081B	TCLP	40 CFR 261.24	0.02	0.00005	U
gamma-BHC (Lindane)	58-89-9	mg/L	8081B	TCLP	40 CFR 261.24	0.4	0.00002	U
Heptachlor	76-44-8	mg/L	8081B	TCLP	40 CFR 261.24	0.008	0.00005	U
Heptachlor epoxide	1024-57-3	mg/L	8081B	TCLP	40 CFR 261.24	0.008	0.00005	U
Methoxychlor	72-43-5	mg/L	8081B	TCLP	40 CFR 261.24	10	0.00005	U Q
Technical Chlordane	12789-03-6	mg/L	8081B	TCLP	40 CFR 261.24	0.03	0.005	U
Toxaphene	8001-35-2	mg/L	8081B	TCLP	40 CFR 261.24	0.5	0.02	U
2,4-D	94-75-7	mg/L	8151A DOD	TCLP	40 CFR 261.24	10	0.025	U
Silvex (2,4,5-TP)	93-72-1	mg/L	8151A DOD	TCLP	40 CFR 261.24	1	0.005	U
1,1-Dichloroethene	75-35-4	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.7	0.01	U
1,2-Dichloroethane	107-06-2	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.5	0.01	U
2-Butanone (MEK)	78-93-3	mg/L	8260C DOD	TCLP	40 CFR 261.24	200	0.05	U
Benzene	71-43-2	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.5	0.01	U
Carbon tetrachloride	56-23-5	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.5	0.0037	J
Chlorobenzene	108-90-7	mg/L	8260C DOD	TCLP	40 CFR 261.24	100	0.01	U
Chloroform	67-66-3	mg/L	8260C DOD	TCLP	40 CFR 261.24	6	0.01	U
Tetrachloroethene	127-18-4	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.7	0.01	U
Trichloroethene	79-01-6	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.5	0.01	U

Analyte	CAS Number	Units	Analytical Method	Basis	Regulatory Level Citation	Regulatory Level	Result	Laboratory Flag
Vinyl chloride	75-01-4	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.2	0.01	U
1,4-Dichlorobenzene	106-46-7	mg/L	8270D	TCLP	40 CFR 261.24	7.5	0.015	U
2,4,5-Trichlorophenol	95-95-4	mg/L	8270D	TCLP	40 CFR 261.24	400	0.015	U
2,4,6-Trichlorophenol	88-06-2	mg/L	8270D	TCLP	40 CFR 261.24	2	0.015	U
2,4-Dinitrotoluene	121-14-2	mg/L	8270D	TCLP	40 CFR 261.24	0.13	0.015	U
2-Methylphenol	95-48-7	mg/L	8270D	TCLP	40 CFR 261.24	200	0.015	U
3 & 4 Methylphenol	15831-10-4	mg/L	8270D	TCLP	40 CFR 261.24	200	0.015	U
Hexachlorobenzene	118-74-1	mg/L	8270D	TCLP	40 CFR 261.24	0.13	0.015	U
Hexachlorobutadiene	87-68-3	mg/L	8270D	TCLP	40 CFR 261.24	0.5	0.015	U
Hexachloroethane	67-72-1	mg/L	8270D	TCLP	40 CFR 261.24	3	0.015	U
Nitrobenzene	98-95-3	mg/L	8270D	TCLP	40 CFR 261.24	2	0.015	U
Pentachlorophenol	87-86-5	mg/L	8270D	TCLP	40 CFR 261.24	100	0.05	U
Pyridine	110-86-1	mg/L	8270D	TCLP	40 CFR 261.24	5	0.05	U J1
Cyanide, Total	57-12-5	mg/Kg	9012B	Total/NA	40 CFR 261.23	See Note 1	0.14	U
pH	NA	SU	9045D	Total/NA	40 CFR 261.22	$2 \leq \text{pH} \leq 12.5$	8.5	

Notes:

The solid IDW sample was collected on 2/20/18 for all methods

1: The US Environmental Protection Agency requires generators to use their knowledge to make a D003 determination per CFR 261.23(a)(5) for cyanide or sulfide-bearing wastes.

- = No regulatory standards for determination of hazardous waste exist

CAS = Chemical Abstract Service Number

CFR = Code of Federal Regulations

mg/Kg = milligram per kilogram

mg/L = milligrams per liter

NA = Not applicable

SU = Standard Unit

TCLP = Toxicity Characteristic Leaching Procedure

U = Non-detect, concentration reported is reporting limit - Lab Qualifier

J = Estimated concentration, less than the reporting limit - Lab Qualifier

Q = One or more laboratory quality control criteria failed - Lab Qualifier

J1 = Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria

ATTACHMENT B
LABORATORY DATA PACKAGE

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-26889-1

Client Project/Site: Ravenna Army Ammunition Plant

For:

Parsons Government Services Inc
401 Diamond Drive
Huntsville, Alabama 35806-2192

Attn: Sandra De Las Fuentes



Authorized for release by:
3/13/2018 4:10:17 PM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Job ID: 160-26889-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Parsons Government Services Inc

Project: Ravenna Army Ammunition Plant

Report Number: 160-26889-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup

Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Job ID: 160-26889-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 02/21/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.6 C.

TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW846 Methods 1311/ 8260C. The samples were leached on 02/22/2018 and analyzed on 02/28/2018.

Analytical Batch: 353347

The following compound did not meet the minimum relative response factor limits in the continuing calibration verification (CCV) associated with batch 160-353347: 2-Butanone (MEK). A low-level LOQV was analyzed at the reporting limit (5ug/L) and the affected analyte was detected. Target analytes recovering above the reporting limit will be qualified and reported. (CCV 160-353347/3) and (CCVC 160-353347/24)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for TCLP semivolatile organic compounds (GC-MS) in accordance with SW-846 Method 1311/8270D. The samples were leached on 02/22/2018, prepared on 02/26/2018 and analyzed on 03/06/2018.

Analytical Batch: 354114

The matrix spike / matrix spike duplicate (MS/MSD) recoveries were outside of upper control limits for Pyridine. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP CHLORINATED PESTICIDES

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for TCLP chlorinated pesticides in accordance with SW-846 Method 1311/8081B. The samples were leached on 02/22/2018, prepared on 02/26/2018 and analyzed on 03/09/2018.

Analytical Batch: 354843

The closing continuing calibration verification (CCV) associated with batch 160-354843 recovered above the upper control limit for Methoxychlor. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (CCV 160-354843/27).

The CCV surrogate recovery for DCB Decachlorobiphenyl was outside of the acceptance limits. The % recovery was within QC limits. (CCV 160-354843/27)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP CHLORINATED HERBICIDES

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for TCLP chlorinated herbicides in accordance with EPA SW-846 Methods 1311/ 8151A. The samples were leached on 02/22/2018, prepared on 02/26/2018 and analyzed on 03/12/2018.

Analytical Batch: 355076

The MSD surrogate recovery is outside the upper QC limits. The MSD spike recoveries were within the acceptable QC limits. Results are provided with this narrative. IDW-SOLID-022018-01 (160-26889-1), (LB 160-352512/1-E), (LCS 160-353046/2-A), (160-26889-A-1-M MS) and (160-26889-A-1-N MSD)

The initial calibration verification (ICV) result for batch 160-355076 was below the lower control limit on the secondary column for 2,4-D, but is within the acceptable QC limits on the primary column. The analyte was ND on the primary column; therefore confirmation is not

Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Job ID: 160-26889-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

needed. Results are provided with this narrative.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP METALS (ICP)

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Method 1311/6010C_DoD5. The samples were leached on 02/22/2018, prepared on 02/23/2018 and analyzed on 02/26/2018.

Analytical Batch: 353036

Barium was detected in method blank LB 160-352512/1-B at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

The matrix spike (MS) recoveries for preparation batch 160-352512 and 160-352707 and analytical batch 160-353036 were outside control limits for Lead. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (160-26889-A-1-D MS)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP MERCURY

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for TCLP mercury in accordance with SW-846 Method 7470 DoD5. The samples were leached on 02/22/2018, prepared on 02/28/2018 and analyzed on 03/01/2018.

Analytical Batch: 353692

Mercury was detected in method blank LB 160-352512/1-F at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

IGNITABILITY, PENSKY-MARTENS CLOSED CUP METHOD

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for Ignitability, Pensky-Martens Closed Cup Method in accordance with EPA SW-846 Method 1010. The samples were analyzed on 03/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CYANIDE, TOTAL AND/OR AMENABLE

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for Cyanide, Total and/or Amenable in accordance with EPA SW-846 Method 9012B. The samples were prepared on 02/26/2018 and analyzed on 02/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SULFIDE

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for sulfide in accordance with EPA SW-846 Method 9034. The samples were prepared and analyzed on 02/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PH

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for pH in accordance with EPA SW-846 Method 9045D. The samples were prepared and analyzed on 02/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Job ID: 160-26889-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Sample IDW-SOLID-022018-01 (160-26889-1) was analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 02/21/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

<p>Client Contact</p> <p>Parsons Sandra De Los Fuentes Address 401 Dimensional Drive City/State/Zip Huntsville, AL 35896 (xxx) xxx-xxxx Phone 512-779-5727 (xxx) xxx-xxxx FAX Project Name: Camp Asvening Site: PO #</p>		<p>Project Manager: Ed Hays Tel/Fax: 303-563-9452 Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day</p>		<p>Site Contact: Joe Peterlin Date: 2-20-2018 Carrier: FedEx</p>		<p>COC No: 1 of 1 COCs Sampler: Joe Peterlin For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:</p>	
<p>Sample Identification</p> <p>IDW-Sol.d-0001-01</p>		<p>Sample Date: 2-20-2018 3:30pm G Sample Time: Sample Type (C=Comp, G=Grab): G Matrix: Solid # of Cont.: 6</p>		<p>Lab Contact: Linda Laver Date: 2-20-2018</p>		<p>Sample Specific Notes: 160-26889 Chain of Custody</p>	
<p>Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other</p>				<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p>			
<p>Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.</p>				<p><input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months</p>			
<p>Special Instructions/QC Requirements & Comments:</p>				<p><input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Poison B</p>			
<p>Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Relinquished by: Joe Peterlin</p> <p>Relinquished by: FedEx</p>		<p>Custody Seal No.:</p> <p>Company: Parsons Company: Parsons</p>		<p>Cooler Temp. (°C): Obs'd: _____ Corrd: _____ Company: FedEx 812785181158 Company: 14</p>		<p>Therm ID No.: _____ Date/Time: 2/20/18 0855 Date/Time: 2/21/18 0855</p>	

Awalt, Jayna

From: de las Fuentes, Sandra <Sandra.delasFuentes@parsons.com>
Sent: Tuesday, February 20, 2018 5:19 PM
To: Awalt, Jayna
Cc: Driskill, Beth
Subject: FW: Today's COC for Ravenna
Attachments: 20180220_162536.jpg
Categories: Waiting on Samples

-External Email-

Please see the attached COC. I have corrections to make pls.

Change the sample ID to read: IDW-Solid-MMDDYY-01. Please add an "*" to the TCLP-SVOC column and add TCLP-Pest and TCLP-Herb analysis.

We're sending a total of 6 jars for all.

I'm happy to revise the COC if you send me the signed version.

Thanks!

Sandra

From: Peterlin, Joe
Sent: Tuesday, February 20, 2018 3:29 PM
To: de las Fuentes, Sandra <Sandra.delasFuentes@parsons.com>; Click, Jessica <Jessica.Click@parsons.com>
Cc: Heyse, Ed <Ed.Heyse@parsons.com>; Huey, Cheryl <Cheryl.Huey@parsons.com>; Zahrte, Paul <Paul.Zahrte@parsons.com>; Roche, Lauri <Lauri.Roche@parsons.com>
Subject: Today's COC

What do you think of the attached COC?

Login Sample Receipt Checklist

Client: Parsons Government Services Inc

Job Number: 160-26889-1

Login Number: 26889
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

GC Semi VOA

Qualifier	Qualifier Description
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.

Metals

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

General Chemistry

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TestAmerica St. Louis

Method Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method	Method Description	Protocol	Laboratory
8260C DOD	Volatile Organic Compounds (GC/MS)	SW846	TAL SL
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SL
8081B	Organochlorine Pesticides (GC)	SW846	TAL SL
8151A DOD	Herbicides (GC)	SW846	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
1010A	Ignitability, Pensky-Martens Closed-Cup Method	SW846	TAL SL
9012B	Cyanide, Total and/or Amenable	SW846	TAL SL
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL SL
9045D	pH	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-26889-1	IDW-SOLID-022018-01	Solid	02/20/18 15:30	02/21/18 08:55

Client Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Client Sample ID: IDW-SOLID-022018-01

Lab Sample ID: 160-26889-1

Date Collected: 02/20/18 15:30

Matrix: Solid

Date Received: 02/21/18 08:55

Method: 8260C DOD - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.010	U	0.050	0.0025	mg/L			02/28/18 00:13	1
2-Butanone (MEK)	0.050	U	0.050	0.0039	mg/L			02/28/18 00:13	1
Carbon tetrachloride	0.0037	J	0.050	0.0036	mg/L			02/28/18 00:13	1
Chlorobenzene	0.010	U	0.050	0.0038	mg/L			02/28/18 00:13	1
Chloroform	0.010	U	0.050	0.00092	mg/L			02/28/18 00:13	1
1,2-Dichloroethane	0.010	U	0.050	0.0037	mg/L			02/28/18 00:13	1
1,1-Dichloroethene	0.010	U	0.050	0.0037	mg/L			02/28/18 00:13	1
Tetrachloroethene	0.010	U	0.050	0.0028	mg/L			02/28/18 00:13	1
Trichloroethene	0.010	U	0.050	0.0029	mg/L			02/28/18 00:13	1
Vinyl chloride	0.010	U	0.10	0.0043	mg/L			02/28/18 00:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		85 - 114		02/28/18 00:13	1
Dibromofluoromethane (Surr)	95		80 - 119		02/28/18 00:13	1
1,2-Dichloroethane-d4 (Surr)	89		81 - 118		02/28/18 00:13	1
Toluene-d8 (Surr)	99		89 - 112		02/28/18 00:13	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 13:03	1
2,4,5-Trichlorophenol	0.015	U	0.050	0.010	mg/L		02/26/18 10:20	03/06/18 13:03	1
2,4,6-Trichlorophenol	0.015	U	0.050	0.010	mg/L		02/26/18 10:20	03/06/18 13:03	1
2,4-Dinitrotoluene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 13:03	1
2-Methylphenol	0.015	U	0.050	0.010	mg/L		02/26/18 10:20	03/06/18 13:03	1
3 & 4 Methylphenol	0.015	U	0.10	0.0050	mg/L		02/26/18 10:20	03/06/18 13:03	1
Hexachlorobenzene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 13:03	1
Hexachlorobutadiene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 13:03	1
Hexachloroethane	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 13:03	1
Nitrobenzene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 13:03	1
Pentachlorophenol	0.050	U	0.25	0.010	mg/L		02/26/18 10:20	03/06/18 13:03	1
Pyridine	0.050	U J1	0.10	0.025	mg/L		02/26/18 10:20	03/06/18 13:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	87		43 - 140	02/26/18 10:20	03/06/18 13:03	1
2-Fluorobiphenyl (Surr)	80		44 - 119	02/26/18 10:20	03/06/18 13:03	1
2-Fluorophenol (Surr)	73		19 - 119	02/26/18 10:20	03/06/18 13:03	1
Nitrobenzene-d5 (Surr)	80		44 - 120	02/26/18 10:20	03/06/18 13:03	1
Phenol-d5 (Surr)	68		10 - 115	02/26/18 10:20	03/06/18 13:03	1
Terphenyl-d14 (Surr)	89		50 - 134	02/26/18 10:20	03/06/18 13:03	1

Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin	0.000050	U	0.00050	0.000050	mg/L		02/26/18 10:20	03/09/18 21:25	1
gamma-BHC (Lindane)	0.000020	U	0.00050	0.000015	mg/L		02/26/18 10:20	03/09/18 21:25	1
Heptachlor	0.000050	U	0.00050	0.000015	mg/L		02/26/18 10:20	03/09/18 21:25	1
Heptachlor epoxide	0.000050	U	0.00050	0.000050	mg/L		02/26/18 10:20	03/09/18 21:25	1
Methoxychlor	0.000050	U Q	0.0010	0.000050	mg/L		02/26/18 10:20	03/09/18 21:25	1
Toxaphene	0.020	U	0.020	0.000050	mg/L		02/26/18 10:20	03/09/18 21:25	1
Technical Chlordane	5.0	U	5.0	0.20	ug/L		02/26/18 10:20	03/09/18 21:25	1

TestAmerica St. Louis

Client Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Client Sample ID: IDW-SOLID-022018-01

Lab Sample ID: 160-26889-1

Date Collected: 02/20/18 15:30

Matrix: Solid

Date Received: 02/21/18 08:55

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	67	Q	29 - 150	02/26/18 10:20	03/09/18 21:25	1
Tetrachloro-m-xylene	81		44 - 124	02/26/18 10:20	03/09/18 21:25	1

Method: 8151A DOD - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.025	U	0.040	0.020	mg/L		02/26/18 14:10	03/12/18 18:26	1
Silvex (2,4,5-TP)	0.0050	U	0.010	0.0030	mg/L		02/26/18 14:10	03/12/18 18:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	108		32 - 138	02/26/18 14:10	03/12/18 18:26	1

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.023	U	0.025	0.010	mg/L		02/23/18 12:39	02/26/18 11:19	1
Barium	0.68	J	1.0	0.038	mg/L		02/23/18 12:39	02/26/18 11:19	1
Cadmium	0.011	U	0.013	0.0038	mg/L		02/23/18 12:39	02/26/18 11:19	1
Chromium	0.023	U	0.025	0.0075	mg/L		02/23/18 12:39	02/26/18 11:19	1
Lead	0.023	U J1	0.025	0.0075	mg/L		02/23/18 12:39	02/26/18 11:19	1
Selenium	0.035	U	0.038	0.020	mg/L		02/23/18 12:39	02/26/18 11:19	1
Silver	0.023	U	0.025	0.0075	mg/L		02/23/18 12:39	02/26/18 11:19	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00065	U	0.0015	0.000079	mg/L		02/28/18 09:17	03/01/18 13:55	1

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	>60		1.00	1.00	Degrees C			03/08/18 21:02	1
pH	8.5		0.1	0.1	SU		02/27/18 21:32	02/27/18 23:29	1

Client Sample ID: IDW-SOLID-022018-01

Lab Sample ID: 160-26889-1

Date Collected: 02/20/18 15:30

Matrix: Solid

Date Received: 02/21/18 08:55

Percent Solids: 82.2

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.14	U	0.60	0.14	mg/Kg	☼	02/26/18 19:10	02/27/18 19:59	1
Sulfide	57	U	72	29	mg/Kg	☼	02/27/18 10:53	02/27/18 12:14	1

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8260C DOD - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 160-353347/4

Matrix: Solid

Analysis Batch: 353347

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.500	0.482		mg/L		96	79 - 120
2-Butanone (MEK)	0.500	0.481		mg/L		96	56 - 143
Carbon tetrachloride	0.500	0.454		mg/L		91	72 - 136
Chlorobenzene	0.500	0.512		mg/L		102	82 - 118
Chloroform	0.500	0.470		mg/L		94	79 - 124
1,2-Dichloroethane	0.500	0.477		mg/L		95	73 - 128
1,1-Dichloroethene	0.500	0.461		mg/L		92	71 - 131
Tetrachloroethene	0.500	0.471		mg/L		94	74 - 129
Trichloroethene	0.500	0.489		mg/L		98	79 - 123
Vinyl chloride	0.500	0.426		mg/L		85	58 - 137

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		85 - 114
Dibromofluoromethane (Surr)	97		80 - 119
1,2-Dichloroethane-d4 (Surr)	93		81 - 118
Toluene-d8 (Surr)	101		89 - 112

Lab Sample ID: LB 160-352509/1-A

Matrix: Solid

Analysis Batch: 353347

Client Sample ID: Method Blank

Prep Type: TCLP

Analyte	LB Result	LB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.010	U	0.050	0.0025	mg/L			02/27/18 20:02	1
2-Butanone (MEK)	0.050	U	0.050	0.0039	mg/L			02/27/18 20:02	1
Carbon tetrachloride	0.010	U	0.050	0.0036	mg/L			02/27/18 20:02	1
Chlorobenzene	0.010	U	0.050	0.0038	mg/L			02/27/18 20:02	1
Chloroform	0.010	U	0.050	0.00092	mg/L			02/27/18 20:02	1
1,2-Dichloroethane	0.010	U	0.050	0.0037	mg/L			02/27/18 20:02	1
1,1-Dichloroethene	0.010	U	0.050	0.0037	mg/L			02/27/18 20:02	1
Tetrachloroethene	0.010	U	0.050	0.0028	mg/L			02/27/18 20:02	1
Trichloroethene	0.010	U	0.050	0.0029	mg/L			02/27/18 20:02	1
Vinyl chloride	0.010	U	0.10	0.0043	mg/L			02/27/18 20:02	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		85 - 114		02/27/18 20:02	1
Dibromofluoromethane (Surr)	95		80 - 119		02/27/18 20:02	1
1,2-Dichloroethane-d4 (Surr)	91		81 - 118		02/27/18 20:02	1
Toluene-d8 (Surr)	100		89 - 112		02/27/18 20:02	1

Lab Sample ID: 160-26889-1 MS

Matrix: Solid

Analysis Batch: 353347

Client Sample ID: IDW-SOLID-022018-01

Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.010	U	0.500	0.487		mg/L		97	79 - 120
2-Butanone (MEK)	0.050	U	0.500	0.535		mg/L		107	56 - 143
Carbon tetrachloride	0.0037	J	0.500	0.471		mg/L		93	72 - 136

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8260C DOD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-26889-1 MS

Matrix: Solid

Analysis Batch: 353347

Client Sample ID: IDW-SOLID-022018-01

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
Chlorobenzene	0.010	U	0.500	0.518		mg/L		104	82 - 118
Chloroform	0.010	U	0.500	0.480		mg/L		96	79 - 124
1,2-Dichloroethane	0.010	U	0.500	0.485		mg/L		97	73 - 128
1,1-Dichloroethene	0.010	U	0.500	0.476		mg/L		95	71 - 131
Tetrachloroethene	0.010	U	0.500	0.489		mg/L		98	74 - 129
Trichloroethene	0.010	U	0.500	0.490		mg/L		98	79 - 123
Vinyl chloride	0.010	U	0.500	0.441		mg/L		88	58 - 137

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	95		85 - 114
Dibromofluoromethane (Surr)	98		80 - 119
1,2-Dichloroethane-d4 (Surr)	96		81 - 118
Toluene-d8 (Surr)	100		89 - 112

Lab Sample ID: 160-26889-1 MSD

Matrix: Solid

Analysis Batch: 353347

Client Sample ID: IDW-SOLID-022018-01

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Benzene	0.010	U	0.500	0.464		mg/L		93	79 - 120	5	20
2-Butanone (MEK)	0.050	U	0.500	0.471		mg/L		94	56 - 143	13	20
Carbon tetrachloride	0.0037	J	0.500	0.457		mg/L		91	72 - 136	3	20
Chlorobenzene	0.010	U	0.500	0.495		mg/L		99	82 - 118	5	20
Chloroform	0.010	U	0.500	0.459		mg/L		92	79 - 124	4	20
1,2-Dichloroethane	0.010	U	0.500	0.454		mg/L		91	73 - 128	7	20
1,1-Dichloroethene	0.010	U	0.500	0.457		mg/L		91	71 - 131	4	20
Tetrachloroethene	0.010	U	0.500	0.481		mg/L		96	74 - 129	2	20
Trichloroethene	0.010	U	0.500	0.477		mg/L		95	79 - 123	3	20
Vinyl chloride	0.010	U	0.500	0.420		mg/L		84	58 - 137	5	20

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	91		85 - 114
Dibromofluoromethane (Surr)	93		80 - 119
1,2-Dichloroethane-d4 (Surr)	89		81 - 118
Toluene-d8 (Surr)	98		89 - 112

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 160-352907/2-A

Matrix: Solid

Analysis Batch: 354114

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 352907

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Added	Result				
1,4-Dichlorobenzene	0.500	0.274		mg/L		55	29 - 112
2,4,5-Trichlorophenol	0.500	0.360		mg/L		72	53 - 123
2,4,6-Trichlorophenol	0.500	0.345		mg/L		69	50 - 125
2,4-Dinitrotoluene	0.500	0.365		mg/L		73	57 - 128

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-352907/2-A
Matrix: Solid
Analysis Batch: 354114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352907

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylphenol	0.500	0.309		mg/L		62	30 - 117
3 & 4 Methylphenol	0.500	0.275		mg/L		55	29 - 110
Hexachlorobenzene	0.500	0.394		mg/L		79	53 - 125
Hexachlorobutadiene	0.500	0.263		mg/L		53	22 - 124
Hexachloroethane	0.500	0.253		mg/L		51	21 - 115
Nitrobenzene	0.500	0.313		mg/L		63	45 - 121
Pentachlorophenol	0.500	0.366		mg/L		73	35 - 138
Pyridine	0.500	0.246		mg/L		49	20 - 52

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	84		43 - 140
2-Fluorobiphenyl (Surr)	66		44 - 119
2-Fluorophenol (Surr)	59		19 - 119
Nitrobenzene-d5 (Surr)	62		44 - 120
Phenol-d5 (Surr)	57		10 - 115
Terphenyl-d14 (Surr)	93		50 - 134

Lab Sample ID: LB 160-352512/1-C
Matrix: Solid
Analysis Batch: 354114

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 352907

Analyte	LB Result	LB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 12:09	1
2,4,5-Trichlorophenol	0.015	U	0.050	0.010	mg/L		02/26/18 10:20	03/06/18 12:09	1
2,4,6-Trichlorophenol	0.015	U	0.050	0.010	mg/L		02/26/18 10:20	03/06/18 12:09	1
2,4-Dinitrotoluene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 12:09	1
2-Methylphenol	0.015	U	0.050	0.010	mg/L		02/26/18 10:20	03/06/18 12:09	1
3 & 4 Methylphenol	0.015	U	0.10	0.0050	mg/L		02/26/18 10:20	03/06/18 12:09	1
Hexachlorobenzene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 12:09	1
Hexachlorobutadiene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 12:09	1
Hexachloroethane	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 12:09	1
Nitrobenzene	0.015	U	0.050	0.0050	mg/L		02/26/18 10:20	03/06/18 12:09	1
Pentachlorophenol	0.050	U	0.25	0.010	mg/L		02/26/18 10:20	03/06/18 12:09	1
Pyridine	0.050	U	0.10	0.025	mg/L		02/26/18 10:20	03/06/18 12:09	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	88		43 - 140	02/26/18 10:20	03/06/18 12:09	1
2-Fluorobiphenyl (Surr)	79		44 - 119	02/26/18 10:20	03/06/18 12:09	1
2-Fluorophenol (Surr)	69		19 - 119	02/26/18 10:20	03/06/18 12:09	1
Nitrobenzene-d5 (Surr)	77		44 - 120	02/26/18 10:20	03/06/18 12:09	1
Phenol-d5 (Surr)	65		10 - 115	02/26/18 10:20	03/06/18 12:09	1
Terphenyl-d14 (Surr)	94		50 - 134	02/26/18 10:20	03/06/18 12:09	1

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-26889-1 MS

Matrix: Solid

Analysis Batch: 354114

Client Sample ID: IDW-SOLID-022018-01

Prep Type: TCLP

Prep Batch: 352907

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	Limits
				Result	Qualifier				
1,4-Dichlorobenzene	0.015	U	0.500	0.315		mg/L		63	29 - 112
2,4,5-Trichlorophenol	0.015	U	0.500	0.383		mg/L		77	53 - 123
2,4,6-Trichlorophenol	0.015	U	0.500	0.382		mg/L		76	50 - 125
2,4-Dinitrotoluene	0.015	U	0.500	0.381		mg/L		76	57 - 128
2-Methylphenol	0.015	U	0.500	0.360		mg/L		72	30 - 117
3 & 4 Methylphenol	0.015	U	0.500	0.312		mg/L		62	29 - 110
Hexachlorobenzene	0.015	U	0.500	0.405		mg/L		81	53 - 125
Hexachlorobutadiene	0.015	U	0.500	0.310		mg/L		62	22 - 124
Hexachloroethane	0.015	U	0.500	0.298		mg/L		60	21 - 115
Nitrobenzene	0.015	U	0.500	0.361		mg/L		72	45 - 121
Pentachlorophenol	0.050	U	0.500	0.364		mg/L		73	35 - 138
Pyridine	0.050	U J1	0.500	0.310	J1	mg/L		62	20 - 52

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	89		43 - 140
2-Fluorobiphenyl (Surr)	75		44 - 119
2-Fluorophenol (Surr)	69		19 - 119
Nitrobenzene-d5 (Surr)	73		44 - 120
Phenol-d5 (Surr)	64		10 - 115
Terphenyl-d14 (Surr)	97		50 - 134

Lab Sample ID: 160-26889-1 MSD

Matrix: Solid

Analysis Batch: 354114

Client Sample ID: IDW-SOLID-022018-01

Prep Type: TCLP

Prep Batch: 352907

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	Limits	RPD	
				Result	Qualifier					RPD	Limit
1,4-Dichlorobenzene	0.015	U	0.500	0.276		mg/L		55	29 - 112	13	20
2,4,5-Trichlorophenol	0.015	U	0.500	0.381		mg/L		76	53 - 123	1	20
2,4,6-Trichlorophenol	0.015	U	0.500	0.368		mg/L		74	50 - 125	4	20
2,4-Dinitrotoluene	0.015	U	0.500	0.376		mg/L		75	57 - 128	1	20
2-Methylphenol	0.015	U	0.500	0.338		mg/L		68	30 - 117	6	20
3 & 4 Methylphenol	0.015	U	0.500	0.296		mg/L		59	29 - 110	5	20
Hexachlorobenzene	0.015	U	0.500	0.402		mg/L		80	53 - 125	1	20
Hexachlorobutadiene	0.015	U	0.500	0.280		mg/L		56	22 - 124	10	20
Hexachloroethane	0.015	U	0.500	0.253		mg/L		51	21 - 115	16	20
Nitrobenzene	0.015	U	0.500	0.351		mg/L		70	45 - 121	3	20
Pentachlorophenol	0.050	U	0.500	0.357		mg/L		71	35 - 138	2	20
Pyridine	0.050	U J1	0.500	0.276	J1	mg/L		55	20 - 52	11	20

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	83		43 - 140
2-Fluorobiphenyl (Surr)	71		44 - 119
2-Fluorophenol (Surr)	60		19 - 119
Nitrobenzene-d5 (Surr)	69		44 - 120
Phenol-d5 (Surr)	59		10 - 115
Terphenyl-d14 (Surr)	92		50 - 134

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: LCS 160-352908/2-A
Matrix: Solid
Analysis Batch: 354843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Endrin	0.00501	0.00530		mg/L		106	60 - 138
gamma-BHC (Lindane)	0.00501	0.00488		mg/L		97	59 - 134
Heptachlor	0.00500	0.00374	M	mg/L		75	54 - 130
Heptachlor epoxide	0.00500	0.00465		mg/L		93	61 - 133
Methoxychlor	0.00500	0.00575		mg/L		115	54 - 145

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	120		29 - 150
Tetrachloro-m-xylene	82		44 - 124

Lab Sample ID: LB 160-352512/1-D
Matrix: Solid
Analysis Batch: 354843

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 352908

Analyte	LB Result	LB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin	0.000050	U	0.00050	0.000050	mg/L		02/26/18 10:20	03/09/18 20:43	1
gamma-BHC (Lindane)	0.000020	U	0.00050	0.000015	mg/L		02/26/18 10:20	03/09/18 20:43	1
Heptachlor	0.000050	U	0.00050	0.000015	mg/L		02/26/18 10:20	03/09/18 20:43	1
Heptachlor epoxide	0.000050	U	0.00050	0.000050	mg/L		02/26/18 10:20	03/09/18 20:43	1
Methoxychlor	0.000050	U	0.0010	0.000050	mg/L		02/26/18 10:20	03/09/18 20:43	1
Toxaphene	0.020	U	0.020	0.000050	mg/L		02/26/18 10:20	03/09/18 20:43	1
Technical Chlordane	5.0	U	5.0	0.20	ug/L		02/26/18 10:20	03/09/18 20:43	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	95		29 - 150	02/26/18 10:20	03/09/18 20:43	1
Tetrachloro-m-xylene	86		44 - 124	02/26/18 10:20	03/09/18 20:43	1

Lab Sample ID: 160-26889-1 MS
Matrix: Solid
Analysis Batch: 354843

Client Sample ID: IDW-SOLID-022018-01
Prep Type: TCLP
Prep Batch: 352908

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Endrin	0.000050	U	0.00501	0.00485		mg/L		97	60 - 138
gamma-BHC (Lindane)	0.000020	U	0.00501	0.00475		mg/L		95	59 - 134
Heptachlor	0.000050	U	0.00500	0.00344	M J1	mg/L		69	54 - 130
Heptachlor epoxide	0.000050	U	0.00500	0.00432		mg/L		86	61 - 133
Methoxychlor	0.000050	U Q	0.00500	0.00517		mg/L		103	54 - 145

Surrogate	MS %Recovery	MS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	71		29 - 150
Tetrachloro-m-xylene	81		44 - 124

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 160-26889-1 MSD
Matrix: Solid
Analysis Batch: 354843

Client Sample ID: IDW-SOLID-022018-01
Prep Type: TCLP
Prep Batch: 352908

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Endrin	0.000050	U	0.00501	0.00425		mg/L		85	60 - 138	13	30
gamma-BHC (Lindane)	0.000020	U	0.00501	0.00448		mg/L		90	59 - 134	6	30
Heptachlor	0.000050	U	0.00500	0.00318	M J1	mg/L		64	54 - 130	8	30
Heptachlor epoxide	0.000050	U	0.00500	0.00402		mg/L		80	61 - 133	7	30
Methoxychlor	0.000050	U Q	0.00500	0.00439		mg/L		88	54 - 145	16	30
Surrogate	%Recovery	Qualifier	Limits								
DCB Decachlorobiphenyl (Surr)	60		29 - 150								
Tetrachloro-m-xylene	74		44 - 124								

Method: 8151A DOD - Herbicides (GC)

Lab Sample ID: LCS 160-353046/2-A
Matrix: Solid
Analysis Batch: 355076

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 353046

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	0.200	0.235		mg/L		117	45 - 152
Silvex (2,4,5-TP)	0.0500	0.0515		mg/L		103	51 - 134
Surrogate	%Recovery	Qualifier	Limits				
2,4-Dichlorophenylacetic acid	121		32 - 138				

Lab Sample ID: LB 160-352512/1-E
Matrix: Solid
Analysis Batch: 355076

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 353046

Analyte	LB Result	LB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.025	U	0.040	0.020	mg/L		02/26/18 14:10	03/12/18 17:28	1
Silvex (2,4,5-TP)	0.0050	U	0.010	0.0030	mg/L		02/26/18 14:10	03/12/18 17:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	119		32 - 138				02/26/18 14:10	03/12/18 17:28	1

Lab Sample ID: 160-26889-1 MS
Matrix: Solid
Analysis Batch: 355076

Client Sample ID: IDW-SOLID-022018-01
Prep Type: TCLP
Prep Batch: 353046

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-D	0.025	U Q	0.200	0.231		mg/L		115	45 - 152
Silvex (2,4,5-TP)	0.0050	U	0.0500	0.0550		mg/L		110	51 - 134
Surrogate	%Recovery	Qualifier	Limits						
2,4-Dichlorophenylacetic acid	126		32 - 138						

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8151A DOD - Herbicides (GC) (Continued)

Lab Sample ID: 160-26889-1 MSD
Matrix: Solid
Analysis Batch: 355076

Client Sample ID: IDW-SOLID-022018-01
Prep Type: TCLP
Prep Batch: 353046

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
2,4-D	0.025	U Q	0.200	0.277		mg/L		138	45 - 152	18	30
Silvex (2,4,5-TP)	0.0050	U	0.0500	0.0614		mg/L		123	51 - 134	11	30
Surrogate	%Recovery	Qualifier	Limits								
2,4-Dichlorophenylacetic acid	143	Q	32 - 138								

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 160-352707/2-A
Matrix: Solid
Analysis Batch: 353036

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352707

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
Arsenic	2.50	2.50		mg/L		100	87 - 113	
Barium	2.50	2.54		mg/L		102	88 - 113	
Cadmium	2.50	2.35		mg/L		94	88 - 113	
Chromium	2.50	2.39		mg/L		96	90 - 113	
Lead	2.50	2.21		mg/L		88	86 - 113	
Selenium	1.25	1.33		mg/L		106	83 - 114	
Silver	0.500	0.480		mg/L		96	84 - 115	

Lab Sample ID: LB 160-352512/1-B
Matrix: Solid
Analysis Batch: 353036

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 352707

Analyte	LB	LB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	0.023	U	0.025	0.010	mg/L		02/23/18 12:39	02/26/18 11:09	1
Barium	0.0553	J	1.0	0.038	mg/L		02/23/18 12:39	02/26/18 11:09	1
Cadmium	0.011	U	0.013	0.0038	mg/L		02/23/18 12:39	02/26/18 11:09	1
Chromium	0.023	U	0.025	0.0075	mg/L		02/23/18 12:39	02/26/18 11:09	1
Lead	0.023	U	0.025	0.0075	mg/L		02/23/18 12:39	02/26/18 11:09	1
Selenium	0.035	U	0.038	0.020	mg/L		02/23/18 12:39	02/26/18 11:09	1
Silver	0.023	U	0.025	0.0075	mg/L		02/23/18 12:39	02/26/18 11:09	1

Lab Sample ID: 160-26889-1 MS
Matrix: Solid
Analysis Batch: 353036

Client Sample ID: IDW-SOLID-022018-01
Prep Type: TCLP
Prep Batch: 352707

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Arsenic	0.023	U	2.50	2.47		mg/L		99	87 - 113	
Barium	0.68	J	2.50	3.15		mg/L		99	88 - 113	
Cadmium	0.011	U	2.50	2.33		mg/L		93	88 - 113	
Chromium	0.023	U	2.50	2.35		mg/L		94	90 - 113	
Lead	0.023	U J1	2.50	2.12	J1	mg/L		85	86 - 113	
Selenium	0.035	U	1.25	1.29		mg/L		103	83 - 114	
Silver	0.023	U	0.500	0.481		mg/L		96	84 - 115	

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 160-26889-1 MSD
Matrix: Solid
Analysis Batch: 353036

Client Sample ID: IDW-SOLID-022018-01
Prep Type: TCLP
Prep Batch: 352707

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Arsenic	0.023	U	2.50	2.59		mg/L		104	87 - 113	5	20
Barium	0.68	J	2.50	3.21		mg/L		101	88 - 113	2	20
Cadmium	0.011	U	2.50	2.43		mg/L		97	88 - 113	4	20
Chromium	0.023	U	2.50	2.44		mg/L		98	90 - 113	4	20
Lead	0.023	U J1	2.50	2.21		mg/L		88	86 - 113	4	20
Selenium	0.035	U	1.25	1.36		mg/L		109	83 - 114	6	20
Silver	0.023	U	0.500	0.492		mg/L		98	84 - 115	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: LCS 160-353379/2-A
Matrix: Solid
Analysis Batch: 353692

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 353379

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Added	Result				Qualifier
Mercury	0.0250	0.0263		mg/L		105	82 - 119

Lab Sample ID: LB 160-352512/1-F
Matrix: Solid
Analysis Batch: 353692

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 353379

Analyte	LB	LB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	0.000108	J	0.0015	0.000079	mg/L		02/28/18 09:17	03/01/18 13:51	1

Lab Sample ID: 160-26889-1 MS
Matrix: Solid
Analysis Batch: 353692

Client Sample ID: IDW-SOLID-022018-01
Prep Type: TCLP
Prep Batch: 353379

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				Limits
Mercury	0.00065	U	0.0250	0.0258		mg/L		103	82 - 119

Lab Sample ID: 160-26889-1 MSD
Matrix: Solid
Analysis Batch: 353692

Client Sample ID: IDW-SOLID-022018-01
Prep Type: TCLP
Prep Batch: 353379

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Mercury	0.00065	U	0.0250	0.0260		mg/L		104	82 - 119	1	20

Method: 1010A - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: MB 160-354775/1
Matrix: Solid
Analysis Batch: 354775

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Flashpoint	>60		1.00	1.00	Degrees C			03/08/18 18:39	1

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 1010A - Ignitability, Pensky-Martens Closed-Cup Method (Continued)

Lab Sample ID: LCS 160-354775/2
Matrix: Solid
Analysis Batch: 354775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	25.0	27.00		Degrees C		108	90 - 110

Lab Sample ID: 280-106758-I-1 DU
Matrix: Solid
Analysis Batch: 354775

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Flashpoint	>60		>60		Degrees C		NC	20

Method: 9012B - Cyanide, Total and/or Amenable

Lab Sample ID: MB 160-353069/1-A
Matrix: Solid
Analysis Batch: 353477

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 353069

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.11	U	0.50	0.11	mg/Kg		02/26/18 19:10	02/27/18 19:46	1

Lab Sample ID: HLCS 160-353069/3-A
Matrix: Solid
Analysis Batch: 353477

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 353069

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	4.80	4.57		mg/Kg		95	85 - 115

Lab Sample ID: LCS 160-353069/2-A
Matrix: Solid
Analysis Batch: 353477

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 353069

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	2.40	2.28		mg/Kg		95	85 - 115

Lab Sample ID: 160-26889-1 MS
Matrix: Solid
Analysis Batch: 353477

Client Sample ID: IDW-SOLID-022018-01
Prep Type: Total/NA
Prep Batch: 353069

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.14	U	2.89	2.28		mg/Kg	☼	79	60 - 130

Lab Sample ID: 160-26889-1 DU
Matrix: Solid
Analysis Batch: 353477

Client Sample ID: IDW-SOLID-022018-01
Prep Type: Total/NA
Prep Batch: 353069

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	0.14	U	0.13	U	mg/Kg	☼	NC	30

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 160-353193/1-A
Matrix: Solid
Analysis Batch: 353299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 353193

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	44	U	56	22	mg/Kg		02/27/18 10:53	02/27/18 12:14	1

Lab Sample ID: LCS 160-353193/2-A
Matrix: Solid
Analysis Batch: 353299

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 353193

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	570	300		mg/Kg		53	47 - 109

Lab Sample ID: 160-26889-1 MS
Matrix: Solid
Analysis Batch: 353299

Client Sample ID: IDW-SOLID-022018-01
Prep Type: Total/NA
Prep Batch: 353193

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	57	U	703	389		mg/Kg	☼	55	47 - 109

Lab Sample ID: 160-26889-1 DU
Matrix: Solid
Analysis Batch: 353299

Client Sample ID: IDW-SOLID-022018-01
Prep Type: Total/NA
Prep Batch: 353193

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfide	57	U	56	U	mg/Kg	☼	NC	30

Method: 9045D - pH

Lab Sample ID: 160-24918-A-8-E DU
Matrix: Solid
Analysis Batch: 353350

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 353349

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	8.6		8.5		SU		0.4	5

Lab Sample ID: LCS 160-353350/6
Matrix: Solid
Analysis Batch: 353350

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99.0 - 101.0

QC Association Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

GC/MS VOA

Leach Batch: 352509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	1311	
LB 160-352509/1-A	Method Blank	TCLP	Solid	1311	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	1311	
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	1311	

Analysis Batch: 353347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	8260C DOD	352509
LB 160-352509/1-A	Method Blank	TCLP	Solid	8260C DOD	352509
LCS 160-353347/4	Lab Control Sample	Total/NA	Solid	8260C DOD	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	8260C DOD	352509
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	8260C DOD	352509

GC/MS Semi VOA

Leach Batch: 352512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	1311	
LB 160-352512/1-C	Method Blank	TCLP	Solid	1311	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	1311	
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	1311	

Prep Batch: 352907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	3510C	352512
LB 160-352512/1-C	Method Blank	TCLP	Solid	3510C	352512
LCS 160-352907/2-A	Lab Control Sample	Total/NA	Solid	3510C	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	3510C	352512
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	3510C	352512

Analysis Batch: 354114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	8270D	352907
LB 160-352512/1-C	Method Blank	TCLP	Solid	8270D	352907
LCS 160-352907/2-A	Lab Control Sample	Total/NA	Solid	8270D	352907
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	8270D	352907
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	8270D	352907

GC Semi VOA

Leach Batch: 352512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	1311	
LB 160-352512/1-D	Method Blank	TCLP	Solid	1311	
LB 160-352512/1-E	Method Blank	TCLP	Solid	1311	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	1311	
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	1311	

TestAmerica St. Louis

QC Association Summary

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

GC Semi VOA (Continued)

Prep Batch: 352908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	3510C	352512
LB 160-352512/1-D	Method Blank	TCLP	Solid	3510C	352512
LCS 160-352908/2-A	Lab Control Sample	Total/NA	Solid	3510C	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	3510C	352512
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	3510C	352512

Prep Batch: 353046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	8151A	352512
LB 160-352512/1-E	Method Blank	TCLP	Solid	8151A	352512
LCS 160-353046/2-A	Lab Control Sample	Total/NA	Solid	8151A	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	8151A	352512
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	8151A	352512

Analysis Batch: 354843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	8081B	352908
LB 160-352512/1-D	Method Blank	TCLP	Solid	8081B	352908
LCS 160-352908/2-A	Lab Control Sample	Total/NA	Solid	8081B	352908
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	8081B	352908
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	8081B	352908

Analysis Batch: 355076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	8151A DOD	353046
LB 160-352512/1-E	Method Blank	TCLP	Solid	8151A DOD	353046
LCS 160-353046/2-A	Lab Control Sample	Total/NA	Solid	8151A DOD	353046
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	8151A DOD	353046
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	8151A DOD	353046

Metals

Leach Batch: 352512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	1311	
LB 160-352512/1-B	Method Blank	TCLP	Solid	1311	
LB 160-352512/1-F	Method Blank	TCLP	Solid	1311	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	1311	
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	1311	

Prep Batch: 352707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	3010A	352512
LB 160-352512/1-B	Method Blank	TCLP	Solid	3010A	352512
LCS 160-352707/2-A	Lab Control Sample	Total/NA	Solid	3010A	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	3010A	352512
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	3010A	352512

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QC Association Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Metals (Continued)

Analysis Batch: 353036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	6010C	352707
LB 160-352512/1-B	Method Blank	TCLP	Solid	6010C	352707
LCS 160-352707/2-A	Lab Control Sample	Total/NA	Solid	6010C	352707
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	6010C	352707
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	6010C	352707

Prep Batch: 353379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	7470A	352512
LB 160-352512/1-F	Method Blank	TCLP	Solid	7470A	352512
LCS 160-353379/2-A	Lab Control Sample	Total/NA	Solid	7470A	
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	7470A	352512
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	7470A	352512

Analysis Batch: 353692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	TCLP	Solid	7470A	353379
LB 160-352512/1-F	Method Blank	TCLP	Solid	7470A	353379
LCS 160-353379/2-A	Lab Control Sample	Total/NA	Solid	7470A	353379
160-26889-1 MS	IDW-SOLID-022018-01	TCLP	Solid	7470A	353379
160-26889-1 MSD	IDW-SOLID-022018-01	TCLP	Solid	7470A	353379

General Chemistry

Analysis Batch: 352360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	Total/NA	Solid	Moisture	
160-26889-1 DU	IDW-SOLID-022018-01	Total/NA	Solid	Moisture	

Prep Batch: 353069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	Total/NA	Solid	9010C	
MB 160-353069/1-A	Method Blank	Total/NA	Solid	9010C	
HLCS 160-353069/3-A	Lab Control Sample	Total/NA	Solid	9010C	
LCS 160-353069/2-A	Lab Control Sample	Total/NA	Solid	9010C	
160-26889-1 MS	IDW-SOLID-022018-01	Total/NA	Solid	9010C	
160-26889-1 DU	IDW-SOLID-022018-01	Total/NA	Solid	9010C	

Prep Batch: 353193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	Total/NA	Solid	9030B	
MB 160-353193/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 160-353193/2-A	Lab Control Sample	Total/NA	Solid	9030B	
160-26889-1 MS	IDW-SOLID-022018-01	Total/NA	Solid	9030B	
160-26889-1 DU	IDW-SOLID-022018-01	Total/NA	Solid	9030B	

Analysis Batch: 353299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	Total/NA	Solid	9034	353193
MB 160-353193/1-A	Method Blank	Total/NA	Solid	9034	353193

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QC Association Summary

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

General Chemistry (Continued)

Analysis Batch: 353299 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-353193/2-A	Lab Control Sample	Total/NA	Solid	9034	353193
160-26889-1 MS	IDW-SOLID-022018-01	Total/NA	Solid	9034	353193
160-26889-1 DU	IDW-SOLID-022018-01	Total/NA	Solid	9034	353193

Prep Batch: 353349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	Total/NA	Solid	DILeach_Prep	
160-24918-A-8-E DU	Duplicate	Total/NA	Solid	DILeach_Prep	

Analysis Batch: 353350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	Total/NA	Solid	9045D	353349
LCS 160-353350/6	Lab Control Sample	Total/NA	Solid	9045D	
160-24918-A-8-E DU	Duplicate	Total/NA	Solid	9045D	353349

Analysis Batch: 353477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	Total/NA	Solid	9012B	353069
MB 160-353069/1-A	Method Blank	Total/NA	Solid	9012B	353069
HLCS 160-353069/3-A	Lab Control Sample	Total/NA	Solid	9012B	353069
LCS 160-353069/2-A	Lab Control Sample	Total/NA	Solid	9012B	353069
160-26889-1 MS	IDW-SOLID-022018-01	Total/NA	Solid	9012B	353069
160-26889-1 DU	IDW-SOLID-022018-01	Total/NA	Solid	9012B	353069

Analysis Batch: 354775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26889-1	IDW-SOLID-022018-01	Total/NA	Solid	1010A	
MB 160-354775/1	Method Blank	Total/NA	Solid	1010A	
LCS 160-354775/2	Lab Control Sample	Total/NA	Solid	1010A	
280-106758-I-1 DU	Duplicate	Total/NA	Solid	1010A	

Surrogate Summary

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8260C DOD - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (85-114)	DBFM (80-119)	DCA (81-118)	TOL (89-112)
LCS 160-353347/4	Lab Control Sample	98	97	93	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
 DBFM = Dibromofluoromethane (Surr)
 DCA = 1,2-Dichloroethane-d4 (Surr)
 TOL = Toluene-d8 (Surr)

Method: 8260C DOD - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (85-114)	DBFM (80-119)	DCA (81-118)	TOL (89-112)
160-26889-1	IDW-SOLID-022018-01	91	95	89	99
160-26889-1 MS	IDW-SOLID-022018-01	95	98	96	100
160-26889-1 MSD	IDW-SOLID-022018-01	91	93	89	98
LB 160-352509/1-A	Method Blank	97	95	91	100

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
 DBFM = Dibromofluoromethane (Surr)
 DCA = 1,2-Dichloroethane-d4 (Surr)
 TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (43-140)	FBP (44-119)	2FP (19-119)	NBZ (44-120)	PHL (10-115)	TPHL (50-134)
LCS 160-352907/2-A	Lab Control Sample	84	66	59	62	57	93

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 2FP = 2-Fluorophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 PHL = Phenol-d5 (Surr)
 TPHL = Terphenyl-d14 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (43-140)	FBP (44-119)	2FP (19-119)	NBZ (44-120)	PHL (10-115)	TPHL (50-134)
160-26889-1	IDW-SOLID-022018-01	87	80	73	80	68	89
160-26889-1 MS	IDW-SOLID-022018-01	89	75	69	73	64	97
160-26889-1 MSD	IDW-SOLID-022018-01	83	71	60	69	59	92

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Surrogate Summary

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (43-140)	FBP (44-119)	2FP (19-119)	NBZ (44-120)	PHL (10-115)	TPHL (50-134)
LB 160-352512/1-C	Method Blank	88	79	69	77	65	94

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 2FP = 2-Fluorophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 PHL = Phenol-d5 (Surr)
 TPHL = Terphenyl-d14 (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB2 (29-150)	TCX2 (44-124)
LCS 160-352908/2-A	Lab Control Sample	120	82

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
 TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB2 (29-150)	TCX2 (44-124)
160-26889-1	IDW-SOLID-022018-01	67 Q	81
160-26889-1 MS	IDW-SOLID-022018-01	71	81
160-26889-1 MSD	IDW-SOLID-022018-01	60	74
LB 160-352512/1-D	Method Blank	95	86

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
 TCX = Tetrachloro-m-xylene

Method: 8151A DOD - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1 (32-138)
LCS 160-353046/2-A	Lab Control Sample	121

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

Surrogate Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26889-1

Method: 8151A DOD - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (32-138)
160-26889-1	IDW-SOLID-022018-01	108
160-26889-1 MS	IDW-SOLID-022018-01	126
160-26889-1 MSD	IDW-SOLID-022018-01	143 Q
LB 160-352512/1-E	Method Blank	119

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

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March 20, 2018

Ms. Katie Tait, OHARNG
Camp Ravenna Environmental Office
1438 State Route 534 SW
Newton Falls, OH 44444

References: Contract No. W912QR-12-D-0002 Task Order 0003

Subject: Waste Characterization and Management, CC RVAAP-70 East Classification Yard

Dear Ms. Tait,

The purpose of this letter is to characterize and classify waste “sludge” removed from Building 47-40, CC RVAAP-70 East Classification Yard, for disposal. Site activities were conducted in accordance with the *Work Plan Additional Sampling for CC RVAAP-69 Building 1048 Fire Station, CC RVAAP-70 East Classification Yard, and CC RVAAP-74 Building 1034-Motor Pool Hydraulic Lift*. This letter includes a summary of waste generated, the origin of the waste, proposed recommendation for disposal, a summary of the analytical results (Attachment A, Table A.1), and the laboratory data package (Attachment B). In addition to the specified work plan, this letter follows guidance established by the *Facility-Wide Sampling and Analysis Plan* (FWSAP, USACE 2011).

Site Activities

Building 47-40 was used to repair locomotives. A substance described as an “oily sludge” was present on the floor of the building. Although the substance was described as a sludge, it was relatively dry. Sludges were present in an interior repair pit that lies underneath the area where locomotives were maintained. The repair pit is the lowest point in the building, and represents a location where spills of liquids could have drained. Oily sludges were also found near the east wall of the building at the historical oil drum rack, as well as other locations on the floor. On January 30 and 31, 2018, approximately two cubic yards of sludge and oily debris were removed from the floor and pit and were placed in a 20-cubic yard roll-off. Sludge removal was performed by American Waste with oversight by Parsons.

Samples 070SG-0001-WC and 070SG-0002-WC were collected from the sludge waste on February 6, 2018 and March 5, 2018, respectively, and analyzed for the following:

Table 1. Summary of Sludge Samples

Container Number	Container Type and Size	Contents	Location of Generation	Date of Generation	Sample ID	Date Sampled	Analysis Performed	Disposal Recommendation
20415	Roll-Off Box 20 yd ³	Oily Sludge / Debris	CC RVAAP-70 East Classification Yard	01/30/2018	070SG-0001-WC	02/06/2018	TCLP-SVOCs; SVOCs; TCLP-Pesticides; TCLP-Herbicides; TCLP-Metals; TCLP-Mercury; Ignitability; Cyanide; Sulfide; and pH.	Non-Hazardous
					070SG-0002-WC	03/05/2018	TCLP-VOCs	Non-Hazardous
Note: The TCLP-SVOC sample was diluted, affecting the non-detect reporting limit. SVOC analytical results were used to confirm that concentrations of three compounds were below the hazardous waste threshold value.								

Analytical Screening of Results

Upon receipt from the laboratory, the analytical data was reviewed to determine if the waste sludge is hazardous. The data were compared to disposal screening criteria, which are from three sources:

1. Concentration of Contaminants for Toxicity Characteristic (40 Code of Federal Regulations [CFR] 261.24), as listed in Table 8-1 of the FWSAP;
2. Table 8-2 of the FWSAP; and
3. 40 CFR 261.23 – Characteristic of Reactivity.

Table A.1 presents the analytical data for the sludge waste samples. The results are summarized below.

1. All analytical results were below the Maximum Concentration for Toxicity Characteristic per 40 CFR 261.24.
2. The pH for the sludge is considered neutral (2 S.U. < pH < 12.5 S.U.).
3. The flash point is >60°C (140°F).

Recommendations

Based on the analytical data, Parsons recommends that the waste sludge be disposed off-site as non-hazardous waste. Because the former RVAAP, under RCRA, is the generator of this material, Parsons requests concurrence regarding this waste classification. Following your concurrence, we will proceed with generating a waste profile, waste manifest, and coordination with a waste disposal facility.

Table 2. Summary of Final Waste Classification and Recommended Disposal

Non-Hazardous Waste			
Container Number	Container Type and Size	Contents	Disposal Recommendation
20415	Roll-Off Box 20 yd ³	Oily Sludge / Debris	Permitted Waste Facility

If you have any questions or require additional information, please do not hesitate to contact me at 256-217-2573.

Parsons



Edward Heyse, PhD, PE
Project Manager

Cc: Mark Leeper, ARNG
Kevin Sedlak, ARNG, Camp Ravenna
Kevin Mieczkowski, USACE Louisville
Nathaniel Peters, USACE Louisville

ATTACHMENT A
SUMMARY OF ANALYTICAL RESULTS

Table A.1 Sludge Waste Sampling Analytical Results (070SG-0001-WC and 070SG-0002-WC)

Analyte	CAS Number	Units	Analytical Method	Basis	Regulatory Level Citation	Regulatory Level	Result	Laboratory Flag
Arsenic	7440-38-2	mg/L	6010C	TCLP	40 CFR 261.24	5	0.02	J
Barium	7440-39-3	mg/L	6010C	TCLP	40 CFR 261.24	100	0.74	J
Cadmium	7440-43-9	mg/L	6010C	TCLP	40 CFR 261.24	1	0.49	J1
Chromium	7440-47-3	mg/L	6010C	TCLP	40 CFR 261.24	5	0.081	
Lead	7439-92-1	mg/L	6010C	TCLP	40 CFR 261.24	5	1.9	J1
Mercury	7439-97-6	mg/L	7470A	TCLP	40 CFR 261.24	0.2	0.00057	J
Selenium	7782-49-2	mg/L	6010C	TCLP	40 CFR 261.24	1	0.029	J
Silver	7440-22-4	mg/L	6010C	TCLP	40 CFR 261.24	5	0.023	U
2,4-D	94-75-7	mg/L	8151A DOD	TCLP	40 CFR 261.24	10	0.027	J
Silvex (2,4,5-TP)	93-72-1	mg/L	8151A DOD	TCLP	40 CFR 261.24	1	0.005	U
Endrin	72-20-8	mg/L	8081B	TCLP	40 CFR 261.24	0.02	0.00005	U
Heptachlor	76-44-8	mg/L	8081B	TCLP	40 CFR 261.24	0.008	0.00005	U
Heptachlor epoxide	1024-57-3	mg/L	8081B	TCLP	40 CFR 261.24	0.008	0.00005	U
Methoxychlor	72-43-5	mg/L	8081B	TCLP	40 CFR 261.24	10	0.00005	U
Technical Chlordane	12789-03-6	mg/L	8081B	TCLP	40 CFR 261.24	0.03	0.005	U
Toxaphene	8001-35-2	mg/L	8081B	TCLP	40 CFR 261.24	0.5	0.02	U
gamma-BHC (Lindane)	58-89-9	mg/L	8081B	TCLP	40 CFR 261.24	0.4	0.00027	J J1
1,4-Dichlorobenzene	106-46-7	mg/L	8270D	TCLP	40 CFR 261.24	7.5	0.75	U Q
2,4,5-Trichlorophenol	95-95-4	mg/L	8270D	TCLP	40 CFR 261.24	400	0.75	U Q
2,4,6-Trichlorophenol	88-06-2	mg/L	8270D	TCLP	40 CFR 261.24	2	0.75	U Q
2,4-Dinitrotoluene	121-14-2	mg/L	8270D	TCLP	40 CFR 261.24	0.13	Note 2	U Q
2-Methylphenol	95-48-7	mg/L	8270D	TCLP	40 CFR 261.24	200	0.75	U Q
3 & 4 Methylphenol	15831-10-4	mg/L	8270D	TCLP	40 CFR 261.24	200	0.75	U Q
Hexachlorobenzene	118-74-1	mg/L	8270D	TCLP	40 CFR 261.24	0.13	Note 2	U Q
Hexachlorobutadiene	87-68-3	mg/L	8270D	TCLP	40 CFR 261.24	0.5	Note 2	U Q
Hexachloroethane	67-72-1	mg/L	8270D	TCLP	40 CFR 261.24	3	0.75	U Q
Nitrobenzene	98-95-3	mg/L	8270D	TCLP	40 CFR 261.24	2	0.75	U Q
Pentachlorophenol	87-86-5	mg/L	8270D	TCLP	40 CFR 261.24	100	2.5	U Q
Pyridine	110-86-1	mg/L	8270D	TCLP	40 CFR 261.24	5	2.5	U Q
Flashpoint	NA	Deg C	1010A	Total/NA	40 CFR 261.21	<60°C (140°F)	>60	
Cyanide, Total	57-12-5	mg/Kg	9012B	Total/NA	40 CFR 261.23	See Note 1	0.12	U J1
Sulfide	18496-25-8	mg/Kg	9034	Total/NA	40 CFR 261.23	See Note 1	44	U J1
pH	NA	SU	9045D	Total/NA	40 CFR 261.22	2 ≤ pH ≤ 12.5	6.1	
Percent Solid	NA	%	160.3 MOD	Total/NA	---	---	96.2	
1,1-Dichloroethene	75-35-4	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.7	0.01	U

Table A.1 Sludge Waste Sampling Analytical Results (070SG-0001-WC and 070SG-0002-WC)

Analyte	CAS Number	Units	Analytical Method	Basis	Regulatory Level Citation	Regulatory Level	Result	Laboratory Flag
1,2-Dichloroethane	107-06-2	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.5	0.01	U
2-Butanone (MEK)	78-93-3	mg/L	8260C DOD	TCLP	40 CFR 261.24	200	0.05	U
Benzene	71-43-2	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.5	0.01	U
Carbon tetrachloride	56-23-5	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.5	0.01	U
Chlorobenzene	108-90-7	mg/L	8260C DOD	TCLP	40 CFR 261.24	100	0.01	U
Chloroform	67-66-3	mg/L	8260C DOD	TCLP	40 CFR 261.24	6	0.01	U
Tetrachloroethene	127-18-4	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.7	0.01	U
Trichloroethene	79-01-6	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.5	0.01	U
Vinyl chloride	75-01-4	mg/L	8260C DOD	TCLP	40 CFR 261.24	0.2	0.01	U

Notes:

The sludge waste disposal sample was collected on 2/6/18 for all methods except 8260C DOD which was collected on 3/5/18.

1: The US Environmental Protection Agency requires generators to use their knowledge to make a D003 determination per CFR 261.23(a)(5) for cyanide or sulfide-bearing wastes.

2. The TCLP non-detect reporting limit was 0.75 mg/L, which is higher than the threshold for hazardous waste for 2,4-dinitrotoluene, hexachlorobenzene, and hexachlorobutadiene. However, analysis of a solid waste sample was non-detect for these compounds at 2.5 mg/kg, which is the equivalent of a TCLP non-detect value of 0.125 mg/L. Therefore these compounds are below the threshold for a TCLP hazardous waste.

- = No regulatory standards for determination of hazardous waste exist

CAS = Chemical Abstract Service Number

CFR = Code of Federal Regulations

mg/Kg = milligram per kilogram

mg/L = milligrams per liter

NA = Not applicable

SU = Standard Unit

TCLP = Toxicity Characteristic Leaching Procedure

U = Non-detect, concentration reported is reporting limit - Lab Qualifier

J = Estimated concentration, less than the reporting limit - Lab Qualifier

Q = One or more laboratory quality control criteria failed - Lab Qualifier

J1 = Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria

ATTACHMENT B
LABORATORY DATA PACKAGES

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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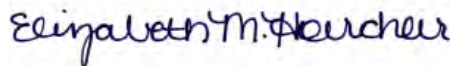
TestAmerica Job ID: 160-26681-1

Client Project/Site: Ravenna Army Ammunition Plant

For:

Parsons Government Services Inc
401 Diamond Drive
Huntsville, Alabama 35806-2192

Attn: Sandra De Las Fuentes



Authorized for release by:
2/28/2018 5:42:01 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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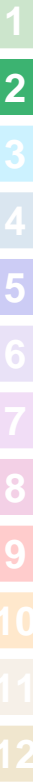


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Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Job ID: 160-26681-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Parsons Government Services Inc

Project: Ravenna Army Ammunition Plant

Report Number: 160-26681-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup

Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Job ID: 160-26681-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 02/07/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.0° C.

TCLP SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample 070SG-0001-WC (160-26681-1) was analyzed for TCLP semivolatile organic compounds (GC-MS) in accordance with SW-846 Method 1311/8270D. The samples were leached on 02/11/2018, prepared on 02/12/2018 and analyzed on 02/19/2018.

Due to the nature of these samples (LIMITED ALIQUOT) the fluid determination step was not performed. Fluid type 1 was used. 070SG-0001-WC (160-26681-1)

The following sample in preparation batches 160-350511 and 160-350598 and analytical batch 160-351845 required a dilution due to the nature of the sample matrix: 070SG-0001-WC (160-26681-1). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

The following sample in preparation batches 160-350511 and 160-350598 and analytical batch 160-351845 was diluted at 25X and analyzed due to the nature of the sample matrix: 070SG-0001-WC (160-26681-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample 070SG-0001-WC (160-26681-1) was analyzed for Semivolatile Organic Compounds (GC/MS) in accordance with SW-846 Method 8270 DOD. The samples were prepared on 02/08/2018 and analyzed on 02/22/2018.

The CCVIS associated with preparation batch 160-350297 and analytical batch 160-352501 recovered outside of lower control limits for the target analyte 2,4-Dinitrophenol. A low-level CCVL was analyzed and the affected analyte was detected. The affected samples were ND for the affected analyte; therefore, this excursion did not affect the data results. Results are provided with this narrative. 070SG-0001-WC (160-26681-1), (CCVIS 160-352501/3), (CCVL 160-352501/4), (LCS 160-350297/2-A) and (MB 160-350297/1-A)

The affected samples in preparation batch 160-350297 and analytical batch 160-352501 were analyzed at a 25X dilution due to the nature of their physical characteristics, such as color, odor, appearance, and viscosity. Elevated reporting limits (RL) are provided.

The affected samples in preparation batch 160-350297 and analytical batch 160-352501 were analyzed a 25X dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

The following samples in preparation batch 160-350297 and analytical batch 160-352501 were not analyzed since the parent sample (160-26681-1) was analyzed at a 25X dilution: 160-26681-1 MS & MSD.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP CHLORINATED PESTICIDES

Sample 070SG-0001-WC (160-26681-1) was analyzed for TCLP chlorinated pesticides in accordance with SW-846 Method 1311/8081B. The samples were leached on 02/11/2018, prepared on 02/13/2018 and analyzed on 02/14/2018.

Due to the nature of these samples (LIMITED ALIQUOT) the fluid determination step was not performed. Fluid type 1 was used. 070SG-0001-WC (160-26681-1)

The %RPD between the primary and confirmation column exceeded 40% for gamma-BHC for the following sample in preparation batches 160-350511 and 160-350880 and analytical batch 160-351052: 070SG-0001-WC (160-26681-1). The lower value has been reported and qualified in accordance with the laboratory's SOP.

Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Job ID: 160-26681-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP CHLORINATED HERBICIDES

Sample 070SG-0001-WC (160-26681-1) was analyzed for TCLP chlorinated herbicides in accordance with EPA SW-846 Methods 1311/8151A. The samples were leached on 02/11/2018, prepared on 02/13/2018 and analyzed on 02/27/2018.

Due to the nature of these samples (LIMITED ALIQUOT) the fluid determination step was not performed. Fluid type 1 was used. 070SG-0001-WC (160-26681-1)

The initial calibration verification (ICV) result for analytical batch 160-353340 was below the lower control limit for 2,4-D on the secondary column, but is within the acceptable limits on the primary column. The primary column result will be reported as this analyte in the associated samples were either ND or was detected below the RL. Results are provided with this narrative.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP METALS (ICP)

Sample 070SG-0001-WC (160-26681-1) was analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Method 1311/6010C_DoD5. The samples were leached on 02/11/2018, prepared on 02/12/2018 and analyzed on 02/15/2018.

Due to the nature of these samples (LIMITED ALIQUOT) the fluid determination step was not performed. Fluid type 1 was used. 070SG-0001-WC (160-26681-1)

The post digestion spike % recovery for Cadmium and Lead associated with preparation batches 160-350511 and 160-350605 and analytical batch 160-351407 was outside of control limits. Indicating a potential matrix interference. (160-26681-K-1-C PDS)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP MERCURY

Sample 070SG-0001-WC (160-26681-1) was analyzed for TCLP mercury in accordance with SW-846 Method 7470 DoD5. The samples were leached on 02/11/2018, and prepared and analyzed on 02/19/2018.

Due to the nature of these samples (LIMITED ALIQUOT) the fluid determination step was not performed. Fluid type 1 was used. 070SG-0001-WC (160-26681-1)

The spiked MS/MSD supplied by pre-prep: 160-26681-1[MS] and 160-26681-1[MSD] was not used during the digestion process for preparation batch 160-350511 and 160-351831. This is because the sample this QC was linked to (160-26681-1) was found to be unpreserved. Regulatory documents require a 24-hour waiting period from the time of the addition of the acid preservative to the time of digestion. 070SG-0001-WC (160-26681-1), (160-26681-K-1-A MS) and (160-26681-K-1-A MSD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

IGNITABILITY, PENSKY-MARTENS CLOSED CUP METHOD

Sample 070SG-0001-WC (160-26681-1) was analyzed for Ignitability, Pensky-Martens Closed Cup Method in accordance with EPA SW-846 Method 1010. The samples were analyzed on 02/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CYANIDE, TOTAL AND/OR AMENABLE

Sample 070SG-0001-WC (160-26681-1) was analyzed for Cyanide, Total and/or Amenable in accordance with EPA SW-846 Method 9012B. The samples were prepared and analyzed on 02/20/2018.

The following matrix spike (MS) recovery for Cyanide preparation batch 160-352177 and analytical batch 160-352313 was outside control limits: (160-26681-F-1-C MS). Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Job ID: 160-26681-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SULFIDE

Sample 070SG-0001-WC (160-26681-1) was analyzed for sulfide in accordance with EPA SW-846 Method 9034. The samples were prepared and analyzed on 02/13/2018.

The matrix spike (MS) recovery for Sulfide batch 160-350884 was outside control limits. Sample matrix interference is suspected, because the associated laboratory control sample (LCS) recovery was within acceptance limits. (160-26681-M-1-C MS)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PH

Sample 070SG-0001-WC (160-26681-1) was analyzed for pH in accordance with EPA SW-846 Method 9045D. The samples were prepared and analyzed on 02/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Sample 070SG-0001-WC (160-26681-1) was analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 02/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Chain of Custody Record

Client Information
 Client Contact: Sandra De Las Fuentes
 Company: Parsons Government Services Inc
 Address: 401 Diamond Drive, Huntsville, AL 35806-2192
 Phone: 512-779-5727(Tel)
 Email: sandra.delasfuentes@parsons.com
 Project Name: Ravenna Army Ammunition Plant
 Site: 70-4740

Sample Information
 Sample: JOE PERCOLIN
 Lab PM: Awall, Jayna K
 Phone: 216-701-9392
 E-Mail: jayna.awall@testamericainc.com

Analysis Requested

Sample ID	Sample Date	Sample Time	Sample Type	Matrix	Field Filtered Sample (Yes or No)	Perform MSD (Yes or No)	8330B D005 - Explosives 8330B	8015B DRD D005 - ITC Metals 8015B	8020A D005 - ITC Metals 8020A	8270D SIM D005 - PARS 8270D SIM	8082A D005 - PCBs 8082A	8260C D005 - LL - VOCs 8260C LL	8260E D005 - PCBs 8260E	9010A D005 - Total Cyanide	1010A - Flashpoint	9012B - Total Cyanide	9081B D005, 8151A D005, 8270D D005, 9045D	Total Number of Containers
070TB-060218-01	2-6-2018	0800	G	Solid	N	N												3
070SB-103-0069-50	2-6-2018	0900	G	Solid	N	N												4
070SB-103-0070-50	2-6-2018	0905	G	Solid	N	N												4
070SG-0001-00	2-6-2018	0945	G	Solid	N	N												10
070SS-108-0081-50	2-6-2018	0930	G	Solid	N	N												6
070SS-108-0081-50	2-6-2018	0930	G	Solid	N	N												2

Special Instructions/Note:
 CATCH BAGS AND BAGS 38-107

Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MHOH
 G - Anchoh
 H - Acetic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA
 Other:

Special Instructions/Note:
 M - Hexane
 N - None
 O - AsNaO2
 P - Na2O4S
 R - Na2SO3
 S - H2SO4
 T - TSP Dibutylcarbitrate
 U - Acetone
 V - MCAA
 W - pH 4-5
 X - other (specify)
 Z - other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____
Relinquished by: _____ Date/Time: _____
Relinquished by: _____ Date/Time: _____
Relinquished by: _____ Date/Time: _____

Company: PARSONS
Company: PARSONS
Company: PARSONS

Received by: _____ Date/Time: 2-6-2018 1630
Received by: _____ Date/Time: 2/7/18 0910
Received by: _____ Date/Time: _____

Company: PARSONS
Company: PARSONS
Company: PARSONS

Method of Shipment: _____
Carrier Tracking Notes: 2 - C-2000S

Due Date Requested: 2 WEEKS
TAT Requested (days): STANDARD
PO #: _____
Purchase Order Requested: _____
WO #: _____
Project #: 16006159
SSOW#: _____

Field Filtered Sample (Yes or No): _____
Perform MSD (Yes or No): _____

Sample Identification: _____
Sample Date: _____
Sample Time: _____
Sample Type: _____
Matrix: _____

Possible Hazard Identification:
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify): _____

Custody Seal Intact: Yes No A B C

Cooler Temperature(s): _____ °C and Other Remarks: _____

Login Sample Receipt Checklist

Client: Parsons Government Services Inc

Job Number: 160-26681-1

Login Number: 26681

List Source: TestAmerica St. Louis

List Number: 1

Creator: Daniels, Brian J

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

Metals

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U	Undetected at the Limit of Detection.

General Chemistry

Qualifier	Qualifier Description
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TestAmerica St. Louis

Method Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method	Method Description	Protocol	Laboratory
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SL
8081B	Organochlorine Pesticides (GC)	SW846	TAL SL
8151A DOD	Herbicides (GC)	SW846	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
1010A	Ignitability, Pensky-Martens Closed-Cup Method	SW846	TAL SL
9012B	Cyanide, Total and/or Amenable	SW846	TAL SL
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL SL
9045D	pH	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-26681-1	070SG-0001-WC	Solid	02/06/18 09:45	02/07/18 09:50

Client Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Client Sample ID: 070SG-0001-WC

Lab Sample ID: 160-26681-1

Date Collected: 02/06/18 09:45

Matrix: Solid

Date Received: 02/07/18 09:50

Percent Solids: 96.2

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
1,2-Dichlorobenzene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
1,3-Dichlorobenzene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
1,4-Dichlorobenzene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2,4,5-Trichlorophenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2,4,6-Trichlorophenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2,4-Dichlorophenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2,4-Dimethylphenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2,4-Dinitrophenol	17000	U Q	41000	8500	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2,4-Dinitrotoluene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2,6-Dinitrotoluene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2-Chloronaphthalene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2-Chlorophenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2-Methylnaphthalene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2-Methylphenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2-Nitroaniline	2500	U Q	41000	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
2-Nitrophenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
3 & 4 Methylphenol	2500	U Q	17000	1700	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
3,3'-Dichlorobenzidine	17000	U Q	41000	8500	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
3-Nitroaniline	2500	U Q	41000	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
4,6-Dinitro-2-methylphenol	17000	U Q	41000	8500	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
4-Bromophenyl phenyl ether	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
4-Chloro-3-methylphenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
4-Chloroaniline	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
4-Chlorophenyl phenyl ether	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
4-Nitroaniline	17000	U Q	41000	8500	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
4-Nitrophenol	17000	U Q	41000	8500	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Acenaphthene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Acenaphthylene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Anthracene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Benzo[a]anthracene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Benzo[a]pyrene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Benzo[b]fluoranthene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Benzo[g,h,i]perylene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Benzo[k]fluoranthene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Benzoic acid	17000	U Q	41000	8500	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Benzyl alcohol	2500	U Q	8500	1300	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
bis (2-chloroisopropyl) ether	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Bis(2-chloroethoxy)methane	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Bis(2-chloroethyl)ether	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Butyl benzyl phthalate	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Carbazole	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Chrysene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Dibenz(a,h)anthracene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Dibenzofuran	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Diethyl phthalate	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Dimethyl phthalate	2500	U	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Di-n-butyl phthalate	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Di-n-octyl phthalate	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25

TestAmerica St. Louis

Client Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Client Sample ID: 070SG-0001-WC

Lab Sample ID: 160-26681-1

Date Collected: 02/06/18 09:45

Matrix: Solid

Date Received: 02/07/18 09:50

Percent Solids: 96.2

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Fluorene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Hexachlorobenzene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Hexachlorobutadiene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Hexachlorocyclopentadiene	17000	U Q	41000	8500	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Hexachloroethane	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Indeno[1,2,3-cd]pyrene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Isophorone	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
N,N-Diphenylamine	2500	U	8500	850	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Naphthalene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Nitrobenzene	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
N-Nitrosodi-n-propylamine	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Pentachlorophenol	8500	U Q	41000	8500	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Phenanthrene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Phenol	2500	U Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25
Pyrene	2500	U M Q	8500	860	ug/Kg	☼	02/08/18 15:08	02/22/18 17:58	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	0		39 - 132	02/08/18 15:08	02/22/18 17:58	25
2-Fluorobiphenyl (Surr)	0		44 - 115	02/08/18 15:08	02/22/18 17:58	25
2-Fluorophenol (Surr)	0		35 - 115	02/08/18 15:08	02/22/18 17:58	25
Nitrobenzene-d5 (Surr)	0		37 - 122	02/08/18 15:08	02/22/18 17:58	25
Phenol-d5 (Surr)	0		33 - 122	02/08/18 15:08	02/22/18 17:58	25
Terphenyl-d14 (Surr)	0		54 - 127	02/08/18 15:08	02/22/18 17:58	25

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.75	U Q	2.5	0.25	mg/L		02/12/18 13:15	02/19/18 18:44	25
2,4,5-Trichlorophenol	0.75	U Q	2.5	0.50	mg/L		02/12/18 13:15	02/19/18 18:44	25
2,4,6-Trichlorophenol	0.75	U Q	2.5	0.50	mg/L		02/12/18 13:15	02/19/18 18:44	25
2,4-Dinitrotoluene	0.75	U Q	2.5	0.25	mg/L		02/12/18 13:15	02/19/18 18:44	25
2-Methylphenol	0.75	U Q	2.5	0.50	mg/L		02/12/18 13:15	02/19/18 18:44	25
3 & 4 Methylphenol	0.75	U Q	5.0	0.25	mg/L		02/12/18 13:15	02/19/18 18:44	25
Hexachlorobenzene	0.75	U Q	2.5	0.25	mg/L		02/12/18 13:15	02/19/18 18:44	25
Hexachlorobutadiene	0.75	U Q	2.5	0.25	mg/L		02/12/18 13:15	02/19/18 18:44	25
Hexachloroethane	0.75	U Q	2.5	0.25	mg/L		02/12/18 13:15	02/19/18 18:44	25
Nitrobenzene	0.75	U Q	2.5	0.25	mg/L		02/12/18 13:15	02/19/18 18:44	25
Pentachlorophenol	2.5	U Q	13	0.50	mg/L		02/12/18 13:15	02/19/18 18:44	25
Pyridine	2.5	U Q	5.0	1.3	mg/L		02/12/18 13:15	02/19/18 18:44	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	0	M	43 - 140	02/12/18 13:15	02/19/18 18:44	25
2-Fluorobiphenyl (Surr)	0	M	44 - 119	02/12/18 13:15	02/19/18 18:44	25
2-Fluorophenol (Surr)	0	M	19 - 119	02/12/18 13:15	02/19/18 18:44	25
Nitrobenzene-d5 (Surr)	0	M	44 - 120	02/12/18 13:15	02/19/18 18:44	25
Phenol-d5 (Surr)	0	M	10 - 115	02/12/18 13:15	02/19/18 18:44	25
Terphenyl-d14 (Surr)	0	M	50 - 134	02/12/18 13:15	02/19/18 18:44	25

TestAmerica St. Louis

Client Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Client Sample ID: 070SG-0001-WC

Lab Sample ID: 160-26681-1

Date Collected: 02/06/18 09:45

Matrix: Solid

Date Received: 02/07/18 09:50

Percent Solids: 96.2

Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin	0.000050	U	0.00050	0.000050	mg/L	-	02/13/18 12:15	02/14/18 16:28	1
gamma-BHC (Lindane)	0.00027	J J1	0.00050	0.000015	mg/L	-	02/13/18 12:15	02/14/18 16:28	1
Heptachlor	0.000050	U	0.00050	0.000015	mg/L	-	02/13/18 12:15	02/14/18 16:28	1
Heptachlor epoxide	0.000050	U	0.00050	0.000050	mg/L	-	02/13/18 12:15	02/14/18 16:28	1
Methoxychlor	0.000050	U	0.0010	0.000050	mg/L	-	02/13/18 12:15	02/14/18 16:28	1
Toxaphene	0.020	U	0.020	0.000050	mg/L	-	02/13/18 12:15	02/14/18 16:28	1
Technical Chlordane	5.0	U	5.0	0.20	ug/L	-	02/13/18 12:15	02/14/18 16:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	44		29 - 150	02/13/18 12:15	02/14/18 16:28	1
Tetrachloro-m-xylene	74		44 - 124	02/13/18 12:15	02/14/18 16:28	1

Method: 8151A DOD - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.027	J	0.040	0.020	mg/L	-	02/13/18 08:05	02/27/18 23:03	1
Silvex (2,4,5-TP)	0.0050	U	0.010	0.0030	mg/L	-	02/13/18 08:05	02/27/18 23:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	78		32 - 138	02/13/18 08:05	02/27/18 23:03	1

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.020	J	0.025	0.010	mg/L	-	02/12/18 13:45	02/15/18 19:04	1
Barium	0.74	J	1.0	0.038	mg/L	-	02/12/18 13:45	02/15/18 19:04	1
Cadmium	0.49	J1	0.013	0.0038	mg/L	-	02/12/18 13:45	02/15/18 19:04	1
Chromium	0.081		0.025	0.0075	mg/L	-	02/12/18 13:45	02/15/18 19:04	1
Lead	1.9	J1	0.025	0.0075	mg/L	-	02/12/18 13:45	02/15/18 19:04	1
Selenium	0.029	J	0.038	0.020	mg/L	-	02/12/18 13:45	02/15/18 19:04	1
Silver	0.023	U	0.025	0.0075	mg/L	-	02/12/18 13:45	02/15/18 19:04	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00057	J	0.0015	0.000079	mg/L	-	02/19/18 08:14	02/19/18 15:15	1

General Chemistry

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	>60		1.00	1.00	Degrees C	-		02/15/18 00:11	1
Cyanide, Total	0.12	U J1	0.52	0.12	mg/Kg	☆	02/20/18 17:35	02/20/18 19:37	1
Sulfide	44	U J1	55	22	mg/Kg	☆	02/13/18 09:23	02/13/18 12:26	1
pH	6.1		0.1	0.1	SU	-	02/08/18 17:07	02/08/18 23:23	1

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-350297/1-A

Matrix: Solid

Analysis Batch: 352501

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 350297

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
1,2-Dichlorobenzene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
1,3-Dichlorobenzene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
1,4-Dichlorobenzene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2,4,5-Trichlorophenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2,4,6-Trichlorophenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2,4-Dichlorophenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2,4-Dimethylphenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2,4-Dinitrophenol	660	U	1600	330	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2,4-Dinitrotoluene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2,6-Dinitrotoluene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2-Chloronaphthalene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2-Chlorophenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2-Methylnaphthalene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2-Methylphenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2-Nitroaniline	99	U	1600	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
2-Nitrophenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
3 & 4 Methylphenol	99	U	660	67	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
3,3'-Dichlorobenzidine	660	U	1600	330	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
3-Nitroaniline	99	U	1600	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
4,6-Dinitro-2-methylphenol	660	U	1600	330	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
4-Bromophenyl phenyl ether	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
4-Chloro-3-methylphenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
4-Chloroaniline	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
4-Chlorophenyl phenyl ether	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
4-Nitroaniline	660	U	1600	330	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
4-Nitrophenol	660	U	1600	330	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Acenaphthene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Acenaphthylene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Anthracene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Benzo[a]anthracene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Benzo[a]pyrene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Benzo[b]fluoranthene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Benzo[g,h,i]perylene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Benzo[k]fluoranthene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Benzoic acid	660	U	1600	330	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Benzyl alcohol	99	U	330	52	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
bis (2-chloroisopropyl) ether	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Bis(2-chloroethoxy)methane	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Bis(2-chloroethyl)ether	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Butyl benzyl phthalate	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Carbazole	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Chrysene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Dibenz(a,h)anthracene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Dibenzofuran	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Diethyl phthalate	99	U M	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Dimethyl phthalate	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Di-n-butyl phthalate	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 160-350297/1-A
Matrix: Solid
Analysis Batch: 352501

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350297

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Di-n-octyl phthalate	99	U M	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Fluoranthene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Fluorene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Hexachlorobenzene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Hexachlorobutadiene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Hexachlorocyclopentadiene	660	U	1600	330	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Hexachloroethane	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Indeno[1,2,3-cd]pyrene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Isophorone	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
N,N-Diphenylamine	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Naphthalene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Nitrobenzene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
N-Nitrosodi-n-propylamine	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Pentachlorophenol	330	U	1600	330	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Phenanthrene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Phenol	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1
Pyrene	99	U	330	33	ug/Kg		02/08/18 15:08	02/22/18 17:04	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol (Surr)	75		39 - 132	02/08/18 15:08	02/22/18 17:04	1
2-Fluorobiphenyl (Surr)	76		44 - 115	02/08/18 15:08	02/22/18 17:04	1
2-Fluorophenol (Surr)	76		35 - 115	02/08/18 15:08	02/22/18 17:04	1
Nitrobenzene-d5 (Surr)	71		37 - 122	02/08/18 15:08	02/22/18 17:04	1
Phenol-d5 (Surr)	77		33 - 122	02/08/18 15:08	02/22/18 17:04	1
Terphenyl-d14 (Surr)	86		54 - 127	02/08/18 15:08	02/22/18 17:04	1

Lab Sample ID: LCS 160-350297/2-A
Matrix: Solid
Analysis Batch: 352501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350297

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
1,2,4-Trichlorobenzene	3330	2570		ug/Kg		77	34 - 118
1,2-Dichlorobenzene	3330	2410		ug/Kg		72	33 - 117
1,3-Dichlorobenzene	3330	2310		ug/Kg		69	30 - 115
1,4-Dichlorobenzene	3330	2380		ug/Kg		71	31 - 115
2,4,5-Trichlorophenol	3330	2780		ug/Kg		83	41 - 124
2,4,6-Trichlorophenol	3330	2700		ug/Kg		81	39 - 126
2,4-Dichlorophenol	3330	2760		ug/Kg		83	40 - 122
2,4-Dimethylphenol	3330	2570		ug/Kg		77	30 - 127
2,4-Dinitrophenol	3330	1050	J	ug/Kg		32	10 - 89
2,4-Dinitrotoluene	3330	2640		ug/Kg		79	48 - 126
2,6-Dinitrotoluene	3330	2710		ug/Kg		81	46 - 124
2-Chloronaphthalene	3330	2620		ug/Kg		79	41 - 114
2-Chlorophenol	3330	2630		ug/Kg		79	34 - 121
2-Methylnaphthalene	3330	2560		ug/Kg		77	38 - 122
2-Methylphenol	3330	2570		ug/Kg		77	32 - 122
2-Nitroaniline	3330	2570		ug/Kg		77	44 - 127
2-Nitrophenol	3330	2560		ug/Kg		77	36 - 123

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-350297/2-A

Matrix: Solid

Analysis Batch: 352501

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 350297

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
3 & 4 Methylphenol	3330	2920		ug/Kg		88	34 - 119
3,3'-Dichlorobenzidine	3330	2060		ug/Kg		62	22 - 121
3-Nitroaniline	3330	2370		ug/Kg		71	33 - 119
4,6-Dinitro-2-methylphenol	3330	1570	J	ug/Kg		47	29 - 132
4-Bromophenyl phenyl ether	3330	2850		ug/Kg		85	46 - 124
4-Chloro-3-methylphenol	3330	2690		ug/Kg		81	45 - 122
4-Chloroaniline	3330	1950		ug/Kg		59	17 - 106
4-Chlorophenyl phenyl ether	3330	2700		ug/Kg		81	45 - 121
4-Nitroaniline	3330	2420		ug/Kg		73	49 - 99
4-Nitrophenol	3330	2420		ug/Kg		73	30 - 132
Acenaphthene	3330	2610		ug/Kg		78	40 - 123
Acenaphthylene	3330	2710		ug/Kg		81	32 - 132
Anthracene	3330	2690		ug/Kg		81	47 - 123
Benzo[a]anthracene	3330	2740		ug/Kg		82	49 - 126
Benzo[a]pyrene	3330	2930		ug/Kg		88	45 - 129
Benzo[b]fluoranthene	3330	3000		ug/Kg		90	45 - 132
Benzo[g,h,i]perylene	3330	2720		ug/Kg		82	43 - 134
Benzo[k]fluoranthene	3330	3030		ug/Kg		91	47 - 132
bis (2-chloroisopropyl) ether	3330	2440		ug/Kg		73	33 - 131
Bis(2-chloroethoxy)methane	3330	2540		ug/Kg		76	36 - 121
Bis(2-chloroethyl)ether	3330	2350		ug/Kg		70	31 - 120
Butyl benzyl phthalate	3330	2790		ug/Kg		84	48 - 132
Carbazole	3330	2450		ug/Kg		74	50 - 123
Chrysene	3330	2700		ug/Kg		81	50 - 124
Dibenz(a,h)anthracene	3330	2410		ug/Kg		72	45 - 134
Dibenzofuran	3330	2640		ug/Kg		79	44 - 120
Diethyl phthalate	3330	2730		ug/Kg		82	50 - 124
Dimethyl phthalate	3330	2710		ug/Kg		81	48 - 124
Di-n-butyl phthalate	3330	2660		ug/Kg		80	51 - 128
Di-n-octyl phthalate	3330	2870		ug/Kg		86	45 - 140
Fluoranthene	3330	2620		ug/Kg		78	50 - 127
Fluorene	3330	2630		ug/Kg		79	43 - 125
Hexachlorobenzene	3330	2840		ug/Kg		85	45 - 122
Hexachlorobutadiene	3330	2680		ug/Kg		80	32 - 123
Hexachlorocyclopentadiene	3330	2600		ug/Kg		78	44 - 140
Hexachloroethane	3330	2360		ug/Kg		71	28 - 117
Indeno[1,2,3-cd]pyrene	3330	2500		ug/Kg		75	45 - 133
Isophorone	3330	2340		ug/Kg		70	30 - 122
Naphthalene	3330	2530		ug/Kg		76	35 - 123
Nitrobenzene	3330	2510		ug/Kg		75	34 - 122
N-Nitrosodi-n-propylamine	3330	2460		ug/Kg		74	36 - 120
Pentachlorophenol	3330	2040		ug/Kg		61	25 - 133
Phenanthrene	3330	2680		ug/Kg		81	50 - 121
Phenol	3330	2610		ug/Kg		78	34 - 121
Pyrene	3330	2780		ug/Kg		83	47 - 127

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	84		39 - 132

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-350297/2-A
Matrix: Solid
Analysis Batch: 352501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350297

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	80		44 - 115
2-Fluorophenol (Surr)	80		35 - 115
Nitrobenzene-d5 (Surr)	75		37 - 122
Phenol-d5 (Surr)	81		33 - 122
Terphenyl-d14 (Surr)	87		54 - 127

Lab Sample ID: LCS 160-350598/2-A
Matrix: Solid
Analysis Batch: 351845

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350598

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
1,4-Dichlorobenzene	1.00	0.582		mg/L		58	29 - 112	
2,4,5-Trichlorophenol	1.00	0.796		mg/L		80	53 - 123	
2,4,6-Trichlorophenol	1.00	0.754		mg/L		75	50 - 125	
2,4-Dinitrotoluene	1.00	0.773		mg/L		77	57 - 128	
Pyridine	1.00	0.297		mg/L		30	20 - 52	
2-Methylphenol	1.00	0.687		mg/L		69	30 - 117	
3 & 4 Methylphenol	1.00	0.597		mg/L		60	29 - 110	
Hexachlorobenzene	1.00	0.858		mg/L		86	53 - 125	
Hexachlorobutadiene	1.00	0.560		mg/L		56	22 - 124	
Hexachloroethane	1.00	0.530		mg/L		53	21 - 115	
Nitrobenzene	1.00	0.706		mg/L		71	45 - 121	
Pentachlorophenol	1.00	0.679		mg/L		68	35 - 138	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	88		43 - 140
2-Fluorobiphenyl (Surr)	73		44 - 119
2-Fluorophenol (Surr)	61		19 - 119
Nitrobenzene-d5 (Surr)	70		44 - 120
Phenol-d5 (Surr)	56		10 - 115
Terphenyl-d14 (Surr)	92		50 - 134

Lab Sample ID: LB 160-350039/1-B
Matrix: Solid
Analysis Batch: 351845

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 350598

Analyte	LB LB		LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dichlorobenzene	0.030	U	0.10	0.010	mg/L		02/12/18 13:15	02/19/18 16:30	1
2,4,5-Trichlorophenol	0.030	U	0.10	0.020	mg/L		02/12/18 13:15	02/19/18 16:30	1
2,4,6-Trichlorophenol	0.030	U	0.10	0.020	mg/L		02/12/18 13:15	02/19/18 16:30	1
2,4-Dinitrotoluene	0.030	U	0.10	0.010	mg/L		02/12/18 13:15	02/19/18 16:30	1
Pyridine	0.10	U	0.20	0.050	mg/L		02/12/18 13:15	02/19/18 16:30	1
2-Methylphenol	0.030	U	0.10	0.020	mg/L		02/12/18 13:15	02/19/18 16:30	1
3 & 4 Methylphenol	0.030	U	0.20	0.010	mg/L		02/12/18 13:15	02/19/18 16:30	1
Hexachlorobenzene	0.030	U	0.10	0.010	mg/L		02/12/18 13:15	02/19/18 16:30	1
Hexachlorobutadiene	0.030	U	0.10	0.010	mg/L		02/12/18 13:15	02/19/18 16:30	1
Hexachloroethane	0.030	U	0.10	0.010	mg/L		02/12/18 13:15	02/19/18 16:30	1
Nitrobenzene	0.030	U	0.10	0.010	mg/L		02/12/18 13:15	02/19/18 16:30	1

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB 160-350039/1-B
Matrix: Solid
Analysis Batch: 351845

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 350598

Analyte	LB Result	LB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.10	U	0.50	0.020	mg/L		02/12/18 13:15	02/19/18 16:30	1
Surrogate	%Recovery	LB Qualifier	LB Limits				Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	89		43 - 140				02/12/18 13:15	02/19/18 16:30	1
2-Fluorobiphenyl (Surr)	77		44 - 119				02/12/18 13:15	02/19/18 16:30	1
2-Fluorophenol (Surr)	64		19 - 119				02/12/18 13:15	02/19/18 16:30	1
Nitrobenzene-d5 (Surr)	77		44 - 120				02/12/18 13:15	02/19/18 16:30	1
Phenol-d5 (Surr)	58		10 - 115				02/12/18 13:15	02/19/18 16:30	1
Terphenyl-d14 (Surr)	92		50 - 134				02/12/18 13:15	02/19/18 16:30	1

Lab Sample ID: 160-26605-G-11-F MS
Matrix: Solid
Analysis Batch: 351845

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 350598

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,4-Dichlorobenzene	0.030	U M	1.00	0.664		mg/L		66	29 - 112
2,4,5-Trichlorophenol	0.030	U	1.00	0.820		mg/L		82	53 - 123
2,4,6-Trichlorophenol	0.030	U	1.00	0.780		mg/L		78	50 - 125
2,4-Dinitrotoluene	0.030	U	1.00	0.775		mg/L		77	57 - 128
Pyridine	0.10	U	1.00	0.339		mg/L		34	20 - 52
2-Methylphenol	0.030	U	1.00	0.706		mg/L		71	30 - 117
3 & 4 Methylphenol	0.030	U	1.00	0.621		mg/L		62	29 - 110
Hexachlorobenzene	0.030	U	1.00	0.716		mg/L		72	53 - 125
Hexachlorobutadiene	0.030	U	1.00	0.672		mg/L		67	22 - 124
Hexachloroethane	0.030	U	1.00	0.621		mg/L		62	21 - 115
Nitrobenzene	0.030	U	1.00	0.735		mg/L		73	45 - 121
Pentachlorophenol	0.10	U	1.00	0.669		mg/L		67	35 - 138
Surrogate	%Recovery	MS Qualifier	MS Limits					%Rec	Limits
2,4,6-Tribromophenol (Surr)	89		43 - 140						
2-Fluorobiphenyl (Surr)	76		44 - 119						
2-Fluorophenol (Surr)	66		19 - 119						
Nitrobenzene-d5 (Surr)	74		44 - 120						
Phenol-d5 (Surr)	58		10 - 115						
Terphenyl-d14 (Surr)	60		50 - 134						

Lab Sample ID: 160-26605-G-11-G MSD
Matrix: Solid
Analysis Batch: 351845

Client Sample ID: Matrix Spike Duplicate
Prep Type: TCLP
Prep Batch: 350598

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dichlorobenzene	0.030	U M	1.00	0.677		mg/L		68	29 - 112	2	20
2,4,5-Trichlorophenol	0.030	U	1.00	0.827		mg/L		83	53 - 123	1	20
2,4,6-Trichlorophenol	0.030	U	1.00	0.793		mg/L		79	50 - 125	2	20
2,4-Dinitrotoluene	0.030	U	1.00	0.784		mg/L		78	57 - 128	1	20
Pyridine	0.10	U	1.00	0.407		mg/L		41	20 - 52	18	20
2-Methylphenol	0.030	U	1.00	0.729		mg/L		73	30 - 117	3	20
3 & 4 Methylphenol	0.030	U	1.00	0.642		mg/L		64	29 - 110	3	20

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-26605-G-11-G MSD

Matrix: Solid

Analysis Batch: 351845

Client Sample ID: Matrix Spike Duplicate

Prep Type: TCLP

Prep Batch: 350598

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexachlorobenzene	0.030	U	1.00	0.728		mg/L		73	53 - 125	2	20
Hexachlorobutadiene	0.030	U	1.00	0.690		mg/L		69	22 - 124	3	20
Hexachloroethane	0.030	U	1.00	0.640		mg/L		64	21 - 115	3	20
Nitrobenzene	0.030	U	1.00	0.771		mg/L		77	45 - 121	5	20
Pentachlorophenol	0.10	U	1.00	0.665		mg/L		67	35 - 138	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol (Surr)	86		43 - 140
2-Fluorobiphenyl (Surr)	77		44 - 119
2-Fluorophenol (Surr)	66		19 - 119
Nitrobenzene-d5 (Surr)	76		44 - 120
Phenol-d5 (Surr)	60		10 - 115
Terphenyl-d14 (Surr)	59		50 - 134

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: LCS 160-350880/2-A

Matrix: Solid

Analysis Batch: 351052

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 350880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Endrin	0.00501	0.00543		mg/L		108	60 - 138
gamma-BHC (Lindane)	0.00501	0.00547		mg/L		109	59 - 134
Heptachlor	0.00500	0.00450		mg/L		90	54 - 130
Heptachlor epoxide	0.00500	0.00512		mg/L		102	61 - 133
Methoxychlor	0.00500	0.00688		mg/L		138	54 - 145

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	109		29 - 150
Tetrachloro-m-xylene	109		44 - 124

Lab Sample ID: LB 160-350511/1-D

Matrix: Solid

Analysis Batch: 351052

Client Sample ID: Method Blank

Prep Type: TCLP

Prep Batch: 350880

Analyte	LB Result	LB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin	0.000050	U	0.00050	0.000050	mg/L		02/13/18 12:15	02/14/18 14:43	1
gamma-BHC (Lindane)	0.000020	U	0.00050	0.000015	mg/L		02/13/18 12:15	02/14/18 14:43	1
Heptachlor	0.000050	U	0.00050	0.000015	mg/L		02/13/18 12:15	02/14/18 14:43	1
Heptachlor epoxide	0.000050	U	0.00050	0.000050	mg/L		02/13/18 12:15	02/14/18 14:43	1
Methoxychlor	0.000050	U	0.0010	0.000050	mg/L		02/13/18 12:15	02/14/18 14:43	1
Toxaphene	0.020	U	0.020	0.000050	mg/L		02/13/18 12:15	02/14/18 14:43	1
Technical Chlordane	5.0	U	5.0	0.20	ug/L		02/13/18 12:15	02/14/18 14:43	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	95		29 - 150	02/13/18 12:15	02/14/18 14:43	1
Tetrachloro-m-xylene	101		44 - 124	02/13/18 12:15	02/14/18 14:43	1

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Lab Sample ID: 160-26605-G-11-I MS
Matrix: Solid
Analysis Batch: 351052

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 350880

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Endrin	0.000050	U	0.00501	0.00474		mg/L		95	60 - 138
gamma-BHC (Lindane)	0.000020	U	0.00501	0.00496		mg/L		99	59 - 134
Heptachlor	0.000050	U	0.00500	0.00395		mg/L		79	54 - 130
Heptachlor epoxide	0.000050	U	0.00500	0.00466		mg/L		93	61 - 133
Methoxychlor	0.000050	U	0.00500	0.00554		mg/L		111	54 - 145
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
DCB Decachlorobiphenyl (Surr)	30		29 - 150						
Tetrachloro-m-xylene	100		44 - 124						

Lab Sample ID: 160-26605-G-11-J MSD
Matrix: Solid
Analysis Batch: 351052

Client Sample ID: Matrix Spike Duplicate
Prep Type: TCLP
Prep Batch: 350880

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Endrin	0.000050	U	0.00501	0.00522		mg/L		104	60 - 138	10	30
gamma-BHC (Lindane)	0.000020	U	0.00501	0.00544		mg/L		109	59 - 134	9	30
Heptachlor	0.000050	U	0.00500	0.00439		mg/L		88	54 - 130	11	30
Heptachlor epoxide	0.000050	U	0.00500	0.00508		mg/L		102	61 - 133	9	30
Methoxychlor	0.000050	U	0.00500	0.00602		mg/L		120	54 - 145	8	30
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
DCB Decachlorobiphenyl (Surr)	33		29 - 150								
Tetrachloro-m-xylene	105		44 - 124								

Method: 8151A DOD - Herbicides (GC)

Lab Sample ID: LB 160-350576/1-A
Matrix: Solid
Analysis Batch: 353340

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350576

Analyte	LB Result	LB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.025	U M	0.040	0.020	mg/L		02/12/18 11:15	02/27/18 20:38	1
Silvex (2,4,5-TP)	0.0050	U	0.010	0.0030	mg/L		02/12/18 11:15	02/27/18 20:38	1
LB LB									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
2,4-Dichlorophenylacetic acid	126		32 - 138			02/12/18 11:15	02/27/18 20:38	1	

Lab Sample ID: LCS 160-350576/2-A
Matrix: Solid
Analysis Batch: 353340

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350576

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,4-D	0.200	0.231		mg/L		116	45 - 152
Silvex (2,4,5-TP)	0.0500	0.0559		mg/L		112	51 - 134
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
2,4-Dichlorophenylacetic acid	128		32 - 138				

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8151A DOD - Herbicides (GC) (Continued)

Lab Sample ID: 160-26605-G-11-C MS

Matrix: Solid
Analysis Batch: 353340

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 350576

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
2,4-D	0.025	U M	0.200	0.197		mg/L		99	45 - 152
Silvex (2,4,5-TP)	0.0050	U	0.0500	0.0510		mg/L		102	51 - 134
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
2,4-Dichlorophenylacetic acid	112		32 - 138						

Lab Sample ID: 160-26605-G-11-D MSD

Matrix: Solid
Analysis Batch: 353340

Client Sample ID: Matrix Spike Duplicate
Prep Type: TCLP
Prep Batch: 350576

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
2,4-D	0.025	U M	0.200	0.254		mg/L		127	45 - 152	25	30
Silvex (2,4,5-TP)	0.0050	U	0.0500	0.0613		mg/L		123	51 - 134	18	30
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
2,4-Dichlorophenylacetic acid	135		32 - 138								

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 160-350605/2-A

Matrix: Solid
Analysis Batch: 351407

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350605

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Arsenic	2.50	2.65		mg/L		106	87 - 113
Barium	2.50	2.37		mg/L		95	88 - 113
Cadmium	2.50	2.50		mg/L		100	88 - 113
Chromium	2.50	2.55		mg/L		102	90 - 113
Lead	2.50	2.40		mg/L		96	86 - 113
Selenium	1.25	1.39		mg/L		111	83 - 114
Silver	0.500	0.498		mg/L		100	84 - 115

Lab Sample ID: LB 160-350511/1-B

Matrix: Solid
Analysis Batch: 351407

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 350605

Analyte	LB	LB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	0.023	U	0.025	0.010	mg/L		02/12/18 13:45	02/15/18 18:55	1
Barium	0.0558	J	1.0	0.038	mg/L		02/12/18 13:45	02/15/18 18:55	1
Cadmium	0.011	U	0.013	0.0038	mg/L		02/12/18 13:45	02/15/18 18:55	1
Chromium	0.023	U	0.025	0.0075	mg/L		02/12/18 13:45	02/15/18 18:55	1
Lead	0.023	U	0.025	0.0075	mg/L		02/12/18 13:45	02/15/18 18:55	1
Selenium	0.035	U	0.038	0.020	mg/L		02/12/18 13:45	02/15/18 18:55	1
Silver	0.023	U	0.025	0.0075	mg/L		02/12/18 13:45	02/15/18 18:55	1

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 160-26681-1 MS
Matrix: Solid
Analysis Batch: 351407

Client Sample ID: 070SG-0001-WC
Prep Type: TCLP
Prep Batch: 350605

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Arsenic	0.020	J	2.50	2.71		mg/L		107	87 - 113
Barium	0.74	J	2.50	3.08		mg/L		94	88 - 113
Cadmium	0.49	J1	2.50	2.97		mg/L		99	88 - 113
Chromium	0.081		2.50	2.59		mg/L		100	90 - 113
Lead	1.9	J1	2.50	4.19		mg/L		90	86 - 113
Selenium	0.029	J	1.25	1.41		mg/L		110	83 - 114
Silver	0.023	U	0.500	0.501		mg/L		100	84 - 115

Lab Sample ID: 160-26681-1 MSD
Matrix: Solid
Analysis Batch: 351407

Client Sample ID: 070SG-0001-WC
Prep Type: TCLP
Prep Batch: 350605

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Arsenic	0.020	J	2.50	2.70		mg/L		107	87 - 113	0	20
Barium	0.74	J	2.50	3.09		mg/L		94	88 - 113	0	20
Cadmium	0.49	J1	2.50	3.03		mg/L		102	88 - 113	2	20
Chromium	0.081		2.50	2.64		mg/L		102	90 - 113	2	20
Lead	1.9	J1	2.50	4.37		mg/L		97	86 - 113	4	20
Selenium	0.029	J	1.25	1.38		mg/L		109	83 - 114	2	20
Silver	0.023	U	0.500	0.500		mg/L		100	84 - 115	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: LCS 160-351831/2-A
Matrix: Solid
Analysis Batch: 351927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 351831

Analyte	Spike	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Mercury	0.0250	0.0265		mg/L		106	82 - 119

Lab Sample ID: LB 160-350511/1-E
Matrix: Solid
Analysis Batch: 351927

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 351831

Analyte	LB		LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	0.000226	J	0.0015	0.000079	mg/L		02/19/18 08:14	02/19/18 15:11	1

Lab Sample ID: 160-26681-1 MS
Matrix: Solid
Analysis Batch: 351927

Client Sample ID: 070SG-0001-WC
Prep Type: TCLP
Prep Batch: 351831

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Mercury	0.00057	J	0.0250	0.0251		mg/L		98	82 - 119

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 160-26681-1 MSD
Matrix: Solid
Analysis Batch: 351927

Client Sample ID: 070SG-0001-WC
Prep Type: TCLP
Prep Batch: 351831

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00057	J	0.0250	0.0242		mg/L		94	82 - 119	4	20

Method: 1010A - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: MB 160-350641/1
Matrix: Solid
Analysis Batch: 350641

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	>60		1.00	1.00	Degrees C			02/14/18 20:15	1

Lab Sample ID: LCS 160-350641/2
Matrix: Solid
Analysis Batch: 350641

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	25.0	25.50		Degrees C		102	90 - 110

Lab Sample ID: 160-26605-P-11 DU
Matrix: Solid
Analysis Batch: 350641

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	Prepared	Analyzed	RPD	RPD Limit
Flashpoint	>60		>60		Degrees C				NC	20

Method: 9012B - Cyanide, Total and/or Amenable

Lab Sample ID: MB 160-352177/1-A
Matrix: Solid
Analysis Batch: 352313

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 352177

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.11	U	0.50	0.11	mg/Kg		02/20/18 17:35	02/20/18 19:27	1

Lab Sample ID: HLCS 160-352177/3-A
Matrix: Solid
Analysis Batch: 352313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352177

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	4.80	4.71		mg/Kg		98	85 - 115

Lab Sample ID: LCS 160-352177/2-A
Matrix: Solid
Analysis Batch: 352313

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352177

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	2.40	2.22		mg/Kg		93	85 - 115

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 9012B - Cyanide, Total and/or Amenable (Continued)

Lab Sample ID: 160-26681-1 MS
Matrix: Solid
Analysis Batch: 352313

Client Sample ID: 070SG-0001-WC
Prep Type: Total/NA
Prep Batch: 352177
 %Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Cyanide, Total	0.12	U J1	2.49	0.375	J J1	mg/Kg	☼	15	60 - 130

Lab Sample ID: 160-26681-1 DU
Matrix: Solid
Analysis Batch: 352313

Client Sample ID: 070SG-0001-WC
Prep Type: Total/NA
Prep Batch: 352177
 RPD

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Cyanide, Total	0.12	U J1	0.482	J	mg/Kg	☼	NC	30

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 160-350854/1-A
Matrix: Solid
Analysis Batch: 350884

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350854

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	44	U	56	23	mg/Kg		02/13/18 09:23	02/13/18 12:26	1

Lab Sample ID: LCS 160-350854/2-A
Matrix: Solid
Analysis Batch: 350884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350854
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Sulfide	533	311		mg/Kg		58	47 - 109

Lab Sample ID: 160-26681-1 MS
Matrix: Solid
Analysis Batch: 350884

Client Sample ID: 070SG-0001-WC
Prep Type: Total/NA
Prep Batch: 350854
 %Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Sulfide	44	U J1	614	146	J1	mg/Kg	☼	24	47 - 109

Lab Sample ID: 160-26681-1 DU
Matrix: Solid
Analysis Batch: 350884

Client Sample ID: 070SG-0001-WC
Prep Type: Total/NA
Prep Batch: 350854
 RPD

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Sulfide	44	U J1	41	U	mg/Kg	☼	NC	30

Method: 9045D - pH

Lab Sample ID: 160-26595-E-1-H DU
Matrix: Solid
Analysis Batch: 350325

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 350311
 RPD

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
pH	7.8		7.9		SU		0.5	5

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 9045D - pH (Continued)

Lab Sample ID: LCS 160-350325/5
Matrix: Solid
Analysis Batch: 350325

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99.0 - 101.0

QC Association Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

GC/MS Semi VOA

Leach Batch: 350039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 160-350039/1-B	Method Blank	TCLP	Solid	1311	
160-26605-G-11-F MS	Matrix Spike	TCLP	Solid	1311	
160-26605-G-11-G MSD	Matrix Spike Duplicate	TCLP	Solid	1311	

Prep Batch: 350297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	3550C	
MB 160-350297/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 160-350297/2-A	Lab Control Sample	Total/NA	Solid	3550C	

Leach Batch: 350511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	1311	

Prep Batch: 350598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	3510C	350511
LB 160-350039/1-B	Method Blank	TCLP	Solid	3510C	350039
LCS 160-350598/2-A	Lab Control Sample	Total/NA	Solid	3510C	
160-26605-G-11-F MS	Matrix Spike	TCLP	Solid	3510C	350039
160-26605-G-11-G MSD	Matrix Spike Duplicate	TCLP	Solid	3510C	350039

Analysis Batch: 351845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	8270D	350598
LB 160-350039/1-B	Method Blank	TCLP	Solid	8270D	350598
LCS 160-350598/2-A	Lab Control Sample	Total/NA	Solid	8270D	350598
160-26605-G-11-F MS	Matrix Spike	TCLP	Solid	8270D	350598
160-26605-G-11-G MSD	Matrix Spike Duplicate	TCLP	Solid	8270D	350598

Analysis Batch: 352501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	8270D	350297
MB 160-350297/1-A	Method Blank	Total/NA	Solid	8270D	350297
LCS 160-350297/2-A	Lab Control Sample	Total/NA	Solid	8270D	350297

GC Semi VOA

Leach Batch: 350039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26605-G-11-C MS	Matrix Spike	TCLP	Solid	1311	
160-26605-G-11-D MSD	Matrix Spike Duplicate	TCLP	Solid	1311	
160-26605-G-11-I MS	Matrix Spike	TCLP	Solid	1311	
160-26605-G-11-J MSD	Matrix Spike Duplicate	TCLP	Solid	1311	

Leach Batch: 350511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	1311	
LB 160-350511/1-D	Method Blank	TCLP	Solid	1311	

TestAmerica St. Louis

QC Association Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

GC Semi VOA (Continued)

Prep Batch: 350576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	8151A	350511
LB 160-350576/1-A	Method Blank	Total/NA	Solid	8151A	
LCS 160-350576/2-A	Lab Control Sample	Total/NA	Solid	8151A	
160-26605-G-11-C MS	Matrix Spike	TCLP	Solid	8151A	350039
160-26605-G-11-D MSD	Matrix Spike Duplicate	TCLP	Solid	8151A	350039

Prep Batch: 350880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	3510C	350511
LB 160-350511/1-D	Method Blank	TCLP	Solid	3510C	350511
LCS 160-350880/2-A	Lab Control Sample	Total/NA	Solid	3510C	
160-26605-G-11-I MS	Matrix Spike	TCLP	Solid	3510C	350039
160-26605-G-11-J MSD	Matrix Spike Duplicate	TCLP	Solid	3510C	350039

Analysis Batch: 351052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	8081B	350880
LB 160-350511/1-D	Method Blank	TCLP	Solid	8081B	350880
LCS 160-350880/2-A	Lab Control Sample	Total/NA	Solid	8081B	350880
160-26605-G-11-I MS	Matrix Spike	TCLP	Solid	8081B	350880
160-26605-G-11-J MSD	Matrix Spike Duplicate	TCLP	Solid	8081B	350880

Analysis Batch: 353340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	8151A DOD	350576
LB 160-350576/1-A	Method Blank	Total/NA	Solid	8151A DOD	350576
LCS 160-350576/2-A	Lab Control Sample	Total/NA	Solid	8151A DOD	350576
160-26605-G-11-C MS	Matrix Spike	TCLP	Solid	8151A DOD	350576
160-26605-G-11-D MSD	Matrix Spike Duplicate	TCLP	Solid	8151A DOD	350576

Metals

Leach Batch: 350511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	1311	
LB 160-350511/1-B	Method Blank	TCLP	Solid	1311	
LB 160-350511/1-E	Method Blank	TCLP	Solid	1311	
160-26681-1 MS	070SG-0001-WC	TCLP	Solid	1311	
160-26681-1 MSD	070SG-0001-WC	TCLP	Solid	1311	

Prep Batch: 350605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	3010A	350511
LB 160-350511/1-B	Method Blank	TCLP	Solid	3010A	350511
LCS 160-350605/2-A	Lab Control Sample	Total/NA	Solid	3010A	
160-26681-1 MS	070SG-0001-WC	TCLP	Solid	3010A	350511
160-26681-1 MSD	070SG-0001-WC	TCLP	Solid	3010A	350511

TestAmerica St. Louis

QC Association Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Metals (Continued)

Analysis Batch: 351407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	6010C	350605
LB 160-350511/1-B	Method Blank	TCLP	Solid	6010C	350605
LCS 160-350605/2-A	Lab Control Sample	Total/NA	Solid	6010C	350605
160-26681-1 MS	070SG-0001-WC	TCLP	Solid	6010C	350605
160-26681-1 MSD	070SG-0001-WC	TCLP	Solid	6010C	350605

Prep Batch: 351831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	7470A	350511
LB 160-350511/1-E	Method Blank	TCLP	Solid	7470A	350511
LCS 160-351831/2-A	Lab Control Sample	Total/NA	Solid	7470A	
160-26681-1 MS	070SG-0001-WC	TCLP	Solid	7470A	350511
160-26681-1 MSD	070SG-0001-WC	TCLP	Solid	7470A	350511

Analysis Batch: 351927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	TCLP	Solid	7470A	351831
LB 160-350511/1-E	Method Blank	TCLP	Solid	7470A	351831
LCS 160-351831/2-A	Lab Control Sample	Total/NA	Solid	7470A	351831
160-26681-1 MS	070SG-0001-WC	TCLP	Solid	7470A	351831
160-26681-1 MSD	070SG-0001-WC	TCLP	Solid	7470A	351831

General Chemistry

Analysis Batch: 350300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	Moisture	
160-26664-A-13 DU	Duplicate	Total/NA	Solid	Moisture	

Prep Batch: 350311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	DILeach_Prep	
160-26595-E-1-H DU	Duplicate	Total/NA	Solid	DILeach_Prep	

Analysis Batch: 350325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	9045D	350311
LCS 160-350325/5	Lab Control Sample	Total/NA	Solid	9045D	
160-26595-E-1-H DU	Duplicate	Total/NA	Solid	9045D	350311

Analysis Batch: 350641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	1010A	
MB 160-350641/1	Method Blank	Total/NA	Solid	1010A	
LCS 160-350641/2	Lab Control Sample	Total/NA	Solid	1010A	
160-26605-P-11 DU	Duplicate	Total/NA	Solid	1010A	

Prep Batch: 350854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	9030B	

TestAmerica St. Louis

QC Association Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

General Chemistry (Continued)

Prep Batch: 350854 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-350854/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 160-350854/2-A	Lab Control Sample	Total/NA	Solid	9030B	
160-26681-1 MS	070SG-0001-WC	Total/NA	Solid	9030B	
160-26681-1 DU	070SG-0001-WC	Total/NA	Solid	9030B	

Analysis Batch: 350884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	9034	350854
MB 160-350854/1-A	Method Blank	Total/NA	Solid	9034	350854
LCS 160-350854/2-A	Lab Control Sample	Total/NA	Solid	9034	350854
160-26681-1 MS	070SG-0001-WC	Total/NA	Solid	9034	350854
160-26681-1 DU	070SG-0001-WC	Total/NA	Solid	9034	350854

Prep Batch: 352177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	9010C	
MB 160-352177/1-A	Method Blank	Total/NA	Solid	9010C	
HLCS 160-352177/3-A	Lab Control Sample	Total/NA	Solid	9010C	
LCS 160-352177/2-A	Lab Control Sample	Total/NA	Solid	9010C	
160-26681-1 MS	070SG-0001-WC	Total/NA	Solid	9010C	
160-26681-1 DU	070SG-0001-WC	Total/NA	Solid	9010C	

Analysis Batch: 352313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-26681-1	070SG-0001-WC	Total/NA	Solid	9012B	352177
MB 160-352177/1-A	Method Blank	Total/NA	Solid	9012B	352177
HLCS 160-352177/3-A	Lab Control Sample	Total/NA	Solid	9012B	352177
LCS 160-352177/2-A	Lab Control Sample	Total/NA	Solid	9012B	352177
160-26681-1 MS	070SG-0001-WC	Total/NA	Solid	9012B	352177
160-26681-1 DU	070SG-0001-WC	Total/NA	Solid	9012B	352177

Surrogate Summary

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (39-132)	FBP (44-115)	2FP (35-115)	NBZ (37-122)	PHL (33-122)	TPHL (54-127)
160-26681-1	070SG-0001-WC	0	0	0	0	0	0
LCS 160-350297/2-A	Lab Control Sample	84	80	80	75	81	87
MB 160-350297/1-A	Method Blank	75	76	76	71	77	86

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 2FP = 2-Fluorophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 PHL = Phenol-d5 (Surr)
 TPHL = Terphenyl-d14 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (43-140)	FBP (44-119)	2FP (19-119)	NBZ (44-120)	PHL (10-115)	TPHL (50-134)
LCS 160-350598/2-A	Lab Control Sample	88	73	61	70	56	92

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 2FP = 2-Fluorophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 PHL = Phenol-d5 (Surr)
 TPHL = Terphenyl-d14 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (43-140)	FBP (44-119)	2FP (19-119)	NBZ (44-120)	PHL (10-115)	TPHL (50-134)
160-26605-G-11-F MS	Matrix Spike	89	76	66	74	58	60
160-26605-G-11-G MSD	Matrix Spike Duplicate	86	77	66	76	60	59
160-26681-1	070SG-0001-WC	0 M	0 M	0 M	0 M	0 M	0 M
LB 160-350039/1-B	Method Blank	89	77	64	77	58	92

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 2FP = 2-Fluorophenol (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 PHL = Phenol-d5 (Surr)
 TPHL = Terphenyl-d14 (Surr)

Surrogate Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-26681-1

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB2 (29-150)	TCX2 (44-124)
LCS 160-350880/2-A	Lab Control Sample	109	109

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB2 (29-150)	TCX2 (44-124)
160-26605-G-11-I MS	Matrix Spike	30	100
160-26605-G-11-J MSD	Matrix Spike Duplicate	33	105
160-26681-1	070SG-0001-WC	44	74
LB 160-350511/1-D	Method Blank	95	101

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene

Method: 8151A DOD - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (32-138)
LB 160-350576/1-A	Method Blank	126
LCS 160-350576/2-A	Lab Control Sample	128

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

Method: 8151A DOD - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (32-138)
160-26605-G-11-C MS	Matrix Spike	112
160-26605-G-11-D MSD	Matrix Spike Duplicate	135
160-26681-1	070SG-0001-WC	78

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-27123-1

Client Project/Site: Ravenna Army Ammunition Plant

For:

Parsons Government Services Inc
401 Diamond Drive
Huntsville, Alabama 35806-2192

Attn: Sandra De Las Fuentes



Authorized for release by:
3/12/2018 1:59:59 PM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Job ID: 160-27123-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Parsons Government Services Inc

Project: Ravenna Army Ammunition Plant

Report Number: 160-27123-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup

Case Narrative

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Job ID: 160-27123-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 03/06/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.5 C.

TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)

Sample 070SG-0002-WC (160-27123-1) was analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW846 Methods 1311/ 8260C. The samples were leached on 03/06/2018 and analyzed on 03/07/2018.

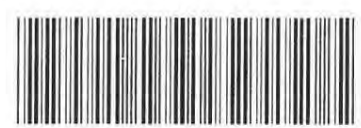
Analytical Batch: 354438

The following compounds did not meet the minimum relative response factor limits in the continuing calibration verification (CCV) associated with batch 160-354438: 2-Butanone (MEK). A low-level LOQV was analyzed at the reporting limit (5ug/L) and the affected analytes were detected. Target analytes recovering above the reporting limit will be qualified and reported. (CCV 160-354438/3) and (CCVC 160-354438/10)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Chain of Custody Record

TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Phone (314) 298-8566 Fax (314) 298-8757

Client Information Client Contact: Beth Driskill Phone: 214-529-0611 E-Mail: jayna.awalt@testamericainc.com		Lab PM: Await, Jayna K Carrier Tracking No(s):		COC No: 160-6220-3171.1 Page: Page 1 of 1 Job #: 110051.03000	
Parsons Corporation Address: 9101 Burnet Road Suite 210 City: Austin State, Zip: TX, 78758 Phone: 512-779-5727 (Tel) Email: Beth.Driskill@parsons.com Project Name: Ravenna Army Ammunition Plant Site: 070		Analysis Requested Due Date Requested: TAT Requested (days): 5 DAYS PO #: PO-0002963 WO #: Project #: 16006159 SSOV#:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - H2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
Sample Identification 0705G-0002-WC Sample Date: 3/5/2018 10:30 Sample Time: 10:30 Sample Type (C=comp, G=grab): G Preservation Code: G Matrix (W=water, S=solid, O=other): SOLID		Field Filtered Sample (Yes or No): N Perform MS/MSD (Yes or No): X TUP VES		Total Number of Containers: 1 Special Instructions/Note:  160-27123 Chain of Custody	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:					
Relinquished by: Chang Amy Relinquished by: Fed Ex Relinquished by:		Date: Date/Time: 3/5/18 16:45 Date/Time: 3/5/18 16:45 Date/Time: 3/6/18 0900		Method of Shipment: Received by: FEDEX Company: FEDEX Received by: Jill Clark Company: YASR Received by:	
Empty Kit Relinquished by:		Cooler Temperature(s) °C and Other Remarks:		Ver: 08/04/2016	

Login Sample Receipt Checklist

Client: Parsons Government Services Inc

Job Number: 160-27123-1

Login Number: 27123

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Method	Method Description	Protocol	Laboratory
8260C DOD	Volatile Organic Compounds (GC/MS)	SW846	TAL SL

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-27123-1	070SG-0002-WC	Solid	03/05/18 10:30	03/06/18 09:00

Client Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Client Sample ID: 070SG-0002-WC

Lab Sample ID: 160-27123-1

Date Collected: 03/05/18 10:30

Matrix: Solid

Date Received: 03/06/18 09:00

Method: 8260C DOD - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.010	U	0.050	0.0025	mg/L			03/07/18 18:13	1
2-Butanone (MEK)	0.050	U	0.050	0.0039	mg/L			03/07/18 18:13	1
Carbon tetrachloride	0.010	U	0.050	0.0036	mg/L			03/07/18 18:13	1
Chlorobenzene	0.010	U	0.050	0.0038	mg/L			03/07/18 18:13	1
Chloroform	0.010	U	0.050	0.00092	mg/L			03/07/18 18:13	1
1,2-Dichloroethane	0.010	U	0.050	0.0037	mg/L			03/07/18 18:13	1
1,1-Dichloroethene	0.010	U	0.050	0.0037	mg/L			03/07/18 18:13	1
Tetrachloroethene	0.010	U	0.050	0.0028	mg/L			03/07/18 18:13	1
Trichloroethene	0.010	U	0.050	0.0029	mg/L			03/07/18 18:13	1
Vinyl chloride	0.010	U	0.10	0.0043	mg/L			03/07/18 18:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		85 - 114		03/07/18 18:13	1
Dibromofluoromethane (Surr)	95		80 - 119		03/07/18 18:13	1
1,2-Dichloroethane-d4 (Surr)	96		81 - 118		03/07/18 18:13	1
Toluene-d8 (Surr)	104		89 - 112		03/07/18 18:13	1

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Method: 8260C DOD - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 160-354438/4

Matrix: Solid

Analysis Batch: 354438

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.500	0.502		mg/L		100	79 - 120
2-Butanone (MEK)	0.500	0.529		mg/L		106	56 - 143
Carbon tetrachloride	0.500	0.514		mg/L		103	72 - 136
Chlorobenzene	0.500	0.532		mg/L		106	82 - 118
Chloroform	0.500	0.510		mg/L		102	79 - 124
1,2-Dichloroethane	0.500	0.540		mg/L		108	73 - 128
1,1-Dichloroethene	0.500	0.466		mg/L		93	71 - 131
Tetrachloroethene	0.500	0.479		mg/L		96	74 - 129
Trichloroethene	0.500	0.519		mg/L		104	79 - 123
Vinyl chloride	0.500	0.394		mg/L		79	58 - 137

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		85 - 114
Dibromofluoromethane (Surr)	99		80 - 119
1,2-Dichloroethane-d4 (Surr)	101		81 - 118
Toluene-d8 (Surr)	101		89 - 112

Lab Sample ID: LB 160-354150/1-A

Matrix: Solid

Analysis Batch: 354438

Client Sample ID: Method Blank

Prep Type: TCLP

Analyte	LB Result	LB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.010	U	0.050	0.0025	mg/L			03/07/18 17:41	1
2-Butanone (MEK)	0.050	U	0.050	0.0039	mg/L			03/07/18 17:41	1
Carbon tetrachloride	0.010	U	0.050	0.0036	mg/L			03/07/18 17:41	1
Chlorobenzene	0.010	U	0.050	0.0038	mg/L			03/07/18 17:41	1
Chloroform	0.010	U	0.050	0.00092	mg/L			03/07/18 17:41	1
1,2-Dichloroethane	0.010	U	0.050	0.0037	mg/L			03/07/18 17:41	1
1,1-Dichloroethene	0.010	U	0.050	0.0037	mg/L			03/07/18 17:41	1
Tetrachloroethene	0.010	U	0.050	0.0028	mg/L			03/07/18 17:41	1
Trichloroethene	0.010	U	0.050	0.0029	mg/L			03/07/18 17:41	1
Vinyl chloride	0.010	U	0.10	0.0043	mg/L			03/07/18 17:41	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		85 - 114		03/07/18 17:41	1
Dibromofluoromethane (Surr)	95		80 - 119		03/07/18 17:41	1
1,2-Dichloroethane-d4 (Surr)	98		81 - 118		03/07/18 17:41	1
Toluene-d8 (Surr)	100		89 - 112		03/07/18 17:41	1

Lab Sample ID: 160-27123-1 MS

Matrix: Solid

Analysis Batch: 354438

Client Sample ID: 070SG-0002-WC

Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.010	U	0.500	0.499		mg/L		100	79 - 120
2-Butanone (MEK)	0.050	U	0.500	0.509		mg/L		102	56 - 143
Carbon tetrachloride	0.010	U	0.500	0.494		mg/L		99	72 - 136

TestAmerica St. Louis

QC Sample Results

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Method: 8260C DOD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-27123-1 MS

Matrix: Solid

Analysis Batch: 354438

Client Sample ID: 070SG-0002-WC

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
Chlorobenzene	0.010	U	0.500	0.521		mg/L		104	82 - 118
Chloroform	0.010	U	0.500	0.496		mg/L		99	79 - 124
1,2-Dichloroethane	0.010	U	0.500	0.500		mg/L		100	73 - 128
1,1-Dichloroethene	0.010	U	0.500	0.500		mg/L		100	71 - 131
Tetrachloroethene	0.010	U	0.500	0.479		mg/L		96	74 - 129
Trichloroethene	0.010	U	0.500	0.512		mg/L		102	79 - 123
Vinyl chloride	0.010	U	0.500	0.499		mg/L		100	58 - 137

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		85 - 114
Dibromofluoromethane (Surr)	95		80 - 119
1,2-Dichloroethane-d4 (Surr)	95		81 - 118
Toluene-d8 (Surr)	100		89 - 112

Lab Sample ID: 160-27123-1 MSD

Matrix: Solid

Analysis Batch: 354438

Client Sample ID: 070SG-0002-WC

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Benzene	0.010	U	0.500	0.522		mg/L		104	79 - 120	5	20
2-Butanone (MEK)	0.050	U	0.500	0.540		mg/L		108	56 - 143	6	20
Carbon tetrachloride	0.010	U	0.500	0.534		mg/L		107	72 - 136	8	20
Chlorobenzene	0.010	U	0.500	0.543		mg/L		109	82 - 118	4	20
Chloroform	0.010	U	0.500	0.527		mg/L		105	79 - 124	6	20
1,2-Dichloroethane	0.010	U	0.500	0.540		mg/L		108	73 - 128	8	20
1,1-Dichloroethene	0.010	U	0.500	0.527		mg/L		105	71 - 131	5	20
Tetrachloroethene	0.010	U	0.500	0.508		mg/L		102	74 - 129	6	20
Trichloroethene	0.010	U	0.500	0.535		mg/L		107	79 - 123	4	20
Vinyl chloride	0.010	U	0.500	0.525		mg/L		105	58 - 137	5	20

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	102		85 - 114
Dibromofluoromethane (Surr)	100		80 - 119
1,2-Dichloroethane-d4 (Surr)	101		81 - 118
Toluene-d8 (Surr)	103		89 - 112

TestAmerica St. Louis

QC Association Summary

Client: Parsons Government Services Inc
Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

GC/MS VOA

Leach Batch: 354150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-27123-1	070SG-0002-WC	TCLP	Solid	1311	
LB 160-354150/1-A	Method Blank	TCLP	Solid	1311	
160-27123-1 MS	070SG-0002-WC	TCLP	Solid	1311	
160-27123-1 MSD	070SG-0002-WC	TCLP	Solid	1311	

Analysis Batch: 354438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-27123-1	070SG-0002-WC	TCLP	Solid	8260C DOD	354150
LB 160-354150/1-A	Method Blank	TCLP	Solid	8260C DOD	354150
LCS 160-354438/4	Lab Control Sample	Total/NA	Solid	8260C DOD	
160-27123-1 MS	070SG-0002-WC	TCLP	Solid	8260C DOD	354150
160-27123-1 MSD	070SG-0002-WC	TCLP	Solid	8260C DOD	354150

Surrogate Summary

Client: Parsons Government Services Inc
 Project/Site: Ravenna Army Ammunition Plant

TestAmerica Job ID: 160-27123-1

Method: 8260C DOD - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (85-114)	DBFM (80-119)	DCA (81-118)	TOL (89-112)
LCS 160-354438/4	Lab Control Sample	105	99	101	101

Surrogate Legend

- BFB = 4-Bromofluorobenzene (Surr)
- DBFM = Dibromofluoromethane (Surr)
- DCA = 1,2-Dichloroethane-d4 (Surr)
- TOL = Toluene-d8 (Surr)

Method: 8260C DOD - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (85-114)	DBFM (80-119)	DCA (81-118)	TOL (89-112)
160-27123-1	070SG-0002-WC	109	95	96	104
160-27123-1 MS	070SG-0002-WC	97	95	95	100
160-27123-1 MSD	070SG-0002-WC	102	100	101	103
LB 160-354150/1-A	Method Blank	104	95	98	100

Surrogate Legend

- BFB = 4-Bromofluorobenzene (Surr)
- DBFM = Dibromofluoromethane (Surr)
- DCA = 1,2-Dichloroethane-d4 (Surr)
- TOL = Toluene-d8 (Surr)

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American Waste Management Services, Inc.
 Subsidiary of Avalon Holdings Corporation
 One American Way • Warren, Ohio 44484-5555 • (330) 856-8800

NON-HAZARDOUS WASTE MANIFEST

DOCUMENT NO. **369509**

SECTION 1

THIS SECTION TO BE COMPLETED BY GENERATOR:

COMPANY NAME FORMER RAVENNA ARMY AMMO PLANT	ADDRESS 8451 ST RT #5	WASTE I.D. NUMBER 62497
PORTAGE	CITY RAVENNA STATE OH ZIP 44266	P.O. NUMBER

NAME OR DESCRIPTION OF WASTE SHIPPED: **SLUDGE/SEDIMENT**

FACILITY APPROVAL: **5036860H**

COMMENTS/FACILITY APPROVAL #

20 YD.

IN CASE OF AN EMERGENCY OR SPILL CONTACT	NAME ED HEYSE	PHONE NO. 303 (388) 563-9452	24-HR EMERGENCY NO. 303 (388) 563 9452
------------------------------------------	-------------------------	----------------------------------------	--------------------------------------------------

I hereby certify that the above named waste(s) are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the DOT and the EPA.

GENERATOR SIGNATURE: **Kathleen S. Tait**

DATE: **13 April 2018**

SECTION 2 THIS SECTION TO BE COMPLETED BY THE HAULER/TRANSPORTER:

COMPANY NAME WOLFORD'S	ADDRESS 6710 AVE MC DONALD OH	PHONE NO. 330 530-3200
VEHICLE I.D. NO. 61	STATE OH	BOX NUMBER-IN 20415
		BOX NUMBER-OUT 513
I hereby certify that the above described wastes were accepted for transportation at the producer's site and delivered to and off-loaded at the waste facility, both as listed hereupon.		JOB NO.
PRINT DRIVER'S NAME RAY OKONEY		DATE 4-13-18
DRIVER'S SIGNATURE <i>Ray Okoney</i>		

SECTION 3 THIS SECTION TO BE COMPLETED BY RECEIVER AT DISPOSAL SITE:

FACILITY NAME WM/AMERICAN LANDFILL	ADDRESS 7916 CHAPEL STREET SE WAYNESBURG, OH 44688	PHONE NO. (330) 866-3265
----------------------------------------------	--------------------------------------------------------------	------------------------------------

COMMENTS: **10:15 TO 11:45 - LOAD - PAPER WORKKE**

I hereby certify that the above described wastes were delivered to this Facility, that the Facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE: *[Signature]*

DATE: **4/13/18**

SECTION 4 ASBESTOS (Operator to complete)

"Operator" is defined as the company which owns, leases, operates, controls or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

OPERATOR'S NAME: _____ PHONE NUMBER: **() -**

OPERATOR'S ADDRESS: _____

RECOMMENDED SPECIAL HANDLING INSTRUCTIONS AND ADDITIONAL INFORMATION FRIABLE NON-FRIABLE

Operator's Certification: I hereby warrant and declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and domestic law, regulations, ordinances, orders, rules and/or standards.

Operator's Name (print/type): _____ Signature of Operator's Authorized Agent: _____ Date: _____

RESPONSIBLE AGENCY NAME AND ADDRESS: _____

QUANTITY TO BE DETERMINED AT DISPOSAL FACILITY
COPY 2 - MAIL TO: AMERICAN WASTE MANAGEMENT SERVICES, INC., ONE AMERICAN WAY, WARREN, OHIO 44484-5555



American Waste Management Services, Inc.
 Subsidiary of Avalon Holdings Corporation
 One American Way • Warren, Ohio 44484-5555 • (330) 856-8800

NON-HAZARDOUS WASTE MANIFEST

DOCUMENT NO. **369570**

SECTION 1 THIS SECTION TO BE COMPLETED BY GENERATOR:

COMPANY NAME FORMER RAVENNA ARMY AMMO PLANT		ADDRESS 8451 ST RT 5		WASTE I.D. NUMBER 62513
PORTAGE		CITY RAVENNA	STATE OH	ZIP 44266
NAME OR DESCRIPTION OF WASTE SHIPPED INVESTIGATION DERIVED WASTE - SOIL - 23 Drums		FACILITY APPROVAL 503685OH		
COMMENTS/FACILITY APPROVAL #				

IN CASE OF AN EMERGENCY OR SPILL CONTACT	NAME ED HEYSE	PHONE NO 303 (303) 563-9452	24-HR. EMERGENCY NO. 303 (303) 563-9452
	GENERATOR SIGNATURE Kathryn S. Tait		DATE 13 April 2018

SECTION 2 THIS SECTION TO BE COMPLETED BY THE HAULER/TRANSPORTER:

COMPANY NAME The port ohio corp		ADDRESS 4813 Woodbury Ave Ashtabula, OH 44004		PHONE NO 440 992-7905
VEHICLE I.D. NO. 14	STATE oh	BOX NUMBER-IN	BOX NUMBER-OUT	JOB NO.
I hereby certify that the above described wastes were accepted for transportation at the producer's site and delivered to and off-loaded at the waste facility, both as listed hereupon.		PRINT DRIVER'S NAME THOMAS L. BARTH		DATE 4-13-18
		DRIVER'S SIGNATURE T L Barth		

SECTION 3 THIS SECTION TO BE COMPLETED BY RECEIVER AT DISPOSAL SITE:

FACILITY NAME WM/AMERICAN LANDFILL	ADDRESS 7916 CHAPEL STREET SE WAYNESBURG, OH 44688	PHONE NO. (330) 866-3265
COMMENTS		
I hereby certify that the above described wastes were delivered to this Facility, that the Facility is authorized and permitted to receive such wastes.	AUTHORIZED SIGNATURE 	DATE 4/24/18

SECTION 4 ASBESTOS (Operator to complete)

"Operator" is defined as the company which owns, leases, operates, controls or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

OPERATOR'S NAME	PHONE NUMBER
OPERATOR'S ADDRESS	

RECOMMENDED SPECIAL HANDLING INSTRUCTIONS AND ADDITIONAL INFORMATION FRIABLE NON-FRIABLE

Operator's Certification: I hereby warrant and declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and domestic law, regulations, ordinances, orders, rules and/or standards.

Operator's Name (print/type)	Signature of Operator's Authorized Agent	Date
RESPONSIBLE AGENCY NAME AND ADDRESS		

COPY 2 - MAIL TO: AMERICAN WASTE MANAGEMENT SERVICES, INC., ONE AMERICAN WAY, WARREN, OHIO 44484-5555