

FINAL

**SAMPLING AND ANALYSIS PLAN
ADDENDUM NO. 1**

FOR THE

**PHASE II REMEDIAL INVESTIGATION OF
LOAD LINES 2, 3, AND 4 AT THE RAVENNA ARMY
AMMUNITION PLANT, RAVENNA, OHIO**

PREPARED FOR



**US Army Corps
of Engineers®**

LOUISVILLE DISTRICT

**CONTRACT No. F44650-99-D-0007
DELIVERY ORDER CY01**

July 2001



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Prepared by

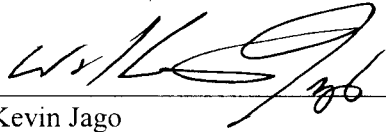
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contributed to the preparation of this document and should not
be considered an eligible contractor for its review.

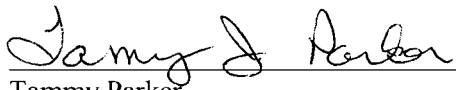
CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Science Applications International Corporation (SAIC) has completed the Sampling and Analysis Plan Addendum No. 1 for the Phase II Remedial Investigation of Load Lines 2, 3, and 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of data quality objectives; technical assumptions; methods, procedures, and materials to be used; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy.



Kevin Jago
Study/Design Team Leader

7-18-01
Date



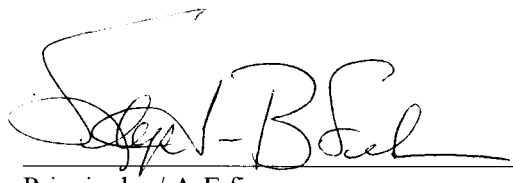
Tammy Parker
Independent Technical Review Team Leader

7-18-01
Date

Significant concerns and the explanation of the resolution are as follows:

Reference comment response table appended to the back of the document. Incorporation of responses have been verified by the Independent Technical Review Team Leader.

As noted above, all concerns resulting from independent technical review of the project have been considered.



Principal w/ A-E firm

7/19/01
Date

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Part I

**Field Sampling Plan Addendum
for the Phase II Remedial Investigation
of Load Lines 2, 3, and 4
at the Ravenna Army Ammunition Plant,
Ravenna, Ohio**

July 2001

Prepared for

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Prepared by

**SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
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ACRONYMS

AE	Architectural and Engineering
amsl	above mean sea level
AOCs	areas of concern
BATF	Bureau of Alcohol, Tobacco and Firearms
bgs	below ground surface
BHHRA	baseline human health risk assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chemical of concern
COPCs	chemicals of potential concern
COPEC	chemicals of potential ecological concern
CSM	conceptual site model
DLA	Defense Logistics Agency
DNT	dinitrotoluene
DoD	Department of Defense
DOT	Department of Transportation
DQO	data quality objective
EMM	earth-moving machinery
EMR	electromagnetic radiation
EOD	explosive ordnance disposal
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
EU	exposure unit
FID	flame ionization detector
FS	Feasibility Study
FSA	Field Staging Area
GPS	global positioning system
HMX	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
IDW	investigation-derived waste
NTU	nephelometric turbidity unit
OD	outside diameter
OE	ordnance and explosives
Ohio EPA	Ohio Environmental Protection Agency
OSC	Operations Support Command
OVA	organic vapor analyzer
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PF	Parshall flume
PID	photoionization detector
PPE	personal protective equipment
PRG	preliminary remediation goal
PVC	polyvinyl chloride
PZ	piezoelectric
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine

RGO	remedial goal option
RI	Remedial Investigation
RVAAP	Ravenna Army Ammunition Plant
SAIC	Science Applications International Corporation
SAP	Sampling and Analysis Plan
SHHRA	screening human health risk assessment
SRA	screening risk assessment
SRC	site-related contaminant
SSHPP	Site Safety and Health Plan
SVOC	semivolatile organic compound
T&E	threatened and endangered
TAL	target analyte list
TNB	trinitrobenzene
TNT	trinitrotoluene
UCL ₉₅	95 percent upper confidence limit
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Engineering and Support Center, Huntsville
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
UXO	unexploded ordnance
UXOSO	unexploded ordnance safety officer
VOCs	volatile organic compound
WBG	Winklepeck Burning Grounds
WP	white phosphorous