APPENDIX F

IDW Disposal Letter Reports

This page intentionally left blank.

Regional Office
33 Boston Post Rd West
Suite 340
Marlborough, MA 01752

Phone: 508.229.2270
Fax: 508.229.7737

Corporate Office
1240 Bayshore Highway
Burlingame, CA 94010

Phone: (650) 347-1555
Fax: (650) 347-8789
www.ecc.net

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 biphynels (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-indiginous 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

This page left intentionally blank.

ATTACHMENTS

This page left intentionally blank.

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	Pyidine	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	Pyidine	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

Ohio EPA
40 years and moving forward

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

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

E-MAILED
3-18-2013 GH

Scanned
By: GH
Date: 3-18-2013

Northeast District Office • 2110 East Aurora Road • Twinsburg, OH 44087-1924
www.epa.ohio.gov • (330) 963-1200 • (330) 487-0769 (fax)

RECEIVED
3-18-2013 GH

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

OHIO EPA
NORTHEAST DISTRICT OFFICE
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 [signature] ☒ 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	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
OH5 210 020 736	1	330-677-0785	040513-01

5. Generator's Name and Mailing Address
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266
Generator's Phone: 330-358-2920

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

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
Facility's Phone: 330-721-9773
U.S. EPA ID Number: OHD 077 772 895

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non DOT Regulated, Non Hazardous Material (Decon Fluid)	001	DM	~~$300~~ EST 40	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 508-509-1784
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/Offeror's Printed/Typed Name: Christy Esler
Signature: Christy Esler
Month: 4 Day: 5 Year: 2013

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: SCOTT PFAHL
Signature:
Month: 4 Day: 5 Year: 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: JOE MYERS
Signature:
Month: 4 Day: 5 Year: 13

169-BLC-O 5 11977 (Rev. 8/06)

TRANSPORTER #1

This page intentionally left blank.

Regional Office
33 Boston Post Rd West
Suite 340
Marlborough, MA 01752

Phone: 508.229.2270
Fax: 508.229.7737

Corporate Office
1240 Bayshore Highway
Burlingame, CA 94010

Phone: (650) 347-1555
Fax: (650) 347-8789
www.ecc.net

November 1, 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 (SI) and Remedial Investigation (RI) Work Plan (October 2012) SI and RI Work Plan Addendum (June 2013) were conducted from August 12, 2013 through August 14, 2013 and on September 10, 2013. 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),
2.) Final SI/RI Work Plan (ECC 2012), and
3.) Final SI/RI Work Plan Addendum (ECC 2013).

Two 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 August 15, 2013, and
- One (1) 55-gallon drums containing soils from SI/RI sampling activities, sampled on August 15, 2012 and 10 September 2013, and

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 (083SB-0021-0001-IDW TCLP) characterized one drum of decontamination fluid containing 2% hydrochloric/10% nitric acids, DI water, and Liquinox.

- Solid IDW

The solid samples (083SB-0022-0001-IDW TCLP and 075SB-0011-0001-SB TCLP) were collected from one, 55-gallon drum containing soil cuttings.

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	12 August 2013 through 14 August 2013	083SB-0021-0001-IDW TCLP
55-gallon closed top drum	Soil cuttings	12 August 2013 through 14 August 2013, and 10 September 2013	083SB-0022-0001-IDW TCLP and 075SB-0011-0001-SB TCLP

Per Section 8.0 of the FWSAP, non-indiginous 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 (083SB-0021-0001-IDW TCLP) was collected. **Attachment 1** presents the analytical laboratory data for TCLP analysis for IDW fluids generated during the August 12 through August 14, 2013 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 (083SB-0022-0001-IDW TCLP, and 075SB-0011-0001-SB TCLP) were collected. **Attachment 2** presents the analytical laboratory data for TCLP analysis for IDW solids generated during the August 12 through August 14, 2013 and September 10, 2013 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

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. 22109, or via email.

Regards,
ECC

Alexander Easterday
Sr. Project Manager

Copy: Brett Merkel, ARNG
Kevin Sedlak, ARNG
Katie Tait, OHARNG
Mark Patterson, RVAAP Facility Manager
Nancy Zikmanis, Ohio EPA

This page left intentionally blank.

ATTACHMENTS

This page left intentionally blank.

Attachment 1 – IDW Analytical Results – Fluids

Analysis Type	Chemical	Units	Limit of Detection (mg/L)	TCLP Criteria (mg/L)	Results
					083SB-0021-0001-IDW TCLP
Semi-Volatile Organics	1,4-Dichlorobenzene	mg/L	0.0040	7.50	0.0040 U
Semi-Volatile Organics	2,4,5-Trichlorophenol	mg/L	0.020	400.00	0.020 U
Semi-Volatile Organics	2,4,6-Trichlorophenol	mg/L	0.020	2.00	0.020 U
Semi-Volatile Organics	2,4-Dinitrotoluene	mg/L	0.0040	0.13	0.0040 U
Semi-Volatile Organics	Hexachlorobenzene	mg/L	0.0040	0.13	0.0040 U
Semi-Volatile Organics	Hexachlorobutadiene	mg/L	0.0040	0.50	0.0040 U
Semi-Volatile Organics	Hexachloroethane	mg/L	0.0040	3.00	0.0040 U
Semi-Volatile Organics	3 & 4 Methylphenol	mg/L	0.360	200	0.360 U
Semi-Volatile Organics	2-Methylphenol	mg/L	0.020	200	0.020 U
Semi-Volatile Organics	Nitrobenzene	mg/L	0.0040	2.00	0.0040 U
Semi-Volatile Organics	Pentachlorophenol	mg/L	0.020	100.00	0.020 U
Semi-Volatile Organics	Pyridine	mg/L	0.010	5.00	0.010 U
TCLP Metals	Arsenic	mg/L	0.0120	5.00	0.010 J
TCLP Metals	Barium	mg/L	0.00090	100.00	0.19
TCLP Metals	Cadmium	mg/L	0.0010	1.00	0.0010 U
TCLP Metals	Chromium	mg/L	0.0020	5.00	0.019
TCLP Metals	Lead	mg/L	0.0020	5.00	0.013
TCLP Metals	Mercury	mg/L	0.000060	0.20	0.000060 U
TCLP Metals	Selenium	mg/L	0.0065	1.00	0.0028 J B
TCLP Metals	Silver	mg/L	0.0020	5.00	0.0018 J B
TCLP Herbicides	2,4,5-TP (Silvex)	mg/L	0.0010	1.00	0.0010 U
TCLP Herbicides	2,4-D	mg/L	0.010	10.00	0.010 U
TCLP Pesticides	Chlordane	mg/L	0.0030	0.03	0.0030 U
TCLP Pesticides	Endrin	mg/L	0.00010	0.02	0.00010 U
TCLP Pesticides	Gamma-BHC (Lindane)	mg/L	0.00010	0.40	0.00010 U
TCLP Pesticides	Heptachlor	mg/L	0.00010	0.0080	0.00038 P
TCLP Pesticides	Heptachlor Epoxide	mg/L	0.00010	0.0080	0.00010 U
TCLP Pesticides	Methoxychlor	mg/L	0.00010	10.00	0.00010 U
TCLP Pesticides	Toxaphene	mg/L	0.0030	0.50	0.0030 U
Volatile Organics	1,1-Dichloroethene	mg/L	0.025	0.7	0.025 U
Volatile Organics	1,2-Dichloroethane	mg/L	0.050	0.50	0.050 U
Volatile Organics	2-Butanone	mg/L	0.250	200	0.250 U
Volatile Organics	Benzene	mg/L	0.0250	0.50	0.0250 U
Volatile Organics	Carbon Tetrachloride	mg/L	0.0250	0.50	0.0250 U
Volatile Organics	Chlorobenzene	mg/L	0.0250	100.00	0.0250 U
Volatile Organics	Chloroform	mg/L	0.0250	6.00	0.0250 U
Volatile Organics	Tetrachloroethylene	mg/L	0.050	0.70	0.050 U
Volatile Organics	Trichloroethene	mg/L	0.0250	0.50	0.0250 U
Volatile Organics	Vinyl Chloride	mg/L	0.0250	0.2	0.0250 U

Notes:
J – Estimated value
B-Analyte detected in associated method blank
P-Concentration differs more than 40% between primary and confirmation analysis
mg/L – milligrams per liter
U- Undetected above laboratory limit of detection

Attachment 2 – IDW Analytical Results – Solids

Analysis Type	Chemical	Units	Limit of Detection (mg/L)	TCLP Criteria (mg/L)	Results
					083SB-0022-0001-IDW
Semi-Volatile Organics	1,4-Dichlorobenzene	mg/L	0.0040	7.50	0.0040 U
Semi-Volatile Organics	2,4,5-Trichlorophenol	mg/L	0.020	400.00	0.020 U
Semi-Volatile Organics	2,4,6-Trichlorophenol	mg/L	0.020	2.00	0.020 U
Semi-Volatile Organics	2,4-Dinitrotoluene	mg/L	0.0040	0.13	0.0040 U
Semi-Volatile Organics	Hexachlorobenzene	mg/L	0.0040	0.13	0.0040 U
Semi-Volatile Organics	Hexachlorobutadiene	mg/L	0.0040	0.50	0.0040 U
Semi-Volatile Organics	Hexachloroethane	mg/L	0.0040	3.00	0.0040 U
Semi-Volatile Organics	Nitrobenzene	mg/L	0.0040	2.00	0.0040 U
Semi-Volatile Organics	Pentachlorophenol	mg/L	0.020	100.00	0.020 U
Semi-Volatile Organics	Pyridine	mg/L	0.010	5.00	0.010 U
TCLP Metals	Arsenic	mg/L	0.0120	5.00	0.0120 U
TCLP Metals	Barium	mg/L	0.0090	100.00	0.40
TCLP Metals	Cadmium	mg/L	0.0010	1.00	0.00062 J
TCLP Metals	Chromium	mg/L	0.0020	5.00	0.0012 J
TCLP Metals	Lead	mg/L	0.0020	5.00	0.0022 J
TCLP Metals	Mercury	mg/L	0.000060/0.00020*	0.20	0.000060 U/0.00020 U*
TCLP Metals	Selenium	mg/L	0.25	1.00	0.0042 J
TCLP Metals	Silver	mg/L	0.0050	5.00	0.0050 U
TCLP Herbicides	2,4,5-TP (Silvex)	mg/L	0.010	1.00	0.010 U
TCLP Herbicides	2,4-D	mg/L	0.0010	10.00	0.0010 U
TCLP Pesticides	Chlordane	mg/L	0.0030	0.03	0.0030 J
TCLP Pesticides	Endrin	mg/L	0.00010	0.02	0.00010 U
TCLP Pesticides	Gamma-BHC (Lindane)	mg/L	0.00010	0.40	0.00010 U
TCLP Pesticides	Heptachlor	mg/L	0.00010	0.01	0.00037 P
TCLP Pesticides	Heptachlor Epoxide	mg/L	0.00010	0.01	0.00010 U
TCLP Pesticides	Methoxychlor	mg/L	0.00010	10.00	0.00010 U
TCLP Pesticides	Toxaphene	mg/L	0.0030	0.50	0.0030 U
Volatile Organics	1,1-Dichloroethene	mg/L	0.0250	0.7	0.0250 U
Volatile Organics	1,2-Dichloroethane	mg/L	0.050	0.50	0.050 U
Volatile Organics	2-Butanone	mg/L	0.250	200	0.250 U
Volatile Organics	Benzene	mg/L	0.0250	0.50	0.0250 U
Volatile Organics	Carbon Tetrachloride	mg/L	0.0250	0.50	0.0250 U
Volatile Organics	Chlorobenzene	mg/L	0.0250	100.00	0.0250 U
Volatile Organics	Chloroform	mg/L	0.0250	6.00	0.0250 U
Volatile Organics	Tetrachloroethylene	mg/L	0.050	0.70	0.050 U
Volatile Organics	Trichloroethene	mg/L	0.0250	0.50	0.0250 U
Volatile Organics	Vinyl Chloride	mg/L	0.0250	0.20	0.0250 U

Notes:

*- Mercury sample result for sample 075SB-0011-0001-SO

NA – Not Analyzed

J – Estimated Value

P-Concentration differs more than 40% between primary and confirmation analysis

mg/L – milligrams per liter

U- Undetected above laboratory limit of detection

OhioEPA

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

November 27, 2013

CERTIFIED MAIL
7012 3050 0001 8837 5129

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 # 267-000859-162)

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 November 15, 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 work conducted on August 12, 2013, August 14, 2013, and September 10, 2013, may be disposed of as contaminated, non-hazardous waste and that it be sent off-site for disposal to a permitted water treatment facility or permitted solid waste facility.

If you have any questions, please call me at (330) 963-1170.

Sincerely,

Edward D'Amato, Site Coordinator
Division of Environmental Response and Revitalization

ED:NZ/nvr

cc: Cullen Grasty, USACE
Katie Tait, OHNGB
Kevin Sedlak, ARNG
Brett Merkel, ARNGD-Washington, DC

ec: Justin Burke, Ohio EPA, NEDO, DERR
Nancy Zikmanis, Ohio EPA, NEDO, DERR

E-MAILED 12-02-2013 RMH

Scanned By: RMH Date: 12-02-2013

Northeast District Office • 2110 East Aurora Road • Twinsburg, OH 44087-1924
www.epa.ohio.gov • (330) 963-1200 • (330) 487-0769 (fax)

RECEIVED 12-02-2013

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
Building 1037
8451 State Route 5
Ravenna Oh 44266-9297

COMPLETE THIS SECTION ON DELIVERY

A. Signature
x Rebecca Haney
☒ Agent
☐ Addressee

B. Received by *(Printed Name)* Rebecca Haney
C. Date of Delivery 12-2-2013

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
(Transfer from service label) 7012 3050 0001 8837 5129 NRAINES for ED 11/27/13

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

OHIO EPA
NORTHEAST DISTRICT OFFICE
2110 EAST AURORA ROAD
TWINSBURG OH 44087

COPY

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
OH5 210 020 736	1	330-677-0785	12232013-01-A

GENERATOR

5. Generator's Name and Mailing Address
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, Ohio 44266
Generator's Phone: 330-358-2920

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

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
Facility's Phone: 330-721-9773
U.S. EPA ID Number: OHD 077 772 895

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non DOT Regulated, Non Hazardous Material (Purge Water) 1167850	1	DM	25 CYS ~~200 lbs~~ DW	G	
2.	Non DOT Regulated, Non Hazardous Material (Soil Cuttings) 1167851	1	DM	200 lbs	P	
3.	W1091721					
4.						

13. Special Handling Instructions and Additional Information
9.1.) Approval # VEX 25094
9.2.) Approval # VEX 25095
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/Offeror's Printed/Typed Name: Mark Patterson
Signature: Mark Patterson
Month: 12 Day: 23 Year: 13

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: FRED B McCULTY
Signature: Fred B. McCulty
Month: 12 Day: 23 Year: 13

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

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: Daniel Kindall
Signature:
Month: 12 Day: 24 Year: 13

169-BLC-O 5 11977 (Rev. 8/06)

DESIGNATED FACILITY TO GENERATOR

This page intentionally left blank.