Ravenna Army Ammunition Plant Restoration Program

Public Notification and Public Meeting Summary Packet for:

Proposed Plan for Wet Sediment and Surface Water at RVAAP-12 Load Line 12
(final version dated November 9, 2017)

Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds
(final version dated January 12, 2018)

Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7
(revised final version dated March 16, 2018)

Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-42 Load Line 9
(final version dated March 31, 2017)

Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-45 Wet Storage Area
(final version dated February 21, 2018)

Public Comment Period: June 6, 2018 to July 6, 2018
Public Meeting: June 21, 2018

Contract No. W912QR-15-C-0046

Prepared for:

US Army Corps of Engineers®

U.S. Army Corps of Engineers
Louisville District

Prepared by:

leidos

Leidos
8866 Commons Boulevard, Suite 201
Twinsburg, Ohio 44087

THIS PAGE INTENTIONALLY LEFT BLANK.

PUBLIC NOTIFICATION

THIS PAGE INTENTIONALLY LEFT BLANK.

Public Notice

THIS PAGE INTENTIONALLY LEFT BLANK.

Public Notice

For Immediate Release
Contact: Camp Ravenna
Environmental Office

Camp Ravenna Joint Military Training Center
Camp Ravenna Environmental Office — 1438 State Route 534 SW — Newton Falls, OH 44444
614-336-6136.

Public meeting to be held Thursday, June 21, 2018 for Army National Guard Release of Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area and Upper and Lower Cobbs Ponds

Ravenna – The Army National Guard, in consultation with the Ohio Environmental Protection Agency, submits for public review and comments five (5) Proposed Plans associated with former ammunition plant activities at the former Ravenna Army Ammunition Plant (RVAAP) in Portage and Trumbull counties, Ohio.

Load Lines 7, 9, 12, Wet Storage Area, and Upper and Lower Cobbs Ponds are areas of concern (AOCs) within the former RVAAP in Ravenna, Ohio. These AOCs are being addressed under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The Proposed Plans present the current status and information regarding the AOCs. The Proposed Plans detail the recommendation for No Further Action at Load Line 7, Load Line 12, and Upper and Lower Cobbs Ponds. The Proposed Plans for Load Line 9 and Wet Storage Area present the preferred alternative, Ex-situ Thermal Treatment, to address contaminated soil.

On Thursday, June 21, 2018, a public meeting will be held at the Shearer Community Center (Paris Township Hall) at 9355 Newton Falls Road, Ravenna, Ohio 44266 beginning at 6:00 p.m., with an informal open house. Technical staff will be available to answer questions. At 6:30 p.m., the Army National Guard will briefly describe the assessment of the AOCs, present the No Further Action and Ex-situ Thermal Treatment recommendations, and then request verbal comments from the public. Written comments regarding this recommendation may be submitted to the Army National Guard during the 30-day comment period from June 6, 2018 to July 6, 2018. All written comments should be addressed to Camp Ravenna Environmental Office; 1438 State Route 534 SW, Newton Falls, OH 44444.

In accordance with CERCLA, the No Further Action and Ex-situ Thermal Treatment recommendations presented in the Proposed Plans are also presented in earlier remedial investigation (RI) and Feasibility Study (FS) reports. All reports are now available for public review at the RVAAP Information Repository at the Reed Memorial Library (167 East Main Street, Ravenna) and the Newton Falls Public Library (204 South Canal Street, Newton Falls). The reports are also available online at www.rvaap.org.

The final remedy for each AOC will be selected based, in part, on public comments. In coordination with Ohio Environmental Protection Agency, the Army National Guard will select a final remedy after reviewing and considering all public comments submitted during the 30-day public comment period from June 6, 2018 to July 6, 2018. The Army National Guard encourages the public to review and comment on the recommendations presented in these documents.

For more information or to participate in the review, please visit the RVAAP Restoration Program website (www.rvaap.org) or call Katie Tait at 614-336-6136.

###

THIS PAGE INTENTIONALLY LEFT BLANK.

Affidavits

THIS PAGE INTENTIONALLY LEFT BLANK.

Affidavit of Publication, Tribune Chronicle, June 6, 2018

NOTICE OF DOCUMENT AVAILABILITY
Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP)

The Proposed Plans for Load Line 7, Load Line 12, and Upper and Lower Cobbs Ponds each present a recommendation of No Further Action and provide the rationale for this recommendation. The Proposed Plans for Load Line 9 and Wet Storage Area present the preferred alternative, Ex-situ Thermal Treatment. These Proposed Plans are now available for public review for 30 days from June 6, 2018 to July 6, 2018.

The Proposed Plans are available at:

Newton Falls Public Library	Reed Memorial Library
204 South Canal Street	167 East Main Street
Newton Falls, Ohio 44444	Ravenna, Ohio 44266

The Proposed Plans are also available at www.rvaap.org

Please join us for an OPEN HOUSE and PUBLIC MEETING.

The Army will host an informational open house and a public meeting to explain the recommendations in the Proposed Plans. Oral and written comments will be accepted at the meeting. Written comments may be mailed to the Camp Ravenna Environmental Office, 1438 State Route 534 SW, Newton Falls, OH 44444. Comments will be accepted during the public comment period from June 6, 2018 to July 6, 2018.

The public meeting is scheduled for:	at:
Thursday, June 21, 2018	Shearer Community Center
6:00 pm Open House	(Paris Township Hall)
6:30 pm Public Meeting	9355 Newton Falls Road
	Ravenna, OH 44266

For more information or if you need special accommodations to attend, please contact Katie Tait at 614-336-6136.
#157-1T-June 6, 2018 #3674

PROOF OF PUBLICATION

STATE OF OHIO
TRUMBULL COUNTY SS PAMELA EAZOR

BEING DULY SWORN, UPON OATH STATES THAT SHE IS AN AUTHORIZED REPRESENTATIVE OF THE TRIBUNE CHRONICLE, (A DIVISION OF EASTERN OHIO NEWSPAPERS INC) A DAILY NEWSPAPER PRINTED IN THE CITY OF WARREN, COUNTY OF TRUMBULL, STATE OF OHIO AND OF GENERAL CIRCULATION IN THE CITY OF WARREN, TRUMBULL COUNTY, OHIO AND IS INDEPENDENT IN POLITICS

THAT THE ATTACHED ADVERTISEMENT WAS PUBLISHED IN THE TRIBUNE CHRONICLE EVERY WEDNESDAY FOR (1) ONE CONSECUTIVE WEEKS AND THAT THE FIRST INSERTION WAS ON WEDNESDAY THE 6th DAY OF JUNE 2018.

Pamela Eazor

SWORN TO BEFORE ME AND SUBSCRIBED IN MY PRESENCE ON THIS 11th DAY OF JUNE 2018

Constance A. Pacek
NOTARY PUBLIC

NOTARY PUBLIC * STATE OF OHIO *

CONSTANCE A. PACEK
Notary Public, State of Ohio
My Commission Expires
March 7, 2021

ADVERTISING COST $ 283.32

Affidavit of Publication, Record Courier, June 6, 2018

~~3119393~~
3119393

Proof of Publication
Record Publishing Company
1050 W. Main Street,
Kent, OH 44240
Phone (330) 541-9400
Fax (330) 673-6363

I, [signature] being first duly sworn depose and say that I am Advertising Clerk of
Record Publishing Company

30 Record-Courier a newspaper printed and published in the city of Kent, and of General circulation in the County of Portage, State of Ohio, and personal knowledge of the facts herein stated and that the notice hereto annexed was Published in said newspapers for 1 insertions on the same day of the week from and after the 6th day of June, 2018 and that the fees charged are legal.

[signature]

Name of Account: Leidos
Ad Number: 12454540
No. of Lines: 28

Day(s) Published: 06/06.
Printers Fee: $115.20

Sworn to and subscribed before this 6th day of June, 2018.

[signature]
Elizabeth McDaniel
Notary Public
Commission Expires June 19, 2021

Notice of Document Availability

Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP)

The Proposed Plans for Load Line 7, Load Line 12, and Upper and Lower Cobbs Ponds each present a recommendation of No Further Action and provide the rationale for this recommendation. The Proposed Plans for Load Line 9 and Wet Storage Area present the preferred alternative, Ex-situ Thermal Treatment. These Proposed Plans are now available for public review for 30 days from June 6, 2018 to July 6, 2018.

The Proposed Plans are available at:

Newton Falls Public Library
204 South Canal Street
Newton Falls, Ohio 44444

Reed Memorial Library
167 East Main Street
Ravenna, Ohio 44266

The Proposed Plans are also available at: www.rvaap.org

Please join us for an OPEN HOUSE and PUBLIC MEETING.

The Army will host an informational open house and a public meeting to explain the recommendations in the Proposed Plans. Oral and written comments will be accepted at the meeting. Written comments may be mailed to the Camp Ravenna Environmental Office; 1438 State Route 534 SW, Newton Falls, OH 44444. Comments will be accepted during the public comment period from June 6, 2018 to July 6, 2018.

The public meeting is scheduled for:

Thursday June 21, 2018
6:00 pm Open House
6:30 pm Public Meeting

at:

Shearer Community Center (Paris Township Hall)
9355 Newton Falls Road
Ravenna, OH 44266

For more information or if you need special accommodations to attend, please contact Katie Tait at 614-336-6136.

THIS PAGE INTENTIONALLY LEFT BLANK.

PUBLIC MEETING

THIS PAGE INTENTIONALLY LEFT BLANK.

Sign-in Sheet

THIS PAGE INTENTIONALLY LEFT BLANK.

US Army Corps of Engineers
Louisville District

SIGN-IN SHEET

Camp Ravenna Public Meeting – Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area, and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP)

PLEASE PRINT

LOCATION: Shearer Community Center; Ravenna, OH **DATE: June 21, 2018** **TIME: 6:30 p.m.**

Name	Address/City/State/Zip	Phone	Email
Amanda Sprinzl	[redacted]		
MARK JOHNSON			
VICKI DEPOISCH			
Megan Oravec			
Bruce Lange Charlestown Twp Trustee			
Sarah Lock			
Sue Netzley Wike			
Kevin SEDLAK			
Rob Bentz			

US Army Corps of Engineers
Louisville District

SIGN-IN SHEET

Camp Ravenna Public Meeting – Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area, and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP)

PLEASE PRINT

LOCATION: Shearer Community Center; Ravenna, OH **DATE: June 21, 2018** **TIME: 6:30 p.m.**

Name	Address/City/State/Zip	Phone	Email
GEORGE TOMPKINS	[redacted]		
Nathaniel Peters			
Jerri L. Wheat			
Barbara Tillis			
HEATHER ADAMS			
Eli Rogatz			
Nick Roope			
Katie Tait			
Brian Miller			

US Army Corps of Engineers
Louisville District

SIGN-IN SHEET

Camp Ravenna Public Meeting – Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area, and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP)

PLEASE PRINT

LOCATION: Shearer Community Center; Ravenna, OH **DATE: June 21, 2018** **TIME: 6:30 p.m.**

Name	Address/City/State/Zip	Phone	Email
Sharon Robers	[redacted]		
Vasu Peterson			
Charlotte McCurdy			
Steve Babbey			
Jack Thomas			

THIS PAGE INTENTIONALLY LEFT BLANK.

Presentation

THIS PAGE INTENTIONALLY LEFT BLANK.

Proposed Plans for Multiple Areas of Concern

Former Ravenna Army Ammunition Plant
Ravenna, Ohio

Presented by:
Jed Thomas, P.E. - Leidos
June 21, 2018

Welcome!

Areas of Concern

- Four Areas of Concern addressing soil, sediment, and surface water:
  - Load Line 7
  - Upper and Lower Cobbs Ponds
  - Wet Storage Area
  - Load Line 9
- One Area of Concern addressing wet sediment and surface water:
  - Load Line 12

[Note: Groundwater at these sites are being evaluated and addressed under the Facility-wide Groundwater Monitoring Program (FWGWMP)]

Welcome!

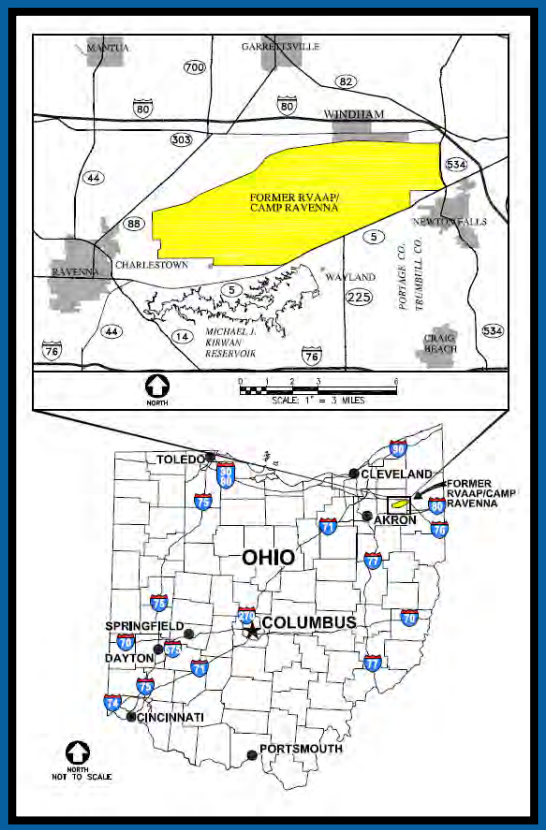
Presentation Agenda

- Site Features
- Historical Operations
- Remedial Investigations
- Remedial Investigation Conclusions
- Feasibility Study and Preferred Remedial Alternative (if applicable)
- Public Participation
- Questions

Site Evaluation

- For each site, we will discuss the investigations performed and summarize the following evaluations provided in the Remedial Investigation Report:
  - **Human health risk assessment (HHRA)** - performed to determine if chemicals in soil, sediment, or surface water pose unacceptable risk to a Resident Receptor of future site worker (e.g., National Guard Trainee).
  - **Ecological risk assessment (ERA)** - performed to evaluate 1) if there are important or significant ecological resources at a site (e.g., wetlands, protected species) and 2) if chemical contamination requires an action to protect those resources.
  - **Fate and transport assessment** - performed to determine if chemicals at the site may adversely impact groundwater.
- These assessments determine if a site can be used for Unrestricted (Residential) Land use.
- If a site cannot currently be used for Unrestricted Use, the Army developed Remedial Alternatives to address any chemical concentration in soil, sediment, or surface water that poses unacceptable risk to human health or the environment or may negatively impact groundwater.

Areas of Concern Location



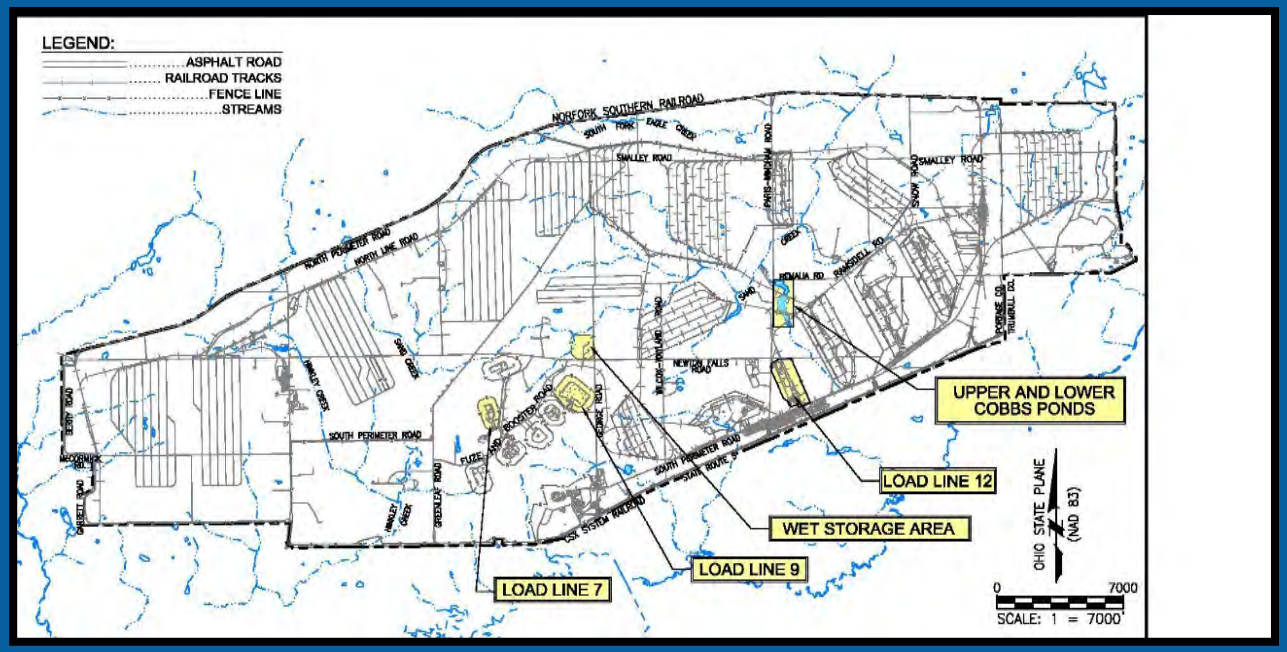
Load Line 7 is RVAAP-40

Load Line 9 is RVAAP-42

Load Line 12 is RVAAP-12

Wet Storage Area is RVAAP-45

Upper and Lower Cobbs Ponds is RVAAP-29



Load Line 7
Site Features

- Approximately 37 acres.
- No structures remain at the site.
- Three access roads and a perimeter fence currently exist.
- Habitat is mostly field, shrubland, and forest.
- No wetlands or perennial surface water bodies exist within the AOC boundary.
- Surface water occurs intermittently as storm water runoff in ditches.

Load Line 7
Historical Operations

- 1941–1945, Load Line 7 operated at full capacity to produce booster charges for artillery projectiles.
- 1969-1970, Load Line 7 was modified to produce M-406 High Explosive and M-407A1 practice 40mm projectiles.
- Load Line 7 historical buildings included:
  - 18 production buildings
  - 2 heater houses
  - 2 change houses
  - 4 inert material storage buildings
  - 1 solvent storage building
  - 1 time clock building
  - 1 service building
- 1970, Load Line 7 was deactivated permanently and production equipment was removed.
- Load Line 7 was not used for any process other than booster and explosive production.
- As of 2007, all buildings, foundations, and slabs have been removed.

Load Line 7
Previous Investigations

- 1978 Installation Assessment
- 1989 RCRA Facility Assessment
- 1996 Preliminary Assessment
- 1998 Relative Risk Site Evaluation
- Remedial Investigations:
  - ➢2004 Characterization of 14 AOCs
    - Assessed surface soil in and around areas of historical operations.
  - ➢2007 Investigation of Under Slab Surface Soils
    - Assessed surface soil in building footprints after building and foundation removal.
  - ➢2010 PBA08 Remedial Investigation
    - Collected surface soil samples where “data gaps” existed and fully characterized subsurface soil to complete Remedial Investigation.

Load Line 7
Remedial Investigations

- Remedial Investigation Summary
  - Multiple evaluations and investigations were performed to assess surface soil and subsurface soil at Load Line 7. (Sediment and surface water are not permanent media at the site). The total number of samples collected include:
    - 144 surface soil samples
    - 21 subsurface soil samples
  - The following chemical groups were looked for during the investigations:
    - Metals, explosives, propellants, SVOCs, VOCs, PCBs, nitrates, herbicides, and pesticides.

Load Line 7
Remedial Investigation Conclusions

- Nature and extent of contamination is defined. No further sampling is required to characterize soil, sediment, or surface water at Load Line 7.
- No further action is required to protect ecological resources.
  - No risk was identified for important or significant ecological places or resources.
- No further action is required to protect groundwater.
  - Groundwater will continue to be evaluated under the Facility-wide Groundwater Monitoring Program.

Load Line 7
Remedial Investigation Conclusions (continued)

- No further action is required to protect human health.
  - The Load Line 7 RI/FS Report, dated July 2016, identified four PAHs [benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene] as surface soil COCs to be carried forward for potential remediation at sample locations LL7ss-097M and LL7ss-098M.
  - In June 2017, the USEPA updated the cancer slope factors for carcinogenic PAHs using more recent toxicity studies. These updated factors resulted in higher regional screening levels (RSLs) for previously identified COCs.
  - Using these updated RSLs, the Army has concluded that there are no COCs from previous Army activities requiring remediation under CERCLA to be protective of the Resident Receptor.
  - This Significant Change is documented and explained in the Load Line 7 Proposed Plan, dated March 2018.

The Army, in coordination with Ohio EPA, is recommending no further action to attain Unrestricted (Residential) Land Use for soil, sediment, and surface water at Load Line 7.

Load Line 12
Site Features

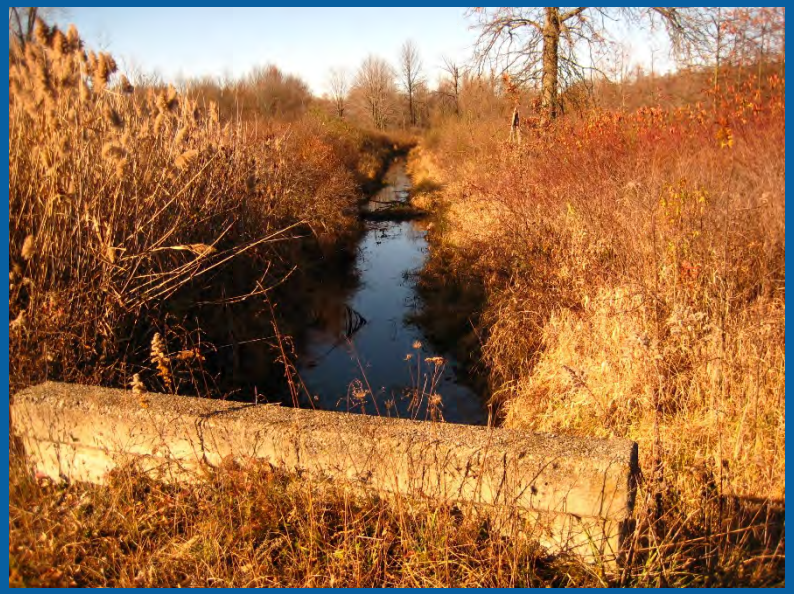
- Approximately 76 acres.
- No structures remain at the site.
- Asphalt and gravel access roads, railroad beds, and a perimeter fence currently exist.
- Pertaining to surface water, there is a settling pond, main drainage channel, and approximately 12.5 acres of wetlands.
- Surface water occurs intermittently in ditches and perennially in the Former Settling Pond and constructed Active Area Channel.

Load Line 12
Historical Operations

- 1941–1943, Load Line 12 operated at full capacity as an ammonium nitrate production facility for melt pour operations at other lines.
- 1946-1950, Load Line 12 was leased to Silas Mason Company to produce 518,246 tons of fertilizer-grade ammonium nitrate.
- 1965–1967, Hercules Alcor, Inc. leased Building FF-19 to produce aluminum chloride.
- 1969–1971, Load Line 12 was activated in support of the Vietnam War. Load Line 12 produced 80,000,000 M54 primers during this time.
- 1981, the Load Line 12 Pink Water Treatment Plant was built immediately east of Building 904 to treat the demilitarization effluent prior to discharge.
- From 1949–1993, munitions were periodically demilitarized at Load Line 12.
- No historical information exists to indicate Load Line 12 was used for any other processes.

Load Line 12
Historical Operations (continued)

- Load Line 12 historical buildings included:
  - 9 production buildings
  - 1 time clock building
  - 1 change house
  - 3 office buildings
  - 1 gate house
  - 1 inert storage building
  - 7 support equipment buildings

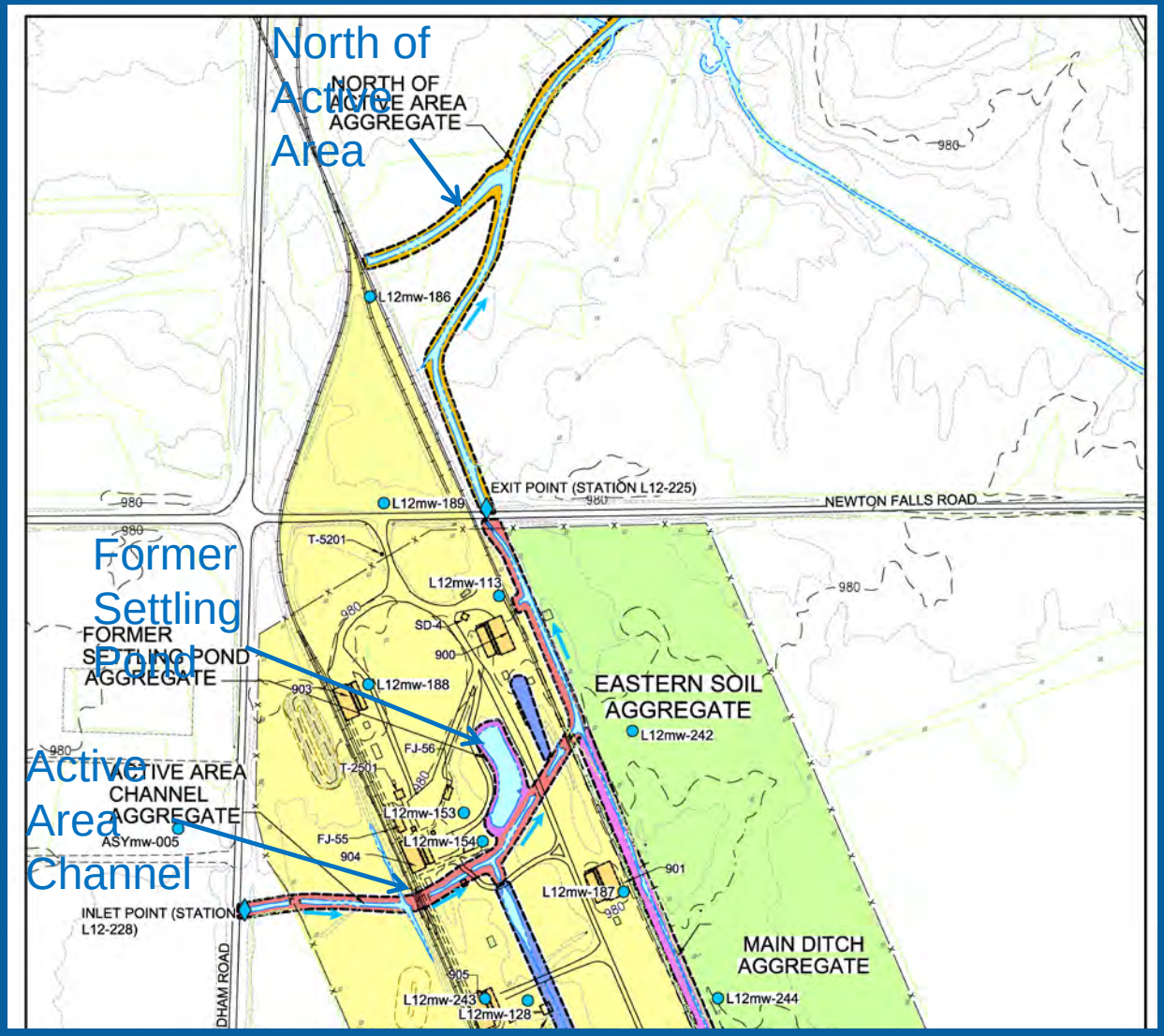


- There are no above grade structures remaining at Load Line 12.
- As of 2000, buildings at Load Line 12 were decontaminated, demolished, and removed.

Load Line 12
Media of Concern

- The media of concern for this Load Line 12 Proposed Plan is wet sediment and surface water, mostly in the northern portion of Load Line 12. Wet sediment and surface water areas include the following:
  - Former Settling Pond
  - Active Area Channel
  - North of Active Area
- Soil and dry sediment are being addressed separately.
  - Previous remedial actions at Load Line 12 include the removal of 1,181 tons of arsenic-contaminated dry sediment within the Main Ditch in 2010.

Load Line 12
Media of Concern (continued)



Load Line 12
Previous Investigations

- 1978 Installation Assessment
- 1989 RCRA Facility Assessment
- 1996 Preliminary Assessment
- 1996 Relative Risk Site Evaluation
- <u>Remedial Investigations (specific to wet sediment and surface water):</u>
  - ➢1996 Phase I Remedial Investigation
    - Collected surface soil and sediment samples within the AOC.
  - ➢2000 Phase II Remedial Investigation
    - Collected additional surface soil and sediment samples, and collected subsurface soil, surface water, groundwater, and sewer samples
  - ➢2010/2011 PBA08 Remedial Investigation
    - Collected additional sediment and surface water samples to assess current conditions of main ponds and ditches at the site to complete the Remedial Investigation.

Load Line 12
Remedial Investigations

- Remedial Investigation Summary
  - Multiple evaluations and investigations were performed to assess wet sediment and surface water at Load Line 12. The total number of samples collected include:
    - 36 sediment samples
    - 25 surface water samples
  - The following chemical groups were looked for during the investigations:
    - Metals, explosives, propellants, SVOCs, VOCs, PCBs, cyanide, nitrate, and pesticides.

Load Line 12
Remedial Investigations Conclusions

- Nature and extent of contamination is defined. No further sampling is required to characterize wet sediment and surface water at Load Line 12.
- No further action is required to protect human health.
  - The HHRA did not identify wet sediment or surface water COCs from previous Army activities requiring remediation under CERCLA to be protective of the Resident Receptor.
- No further action is required to protect ecological resources.
  - No risk was identified for important or significant ecological places or resources.
- No further action for sediment is required to protect groundwater.
  - The fate and transport assessment determined chemicals in sediment are not impacting groundwater.
  - Groundwater will continue to be evaluated under the Facility-wide Groundwater Monitoring Program.

The Army, in coordination with Ohio EPA, is recommending no further action to attain Unrestricted (Residential) Land Use for wet sediment and surface water at Load Line 12.

Upper and Lower Cobbs Ponds
Site Features

- Approximately 39 acres.
- Receives surface water from channels coming from Load Line 3 and Load Line 12.
- Two large ponds (Upper Cobbs Pond and Lower Cobbs Pond).
- Pond Banks, approximately 18 acres in size.
- 9 acres of wetlands, including the upstream Backwater Area.
- Flow control structures and a spillway that ultimately directs surface water to Sand Creek.
- Former Railroad beds going through the site.

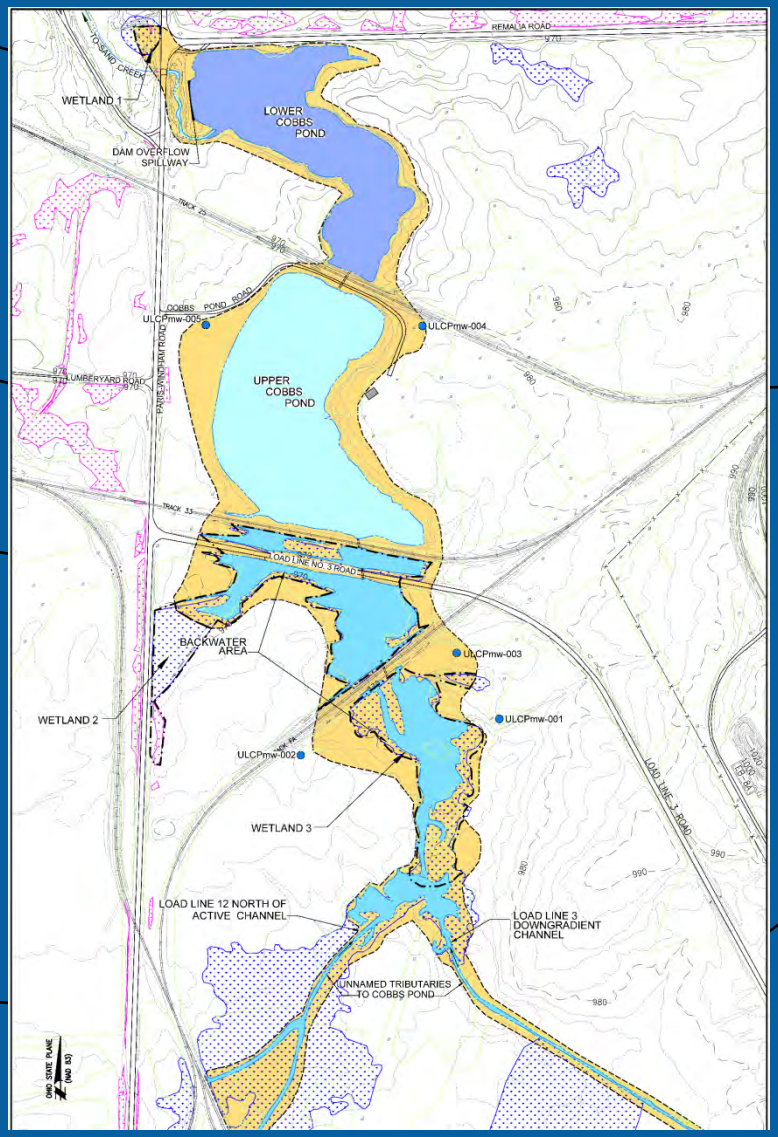
Upper and Lower Cobbs Ponds
Site Features

Surface Water Ultimately Flowing to Sand Creek

<u>Upper Cobbs Pond</u>
Approx size=9.4 acres
Max depth ~ 8 ft deep

Backwater Area

North of Active Area Channel (from Load Line 12)



<u>Lower Cobbs Pond</u>
Approx size=6.4 acres
Max depth ~ 7 ft deep

Pavilion and picnic/recreational area

Load Line 3 Channel

→ = general water flow direction

Upper and Lower Cobbs Ponds
Sources of Potential Contamination

- No primary sources of contamination are present within the AOC.
- Potential site contamination received from washout and runoff from Load Lines 3 and 12, transported via upstream channels.
- On November 15, 1966, a fish kill occurred at Lower Cobbs Pond as a result of improper handling of aluminum chloride during manufacturing operations.
  - The pond that received the contaminated waste from drainage ditches was settled, drained, and the contaminants were removed to Ramsdell Quarry.
- There are no expected future impacts from Load Line 3 and Load Line 12.
  - Both sites have had remedial actions to address contamination and have ongoing assessments being performed.
  - In June 2010, 1,181 tons of contaminated dry sediment were removed from the Main Ditch within Load Line 12.
  - In the summer of 2007, 893 tons of hazardous (PCB-contaminated) soil and 2,538 tons of non hazardous soil were removed from Load Line 3.

Upper and Lower Cobbs Ponds
Previous Investigations

- 1978 Installation Assessment
- 1982 Soil and Sediment Analysis
- 1996 Preliminary Assessment
- 1996/1998 Relative Risk Site Evaluations
- 2003 Facility-wide Biological Water Quality Study

Remedial Investigations:

- 1996 Phase I Remedial Investigation
  - Collected sediment samples from the ponds and drainage ditches.
- 2001 Phase II Remedial Investigation
  - Collected additional sediment samples, surface water samples, and soil samples from the Pond Banks.
- 2010 PBA08 Remedial Investigation
  - Collected additional sediment and surface water samples and fully characterized surface and subsurface soil in the Pond Banks to complete Remedial Investigation.

Upper and Lower Cobbs Ponds
Remedial Investigations

- Remedial Investigation Summary
  - Multiple evaluations and investigations were performed to assess soil, sediment, and surface water at Upper and Lower Cobbs Ponds. The total number of samples collected include:
    - 26 surface soil samples
    - 8 subsurface soil samples
    - 55 sediment samples
    - 20 surface water samples
  - The following chemical groups were looked for during the investigations:
    - Metals, explosives, propellants, SVOCs, VOCs, PCBs, cyanide, nitrate, sulfate, sulfide, and pesticides.

Upper and Lower Cobbs Ponds
Remedial Investigations Conclusions

- Nature and extent of contamination is defined. No further sampling is required to characterize soil, sediment, or surface water at Upper and Lower Cobbs Ponds.
- No further action is required to protect human health.
  - The HHRA did not identify COCs from previous Army activities requiring remediation under CERCLA to be protective of the Resident Receptor.
- No further action is required to protect ecological resources.
  - No risk was identified for important or significant ecological places or resources.
- No further action for soil or sediment is required to protect groundwater.
  - The fate and transport assessment determined chemicals in soil and sediment are not impacting groundwater.
  - Groundwater will continue to be evaluated under the Facility-wide Groundwater Monitoring Program.

The Army, in coordination with Ohio EPA, is recommending no further action to attain Unrestricted (Residential) Land Use for soil, sediment, and surface water at Upper and Lower Cobbs Ponds.

Load Line 9
Site Features

- Approximately 69 acres.
- No structures remain at the site.
- Gravel access road and perimeter fence currently exist.
- Habitat is mostly field, shrubland, and forest.
- No perennial surface water features or wetlands exist in the AOC boundary.
- Surface water occurs intermittently as storm water runoff in ditches.

Load Line 9
Historical Operations

- 1941–1945, Load Line 9 operated at full capacity to produce fuze component parts for artillery projectiles.
- Approximately 19,257,297 miscellaneous fuzes were produced while Load Line 9 was in operation.
- Load Line 9 historical buildings included:
  - 33 production buildings
  - 1 solvent storage building
  - 2 change houses
  - 1 inert storage building
  - 11 heater houses
  - 8 support equipment buildings
- Load Line 9 was deactivated at the end of World War II, and the process equipment was removed. Load Line 9 has not been used since 1945.
- As of 2003, all 54 process and support buildings were demolished.

Load Line 9
Previous Investigations

- 1978 Installation Assessment
- 1989 RCRA Facility Assessment
- 1996 Preliminary Assessment
- 1998 Relative Risk Site Evaluation
- Remedial Investigations:
  - ➢2003 Phase I Remedial Investigation
    - Determined that there was no detectable safety concern from potential lead azide contamination.
    - Collected surface soil, subsurface soil, surface water, and sediment samples. Collected samples from sumps and beneath existing floor slabs.
  - ➢2010 PBA08 Remedial Investigation
    - Collected additional surface soil, subsurface soil, and sediment/surface water samples from drainage ditches to complete the Remedial Investigation.

Load Line 9
Remedial Investigations

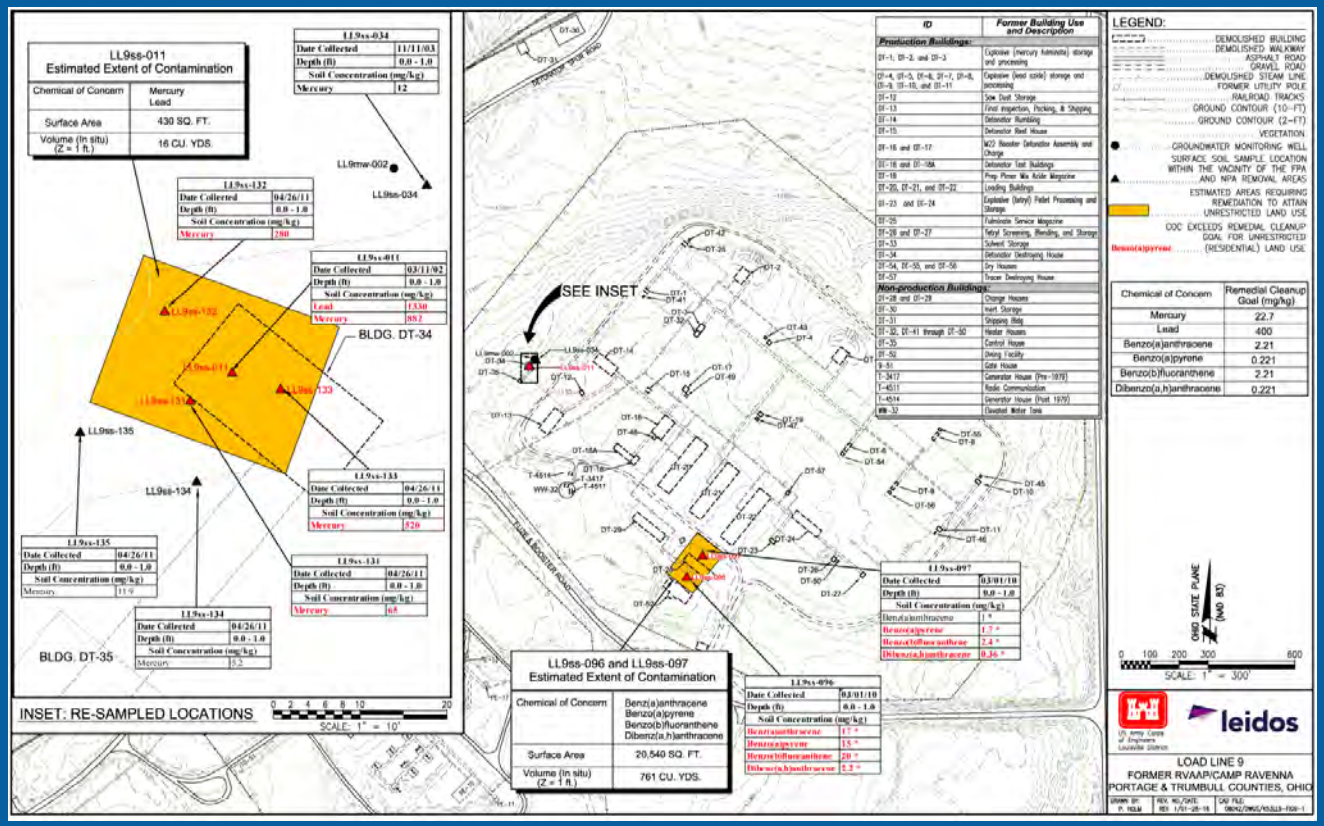
- Remedial Investigation Summary
  - Multiple evaluations and investigations were performed to assess soil, sediment, and surface water at Load Line 9. The total number of samples collected include:
    - 94 surface soil samples
    - 65 subsurface soil samples
    - 21 sediment samples
    - 10 surface water samples
  - The following chemical groups were looked for during the investigations:
    - Metals, explosives, propellants, SVOCs, VOCs, PCBs, cyanide, and pesticides.

Load Line 9
Remedial Investigations Conclusions

- Nature and extent of contamination is defined. No further sampling is required to characterize soil, sediment, or surface water at Load Line 9.
- No further action is required to protect ecological resources.
  - No risk was identified for important or significant ecological places or resources.
- No further action for soil or sediment is required to protect groundwater.
  - The fate and transport assessment determined chemicals in soil and sediment are not impacting groundwater.
  - Groundwater will continue to be evaluated under the Facility-wide Groundwater Monitoring Program.
- The HHRA identified the following locations and chemicals as requiring remediation:
  - Sample location LL9ss-011 for lead and mercury in surface soil (0-1 ft bgs).
  - Sample locations LL9ss-096 and LL9ss-097 for 4 PAHs: benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene in surface soil (0-1 ft bgs).

The Army, in coordination with Ohio EPA, is recommending remediation of contamination at sample locations LL9ss-011 for lead and mercury and LL9ss-096/097 for benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene.

Load Line 9
Contamination Extent



- Two specific areas require remediation:
  - LL9ss-096 and LL9ss-097 - benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene contamination, estimated volume of 761 cubic yards (in situ)
  - LL9-011 - lead and mercury contamination, estimated volume of 16 cubic yards (in situ)

Load Line 9
Feasibility Study

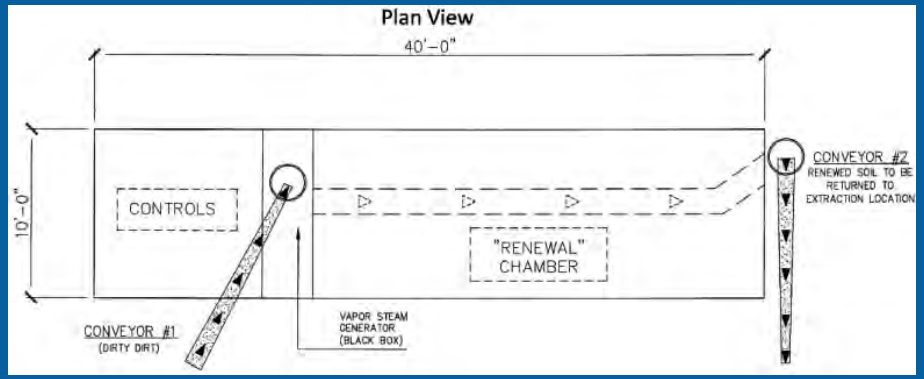
<u>Remedial Action Objective</u> - Prevent Resident Receptor exposure to surface soil (0-1 ft bgs) with 1) concentrations above lead and mercury CUGs at sample location LL9ss-011 and 2) concentrations above benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene CUGs at sample locations LL9ss-096 and LL9ss-097.

- The following remedial alternatives were developed for consideration:
  - Alternative 1: No Action (required by CERCLA)
  - Alternative 2: Excavation and Off-site Disposal
    - Additional sampling.
    - Removal of contaminated soil and disposal at licensed facility.
    - Site restoration (backfilling, grading, and seeding).
  - Alternative 3: Excavation and Off-site Disposal at LL9ss-011 and Ex-situ Thermal Treatment at LL9ss-096/097
    - Additional sampling.
    - Removal of lead/mercury-contaminated soil at LL9ss-011 and disposal at licensed facility.
    - Thermal treatment of PAH-contaminated soil at LL9ss-096/097.
    - Site restoration (backfilling, grading, and seeding).

Load Line 9
Example of Thermal Treatment System

- Soil loaded into treatment system.
- Contaminated soil exposed to high temperatures in “Renewal Chamber”
- Soil contaminants (SVOCs) are desorbed to form vapors.
- Vapors are then passed through filters for capture and/or treatment.

- Treated soil is stockpiled for confirmation testing.
- If soil is confirmed to be below the Cleanup Goal, soil is placed back in the excavation.



Load Line 9
Feasibility Study – Alternative Evaluation

These three alternatives were compared against one another using the criteria below.

- Threshold Criteria
  - Protectiveness of Human Health and the Environment (Alternative 1: No Action will not protect human health and is eliminated from consideration.)
  - Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) – Assesses if the alternative comply with federal or local laws and standards.
- Balancing Criteria
  - Long-term effectiveness – evaluates magnitude of remaining risk/contamination.
  - Reduction of toxicity, mobility, or volume through treatment.
  - Short-term effectiveness – evaluates protection of workers and the community during implementation of the remedial alternative.
  - Implementability – evaluates availability and reliability of the alternative's technology.
  - Estimated Cost.

Load Line 9
Preferred Alternative

Alternative 3: Excavation and Off-site Disposal at LL9ss-011 and Ex-situ Thermal Treatment at LL9ss-096/097

- Implementation of this alternative will result in Unrestricted (Residential) Land Use of Load Line 9.
- Implementation will comply with ARARs (federal and local laws/standards)
- Effective in the long-term, as all contamination is removed or permanently treated at the site. No land use controls will be required after implementation.
- Measures will take place to ensure the workers and community are not impacted during implementation.
- Treatment technology will reduce the PAH-contamination in soil.
- Technology (thermal treatment and excavation with off-site disposal) has been used at Camp Ravenna in the past.
- Estimated Cost for Alternative 3 ($296,732) is less than estimated cost to implement Alternative 2 ($410,360).

Wet Storage Area
Site Features

- Approximately 36 acres.
- Most of the buildings were demolished and removed in 2003 and 2004.
- Two storage igloos (WS-3 and WS-3A), access roads that enter the AOC from the south, and a perimeter fence remain.
- The habitat is mostly shrubland and forest.
- A wetland delineation conducted in 2006 identified 26 wetlands of varying sizes and quality.
- Perennial surface water within the unnamed tributary on the west side of the AOC, which flows from south to north and enters into Sand Creek.

Wet Storage Area
Historical Operations

- 1941–1945, Wet Storage Area was used to store highly explosive, shock-sensitive primary explosives, including lead azide, mercury fulminate, tetryl, and potentially nitroguanidine.
- During storage activities, explosive material was containerized and covered with water within drums that were stored separately in six storage igloos at the AOC.
- Wet Storage Area historical buildings included:
  - 2 lead azide storage igloos
  - 2 mercury fulminate storage igloos
  - 2 tetryl storage igloos
  - 1 generator house
- As of 2004, four storage igloos (WS-1, WS-1A, WS-2, and WS-2A) (including slabs and foundations) were removed
- Remnant infrastructure within the eastern part of Wet Storage Area consists of igloos WS-3 and WS-3A.

Wet Storage Area
Previous Investigations

- 1978 Installation Assessment
- 1998 Relative Risk Site Evaluation

Remedial Investigations:

➢2004 Characterization of 14 AOCs

- Collected surface soil samples in and around areas of historical operations.

➢2010 PBA08 Remedial Investigation

- Collected additional surface soil, subsurface soil, sediment, and surface water samples to complete Remedial Investigation.

Wet Storage Area
Remedial Investigations

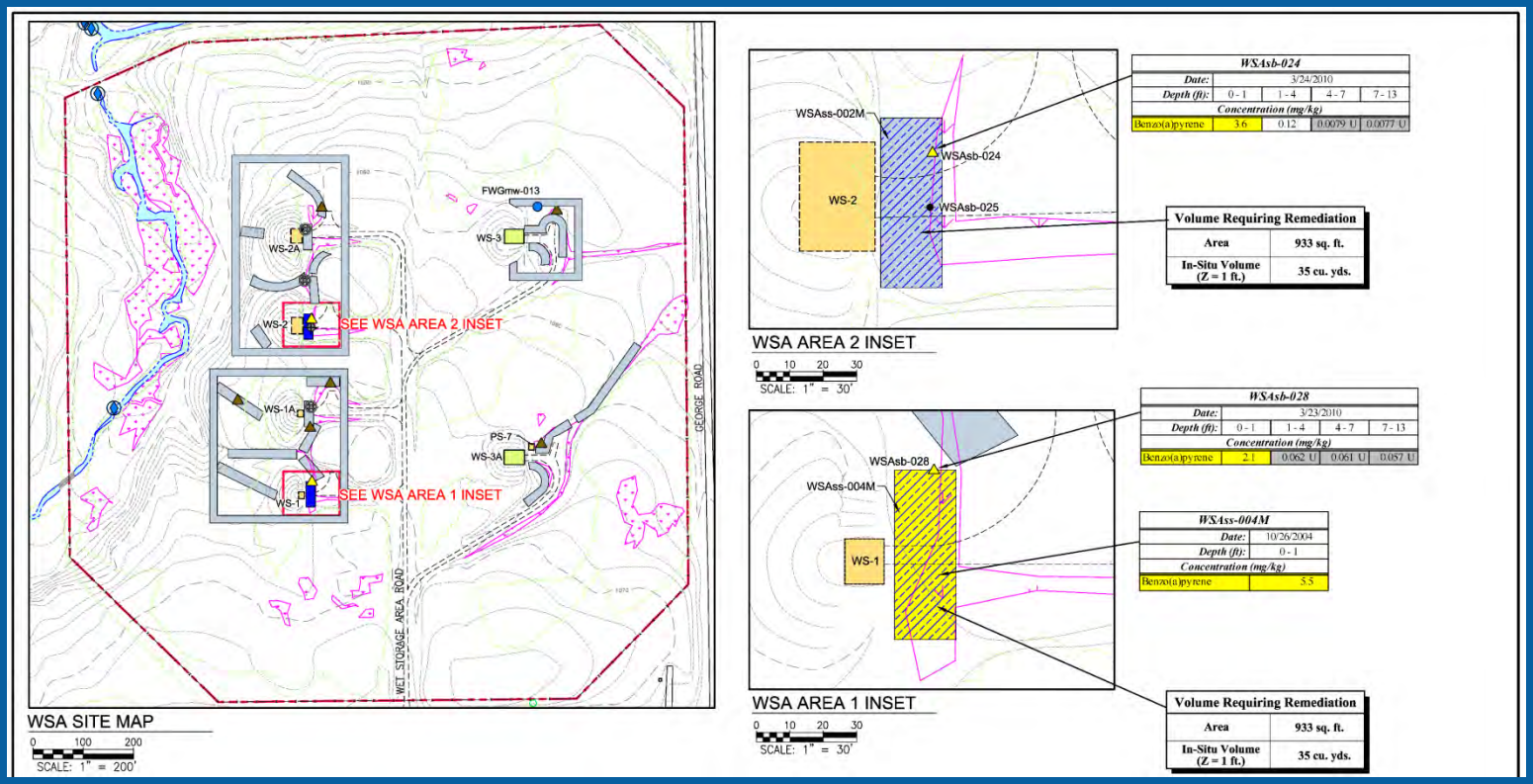
- Remedial Investigation Summary
  - Multiple evaluations and investigations were performed to assess soil, sediment, and surface water Wet Storage Area. The total number of samples collected include:
    - 53 surface soil samples
    - 22 subsurface soil samples
    - 8 sediment samples
    - 9 surface water samples
  - The following chemical groups were looked for during the investigations:
    - Metals, explosives, propellants, SVOCs, VOCs, PCBs, and pesticides.

Wet Storage Area
Remedial Investigations Conclusions

- Nature and extent of contamination is defined. No further sampling is required to characterize soil, sediment, or surface water at Wet Storage Area.
- No further action is required to protect ecological resources.
  - No risk was identified for important or significant ecological places or resources.
- No further action for soil or sediment is required to protect groundwater.
  - The fate and transport assessment determined chemicals in soil and sediment are not impacting groundwater.
  - Groundwater will continue to be evaluated under the Facility-wide Groundwater Monitoring Program.
- The HHRA identified three sample locations requiring remediation:
  - WSAss-004M, WSAsb-028, and WSAsb-024 had elevated benzo(a)pyrene concentrations in surface soil (0-1 ft bgs).

The Army, in coordination with Ohio EPA, is recommending remediation of benzo(a)pyrene contamination in surface soil (0-1 ft bgs) at sample locations WSAss-004M, WSAsb-028, and WSAsb-024.

Wet Storage Area
Contamination Extent



- Two specific areas require remediation
  - WSA Area 1 contains locations WSA-004M and WSAsb-028.
  - WSA Area 2 contains location WSA-024.
- Total estimated contaminated volume is 70 cubic yards (in situ).

Wet Storage Area
Feasibility Study

Remedial Action Objective - Prevent Resident Receptor exposure to surface soil (0–1 ft bgs) with a benzo(a)pyrene concentration above the remedial CUG of 1.1 mg/kg at sample locations WSAss-004M, WSAsb-028, and WSAsb-024.

- The following remedial alternatives were developed for consideration:
  - Alternative 1: No Action (required by CERCLA)
  - Alternative 2: Excavation and Off-site Disposal
    - Additional sampling.
    - Excavation of contaminated soil and disposal at licensed facility.
    - Site restoration (backfill and seeding).
  - Alternative 3: Ex-situ Thermal Treatment
    - Additional sampling.
    - Thermal treatment of contaminated soil.
    - Site restoration (backfill and seeding).

Wet Storage Area
Preferred Alternative

Alternative 3: Ex-situ Thermal Treatment

- Implementation of this alternative will result in Unrestricted (Residential) Land Use of Wet Storage Area.
- Implementation will comply with ARARs (federal and local laws/standards)
- Effective in the long-term, as contamination is removed or permanently treated at the site. No land use controls will be required after implementation.
- Measures will take place to ensure the workers and community are not impacted during implementation.
- Treatment technology will reduce the PAH-contamination in soil.
- Thermal treatment of soil has been used at Camp Ravenna in the past.
- Estimated Cost for Alternative 3 ($134,587) is slightly more than the cost to implement Alternative 2 ($116,346)

Public Participation

Your Comments and Inputs are Appreciated!

- Public participation is an important component of remedy selection.
- The U.S. Army is soliciting input from the community as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).
- Public comment period is June 6, 2018 until July 6, 2018.

Public Participation

Your Comments and Inputs are Appreciated!

- Provide written or verbal comments at this public meeting.
- Submit written comments by July 6, 2018 to the following addresses:

Camp Ravenna Joint Military Training Center
Environmental Office
Attn: Kathryn Tait
1438 State Route 534 SW
Newton Falls, Ohio 44444

E-mail address: kathryn.s.tait.nfg@mail.mil

Questions?

Court Reporter Transcript

THIS PAGE INTENTIONALLY LEFT BLANK.

CAMP RAVENNA PUBLIC MEETING

PROPOSED PLANS
FOR LOAD LINE 7, LOAD LINE 9, LOAD LINE 12, WET STORAGE AREA, AND UPPER AND LOWER COBBS PONDS AT THE FORMER RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

Presented by:
Jed Thomas, P.E. - Leidos

PUBLIC MEETING
Thursday
June 21, 2018

Paris Township Hall
9355 Newton Falls Road
Ravenna, Ohio 44266

- - -

APPEARANCES:

Barbara Tittle, Facilitator

Heather Adams, P.G.
Leidos
8866 Commons Boulevard
Twinsburg, Ohio 44087

Jed Thomas, PE, PMP
Environmental Engineer
Leidos
8866 Commons Boulevard
Twinsburg, Ohio 44087
330/405-5802
Email: jed.h.thomas@leidos.com

ALSO PRESENT:

Vicki Deppisch, Ohio EPA
Mark Johnson, Ohio EPA
Megan Oravec, Ohio EPA
Vasu Peterson, Leidos
Eli Rogatz, Leidos
Sharon Robers, Leidos
Nicholas Roope, Ohio EPA

Kevin Sedlak, ARNG

Amanda M. Sprinzl, Leidos

- - -

MS. TITTLE: Good evening. And welcome to this public meeting. My name is Barbara Tittle. I am a private citizen from Kent, Ohio. I am here tonight to serve as the meeting facilitator.

This public meeting serves as one of several opportunities for public comment on the Army's proposed plans. I am responsible to make sure that everyone who wishes to comment about the proposed plans has an opportunity to do so.

Before we get started, however, please take a moment to silence all electronic devices. Thank you.

There are three emergency exits present in the front, right there (indicating), the side and the back of the auditorium. So please reference the exit signs in case of an emergency.

The ladies' restroom is out in front, where you first came in, and the men's restroom and handicap accessible restrooms are in the hallway between the two tables.

Please help yourselves to the refreshments available.

So this public meeting will present the Army's proposed plans for five areas of concern

within the Former Ravenna Army Ammunition Plant. These five areas of concern are Load Line 7, Load Line 9, Load Line 12, the Wet Storage Area and the Upper and Lower Cobbs Ponds.

Comments received from the public on these proposed plans will be considered when determining the final remedy that will be documented in site specific Records of Decision. The Records of Decision will include a representative -- a responsiveness summary addressing public comments.

Tonight we have Kevin Sedlak from the Army -- representing the Army, and Mark Johnson representing the Ohio EPA. The Ohio EPA would like to make an opening remark.

MR. JOHNSON: The Ohio EPA concurs with the proposed plans that are presented this evening.

MS. TITTLE: Thank you.

MR. JOHNSON: Thank you.

MS. TITTLE: Thanks, Mark.

We also have a court reporter present to record tonight's meeting and document it.

Our presenter tonight is Jed Thomas. He is a professional engineer from Leidos, which is a

contractor for the Army. Jed will present information regarding the five areas of concern and the Army's proposed plans for these five sites.

Following the presentation, we will open the floor for your questions and comments.

Jed?

MR. THOMAS: Thank you, Barbara.

My name is Jed Thomas. I am a professional engineer with Leidos. And I am here today to discuss with you the Army's proposed plans for multiple areas of concern within the Former Ravenna Army Ammunition Plant.

To supplement this evening's presentation -- it looks like most of you have -- we have a packet put together that contains the slide presentation that you will see -- I am sorry. The packets are located over to the side there. (Indicating.)

It will contain the slide presentation that we are going to go through. Behind the slide presentation, there is a list of acronyms and abbreviations that I may use throughout the presentation. And then there is also a packet of

figures for each site and site specific features to assist or help out when we do get to a figure up on the board that you may or may not be able to see.

So we are here today to talk about five areas of concern. We will be discussing soil, sediment and surface water at four of the areas of concern: Load Line 7, Upper and Lower Cobbs Ponds, Load Line 9 and Wet Storage Area.

We will be discussing wet sediment and surface water at one area of concern, Load Line 12. Groundwater is not addressed in these proposed plans. Rather, the groundwater is being evaluated under the Facility-Wide Groundwater Monitoring Program.

For this evening's presentation, we will be discussing on a site-by-site basis the site features, the historical operations, the remedial investigations and the remedial investigation conclusions.

For sites that we have identified contamination requiring remediation, we will also be discussing the remedial alternatives developed in a Feasibility Study, and present the Army's preferred remedial alternative.

After this presentation, as Barb mentioned, we will open the floor up for any questions that you have. I am sorry. I left out. Obviously, this public participation -- we will be discussing the public participation associated with the final steps for the areas of concern.

So for each site, we will discuss the investigations performed and summarize the following evaluations provided in the Remedial Investigation Report.

The Human Health Risk Assessment was performed to determine if chemicals in soil, sediment or surface water pose unacceptable risk to a Resident Receptor, or a future site worker, such as a National Guard Trainee.

An Ecological Risk Assessment was performed to decide if there were any important or significant ecological resources at a site, such as wetlands or protected species. And if there is any chemical contamination that requires an action to protect those resources.

There was also a Fate and Transport Assessment conducted to determine if chemicals at the site may adversely impact groundwater in the future.

These assessments determine if the site can be used for Unrestricted Residential Land Use. And if the site cannot currently be used for Unrestricted Use, the Army developed Remedial Alternatives to address contaminations in soil, sediment or surface water that poses unacceptable risk to human health or the environment, or if there was any potential for negative impact to the groundwater.

On this slide, you see the location of the Former Ravenna Army Ammunition Plant, or Camp Ravenna, within the State of Ohio. So here -- it is in the northeast portion of Ohio. And then this graphic, we can see the locations of the areas of concern that we are talking about.

So today we are going to be talking about Load Line 7 and Load Line 9, which are located on Fuze and Booster Hill. And then we will be talking about Wet Storage Area, which is near the geographic center of Camp Ravenna. And Load Line 12, which is in the southeastern portion of Camp Ravenna. And then also Upper and Lower Cobbs Ponds, which is north of Load Line 12.

We are going to start tonight's presentation discussing Load Line 7. Load Line 7 is

approximately 37 acres in size and contains no existing structures. There are three access roads within Load Line 7 and a perimeter fence that surrounds the area of concern.

The habitat of Load Line 7 is mostly field, shrubland and forest. Load Line 7 does not have perennial surface water bodies, and no wetlands have been identified at the site. Surface water is only present at the site during rain events. So, consequently, surface water and sediment are not considered a media of concern at Load Line 7.

Regarding the historical operations of Load Line 7: From 1941 to 1945, Load Line 7 operated at full capacity to produce booster charges for artillery projectiles during World War II.

From 1968 to 1970, Load Line 7 produced high explosives and practice 40mm projectiles. And in 1970, Load Line 7 was deactivated permanently and production equipment was removed.

During operations, Load Line 7 consisted of 18 production buildings and 11 support buildings. As of 2007, all buildings, foundations and slabs have been removed from the site.

Load Line 7 was included in four Facility-

Wide Assessments. These assessments include a 1978 Installation Assessment that reviewed historical information and environmental data to assess the potential contamination within the facility.

There was also a 1989 RCRA Facility Assessment that was performed to visually inspect known areas of concern and also identify any new potential areas of concern.

Also the 1996 Preliminary Assessment researched the facility's history, the process operations and historical data to further identify any additional areas of concern.

And then Load Line 7 was included in the 1998 Relative Risk Site Evaluation that scored and helped prioritize areas of concern.

Three investigations were conducted at Load Line 7 to collect samples and find the nature and extent of contamination. These investigations included the 2004 Characterization of 14 AOCs that assessed surface soil in and around historical operations.

In 2007, Investigation of Under Slab Surface Soils assessed the soil in building footprints after the buildings and foundations were

removed.

And then in 2010, the PBA08 Remedial Investigation identified and filled data gaps, including collecting additional surface and subsurface soil to ensure that adequate -- that an adequate sample set was complete -- was collected to complete the Remedial Investigation.

The multiple evaluations and investigations at Load Line 7 included the collection of 144 surface soil samples and 21 subsurface soil samples to characterize the site.

As indicated previously, sediment and surface water are not permanent media and are not considered media of concern at Load Line 7.

Chemicals assessed at Load Line 7 include metals, explosives, propellants, SVOCs, VOCs, PCBs, nitrates, herbicides and pesticides.

Using the information and data collected at Load Line 7, the Remedial Investigation Report concluded that the nature and extent of contamination is adequately defined. No further sampling is required at Load Line 7.

The Remedial Investigation Report concluded that no action is required to protect -- to protect any important or significant ecological

resources.

The Remedial Investigation Report also concluded that no further action is necessary to protect groundwater. As indicated previously, groundwater at the site will continue to be evaluated as part of the Facility-Wide Monitoring -- Facility-Wide Groundwater Monitoring Program.

Regarding the Human Health Risk Assessment, the Army's 2016 Remedial Investigation Report originally identified four PAHs: benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and dibenz(a,h)anthracene as surface soil COCs requiring remediation at two small sample locations, 97 and 98. These two sample areas have a total size of about a tenth of an acre.

However, since the submittal of that 2016 report, the USEPA has used more updated toxicity studies to reassess and modify screening level concentrations of these four chemicals.

The Army reassessed the concentration levels at these two locations, comparing against the USEPA's new screening levels, and the Army has now concluded that no further action is required

to be protective of human health at Load Line 7.

The change from the conclusions from this 2016 Remedial Investigation Report is considered a significant change by CERCLA. The significant change is documented and explained in the proposed plan that is offered for review.

So, in conclusion, the Army, in coordination with Ohio EPA, is recommending no further action to attain Unrestricted Residential Land Use with respect to soil, sediment and surface water at Load Line 7.

The next set I am going to be discussing is Load Line 12. Load Line 12 is approximately 76 acres in size and contains no existing structures.

There are asphalt and gravel roads within Load Line 12, an old railroad bed and a perimeter fence that surrounds the area of concern.

Pertaining to the surface water, there is a settling pond, a main drainage channel and approximately 12.5 acres of wetlands.

Surface water occurs intermittently in ditches, but perennially within the Former Settling Pond and Active Area Channel, that I will show you here shortly.

Regarding the historical operations of Load Line 12: From 1941 to 1943, Load Line 12 operated at full capacity as an ammonium nitrate production facility.

From 1946 to 1950, Load Line 12 was leased to the Silas Mason Company to produce 518,000 tons of fertilizer-grade ammonium nitrate.

From 1965 to 1967, Hercules Alcor leased Building FF-19 within Load Line 12 to produce aluminum chloride.

And from 1969 to 1971, Load Line 12 was activated in support of the Vietnam War and produced 80 million primers.

In 1981, Load Line 12 Pink Water Treatment Plant was built to treat the demilitarization effluent.

No historical information exists -- or no historical information exists to indicate that Load Line 12 was used for any other processes.

Load Line 12 consists of 9 production buildings and 14 support buildings. As of 2000, all buildings have been removed from the site. Currently there are no above grade structures at Load Line 12.

The media of concern for this Load Line 12

Proposed Plan is wet sediment and surface water, which are both present in the northern portion of this site.

The areas within Load Line 12 that this includes are the Former Settling Pond, Active Area Channel and the North of Active Area. Soil and dry sediment are being evaluated separately.

Load Line 12 has had remedial actions in the past for soil and dry sediment. For example, in 2010, over 1,100 tons of contaminated -- arsenic-contaminated dry sediment was removed from the Main Ditch, which is immediately upstream of the North of Active Area Channel.

So this figure shows the northern half of Load Line 12, which contains the wet sediment and surface water areas discussed in the Proposed Plan.

Basically, the -- this is the Active Area Channel. Water within the Active Area Channel travels west to east, to where it will eventually travel to the North -- North of Active Area Channel.

One of the features we look at is -- in the wet sediment and surface water media is the Former Settling Pond. This Former Settling Pond

is approximately 50 feet by 200 feet and is approximately 9 feet deep.

The Former Settling Pond surface water discharges into the Active Area through an overflow pipe. And like I said, once the water travels through the Active Area Channel, it travels to this -- what we call the North of Active Area.

This North of Active Area is included in our evaluation. Although it is beyond the Load Line 12 fence line, we did include it to make sure that we would catch any potential contamination that may have been caused by activities at Load Line 12.

And once the surface water gets to the North of Active Area Channel, it travels north and heads towards Upper and Lower Cobbs Ponds, which I will be talking about later in the presentation.

So Load Line 12 is included in the Facility-Wide Assessments, including the 1978 Installation Assessment, the 1989 RCRA Facility Assessment, the 1996 Preliminary Assessment and the 1996 Relative Risk Site Evaluation.

Three investigations were conducted at Load

Line 12 that collected samples to define the nature and extent of wet sediment and surface water at Load Line 12.

These investigations included the 1996 Phase I Remedial Investigation that collected soil and sediment samples; the 2000 Phase II Remedial Investigation that collected additional surface soil, some subsurface soil and sediment, surface water samples, as well as groundwater and sewer samples.

And then in 2010/2011, the PBA08 Remedial Investigation collected additional sediment and surface water samples to assess current conditions of the main ponds and ditches.

The multiple evaluations and investigations performed at Load Line 12 to assess wet sediment and surface water included 36 sediment samples and 25 surface water samples.

The chemicals assessed at Load Line 12 included metals, explosives, propellants, SVOCs, VOCs, PCBs, cyanide, nitrate and pesticides.

Using the information obtained during the Remedial Investigations, the nature and extent of contamination is defined. And no further sampling is required to characterize wet sediment

and surface water at Load Line 12.

The Remedial Investigation Report concluded that no further action is required to protect human health. No further action is required to protect ecological resources. And chemicals are not anticipated to impact groundwater.

So, in conclusion, the Army, in coordination with the Ohio EPA, is recommending no further action to attain Unrestricted Residential Land Use for wet sediment and surface water at Load Line 12.

The next set I am going to discuss is Upper and Lower Cobbs Ponds. Upper and Lower Cobbs Ponds is approximately 39 acres in size. Upper and Lower Cobbs Ponds receives surface water from channels originating from Load Line 3 and Load Line 12, from the south, as I previously mentioned. And I will show you a graphic here in a second.

The AOC consists of two large ponds, the Pond Banks, nine acres of wetlands and a spillway that ultimately directs surface water to Sand Creek. There are also three former railroad beds that go through the site.

So this is a graphic of Upper and Lower

Cobbs Ponds. As shown here, the surface water originates from -- the entire AOC from this Load Line 3. Load Line 3 is here. (Indicating.) There is a channel from Load Line 3 heading into what we call the Backwater Area. And this is that North of Active Area Channel from Load Line 12. Load Line 12 would be down here. (Indicating.) Again, directing surface water into this Backwater Area that we investigated.

Once the water travels through the Backwater Area, it goes into this 9.4 acre Upper Cobbs Pond, and then to this 6.4 acre Lower Cobbs Pond, ultimately going through a spillway to the far north, that will direct the surface water to Sand Creek.

Some other noteworthy features of the site is outside of the area of concern, but to the east of Upper and Lower Cobbs Ponds, there is a pavilion and picnic/recreational area. And then the areas highlighted in orange are what we targeted to investigate the Pond Banks and potential impacts that the surface water may have had to those Pond Banks.

There are no sources of contamination in Upper and Lower Cobbs Ponds. Rather, the site

received runoff and washout during historical operations from Load Line 3 and Load Line 12.

On November 15, 1966, there was a fish kill that occurred at Lower Cobbs Pond as a result of improper handling of aluminum chloride during manufacturing processes.

The documentation is limited, but in response to the fish kill, the pond was settled, drained and the contaminants were removed and placed in Ramsdell Quarry within the facility.

There are no expected future impacts from Load Line 3 or Load Line 12, as both sites have remedial actions -- have had remedial actions to address contamination and have ongoing assessments being performed.

As indicated previously, over 1,100 tons of contaminated sediment were removed from the Load Line 12 Main Ditch, in 2010.

Also, during the summer of 2007, over 3,000 tons of contaminated soil was removed from Load Line 3.

Upper and Lower Cobbs Ponds was included in multiple Facility-Wide Assessments, including the 1978 Installation Assessment, the 1996 Preliminary Assessment, the 1996/1998 Relative

Risk Site Evaluations.

Upper and Lower Cobbs Ponds was also a part of a 1982 Soil and Sediment Analysis that evaluated facility ponds and streams for explosives. And Upper and Lower Cobbs Ponds was included in the 2003 Facility-Wide Biological Water Quality Study, which not only concluded that Camp Ravenna surface water quality was generally good to excellent, and the samples generally reflected non-contaminated conditions.

Three investigations were conducted at the site to collect samples to define the nature and extent of contamination. These investigations included the 1996 Phase I Remedial Investigation that collected sediment samples from the ponds and drainage channels; the 2001 Phase II Remedial Investigation that collected additional sediment samples, surface water samples and soil samples from the Pond -- and soil samples from the Pond Banks; and the 2010 PBA08 Remedial Investigation that collected additional sediment and surface water samples and fully characterized surface and subsurface soil within the Pond Banks.

So the multiple evaluations and investigations included the collection of 26

surface water -- or 26 surface soil samples, 8 subsurface soil samples, 55 sediment samples and 20 surface water samples.

Chemicals assessed at the site include metals, explosives, propellants, SVOCs, VOCs, PCBs, cyanide, nitrate, sulfate, sulfide and pesticides.

Using the information obtained during the Remedial Investigation, the nature and extent of contamination is defined in Upper and Lower Cobbs Ponds. And no further sampling is required to characterize the soil, sediment or surface water at the site.

No further action is required to protect human health. And no further action is required to protect ecological resources. In addition, there is no further action for soil or sediment to be protective of groundwater.

So, in conclusion, the Army, in coordination with Ohio EPA, is recommending no further action to attain Unrestricted Residential Land Use for soil, sediment and surface water at the Upper and Lower Cobbs Ponds area of concern.

The next set I am going to talk about is Load Line 9. Load Line 9 is approximately 69

acres in size and contains no existing structures.

There are gravel access roads and a perimeter fence that surrounds this area of concern. The habitat at Load Line 9 is mostly field, shrubland and forest. There are no perennial surface water bodies and no wetlands have been identified at the site.

Surface water is present at the site -- oh, surface water that is present at the site only occurs during rain events.

From 1941 to 1945, Load Line 9 operated at full capacity to produce fuze components for artillery projectiles in support of World War II. It is estimated that over 19 million fuzes were produced within that time frame.

Load Line 9 consisted of 33 production buildings and 23 support buildings. And Load Line 9 was deactivated after World War II. The process equipment was removed and the site has not been used since. As of 2003, all process and support buildings have been demolished.

Load Line 9, which included -- was included in these four Facility-Wide Assessments discussed previously. These four here. (Indicating.) And

there were two investigations conducted at Load Line 9 to collect samples and find the nature and extent of contamination at this site.

These investigations included the 2003 Phase I Remedial Investigation that collected surface soil, subsurface soil, surface water and sediment samples, as well as samples from sumps and samples beneath floor slabs.

This investigation also included a determination -- or assessment and determination that there was no safety concern associated with lead azide at the site.

The 2010 PBA08 Remedial Investigation collected additional surface soil, subsurface soil and sediment/surface water samples to complete the Remedial Investigation.

The multiple evaluations and investigations at Load Line 9 included the collection of 94 surface soil samples, 65 subsurface soil samples, 21 sediment samples and 10 surface water samples.

Chemicals assessed at Load Line 9 included metals, explosives, propellants, SVOCs, VOCs, PCBs, cyanide and pesticides.

Using the information obtained during the

Remedial Investigations, the nature and extent of contamination at Load Line 9 is defined. And no further sampling is required.

No further action is required to protect ecological resources. And chemicals in soil and sediment are not anticipated to impact groundwater.

However, the Human Health Risk Assessment did identify two areas requiring remediation: Surface soil at Sample Location 11 had elevated concentrations of lead and mercury. And surface soil at Sample Locations 96 and 97 had elevated concentrations of four PAHs: benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and dibenz(a,h)anthracene.

Therefore, the Army, in coordination with the Ohio EPA, is recommending remediation of contamination at Sample Locations 11 for mercury and lead, and 96 and 97 for the four PAHs that I had mentioned previously.

So this slide shows the two areas requiring remediation at Load Line 9. To the south, this is the location of both Samples 96 and 97 that had exceedances of those four PAHs. They are basically adjacent to one another.

There is an estimated contaminated volume of 761 cubic yards of surface soil that is anticipated -- or, I am sorry. Estimated volume of 761 cubic yards of soil that is anticipated to be contaminated.

And then to the east is Location 11. This location, as I mentioned previously, had lead and mercury contamination. There was one sample that drove that identification of contamination. And in 2011, additional samples were collected to help further refine the extent of contamination. And currently it is estimated that approximately 16 cubic yards of contaminated surface soil is present at that location.

And so just to be clear, this is the location of the contaminated area. (Indicating.) This is a blow-up, or an inset, of that location. So, relatively speaking, it is significantly smaller than 96 and 97, but there is a larger blow-up of that area and the samples collected to date.

So given that unacceptable risk to human health that was identified, the Army developed Remedial Alternatives in a Feasibility Study to address this contamination.

These Remedial Alternatives were developed with remedial action objective of preventing resident receptor exposure to surface soil with concentrations above lead and mercury Cleanup Goals at Sample Location 11, and concentrations above PAH Cleanup Goals at Sample Locations 96 and 97.

The Army developed the following three alternatives to consider: Alternative 1 is a no action alternative. This alternative assesses what would happen if the Army did nothing about the contamination in place. It is primarily used for comparison purposes against other remedial alternatives. And rarely is the no action alternative selected if unacceptable risk or contam -- if unacceptable risk and contamination is present at the site.

Alternative 2 involves excavation of all contaminated soil and disposal at an off-site licensed disposal facility. This alternative would include additional sampling to further refine the extent of contamination. And it would include the use of heavy equipment to excavate the contaminated soil and loading into haul trucks for ultimate disposal at an off-site

facility.

After the contamination is completely removed, those areas will be backfilled, graded and re-seeded for restoration purposes.

Alternative 3 involves excavating the lead and mercury contaminated soil for off-site disposal, in addition to thermally treating the PAH-contaminated soil.

So as with Alternative 2, this alternative would include additional sampling to further refine the extent of the contamination.

Alternative 3 would also excavate the contaminated soil -- the lead and mercury-contaminated soil at Location 11, for off-site disposal. And Alternative 3 would use -- includes the use of a thermal treatment system to address PAH-contamination at Locations 96 and 97, to treat the contaminated soil.

After the soil contamination is either removed or treated, the site will be backfilled and graded and seeded.

So with respect to Alternative 3, this is an example of a thermal treatment system. Let's see. In the system -- in the system, contaminated soil would be loaded onto a conveyor

belt. The conveyor belt would place the contaminated soil within -- in an enclosed chamber. Within this enclosed chamber, the contaminated soil would be exposed to high temperatures. These high temperatures will ultimately desorb the volatile contaminants, such as the PAH contaminants that we are talking about, and form a vapor.

This contaminated vapor is then passed through a filter system that will capture and/or treat the contaminated vapors. As the -- when the soil -- now that the contaminant has been removed from the soil, the soil will exit the treatment system and be stockpiled.

Once the soil is stockpiled, it will be re-sampled. And if it is confirmed to be clean, it can be put back into the excavation, back -- or the excavation area. Or if it fails, it can be replaced back into the treatment system.

The three Remedial Alternatives were assessed against seven criteria to help the Army select a preferred alternative. The selected alternative must be protective of human health and the environment, and must be compliant with all Federal and local laws -- all Federal and

local laws and standards.

Given that the no action alternative means that contamination or unacceptable risks will remain in place, this alternative is automatically excluded for consideration.

The remaining alternatives are assessed using five balancing criteria. Basically these criteria ask the questions: Will the alternative be protective in the long-term? Does the alternative reduce toxicity, mobility or volume through treatment? Are workers and community protected from exposure or risks during implementation of that alternative? How available and reliable is the technology's -- is the alternative's technology? And what is the estimated cost?

The Army's preferred alternative for Load Line 9 is Alternative 3: Excavation and Off-site Disposal of the lead and mercury-contaminated soil, Location 11, and Ex-situ Thermal Treatment of the PAH-contaminated soil, Locations 96 and 97.

Implementation of this alternative will result in Unrestricted Land Use -- Unrestricted Residential Land Use at Load Line 9.

Implementation of this alternative will comply with all Federal and local laws and standards.

The implementation will be effective in the long-term, and the Army will not need land use controls at the site after implementation.

The treatment technology of the PAH-contaminated soil will reduce and -- or remove the PAH-contamination from Sample Locations 96 and 97.

Measures will be taken to ensure that remedial workers and the community are not impacted during implementation.

This technology is accessible. Both the excavation and thermal treatment is accessible and has been used successfully at Camp Ravenna in the past.

And the estimated cost for Alternative 3 is $296,000, which is less than the estimated cost to implement Alternative 2.

The final set I am going to present is Wet Storage Area. The Wet Storage Area is approximately 36 acres in size. And most of the buildings have been demolished and were removed in 2003 and 2004.

Two igloos -- two storage igloos currently exist at the site, along with access road -- and there are access roads that enter from the south, and the perimeter fence around the Wet Storage Area still exists.

The habitat at Wet Storage Area is mostly shrubland and forest, in addition to 26 wetlands of varying sizes and quality. The Wet Storage Area does have perennial surface water, as there is a tributary that flows through the west side of Wet Storage Area that ultimately discharges into Sand Creek.

From 1941 to 1945, Wet Storage Area was used to store highly explosive, shock-sensitive primary explosives. The explosive material was containerized and covered with soil in drums that were stored in six storage igloos.

As indicated previously, four of these six igloos have been removed. And two of the igloos on the eastern portion of the site remain.

Wet Storage Area was included in the 1978 Installation Assessment and the 1998 Relative Risk Site Evaluation.

Two investigations were conducted at Wet Storage Area to collect samples to define the

nature and extent of the contamination.

These investigations were the 2004 Characterization of 14 AOCs that collected surface soil in and around areas of historical operations.

And the 2010 PBA08 Remedial Investigation that collected surface soil, subsurface soil, sediment and surface water to complete their Remedial Investigation.

The multiple evaluations and investigations of the Wet Storage Area include the collection of 53 surface soil and 22 subsurface soil samples, in addition to 8 sediment and 9 surface water samples.

Chemicals assessed at Wet Storage Area include metals, explosives, propellants, SVOCs, VOCs, PCBs and pesticides.

Using the information obtained during the Remedial Investigation, the nature and extent of contamination at Wet Storage Area is defined. And no further sampling is required.

No further action is required to protect ecological resources. And chemicals in soil and sediment are not anticipated to impact groundwater.

Similar to Load Line 9, the Human Health Risk Assessment did identify locations requiring remediation. These locations -- surface soil Sample Locations 4, 28 and 24 had elevated concentrations of benzo(a)pyrene requiring remediation.

Therefore, the Army, in coordination with the Ohio EPA, is recommending remediation of benzo(a)pyrene contamination in surface soil at Sample Locations 4, 28 and 24.

So this slide shows the three Sample Locations requiring remediation of Wet Storage Area. Essentially, this boils down to two specific areas. So this we identified as WSA Area 1, this contaminated area in yellow -- or orange. And this contains Sample Locations 004 and 028. And it is just outside the location of the former igloo WS-1.

What we have identified as WSA Area 2 contains Sample Location 024. And it is just outside the location of former igloo WS-2.

In total, the estimated quantity of contaminated surface soil is approximately 70 cubic yards.

Given that unacceptable risk for human

health was identified, the Army developed Remedial Alternatives in a Feasibility Study to address this contamination.

These Remedial Alternatives were developed with a remedial action objective of preventing resident receptor exposure to surface soil with a benzo(a)pyrene concentration above 1.1 milligrams per kilogram at Sample Locations 4, 28 and 24.

The Army identified -- the Army developed three alternatives for consideration. Alternative 1, a no action alternative. Alternative 2, which is similar to Load Line 9, is the excavation of contaminated soil and disposing it at a licensed off-site disposal facility. And then Alternative 3 involves thermally treating the PAH-contaminated soil in a similar unit that I showed earlier.

So for Wet Storage Area, the Army's preferred alternative is Alternative 3: Ex-situ Thermal Treatment. Implementation of this alternative will result in Unrestricted Residential Land Use of Wet Storage Area. No residual risk will remain at the site after implementation.

The alternative will comply with all

Federal and local laws and regulations. And implementation of this alternative is effective in the long-term, and there will be no land use controls required after implementation.

The treatment technology will reduce or remove contamination from the soil. Measures will be implemented to ensure that workers and the community are not impacted during implementation.

The technology is accessible and has been successful at Camp Ravenna in the past. The estimated cost for Alternative 3 is $134,000. This is slightly higher than the cost to implement Alternative 2.

However, the Army is recommending Alternative 3, since this does implement a treatment alternative that will result in the treated soil being able to be reused at the site. Thank you.

MS. TITTLE: Thank you, Jed.

Since public participation is an important component of remedy selection, the U.S. Army is soliciting input from the community as part of its public participation responsibilities under Section 117(a) of the 1980 CERCLA.

The public comment period is between June 6th of 2018 and July 6th of 2018.

You can provide written or verbal comments at this public meeting. And submit written comments by July 6th to the address listed in your handout and on the cards available at the front table. And the contact is Kathryn Tait with the Army.

So if anyone has any questions, please stand up and state your name and what community you are from, and we will go from there.

So does anyone have any questions?

MS. MCCURDY: Okay. My name is Charlotte McCurdy. I live in Paris Township.

THE REPORTER: I am sorry. I can't hear you.

MS. MCCURDY: I will talk loud. How is that?

MS. TITTLE: Well, people always say -- go ahead.

MS. MCCURDY: I just -- I wonder what impacts or what will occur when you excavate the contaminated soils airborne. Is there any testing that is done to determine if anything is going in our --

MS. TITTLE: And would you please state your name and your community?

MS. MCCURDY: Charlotte McCurdy, Paris Township.

MS. TITTLE: Thank you.

MR. THOMAS: So I want to make sure I understand the question correctly.

Are you saying, when the excavation takes place, dust concerns?

MS. MCCURDY: Correct.

MR. THOMAS: Okay. So, generally, there is -- for both implementation purposes and for exposure for human health risk, there is oftentimes -- or usually there is human health -- there is a health and safety person -- there are health and safety personnel on site available, to basically be on site to make sure that there isn't too much dusting.

There are wetting procedures that can be implemented to make sure that once the excavation takes place, it can be placed into either a Thermal Treatment System or into a truck to make sure that any dusting or -- yeah, any dusting, I will say, is mitigated during implementation.

MS. MCCURDY: Do they have devices to test --

MR. THOMAS: There can be, yeah.

MS. MCCURDY: Can be? There can be?

MR. THOMAS: Yes. That is something that is usually addressed in the remedial design.

Sometimes it depends on what the contaminants are, if it is required. But a lot of times, you know, the first step is to look at it visually. If it is -- if visually there appears to be some dusting that takes place, then there can be equipment brought on site.

MS. TITTLE: Any other questions?

Well, if there are no other questions, certainly you can take a card and write any comments, if something comes up later.

Anything else, Jed?

MR. THOMAS: No.

MS. TITTLE: Okay. That is it. Thank you all very much for coming this evening.

(Thereupon, the public meeting was concluded at 7:20 p.m.)

- - -

C E R T I F I C A T E

STATE OF OHIO,)
) SS:
SUMMIT COUNTY,)

I, Jerri Lynn Wheat, a Stenographic Reporter and Notary Public within and for the State of Ohio, duly commissioned and qualified, do hereby certify that these proceedings were taken by me and reduced to Stenotypy, afterwards prepared and produced by means of Computer-Aided Transcription and that the foregoing is a true and correct transcription of the proceedings so taken as aforesaid.

I do further certify that these proceedings were taken at the time and place in the foregoing caption specified, and were completed without adjournment.

I do further certify that I am not a relative, employee of or attorney for any party or counsel, or otherwise financially interested in this action.

I do further certify that I am not, nor is the court reporting firm with which I am affiliated, under a contract as defined in Civil Rule 28(D).

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Akron, Ohio on this 26th day of June, 2018.

_____
Jerri Lynn Wheat, Stenographic Reporter and Notary Public in and for the State of Ohio.

My commission expires April 8, 2023.

- - - -

Photographs

THIS PAGE INTENTIONALLY LEFT BLANK.


leidos


leidos


leidos

THIS PAGE INTENTIONALLY LEFT BLANK.

WRITTEN PUBLIC COMMENTS

THIS PAGE INTENTIONALLY LEFT BLANK.

Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area, and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP)

Please offer your comments, ask any questions, or request more information here. You may take this postcard with you to mail from home, or you may fill it in now and leave it here for later pickup.

Thank you for participating in this outreach. Ravenna Army Ammunition Plant values your input.

What Happens to Sand CREEK after the exit from the Arsenal area in to Sundbar

Thank you for your efforts!

Name: Brian Miller

Phone Number: [redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.