U.S. ARMY
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Former Sunflower Army Ammunition Plant Restoration Advisory Board Meeting

27 February 2025

G-9 Mission

The DCS, G-9 leads integration across the Army enterprise to modernize installations, enhance quality of life, and develop and implement policies, plans, and programs that enable the Army to recruit, train, deploy, fight, and win.

G-9 Vision

Dedicated professionals driving excellence across the Army Installations Enterprise to support Soldiers, families, and Army civilians wherever they train, work, and live.

Agenda

- Old Business
  - Adopt RAB Operating Procedures
  - Approve November RAB Meeting Minutes
- New Business
  - RAB site tour (May 2025)
  - Next RAB Meeting (Date and Time)
    - The fourth Thursday is May 22. Memorial Day weekend could push this to May 29?
- Remediation History and Environmental Update (to include brief explanation of former RAB activities)
- Agenda for the next RAB meeting
- Questions from the RAB
- Questions from the public
- Close the meeting

Old Business

- RAB Operating Procedures
  - Edits from the business meeting were sent out to the RAB members
  - Any further additions/deletions
  - Adopt the procedures

- Approve November RAB Meeting Minutes
  - Edits
  - Approval

New Business

- RAB Site Tour
  - May 2025
    - Afternoon of the RAB? What time works best?

- Next RAB Meeting
  - The fourth Thursday is May 22nd. This is Memorial Day weekend. Is there a need to move to May 29th?

RAB History

- The SFAAP RAB was initiated in May 1998 to promote community relations
- Army held quarterly meetings until August 2005 when the property was transferred to SRL
- Upon transfer the responsibility for continued public meetings was SRL's. SRL continued public meetings until 2011 when funding under their contract was depleted
- From 2011 to 2015 the environmental cleanup program was paused
- In 2015 the Army resumed management of cleanup responsibilities with USACE as the executive agent
- The last 2 sets of meeting minutes from 2010/11 the explosive cleanup program was 1/4 of the RAB discussions. The Army completed this cleanup in 2023
- Most of RAB discussion was focused on environmental restoration activities. The Army is working through the RCRA process and nearing completion on most of these sites

Remediation History

- During the period Sept 2005 to October 2011 the developer accomplished 50% of the explosive hazard remediation and 25% of the environmental hazard remediation
- Army activities began in mid 2015 consisting of:
  - Obtaining all the documentation related to the previous cleanup activities
  - Establishing the framework for executing the required remediation
  - Awarding Explosive decontamination and Architect-Engineer contracts to execute the remediation
  - Awarding limited environmental sampling and investigative contracts to support the explosive and environmental hazard work
  - Partnering with the regulatory agency to review and approve the requisite work plans and permits to accomplish the remediation

Remediation History

- Three Army organizations work together to award contracts to conduct explosive and environmental hazard remediation and removal
  - Base Realignment and Closure Office has overall responsibility for the closed site
  - US Army Environmental Command has responsibility for funding projects eligible for Defense Environmental Restoration Program dollars
  - The US Army Corps of Engineers Kansas City District procures the contracts and provides contract oversight and ensures contract execution
- The Army's process for remediation is governed by law and requires a specific order of activities and completion of one step before another is started

Remediation History

- Highlights of the past 10 years
  - The Army focused on the explosive hazard remediation first and where safely possible conducted limited environmental remediation activities
  - Conducted a myriad of RCRA Facility Investigations (RFI)
  - Conducted a myriad of Corrective Measure Studies (CMS)
  - Prepared corresponding RFI work plans and CMS documents
  - Executed the requisite remediation activities at upgradient locations before addressing areas downgradient
  - Worked within the stated redevelopment priorities specifically the NE Corner and roughly 1,000 acres to the west and south of the installation
  - Developed the initial groundwater plan for the entire site

Remediation History

- Highlights of specific activities:
  - Multi-site / Multi-document preparation and regulatory approvals
  - Soils, foundations, footings, and sewer lines excavation, removal and explosive decontamination using thermal decon process
  - Building demolition and disposal of tons of contaminated soils and debris

- Photographic Overview of the Work Accomplished
  - Environmental Soils Excavation
  - FR1 Foundation Slab Removal
  - Sump and Subsurface Foundation Removal
  - Explosive Decontamination of Inside Sewer Pipe
  - Environmental Sampling and Analysis
  - Transportation and Offsite Disposal of Contaminated Soil
  - Disassembly and Inspection of Account 303
  - Reporting (photos not provided)

Environmental Soils Excavation

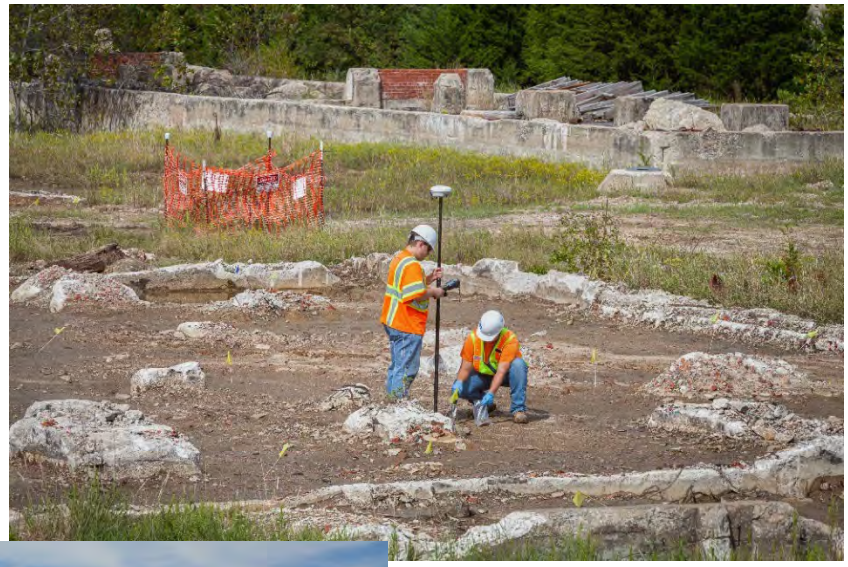
Foundation Slab Removal

Remediation History

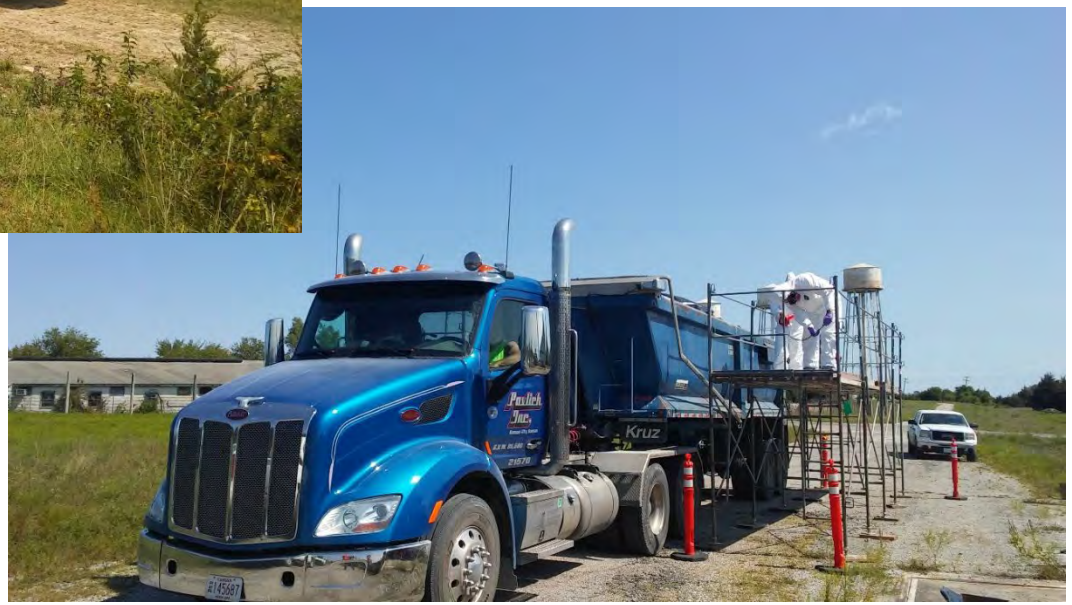
Sump and Subsurface Foundation Removal

Explosive Decontamination of Inside Sewer Pipe

Environmental Sampling and Analysis



Transportation and Offsite Disposal of Contaminated Soil



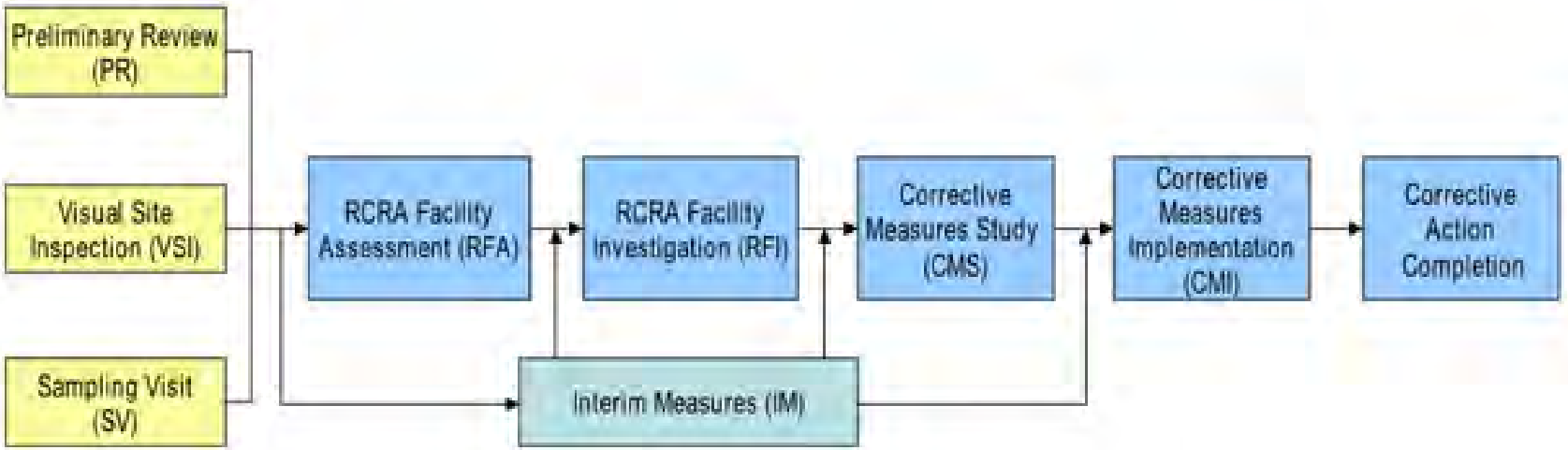
Disassembly and Inspection of Account 303

Remediation History

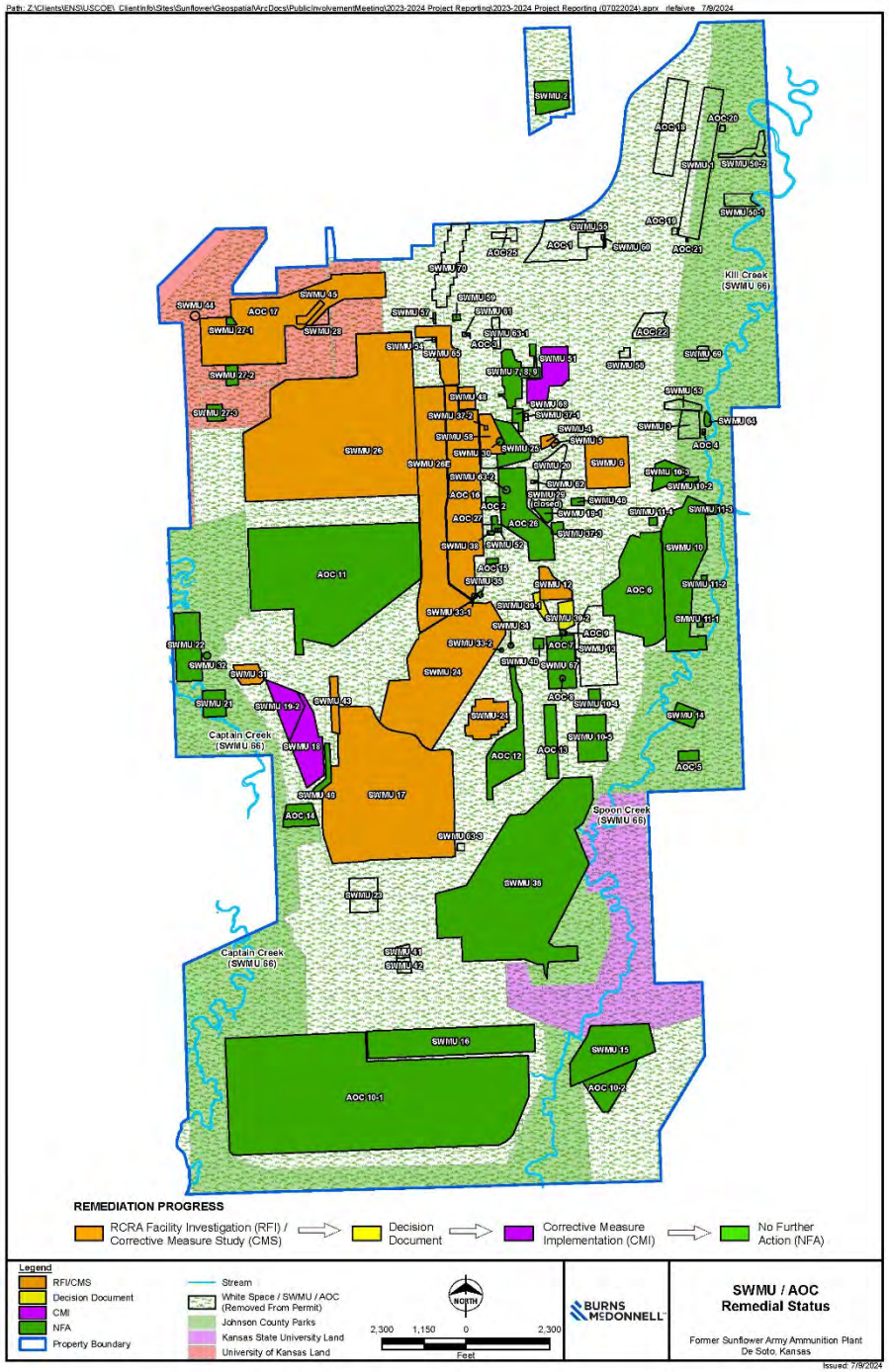
- Estimated MEC work required as of 2015 (Govt Estimate)
  - 1.5 million sq ft of concrete
  - 11,144 linear ft of inside sewer lines
  - 170,000 linear ft of outside sewer lines
- MEC work physically completed as of December 2023
  - 1,487,474 sq ft of concrete removed (**4,887,474 SF total**)
  - 10,369 linear ft of inside sewer line
  - 172,296 linear ft of outside sewer lines (**225,296 LF total**)
- *MEC work is now complete*
- Site is unencumbered by previously required explosive safety arcs

Resource Conservation and Recovery Act Process

Cleanup Process Overview



Installation Map



Environmental Update

- Sunflower AAP has 97 response sites requiring RCRA corrective action
  - 65 sites area at remediation complete
    - 24 sites closed and subsequently removed from the RCRA permit (10 of these sites await the CERCLA warranty release)
    - 4 Sites to be closed under the Solid Waste Landfill permit 340
    - 17 sites approved by KDHE for No Further Army Corrective Action (only Consent Order cleanup remains)
    - 20 additional sites awaiting KDHE approval for No Further Action
  - 32 remaining sites are in the various stages of remediation sitewide
    - 18 sites are still in the RCRA Investigation stage
    - 3 sites are in the soil cleanup stage
    - 8 sites have a draft NFCAP written and under Army review
    - 1 site awaiting an internal Army decision on future actions
    - 2 sites are administrative sites created for the MEC program
- Five Ground Water Operable Unit (GWOU) requirements also require action

Groundwater Characterization

- Objective
  - Shrink Groundwater OU boundaries as SWMUs/AOCs are characterized
  - OU4 boundary and OU5 boundaries to be defined in new RCRA Corrective Action Permit
- SWMUs/AOC with no further action on Groundwater as agreed to by KDHE - 19
- SWMU/AOCs to be proposed as no further action for Groundwater - 40

- Groundwater Characterization
  - Determine presence or absence of contamination by groundwater sampling
  - Delineate groundwater contamination
  - Determine if groundwater is potable.
- No Further Action
  - Determined through no contamination, contamination below Target Media Cleanup Level (TMCLs), non-potable aquifer risk evaluation, or a combination of the three.

Environmental Update

- Groundwater Contaminants (vs residential TMCLs)
  - Nitrate (193,000 ug/l vs 10,000 ug/l)
  - Guanidine Nitrate (highest detection was 2000 ug/l vs 600 ug/l)
  - Chromium (highest detection was 500 ug/l vs 100 ug/l TMCL)
  - Fluoride (highest detection of 4700 ug/l vs 4000 ug/l)
  - Lead (highest detection was 90ug/l vs 15ug/l)
  - Nitroguanidine (highest detection was 1600 ug/l vs 1560ug/l)
  - Total Petroleum Hydrocarbon (TPH) (highest detection of 7100ug/l vs 1000 ug/l)

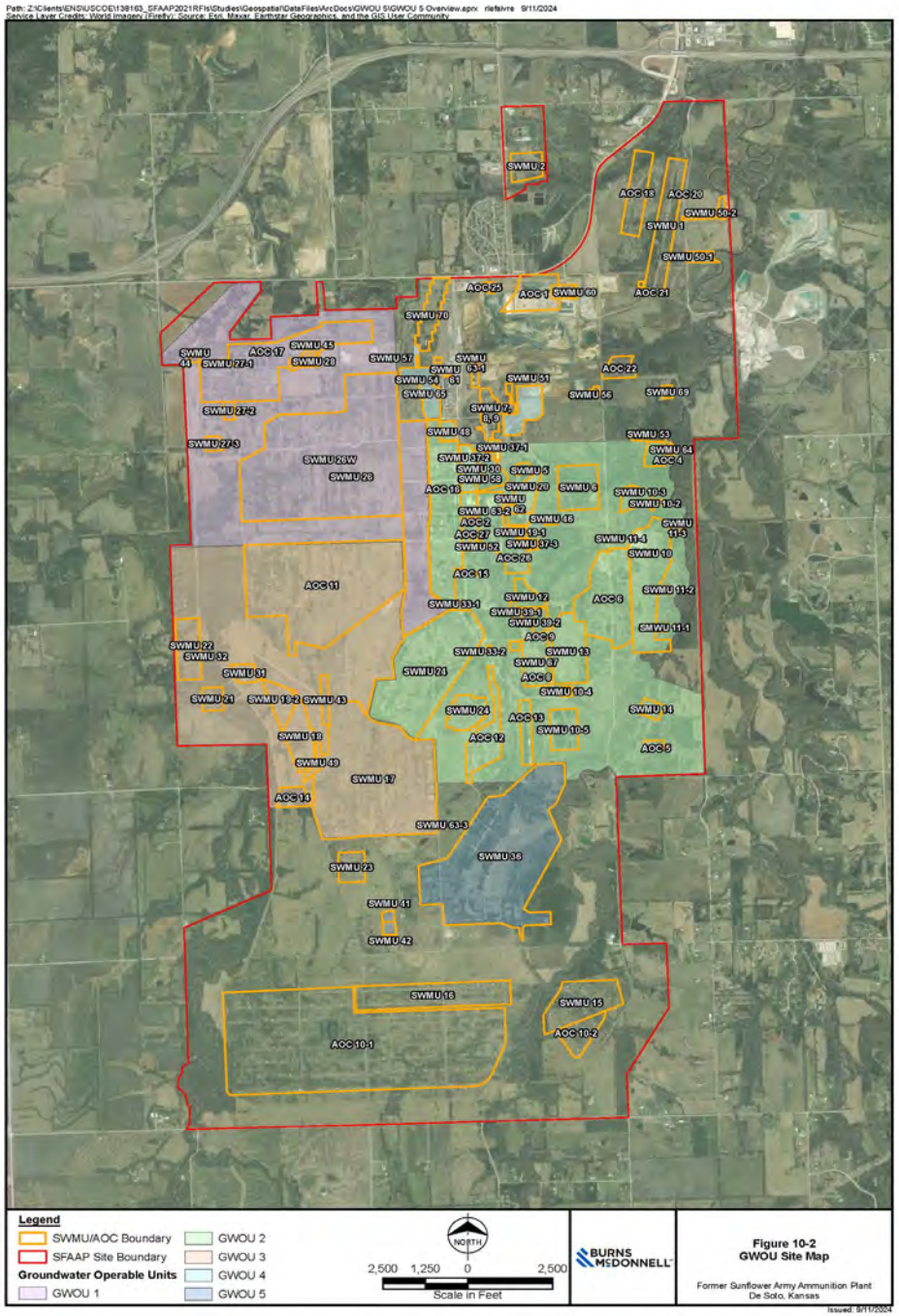
Environmental Update

- Current/Ongoing RCRA Facility Investigations---Groundwater
  - OU5
  - SWMU 18/19
- RCRA Facility Investigations--soil
  - SWMU 31
  - SWMU 66
- Corrective Measures Implementation
  - SMWU 39/58
  - AOC 17 sump removal

- OU5
  - AOC 10
  - SWMU 15 and 16
  - SWMU 23
  - SWMU 36
  - SWMU 41
  - SWMU 42
  - SWMU 63
  - ➢ SWMU 15, 16 and AOC 10---AECOM 2023 groundwater investigation demonstrated pesticide concentrations present in the area are from as applied pesticides around the igloos.
  - ➢ SWMU 23---USEPA (2006) removed SWMU 23 from the Definition of Facility with no future use restrictions. No further groundwater investigation required.

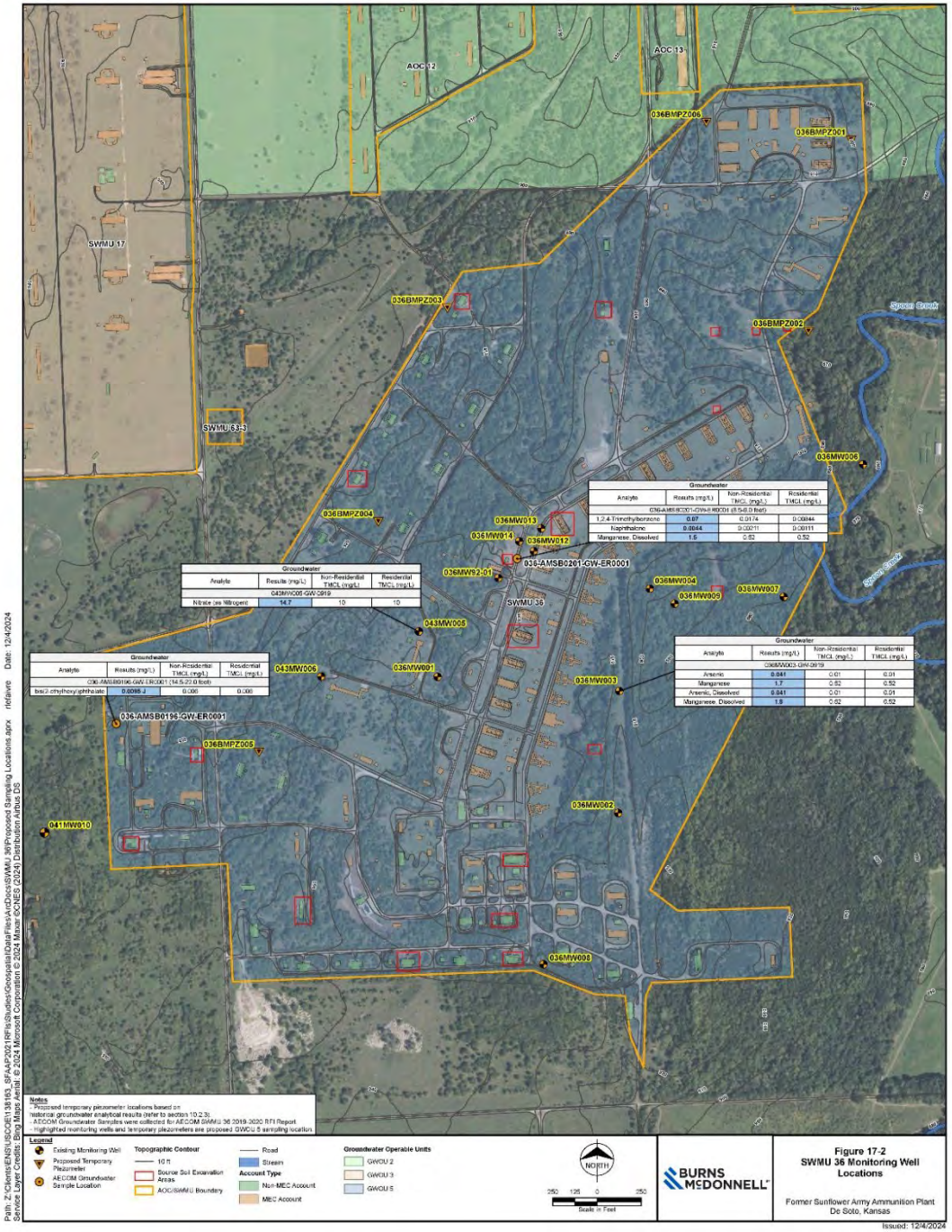
Environmental Update

- OU5
  - SWMU 36—Groundwater investigations identified contaminants of concern in groundwater as nitrate, manganese and VOCs. SWMU 36 was investigated further under OU5
  - SWMU 41 and 42---these are landfills covered by Permit 340. They are in a post-closure status. A groundwater snapshot was collected in wells monitoring SWMU 41 and 42.
  - SMWU 63– USEPA (2023) removed SWMU 63 from definition of Facility with no future use restrictions. No further investigation required.



Ground Water Operable Units

Groundwater Operable Unit 5



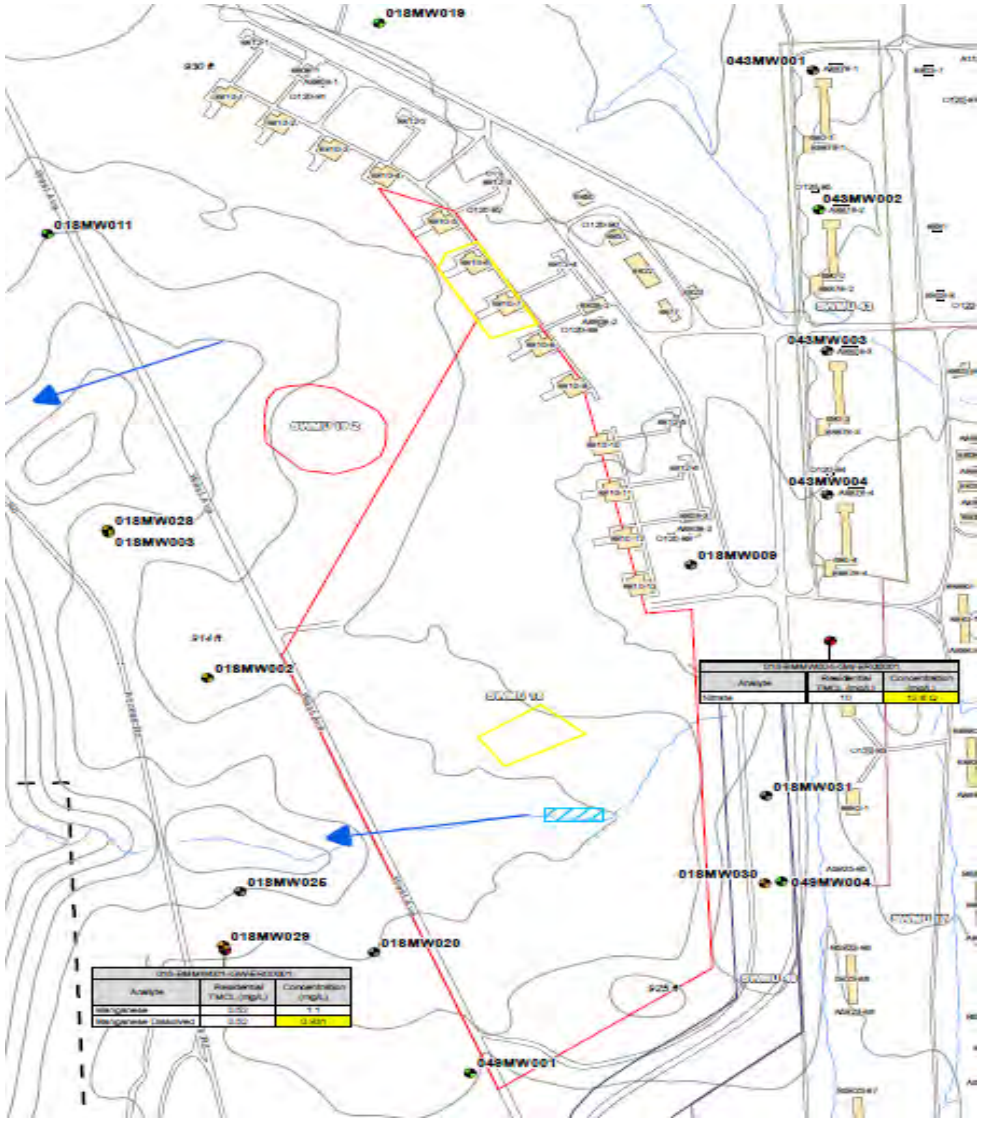
SWMU 18 and 19-2 Groundwater RFI Status

- KDHE-approved Final SWMU 18/19 RFI Work Plan on 20 June 2024
- Field Investigation Activities – **Completed in December 2024**
  - Two rounds of groundwater samples collected from existing site monitoring wells
    - First sampling event (July 2024) – 8 of 12 monitoring wells sampled. Four wells were dry.
    - Second sampling event (December 2024) – 10 of 12 monitoring wells sampled. Two wells dry.
  - First sampling event indicated a TMCL exceedance of nitrate in one well located upgradient of SWMU 18 and a TMCL exceedance of manganese in one well located downgradient of SWMU 18.
  - Analytical data for second sampling event is pending.
- Report summarizing both sampling events to be submitted to KDHE in Spring 2025.

SWMU 18 / 19

July 2024 Sampling Event Results

- Manganese Exceedance in one downgradient monitoring well
- Nitrate exceedance in one upgradient monitoring well



Environmental Update

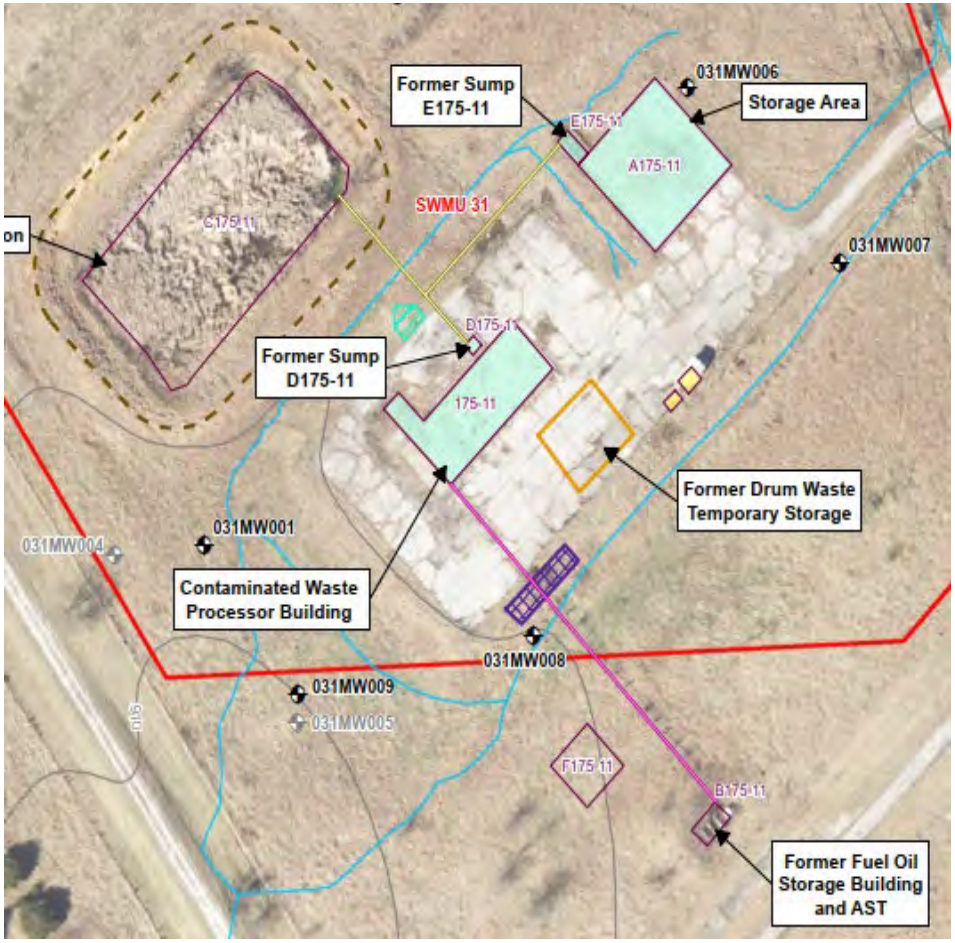
- Current/Ongoing RCRA Facility Investigations---Groundwater
  - OU5
  - SWMU 18/19

- RCRA Facility Investigations--soil
  - SWMU 31
  - SWMU 66

- Corrective Measures Implementation
  - SMWU 39/58
  - AOC 17 sump removal

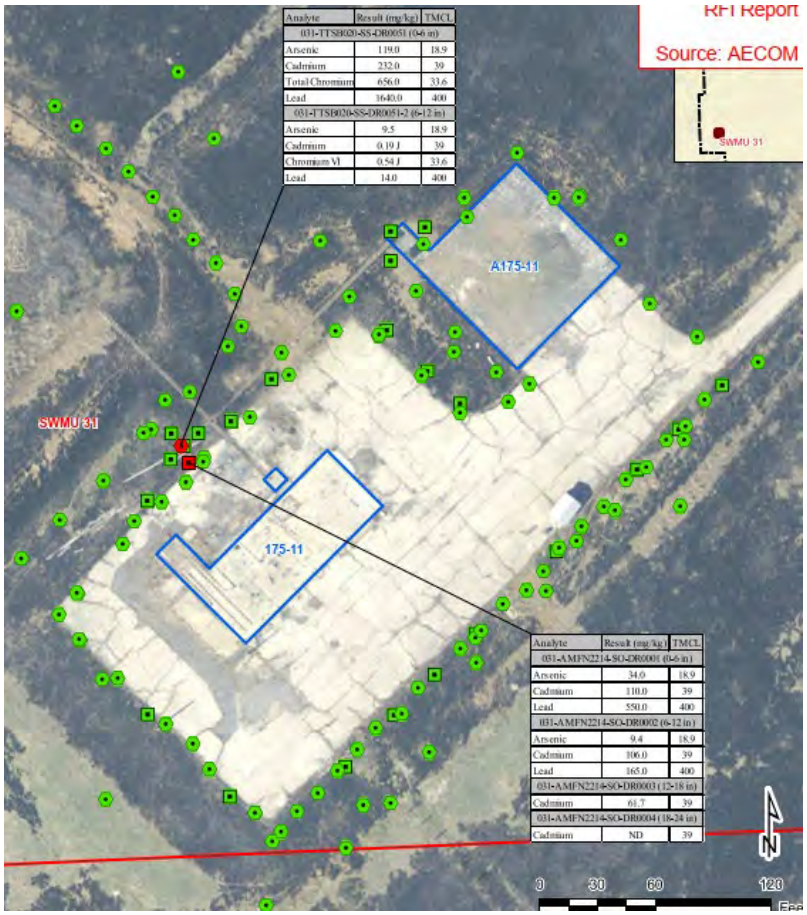
SWMU 31 – Contaminated Waste Processor and Evaporative Lagoon

- Constructed from 1978 to 1980
- Operated in 1982 and from 1984 until 1996
- CWP was used to incinerate materials suspected to have explosives contamination
  - Building materials
  - Paper waste and cardboard
  - Scrap metal
- Areas associated with the CWP included a Storage Area, Fuel Storage Area, two sumps and the Evaporative Lagoon
  - Wastes were temporarily stored in the Storage Area until incineration
  - The Fuel Storage Area contained one 10,000-gallon fuel-oil AST – one recorded spill in 1987 of 160 gallons
  - The sumps collected rainwater and water from hosing down the Storage Area and the CWP area
  - The Evaporative Lagoon received water from the sumps



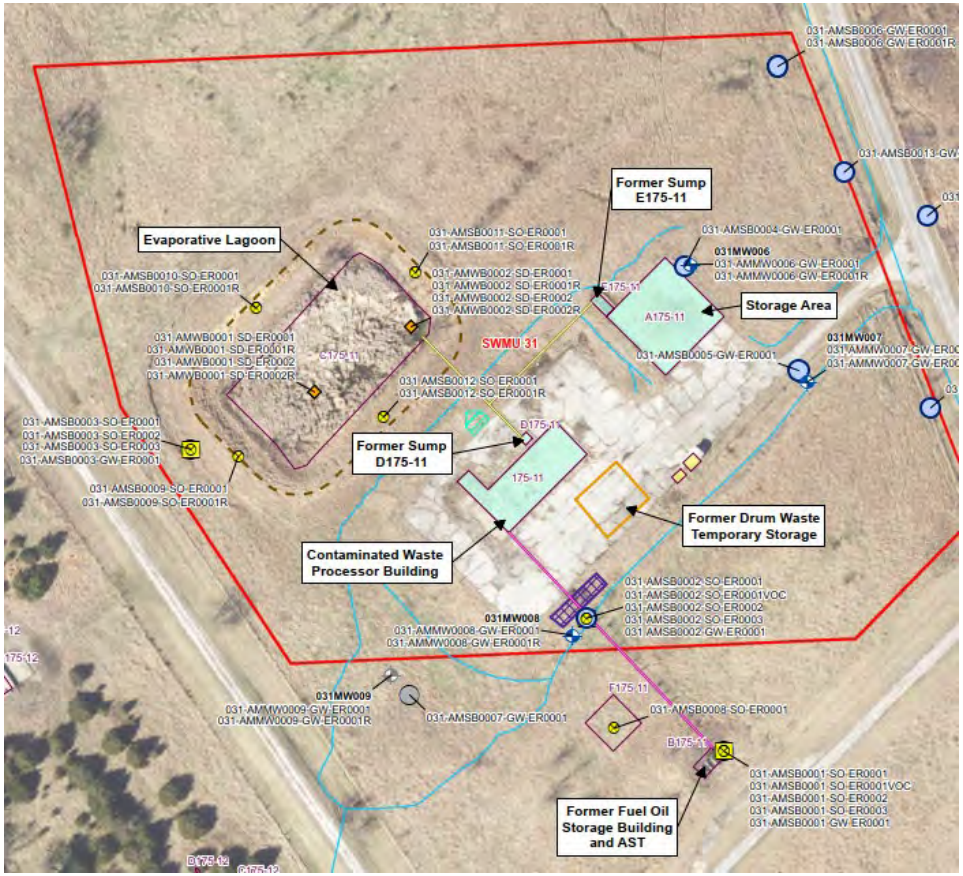
SWMU 31 – Contaminated Waste Processor and Evaporative Lagoon

- Rind soils were sampled around CWP and Storage Area in 2017
  - Prior to the rind soil investigation, soil sampling was conducted at SWMU 31 by Tetra Tech however, the results were not published.
  - Rind soil samples were collected to confirm TMCL exceedances previously identified by Tetra Tech
- Interim Corrective Measure Completed in 2020
  - A total of 11,156 square feet of FR1 foundation and 7 linear feet of sewer pipe were removed including the CWP (Account 175-11), the Storage Area (Account A175-11), two sumps (Account D175-11 and Account E175-11)
  - Confirmation soil samples beneath foundations, sewers and sumps were below TMCLs
  - MEC Closure Report approved in 2021



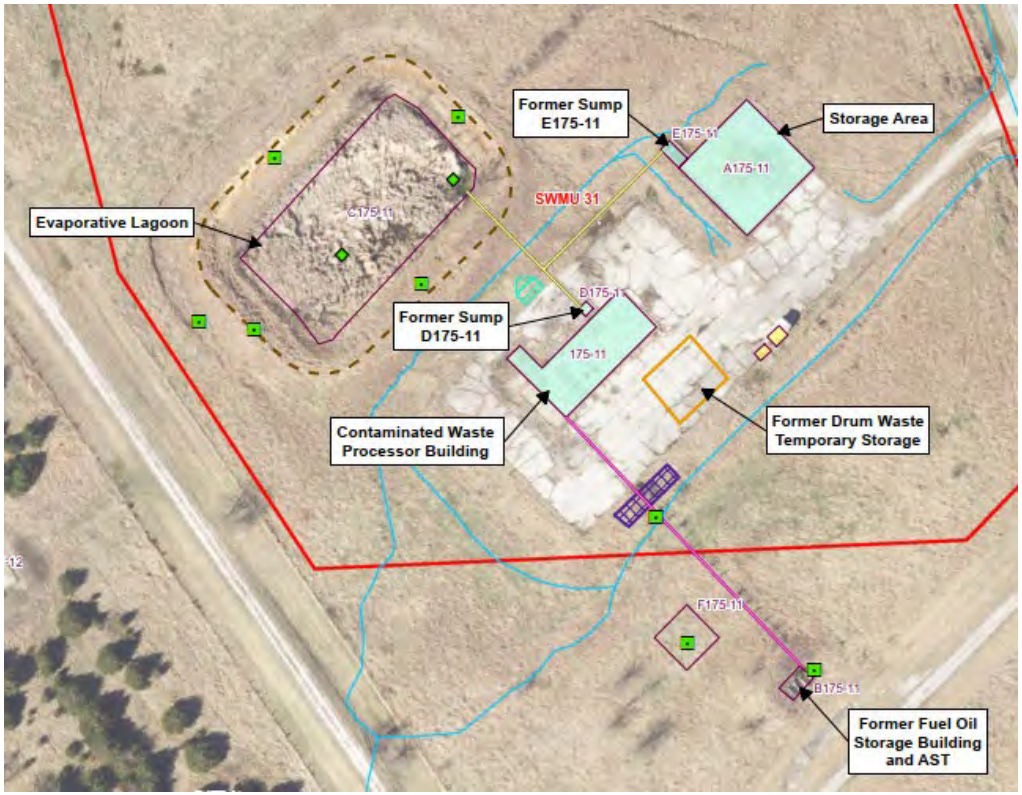
SWMU 31 – Contaminated Waste Processor and Evaporative Lagoon

- RFI scope to investigate data gaps not addressed by ICM or previous investigations
  - Fuel-oil Storage Area
  - Soils at the suspected 1987 fuel-oil spill area
  - Surface water and sediment within the EL
  - Groundwater
- Sample activities included
  - Surface soil samples
  - Sediment samples within the EL
  - DPT subsurface soil and groundwater samples
  - New and existing monitoring well samples
- Analytes included
  - RCRA Metals, Hexavalent chromium, Manganese
  - Explosives – including NC, NG, NQ and GN
  - SVOCs, PCBs, Dioxins/furans
  - VOCs and TPH – at fuel storage area and suspected spill
  - Nitrate, nitrite, ammonia



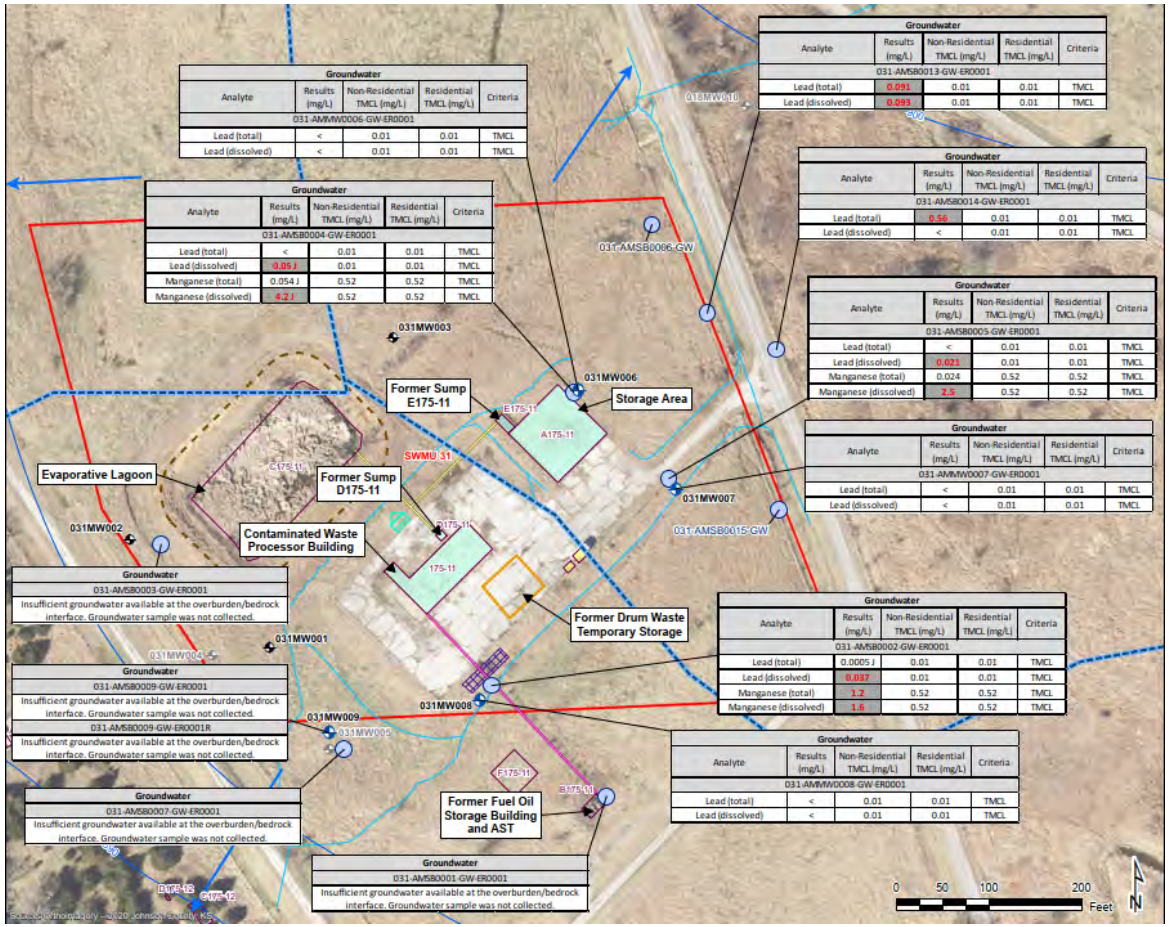
SWMU 31 – Contaminated Waste Processor and Evaporative Lagoon

- Completed collection of all planned surface and subsurface soil, sediment, and groundwater samples in October and November 2023
  - Surface water was not available within the lagoon
  - No TMCL exceedances in surface or subsurface soils
  - No TMCL exceedances in sediment
  - TMCL exceedances in DPT groundwater samples included total and dissolved lead and manganese
- Additional groundwater delineation was conducted in May 2024
- Wells were installed and sampled in May and October 2024



SWMU 31 – Contaminated Waste Processor and Evaporative Lagoon

- During groundwater collection efforts several DPT groundwater locations and monitoring wells did not produce water
- No TMCL exceedances of total or dissolved lead in monitoring wells installed to confirm TMCL exceedances
- Dissolved manganese exceeded residential TMCL of 0.52 mg/L at 3 DPT locations
- No Further Action recommended for soils, sediment, and surface water
- No further corrective action recommended for groundwater
  - Manganese is naturally occurring and not likely site activity related
  - Groundwater use restriction already in place for Sunflower AAP



Environmental Update

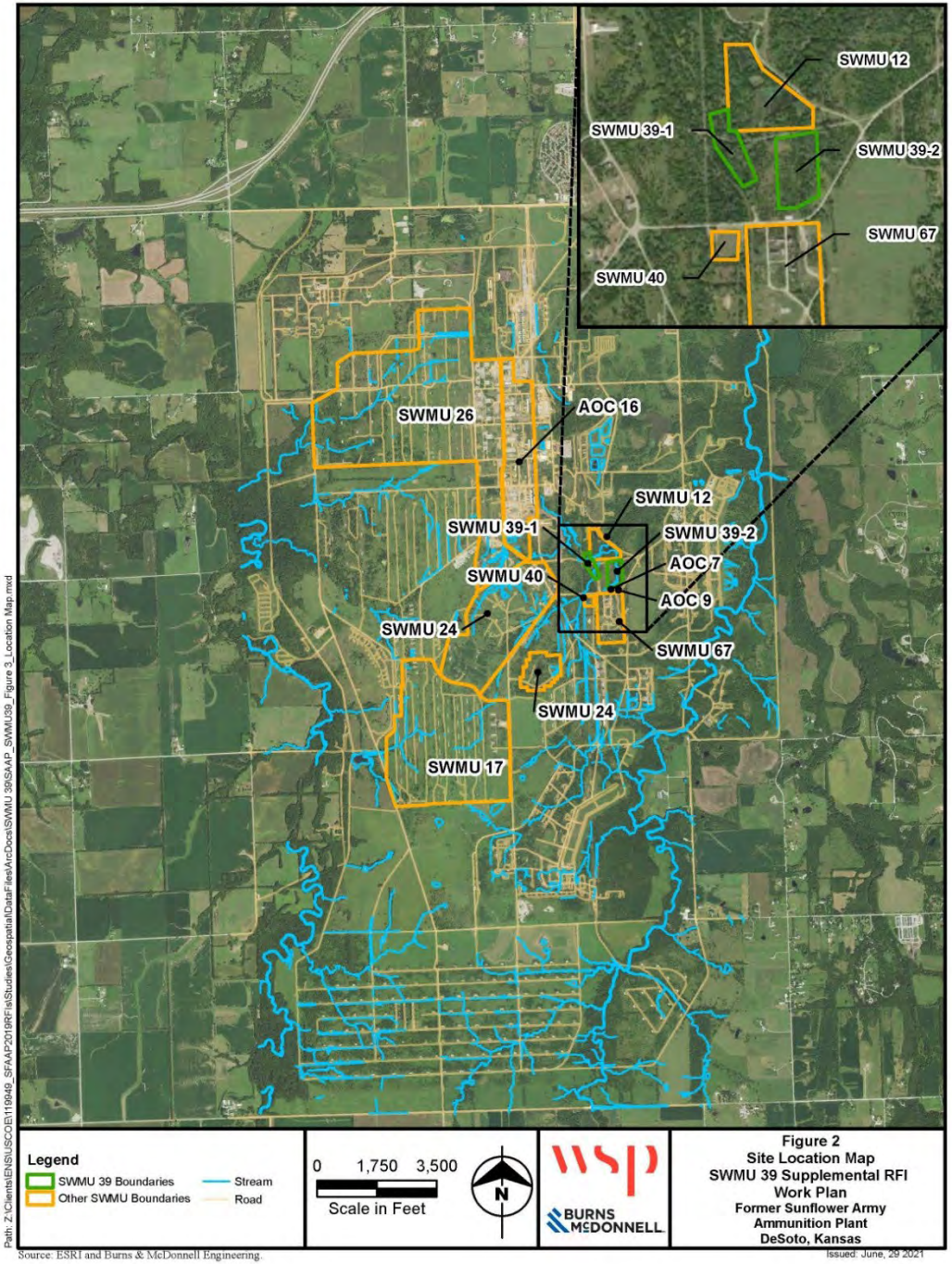
- Current/Ongoing RCRA Facility Investigations---Groundwater
  - OU5
  - SWMU 18/19

- RCRA Facility Investigations--soil
  - SWMU 31
  - SWMU 66

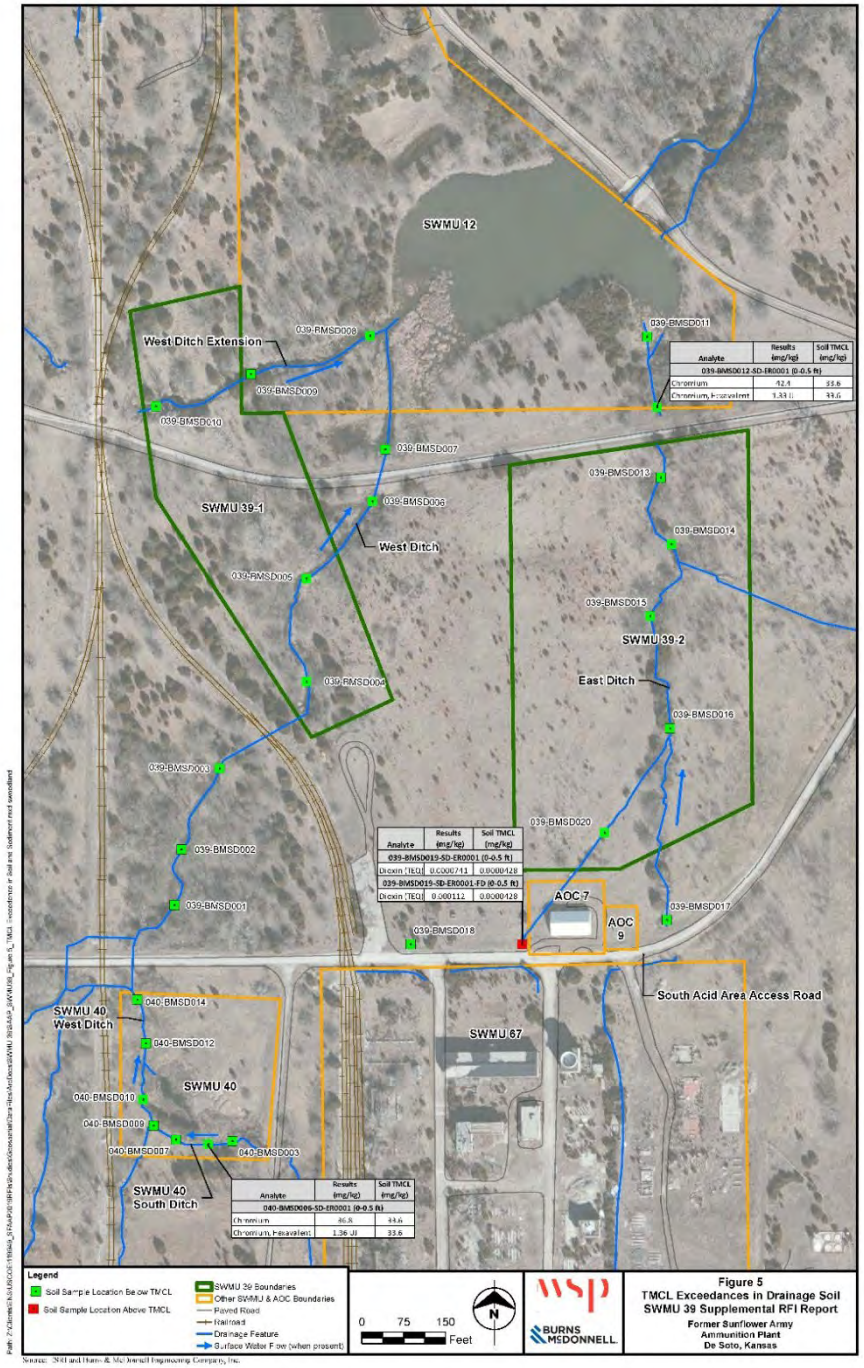
- Corrective Measures Implementation
  - SMWU 39/58
  - AOC 17 sump removal

- **SWMU 39 Corrective Measure**
  - Background
    - SWMU 39, the South Acid Area Drainage Ditch< is one acre in size and is located in the east central portions of SFAAP
    - RFI sampling focused on the East Ditch, West Ditch and West Ditch Extension
    - This is a drainage ditch with intermittent water flow during storms
    - Samples were analyzed for SFAAP contaminants and only Dioxins failed TMCLs
    - Corrective Measure Study was completed after the RCRA Facility Investigation in 2024
    - These efforts determined that dioxins/furans were the only contaminants of concern at SWMU 39.
    - Dioxins/Furans were found in one limited area of the SWMU 39 drainage

SWMU 39


SWMU 12
SWMU 39-1
SWMU 39-2
SWMU 67
SWMU 40
SWMU 26
AOC 16
SWMU 12
SWMU 39-1
SWMU 39-2
AOC 7
SWMU 40
AOC 9
SWMU 24
SWMU 67
SWMU 24
SWMU 17
Legend
SWMU 39 Boundaries
Other SWMU Boundaries
Stream
Road
0 1,750 3,500
Scale in Feet
N
BURNS McDONNELL
Figure 2
Site Location Map
SWMU 39 Supplemental RFI
Work Plan
Former Sunflower Army
Ammunition Plant
DeSoto, Kansas
Issued: June, 29 2021
Source: ESRI and Burns & McDonnell Engineering.
Path: Z:\Clients\ENSU\SCOE\119949_SFAAP2019RFIsStudies\Geospatial\DataFiles\ArcDocs\SWMU 39\SAAP_SWMU39_Figure 3_Location Map.mxd

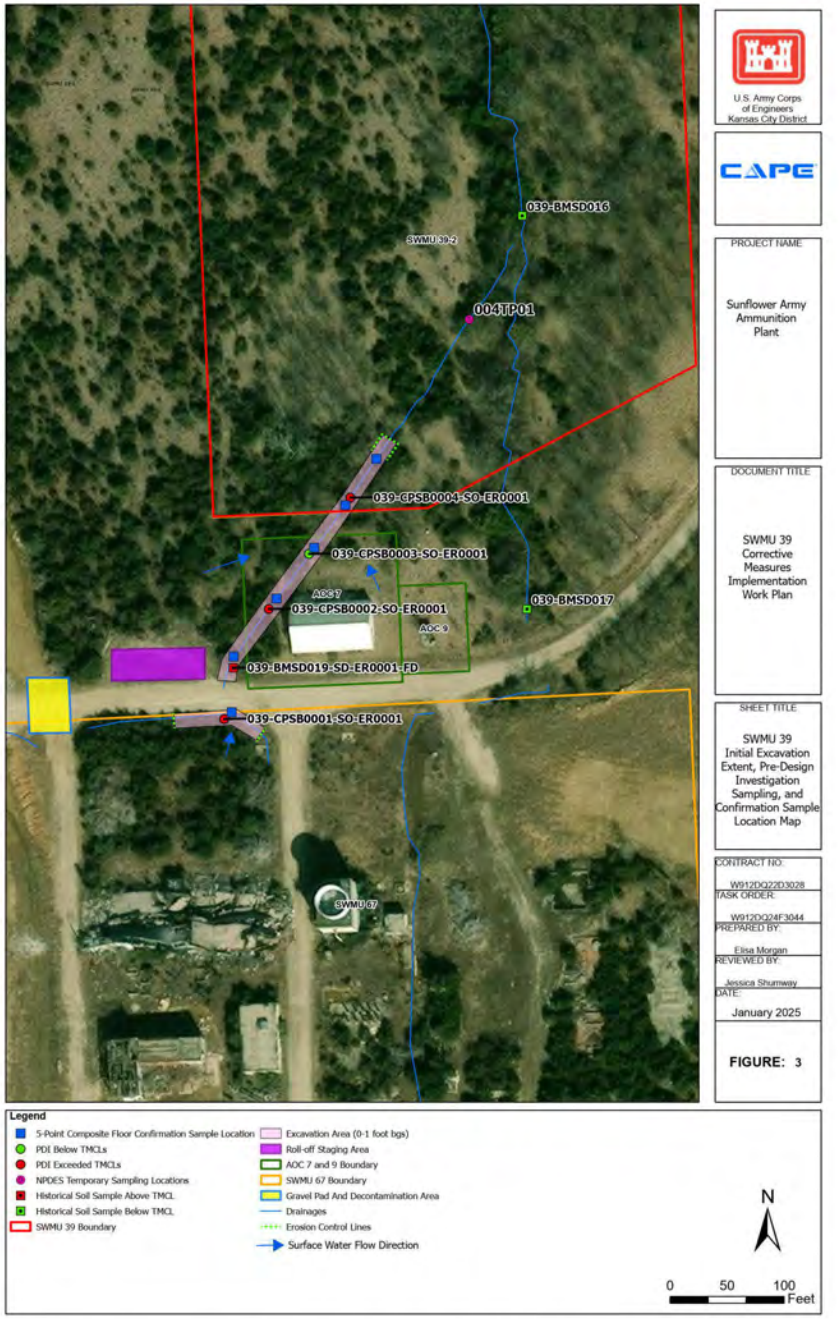
SWMU 39


SWMU 12
West Ditch Extension
039-RMSD008
039-BMSD009
039-BMSD010
039-BMSD011
039-BMSD007
SWMU 39-1
039-BMSD006
West Ditch
039-BMSD005
039-BMSD004
039-BMSD003
039-BMSD002
039-BMSD001
039-BMSD013
039-BMSD014
039-BMSD015
SWMU 39-2
East Ditch
039-BMSD016
039-BMSD020
039-BMSD017
039-BMSD018
AOC 7
AOC 9
South Acid Area Access Road
SWMU 67
SWMU 40 West Ditch
040-BMSD014
040-BMSD012
SWMU 40
040-BMSD010
040-BMSD009
040-BMSD007
040-BMSD003
SWMU 40 South Ditch
Analyte | Results (mg/kg) | Soil TMCL (mg/kg)
039-BMSD012-SD-ER0001 (0-0.5 ft)
Chromium | 42.4 | 33.6
Chromium, Hexavalent | 1.33 J | 33.6
Analyte | Results (mg/kg) | Soil TMCL (mg/kg)
039-BMSD019-SD-ER0001 (0-0.5 ft)
Dioxin TEQ | 0.0000711 | 0.0000428
039-BMSD019-SD-ER0001-FD (0-0.5 ft)
Dioxin TEQ | 0.000112 | 0.0000428
Analyte | Results (mg/kg) | Soil TMCL (mg/kg)
040-BMSD006-SD-ER0001 (0-0.5 ft)
Chromium | 46.8 | 33.6
Chromium, Hexavalent | 1.36 JJ | 33.6
Legend
Soil Sample Location Below TMCL
Soil Sample Location Above TMCL
SWMU 39 Boundaries
Other SWMU & AOC Boundaries
Paved Road
Railroad
Drainage Feature
Surface Water Flow (when present)
0 75 150
Feet
N
BURNS MSDONNELL
Figure 5
TMCL Exceedances in Drainage Soil
SWMU 39 Supplemental RFI Report
Former Sunflower Army Ammunition Plant
De Soto, Kansas

SWMU 39 Corrective Measure

- Corrective Measure Implementation
  - Pre-Design Investigation Completed to determine the extent of Dioxins around the RFI failure at SWMU 39
  - Excavation extents were determined based on the PDI investigation

SWMU 39


039-BMSD016
SWMU 39-2
004TP01
039-CPSB0004-SO-ER0001
039-CPSB0003-SO-ER0001
AOC 7
039-CPSB0002-SO-ER0001
AOC 9
039-BMSD017
039-BMSD019-SD-ER0001-FD
039-CPSB0001-SO-ER0001
SWMU 67
U.S. Army Corps of Engineers Kansas City District
CAPE
PROJECT NAME:
Sunflower Army Ammunition Plant
DOCUMENT TITLE:
SWMU 39 Corrective Measures Implementation Work Plan
SHEET TITLE:
SWMU 39 Initial Excavation Extent, Pre-Design Investigation Sampling, and Confirmation Sample Location Map
CONTRACT NO:
W912DQ22D3028
TASK ORDER:
W912DQ24F3044
PREPARED BY:
Elisa Morgan
REVIEWED BY:
Jessica Shumway
DATE:
January 2025
FIGURE: 3
Legend
5-Point Composite Floor Confirmation Sample Location
PDI Below TMCLs
PDI Exceeded TMCLs
NPDES Temporary Sampling Locations
Historical Soil Sample Above TMCL
Historical Soil Sample Below TMCL
SWMU 39 Boundary
Excavation Area (0-1 foot bgs)
Roll-off Staging Area
AOC 7 and 9 Boundary
SWMU 67 Boundary
Gravel Pad And Decontamination Area
Drainages
Erosion Control Lines
Surface Water Flow Direction
N
0
50
100
Feet

Next RAB Meeting

- May 2025 Date
- RAB Tour
- May 2025 Agenda

Questions And Contact Information

Army Environmental Command:

Email for Public Affairs Officer: Usarmy.jbsa.imcom-aec.mbx.public-mailbox@army.mil

Website: https://aec.army.mil/sfaap

Qrcode:

Where To Find The Administrative Record:

Sunflower Army Ammunition Plant

35425 W. 103rd Street

De Soto, KS 66018

Scott.e.smith138.civ@army.mil

(202) 815-6779

Future RAB Meetings:

Dates will be posted on the AEC website.

Adjourn Meeting