Former Galena FOL Military Munitions Response Program (MMRP) Supplemental Comprehensive Site Evaluation (CSE) Phase II RAB Meeting

19 August 2014

The Project Team

Project Overview

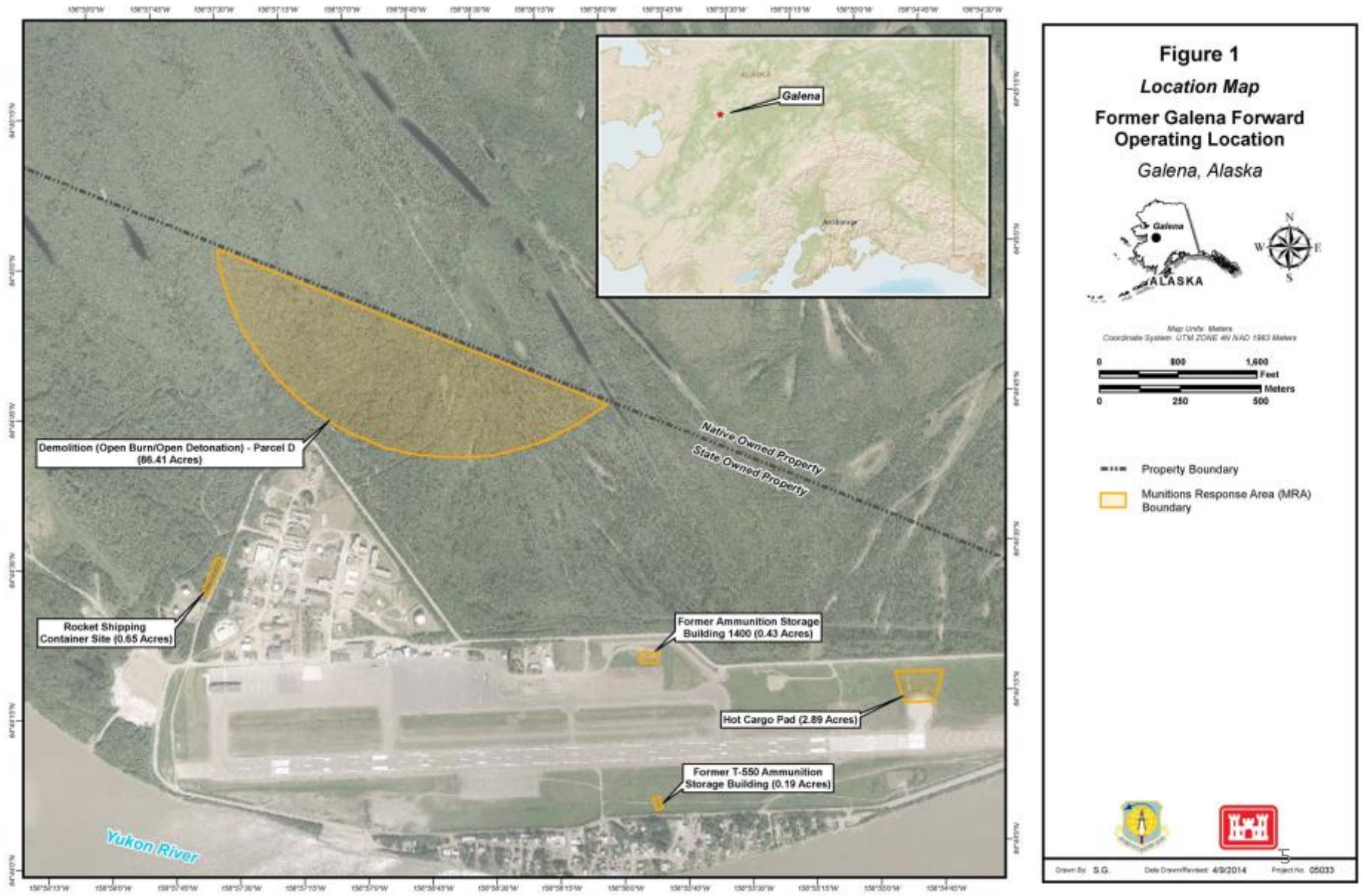
Goal of the CSE Phase II was to determine the presence or absence of Munitions and Explosives of Concern (MEC) at the Former Galena Forward Operating Location (FOL)

Project Overview

5 Munitions Response Areas (MRA) were investigated under this Contract

- Former Ammunition Storage Building 1400
- Hot Cargo Pad
- Demolition Area (Open Burn/Open Detonation [OB/OD]) – Parcel D
- Rocket Shipping Container Site
- Former Ammunition Storage Building T-550

Projects Location Map



Project Schedule

JUNE				JULY				AUG
WEEKS								
1	2	3	4	5	6	7	8	9

4 June 2014

Began Field Work

- Began work at Former Ammunition Storage Building 1400

27 June 2014

Field Work Completed

- Demolition (OB/OD) – Parcel D was the final site to be investigated

28 June 2014

Demobilized from the field

Field Activities

- Crew of qualified UXO technicians reacquired anomalies identified during a previous geophysical investigation.
- Each location was marked with a pin flag.
- Anomalies were intrusively investigated by a combination of hand digging and mechanical means.

Summary of Findings

- No MEC was encountered at any site
- Military munitions debris encountered:
  - Former Ammunition Storage Building 1400
    - Two (2) expended M200 5.56 blanks
  - Rocket Shipping Container Site
    - One (1) expended .30 caliber cartridge case
  - Demolition (OB/OD) - Parcel D
    - Three (3) M2 .50 caliber ball projectile
    - One (1) 20 mm M55 target practice projectile
    - One (1) bomb lanyard assembly
    - One (1) shroud line holder and partial suspension wire from 81 mm illumination mortar
    - One (1) spacer from 81 mm illumination mortar

Summary of Findings Continued

- Military munitions packaging encountered:
  - Rocket Shipping Container Site
    - Empty rocket shipping containers:
      - 369 each, this includes whole or partial containers and those recovered from surface or subsurface
  - Demolition (OB/OD) - Parcel D
    - One (1) empty 81 mm mortar shipping container

Report and NFA Process and Timeline

- All MRAs investigated as part of this project are expected to require No Further Action (NFA).
  - The local public will be offered the opportunity to review and comment on project recommendations.
- Approximate Reporting Timeline
  - Draft Document – October 2014
  - Final Document – December 2014
  - Public Comment Period - Early 2015
  - Final Decision – Spring 2015

Conclusion

- The goal of the Supplemental CSE Phase II was fulfilled
  - No MEC was encountered
- AFCEC /USACE are recommending NFA at all MRAs investigated as part of this project
- Site closure/final decision is pending regulatory and DoD review and approval of the final report

Questions?

Attachment 3
Performance Based Remediation (PBR) at Former Galena FOL

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PERFORMANCE-BASED REMEDIATION (PBR) AT FORMER GALENA FORWARD OPERATING LOCATION (FOL), ALASKA

RAB Meeting, 19 August 2014

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Former Galena FOL Performance Based Contract

- Parsons - Prime Contractor
- Partnering Team – CH2M HILL and Ahtna Engineering Services
- 6.5 year contract
- 31 Sites

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Performance Objectives

- **Remedy-in-Place (RIP): All 31 Sites by 30 September 2019**
- **Stretch Goals**
  - **Response Complete (cleanup complete with restrictions): 8 Sites**
  - **Site Closeout (cleanup complete with no restrictions): 8 sites**

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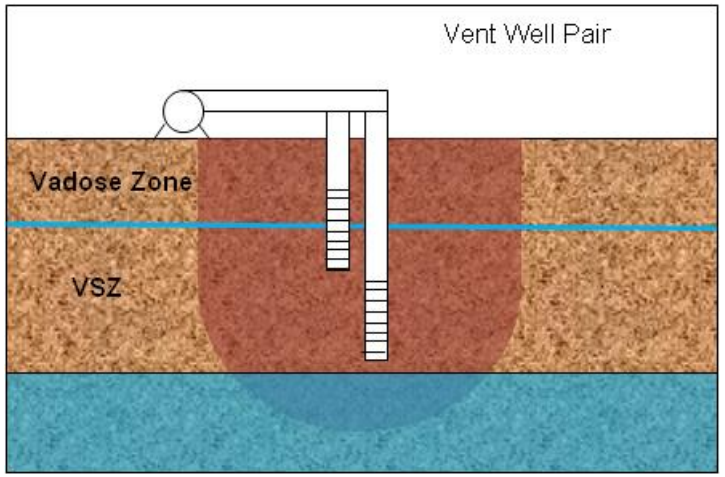
Cleanup Techniques

- Excavation and Landfarming/Disposal
- Air Blower Technologies
  - Bioventing
  - Soil Vapor Extraction
  - Biosparging
- Injection Technologies
  - Sulfate-Enhanced Bioremediation
  - In-situ Bioremediation and Biogeochemical Transformation
  - In-situ Chemical Oxidation
- Monitored Natural Attenuation



ADEC and US EPA regulations require public review periods for proposed cleanup methods

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Cleanup Techniques

Excavation

- **Most excavations are smaller than the 2013 excavation at SS016**
  - **Petroleum-contaminated soil goes to landfarm for treatment**
  - **Non-petroleum contaminated soil transported off site for disposal**

Estimated Excavation Volumes			
Year	Number Excavations	Individual Volume (CY)	Total Volume (CY)
2013	1	8,791	8,791
2015	12	25 – 9,200	18,865
2016	6	10 – 3,000	5,055
2018	2	60 – 270	330

Large excavation in 2015 is at DP023/DSWD

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Cleanup Techniques

Air Blower Technologies

- Soil Vapor Extraction – Extracts air to remove volatile compounds
- Bioventing – Injects air to biodegrade petroleum in unsaturated soil
- Biosparge – Injects air below water table to biodegrade petroleum in saturated soil and groundwater

- Common elements:
  - Blower in above-ground shed
  - Buried piping between blower and vent wells
  - Operate mainly in fall-winter when water table is low

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Cleanup Techniques

Air Blower Technologies

Anticipated System Construction			
Year	SVE	Bioventing	Biosparge
2015	4	1	0
2016	6	7	5
2017	0	0	2

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Cleanup Techniques

Injection Technologies

- **Enhanced Anaerobic Bioremediation / Biogeochemical Transformation – Inject vegetable oil to degrade chlorinated VOCs**
- **Sulfate Bioremediation – Inject sulfate to biodegrade petroleum**
- **ISCO – Inject chemicals to oxidize contaminants**

Anticipated Injection Events			
Year	EAB/EBT	Sulfate	ISCO
2015	0	0	1
2016	0	0	0
2017	2	0	0
2018	0	3	0

- **Common elements:**
  - **Injection through DPT rig**
  - **Tanks/chemicals on site a few days to weeks only**

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Cleanup Techniques

Monitored Natural Attenuation

- Contaminants degrade over time through natural processes
- Sample groundwater (annually) to monitor the process
- Used in conjunction with active remedies
- Anticipate conducting MNA or performance monitoring of groundwater at 20 sites.

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Scope of Work – SC Sites

- SC Sites are regulated under the Alaska Contaminated Sites Program
  - Contaminated by petroleum releases
- Annual Groundwater Monitoring (work plan updated annually with annual report)
- Report sequence:
  - PBR Fact Sheet – *Public Review*
  - Site Characterization Report Addendum (SCR Addendum)
  - Cleanup Plan (CP)
  - Construction Completion Reports (CCR)
  - Performance Monitoring Reports (PMR)
  - Remedy Complete or Site Closure Reports (as appropriate)

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SC Site List (21)

- CG001 – Million Gallon Hill
- CG002 – Missile Storage Area
- SS005 – Wilderness Hall
- CB001 – GAVTC Building
- ST005 – POL Tank Farm
- ST009 - West Unit JP-4 Fuel Stands
- ST010 – Southeast Runway Fuel Spill
- SS014 – Birchwood Hangar
- SS016 – Bldg 2541 Former POL Fuel Lab
- SS017 – Former Truck Fill Stands
- ST020 – Building 1837 – Former UST
- SS021 – Building 1549 Old Fire Station
- TU001 – Power Plant Tank 49
- CSS001 (AST1569) – Electric Power Station AST
- CSS002 (B1812) – Building 1812 Former Hazardous Waste Satellite Accumulation Point
- CSS005 (PADS) – Refueling Pads
- CLP006 (OAP) – Old Abandoned Pipelines
- CST011 (UST1428) – Combat Alert Cell USTs
- CST013 (UST1770) – Former Incinerator USTs
- CST014 (UST1859) – Dining Facility UST
- CST009 (UST1400) – Building 1400 Former Ammunition Storage UST

Note: Old site identifiers in parenthesis

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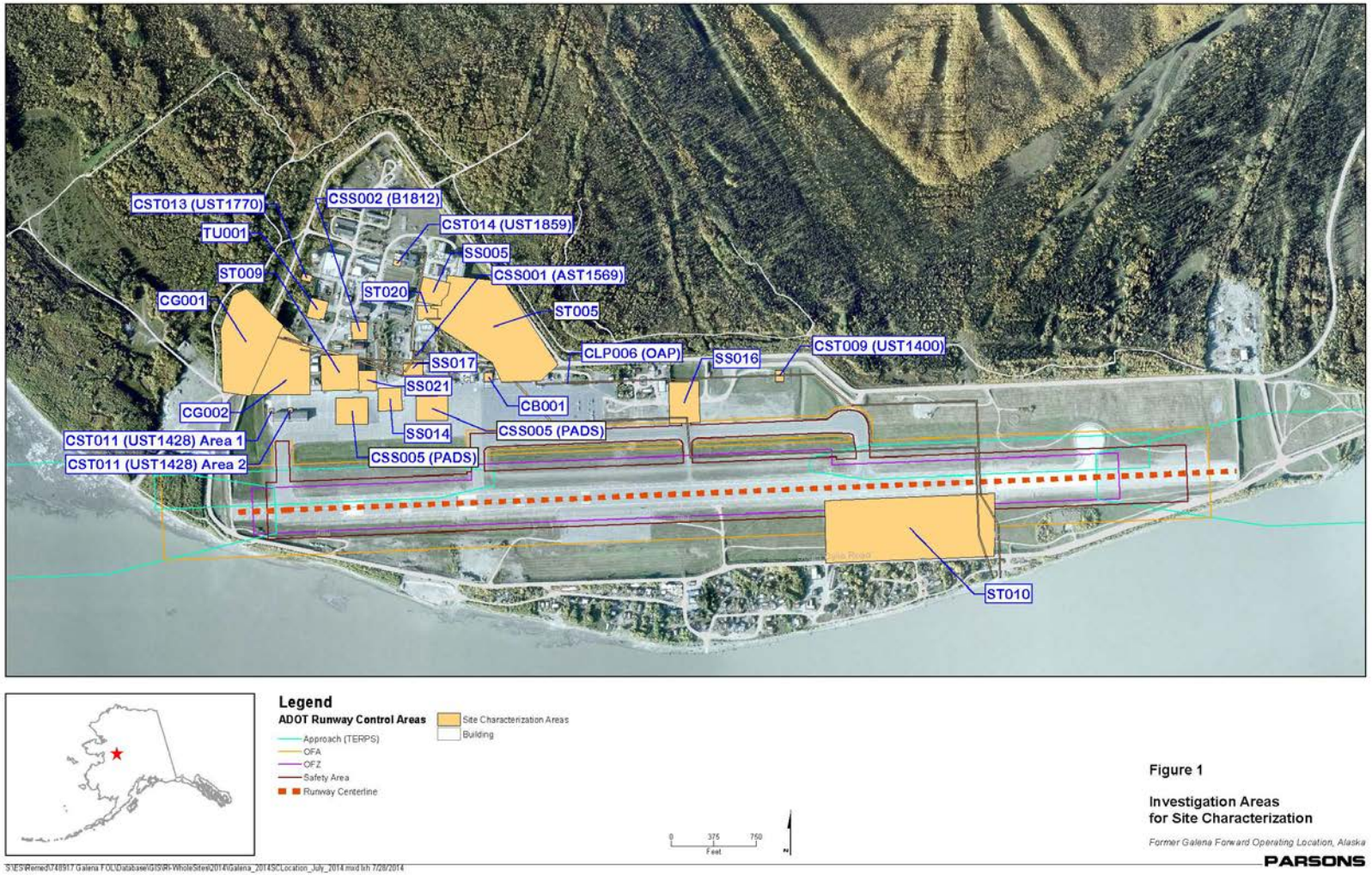
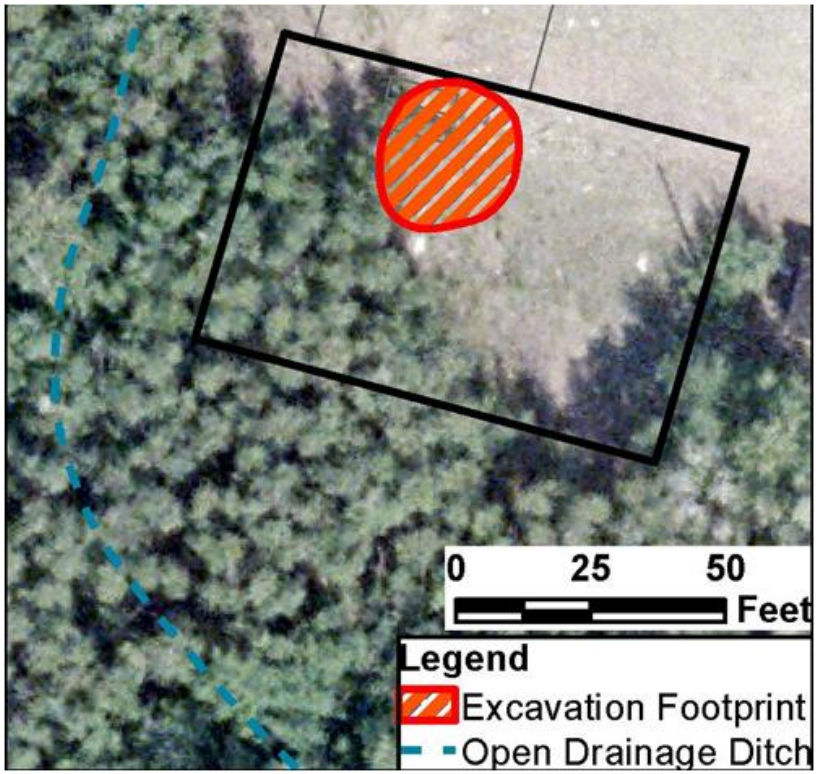
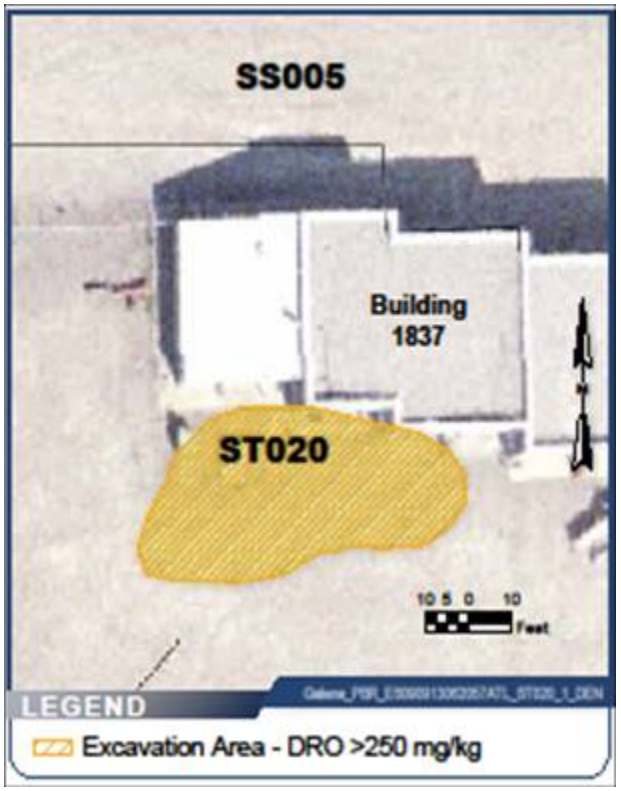
SC Site Locations



SC Sites – CST013 and ST020

- **Smaller sites like CST013 (UST1770) and ST020 (Building 1857) that do not have groundwater contamination will be cleaned up by excavating and landfarming contaminated soil**





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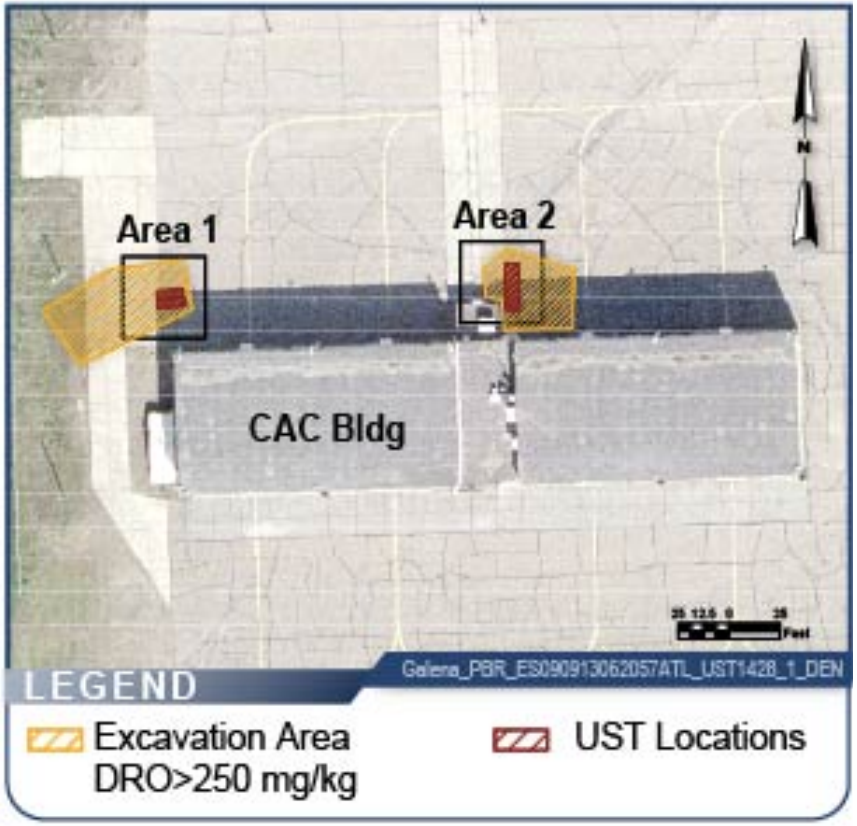
SC Sites – CST011

- Smaller sites like CST011 (UST 1428) that do not have groundwater contamination will be cleaned up by excavating and landfarming contaminated soil
- If contaminated soil extends under the building and cannot be removed without damaging the building, soil will be treated by injecting chemical oxidants (ISCO)



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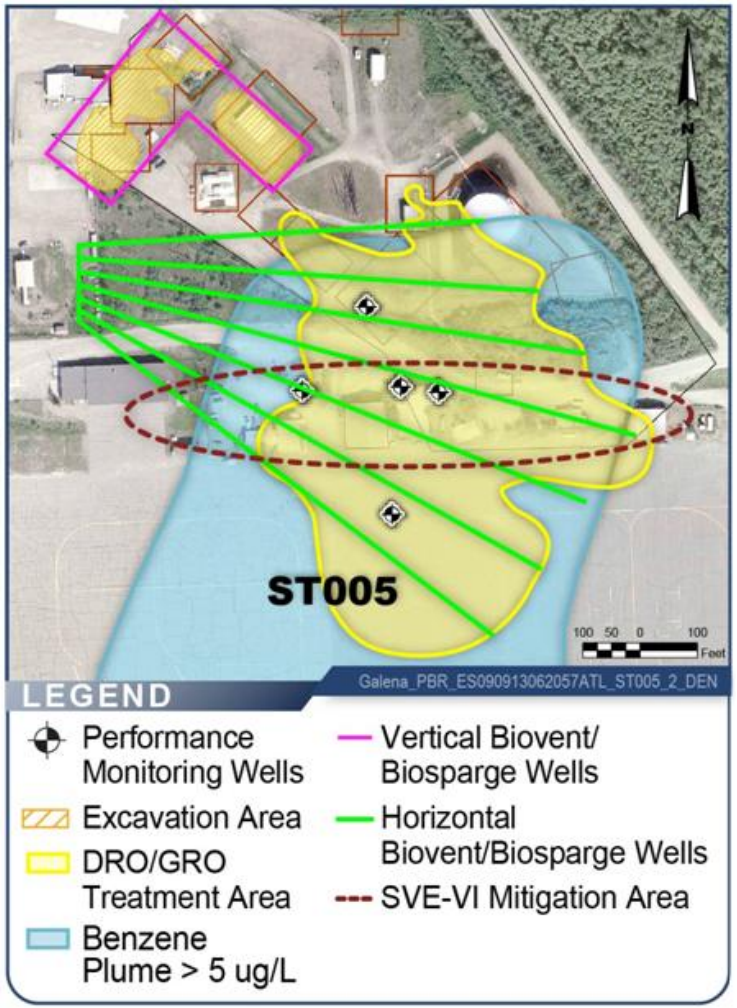
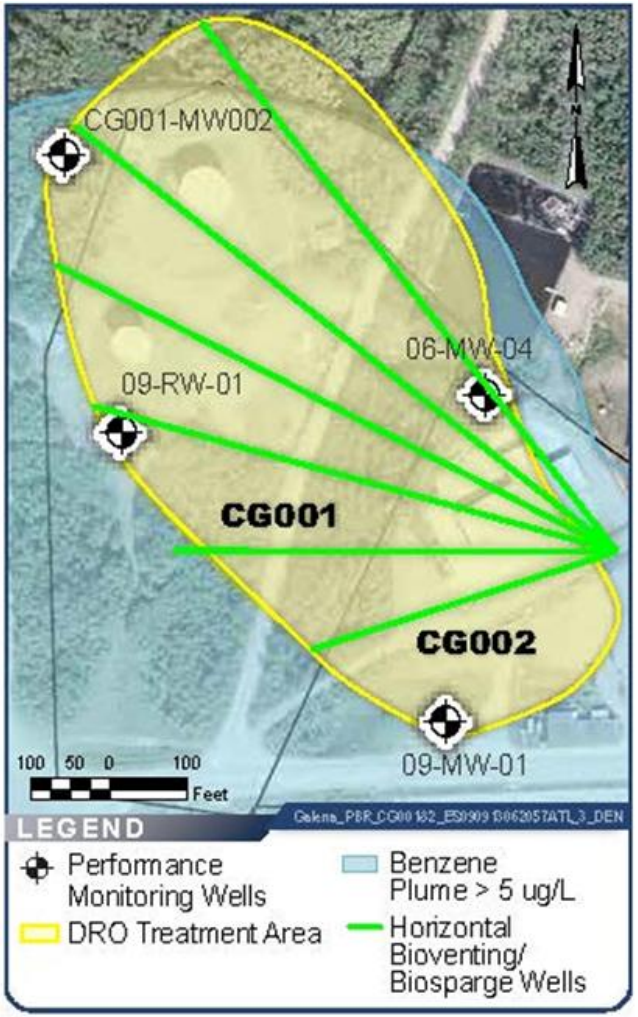
SC Sites – ST005/CB001

- Larger sites use horizontal wells to biovent and biosparge fuel contaminants in variably saturated zone – for example beneath ST005 where plume extends beneath airfield area
- Horizontal wells at 25-35 feet below ground surface
- Operate in the winter when water table is low



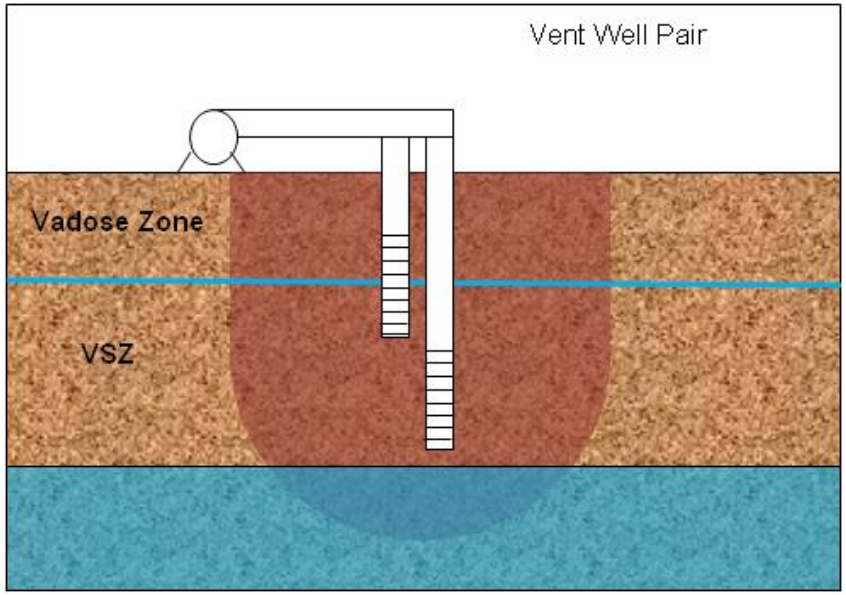
SC Sites – CG001/CG002

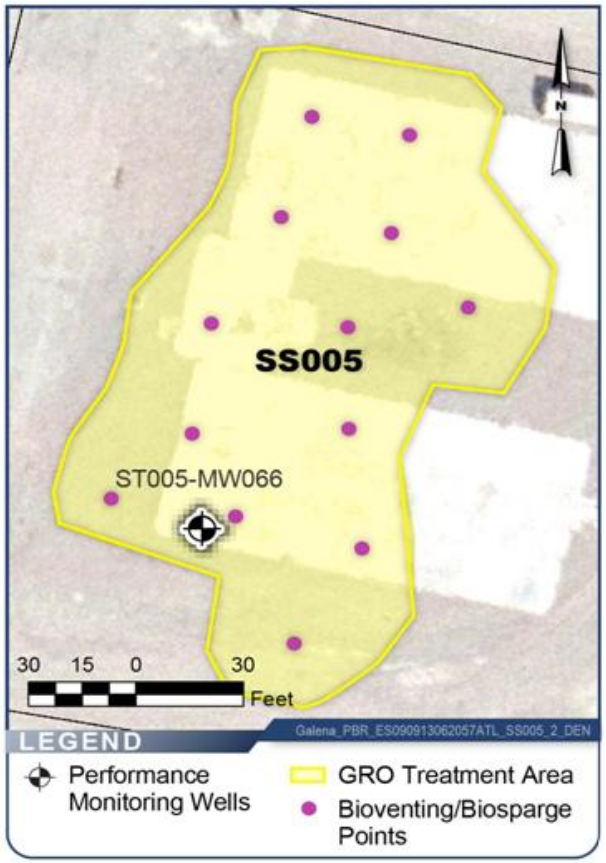
- **Similar approach using horizontal wells for a large site beneath Million Gallon Hill and Former Missile Storage Area**



SC Sites – SS005

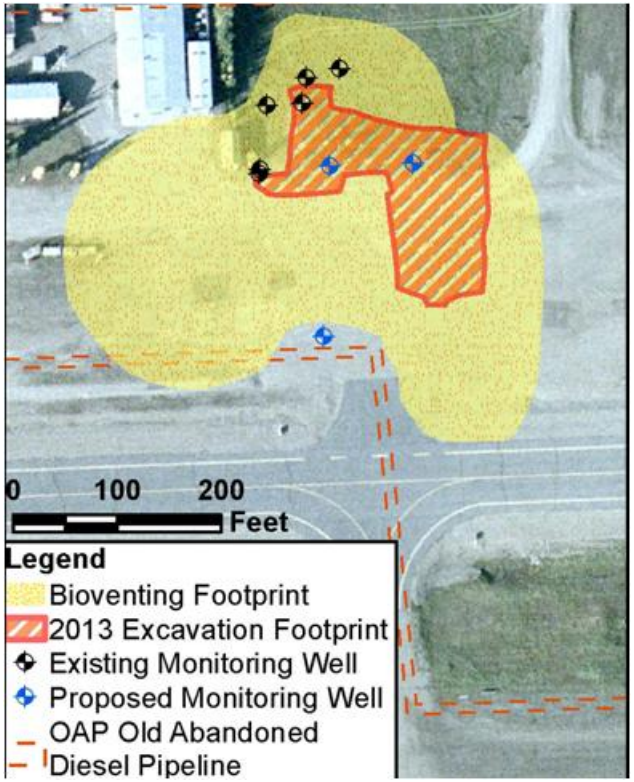
- **Smaller sites such as SS005 will have vertical bioventing wells, typically installed in pairs to treat entire variably saturated zone**

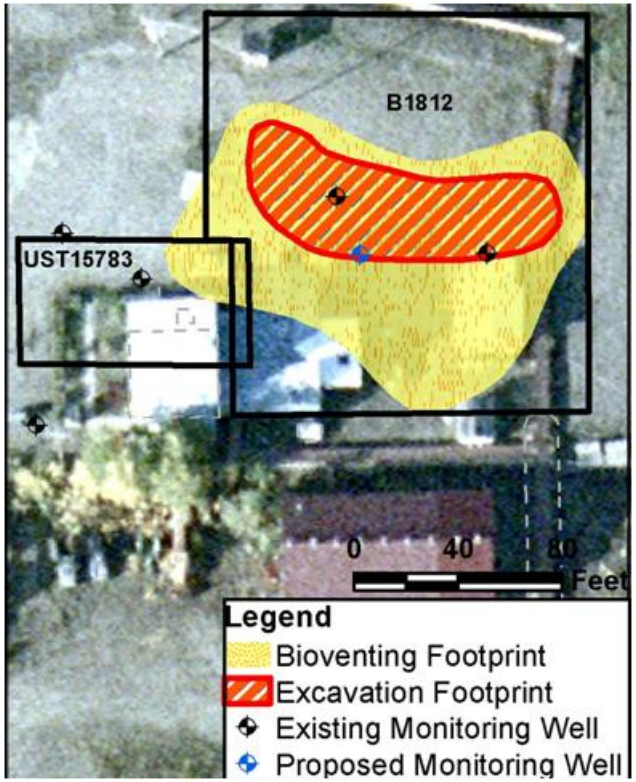




SC Sites – SS016 and B1812

- **Some sites like SS016 and Building 1812 will be cleaned up with a combination of technologies such as excavation and bioventing**





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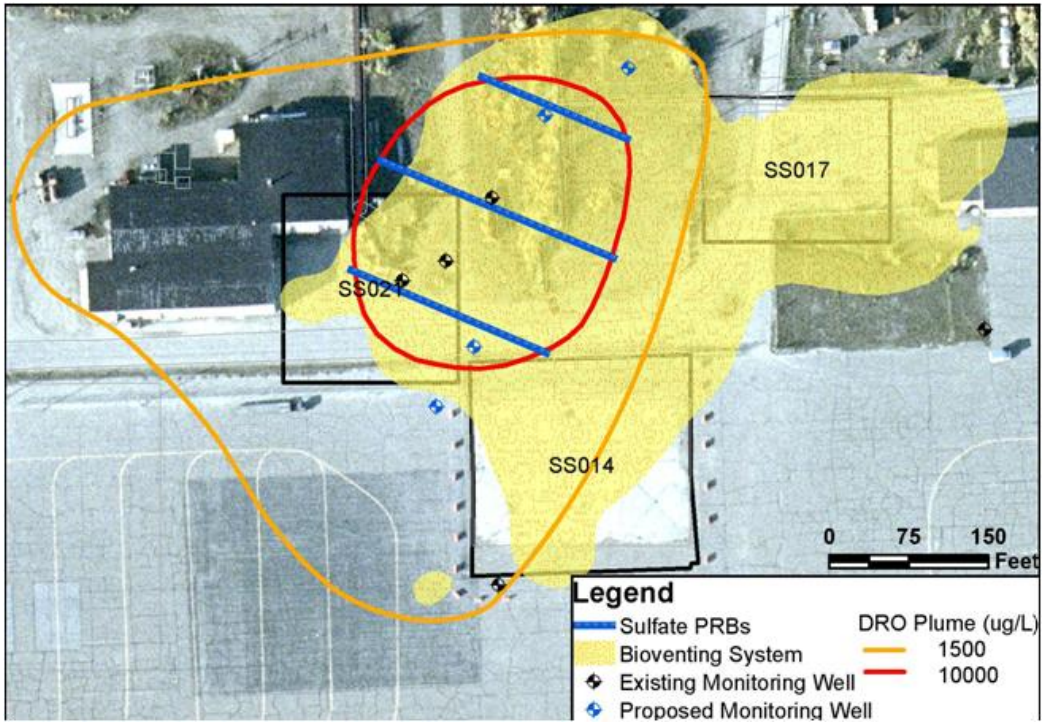
SC Sites – SS017/SS014

- Some sites will be combined and contaminated groundwater treated with bioremediation using sulfate biobarriers
- Biobarriers are rows of temporary injections points installed and removed using a direct push rig
- Anaerobic microbes eat the fuel compounds and breathe sulfate after oxygen is used up
- More passive approach used for saturated soil and groundwater



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PBR Cleanup Summary (SC)

Site ID	Site Name	Performance Objective (Target Date)	Description of Technical Approach
CG001/ CG002	Million Gallon Hill/ Missile Storage Area	RIP (4/18)	Replace existing bioventing system with expanded biosparge/bioventing system to treat petroleum contamination in the deeper VSZ soil and groundwater using horizontal wells
SS005	Wilderness Hall (Bldg 1872)	Response Complete (7/20)	Biosparge/bioventing to treat petroleum contamination in deeper VSZ soil and groundwater.
ST005/ CB001	POL Tank Farm/ Galena Aviation Vocation Technical Center	RIP (3/18)	Expand the existing bioventing and SVE systems with biosparge/bioventing to treat petroleum contamination in deeper VSZ soil and groundwater. Expand the SVE system to ensure VI mitigation.
ST009	West Unit JP-4 Fuel Stands	RIP (11/17)	Spot excavation to remove PAH/PCB/pesticide compounds in surface soil. SVE to reduce benzene and GRO concentrations in unsaturated soil, transition to bioventing for DRO after benzene concentrations decrease. Sulfate-enhanced MNA for petroleum contaminants in groundwater.
ST010	Southeast Runway Fuel Spill	RIP (10/17)	Bioventing for petroleum contamination in unsaturated soil, MNA for contamination in groundwater.

PBR Cleanup Summary (SC)

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Site ID	Site Name	Performance Objective (Target Date)	Description of Technical Approach
SS014/ SS017	Birchwood Hangar/ Former Truck Fillstands	RIP (11/17)	Bioventing for petroleum contamination in unsaturated soil, sulfate-enhanced MNA for petroleum contaminants in groundwater.
SS016	Building 2541 – Former POL Fuel Lab	RIP (10/17)	Bioventing for petroleum contamination in unsaturated soil, MNA for groundwater.
SS021	Building 1549 Old Fire Station	Site Closeout (3/15)	Site Characterization has not detected any contaminant releases sourced from SS021. Close out SS021 and address deep VSZ and groundwater contamination under SS017.
ST020	Building 1837 – Former UST	Site Closeout (9/16)	Excavate petroleum-contaminated soil to MGW CULs. Treat excavated soil in landfarm.
TU001	Power Plant Tank 49	RIP (3/17)	Excavate contaminated surface soil and sediment. Biosparge/bioventing to treat petroleum contamination in VSZ soil and groundwater.
CSS001	Electric Power Station AST	Site Closeout (7/16)	Excavate petroleum-contaminated soil to MGW CULs. Treat excavated soil in landfarm.
CSS002	Building 1812 Former Hazardous Waste Satellite Accumulation Point	Response Complete (9/20)	Excavate and landfarm petroleum-contaminated soil to 15 feet bgs, as well as surface soil contaminated with PAHs / lead. Bioventing to treat remaining petroleum contaminants in soil to less than M2 HH CUL.

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PBR Cleanup Summary (SC)

Site ID	Site Name	Performance Objective (Target Date)	Description of Technical Approach
CSS005	Refueling Pads	Site Closeout (7/16)	Excavate petroleum-contaminated soil to MGW CULs. Treat excavated soil in landfarm.
CPL006	Old Abandoned Pipeline	RIP (10/17)	Bioventing for petroleum-contaminated soil, MNA for groundwater.
CST011	Combat Alert Cell USTs	Response Complete (7/20)	Remove USTs and excavate/landfarm petroleum-contaminated soil. ISCO to treat contaminants below the bottom of the excavation and under the building.
CST013	Former Incinerator USTs	Site Closeout (10/16)	Excavate petroleum-contaminated soil to MGW CULs. Treat excavated soil in landfarm.
CST014	Dining Facility UST	RIP (12/16)	Biosparge/bioventing to treat petroleum contamination in deeper VSZ soil and groundwater.
CST009	Building 1400 Former Ammunition Storage UST	Site Closeout (7/16)	Excavate petroleum-contaminated soil to MGW CULs. Treat excavated soil in landfarm.

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Scope of Work – RI Sites

- **RI Sites are regulated under the US EPA Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)**
  - **Site contaminants include chemicals in addition to petroleum**
- **Report sequence:**
  - **Feasibility Study (FS)**
  - **Proposed Plan (PP) – *Public Review***
  - **Record of Decision (ROD)**
  - **Remedial Design/Remedial Action Work Plan (RD/RAWP)**
  - **Remedial Action Completion Report (RACR)**
  - **Remedial Action-Operations Reports (RA-O)**
  - **Remedy Complete or Site Closure Reports (as appropriate)**

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RI Site List (10 Sites)

- FT001 – Fire Training Area
- SS006 – TCE Area (Bldg 1845)
- SS013 – Control Tower Drum Storage Area South
- SS015 – South Apron Maintenance Area
- SS019 – Building 1700 Refueler Maintenance Shop
- SS018 (AOC023) – Waste Accumulation Area
- SS022 (B400) – Bldg 400 Former CAA/AF Weather Station
- DP023 (DSWD) – Former Disposal Site West of Dike
- OW024 (OWS1833) – MWR Storage Dry Well
- SS025 (new) – West Perimeter Road TCE Spill Site

Note: Old site identifiers in parenthesis

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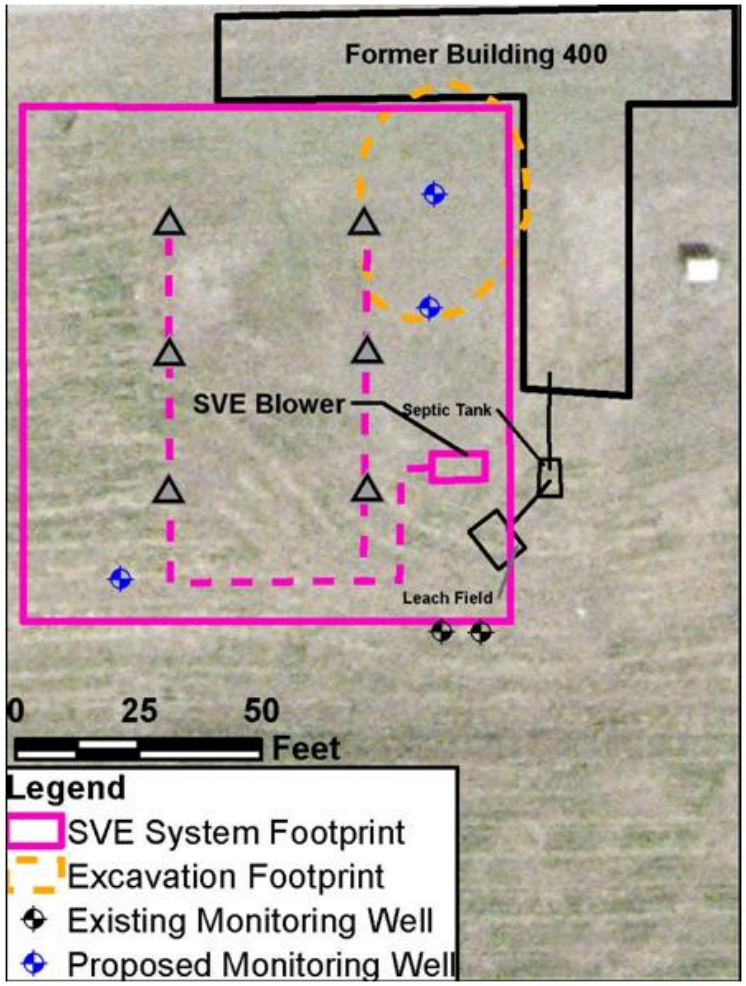
RI Site Locations

RI Sites – Former Building 400

- RI sites with TCE such as B400 can be treated using soil vapor extraction
- Anticipate TCE in shallow groundwater will attenuate with treatment of vadose and variably saturated zones



RI Sites – SS015 and SS006

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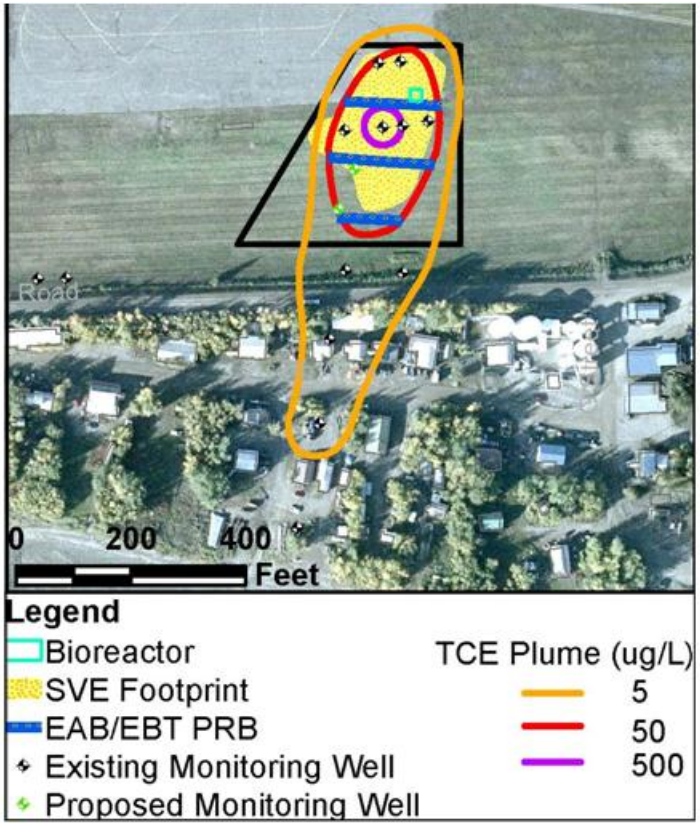
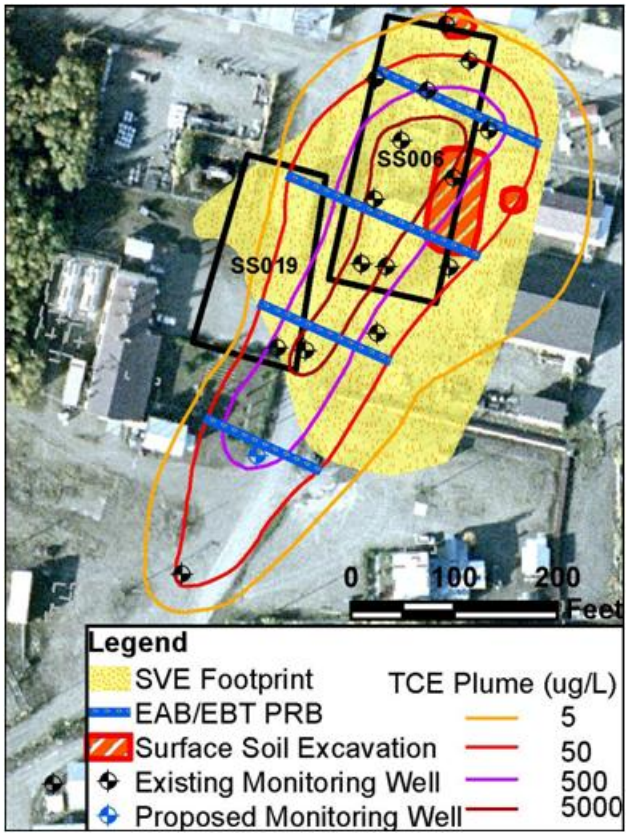
- **Other sites with fuel and chlorinated solvents will be treated with excavation/SVE for unsaturated or variably saturated soil combined in situ bioremediation for groundwater**





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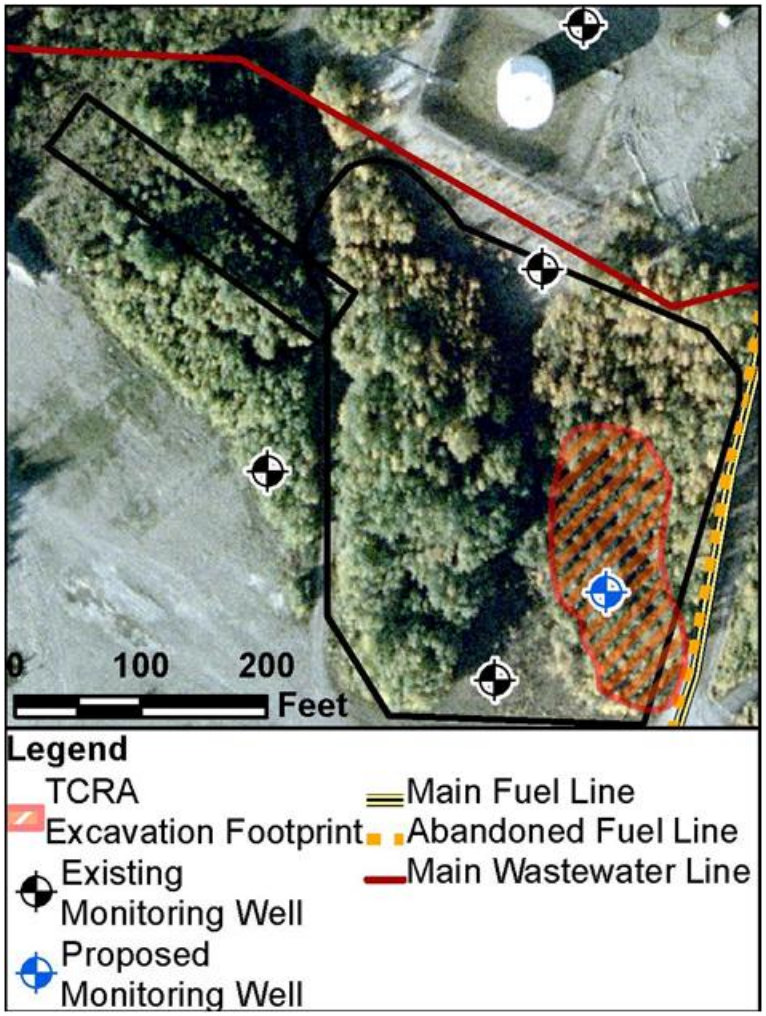
Disposal Site West of Dike

- **The DSWD site will have an interim soil sampling and removal action to remove debris and contamination in the disposal area and to determine if there is any contamination that cannot be excavated**



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PBR Cleanup Summary (RI)

Site ID	Site Name	Performance Objective (Target Date)	Description of Technical Approach
FT001	Fire Protection Training Area	RIP (10/17)	Bioventing for petroleum-contaminated soil, MNA for petroleum contaminants in groundwater
SS006	TCE Area (Bldg 1845)	RIP (11/17)	SVE for VOCs in unsaturated (vadose zone and VSZ) soil, and EAB/EBT for chlorinated VOCs in saturated soil and groundwater.
SS019	Building 1700 – Refueler Maintenance Shop	Response Complete (4/20)	Excavate/landfarm petroleum-contaminated soil near former UST and dry well. SVE for remaining contaminants in unsaturated soil. Address chlorinated VOC contamination east of Bldg 1700 under SS006.
SS015	South Apron Maintenance Area	RIP (11/17)	SVE of chlorinated VOCs in unsaturated soil. EAB/EBT for chlorinated VOCs in source area groundwater. MNA in downgradient groundwater plume.
SS018	Waste Accumulation Area - South of Bldg 1499	Response Complete (6/20)	Excavate and landfarm petroleum-contaminated soil where feasible. Bioventing to treat petroleum-contaminated soil beneath pipeline that cannot be safely excavated. Excavate pesticide-contaminated soil if it exceeds acceptable risk levels. Address chlorinated VOCs in groundwater as part of SS006.

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PBR Cleanup Summary (RI)

Site ID	Site Name	Performance Objective (Target Date)	Brief Description of Technical Approach
SS013	Control Tower Drum Storage Area - South	Response Complete (4/18)	Complete Site Characterization Report Addendum, recommend RC based on contaminant concentrations in soil.
SS022	Building 400 Former CAA- Air Force Weather Station	Site Closeout (6/20)	Excavate and landfarm petroleum-contaminated soil. SVE to remove chlorinated VOCs from unsaturated soil. MNA for groundwater.
OW024	MWR Storage OWS	Site Closeout (6/20)	SVE to remove VOC contamination from soil; Excavate / remove arsenic contaminated surface soil if it is attributed to a source-related release.
DP023	Former Disposal Site West of Dike	Response Complete (4/20)	Conduct TCRA to excavate / remove / dispose of buried drums, debris, and contaminated soil up to 15 ft bgs. Complete CERCLA process through ROD, excavate any remaining soil contamination. Treat petroleum contaminants in deeper soil and groundwater with CG001 / CG002 biosparge/bioventing system.
SS025	West Perimeter Road TCE Spill	Response Complete (9/20)	Additional soil and groundwater samples for delineation. SVE to treat chlorinated VOCs in soil above HH CULs.

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Schedule Overview

- 2014 Field Work
  - Annual Groundwater Monitoring (late August/September)
  - DSWD Soil Sampling (September)
- Summer 2015 – Implement select Cleanup Plans and Pilot Tests
- 2016 to 2018 – Implement remaining remedies
- 2019 to 2020 – Operate Remedies, Prepare close out reports as appropriate

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Communications

- Semi-annual RAB Meetings
- Public review periods for Proposed Plans under CERCLA
- Air Force maintains Administrative Record for Final Documents

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Questions?

- **Public Comments will be taken until August 29, 2014**
- **Please send comments to either of the following:**

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