

## Air Force Civil Engineer Center

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### Performance-Based Remediation (PBR) at the Former Galena Forward Operating Location (FOL), Alaska

Restoration Advisory  
Board (RAB) Meeting  
03 April 2019

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*Battle Ready...Built Right!*



## Former Galena FOL Performance Based Contract

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- Parsons - Prime Contractor
- Partnering Team – CH2M/Jacobs and Ahtna Engineering Services
- Remediation of 32 sites contaminated primarily with fuels and solvents
- To date, six sites have achieved Cleanup Complete
- Installation of remediation systems from 2015 to 2019
- Operations and monitoring through Summer 2020



Loading contaminated surface soil into supersacks for disposal at Site SS006



## Winter 2018 to Spring 2019 Activities

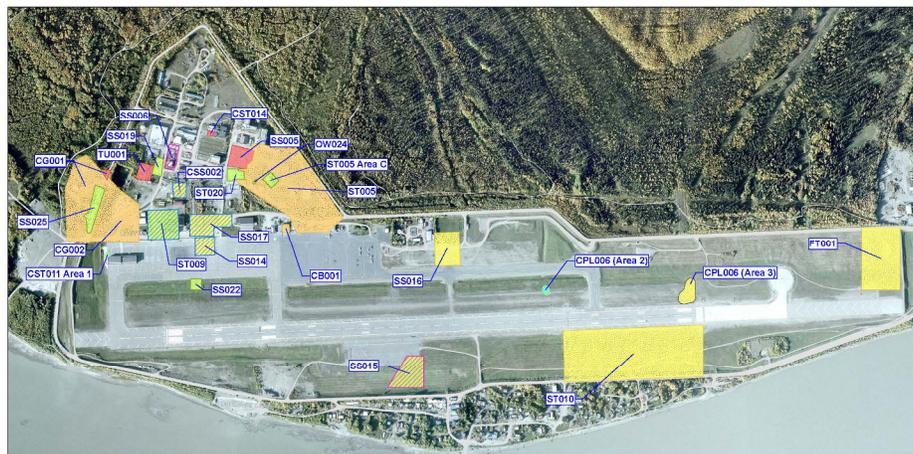


- Bioventing and soil vapor extraction (SVE) running and monitored monthly at 13 sites
- Vertical and horizontal air sparging systems running and monitored monthly at 7 sites (3 with SVE)
- An SVE system at Site OW024 and a vertical air sparge system at Site CST011 have been turned off pending confirmation sampling results for closure
- One SVE system (Site SS025) only operates during the summer and fall
- April/May 2018 – The operating systems will be shut down for annual soil vapor sampling to track cleanup progress
- All operating systems (except Site SS025) will be started back up in the fall and operated over the winter of 2018/2019 when water levels are lower

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## Remedial Systems in Operation



### Legend

Bioventing System	Sulfate Enhanced Bioremediation Injection
SVE System	Vertical Air Sparge System/SVE
Horizontal Air Sparge System	Enhanced Anaerobic Bioremediation/ Enhanced Biogeochemical Transformation Injection
	In Situ Chemical Oxidation



Figure 1  
Remedial Systems in Operation as of 2018  
at the Former Galena FOL  
Former Galena Forward Operating Location, Alaska

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## Galena PBR Proposed 2019 Field Work



### Excavations

- Former Waste Accumulation Area South of Building 1499 (Site SS018)
- Disposal Site West of Dike (Site DP023)
- Former Fuel Filling Station (Site ST005 Area D)

### Soil Vapor Extraction

- Complete installation and start up SVE system at Building 1845 TCE Area/Building 1700 Refueler Maintenance Shop (Sites SS006/SS019)

### Bioventing

- Expand bioventing system at Site ST010

### Other Field Work

- Annual groundwater monitoring
- Landfarm operation
- Performance and confirmation soil sampling at remediation sites



Site DP023 Excavation in 2015

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## 2019 Field Work Locations



### Legend

- SVE System Startup (2019)
- Excavation



Figure 2

Excavations and Remedial Systems Planned for Startup in 2019 at the Former Galena FOL

Former Galena Forward Operating Location, Alaska

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## Excavation at Site SS018



- Site SS018 was a waste accumulation area south of the steam plant
- Fuel pipeline leak impacted approximately 1000 cy of soil
- Soil around pipeline will be removed by hand, or the pipeline will be cut and replaced
- Soil will be excavated and treated at the landfarm



Site SS018 Excavation Area

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## Excavation at Site DP023



- Site DP023 was a waste disposal area south of Million Gallon Hill
- Time Critical Removal Action in 2015 removed about 2/3 of the disposal area
- Excavate remaining disposal area
- Soil and waste material will be segregated and characterized for disposal
- Waste may be disposed of in Galena or out of Galena at licensed waste disposal Facilities



Site DP023 2015 Excavation

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## Excavation at Site ST005 Area D



- Site ST005 Area D was a fuel filling station located adjacent to the current City of Galena fill stand
- Limited excavation in 2018 removed 75 CY of petroleum-contaminated soil around the concrete pad, but contamination remains underneath the pad and within the roadway south of the pad
- The 2019 excavation will remove the remaining contaminated soil beneath and south of the pad
- Concrete pad will be pushed to bottom of excavation
- Petroleum-contaminated soil will be treated at the Galena landfarm



Site ST005 Area D 2018  
Excavation and Backfilling

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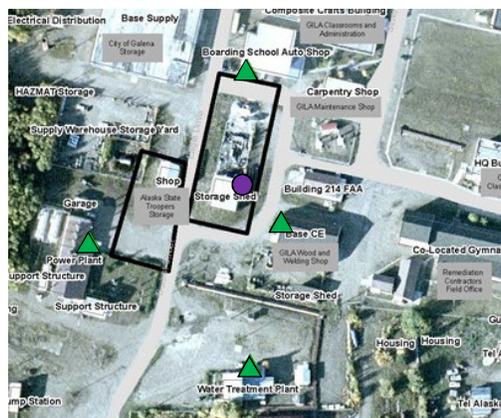
## SVE Startup at Site SS006



- Vent wells connected to blower shed and power connected in June 2019
- Blower shed located on east side of City Storage Shed
- Emission Stack 30 feet tall



East side City Storage Shed  
where blower shed will be placed



Site SS006 Blower Shed Location next to City Storage Shed

- Blower Stack Location (30 feet high)
- ▲ 21-Day Ambient Air Monitoring Station

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## SVE Startup at Site SS006



- Flow from each vent well is individually controlled – start extracting soil gas one vent well added at a time
- Startup flow rates at 1/3 of design and initial emissions will be treated by granular activated carbon (GAC)
- Emission levels measured before and after GAC with a photoionization detector (PID) as each vent well is brought online
- Measure VOCs in ambient air with a PID at the blower shed and at a distance of 50, 100 and 500 feet from the blower shed in all directions
- Adjust flow rates until target extraction rate is reached (5.88 lb per day). Lower extraction rate if necessary to maintain safe emission levels
- Monitor daily until emissions are stable and decreasing, then weekly during operating season
- 21-day ambient air monitoring stations located north, south, east and west of stack

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## Treatment of TCE Soil Pile



- Soil excavated from Site CSS002 (Building 1812) and soil cuttings lightly contaminated (below human health but above migration to groundwater standards) with TCE are staged at Million Gallon Hill
- Soil is tilled at the Missile Storage Yard to remove TCE by volatilization (first batch of soil successfully treated in 2018)
- Breathing zone air is monitored to ensure no exposure occurs
- After treatment, soil is transported to the Galena Landfarm to treat residual petroleum hydrocarbons



Tilling soil at Missile Storage Yard



Soil covered pending test results

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## Additional Galena PBR 2019-2020 Activities



- Operate remedies and prepare close out reports, as appropriate (through 2020)
- Operate Landfarm
- Five-year Review for all open sites
- Current PBR Contract ends September 2020



Tilling windrows at the Landfarm

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## Communications



- Public Review of Proposed Plan for remaining CERCLA sites
  - Site CS001 in October 2019
- Notices will be published when RODs for remaining sites (DP023 and CS001) are finalized for public review
- Semi-annual RAB Meetings (April/October) to continue
- Air Force maintains Administrative Record for Final Documents at:  
<http://afcec.publicadmin-record.us.af.mil/>

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## Questions?



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