

**Final Meeting Minutes**  
**Restoration Advisory Board (RAB) Meeting**  
**Former Galena Forward Operating Location (FOL), Alaska**  
**Galena, Alaska**  
**26 April 2017**

**Time/Place:** 7:00 pm, 26 April 2017 – Larson Charlie Hall, Galena, Alaska

**Attendees:**

Approximately thirty people attended the meeting including representatives from the Air Force Civil Engineer Center (AFCEC), the Alaska Department of Environmental Conservation (ADEC), the Alaska Department of Transportation (ADOT), the Galena RAB, community members, and Air Force remediation contractors (Parsons and CH2M). The following is a partial list of people attending the meeting.

Christiana Hewitt, AFCEC  
Donna Kozak, Booz Allen Hamilton (BAH)  
Bruce Henry, Parsons  
Ed Heyse, Parsons  
Win Westervelt, CH2M  
Dennis Shepard, ADEC  
Tim Bodony, Community RAB Chairman  
John Stamm, Community RAB Member  
Jon Korta, Galena City Mayor  
Betty Huntington, Gana-A-Yoo  
Phil Koontz, Louden Tribal Council  
Ron Burgett, Community Member  
Ranch Burgett, Community Member  
Shirley Cleaver, Community Member  
Agnes Sweetsir, Community Member  
Larry Hausman, Community Member  
Parsons Field Team  
CH2M Field Team

**Agenda:** See Attachment 1

**Introduction:**

Christiana Hewitt opened the RAB meeting by reviewing the agenda for presentations on Performance-Based Remediation (PBR) Cleanup efforts.

**Presentations**

**Performance-Based Remediation**

Bruce Henry (Parsons) and Win Westervelt (CH2M) gave a presentation (Attachment 2) with an update of the PBR contract. The PBR contract is for the cleanup of 32 sites at the Former Galena FOL. Installation of remedial systems started in 2015 and will continue through 2018. Maintenance and operation of the remedial systems will continue through the summer of 2020.

Bruce provided a brief overview of the activities that were completed over the winter since the 2016 field season, which included the following:

- Bioventing, soil vapor extraction (SVE) and vertical air sparging systems running and monitored monthly at nine (9) sites
- The nine operating systems were shut down in April 2016 for annual soil vapor sampling to track cleanup progress.
- Baseline sampling will be conducted in April 2017 at seven (7) additional systems installed in 2016. These systems will be started up later in the summer when water levels drop.
- Fifteen (15) of the 16 systems will be running in the fall and winter of 2017/2018; Site SS025 will run in the summer as the treatment interval is above the variably saturated zone.

Bruce then presented a list of planned field projects for 2017 (June through September)

*Subsurface Aeration (Horizontal Well) Air Sparging*

- Million Gallon Hill/Missile Storage (Sites CG001/CG002)
- POL Tank Farm Area/GAVTC Building (Site ST005/CB001)

*Soil Vapor Extraction*

- Former South Apron Maintenance Area (Site SS015)

*Sulfate-Enhanced Bioremediation Injections*

- Former Building 1812 Hazardous Waste Satellite Accumulation (Site CSS002)
- Former Birchwood Hangar and Truck Fillstands (Sites SS014/SS017)
- Former JP-4 Fuel Stands at ADOT Maintenance Building (Site ST009)

*Excavation*

- Former Waste Accumulation Area South of Bldg1499 (Site SS018)

*Site CS001 (Tank 27 Biocell) –DDT Contaminated Soil*

- Investigation to evaluate concentrations of soil in biocell and tank integrity

*Other Field Work*

- System modifications (e.g., expand or replace vent wells)
- Install new groundwater monitoring wells
- Annual groundwater monitoring
- Galena landfarm expansion and operation

Bruce described the SVE remedy being installed in 2017 for Site SS015 (South Apron Maintenance Area). This site is on the south side of the Galena airfield and has a trichloroethene (TCE) groundwater plume that migrates under Old Town Galena. SVE is being used to extract TCE and other chlorinated compounds from unsaturated soil. Enhanced bioremediation will be applied in 2018 to address TCE in groundwater.

Bruce then described how sulfate is being used to stimulate bioremediation of petroleum hydrocarbons in soil and groundwater. This remedy is being applied in 2017 at Site ST009 (West Unit JP-4 Fuels Stands), Site SS014 (Birchwood Hangar), Site SS017 (Former Truck Fill Stands), and Site CSS002 (Building 1812 Former Hazardous Waste Satellite Accumulation Point). A sulfate slurry is mixed and injected directly into the subsurface using direct-push

methods. Boreholes are grouted up after injection. Maps of the injection locations are included in the attached presentation material.

Win Westervelt summarized the installation of horizontal air sparge systems that will be installed in 2017. The systems inject air in groundwater beneath petroleum hydrocarbon smear zones to strip volatile hydrocarbons from soil and groundwater, and stimulate aerobic biodegradation. The systems will be installed at Sites CG001/CG002 (Million Gallon Hill/Missile Storage Building) and Site ST005 (POL Yard). The systems will operate over the winter when groundwater levels are lower, and the systems may operate for 10 years or more.

Bruce Henry described an excavation proposed for Site SS018, the former waste accumulation area south of the steam plant. Petroleum hydrocarbons are present in soil because of a pipeline leak. The pipeline will either be removed for the excavation, or a soil vacuum truck will be used to excavate soil around the pipeline.

Bruce also described a site investigation that will be conducted at Site CS001, the Tank 37 Biocell located at Million Gallon Hill. The tank was abandoned and backfilled with soil containing pesticides (DDT) and petroleum hydrocarbons. The investigation is to evaluate concentrations of contaminants remaining in soil in the tank, and to evaluate the integrity of the tank in areas of settlement.

Bruce then went over the field schedule for the remainder of the PBR from 2018 to 2020. The remaining remedies at Sites DP023 (Disposal Site West of Dike), SS006 (TCE Area Building 1845), SS015 (South Apron Maintenance Area), FT001 (Fire Protection Training Area) and ST005 POL Yard) will be installed in 2018. Operation and maintenance of all the remedies (including operation at the landfarm) will be conducted through the summer of 2020.

#### Site Inspection for Perfluorinated Compounds (PFCs)

Donna Kozak (BAH) gave a presentation (Attachment 3) on the status of a Site Inspection (SI) for PFCs, which are emerging contaminants present in aqueous film forming foam (AFFF). PFC SI field activities were completed in 2016 and included sampling groundwater and/or soil at seven (7) AFFF areas including the former fire training area, two former fire stations, a crash site along the Galena runway, two former AFFF suppression systems, and the sanitary outfall west of Million Gallon Hill. A total of 49 soil and 13 groundwater samples were collected, along with water samples from two former Air Force potable water supply wells (Well #1 and #7) in the Triangle Area. The decommissioning and disposal of a former AFFF storage tank was also conducted.

Preliminary SI sample results indicate that two of the AFFF areas had soil results above ADEC Method Two Cleanup Levels (CULs), and four of the AFFF areas had soil and groundwater results above ADEC Method Two CULs for soil or Table C CULs for groundwater. PFCs were not detected in the former Air Force potable water supply wells. The Air Force is currently reviewing and validating the results, and a SI Report will be prepared and submitted to ADEC and ADOT for review.

#### Questions and Comments

Phil Koontz asked some technical questions about the remedies. In particular, he asked about the potential for health impacts at the surface from the horizontal air sparge remedy. Win Westervelt explained that monitoring is conducted during system start up and operations can be adjusted to prevent potential health impacts at the surface. In addition, the subslab depressurization system at the GAVTC building will be turned on and a vapor intrusion mitigation system will be installed at the airport terminal building.

During discussion of the biocell tank (Tank 37) at Million Gallon Hill (Site CS001) a community member asked whether the adjacent tank (Tank 38) had been removed. The Air Force could not confirm the status of Tank 38, but agreed to review historical documents regarding its status.

Tim Bodony (RAB Chairman) asked about groundwater sampling, particularly downgradient wells in Old Town near the Yukon River. Community members expressed concern that contamination may be present in private water supply wells or reaching the Yukon River, and asked if groundwater monitoring results could be presented at RAB meetings. The Air Force responded that groundwater is monitored annually including Air Force wells located in Old Town, and results are included in reports that are reviewed by ADEC and posted to the Galena Administrative Record (AR), which is available to the public.

A community member asked if there were any brief summaries that provided an overview of the Galena sites and potential health impacts. Donna Kozak and Dennis Shepard discussed information available on the ADEC Contaminated Sites Program (CSP) Web Site and the Air Force Public Affairs website. The Air Force agreed to provide a brief overview or summary of the Galena sites in either a newsletter or at the next RAB meeting.

A community member mentioned that people have historically used blue AFFF containers for hauling water. Donna Kozak said that any blue or green AFFF containers could be turned into the Air Force for disposal.

A community member (Dick Evans) stated that four PCB transformers may not have been buried west of the dike (Site DP023) as previously reported, but were disposed of in a pond closer to the river. The Air Force and ADEC agreed to visit this location with the community member the following day.

### **Closing Remarks**

Dennis Shepard of ADEC spoke to the RAB and community, supporting cleanup activities and reiterating that information on each site is available on the ADEC CSP web site and database.

Christiana Hewitt closed the meeting by thanking the Galena community for attending and contributing to the meeting. Christiana mentioned the next RAB meeting will be in October 2017, and pointed out AFCEC contact information for anyone interested in more information about the Former Galena FOL cleanup efforts.

### **Attachments:**

1. RAB Meeting Agenda
2. Presentation: Performance Based Remediation at Former Galena FOL, Alaska
3. Presentation: Perfluorinated Compounds (PFCs) Release Determination at the Former Galena Forward Operating Location (FOL), Alaska

**Attachment 1**  
**RAB Meeting Agenda**

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# Galena Restoration Advisory Board (RAB)

## Final Meeting Agenda

April 26, 2017

7:00 p.m. – 8:30 p.m.

Larsen Charlie Hall

Galena, Alaska

### **Welcome**

- Introductions

**Christiana Hewitt, AFCEC**

### **Overview of Environmental Restoration**

- Performance-Based Remediation (PBR) Contract
  - Activities Completed in 2016
  - Proposed 2017 Field Activities

**Bruce Henry, PARSONS**  
**Win Westervelt, CH2M**

- Other Contracts
  - Perfluorinated Compounds (PFCs) Site Inspection

**Donna Kozak, BAH**

### **Remarks from ADEC**

**Dennis Shepard, ADEC**

### **Remarks from ADOT**

**Sam Myers, ADOT**

### **Questions from the Public**

**Bruce Henry/Win Westervelt (Facilitators)**

### **Closing Remarks**

**Christiana Hewitt**

For more information about the Galena Environmental Cleanup program, please contact the AFCEC Public Affairs hotline at 1-866-725-7617 or via email at AFCEC.PA@us.af.mil.

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**Attachment 2**

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

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## 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  
26 April 2017

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*Battle Ready...Built Right!*

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## Former Galena FOL Performance Based Contract

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- Parsons - Prime Contractor
- Partnering Team – CH2M and Ahtna Engineering Services
- Remediation of 32 sites contaminated primarily with fuels and solvents
- To date, two sites have achieved Cleanup Complete
- Installation of remediation systems from 2015 to 2018
- Operations and monitoring through summer 2020



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## Winter 2016 to Spring 2017 Activities

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- Bioventing, soil vapor extraction (SVE) and vertical air sparging systems running and monitored monthly at nine (9) sites
- April 2016 – The nine operating systems will be shut down for annual soil vapor sampling to track cleanup progress
- April 2016 – Baseline sampling will be conducted at seven (7) additional systems installed in 2016. These systems will be started up later in the summer when water levels drop.
- All sixteen (16) systems will be running in the fall and winter of 2017/2018

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## Proposed 2017 Galena PBR Schedule

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- **Planned 2017 Field Work (June through September)**
  - Subsurface Aeration (Horizontal Well) Air Sparging**
    - Million Gallon Hill/Missile Storage (Sites CG001/CG002)
    - POL Tank Farm Area/GAVTC Building (Site ST005/CB001)
  - Soil Vapor Extraction**
    - Former South Apron Maintenance Area (Site SS015)
  - Sulfate-Enhanced Bioremediation Injections**
    - Former Bldg 1812 Hazardous Waste Satellite Accumulation (Site CSS002)
    - Former Birchwood Hangar and Truck Fillstands (Sites SS014/SS017)
    - Former JP-4 Fuel Stands at ADOT Maintenance Bldg (Site ST009)
  - Excavation**
    - Former Waste Accumulation Area South of Bldg 1499 (Site SS018)

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## Galena PBR 2017 Field Work (continued)

- **Planned 2017 Field Work (June through September)**
  - Site CS001 (Tank 27 Biocell) – DDT Contaminated Soil**
    - Investigation to evaluate concentrations of soil in biocell and tank integrity
  - Other Field Work**
    - System modifications (e.g., expand or replace vent wells)
    - Install new groundwater monitoring wells
    - Annual groundwater monitoring
  - Galena Landfarm**
    - Landfarm reconstruction and operation



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## 2017 Field Work Locations



**Legend**

- Excavation
- SVE System Installation
- Horizontal Air Sparge System Installation
- Sulfate-Enhanced Bioremediation Injections

0 300 600  
Feet

Figure 1  
Installation of 2017 Remediation Systems  
at the Former Galena FOL  
Former Galena Forward Operating Location, Alaska  
**PARSONS**



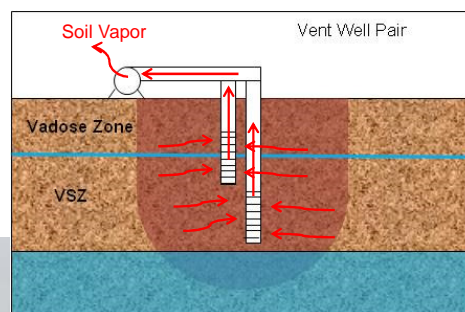
## South Apron Maintenance Area (Site SS015)

- Soil and groundwater is contaminated with TCE, PCE, and petroleum-related contaminants
- Contamination is from releases/spills from the above ground storage tank and from maintenance activities that used TCE and PCE
- Selected remedy is SVE to clean up TCE/PCE in soil, enhanced bioremediation followed by monitored natural attenuation (MNA) for groundwater, and land use controls (LUCs) to prevent potential exposure
- SVE system will be installed in 2017, enhanced bioremediation injections to follow in 2018.



## Soil Vapor Extraction (SVE) Systems

- SVE removes volatile contaminants in unsaturated soil
- System installed at Site SS015 will remove TCE from soil



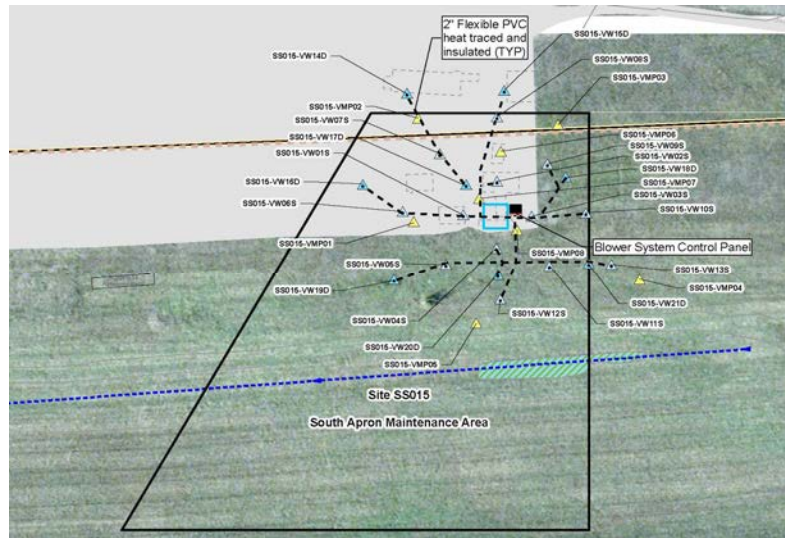
Note: VSZ = variably saturated zone





## SS015 – South Maintenance Apron Area SVE Layout

Total of 13 shallow and 8 deep vent wells



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## Sulfate Enhanced Bioremediation for Petroleum Hydrocarbons

- Inject sulfate (gypsum) to biodegrade petroleum hydrocarbons by sulfate reduction
- Direct injection of a gypsum slurry through direct-push drill rods
- Boreholes are grouted up with bentonite after injection
- Mixing tanks and pumps on site a few days to weeks only

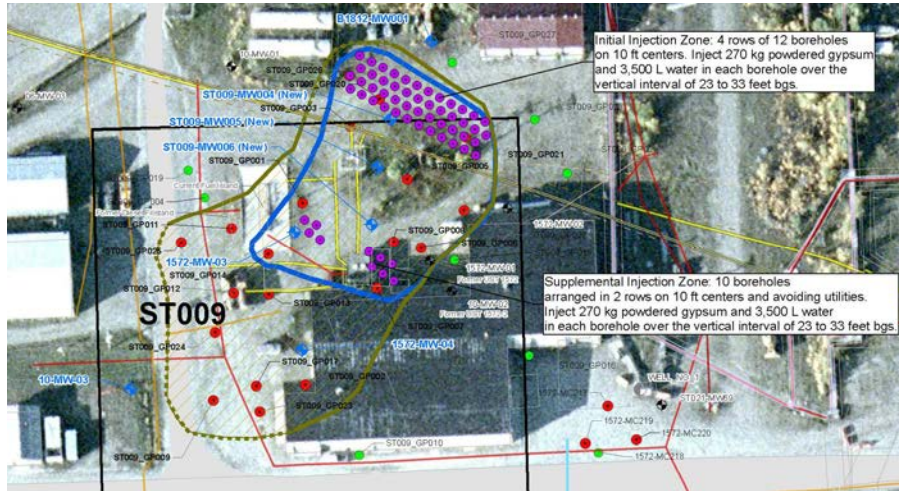


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## ST009 – Injection Point Layout

Total of 58 injection points at 23-33 feet

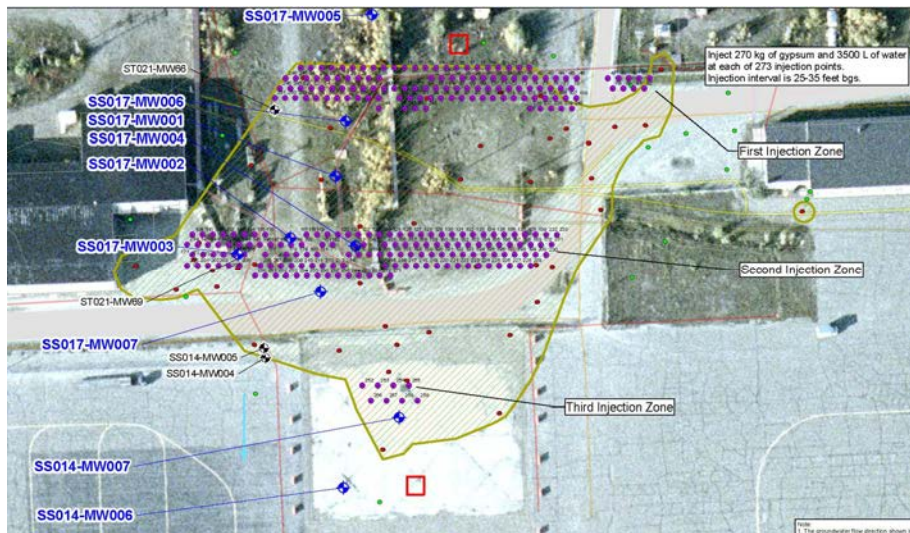


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## SS014/SS017 – Injection Point Layout

Total of 273 injection points at 25-35 feet



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## CSS002 (B1812) – Injection Point Layout

Total of 10 injection points at 27-37 feet



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## Horizontal Air Sparge Systems

Injects air below the fuel-contaminated soil to remove volatiles (e.g., benzene) and stimulate aerobic biodegradation of petroleum hydrocarbons



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## Horizontal Air Sparge System at CG001/CG002

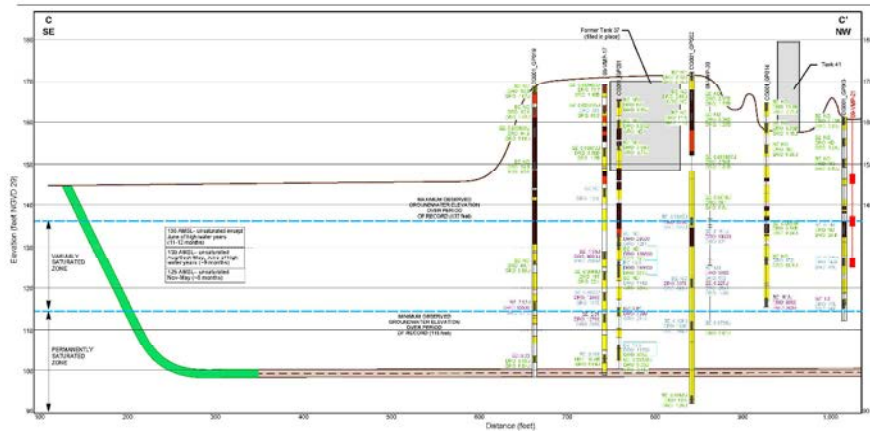


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## Horizontal Air Sparge System at CG001/CG002

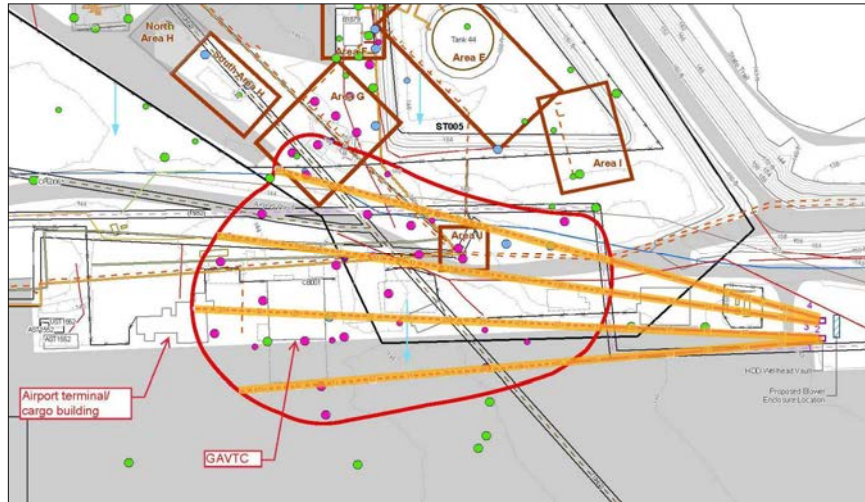
The horizontal wells will be installed 45 to 75 feet beneath Million Gallon Hill so that injected air will pass upwards through the contaminated soil.



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## Horizontal Air Sparge System at ST005/CB001



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## Horizontal Well System Operation

- Will operate during the winter time (November – April) when groundwater levels are lower
- May operate for 10 years or more, depending on annual groundwater monitoring results meeting cleanup objectives



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## Excavation at Site SS018

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



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## Investigation at Site CS001

- CS001 is the Tank 37 Biocell – contains DDT (pesticide) and petroleum hydrocarbon contaminated soil
- Settling observed in 2005 and 2013 around perimeter of tank
- Investigation will evaluate concentrations of soil in the biocell and the integrity of the tank in the areas of settlement.



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## Galena PBR 2018-2020 Schedule Overview

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- **2018 – Implement remaining remedies**
  - DP023 (Disposal Site West of Dike) – complete excavation
  - SS006 – Install SVE System and Enhanced Bioremediation Injections
  - SS015 – Enhanced Bioremediation Injections
  - FT001 – Install Bioventing System and Cover
  - Install small vertical aeration system at ST005
  - Operate Landfarm
- **Operate remedies and prepare close out reports, as appropriate (through 2020)**

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## Communications

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- **Public Review of Proposed Plans for remaining CERCLA sites (SS006/SS019, DP023, and SS013) in fall or spring of 2017/2018**
- **Notices will be published when RODs are finalized for public review**
- **Semi-annual RAB Meetings (April/October)**
- **Air Force maintains Administrative Record for Final Documents at:**  
<http://afcec.publicadmin-record.us.af.mil/>

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## Questions?

### Air Force Public Affairs Office

AFCEC/Public Affairs  
2261 Hughes Ave., Suite 155  
JBSA Lackland, TX 78236-9853  
Toll Free (866) 725-7617  
[AFCEC.PA@us.af.mil](mailto:AFCEC.PA@us.af.mil)



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**Attachment 3**

**Perfluorinated Compounds (PFCs) Release Determination at the  
Former Galena Forward Operating Location (FOL), Alaska**

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## Air Force Civil Engineer Center

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### Perfluorinated Compounds (PFCs) Release Determination at the Former Galena Forward Operating Location (FOL), Alaska

Restoration Advisory  
Board (RAB) Meeting  
26 April 2017

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## Site Investigation Field Activities

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- **PFC Site Inspection (SI) field activities were completed in 2016 and included:**
  - **Sampling groundwater and/or soil at 7 Aqueous Film Forming Foam (AFFF) Areas**
    - Fire Training Area, Fire Stations (2), Crash Site, AFFF systems (2), Sanitary Outfall
  - **A total of 49 soil and 13 groundwater samples were collected from the AFFF Areas**
  - **Samples were collected from the two former Air Force potable water supply wells (Well #1 and #7)**
  - **Decommissioning and disposal of a former AFFF storage tank**

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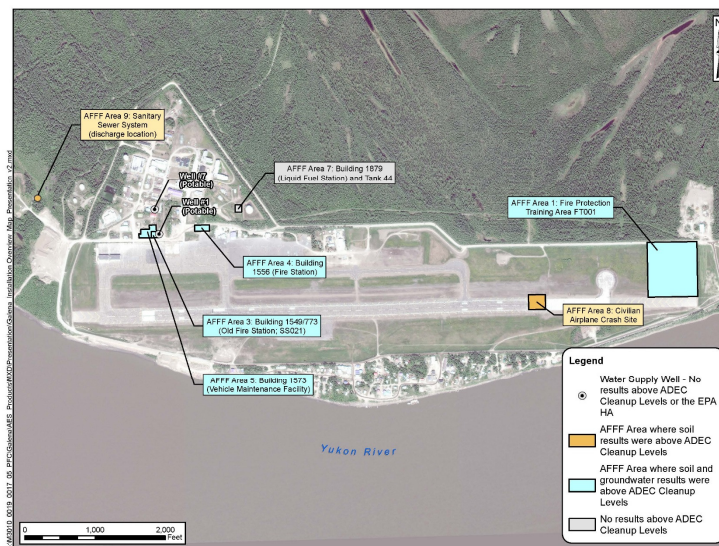
## SI Results Summary

- **Preliminary SI Sample Results indicate:**
  - Two AFFF Areas with soil sample results above Alaska Department of Environmental Conservation (ADEC) Method 2 Cleanup Levels (CULs)
  - Four AFFF Areas with soil and groundwater results above ADEC Method 2 CULs or Table C CULs
  - No PFCs were detected in the former Air Force potable water supply wells
- **Next Step:**
  - Air Force currently reviewing and validating the results
  - A SI Report will be prepared and submitted to ADEC and ADOT for review

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## AFFF Area SI Results



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