THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

SPILL PREVENTION & RESPONSE
Contaminated Sites Program

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File No.: 860.38.005
860.38.061

June 28, 2021

Electronic Delivery Only
Christiana Hewitt
AFCEC/CIBE
2261 Hughes Ave., Suite 155
JBSA Lackland, TX 78236-9853

Subject: **DECISION DOCUMENT:**
CLEANUP COMPLETE WITH INSTITUTIONAL CONTROLS
Galena AFS / Airport – SS025 West Perimeter Road TCE Site

Dear Ms. Hewitt,

The Alaska Department of Environmental Conservation (ADEC) has completed a review of the environmental records associated with the site, Galena AFS / Airport – SS025 West Perimeter Road TCE Site, located in Galena, Alaska. Based on the information provided to date, it has been determined that the contaminant concentrations remaining at Site SS025 do not pose an unacceptable risk to human health or the environment and no further remedial action will be required as long as the institutional controls are maintained and effective and no information becomes available that indicates residual contamination poses an unacceptable risk. Institutional controls for the groundwater located beneath Site SS025 will remain in place and will be monitored as part of the remedy for Site CG001 (Galena AFS / Airport – CG001/CG002 MGH/MSA, File No. 860.38.002 and Hazard ID 1416).

This Cleanup Complete with Institutional Controls determination is based on the administrative record for the Former Galena Forward Operating Location (FOL), which is located in the ADEC offices in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and specific conditions required to effectively manage remaining contamination at this site.

Site Name and Location:
West Perimeter Road TCE Spill (SS025)
E and S of Former Million Gallon Hill (MGH)
Galena, Alaska 99741
Latitude: 64.739681, Longitude: -156.960870

Name and Mailing Address of Contact Party:
Christiana Hewitt
AFCEC/CIBW
2261 Hughes Ave., Suite 155
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ADEC Site Identifiers:
File No.: 860.38.061
Hazard ID: 26192

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background
Site SS025 is located on the perimeter flood control dike on the west edge of the cantonment "triangle", east and south of the former Million Gallon Hill bulk petroleum, oil, and lubricant storage facility (Site CG001), east of Site DP023 (Disposal Site West of Dike), and west of Site CG002 (Missile Storage Area) (**Figure 1**). Site SS025 is located along West Perimeter Road and is almost entirely within the boundary of Site CG001 on property owned by the State of Alaska and managed by the Department of Transportation & Public Facilities (ADOT&PF).

Site SS025 is the location of chlorinated volatile organic compound (VOC) contamination in soil, most likely resulting from the application of waste oil to the road to control dust, historical spills or releases, or possibly placement of contaminated fill material. There is no other historical information about potential chlorinated VOC releases along West Perimeter Road.

Initial sampling was conducted as part of the Site CG001 site characterization in 2010 and 2011. Based on results from the site characterization, West Perimeter Road was designated as a separate Remedial Investigation (RI) site (i.e., Site SS025) due to the presence of TCE in soil samples identified during the Site CG001 Site Characterization activities conducted in 2010 and 2011.

Contaminants of Concern
The following contaminants of concern (COCs) in soil were identified in the Final Explanation of Significant Differences (ESD) for Site SS025 (Parsons, 2020):

- Trichloroethene (TCE)
- Tetrachloroethene (PCE)
- cis-1,2-Dichloroethene
- 1,2-Dichloroethane
- 1,1,2-Trichloroethane
- 1,1,2,2-Tetrachloroethane

No groundwater COCs were identified for Site SS025. Diesel-range organics (DRO), residual-range organics (RRO), and benzene contamination exists in groundwater beneath Site SS025 in the variably saturated zone and the permanently saturated zone; this contamination is attributed to Site CG001 and is being addressed by the remedy for that site.

A 2017 Memorandum of Agreement between the United States Air Force and ADOT&PF[1] addresses the implementation and management of institutional controls associated with land owned by the State of Alaska, including Sites SS025 and CG001. The MOA was recorded with the Alaska Department of Natural Resources Recorder's Office. The final 2020 First Five-Year Review[2] also describes the land use

[1] Memorandum of Agreement, State of Alaska Department of Transportation and Public Facilities and United States Air Force for the Implementation of Institutional Controls at the Former Galena Forward Operating Location and Associated Matters: http://dnr.alaska.gov/ssd/recoff/search/docdisplay?District=415&SelectedDoc=20170001080

[2] The final First Five-Year Review is uploaded to the U.S. Air Force Civil Engineer Center Administrative Record: https://ar.afcec-cloud.af.mil/, AR# 598192 (Note that "BRAC" must be selected to view recent Galena documents.)

controls associated with Site CG001. The attached **Figure 2** shows land use controls for contaminated groundwater associated with Site CG001.

Cleanup Levels
The following 18 AAC 75 soil and groundwater cleanup levels apply at Site SS025:

- Table B1 and B2 Method Two Migration to Groundwater soil cleanup levels
- Table B1 Under 40-Inch Zone Human Health soil cleanup levels
- Table B2 Maximum Allowable Concentrations for soil
- Method Three alternative Migration to Groundwater cleanup levels (CULs) developed in accordance with 18 AAC 75.340(e)
- Table C groundwater cleanup levels

The Record of Decision (ROD) selected CULs for soil based on the lowest applicable levels for protection of human health from ADEC Tables B1 or B2 Method Two CULs (under 40-inch zone) or migration to groundwater per 18 AAC 75.341, revised as of October 9, 2008. The 18 AAC 75.341 cleanup levels were updated in November 2016 and again in October 2018.

An Explanation of Significant Differences (ESD) for the Site SS025 ROD updated the CULs for Site SS025 based on the current 18 AAC 75.341. Method Three alternative Migration to groundwater CULs developed in accordance with 18 AAC 75.340(e) and presented in the ESD apply to this site.

The approved cleanup levels and residual concentrations are presented in **Table 1**, below.

Table 1 – Approved Soil Cleanup Levels and Remaining Contaminant Concentrations in Soil

Contaminant	Method Two CUL for Soil Human Health (mg/kg)	Method Two CUL for Migration to Groundwater (mg/kg)	Soil Method Three Migration to Groundwater Alternative CUL (mg/kg)	Maximum Remaining Soil Concentration (mg/kg)	95% UCLs for Soil less than 15 feet below ground surface (mg/kg)
TCE	4.9	0.011	33	11	4.17
PCE	68	0.19	670	0.15	0.0196
cis-1,2-Dichloroethene	200	0.12	320	5.5	0.137
1,2-Dichloroethane	5.5	0.005	14	0.028	0.00265
1,1,2-Trichloroethane	1.6	0.0014	4.0	0.44	0.0509
1,1,2,2-Tetrachloroethane	6.1	0.003	9.1	19	4.50

Characterization and Cleanup Activities
The nature and extent of contamination was determined during the 2013 Remedial Investigation (RI) and the 2015 Supplemental RI. Soil samples were collected and analyzed for gasoline-range organics (GRO), DRO, RRO, VOCs, polycyclic aromatic hydrocarbons (PAHs), semi-volatile organic compounds (SVOCs), metals, pesticides, and polychlorinated biphenyls (PCBs).

Groundwater samples were collected in 2013, 2015, 2018, and 2019. Groundwater samples were collected and analyzed for GRO, DRO, RRO, VOCs, PAHs, SVOCs, metals, pesticides, and PCBs. Groundwater

contamination beneath Site SS025 is attributed to Site CG001 and is being addressed by the remedy for that site.

A pilot-scale soil vapor extraction (SVE) system was installed at Site SS025 in 2015 and was later expanded and incorporated as the final remedy in the ROD. The system was initially going to be operated during the winter; however, SVE operations were changed to summer only (April through September) due to icing and poor vapor recovery in the winter. The SVE system operated from 2016 through 2019.

Confirmation soil samples were collected in 2018 and 2019. Statistical analysis was performed using USEPA's ProUCL software to determine the 95 percent upper confidence limit (UCL) for each COC. The resulting 95 percent UCLs were below applicable Method 2 or Method 3 CULs (**Table 1**).

None of the COCs for soil were detected in groundwater at concentrations above their Table C CULs for groundwater.

Cumulative Risk Evaluation
Pursuant to 18 AAC 75.325(g) and 18 AAC 78.600(d), when detectable contamination remains onsite, a cumulative risk determination must be made that the risk from hazardous substances does not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative non-carcinogenic risk standard at a hazard index of one across all exposure pathways. Cumulative risk is calculated using all contaminant concentrations remaining on site at concentrations above $1/10^{th}$ the cleanup level, per 18 AAC 75.340(k).

A risk evaluation using the Method Three Cumulative Risk Calculator under ADEC Method Three (18 AAC 75.340(f)) was conducted. The Remedial Action Completion Report for West Perimeter Road TCE Spill (Site SS025), Former Galena Forward Operating Location, Alaska (Parsons, December 2020), presents the methods, input data and results of the risk calculations. The results of the risk calculations are summarized below:

- The non-carcinogenic hazard index (HI) was 0.6, below the regulatory risk standard of 1 for direct contact/ingestion, outdoor air inhalation, vapor intrusion, and groundwater ingestion pathways.
- The carcinogenic risk was 7.6×10^{-6}, below the below the regulatory risk standard of 1.0×10^{-5} for direct contact/ingestion, outdoor air inhalation, vapor intrusion, and groundwater ingestion pathways.

Based on a review of the environmental record and the results of the risk calculations, DEC has determined that residual contaminant concentrations meet the human health cumulative risk criteria for residential land use risk.

Exposure Pathway Evaluation
Following investigation at the site, exposure to the remaining contaminants was evaluated using ADEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in **Table 2**.

Table 2 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Site SS025 is located on and around an elevated roadbed. No residual contamination has been detected in the surface soil.
Sub-Surface Soil Contact	De Minimis	Confirmation samples exceeded the HH cleanup level for TCE and 1,1,2,2-Tetrachloroethane. The 95% UCLs for both analytes are below the approved cleanup levels. Residual subsurface contamination at this site is de minimis.
Inhalation Outdoor Air	De Minimis	Residual contamination in subsurface soil is not expected to impact outdoor air quality.
Groundwater Ingestion	Exposure Controlled	Site SS025 sits atop the upgradient petroleum groundwater plume attributed to Million Gallon Hill (Site CG001). Groundwater contamination will be addressed under Site CG001. Land use controls prohibit the installation of drinking water wells in this area.
Surface Water Ingestion	Pathway Incomplete	There is no surface water at Site DP023. The nearest surface water is the Yukon River, approximately 1400 feet south of Site DP023.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Site SS025 is located on and around a raised and compacted roadbed. Residual contamination is not expected to pose a risk to plants or animals.
Inhalation (Vapor Intrusion) – Indoor Air	Pathway Incomplete	There are no structures at Site SS025. It is not expected that this area would be used for future construction as it is a raised road bed located outside of the flood control dike.
Exposure to Ecological Receptors	Pathway Incomplete	There are no concerns about other ecological receptors.

Notes to Table 2:

- *De Minimis* means that in ADEC's judgement, receptors are unlikely to be affected by the minimum volume or concentration of remaining contamination.
- *Exposure Controlled* means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.
- *Pathway Incomplete* means that in ADEC's judgement contamination has no potential to contact receptors.

ADEC Decision

Soil contamination at the site has been cleaned up to concentrations below the approved levels suitable for residential land use. ADEC has determined that residual contaminants in soil at Site SS025 do not pose a migration to groundwater risk (ADEC, September 2010).

Institutional controls for groundwater associated with Site CG001, located beneath Site SS025, will remain in place and will be monitored as part of Site CG001 (Galena AFS / Airport – CG001/CG002 MGH/MSA, Hazard ID 1416; File ID 860.38.002).

SS025, tracked under File 860.38.061 and Hazard ID 26192, will receive a Cleanup Complete with Institutional Controls designation. The removal of institutional controls on Site SS025 will be considered when groundwater beneath the site has achieved Table C CULs.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 75.325(i). A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated,

including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership. (See **Figures 1 and 2**)
2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.
3. Groundwater throughout Alaska is protected for use as a water supply for drinking, culinary and food processing, agriculture including irrigation and stock watering, aquaculture, and industrial use. Contaminated site cleanup complete determinations are based on groundwater being considered a potential drinking water source. In the event that groundwater from this site is to be used for other purposes in the future, such as aquaculture, additional testing and treatment may be required to ensure the water is suitable for its intended use.

This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

Appeal

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 610 University Ave Fairbanks, AK 99709-3643, within 20 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, P.O. Box 111800, Juneau, Alaska 99811-1800, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have any questions, please contact me at (907) 451-5175 or via email at jamie.mckellar@alaska.gov.

Sincerely,

Jamie McKellar

Jamie McKellar
Environmental Program Specialist

Enclosures: Figure 1 – Site Figure
Figure 2 – CG001 Land Use Controls

cc, via email:
Donna Kozak, BAH
Ed Heyse, Parsons
Bruce Henry, Parsons
Andrea Finlay, Parsons
Win Westervelt, CH2M/Jacobs
Bill O'Connell, DEC
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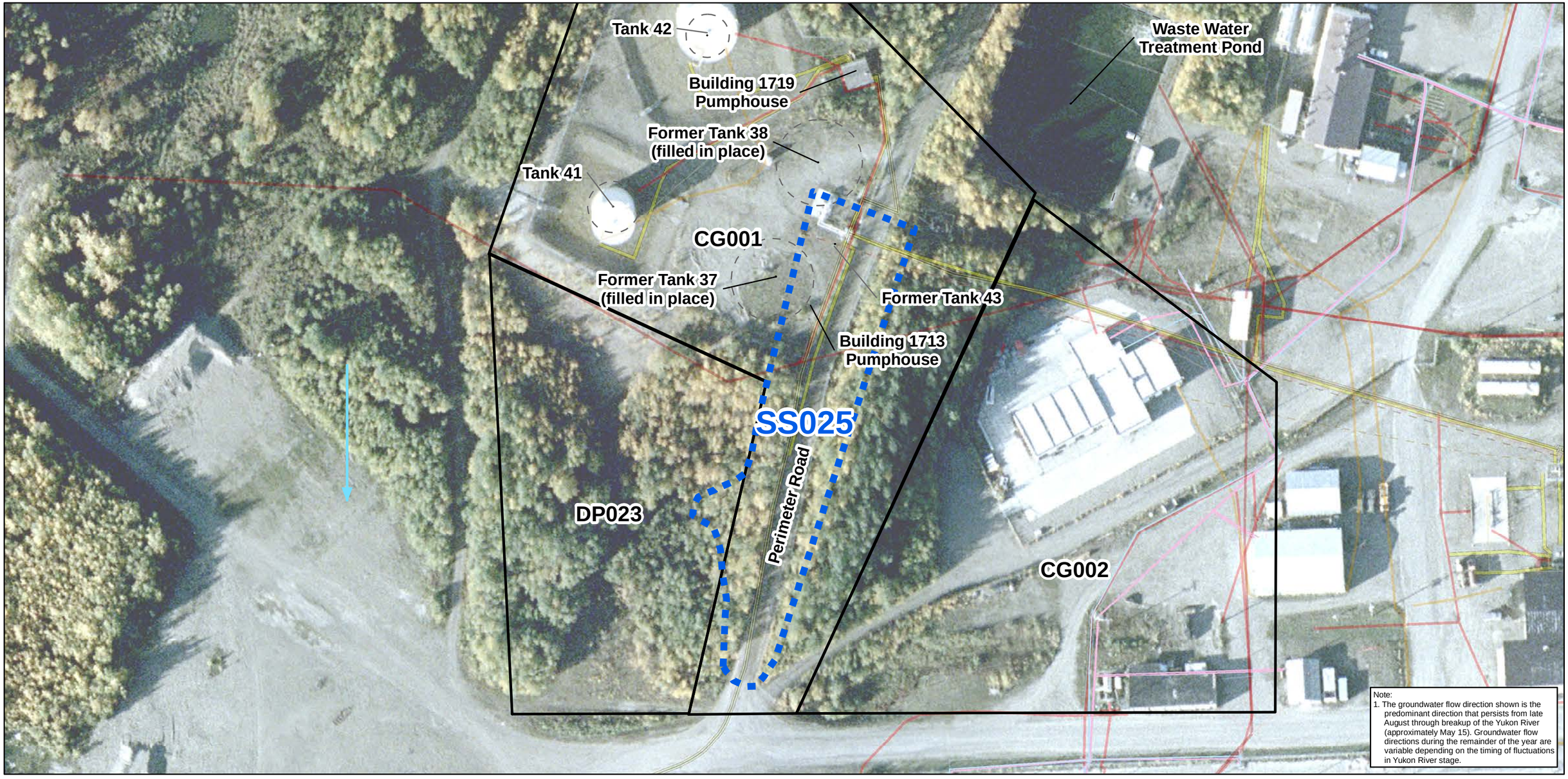
Sam Myers, ADOT&PF
Diana Osborne, ADOT&PF
Elzbeth Robson, ADOT&PF
Penny Adler, ADOT & PF
Margaret Moody, ADOT&PF



Note:
1. The groundwater flow direction shown is the predominant direction that persists from late August through breakup of the Yukon River (approximately May 15). Groundwater flow directions during the remainder of the year are variable depending on the timing of fluctuations in Yukon River stage.

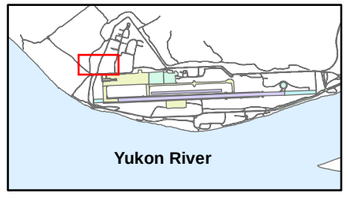
Legend

- Approximate Groundwater Flow Direction
- Main Wastewater Line
- Service Wastewater Line
- Abandoned Fuel Line (1952)
- Abandoned Fuel Line (1962)
- OAP Pipeline
- Abandoned Fuel Line
- Service Fuel Line
- Main Fuel Line
- Water Line
- Heating/Cooling Line
- Airfield Surface or Road

Underground Utility Locates - 2010
- Communications
- Electrical
- Fuel/Gas
- Potable Water
- Sanitary Sewer

- Site SS025 Boundary

Boundary of Adjacent or Overlapping Site
- CG001
- CG002
- DP023



0 50 100
Feet

N

FIGURE 1

Site SS025 Location and Layout

Supplemental Remedial Investigation for
Former Galena Forward Operating Location, Alaska

PARSONS

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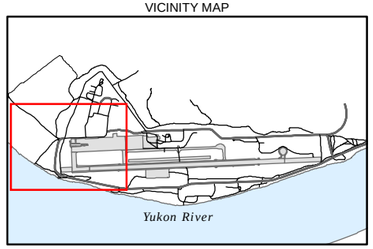
VICINITY MAP



LEGEND

- CG001/CG002
- Adjacent Site
- Approximate Location of Former Feature
- Structure
- Airfield Surface or Road
- Index Contour
- Intermediate Contour Depression
- Intermediate Contour
- Water Line
- Heating/Cooling Line
- Main Wastewater Line
- Electrical Line
- Abandoned Fuel Line
- Main Fuel Line

Underground Utility Locates – 2010

- Electrical Line
- Potable Water Main
- Communications Line
- Sanitary Sewer Main

Land Ownership

- BLM Reserve
- City of Galena
- FAA Reserve
- State Owned
- US AF Reserve (pending transfer to BLM)
- US Fish and Wildlife Service
- Land Use Control Area. Contamination is present in the groundwater and could be present at any depth. Groundwater is unsuitable for drinking.

N

0 150 300

Feet

FIGURE 2

FIGURE CG001/CG002-3
Site CG001/CG002 and ST009 Land Control Area for Groundwater Contamination above CULs
2019 Land Use Controls Implementation Plan Update
Former Galena Forward Operating Location, Alaska

ch2m: