



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

**Department of Environmental
Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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DEC File No: 108.38.080

July 10, 2023

Department of the Army
Directorate of Public Works
ATTN: AMIM-AKP-E (P. Baker)
1046 Marks Road
Fort Wainwright, AK 99703

Re: Decision Document: Fort Wainwright CANOL Road Pipeline Removal
Cleanup Complete Determination

Dear Mr. Peter Baker:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has completed a review of the environmental records associated with the Fort Wainwright CANOL Road Pipeline Removal located along the Canol Road in Fort Wainwright, Alaska. Based on the information provided to date, it has been determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment and no further remedial action will be required unless information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the Fort Wainwright CANOL Road Pipeline Removal maintained by DEC. This decision letter summarizes the site history, cleanup actions and levels, and site closure conditions that apply.

Site Name and Location:

Fort Wainwright CANOL Road Pipeline Removal
Canol Road near River Road Intersection
Fort Wainwright, AK 99703

Name and Mailing Address of Contact Party:

Department of the Army
Directorate of Public Works
ATTN: AMIM-AKP-E (P. Baker)
1046 Marks Road
Fort Wainwright, AK 99703

DEC Site Identifiers:

File No.: 108.38.080
Hazard ID.: 4364

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

Fort Wainwright (FWA) is an active military base located in interior Alaska. Fuel was transported to FWA via the Canadian Oil (CANOL) pipeline, constructed in 1943-1944. This pipeline transported crude oil from Canadian oil fields in the Northwest Territories to a refinery in Whitehorse in the Yukon Territory. Supplementary pipelines delivered the refined fuels to Fairbanks, among other areas. Fuel was transported in the 3-inch pipeline to the aboveground storage tanks (ASTs) on Birch Hill, also known as the Fairbanks Fuel Terminal (FFT), located northwest of Ladd Airfield. The CANOL pipeline was used in a limited capacity until 1958, when deteriorating conditions necessitated replacement. The line was purged in 1989. In 1994, the Army conducted a Remedial Investigation (RI) at the CANOL Road sub-area to assess any potential releases, and concluded no significant petroleum releases had occurred. The site was recommended for No Further Action (NFA) at this time.

In 2003, the Army conducted a post-wide pipeline removal project and identified multiple areas of petroleum contamination while removing approximately 5800 feet of pipeline along the CANOL Service Road between the FFT and Valve Pit A. Approximately 32 splits, cracks, and ruptures in the CANOL pipeline were observed, and moderate to strong petroleum, oil, and lubricants (POL) odors were present in many of the areas. Contaminated soil was not excavated along this section of the pipeline (See attached Figures 3 and 4).

Contaminants of Concern

During the site investigation and cleanup activities at this site, samples were collected from soil and groundwater and analyzed diesel and gasoline range organics (DRO, GRO), and benzene, toluene, ethylbenzene, and xylenes (BTEX), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and total lead. Based on these analyses, the following contaminants were detected above the applicable cleanup levels and are considered Contaminants of Concern (COCs) at this site:

- DRO
- GRO
- BTEX

Cleanup Levels

Soil cleanup levels applicable to the site are the most stringent Method 2 cleanup levels for the under 40-inches of precipitation climate zone found in 18 AAC 75.341(c), Table B1 and 18 AAC 75.341(d), Table B2. Groundwater cleanup levels applicable to this site are found in 18 AAC 75.345, Table C.

Table 1 – Approved Cleanup Levels

Contaminant	Soil (mg/kg)	Groundwater (µg/L)
DRO	250	1500
GRO	300	2200
Benzene	0.022	4.6
Toluene	6.7	1100
Ethylbenzene	0.13	15
Xylenes (total)	1.5	190

Notes:

1. mg/kg = milligrams per kilogram
2. µg/L = micrograms per liter

Characterization and Cleanup Activities

The section of CANOL pipeline was collocated with another pipeline corridor that was previously closed in 2000, though one sample collected in 2000 showed an exceedance of migration to groundwater cleanup levels for benzene and ethylbenzene (see Panel A in attached figure 3).

In 2003, the Army collected field screening samples along the pipeline at approximately 15-foot intervals, for a total of 418 samples. Of these, 46 had photoionization detector (PID) values exceeding 50 parts per million by volume (ppmv). 33 soil samples were collected in areas with elevated PID readings and analyzed for DRO, GRO, and BTEX. 16 primary samples showed exceedances of migration to groundwater cleanup levels for one or more analytes. Three of those primary samples also showed exceedances of human health for one or more analytes. All these detections were in subsurface soils.

In 2018, in order to further characterize the contamination present along the CANOL Service Road, the Army conducted a Preliminary Source Evaluation (PSE) and advanced soil borings at the 17 locations with historical soil sampling results exceeding cleanup levels. Soil borings were advanced to 20 feet below ground surface (bgs), and groundwater was typically observed at approximately 16 feet bgs. Samples collected were analyzed for DRO, GRO, BTEX, VOCs, PAHs, and total lead. Contaminants were detected in 22 samples, but were limited to DRO and GRO, and at magnitudes below the migration to groundwater cleanup level.

Although the 2018 PSE did not identify soil contamination at the site, no groundwater samples were collected. To address this, the Army conducted a data gap investigation in 2022. The Army collected ten soil samples from ten borings that were completed as temporary wells at the locations with the highest contaminant concentrations at the time of the pipeline removal in 2003. Soil and groundwater samples were analyzed for GRO, DRO, and BTEX. Again, only low-level detections of DRO and GRO were observed in the soil. DRO was detected below Table C in each of the ten wells, but no other analytes were detected. Any residual contamination identified during pipeline removal activities does not appear to have impacted groundwater above the promulgated cleanup levels.

Remaining Contamination

The maximum known concentrations of contaminants remaining at the site are shown in Tables 2a and 2b. These concentrations are all below their respective approved cleanup levels. Sample locations referred to in Tables 2a and 2b are shown in the attached site figures 3 and 4. Previous exceedances of cleanup levels were not remediated or excavated, but could not be confirmed in two subsequent sampling events. This contamination is assumed to have naturally attenuated to the point where remaining contamination is de minimis in nature.

Table 2a – Maximum Contaminant Concentrations Remaining in Soil

Contaminant	Soil (mg/kg)	Sample Location	Date Sampled
DRO	30.2	AP-10810	September 2022
GRO	1.65	AP-10812	September 2022

Table 2b – Maximum Contaminant Concentrations Remaining in Groundwater

Contaminant	Groundwater (µg/L)	Sample Location	Date Sampled
DRO	1090	AP-10806TW	September 2022

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), when detectable contamination remains on-site following a cleanup, 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 noncarcinogenic risk standard at a hazard index (HI) of 1 across all exposure pathways. Based on a review of the environmental record, DEC has determined that residual contaminant concentrations meet the human health cumulative risk criteria for residential land use.

Exposure Pathway Evaluation

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using DEC'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 either De Minimis Exposure or Pathway Incomplete. A summary of this pathway evaluation is included in Table 3.

Table 3 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination is not present in surface soil (0 to 2 feet below ground surface).
Subsurface Soil Contact	De Minimis Exposure	Contamination remains in the subsurface below human health (inclusive of direct contact) and ingestion levels in 18 AAC 75.341, Tables B1 and B2.
Inhalation – Outdoor Air	De Minimis Exposure	Volatile contaminants remain in the subsurface below the human health or inhalation levels listed in 18 AAC 75.341, Tables B1 or B2.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	Groundwater contaminant data did not contain concentrations above vapor intrusion screening levels. Current soil data shows volatile compounds are non-detect near buildings at CANOL Service Road and River Road intersection.
Groundwater Ingestion	De Minimis Exposure	Contaminants have previously been detected above migration to groundwater cleanup levels found in 18 AAC 75.341, Tables B1 or B2. Groundwater sample results show contaminant concentration below 18 AAC 75.345, Table C values.
Surface Water Ingestion	Pathway Incomplete	Contaminants are not anticipated to migrate to surface water due to lack of groundwater exceedances. The Chena River is downgradient roughly 350 feet at the nearest point.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	The site is on an active military base, habitat is limited and contamination is not anticipated to impact ecological receptors.

Notes:

1. “De Minimis Exposure” means that, in DEC’s judgment, the receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination.

2. "Pathway Incomplete" means that, in DEC's judgment, the contamination has no potential to contact receptors.

DEC Decision

Soil and groundwater contamination at the site have been cleaned up to concentrations below the approved cleanup levels suitable for residential land use. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database.

DEC approval is required for movement and disposal of soil and/or groundwater subject to the Site Cleanup Rules, in accordance with 18 AAC 75.325(i). Since the cleanup at this site met the most stringent cleanup levels of 18 AAC 75.341, Tables B1 and B2 and 18 AAC 75.345, Table C, this letter will serve as your approval for future movement and disposal of soil associated with this release.

Movement or use of contaminated material in an ecologically sensitive area or in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited. Furthermore, 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. If, in the future, groundwater from this site is to be used for other purposes, 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 DEC from requiring additional assessment and/or cleanup action if information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

Informal Reviews and Adjudicatory Hearings

A person authorized under a provision of 18 AAC 15 may request an informal review of a contested decision by the Division Director in accordance with 18 AAC 15.185 and/or an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340. See DEC's "Appeal a DEC Decision" web page <https://dec.alaska.gov/commish/review-guidance/> for access to the required forms and guidance on the appeal process. Please provide a courtesy copy of the adjudicatory hearing request in an electronic format to the parties required to be served under 18 AAC 15.200. Requests must be submitted no later than the deadline specified in 18 AAC 15.

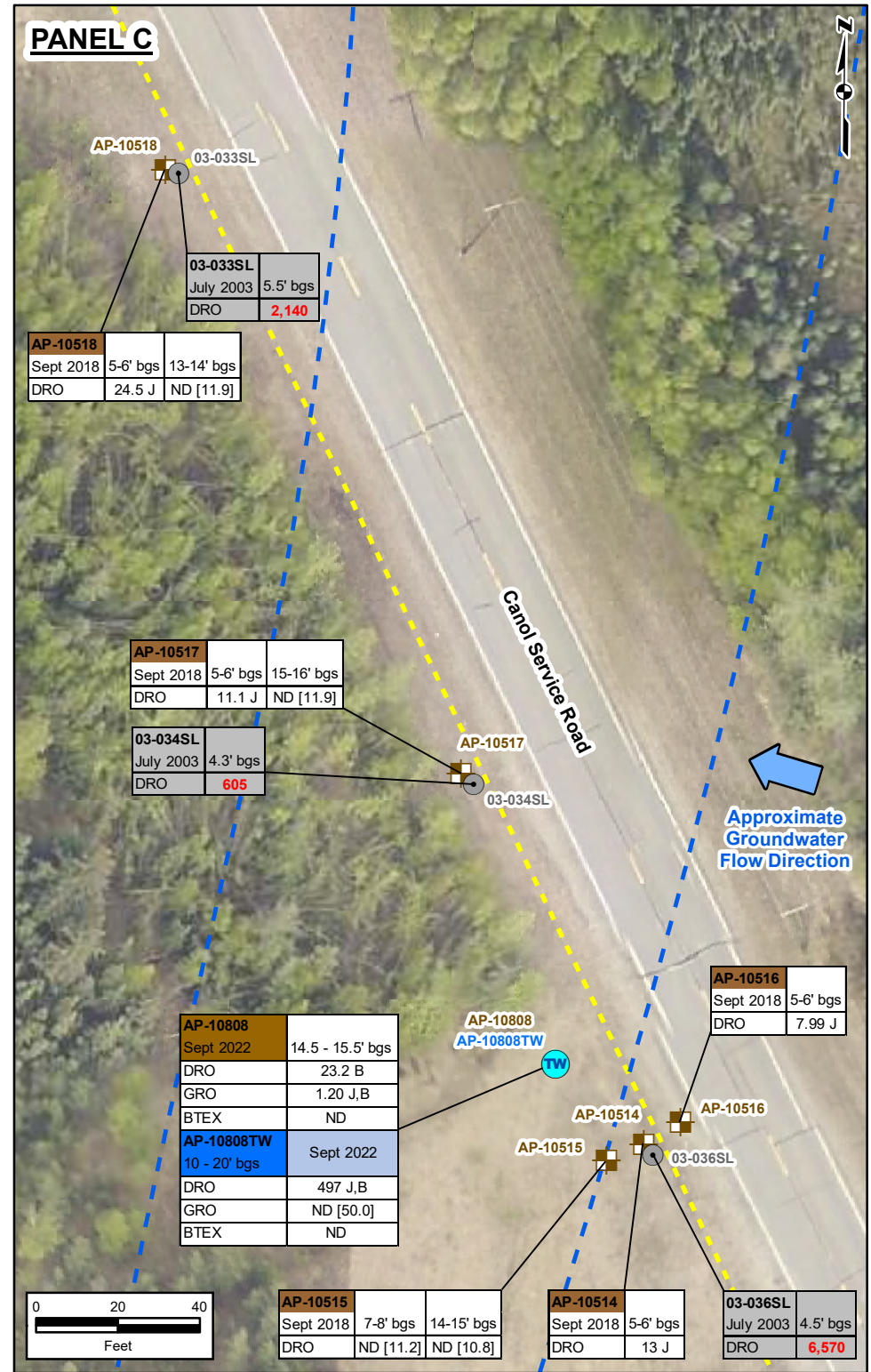
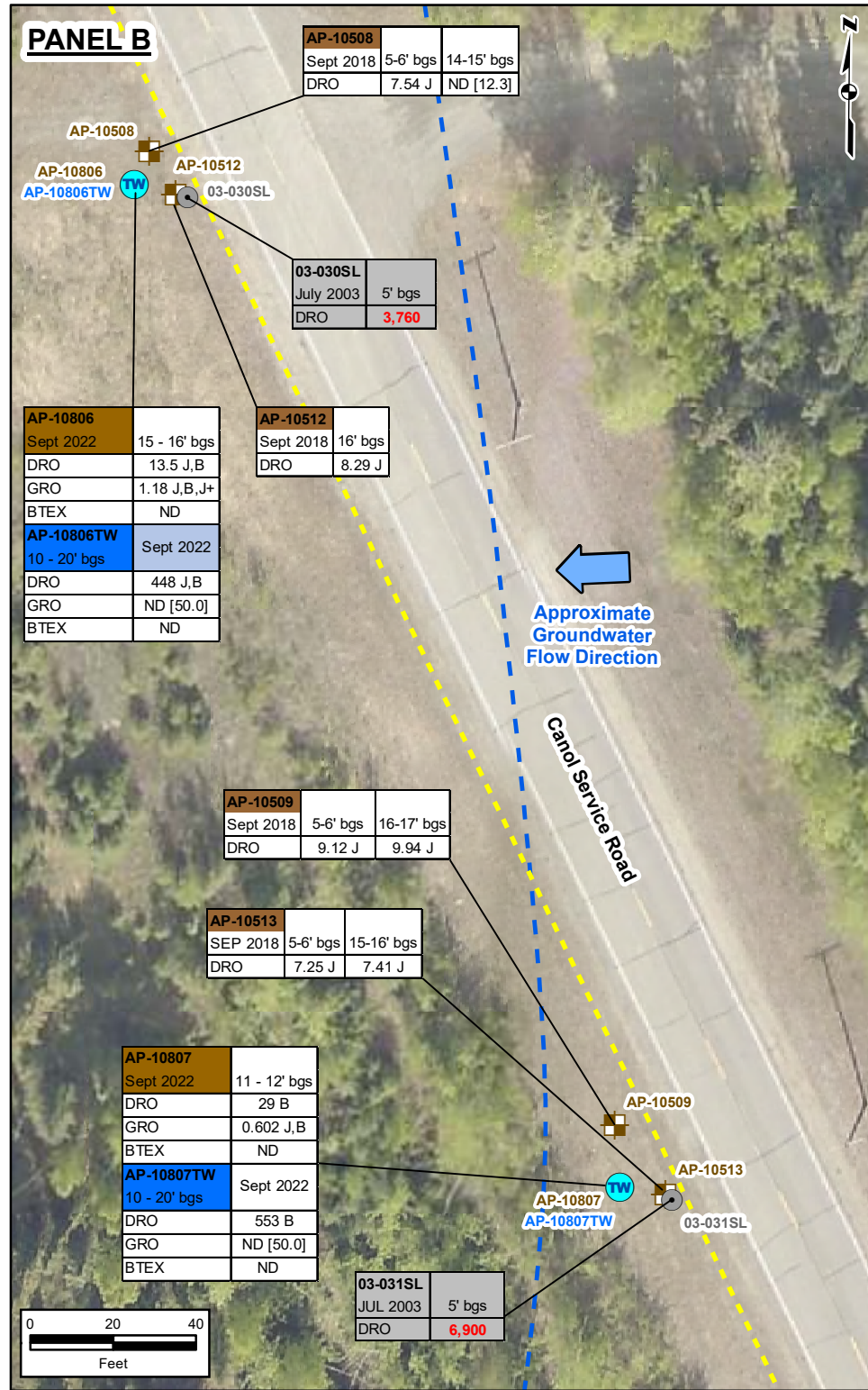
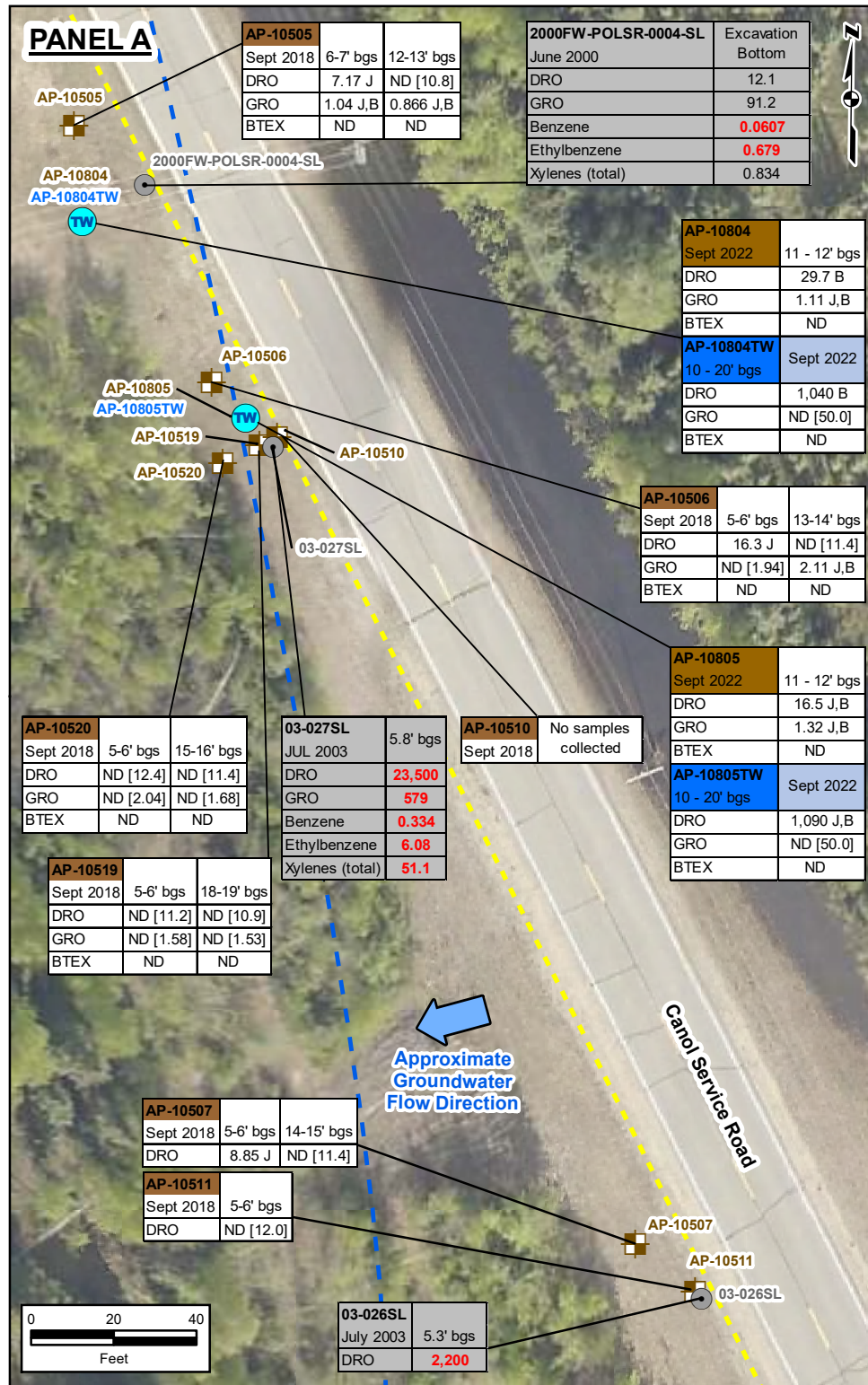
If you have questions about this closure decision, please feel free to contact me at (907) 451-2131, or email at tim.sharp@alaska.gov.

Sincerely,

Timothy Sharp
Primary Remedial Project Manager

cc: DEC, Division of Spill Prevention and Response, Cost Recovery Unit
Cascade Galasso, DEC
Dennis Shepard, DEC
Matthew Sprau, FWA ENVR Branch Chief

James Pengelly, FTW ENVR
Sandra Halstead, EPA
Craig Scola, EPA
Bob Hazlett, USACE
Julie Allan, USACE
Roger Walton, USAEC
Sam Klein, USAEC



Notes:

- The contaminant concentrations that exceed ADEC CULs are shown in red.
- The higher result between the primary/duplicate pair is shown where applicable.
- The soil analytical results were compared to the current ADEC soil CULs presented in 18 AAC 75, Method Two, Under 40-Inch Zone, Tables B1 and B2 (ADEC 2021).
- The groundwater ADEC CULs are established in the ADEC 18 AAC 75.345 Table C Human Health values (ADEC 2021).
- For definitions, refer to the Acronyms and Abbreviations section of the text.
- Callout boxes for samples collected prior to 2018 are shown in grayscale.
- Coordinate Systems: Horizontal - WGS84, UTM Zone 6N, U.S. survey in meters (displayed in feet).

Sources:

- Aerial imagery (dated 2020) obtained from Fairbanks North Star Borough Geographic Information Systems (GIS) Department (Pictometry_2020_4in_Fairbanks.SID)
- Geospatial data from U.S. Army Garrison Alaska Directorate of Public Works Master Planning Division, and Fairbanks Environmental Services (FES) 2019).

Legend:

- 2022 Soil Boring / Temporary Well
- 2000 / 2003 Excavation Soil Sample Locations
- 2018 Soil Boring
- Groundwater Contour from the OU3 RI - 1993 Contour Interval 0.5 Feet
- CANOL Pipeline, Removed

ANALYTES	ADEC CUL
Units in mg/kg	
DRO	250
GRO	300
Benzene	0.022
Ethylbenzene	0.13
Xylenes (total)	1.5

ANALYTES	ADEC CUL
Units in µg/L	
DRO	1,500
GRO	2,200

ENVIRONMENTAL SUMMARY REPORT
CANOL ROAD SITES
U.S. ARMY GARRISON ALASKA

**CANOL ROAD SOIL AND GROUNDWATER
SAMPLE LOCATIONS AND ANALYTICAL
RESULTS, PANELS A-C**

DATE: 3/13/2023 PROJECT No.: 550905 P.M. / DRAWN A.S. / C.B.	FIGURE: 3
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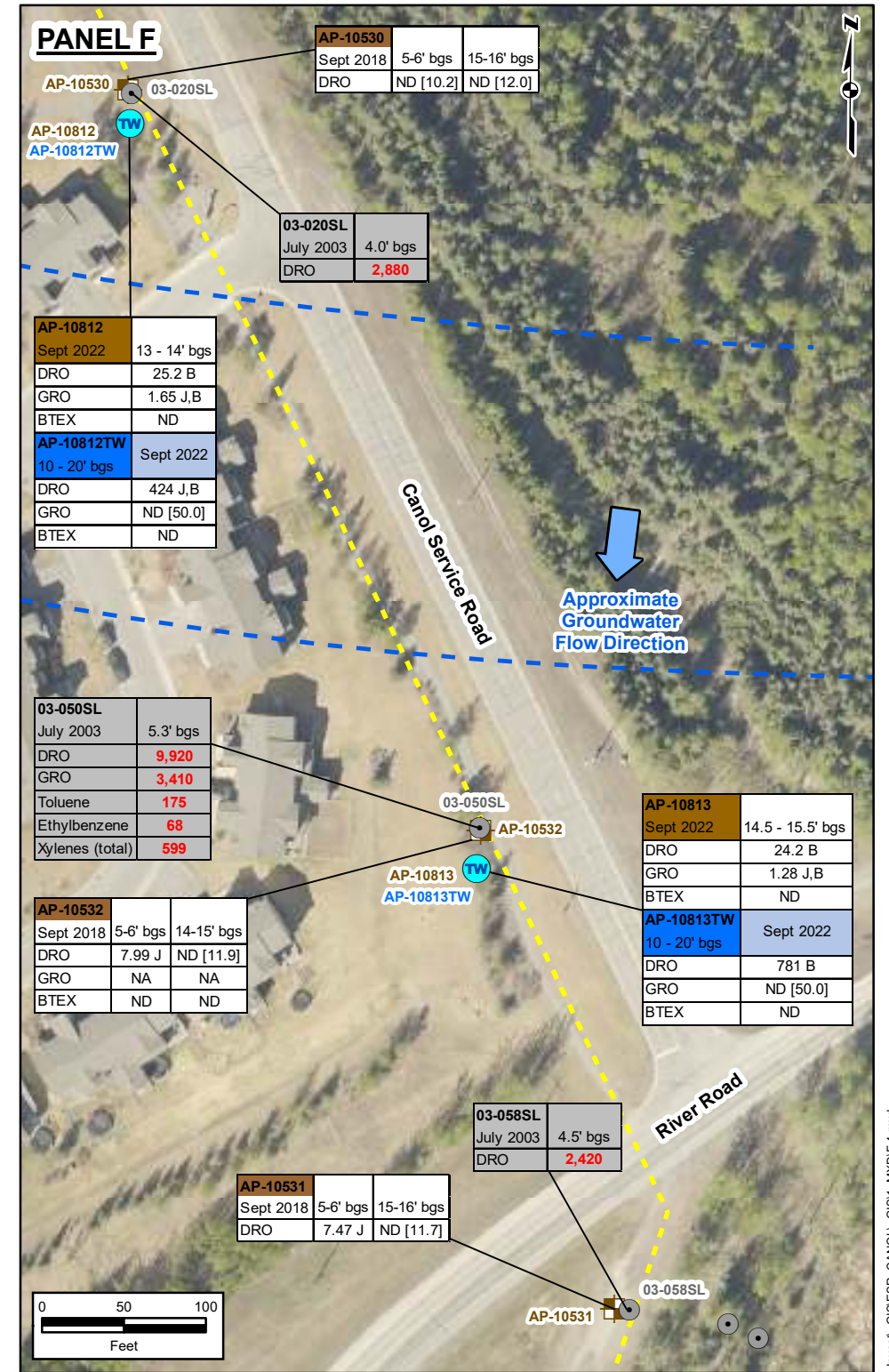
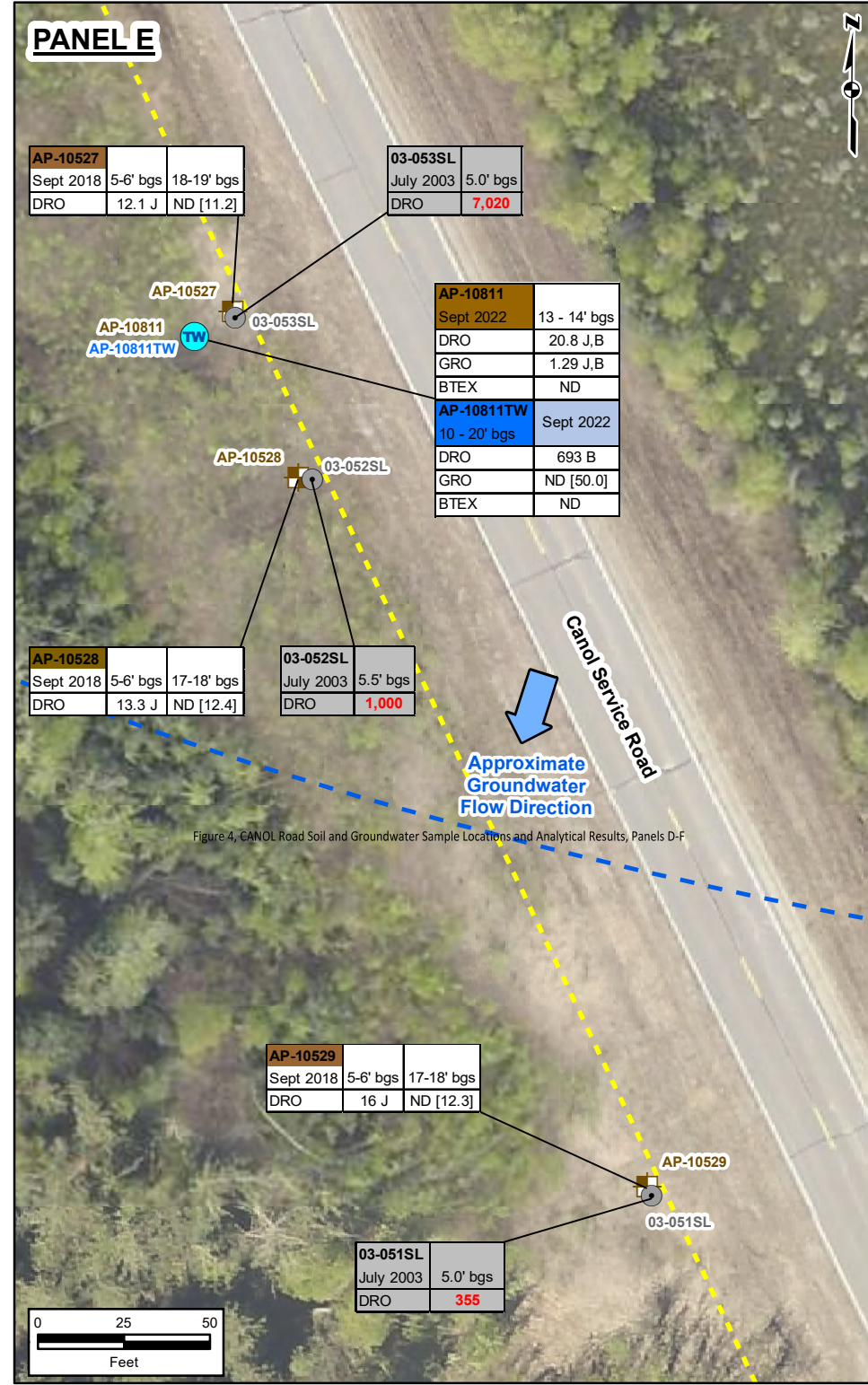
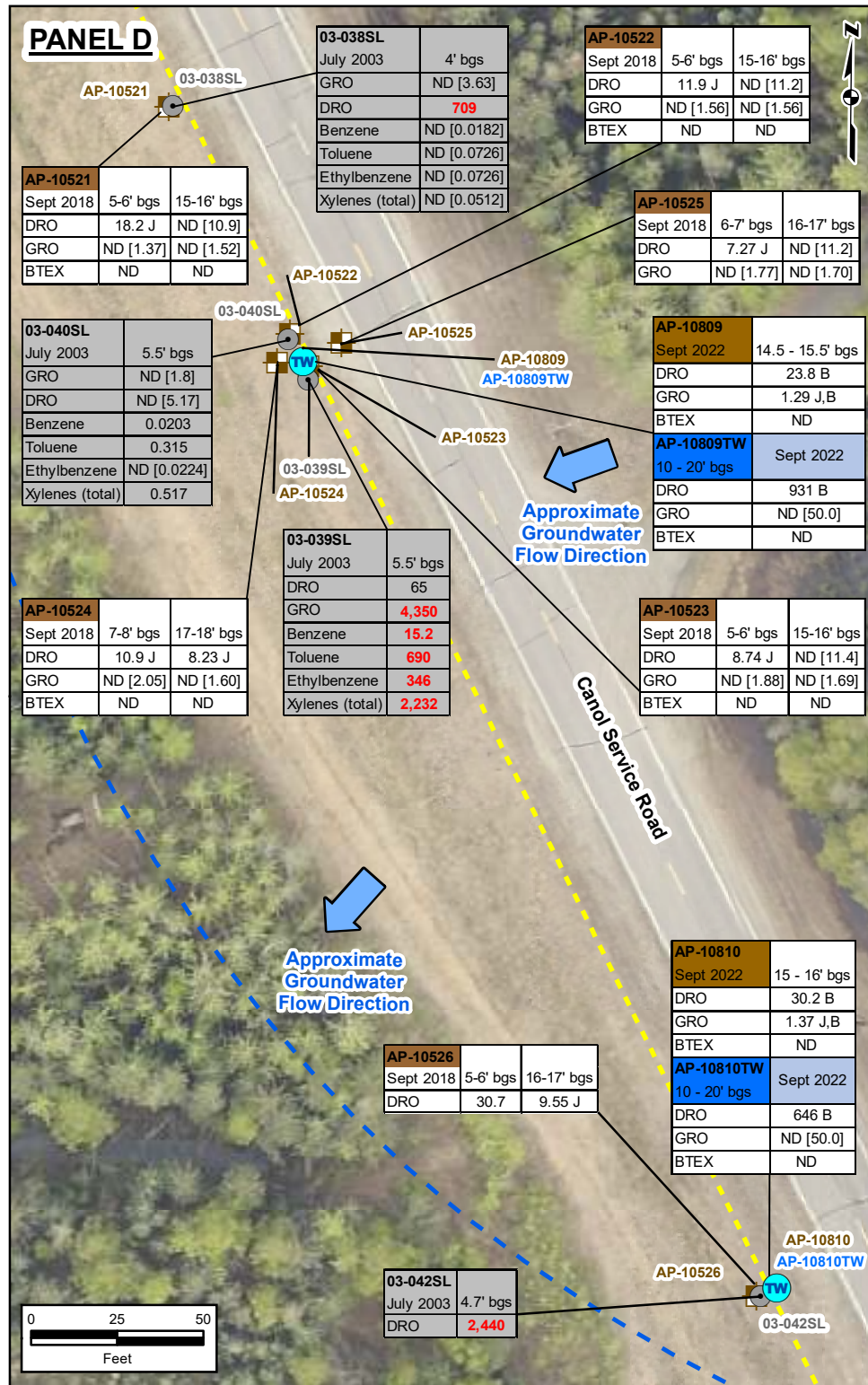


Figure 4. CANOL Road Soil and Groundwater Sample Locations and Analytical Results, Panels D-F

Notes:

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ENVIRONMENTAL SUMMARY REPORT
CANOL ROAD SITES
U.S. ARMY GARRISON ALASKA

**CANOL ROAD SOIL AND GROUNDWATER
SAMPLE LOCATIONS AND ANALYTICAL
RESULTS, PANELS D-F**

DATE:
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P.M. / DRAWN
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FIGURE:
4