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.: 141.38.079

November 04, 2024

U.S. Army Garrison Alaska, Fort Greely
ATTN: Chief, Environmental Division, Directorate of Public Works (Crofford)
P.O. Box 31310
Fort Greely, Alaska 99731-1310

Re: Decision Document: Fort Greely Bldg 340 BRAC 077
Cleanup Complete Determination

Dear Mr. Crofford:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has completed a review of the environmental records associated with the Fort Greely Bldg 340 BRAC 077 located near the corner of Butternut Road in Fort, Greely, 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 needed.

This Cleanup Complete determination is based on the administrative record for the Fort Greely Bldg 340 BRAC 077 maintained by DEC. This decision letter summarizes the site history, cleanup actions, regulatory decisions, and specific conditions required to determine site closure.

Site Name and Location:
Fort Greely Bldg 340 BRAC 077
6th Avenue
Fort Greely, AK 99731

Name and Mailing Address of Contact Party:
Mr. Ron Crofford
U.S. Army Garrison Fort Greely
P.O. Box 31310
Fort Greely, Alaska 99731-1310

DEC Site Identifiers:
File No.: 141.38.079
Hazard ID.: 2669

Regulatory Authority for Determination:
18 Alaska Administrative Code (AAC) 75

Site Description and Background

The Fort Greely Building 340 (BRAC Site 077, FGLY-058, SWMU-30) is located in the mid-post geographic area, southwest of the intersection of East Post Road and Butternut Road (UTM 6N: Northing: 7,095,240 m, Easting: 562,791 m). The building was historically used for warm storage for the Cold Regions Test Center (CRTC) facility. The building is associated with UST #425 and UST #425A (SWMU-30).

UST #425 was a 1,000-gallon tank installed in 1952 to supply heating oil, and later, used oil, to heat Building 340. The UST was most likely permanently removed from the ground sometime in the 1970s. UST #425 was replaced with a 500-gallon heating oil tank (AST #425A). In 1985, a 5,000-gallon used oil tank (UST #425A) was installed about 20 feet southwest to collect used oil for a supply to a used oil burner at Building 340. During a 1989 visual inspection of Building 340, staining was observed around the top of the hatch opening of UST #425A. This UST site was designated as SWMU-30 in a 1990 RCRA Facility Assessment (RFA) due to the staining associated with UST #425A, however; Fort Greely did not enter a RCRA permit after the RFA. In 1998, AST #425A was removed and replaced with a 1,000-gallon heating oil tank (AST #425B) in the same area. AST #425B is currently at the site and in use.

Soil in the Fort Greely area is mainly comprised of shallow, well-drained silt loams with sandy to gravelly underlying material. Local borings show that sandy gravels dominate but are interlaced with discontinuous silt-rich zones that are less permeable and can slow migration of contaminants through the substrate. Groundwater at Fort Greely typically sits at around 200 feet below ground surface (bgs).

Contaminants of Concern

During the site investigation and cleanup activities at this site, samples were collected from soil and groundwater and analyzed for diesel, gasoline, and residual range organics (DRO, GRO, RRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), volatile and semi-volatile organic carbons (VOCs and SVOCs), and Resource Conservation and Recovery Act (RCRA) metals. At the site of former UST #425A, the only analytes detected above ADEC cleanup levels were metals (Arsenic and Selenium) which were within the expected naturally occurring background levels in FGA soil. 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

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. Groundwater samples at the site never showed exceedances of Table C values, and so are not represented in Table 1.

Table 1 – Approved Cleanup Levels

Contaminant	Soil – Migration to Groundwater[1] (mg/kg)	Soil – Human Health[2] (mg/kg)
DRO	250	10,250

Notes:

1. [1] Soil cleanup level protective of groundwater used as a drinking water source.
2. [2] Soil cleanup level protective of people exposed to contaminated soil by the ingestion pathway.

Characterization and Cleanup Activities

Investigative and remedial actions took place between 1997 and 2010. In 1997, UST #425A was removed along with approximately 60 cubic yards of contaminated soil. Soil sampling showed DRO concentrations were detected up to 763 mg/kg exceeding the ADEC Method Two Migration to Groundwater cleanup level of 250 mg/kg but not exceeding human health of 10,250 mg/kg.

In 1998, four soil borings were advanced to 32 feet bgs to further evaluate the former UST #425A site soils. Soil samples were analyzed for GRO, DRO, RRO, BTEX or VOCs, SVOCs, PCBs, and RCRA metal.

In 2009, an investigation was conducted to characterize the extent of any remaining contamination associated with UST #425 and UST #425A. The investigation activities included a records search, site visit, installation and sampling of subsurface soil borings, and a pipe locator survey.

Groundwater monitoring well E-1 was installed at Building 340. Although it has never had any historical exceedances, it has not been sampled since 2002 and is currently used to document groundwater elevations. Groundwater in the area of Building 340 is between 180 and 195 feet bgs. Due to the limited vertical extent and low concentrations of residual contaminants, except for soils that are inaccessible due to the building structure, groundwater exposure risks are insignificant.

Remaining Contamination

The maximum concentrations of contaminants remaining at the site are shown in Table 2. These concentrations are all below their respective human health cleanup levels, but above the migration to groundwater cleanup levels identified in 18 AAC 75.341, Tables B1 and B2. From soil boring SP07S concentrations were the highest at 8 ft below ground level at 960 mg/kg with decreasing levels with increased depth. DRO levels for SP07S were at 670 mg/kg at 12 ft below ground level. Levels of Selenium and Arsenic did exceed ADEC 18 AAC 75.341 clean up criteria; however, these levels are in line with known background levels for Fort Greely.

Table 2 – Maximum Contaminant Concentrations Remaining in Soil

Contaminant	Soil – (mg/kg)
DRO	960

Notes:

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 one of the following: De-Minimis Exposure, Exposure Controlled, 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 has been cleaned up in surface soil to below human health cleanup levels.
Subsurface Soil Contact	De Minimis Exposure	Contamination remains in the subsurface above migration to groundwater levels, but below human health cleanup levels in 18 AAC 75.341, Tables B1 and B2.
Inhalation – Outdoor Air	Pathway Incomplete	Contamination remains in the subsurface soil below human health and inhalation levels identified in 18 AAC 75.341, Tables B1 and B2.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	The site background indicates there is clean fill and a concrete slab overlying and mitigating volatile petroleum related compounds from the residual soil contamination.
Groundwater Ingestion	Pathway Incomplete	Subsurface sampling at depth indicated contamination is below migration to groundwater cleanup levels identified in 18 AAC 75.341, Tables B1 and B2 beneath the source area. Groundwater at the site is approximately 180-195 ft bgs, whereas exceedances stop at 12 ft bgs and are not present in concentrations that would be expected to reach ground water.
Surface Water Ingestion	Pathway Incomplete	Contaminants are not expected to migrate to surface water. The closest surface water to the site is over 4000 feet downgradient.
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 installation and there are no terrestrial or aquatic exposure routes.

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 contamination at the site has 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). Please contact DEC for information about applicable regulations and requirements. A "site", as defined by 18 AAC 75.990, means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

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 the project manager Carly Jensen at (907) 269-3077 or at carly.jensen@alaska.gov.

Sincerely,

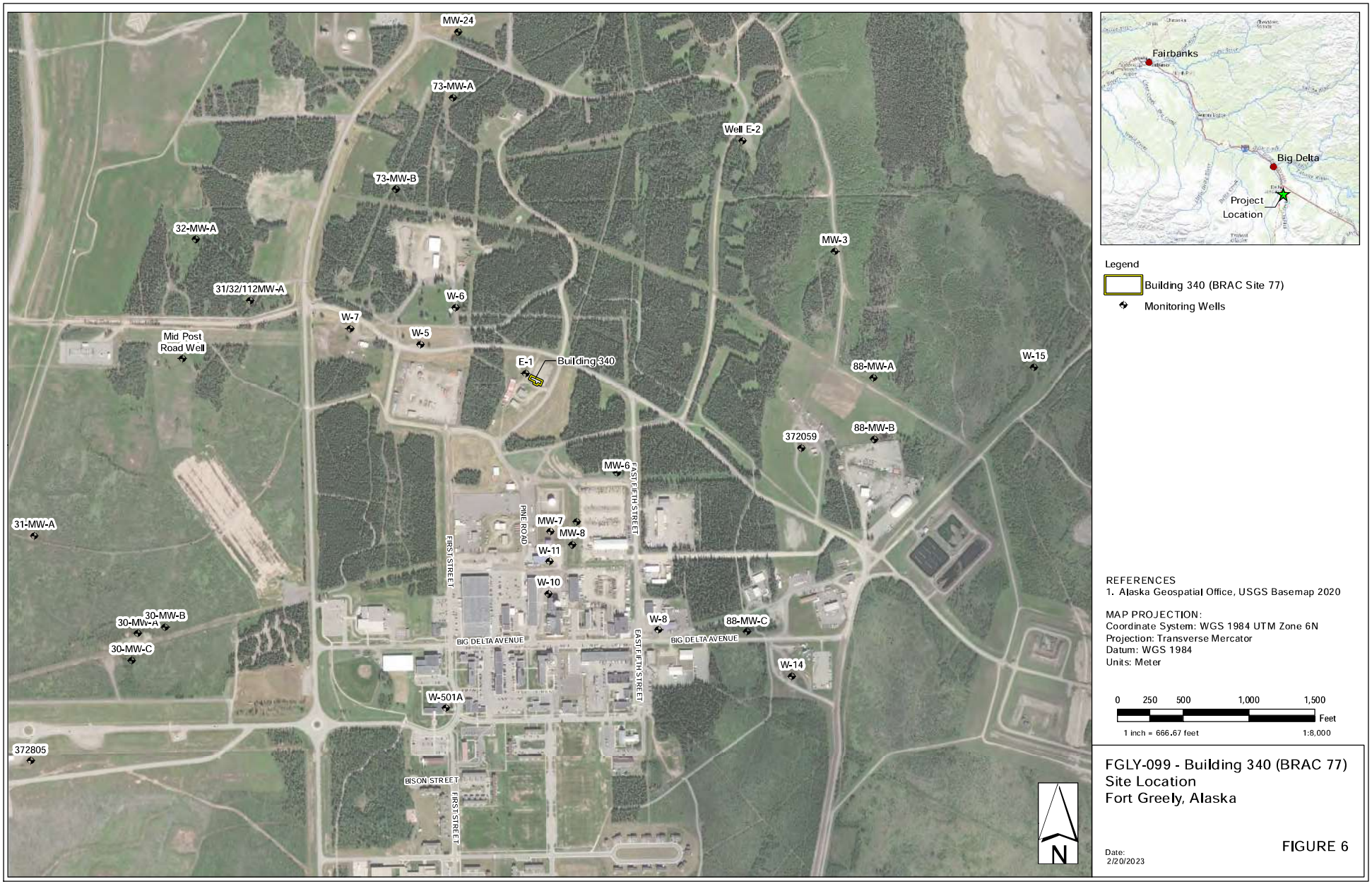
Carly Jensen
Digitally signed by Carly Jensen
Date: 2024.11.04 15:16:26 -09'00'

Carly Jensen
Remedial Project Manager

Enclosure: Site figures and Analytical Tables

cc: DEC, Division of Spill Prevention and Response, Cost Recovery Unit
Dennis Shepard, DEC
Samuel Klein, USAEC
Taren Frescatore, FGA ENVR

Justin Hogrefe, FGA ENVR
Chris Locke, FGA ENVR
Guy Warren, USACE



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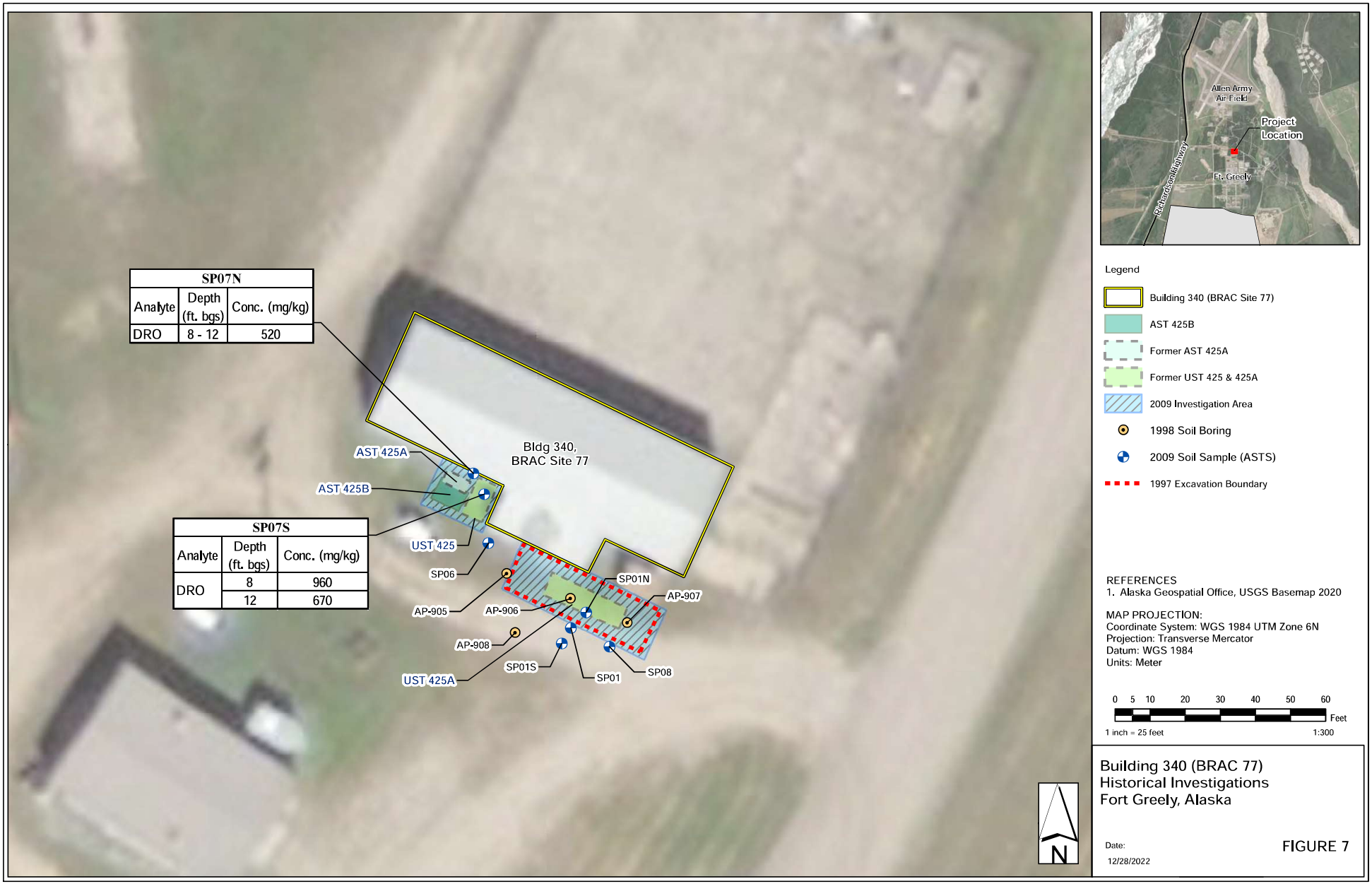

Building 340 (BRAC 77)
Historical Investigations
Fort Greely, Alaska

Date:
12/28/2022

FIGURE 7

Q:\Alaska-Files\Projects - Active\0G0002.005 Fort Greely_060094\12. GIS\1. MXDs\FGLY-099\Figure 7 Building 340 (BRAC 77) Historical Investigations.mxd

Table A2-6. 2009 Building 340/BRAC Site 77 Direct-Push Drilling Analytical Sampling Detections Associated with UST #425A.

			Soil Push ID#	SP01		SP01N		SP01S	SP08	
			Depth (feet bgs)	8 - 12	12 - 16	8 - 12	12-16	8 - 12	8 - 12	12 - 16
			Date Sample Collected	8/11/2009	8/11/2009	8/10/2009	8/10/2009	8/10/2009	8/10/2009	8/10/2009
			PID Reading (ppm)	1	0.2	0.5	0.8	1.6	4.2	--
			Sample Name ID# **0908BRAC77**	SP01008-01	SP01012-01	SP01N008-01	SP01N012-01	SP01S008-01	SP08008-01	SP08012-01
Analyte	**Method**	**Unit**	**Cleanup Level[1]**	**Analytical Concentration**						
Arsenic	SW6010B	mg/kg	0.2[2]	**7.6**	**8.8**	**6.2**	**7.1**	**8**	**6.1**	**5.4**
Barium	SW6010B	mg/kg	2,100	71 J	81 J	110 J	61 J	64 J	60 J	60 J
Chromium	SW6010B	mg/kg	100,000	14 J	20 J	15 J	22 J	9.9 J	18 J	13 J
Lead	SW6010B	mg/kg	400	5.7	6.5	4.5	4.3	5.9	5.4	5.7
Selenium	SW6010B	mg/kg	6.9[2]	**16**	**19**	**19**	**19**	**18**	**17**	**15**
Mercury	SW7471A	mg/kg	0.36	0.018	0.025	0.0094 J	0.017 J	0.016 J	ND (0.02)	0.023
4,4'-DDD	SW8081A	mg/kg	0.098	ND (0.002)	ND (0.002)	0.00023 J	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
4,4'-DDT	SW8081A	mg/kg	5.1	ND (0.002)	ND (0.002)	0.00022 J	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Acetone	SW8260B	mg/kg	38	0.069 J	0.031 J	ND (0.014)	ND (0.16)	0.026 J	0.038 J	ND (0.13)
Methylene Chloride	SW8260B	mg/kg	0.33	ND (0.015)	ND (0.014) U	ND (0.014) U	ND (0.016)	ND (0.016) U	0.06	ND (0.013) U
Toluene	SW8260B	mg/kg	6.7	ND (0.015)	ND (0.014)	ND (0.014)	ND (0.016)	0.00098 J	0.0029 J	ND (0.013)
Trichlorofluoromethane	SW8260B	mg/kg	41	ND (0.015)	ND (0.014)	0.0026 J	0.0031 J	0.0086 J	0.012 J	ND (0.013)
Bis(2-ethylhexyl) phthalate	SW8270C	mg/kg	88	0.1 J	0.13 J	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)
Pyrene	SW8270C	mg/kg	87	0.00031 J	ND (0.0049)	ND (0.005)	ND (0.005)	ND (0.0049)	ND (0.005)	ND (0.0049)

Acronyms:
bgs = below ground surface; mg/kg = milligram per kilogram; PID = photoionization detector; ppm = parts per million.

Notes:
[1] Soil cleanup criteria based on 18 AAC 75, Tables B1 & B2, Method 2, Under 40-Inch Zone Migration to Groundwater (ADEC 2021).
[2] A 1999 soil study determined background soil levels ranged from 4 mg/kg to 40 mg/kg for arsenic and from 0.3 mg/kg to 1.0 mg/kg for selenium. Levels in this background range are considered acceptable for FGA soils (Jacobs 2000). A 2009 report noted that selenium concentrations above the 1999 study levels are typical of recent investigative findings at FGA sites and are relatively common post wide (ASTS 2011).
Bold/shaded = Results exceed ADEC 18 AAC 75.341 cleanup criteria.
U = The analyte was analyzed for but was considered not detected at the reporting limit or reported value.
J = The analyte was detected above the reported detection limit with a reported concentration as an estimated value.
ND = Not detected above the MDL. The MDL is provided in parentheses.

Table A2-6. 2009 Building 340/BRAC Site 77 Direct-Push Drilling Analytical Sampling Detections Associated with UST #425A, Continued.

			Soil Push ID#	SP06		SP07S		SP07N
			Depth (feet bgs)	8 - 12	8 - 12	8	12	8 - 12
			Date Sample Collected	8/11/2009	8/11/2009	8/10/2009	8/10/2009	8/11/2009
			PID Reading (ppm)	0.2	0.2	52.2	117	79.8
			Sample Name: **0908BRAC77**	SP06008-01	SP06008-11	SP07S008-01	SP07S012-01	SP07N008-01
Analyte	**Method**	**Unit**	**Cleanup Level[1]**	**Analytical Concentration**				
GRO	AK 101	mg/kg	300	ND (1.5) U	ND (1.4) U	36	ND (19) U	ND (2.4) U
DRO	AK 102	mg/kg	250	ND (20)	ND (20)	**960**	**670**	**520**
Toluene	SW8260B	mg/kg	6.7	ND (0.015)	ND (0.014)	0.0022 J	ND (0.012)	ND (0.014)
2-Methylnaphthalene	SW8270C	mg/kg	1.3	ND (0.0048)	ND (0.0048)	ND (0.0048)	0.018	ND (0.005)
Acenaphthene	SW8270C	mg/kg	37	ND (0.0048)	ND (0.0048)	ND (0.0048)	ND (0.0049)	0.009
Acenaphthylene	SW8270C	mg/kg	18	ND (0.0048)	ND (0.0048)	0.014	0.0094	0.016
Benzo[a]pyrene	SW8270C	mg/kg	1.9	ND (0.0048)	0.00036 J	ND (0.0048)	0.00027 J	ND (0.005)
Dibenz[a,h]anthracene	SW8270C	mg/kg	0.7	0.0016 J	ND (0.0048)	0.00063 J	ND (0.0049)	ND (0.005)
Fluoranthene	SW8270C	mg/kg	590	ND (0.0048)	ND (0.0048)	ND (0.0048)	0.00044 J	0.00054 J
Fluorene	SW8270C	mg/kg	36	ND (0.0048)	ND (0.0048)	ND (0.0048)	0.0037 J	ND (0.005)
Naphthalene	SW8270C	mg/kg	0.038	ND (0.0048)	ND (0.0048)	0.003 J	0.0028 J	ND (0.005)
Phenanthrene	SW8270C	mg/kg	39	ND (0.0048)	ND (0.0048)	0.018	0.0078	ND (0.005)
Pyrene	SW8270C	mg/kg	87	0.00033 J	ND (0.0048)	0.00052 J	0.00033 J	ND (0.005)

Acronyms:
bgs = below ground surface; DRO = Diesel Range Organics; GRO = Gasoline Range Organics; mg/kg = milligram per kilogram; PID = photoionization detector; ppm = parts per million.

Notes:
[1] Soil cleanup criteria based on 18 AAC 75, Tables B1 & B2, Method 2, Under 40-Inch Zone Migration to Groundwater (ADEC 2021).
Bold/shaded = Results exceed ADEC 18 AAC 75.341 cleanup criteria.
U = The analyte was analyzed for but was considered not detected at the reporting limit or reported value.
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