THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 220.38.003
220.38.006

August 30, 2017

Bill Heubner
National Park Service
240 West 5th Avenue
Anchorage, AK, 99501

Re: Decision Document: NPS Denali National Park HQ Boiler Bldg 54 and NPS Denali National Park HQ Bldg 51, Cleanup Complete Determination – Institutional Controls

Dear Mr. Heubner:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has completed a review of the environmental records associated with the National Park Service (NPS) Headquarters (HQ) Boiler Building 54 and Building 51 site located in Denali National Park & Preserve, 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 as long as the institutional controls are maintained and effective and no new information becomes available that indicates residual contamination poses an unacceptable risk.

This Cleanup Complete with Institutional Controls (ICs) determination is based on the administrative record for the NPS Denali National Park HQ Boiler Building 54 and Building 51 site which is located in the offices of the DEC in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions, regulatory decisions, and specific conditions required to effectively manage remaining contamination at this site.

Site Name and Location:
NPS Denali National Park HQ Buildings 54 & 51
Denali National Park Headquarters
Denali Park, AK 99755

Name and Mailing Address of Contact Party:
Bill Heubner
National Park Service
240 West 5th Avenue
Anchorage, AK 99501

DEC Site Identifiers:
File No: 220.38.003 and 220.38.006
Hazard ID: 1604 and 3818

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background

The Denali National Park Headquarters Area is located 3.2 miles into the park, on the south side of Denali Park Road. Building 54 is the powerhouse for the Headquarters Area. The powerhouse had three diesel underground storage tanks (USTs): two 10,000-gallon tanks installed in 1959 and one 4,000-gallon tank installed in 1966, and transfer pumps located inside the building. The NPS removed all three USTs and the associated piping in 1993. Due to the depth of the excavation and proximity to the building, not all contaminated soil could be removed. Building 51 is an apartment building used for NPS personnel housing served by a 2000-gallon heating oil UST. Petroleum contaminated soil was encountered during removal of the tank in 2001.

Groundwater is approximately 45 feet below ground surface at the Headquarters Area and generally flows to the south. The drinking water source for the headquarters area is on the east side of Rock Creek, approximately 0.35 miles north of the site.

Contaminants of Concern and Cleanup Levels

Cleanup levels for this site are established in 18 AAC 75.340, Method Two, Tables B1 and B2, under 40-inch Zone for soil and 18 AAC 75.345, Table C for groundwater. Soil samples at this site have been analyzed for diesel range organics (DRO); benzene, toluene, ethylbenzene, and xylenes (BTEX); and polycyclic aromatic hydrocarbons (PAHs). Soil sampling results have shown DRO, benzene, ethylbenzene, xylenes, and naphthalene concentrations above the migration to groundwater cleanup levels but below the human health cleanup levels.

Table 1 – Soil Cleanup Levels[1]

Contaminant of Concern	Human Health (mg/kg)	Migration to Groundwater (mg/kg)
Benzene	11	0.022
Ethylbenzene	49	0.13
Xylenes	57	1.5
Naphthalene	29	0.038
DRO	10,250 (Ingestion)	250

[1] – Method Two - Soil Cleanup Levels, Tables B1 and B2
mg/kg = milligrams per kilogram
DRO = diesel range organics

Groundwater samples at this site have been analyzed for DRO, BTEX, and PAHs. Sample results have shown DRO, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene above the cleanup levels.

Table 2 – Groundwater Cleanup Levels[1]

Contaminant of Concern	Groundwater (µg/L)
Benzo[a]anthracene	0.12
Benzo[a]pyrene	0.034
Benzo[b]fluoranthene	0.34
Indeno[1,2,3-cd]pyrene	0.19
DRO	1500

[1] – Method Two - Groundwater Cleanup Levels, Table C
µg/L = micrograms per liter

DRO = diesel range organics

Characterization and Cleanup Activities

In 1993, the NPS removed a total of three USTs and associated piping from the Headquarters Building 54 site: two 10,000-gallon USTs and one 4,000-gallon UST. The final excavation measured 35 feet by 60 feet. The depth of the excavation ranged from approximately 21 feet in the eastern third to 13 feet in the western two thirds. Approximately 625 cubic yards of soil was removed and placed in temporary stockpiles at the NPS bioremediation cell. No additional soil could be removed due to the locations of utilities and the proximity of the building. Soil samples collected from the bottom of the excavation had DRO results above the cleanup level, with a maximum result of 9,600 mg/kg at 13 feet.

In 2001, the NPS removed a 2000-gallon heating oil UST from the southwest corner of Building 51, which is approximately 100 feet north of Building 54. Approximately 150 cubic yards of petroleum contaminated soil was excavated and thermally treated. Soil samples collected from the floor of the excavation at 13 feet had results for DRO above the cleanup level, with a maximum result of 5,890 mg/kg.

Additional investigation activities from 2001 to 2003 included installing soil borings and a monitoring well network of 7 wells to investigate remaining soil and groundwater impacts at the Building 51 and Building 54 sites. Soil sample results show contamination at Building 54 extends to a depth of 50 feet. At Building 51, soil contamination extends to a depth of 36 feet. MW-1 was installed in the footprint of the excavation at Building 54, and MW-4 was installed within the footprint of the excavation at Building 51.

Annual groundwater sampling has been performed from 2001 through 2010. Free phase product was observed intermittently in MW-1, located within the footprint of the Building 54 excavation, and MW-2, approximately 80 feet downgradient. A Petrotrap product recovery device was used in MW-1 from 2003 to 2006, and in MW-2 from 2005 to 2006; a minimal volume of product was recovered.

Groundwater samples at this site have been analyzed for DRO and BTEX. DRO has been detected above the cleanup level in MW-1, MW-2, and MW-4. DRO has not been detected above the cleanup level in any other wells. BTEX results have not been detected above the cleanup levels in any wells. The table below presents the maximum detected concentrations of DRO and the 2010 concentrations of DRO in the groundwater.

Table 3 – DRO Concentrations in Groundwater

Monitoring Well	Maximum DRO (µg/L)	DRO in 2010 (µg/L)
MW-1 Building 54 Source Area Well	255,000 (2002)	1,180
MW-2 Building 54 Downgradient Well	18,100 (2001)	2,240
MW-4 Building 51 Source Area Well	5,840 (2002)	528

DRO = diesel range organics
µg/L = micrograms per liter

The groundwater sample from MW-1 collected in 2010 was also analyzed for PAHs. Sample results showed benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indo(1,2,3-cd)pyrene above the cleanup level.

Table 4 – PAH Concentrations in Groundwater at MW-1 in 2010

Analyte	Concertation (µg/L)
Benzo[a]anthracene	0.35
Benzo[a]pyrene	0.34
Benzo[b]fluoranthene	0.88
Indeno[1,2,3-cd]pyrene	0.25

PAH = polycyclic aromatic hydrocarbons
µg/L = micrograms per liter

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 of one across all exposure pathways. Cumulative risk at this site was calculated assuming a residential land use and using the highest detected concentrations of contaminants in all of the samples collected following the cleanup actions. The results exceed the cumulative risk standards. The potential cumulative risk is via the groundwater ingestion pathway, which is controlled by institutional controls in place to prevent the installation of water wells without prior DEC approval.

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. De Minimis Exposure means that in DEC's judgment receptors are unlikely to be affected by the minimal volume or concentration of remaining contamination. Pathway Incomplete means that in DEC's judgment contamination has no potential to contact receptors. 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. The exposure pathway evaluations for Building 54 and Building 51 are shown in the tables below.

Table 5 – Building 54 Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis Exposure	Remaining contaminant concentrations in soil are below health based cleanup levels.
Sub-Surface Soil Contact	De Minimis Exposure	Remaining contaminant concentrations in soil are below health based cleanup levels.
Inhalation – Outdoor Air	De Minimis Exposure	Remaining contaminant concentrations in soil are below health based cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	Remaining contaminant concentrations in soil are below health based cleanup levels.
Groundwater Ingestion	Exposure Controlled	Contaminants are present in the groundwater at Building 54 above cleanup levels, however groundwater concentrations are demonstrated to be declining downgradient of the source area within the

		plume. The NPS has implemented institutional controls restricting the installation of wells and use of the groundwater.
Surface Water Ingestion	Pathway Incomplete	Remaining contamination is not anticipated to migrate to surface water bodies.
Wild and Farmed Foods Ingestion	Pathway Incomplete	This site is located within the headquarters are of Denali National Park & Preserve and hunting and farming activities do not occur in this area.
Exposure to Ecological Receptors	Pathway Incomplete	There are no complete ecological exposure pathways at this site. Contaminated groundwater is 45 feet below the ground surface and contaminants are not migrating to surface water.

Table 6 – Building 51 Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis Exposure	Remaining contaminant concentrations in soil are below health based cleanup levels.
Sub-Surface Soil Contact	De Minimis Exposure	Remaining contaminant concentrations in soil are below health based cleanup levels.
Inhalation – Outdoor Air	De Minimis Exposure	Remaining contaminant concentrations in soil are below health based cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	Remaining contaminant concentrations in soil are below health based cleanup levels.
Groundwater Ingestion	Exposure Controlled	Remaining contaminant concentrations at Building 51 are below cleanup levels. The NPS has implemented institutional controls restricting the installation of wells and use of the groundwater.
Surface Water Ingestion	Pathway Incomplete	Remaining contamination is not anticipated to migrate to surface water bodies.
Wild and Farmed Foods Ingestion	Pathway Incomplete	This site is located within the headquarters are of Denali National Park & Preserve and hunting and farming activities do not occur in this area.
Exposure to Ecological Receptors	Pathway Incomplete	There are no complete ecological exposure pathways at this site.

DEC Decision

Petroleum contaminated soil was left in place after the removal of 3 USTs at Building 54 in 1993 and one UST at Building 51 in 2001. The remaining contaminated soil could not be removed without compromising the structural integrity of the buildings or impacting utilities. Remaining contaminant concentrations are above the migration to groundwater cleanup levels but below the health based cleanup levels.

Groundwater at the Building 54 site has DRO and several PAHs above the established cleanup levels. The contaminant concentrations are demonstrated to be decreasing, therefore, DEC has determined the residual soil contamination does not pose an unacceptable migration to groundwater concern.

Institutional controls necessary to support this closure determination include:

1. Identification of the location of remaining soil and groundwater contamination on the NPS GIS database and use of the internal NPS planning process for all projects that directs the user to the GIS database to determine if contamination is present within the project area.

2. A requirement that proper field screening and characterization be conducted during any soil excavation, digging, or trenching in the areas where residual soil contamination exists and that any contaminated soil encountered be managed in accordance with regulations applicable at that time.

3. A restriction on installing groundwater wells or using groundwater from the site without prior DEC approval.

Standard site closure conditions that apply to all sites include:

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.

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.

DEC has determined the cleanup is complete as long as the institutional controls are properly implemented and no new information becomes available that indicates residual contamination may pose an unacceptable risk.

The DEC Contaminated Sites Database will be updated to reflect the change in site status to "Cleanup Complete with Institutional Controls" and will include a description of the contamination remaining at the site.

The institutional controls will be removed in the future if documentation is provided that shows concentrations of all residual hazardous substances remaining at the site are below the levels that allow for unrestricted exposure to, and use of, the contaminated media and that the site does not pose a potential unacceptable risk to human health, safety or welfare, or to the environment. The standard conditions above will remain in effect after ICs are removed.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if the institutional controls are determined to be ineffective or if new information indicates that contaminants at this site may pose an unacceptable risk to human health or 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, 555 Cordova Street, Anchorage, Alaska 99501-2617, within 15 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 questions about this closure decision, please feel free to contact me at (907) 451-2370 or gretchen.caudill@alaska.gov.

Sincerely,

G. Caudill

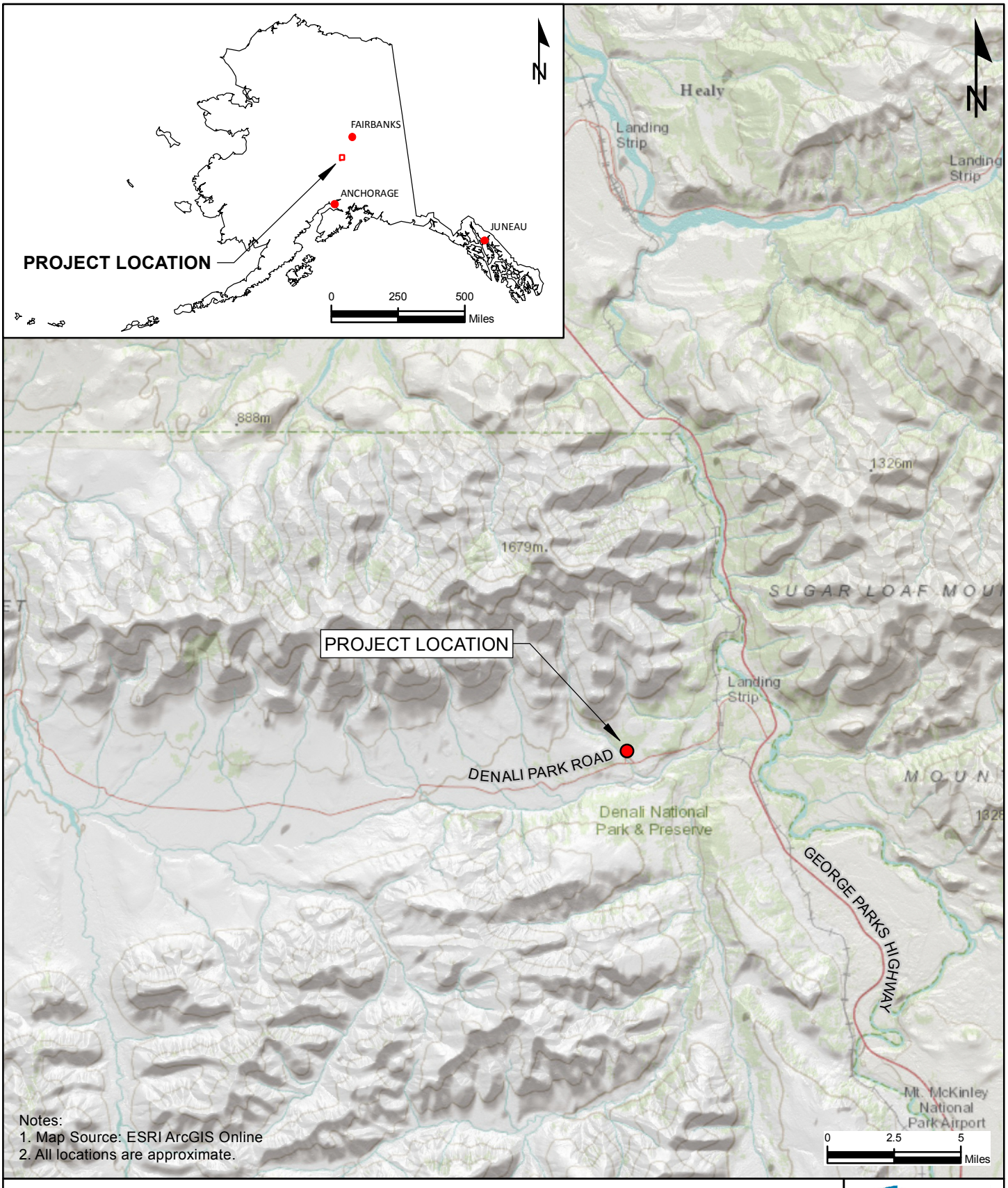
Digitally signed by Gretchen Caudill
DN: cn=Gretchen Caudill, o=DEC, ou, email=gretchen.caudill@alaska.gov, c=US
Date: 2017.08.31 11:22:04 -08'00'

Gretchen Caudill
Project Manager

Note: This letter is being transmitted to you in electronic format only. If you require a paper copy, let us know and we will be happy to provide one to you. In the interest of reducing file space, the Division of SPAR/Contaminated Sites Program is transitioning to electronic transmission of project correspondence.

Enclosures: Figure 1 – Site Vicinity (Ahtna, 2014)
Figure 2 – Historical Groundwater DRO Sample Results (Oasis, 2009)
Figure 3–7 – Institutional Control NPS GIS database (NPS, 2017)

cc: Spill Prevention and Response, Cost Recovery Unit, via email
Eric Breitenberger, DEC, via email



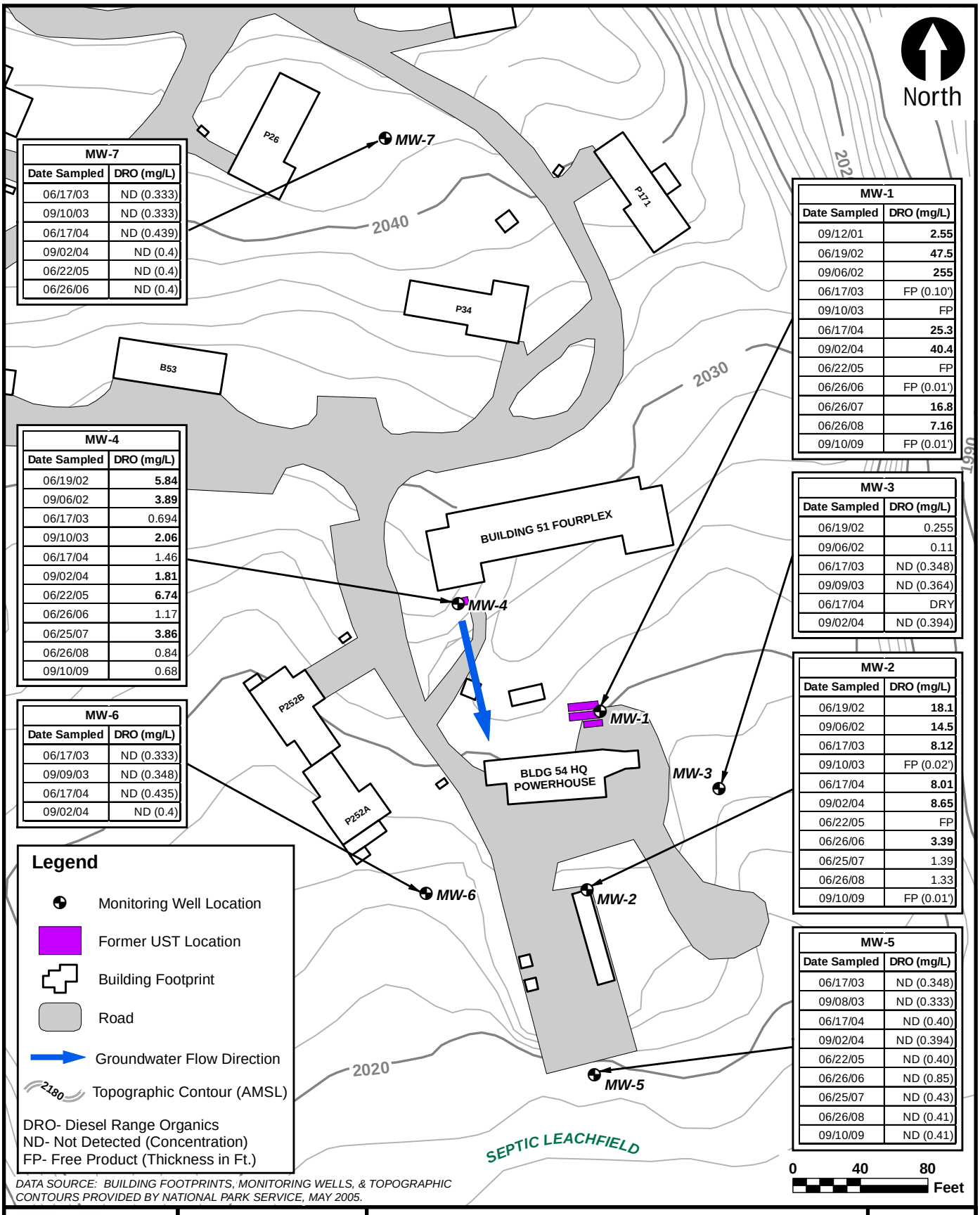
Soil Gas Sampling
Headquarters Building 107, Denali National Park and Preserve, Alaska

State and Vicinity

Ahtna Engineering

Project Number:	Figure Number:
20194.4653	1
Date: 4/22/2014	
Drafted By: dhickey	

Prepared by dhickey, 4/22/2014: L:\Denali_____Denali National Park and Preserve\GIS\MXD\Figure_1.mxd



MW-7	
Date Sampled	DRO (mg/L)
06/17/03	ND (0.333)
09/10/03	ND (0.333)
06/17/04	ND (0.439)
09/02/04	ND (0.4)
06/22/05	ND (0.4)
06/26/06	ND (0.4)

MW-1	
Date Sampled	DRO (mg/L)
09/12/01	**2.55**
06/19/02	**47.5**
09/06/02	**255**
06/17/03	FP (0.10')
09/10/03	FP
06/17/04	**25.3**
09/02/04	**40.4**
06/22/05	FP
06/26/06	FP (0.01')
06/26/07	**16.8**
06/26/08	**7.16**
09/10/09	FP (0.01')

MW-4	
Date Sampled	DRO (mg/L)
06/19/02	**5.84**
09/06/02	**3.89**
06/17/03	0.694
09/10/03	**2.06**
06/17/04	1.46
09/02/04	**1.81**
06/22/05	**6.74**
06/26/06	1.17
06/25/07	**3.86**
06/26/08	0.84
09/10/09	0.68

MW-3	
Date Sampled	DRO (mg/L)
06/19/02	0.255
09/06/02	0.11
06/17/03	ND (0.348)
09/09/03	ND (0.364)
06/17/04	DRY
09/02/04	ND (0.394)

MW-6	
Date Sampled	DRO (mg/L)
06/17/03	ND (0.333)
09/09/03	ND (0.348)
06/17/04	ND (0.435)
09/02/04	ND (0.4)

MW-2	
Date Sampled	DRO (mg/L)
06/19/02	**18.1**
09/06/02	**14.5**
06/17/03	**8.12**
09/10/03	FP (0.02')
06/17/04	**8.01**
09/02/04	**8.65**
06/22/05	FP
06/26/06	**3.39**
06/25/07	1.39
06/26/08	1.33
09/10/09	FP (0.01')

MW-5	
Date Sampled	DRO (mg/L)
06/17/03	ND (0.348)
09/08/03	ND (0.333)
06/17/04	ND (0.40)
09/02/04	ND (0.394)
06/22/05	ND (0.40)
06/26/06	ND (0.85)
06/25/07	ND (0.43)
06/26/08	ND (0.41)
09/10/09	ND (0.41)

oasis ENVIRONMENTAL

DATE: OCT 2009
CHKD: OMS
DRWN: CGS
PROJ: 512-014

825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880

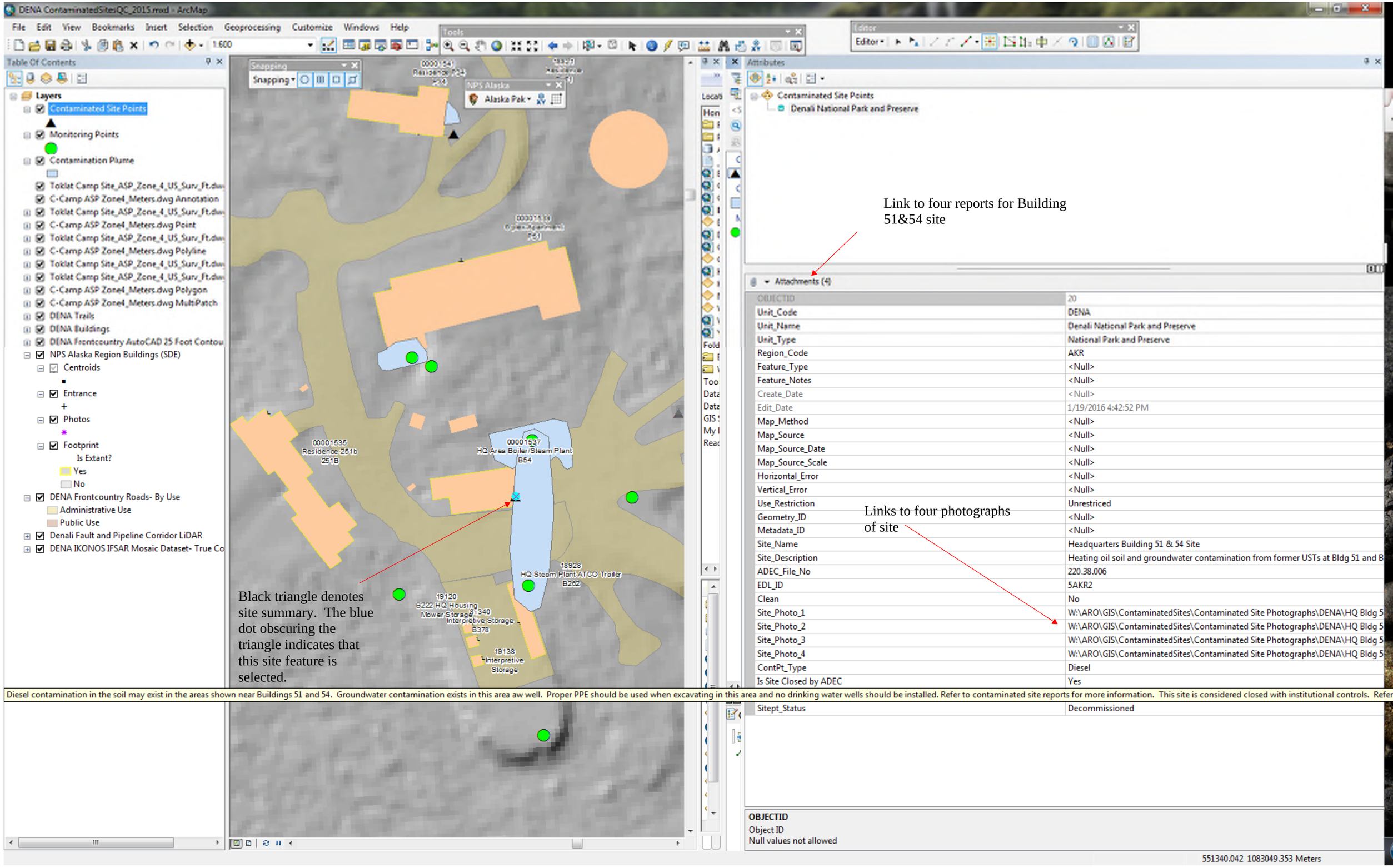
HISTORICAL GROUNDWATER DRO SAMPLE RESULTS

2009 GROUNDWATER MONITORING
HEADQUARTERS BLDGS. 51 & 54
Denali National Park, Alaska

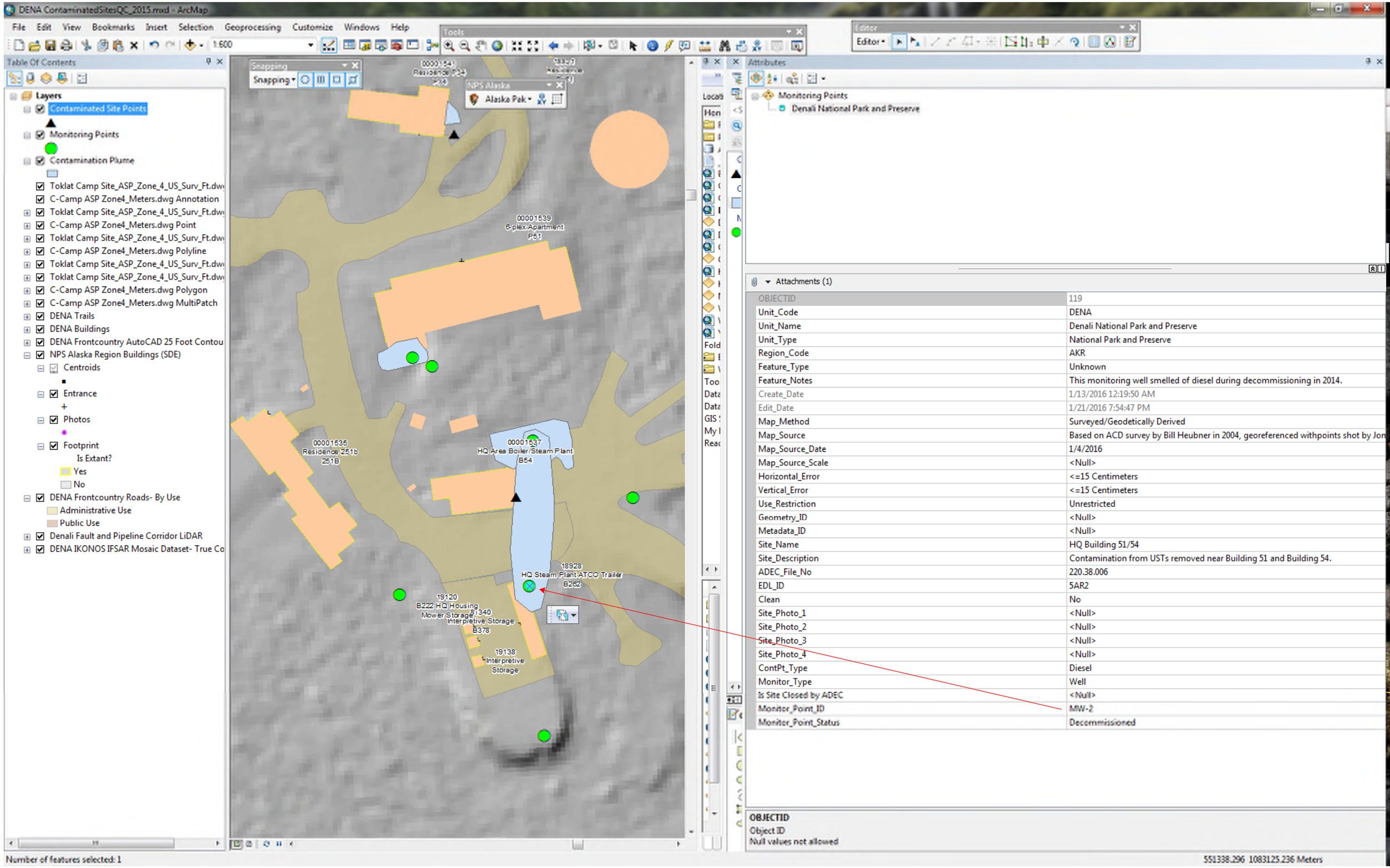
FIGURE

2

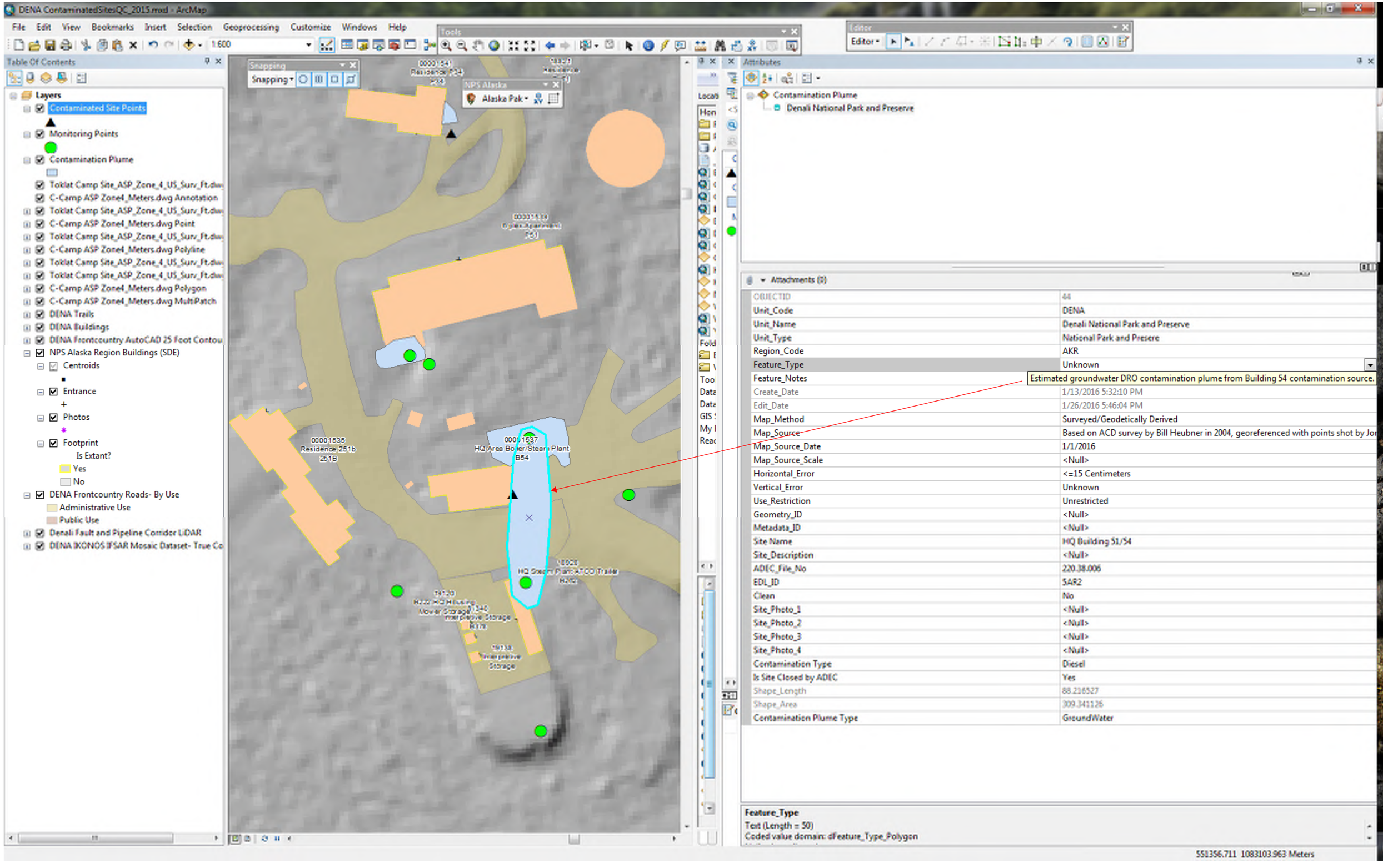
NPS Figure 3. Denali Buildings 51&54 Site Summary Screenshot from GIS



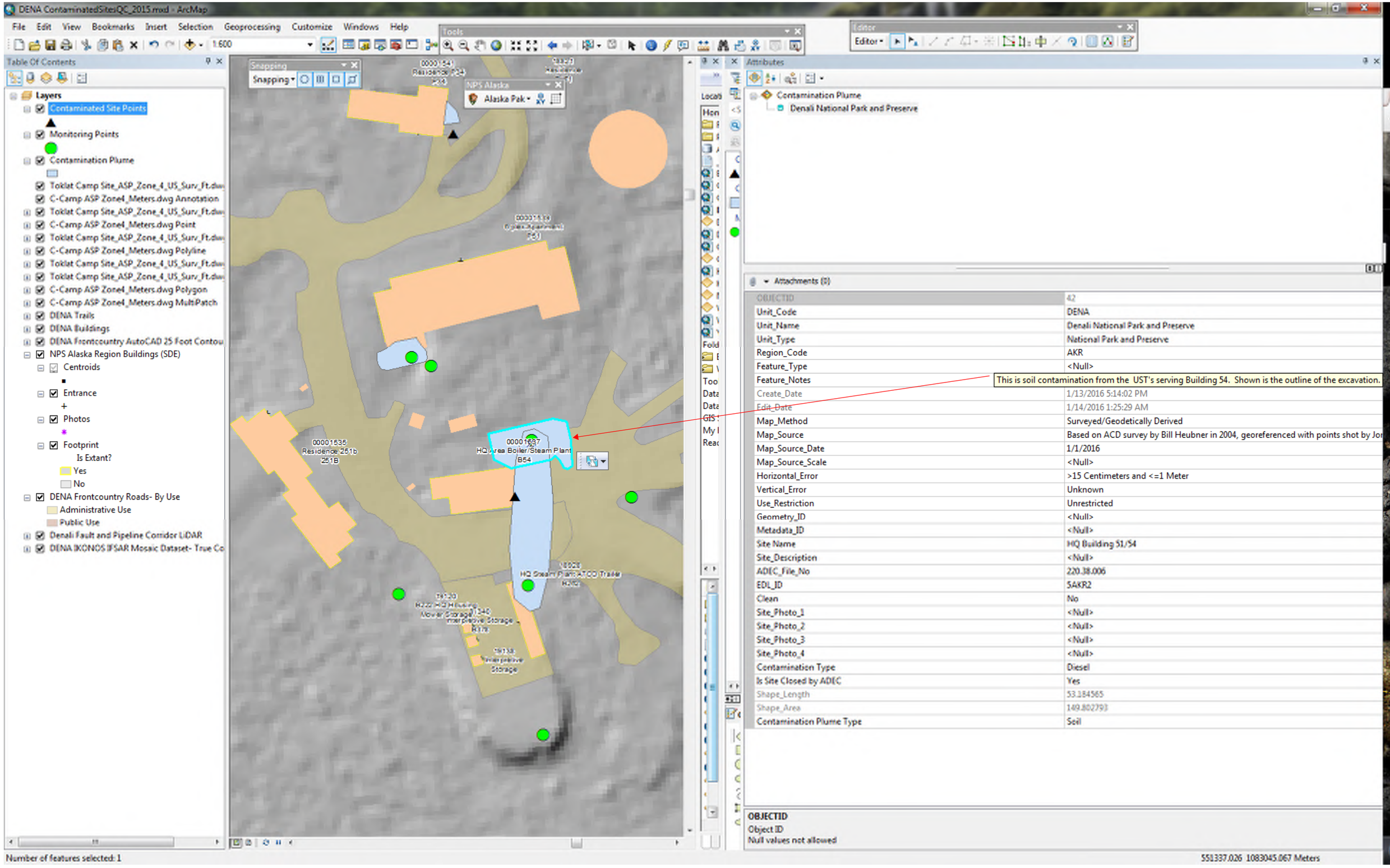
NPS Figure 4. Denali Buildings 51&54 Site Monitoring Well Example Screenshot



NPS Figure 5. Denali Building 54 Groundwater Plume Screenshot from GIS



NPS Figure 6. Denali Building 54 Soil COntamination Plume Screenshot from GIS



NPS Figure 7. Denali Buidling 51 Soil Contamination Plume Screenshot from GIS