

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE Contaminated Sites Program

610 University Avenue Fairbanks, AK 99709-3643 Phone: 907-451-2143 Fax: 907-451-2155 www.dec.alaska.gov

File: 220.38.042

January 30, 2018

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

Re: Decision Document: NPS Denali Nat'l Park Bus Barn

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) Denali Nat'l Park Bus Barn located at Mile Post 1.5 Denali Park Road, Denali Park. 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 Nat'l Park Bus Barn 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 Nat'l Park Bus Barn Mile Post 1.5 Denali Park Road Denali Park, AK 99755

DEC Site Identifiers:

File No.: 220.38.042 Hazard ID.: 26057

Name and Mailing Address of Contact Party:

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

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

Denali National Park and Preserve is an area of approximately 6 million acres. The park entrance is located about 240 miles north of Anchorage and 125 miles south of Fairbanks, on the west side of the George Parks Highway in Alaska. The Denali Bus Barn is accessible by vehicle and is located on an access road west of the

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Murie Science and Learning Center, which is located at approximately Mile 1 of the Denali National Park Road. The Bus Barn is a concessionaire operated and maintained facility in Denali National Park, used primarily for bus maintenance. The building also includes office space on the second and third floor levels.

In 2011, petroleum contamination was encountered in the soil during the excavation of a water line next to the Bus Barn. The suspected sources of contamination were a used oil day tank within the building and a possible previous aboveground fuel tank (AST) located outside the building. Fluids may have exited though a seam in the concrete slab beneath the day tank.

Contaminants of Concern

During the initial site investigation and excavation in 2011, samples were collected from the excavated soil and analyzed for diesel range organics (DRO) and gasoline range organics (GRO). Follow up site characterization in 2016 included re-excavation of the site and analytical sampling of soil for: DRO; GRO; benzene, toluene, ethylbenzene, xylenes (BTEX); and polycyclic aromatic hydrocarbons (PAHs). The following contaminants were detected above the applicable cleanup levels and are considered Contaminants of Concern at this site:

- DRO
- GRO
- BTEX
- PAHs

Cleanup Levels

GRO, DRO, benzene, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected in soil above the approved Method 2 migration to groundwater cleanup levels for the under 40-inch precipitation zone, established in 18 AAC 75.341(c), Table B1, and 18 AAC 75.341 (d), Table B2.

Table 1 – Approved Soil Cleanup Levels

Contaminant	Human Health Cleanup Level (mg/kg)	Migration to Groundwater Cleanup Level (mg/kg)
DRO	10,250–12,500	250
GRO	1,400	300
Xylenes	57	1.5
Naphthalene	29	0.038
1-Methylnaphthalene	68	0.41
2-Methylnaphthalene	210	1.3

mg/kg = milligrams per kilogram

Characterization and Cleanup Activities

Site management under the regulatory authority of the Contaminated Sites Program began in 2011. The activities are described below.

In 2011, petroleum contamination was encountered in the soil during the excavation of a water line next to the Bus Barn. The suspected sources of contamination were a used oil day tank within the building and a

¹ Method Two - Soil Cleanup Levels, Tables B1 and B2

possible previous above ground storage tank (AST) located outside the building. Fluids may have exited though a seam in the concrete slab beneath the day tank. Approximately 35 cubic yards of contaminated soil were removed from the excavation area and sent to Fairbanks for thermal remediation. The stockpiled soil was sampled with resulting exceedances for DRO at 4,460 mg/kg and GRO at 439 mg/kg. Due to the excavation being located directly next to and underneath the foundation of the building, not all contaminated soil was removed, and the area was backfilled. Additionally, soil samples were never collected from the excavation area.

Further site characterization was conducted in 2016; the area was re-excavated from the foundation of the building out past the impacted soil. The excavation dimensions were roughly 6 feet by 16 feet and approximately 7 feet below ground surface. Ten samples were collected from the excavation area for field screening. Based on the field screening results, and other factors such as soils staining or odor, four laboratory samples were collected. Soil samples from the excavation were submitted for analyses of GRO, DRO, BTEX, and PAH. Xylenes were detected above the DEC migration to groundwater cleanup level at maximum concentration of 2.78 mg/kg. DRO was detected above the migration to groundwater cleanup level at a maximum concentration of 10,000 mg/kg. Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected above the migration to groundwater cleanup level at maximum concentrations of 3 mg/kg, 14 mg/kg, and 13 mg/kg, respectively.

Groundwater was not analyzed based on the following description of three wells drilled in the vicinity. Bedrock is located at a depth of 39 to 70 feet below ground surface and groundwater is present in a confined layer. Well depths in the area range from 246 to 404 feet below ground surface with static water levels 100 to 200 feet above the depth of the well screen. In 2001, at the former Denali Powerhouse located approximately 500 feet east-southeast the bus barn, a boring was drilled to 130 feet below ground surface; bedrock encountered at 55 feet below ground and no phreatic groundwater was encountered. Well A at the Powerhouse had a total depth of over 300 feet below ground (cased to approximately 200 feet below ground) and had a static water level of about 100 to 110 feet below ground. A second well at the powerhouse, Well E, was screened from 160 to 250 feet below ground and also had a static water level of 100 to 110 feet below ground surface. Drinking water for this area of Denali National Park comes from an upgradient surface water source at Hotel Creek located approximately 4/10 of a mile to the west of the Bus Barn.

Table 2 – Highest Concentrations of Contaminants Remaining on Site

Contaminant	Concentration (mg/kg)
DRO	10,000
Xylenes	2.78
Naphthalene	3
1-Methylnaphthalene	14
2-Methylnaphthalene	13

mg/kg = milligrams per kilogram

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.

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

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 2.

Table 3 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis Exposure	A small volume of contaminated soil remains at this site, under a building, however contamination is below inhalation and human health cleanup levels.
Sub-Surface Soil Contact	De Minimis Exposure	A small volume of contaminated soil above the migration to groundwater cleanup level remains at this site, under a building.
Inhalation – Outdoor Air	Pathway Incomplete	Contamination remains in the sub-surface, but is below inhalation and human health cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	A small volume of contaminated soil remains at this site, under a building, however contamination is below inhalation and human health cleanup levels.
Groundwater Ingestion	Exposure Controlled	A small volume of contaminated soil above the migration to groundwater cleanup level remains at this site. Remaining contaminants are not expected to migrate to groundwater. The NPS has identified the location of remaining contaminated soil in their GIS database and has an internal screening system used during the planning phase of all projects that directs the user to the GIS database to determine if a contaminated site is present within the project area. A restriction on installing groundwater wells or using groundwater from the site without prior DEC approval is in place.
Surface Water Ingestion	Pathway Incomplete	Surface water is not used as a drinking water source in the vicinity of the site.
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	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.

Notes to Table 2: "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.

DEC Decision

Petroleum contamination remains in soil above levels suitable for unrestricted future use; however the remaining contamination is restricted to below the foundation of a building and DEC has approved the use of institutional controls to limit potential future exposure and risk to human health or the environment.

Institutional controls necessary to support this closure determination include:

- 1. Identification of the location of historical and remaining 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 should any section of the building be removed 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. Standard conditions 9-11 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 email at gretchen.caudillt@alaska.gov.

Sincerely,

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 – State and Site Vicinity (Ahtna, 2016)

Figure 2 – Site Vicinity (Ahtna, 2016)

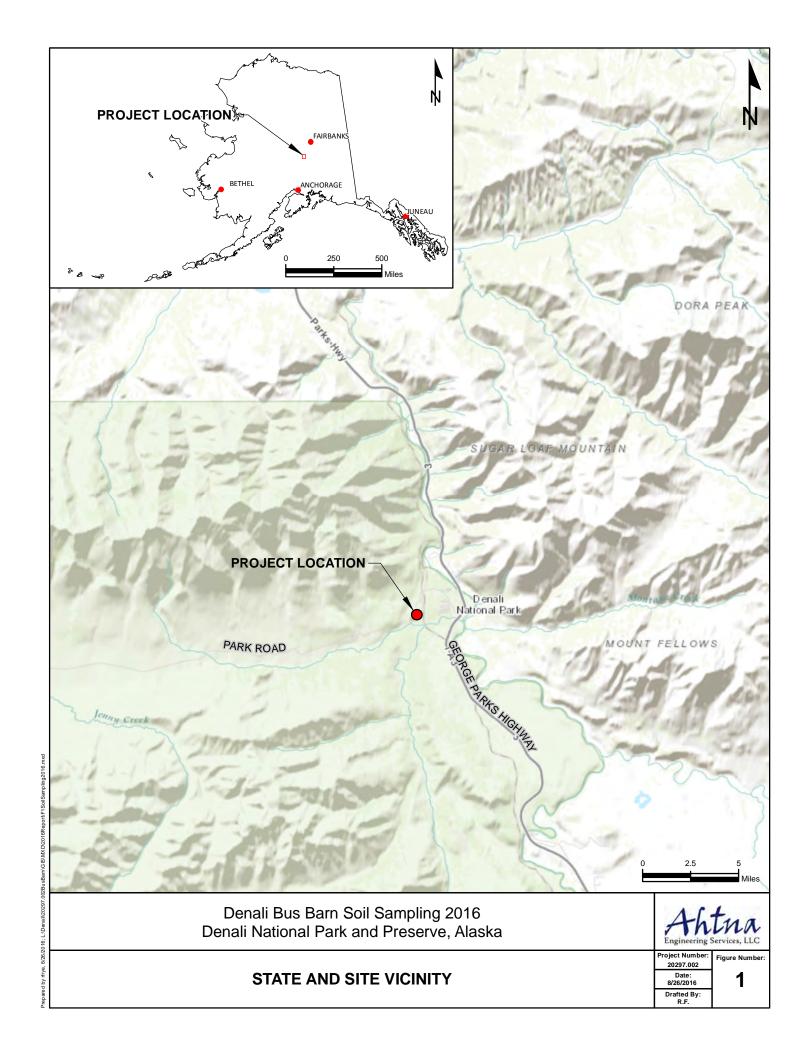
Figure 3 – Existing Area Wells (Ahtna, 2016)

Figure 4 – Site Plan (Ahtna, 2016)

DENA Bus Barn Site IC Submittal (NPS, 2018)

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

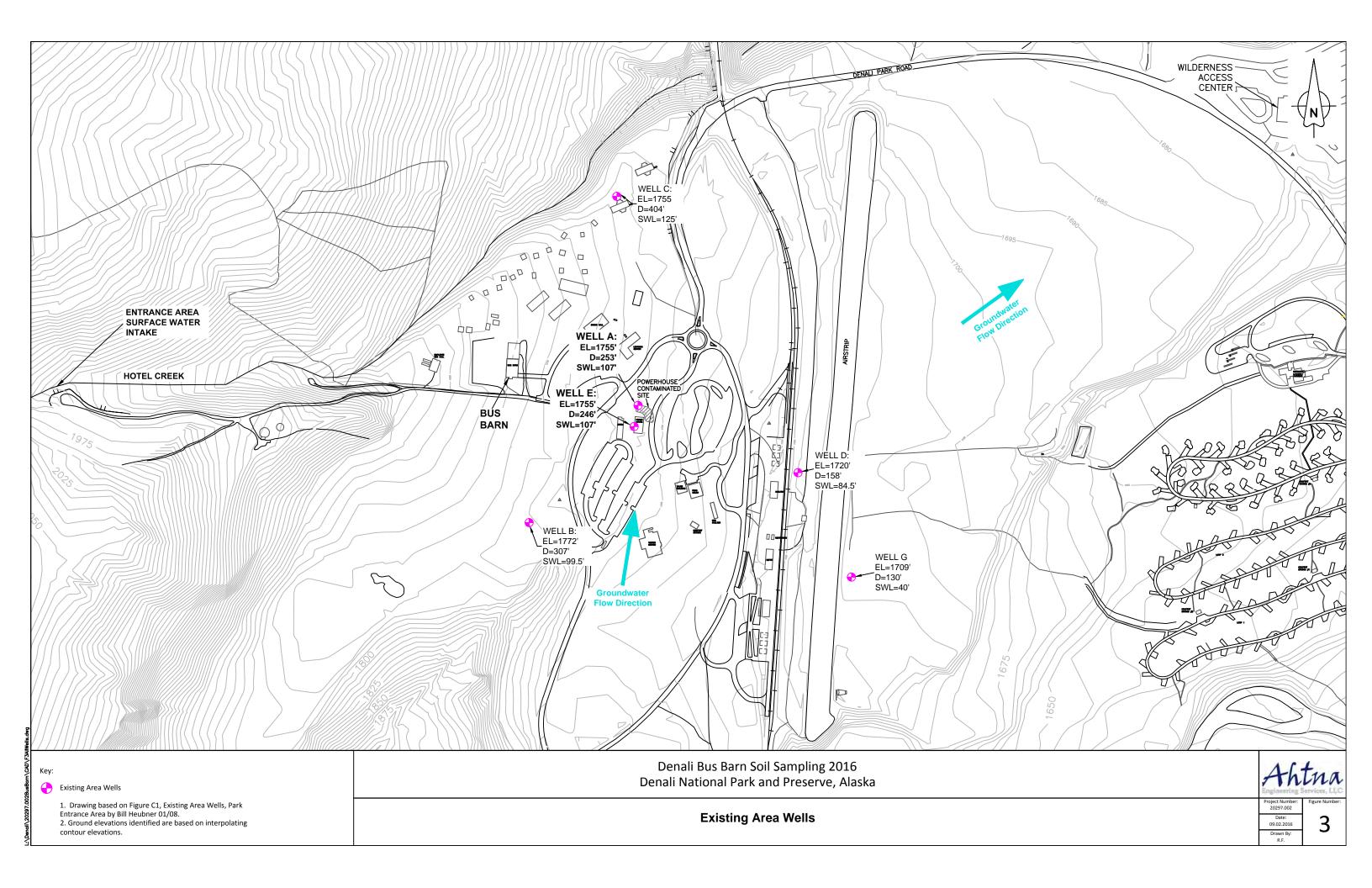
Eric Breitenberger, DEC, via email

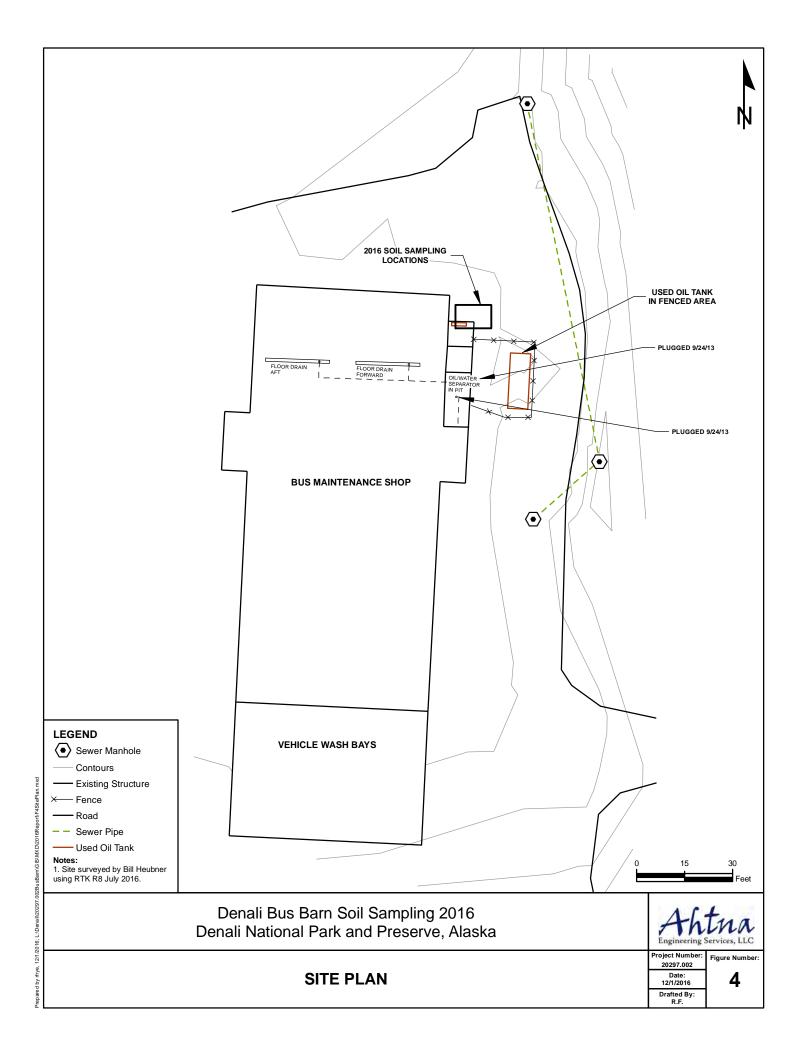




Drafted By:

Prepared by rfrve. 8/26/2016: L:\C







United States Department of the Interior

NATIONAL PARK SERVICE 240 West 5th Avenue Anchorage, Alaska 99501

A7615(AKRO-EPD)

January 3rd, 2018

Gretchen Caudill
Alaska Department of Environmental Conservation
610 University Avenue
Fairbanks, AK 99709-3643

Re: Documentation of Institutional Controls at the Denali Bus Barn Site, ADEC File Number 220.38.042

Dear Ms. Caudill:

The following is documentation of the Institutional Controls recently prepared for the Bus Barn Site in Denali National Park and Preserve.

Background:

The Bus Barn in Denali National Park and Preserve is a concessionaire operated and maintained facility used primarily for fleet (bus) maintenance. The building also includes office space on the second and third floor levels. The building was constructed in 3 stages/phases: (1) 1983 original shop, south, (2) 1994 Addition including Tower and 2 bays north of the Tower, and shed addition at rear with mechanical and day-tank rooms; (3) two open bus wash bays south of the original 1983 shop. The used oil aboveground storage tank was included with the 1994 addition along with the mechanical room and day-tank room.

Based on three former drinking water wells drilled in this general vicinity, bedrock is located at a depth of 39 to 70 feet below ground surface (bgs) and groundwater is present in a confined layer. Well depths range from 246 to 404 feet bgs with static water levels 100 to 200 feet above the depth of the well screen. In 2001, at the former Denali Powerhouse located approximately 500 feet east-southeast the bus barn, a boring was drilled to 130 feet bgs; bedrock encountered at 55 feet bgs and no phreatic groundwater was encountered. Well A at the Powerhouse had a total depth of over 300 bgs (cased to approximately 200 feet bgs) and had a static water level of about 100 to 110 feet bgs. A second well at the powerhouse, Well E, was screened from 160 to 250 and also had a static water level of 100 to 110 bgs. Drinking water for this area of the park comes from an upgradient surface water source at Hotel Creek located approximately 0.4 miles to the west of the Bus Barn, as none of the aforementioned wells provided a reliable water supply and have since been abandoned. The Hotel Creek intake is approximately 145 feet higher than the Bus Barn.

In 2011, petroleum contamination was encountered in the soil during the excavation of a water line next to the Bus Barn. The suspected sources of contamination were a used oil day tank within the building, a possible previous aboveground fuel tank (AST) located outside the building and/or the associated piping. Fluids may have exited though a crack or expansion joint in the concrete slab beneath the day tank. Approximately 35 cubic yards of contaminated soil were removed from the excavation area and sent to Fairbanks for thermal remediation during the 2011 excavation work. The stockpiled soil was sampled with resulting exceedances for diesel range organics (DRO) at 4,460 milligrams per kilogram (mg/kg) and gasoline range organics (GRO) at 439 mg/kg. Due to the excavation being located directly next to the foundation of the building, not all contaminated soil was removed. Additionally, soil samples were never collected from the excavation, in 2015, Melody Debenham of ADEC requested sampling of the site in order to determine the status of contamination remaining at the site.

On June 20th, 2016, an NPS crew excavated the site down to the bottom of the contamination and four soil samples and a duplicate were collected from the zone of contamination by a Qualified Sampler and analyzed for DRO, GRO, BTEX and PAH. DRO detected in three of the soil samples (and the duplicate) exceeded migration to groundwater pathway concentrations ranging from 1,200 to 10,000 mg/kg. In addition, in one sample plus a duplicate at the same location, there were exceedances for Xylene (2.61 mg/kg and 2.78 mg/kg), Napthalene (3.0 and 1.5 mg/kg), 1-Methyl-napthalene (14 and 4.2 mg/kg) and 2-Methyl-napthalene (13 and 3.8 mg/kg). The concentrations of GRO, and other BTEX and PAH constituents were below cleanup concentrations and, in most cases, nondetect. All remaining contamination at the site is immediately adjacent to the foundation and under it, so further excavation is not possible without undermining the foundation. The consultant recommended pursuing closure with Institutional Controls. During the June 20th, 2016 sampling, I surveyed the site using a Trimble R8 survey grade GPS unit to establish local survey control and then surveyed the soil sampling points using a total station survey instrument, occupying this survey control. This resulted in less than 2 centimeters horizontal precision for all of the survey data.

Institutional Controls:

During the week of December 26th, the survey data collected in 2016 was digitized in ArcGIS and all relevant information was added to contaminated site features. The extent of the soil contamination plume was approximated, based on the results of field screening and sampling.

Data on the site can be found in three different types of features in the GIS database:

Contaminated Site Points are used to provide summary information for the site. These points are arbitrarily placed near the zone of contamination, so that they can be easily located. The Institutional Controls for a site are documented in the data and reports and photographs of the site can be opened in the database for these points.

Monitoring Points are used to identify monitoring wells, bore holes, soil sample locations, shovel sheen test locations and other points where point specific data about a site is collected. Contaminant concentrations, sample depth and other data for each point can be documented here.

Contamination Plumes are polygons that delineate the extent of soil or groundwater contamination (identified by the color of the shading on the polygon) for a site. Considering the fact that the number sampling points at a site is finite, the delineation of contamination plumes is always approximated.

Printscreens of the GIS data from the Bus Barn site are-included in this submittal as Figures 1 through 4. Following is a description of each printscreen:

- Figure 1. An overall screenshot of the Bus Barn site in GIS is provided on this figure. The colored lines that are not part of the aerial photographic image are from a drawing in Autocad Civil 3D, based on the site survey, which is more positionally accurate than the aerial photography.
- Figure 2. On this figure, a black fuel pump icon is used to denote the Contaminated Site Point in the GIS database for the Bus Barn Site. The data entered for the Bus Barn Site is displayed in this printscreen. The red arrows and associated text on these printouts are not part of the database, but added to the printscreen to help clarify what is being displayed.
- Figure 3. Example data for a Contaminated Site Point (in this case, soil sample DB-16-SS-04, found in the 2016 sampling report) is displayed in this figure. Locations where soil samples were collected are identified by a black and white icon that looks like a laboratory beaker in this figure. The red arrow pointing to the soil sample location is not part of the database, but identifies which soil sample location corresponds to the data shown.
- Figure 4. This figure is a printscreen of the approximate extent of the contamination plume (in this case, soil contamination plume) for this site. The red arrow shown on this this screenshot is not part of the database. The plume extent shown on this figure is approximated, since there is no information on the extent of contamination under the floor slab.

I have included a zipped version of the NPS ArcGIS geodatabase on a compact disc with this submittal. This geodatabase includes the data for the subject site that I have described above. Other NPS sites are also included in this database. If your GIS Manager has any questions about this database, he/she can contact Joel Cusick in my office at (907)644-3549 or Joel_Cusick@nps,gov.

Figure 5. In addition to the GIS data, a printscreen of one page of the Environmental Screening Form from the Planning, Environment and Public Comment (PEPC) database is also included. On this page, a person planning a project of any type is prompted to determine whether contamination exists at the project site or not, so that the project can be planned to accommodate these concerns. The respondent is directed to the GIS database to determine if contamination does exist. As part of the NEPA process for any project of any type, no matter how small, all environmental screening questions must be answered prior to obtaining environmental compliance for the project. This data is stored in the PEPC database, which tracks the environmental compliance status of all projects in the National Park Service. This screening mechanism, plus the contaminated site data in the GIS database, constitute Institutional Controls for National Park Service sites in the Alaska Region.

Since this data should constitute Institutional Controls, we ask that you consider closing this site with these controls in place. If you have any questions about this submittal, please feel free to contact me by telephone at (907)644-3384 or email at bill heubner@nps.gov.

Sincerely,

William F. Heubner, Civil Engineer

cc: Ray Moore, Facility Manager, Denali National Park and Preserve

Joel Cusick, National Park Service, Alaska Regional Office (Letter only)

Figure 1- Screen Shot of Overall Bus Barn Site in NPS GIS Database

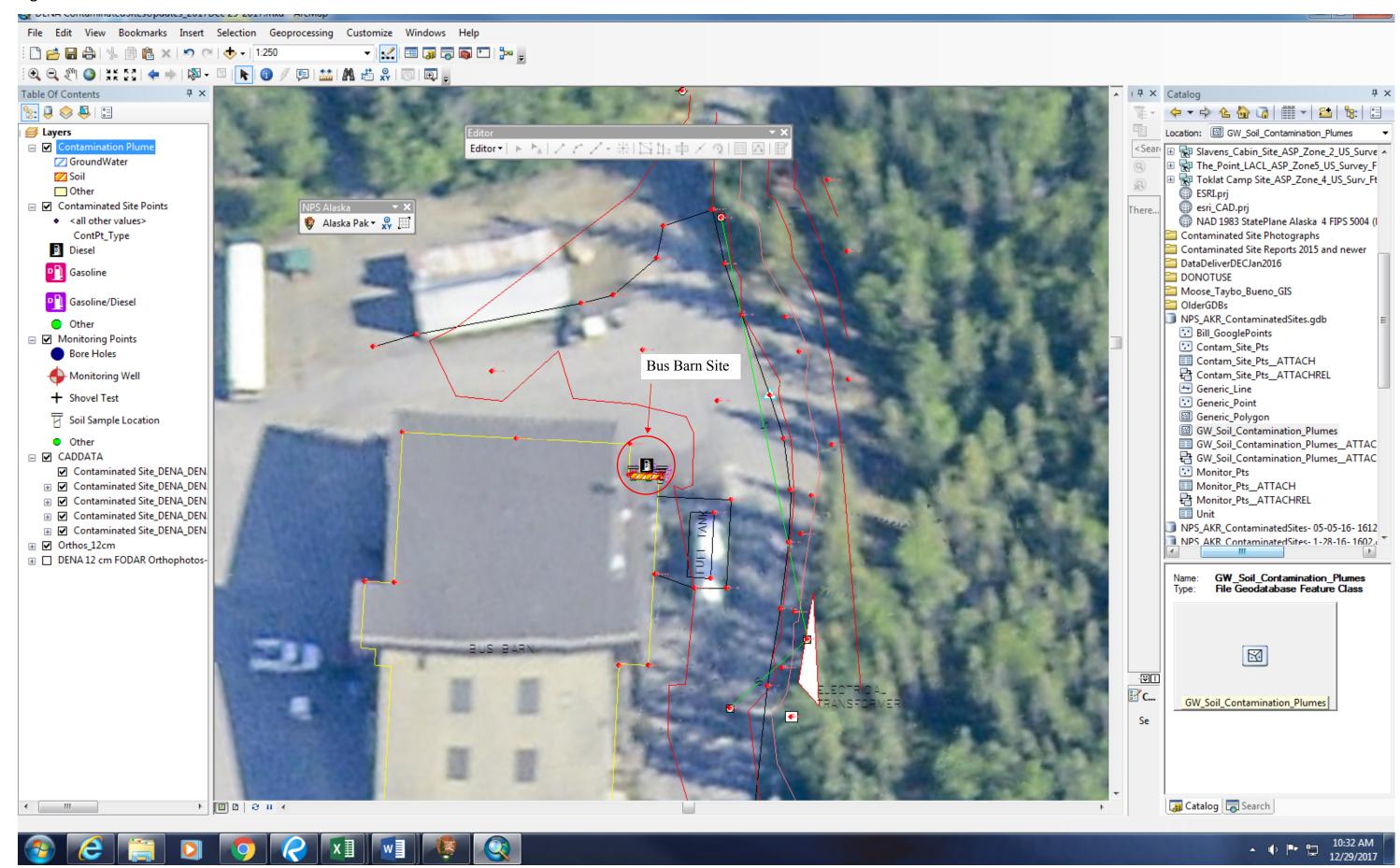
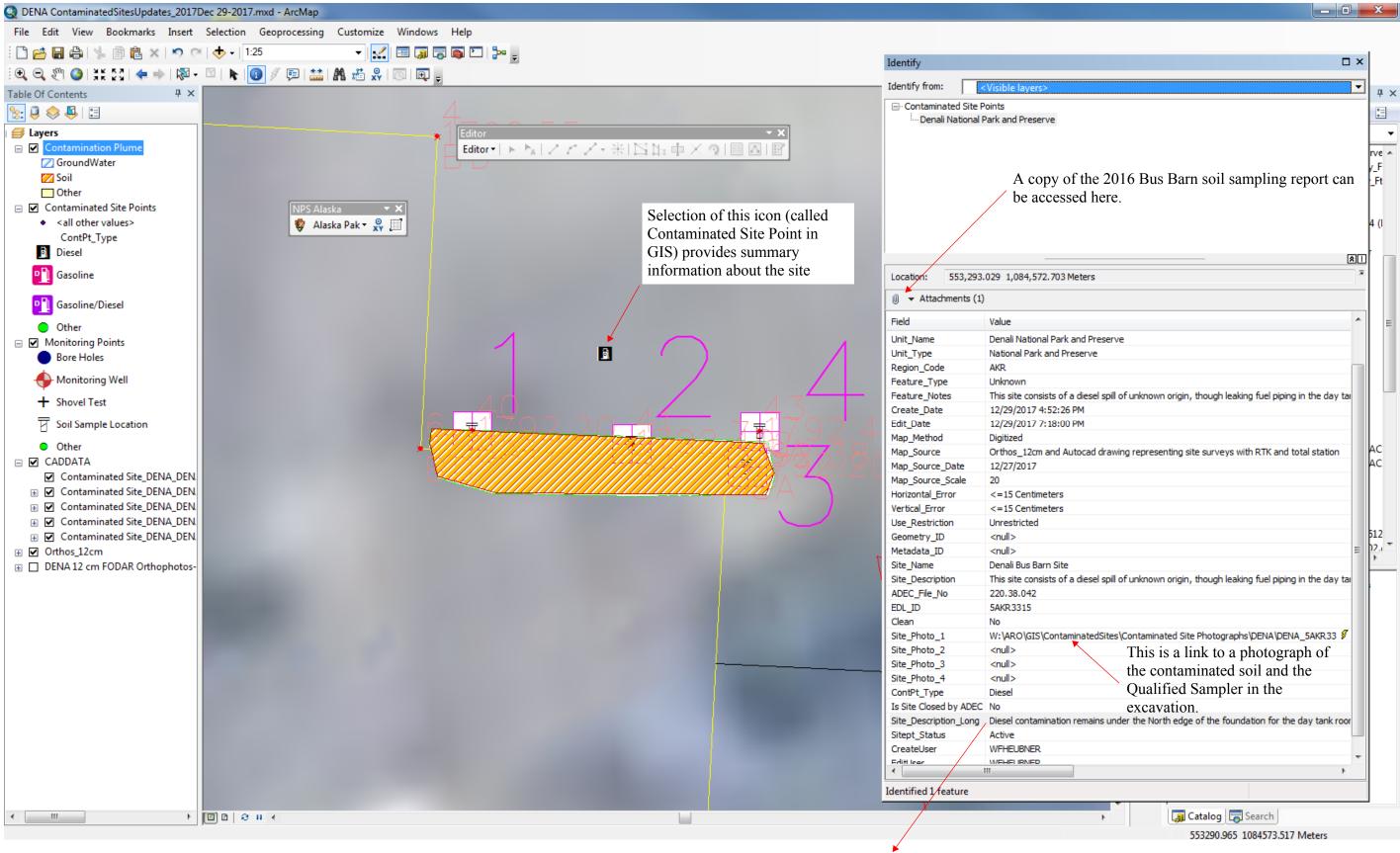


Figure 2- Screen Shot of Contaminated Site Summary Data in NPS GIS Database



Full text for Site Description-Long: "Diesel contamination remains under the North edge of the foundation for the day tank room. This soil must be removed by workers with PPE if the building is removed. No drinking water well shall be drilled in this vicinity."

Figure 4- Screenshot of Soil Contamination Plume Data in the NPS GIS Database

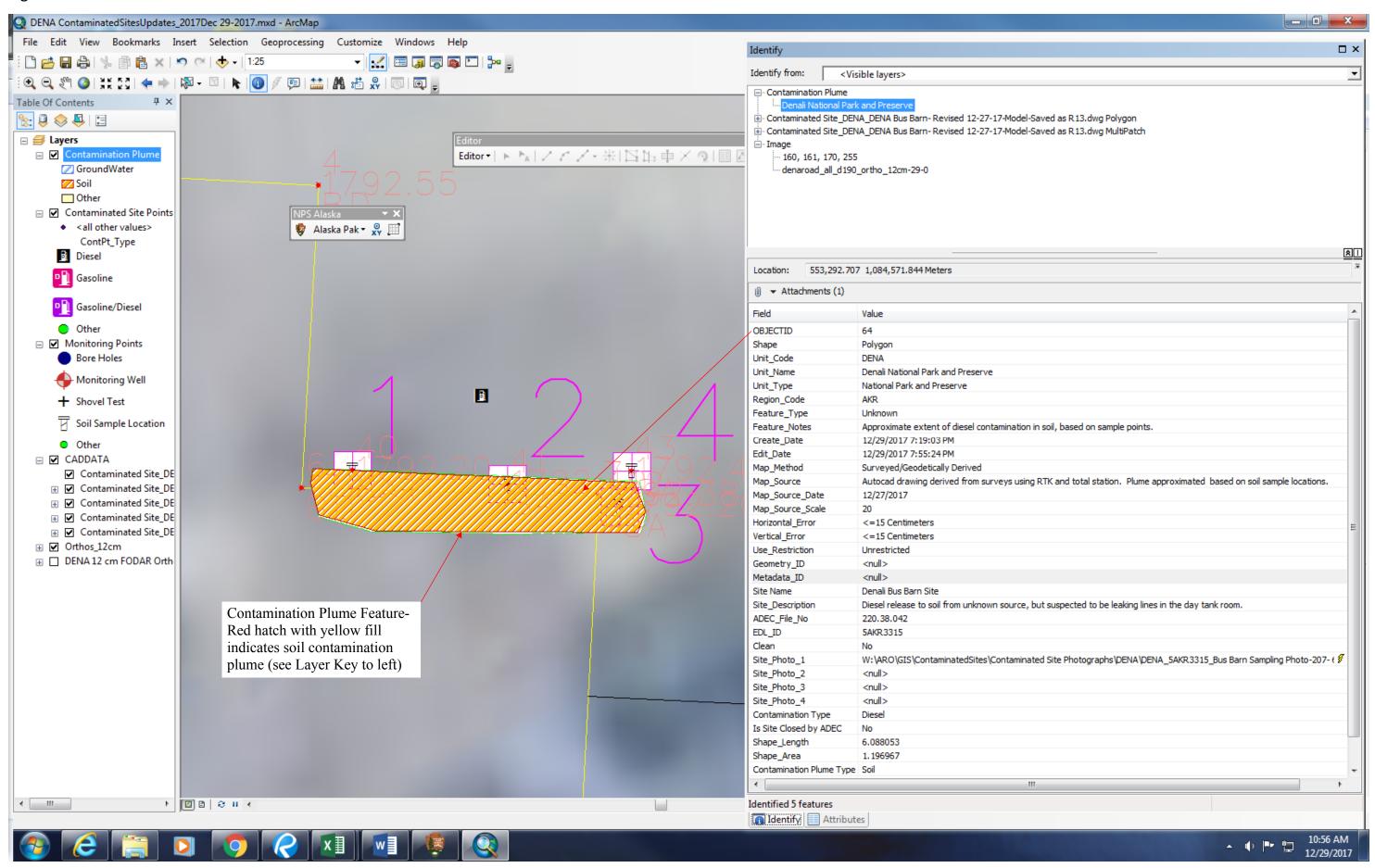


Figure 3- Screen Shot of Soil Sample Point Data (Data shown is for Sample DB-16-SS-04) in NPS GIS database

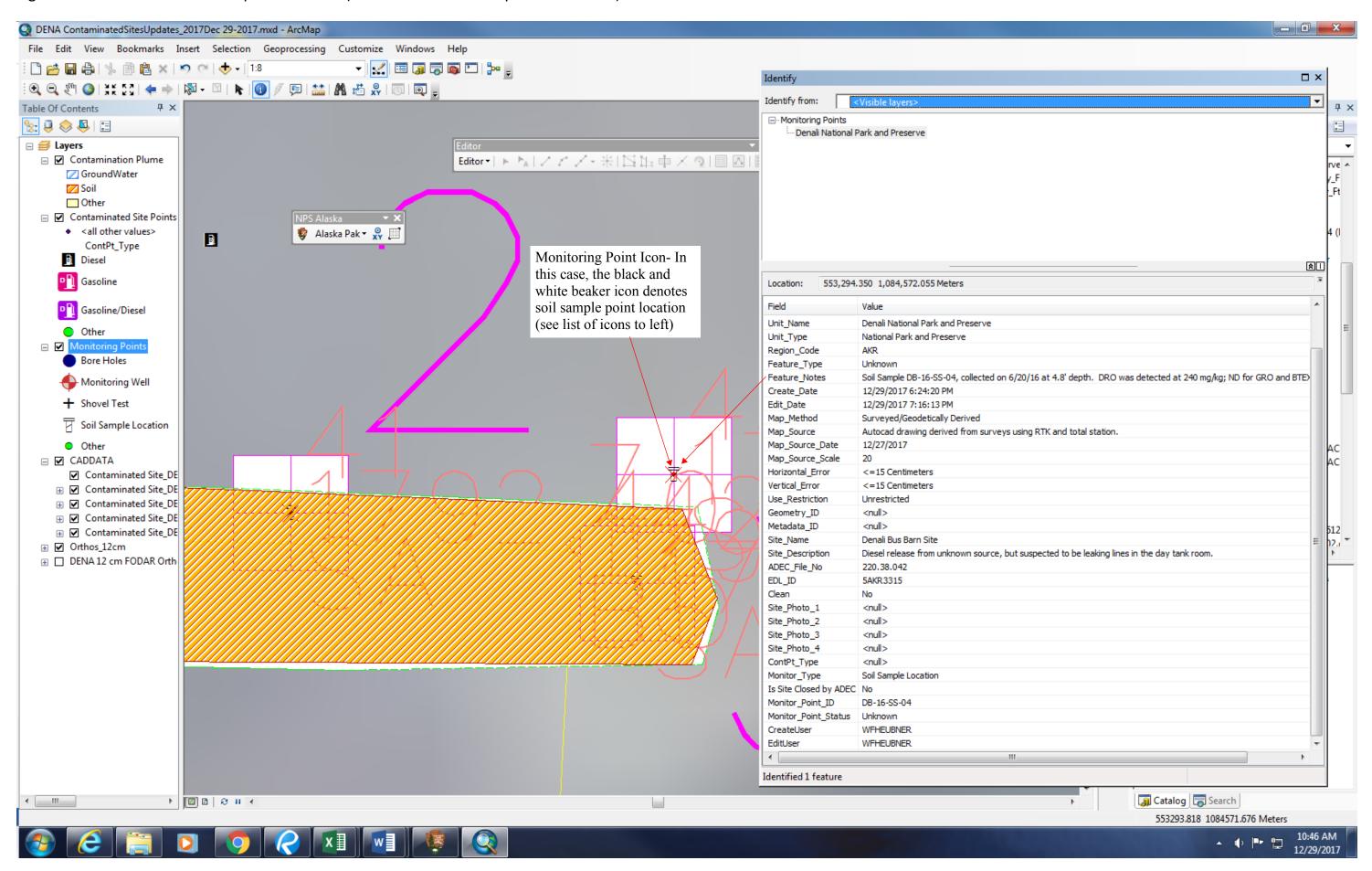


Figure 5. Environmental Screening Form Screenshot- As part of the NEPA process for any project, no matter how small, all environmental screening questions must be answered in order to obtain environmental compliance for the project. This data is stored in the Planning, Environment and Public Comment (PEPC) database, which tracks the environmental compliance status of all projects in the National Park Service.

