



File No: 2407.38.001

May 27, 2015

Aemon Wetmore
FAA Alaska Region
222 West 7th Ave., #14
Anchorage, AK 99513-7587

Re: Summary of Determinations: FAA Bethel Flight Service Station- AST 19-D-5, B302 Injection Well, and B300 Injection Well

Dear Mr. Wetmore:

The Alaska Department of Environmental Conservation (DEC) has reviewed the environmental records for the referenced sites. This decision letter memorializes the site history, cleanup actions, and standard conditions for long-term site management. No further remedial action is required at AST 19-D-5 or the building 302 injection well, and at the building 300 injection well no further remedial action will be required as long as compliance with the closure conditions are maintained.

Site Name and Location:

FAA Bethel Flight Service Station
Shop Buildings 300 and 302
Bethel, AK 99559

Name and Mailing Address of Contact Party:

Aemon Wetmore
FAA Alaska Region
222 West 7th Ave., #14
Anchorage, AK 99513-7587

DEC Site Identifiers:

File No: 2407.38.001
Hazard ID: 1552
Source Areas: 72530; 79773

Regulatory Authority for Determination:

18 AAC 75

Site Descriptions and Background

Three areas of concern (AOCs) are addressed in this document:

1. AST 19-D-5 at Building 300
2. Building 302 Injection Well
3. Building 300 Injection Well

Site descriptions and background information for each of these AOCs are below.

AST 19-D-5 was a 500-gallon, welded-steel tank located north of shop Building 300 at the Bethel FAA Station in Bethel, Alaska. According to FAA records, the tank was installed in 1968 and stored waste oil generated by engine maintenance. On August 10, 1994, Harding Lawson Associates (HLA) removed AST 19-D-5. Petroleum stains were evident on the ground surface beneath the former tank location. The petroleum release was reported to the DEC on August 11, 1994 (DEC Spill No. 94-2601-220-04).

Field notes from the 1999 injection well (IW) inventory conducted by the FAA at Bethel FAA station identified injection wells at Buildings 300 and 302 for investigation. During the investigation, floor drains were observed at several buildings and, except for the drain located at Buildings 300 and 302, all the drains discharged to the ground surface either directly or were processed through septic systems or a sewage treatment plant.

The IW at Building 300 was constructed in 1958 and received an average maximum injection rate of 50 gallons of wash water, snowmelt, and possible vehicle fluids per month. Based on the building's use, additional liquid wastes that may have entered the drain, including melt water from vehicles serviced or stored in the building; gasoline and diesel fuel from tank fill overflow or vehicle maintenance; waste oil released to the floor due to system leaks or during oil changes; metals (usually a component of used oil) from worn engine parts; solvents used to clean engine parts; and detergents. The floor sump that received fluids for this IW measured 12 inches by 18 inches and was approximately 20 inches deep. A 3-inch pipe equipped with a grease trap connected the sump to a buried 5-foot square wooden crib that was located on the east side of the building.

The former floor drain associated with the Building 302 IW was reportedly plugged when the building was converted from an auto hobby shop and storage building to an office around 1983. This IW was constructed of a 20-inch by 20-inch floor sump and 3-inch pipe that flowed out the north side of the building into a 5-foot square wooden leaching well. The well was equipped with a 4-inch overflow drain that extended to the ground surface 80 feet north of and at a lower grade than the well.

Analytical soil samples collected from the Building 300 and 302 IW discharge points in 2011 indicated that the concentrations of diesel-range organics (DRO) for one of the two end point samples collected from Building 300 IW and the one end point sample collected from the Building 302 IW exceeded the Alaska Department of Environmental Conservation (DEC) regulatory limit. In addition, the concentration of arsenic exceeded the DEC regulatory limit. The remaining target analytes were either not detected or detected at concentrations less than applicable soil cleanup levels.

Contaminants of Concern

The following contaminants of concern, those above approved cleanup levels, were identified during the course of the site investigations summarized in the Characterization and Cleanup Activities section of this decision letter. This list covers all of the COCs that have been detected above Method 2 cleanup levels, or are associated with those contaminants detected above cleanup levels.

- Gasoline Range Organics (GRO)

- Diesel Range Organics (DRO)
- Residual Range Organics (RRO)
- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- Arsenic

Cleanup Levels

For AOCs that have been evaluated under 18 AAC 75.340 Method Two, the applicable soil cleanup levels are those in the “Under 40 Inch Zone” under the “Direct Contact”, “Outdoor Inhalation”, “Ingestion”, “Inhalation”, and “Migration to Groundwater” columns of Tables B1 and B2 in 18 AAC 75.341. The “Under 40 Inch Zone” refers to the number of inches of rainwater the area receives each year.

In addition to the COCs listed below, per 18 AAC 75.340(k), for a cleanup conducted under methods two and three, any chemical that is detected at one-tenth or more of the Table B1 direct contact and inhalation cleanup levels must be included when calculating cumulative risk.

Table 1 – FAA Bethel FSS Cleanup Levels

Contaminants	Method 2 Under 40 Inch Zone Cleanup Levels (mg/kg)						Groundwater Cleanup Levels (mg/L)
	Migration to Groundwater	Ingestion	Inhalation	Direct Contact	Outdoor Inhalation	Maximum Allowable Concentrations	
Gasoline Range Organics (GRO)	300	1,400	1,400	-	-	1,400	2.2
Diesel Range Organics (DRO)	250	10,250	12,500	-	-	12,500	1.5
Residual Range Organics (RRO)	11,000	10,000	22,000	-	-	22,000	1.1
Benzene	0.025	-	-	150	11	-	0.005
Toluene	6.5	-	-	8,100	220	-	1
Ethylbenzene	6.9	-	-	10,100	110	-	0.7
Xylenes	63	-	-	20,300	63	-	10
Arsenic	3.9	-	-	4.5	-	-	0.010

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

Characterization and Cleanup Activities

Characterization and cleanup activities conducted under the regulatory authority of the Contaminated Sites Program began in 1994. These activities are described below.

Approximately 16 cubic yards of potentially petroleum-affected soil was excavated from the AST 19-D-5 area and temporarily stockpiled on a 20-mil impermeable liner at the FAA's RCAG facility temporary soil storage area in 1994. Two samples were taken from the limits of the excavation - 19-D-5-S11 and 19-D-5-S12, and were analyzed for Arsenic (EPA 7060), Cadmium and Chromium

(EPA 6010), Lead (EPA 7420), EPH (EPA 8100M), TPH (EPA 4181), VOAs (EPA 8240 low level), GRO (EPA 5030/Mod. 8015), DRO (EPA 3540/mod. 8100), and PCBs (EPA 3550/8080). Arsenic was detected above cleanup levels, at 5.9 mg/kg, though this was within background concentrations detected in the Bethel area and was not associated with an anthropogenic source. The VOA analysis was conducted 5 days past the end of the recommended maximum holding time. The stockpiled soil was eventually integrated into an airport taxiway project (see DEC approval letter, enclosed).

An inspection of Shop Building 300 was performed in 1995. A floor drain near the door of the shop reportedly discharged to a holding tank near the southeast corner of the building. Drawings of the building showed the drain discharging to a wooden crib outside the building. In 2011, the drain was closed and the end point of the drain was investigated. A portion of the wooden crib was viewed from a hand-dug excavation and found to be filled with sand. Two samples were collected from soil inside the crib, one from beneath the inlet pipe and one from stained soil at the bottom of the crib. Samples were analyzed for gasoline, diesel, and residual range organics (GRO, DRO, and RRO), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), arsenic, cadmium, chromium, and lead. Concentrations of DRO were found as high as 1,320 milligrams per kilogram (mg/kg) and arsenic as high as 8.35 mg/kg. No other contaminants were detected above their respective DEC cleanup levels. However, the detection limits for several VOCs and SVOCs were above cleanup levels.

The Sector Field Office (SFO) Building 302, formerly an auto hobby shop and storage building, was also inspected in 1995. No floor drains were present at the time of inspection but drawings showed a floor drain discharging to a wooden leaching crib on the north side of the building. In 2011, a sample was collected from the floor of the wooden leaching crib through a hand-dug excavation and opening cut in the crib. The sample was analyzed for GRO, DRO, RRO, VOCs, SVOCs, PCBs, arsenic, cadmium, chromium, and lead. Sample results showed DRO at 748 mg/kg and arsenic at 7.1 mg/kg. No other contaminants were found above their respective cleanup levels. However, the detection limits for several VOCs and SVOCs were above cleanup levels.

The EPA UIC program issued a conditional approval of permanent closure for the two injection wells at the Bethel FAA station on July 11, 2013. The closure letter indicated that the FAA would follow up with the DEC CSP program to address the DRO and arsenic detected above cleanup levels, and to determine the next steps to address the sample locations with VOCs and SVOCs with detection limits above cleanup levels.

In 2012, remediation was performed at the Shop Building 300 and Building 302. The wooden timbers associated with the wooden leaching cribs at each building were excavated and properly disposed, and approximately 35 and 24 cubic yards (CY) of DRO-contaminated soil from the Building 300 and Building 302 end points, respectively, was removed and disposed of. Confirmation soil samples were collected from the locations with the highest field screening results. 11-12 Soil samples were collected for confirmation of excavation completion and analyzed for DRO by Alaska Method (AK) 102, arsenic by SW6020, VOCs by SW8260B, and SVOCs by SW8270. Groundwater was not encountered in the excavations.

Concentrations of arsenic ranged from 3.46 mg/kg to 10.6 mg/kg in confirmation samples, which are consistently greater than the DEC cleanup level of 3.9 mg/kg. A sample collected from soil

unimpacted by the injection wells (Sample BET12SS007S) had an arsenic concentration of 4.93 mg/kg, which also exceeds the cleanup level. Since naturally-occurring arsenic at concentrations that exceed the cleanup level is common in this region and the background concentration of arsenic measured at the site indicates as such, it is likely that the arsenic measured in confirmation samples is non-anthropogenic in nature.

With the exception of Sample BET12SS004M, all soil samples had concentrations of DRO less than the applicable cleanup level. Sample BET12SS004M, collected from 9.0 feet bgs from the floor of the Building 302 excavation had a DRO concentration of 270 mg/kg, which exceeds the DRO soil cleanup level of 250 mg/kg. The remaining confirmation samples collected from both excavations had concentrations of DRO ranging from non-detect to 216 mg/kg.

Building 302 was demolished in 2014. The two floor drains that were present in building 302 which discharged to the septic crib (decommissioned in 2012) were also removed. To determine if liquids from shop operations impacted the underlying ground, soil samples were collected from approximately 6 and 18 inches beneath each of floor sump, respectively. Soil samples were analyzed for: GRO by State of AK 101, DRO by AK 102, RRO by AK 103, Volatile Organic Compounds (VOCs) by EPA Method 8260B, Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C, and arsenic, cadmium, chromium, and lead by EPA Methods 6020. Analytical results for soil samples collected beneath the floor sumps indicated that arsenic is the only analyte that exceeds DEC Method 2 Soil Cleanup levels. These concentrations of arsenic are typical for the region and are attributable to naturally-occurring, background levels, which were sampled in 2012. Therefore, the Building 302 floor drains, the drain pipe, the decommissioned crib, and all associated contamination, has been removed.

In contrast, the area below the floor drain at Building 300 cannot be evaluated until the building is removed. However, there is no further risk from contamination exiting the drain pipe, and the evaluation of the floor drain can be postponed until it becomes accessible.

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. DRO, GRO, and RRO are not evaluated in this calculator.

There were no compounds exceeding 1/10 of the DEC direct contact and inhalation cleanup levels at the AST 19-D-5 or Building 302 Injection Well sites following remediation efforts. Therefore, based on a review of the environmental record, DEC has determined that residual contaminant concentrations do not pose a cumulative human health risk at these sites.

The remaining contamination at the Building 300 injection well must be evaluated following the Building 300 demolition; however, the accessible contamination at the Building 300 septic crib has been removed completely and there are no compounds exceeding 1/10 of the DEC direct contact and inhalation cleanup levels in that area.

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 Tables 2-4.

Table 2 – Exposure Pathway Evaluation – AST 19-D-5

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination in surface soil was removed during decommissioning activities
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination remains in the sub-surface, but is below ingestion cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination remains in the sub-surface, but is below inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	Contamination remains in the sub-surface, but is below levels that would warrant a vapor intrusion concern.
Groundwater Ingestion	Pathway Incomplete	Groundwater contamination is not present.
Surface Water Ingestion	Pathway Incomplete	Surface water is not present at the site, and the contamination is not present at concentrations high enough to migrate to surface water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern with an anthropogenic source do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Ecological receptors are unlikely to contact the remaining de-minimis concentration in the airport area in the subsurface.

Table 3 – Exposure Pathway Evaluation – Building 302 Injection Well

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination is not present in surface soil (0 to 2 feet below ground surface). The floor drain emptied into the subsurface.
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination remains in the sub-surface, but is below ingestion cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination remains in the sub-surface, but is below inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	Contamination remains in the sub-surface, but is below levels that would warrant a vapor intrusion concern.
Groundwater Ingestion	Pathway Incomplete	Groundwater contamination is not present.
Surface Water Ingestion	Pathway Incomplete	Surface water is not present at the site, and the contamination is not present at concentrations high enough to migrate to surface water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern with an anthropogenic source do not have the potential to bioaccumulate in plants or animals.

Exposure to Ecological Receptors	Pathway Incomplete	Ecological receptors are unlikely to contact the remaining de-minimis concentration in the airport area in the subsurface.
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Table 4 – Exposure Pathway Evaluation – Building 300 Injection Well

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination is not present in surface soil (0 to 2 feet below ground surface). The floor drain emptied into the subsurface.
Sub-Surface Soil Contact	Exposure Controlled	Contamination may remain in the subsurface but is inaccessible until Building 300 is demolished.
Inhalation – Outdoor Air	Exposure Controlled	Contamination may remain in the subsurface but is inaccessible until Building 300 is demolished.
Inhalation – Indoor Air (vapor intrusion)	Exposure Controlled	Contamination may remain in the sub-surface, but is inaccessible until Building 300 is demolished.
Groundwater Ingestion	Pathway Incomplete	Groundwater contamination is not present.
Surface Water Ingestion	Pathway Incomplete	Surface water is not present at the site, and the remaining contamination is not present in a mass large enough, or in concentrations high enough, to migrate to surface water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern with an anthropogenic source do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Exposure Controlled	Ecological receptors are unlikely to contact the remaining de-minimis and inaccessible concentrations in the airport area in the subsurface.

Notes to Tables 2-4: “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 administrative mechanism in place limiting land or groundwater use, or a physical barrier in place that deters contact with residual contamination.

ADEC Decision

AST 19-D-5 was removed in 1994, along with all of the associated contamination above DEC cleanup levels. The excavated and stockpiled contaminated soil has been sufficiently disposed of/and or treated. Therefore, this site will receive a “Cleanup Complete” designation on the Contaminated Sites Database, subject to the following standard conditions for a “Cleanup Complete” determination listed below.

The Building 302 Injection well was plugged in 2011, its associated septic crib was removed in 2012, and the floor drain was removed in 2014. Analytical samples taken at the septic crib and floor drain locations following their removal confirmed that all contaminated soil has been removed from the site. Therefore, this site will receive a “Cleanup Complete” designation on the Contaminated Sites Database, subject to the following standard conditions for a “Cleanup Complete” determination listed below.

The Building 300 Injection well was plugged in 2011, and its associated septic crib was removed in 2012. Analytical samples taken at the septic crib confirmed that all contaminated soil has been

removed from the crib area. The area under the floor drain has not been sampled, though any remaining contamination is inaccessible until the building is removed. DEC has determined there is no unacceptable risk to human health or the environment as long as the contamination is properly managed. Therefore, this site will receive a "Cleanup Complete with ICs" determination, subject to the conditions in the "Conditions for the Building 300 Injection Well "Cleanup Complete with ICs" determination" listed below, in addition the standard "Cleanup Complete" conditions.

Standard Conditions for a "Cleanup Complete" determination

1. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with 18 AAC 75.325. 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.

Conditions for the Building 300 Injection Well "Cleanup Complete with ICs" determination

Please note that these conditions are in addition to the standard conditions listed above.

1. Any future change in land use may impact the exposure assumptions cited in this document. If land use and/or ownership changes, these management conditions may not be protective and DEC may require additional remediation and revised conditions. Therefore the FAA shall report to DEC every 5 years to document land use, or report as soon as the FAA becomes aware of any change in land ownership and/or use, if earlier. The report can be sent to the local DEC office or electronically to monte.garroutte@alaska.gov.

2. Sub-surface soil contamination may be located underneath Building 300. When the building is removed and/or the soil becomes accessible, the soil must be evaluated and contamination addressed in accordance with a DEC approved work plan.

The DEC Contaminated Sites Database will be updated to reflect the change in site status as detailed above, and will include a description of the contamination remaining at the site. The site number 2407.38.001 will remain active in the DEC contaminated sites program database, as it covers all FAA Bethel sites. However, the site actions and problem comment will be updated to reflect the changes in site status. Institutional controls at the Building 300 Injection Well site will be removed in the future if documentation can be provided that shows cleanup levels have been met. The standard conditions will remain in effect after ICs are removed.

These determinations are in accordance with 18 AAC 75.380 and do not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that these sites may pose an unacceptable risk to human health or the environment.

Appeal

Any person who disagrees with these decisions 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, 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, 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.

Please sign and return *Attachment A* to DEC within 30 days of receipt of this letter. If you have any questions, please do not hesitate to contact me at (907) 451-2131, or by email at monte.garroutte@alaska.gov.

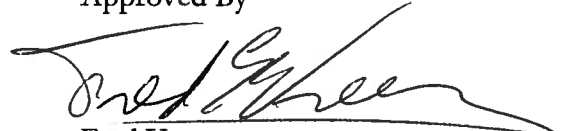
Sincerely,

Recommended By



Monte Garroutte
Environmental Program Specialist

Approved By



Fred Vreeman
Program Manager

Enclosures:

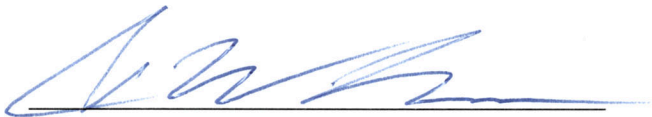
- Attachment A: Cleanup Complete-ICs Agreement and Signature Page
- Site Figures
- 1995 DEC Approval to Encapsulate Contaminated Soils
- 2012 DEC Bethel UIC Closure Approval
- 2013 EPA UIC Conditional Closure Approval

Attachment A: Cleanup Complete-ICs Agreement and Signature Page

The Federal Aviation Administration agrees to the terms and conditions of this Cleanup Complete with ICs Determination, as stated in decision letter for the Building 300 Injection Well, dated May 12, 2015. Failure to comply with the terms and conditions of the determination may result in DEC reopening this site and requiring further remedial action in accordance with 18 AAC 78.276(f).

Aemon Wetmore, Env Engineer
Signature of Authorized Representative, Title
Federal Aviation Administration

August 5, 2015
Date



Printed Name of Authorized Representative, Title
Federal Aviation Administration

Note to Responsible Person (RP):

After making a copy for your records, please return a signed copy of this form to the ADEC project manager at the address on this correspondence within 30 days of receipt of this letter.



ABOVEGROUND STORAGE TANK (AST) 19-D-5 AT THE SHOP BUILDING 300, VIEWING SOUTHWEST.



EXCAVATION BELOW FORMER LOCATION OF AST 19-D-5, VIEWING SOUTH.



HARDING LAWSON ASSOCIATES
Engineering and
Environmental Services

19-D-5 Photographic Log
Decommissioning Assessment Report
Bethel AST Improvements
Bethel, Alaska

FIGURE

7

DRAWN
BJ

PROJECT NUMBER
29012

APPROVED
PMH

DATE
3/95

FILE NAME
281b



ABOVEGROUND STORAGE TANK (AST) 19-D-5 SITE AFTER EXCAVATION HAD BEEN BACKFILLED AND A VEHICLE FUEL DISPENSER SHED RELATED TO UNDERGROUND STORAGE TANK 19-D-104 CONSTRUCTED, VIEWING SOUTHEAST.



HARDING LAWSON ASSOCIATES
Engineering and
Environmental Services

19-D-5 Photographic Log (continued)
Decommissioning Assessment Report
Bethel AST Improvements
Bethel, Alaska

FIGURE

8

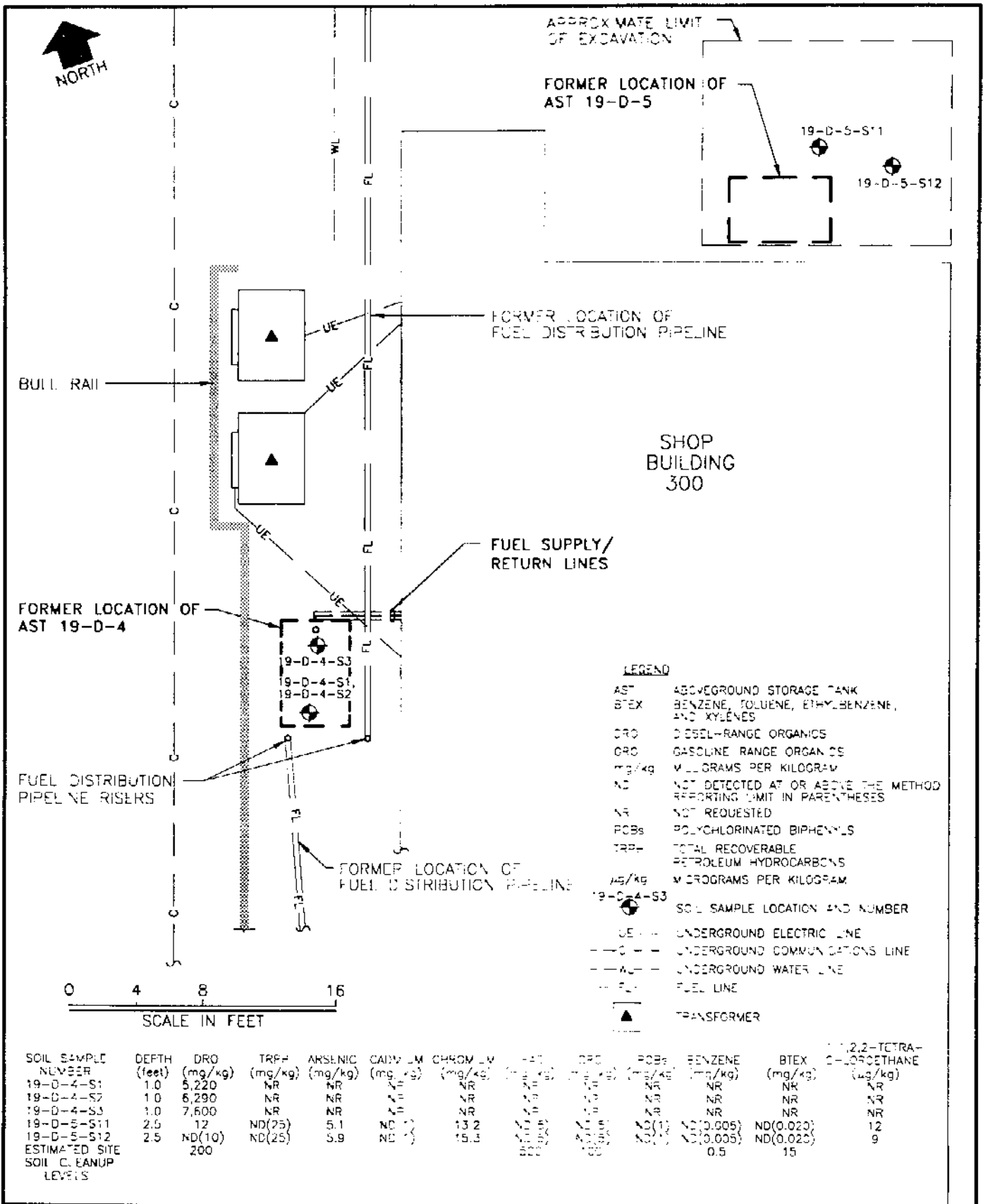
DRAWN
BJ

PROJECT NUMBER
29012

APPROVED
PAH

DATE
3/95

FILE NAME
281b



HARDING LAWSON ASSOCIATES
Engineering and Environmental Services

ASTs 19-D-4 and 19-D-5 Sample Locations and Selected Results
Decommissioning Assessment Report
Bethel AST Improvements
Bethel, Alaska

FIGURE

23

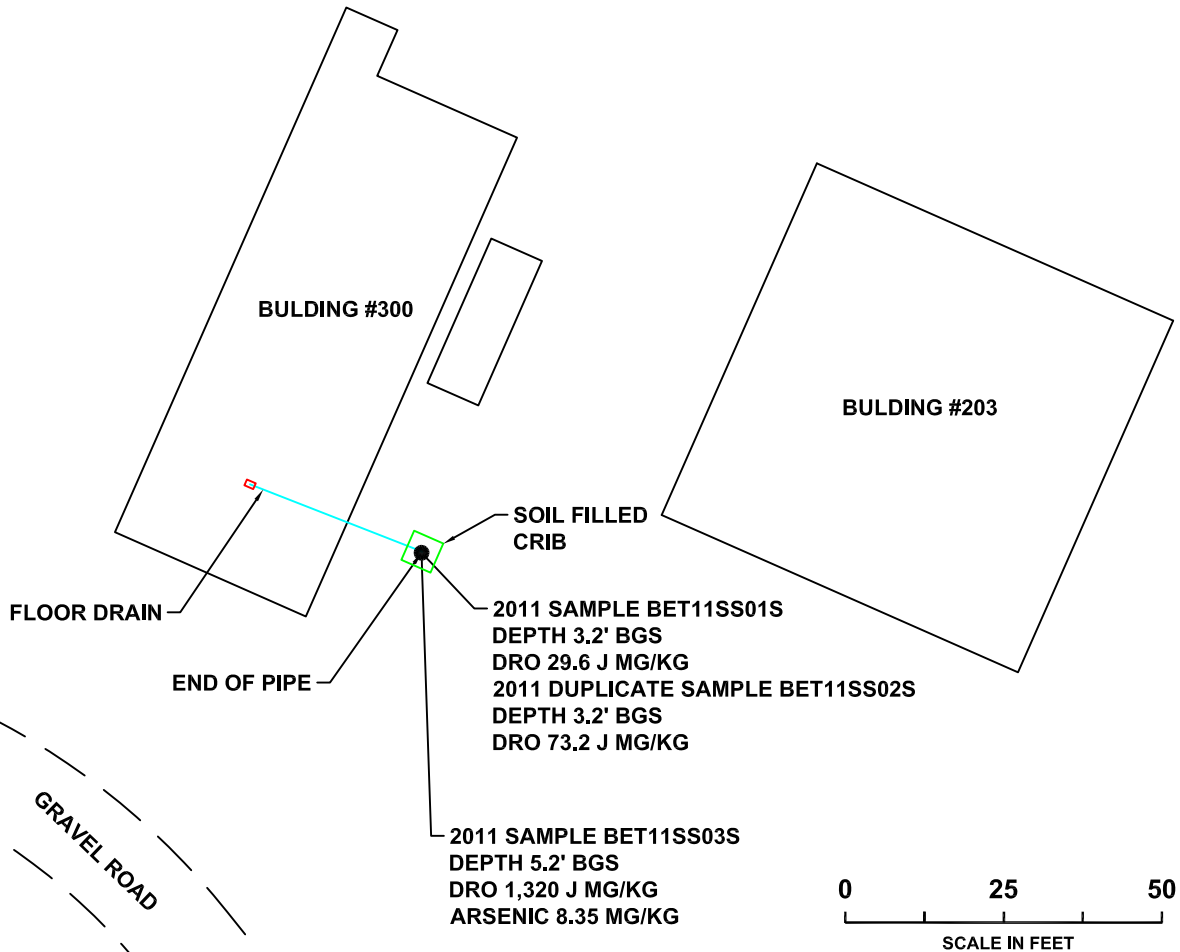
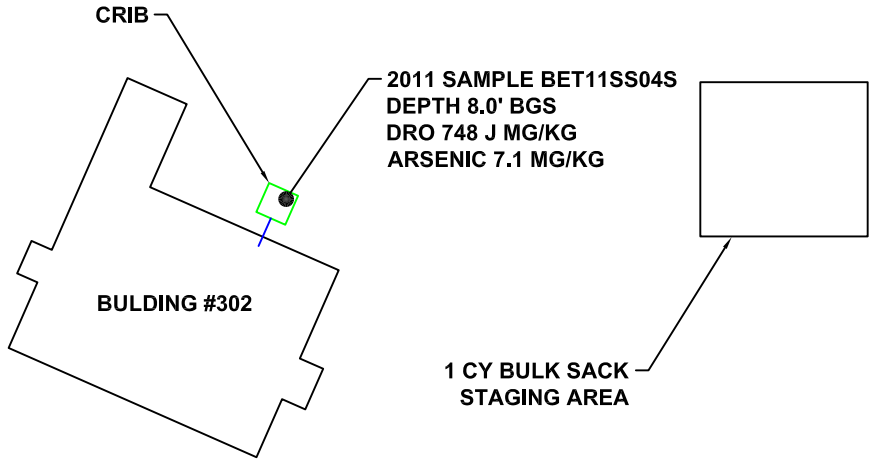
DRAWN BJ	PROJECT NUMBER 29012	APPROVED PAM	DATE 2/95	FILE NAME 279b
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NOTES:

BGS- BELOW GRADE SURFACE
 DRO- DIESEL RANGE ORGANICS
 J- RESULT IS CONSIDERED ESTIMATE
 ● 2011 SAMPLE LOCATION
 mg/kg milligrams per kilogram

ANALYTICAL RESULTS SHOWN ON
 FIGURE EXCEDD 18 AAC 75 TABLE B1
 OR B2 CLEANUP LEVELS.

ALL OTHER ANALYTES NOT DETECTED,
 DETECTED BELOW CLEANUP LEVELS, OR
 CONSIDERED BACKGROUND.



B31 Project Files (P:\FAA IDB Job 420107002010715700015 BET_ANN_072 3hr Investigation & Remediation\CAD or Drawings or Figures\BETFAAL_UE_2012\workplan_BET.dwg, 07/20/12 at 09:52 by ksr B31-24



BETHEL BUILDINGS 300 AND 302 SITE PLAN AND 2011 DRO RESULTS

FAA Injection Well Remediation

FAA Injection Well Remediation
 Bethel, Alaska

CONTRACT NO: DTFAAL-10-D-0003	APPROVED: C. GODDEN	DESIGNED: K. RUSSELL	FIGURE: 4-1
PROJECT NO: 2010713	PROJECT MANAGER: C. GODDEN	DATE: DECEMBER 2012	

NOTES:

BGS- BELOW GROUND SURFACE
 DRO- DIESEL RANGE ORGANICS
 J- RESULT IS CONSIDERED ESTIMATED
 U- NOT DETECTED; VALUE SHOWN IS
 DETECTION LIMIT.

---- APPROXIMATE EXCAVATION AREA
 ● SAMPLE LOCATION
 MG/KG MILLIGRAM PER KILOGRAM

ANALYTICAL RESULTS SHOWN ON FIGURE
 EXCEED 18 AAC 75 TABLE B1 OR B2
 CLEANUP LEVELS FOR 2011 SAMPLES.

ALL OTHER ANALYTES NOT DETECTED,
 DETECTED BELOW CLEANUP LEVELS, OR
 CONSIDERED BACKGROUND.

BET12SS007S
 DEPTH 1.8' BGS
 (BACKGROUND ARSENIC SAMPLE)
 ARESENIC 4.93 MG/KG

BUILDING # 300

EXCAVATION EDGE

BET12SS002S
 DEPTH 10.5 'BGS
 DRO 18.3 J MG/KG

FORMER CRIB

BET12SS003S
 DEPTH 9.5 'BGS
 DRO 71.6 MG/KG

FLOOR DRAIN

BET12SS001S
 DEPTH 10.0' BGS
 DRO 7.34 J MG/KG

BET12SS005S
 DEPTH 10.5 'BGS
 DRO 6.69 MG/KG

BET12SS006S (Duplicate)
 DEPTH: 10.0' BGS
 DRO U 6.74 MG/KG

BET12SS004S
 DEPTH 9.5'BGS
 DRO 6.91 J MG/KG

END OF PIPE

0 5 10

SCALE IN FEET



BSI Project File: P:\FAA\BDO Job #20107000101713\00013 BET_AIKI_OTY_Site Investigation & Remediation\CAD or Drawings or Figures\BETHFAA_IJC_2012\workplan_BET_Ang_1.mxd, 07/20/12 at 10:25 by hkr PG 34



Bethel Services Inc.
 A subsidiary of Bethel Native Corporation

BETHEL BUILDING 300 EXCAVATION AREA AND 2012 DRO RESULTS

FAA Injection Well Remediation

FAA Injection Well Remediation
 Bethel, Alaska

CONTRACT NO:
 DTFAAL-10-D-0003

APPROVED:
 C. GODDEN

DESIGNED:
 K. RUSSELL

FIGURE:

PROJECT NO:
 2010713

PROJECT MANAGER:
 C. GODDEN

DATE:
 DECEMBER 2012

4-2

NOTES:

BGS- BELOW GROUND SURFACE

DRO- DIESEL RANGE ORGANICS

---- APPROXIMATE EXCAVATION AREA

● SAMPLE LOCATION

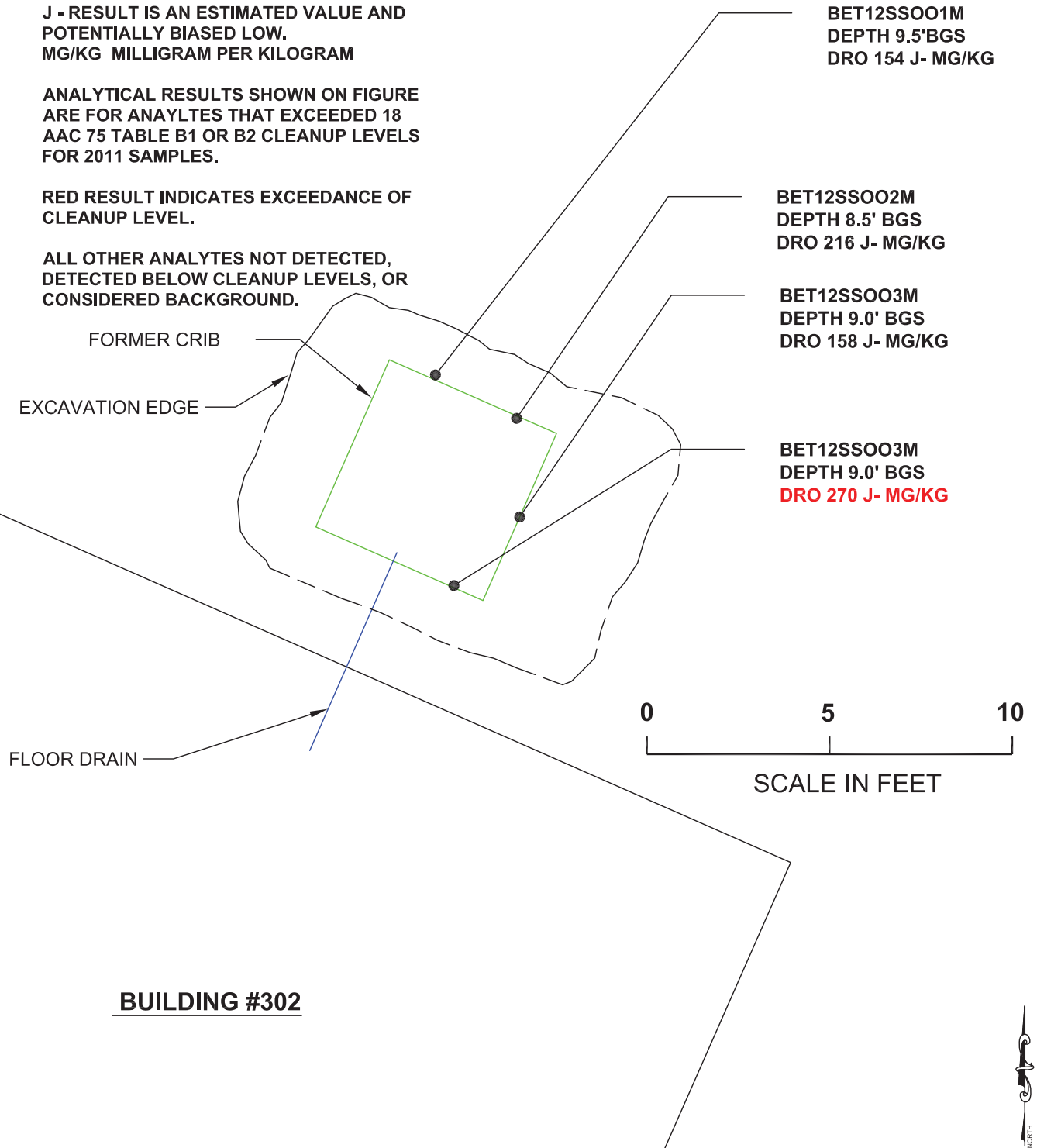
J - RESULT IS AN ESTIMATED VALUE AND POTENTIALLY BIASED LOW.

MG/KG MILLIGRAM PER KILOGRAM

ANALYTICAL RESULTS SHOWN ON FIGURE ARE FOR ANALYTES THAT EXCEEDED 18 AAC 75 TABLE B1 OR B2 CLEANUP LEVELS FOR 2011 SAMPLES.

RED RESULT INDICATES EXCEEDANCE OF CLEANUP LEVEL.

ALL OTHER ANALYTES NOT DETECTED, DETECTED BELOW CLEANUP LEVELS, OR CONSIDERED BACKGROUND.



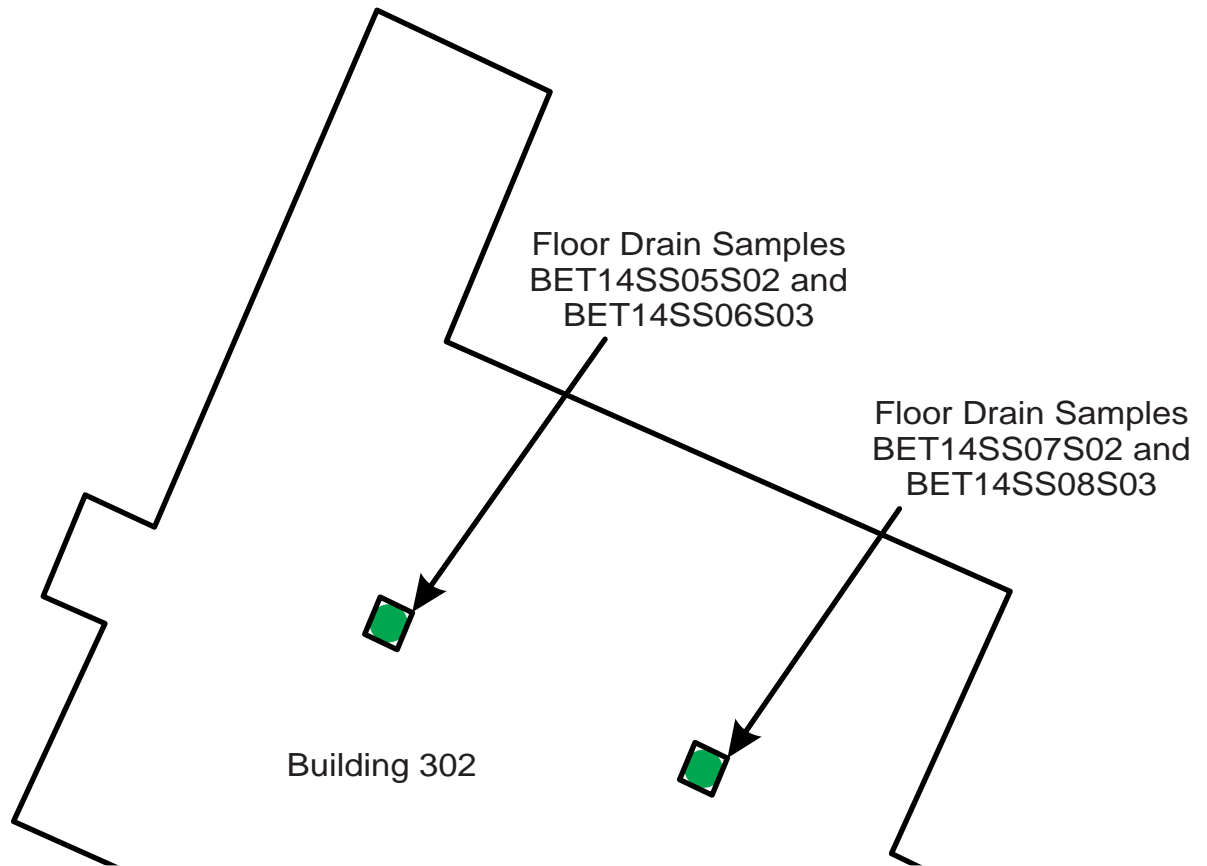
Bethel Services Inc.
A subsidiary of Bethel Native Corporation

FAA Injection Well Remediation
Bethel, Alaska

BETHEL BUILDING 302 EXCAVATION AREA AND 2012 DRO RESULTS

FAA Injection Well Remediation

CONTRACT NO: DTFAAL-10-D-0003	APPROVED: C. GODDEN	DESIGNED: K. RUSSELL	FIGURE: 4-3
PROJECT NO: 2010713	PROJECT MANAGER: C. GODDEN	DATE: DECEMBER 2012	



Building 302

Floor Drain Samples
BET14SS05S02 and
BET14SS06S03

Floor Drain Samples
BET14SS07S02 and
BET14SS08S03



BETHEL SERVICES, INC.

FAA CONTRACT NO.: DTFAAL-10-D-00003 TO 0021

BUILDING 302 FLOOR DRAIN SAMPLE LOCATIONS

PROJECT MANAGER:
Ethan Sloops

SCALE:
1 inch = 10 feet

DESIGNED:
J.T.

FIGURE:

PROJECT NO:
2010721

DRAWN:
J.T.

DATE:
January 2015

2-2

Bethel Building 302 Demolition Photographic Log



Photo 9: Concrete pad prior to its demolition; facing southeast (September 2, 2014).



Photo 10: One of two sumps that formerly discharged to a decommissioned septic crib (September 2, 2014).

TONY KNOWLES, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

CENTRAL REGION — DIVISION OF DESIGN AND CONSTRUCTION
AVIATION CONSTRUCTION SECTION

4111 AVIATION AVENUE
P.O. BOX 196900
ANCHORAGE, ALASKA 99519-6900

May 3, 1995

RE: Bethel Airport Runway Stabilization
and Taxiway "G" Construction
Project No. 60043
AIP No. 3-02-0029-04

FAA CONTAMINATED SOIL

William M. Newman, Manager
Systems Maintenance
Engineering Branch
222 West 7th Avenue, #14
Anchorage, Alaska 99513-7587

Dear Mr. Newman:

The Alaska Department of Environmental Conservation has approved your request to incorporate the approximately 315 cubic yards of diesel contaminated soil at Bethel into our airport construction project. See the attached letter from ADEC dated April 24, 1995.

You are requested to place the material at least 5 feet below the finish grade and a minimum of 20 feet from the edge of the embankment.

We anticipate the backfilling of the runway area in early June of this year. Per my conversation with Bryan Carey of your staff, the FAA will contact our airport contractor directly to arrange for the disposition of the material.

The contractor is: South Coast, Inc.
P.O. Box 8620
Ketchikan, Alaska 99901
Phone (907) 225-6125

Sincerely,



Richard A. Briggs, P.E.
Aviation Construction Engineer

Attachment: As Stated

cc: William Iverson, P.E., Project Manager
Scott Rhee, Project Engineer

RB/rd

DEPT. OF ENVIRONMENTAL CONSERVATION

RECEIVED

April 24, 1995

APR 26 '95

Anchorage/Western District
800 E. Dimond Blvd. Suite 3-470
Anchorage, Alaska 99515

State of Alaska
Department of Transportation and Public Facilities
Aviation Construction Section P
P.O. Box 196900
Anchorage, Alaska 99519

	COPY	ACTION
Prelim. Design & Environmental Section		
PD&E Engr.		
Locations		
Env. Team		
Staff		
Project File		
Central File		

Attn: Robin W. Riendl, REM - Environmental Analyst

Re: Encapsulation of Contaminated Soils; Bethel Airport Runway Stabilization and Taxiway "G" Extension Project No. 60043

Dear Robin,

In reference to your request of April 12, 1995 to encapsulate contaminated soils with the above referenced project, the following is submitted:

It is reported that approximately 315 cubic yards of contaminated soils are presently stockpiled at the Bethel FAA Facilities. A report from FAA indicates that the soils are contaminated with diesel range petroleum products and that limits of contamination range from 7500ppm DRO to 11ppm DRO as reported for eight (8) various samples and locations.

Department policy for roadbed encapsulation has yet to be set by regulation however discussion indicates a "probable" standard as 5000 TPH for diesel. Also, for GRO a suggested limit has been suggested as 1,250 to 2,500 ppm GRO.

Based on proposed policy it would seem that permission to encapsulate soils as indicated above would not be permitted. This Department has, however, reviewed the placement of these soils as a unique situation that would totally remove the potential for human health risk by first the location and second the fact that the runway will be there for a long time. Also to be considered is that, while there are high "hits" of contamination there probably is an overall contamination level far below the high "hits". Consequently, this Office hereby authorizes the disposal, by encapsulation, of those soils identified above. It is recommended that a reasonable layer of packed soils separate the contaminated soils from the asphalt cover.

Thank you and if we can be of further assistance please call 349-7755.

Sincerely,

A handwritten signature in black ink, appearing to read "Ray Dronenburg". The signature is written in a cursive style with a large, looped initial "R".

Ray Dronenburg
Contaminated Sites

cc: Bill Lamereaux, Dist Manager



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

**Department of Environmental
Conservation**

Division of Spill Prevention and Response
Contaminated Sites Program

610 University Ave.
Fairbanks, Alaska 99709-3643
Main: 907.451.5715
Fax: 907.451.5105

File: 2407.38.001

September 18, 2012

David Allen
FAA Regional EPM
222 West 7th Ave., Bldg. #14
Anchorage, AK 99513-7587

Re: Approval of Final *Injection Well Closure Report for FAA Building 300 and 302 Floor Drains, FAA Bethel Station, Bethel, Alaska* (June 2012)

Dear Mr. Allen:

The Alaska Department of Environmental Conservation (DEC) received the above referenced report documenting injection well closure activities at Building 300 and Building 302 at the Federal Aviation Administration (FAA) Bethel Station on September 4, 2012.

Shop Building 300 had a floor drain and sump that discharged to a septic crib. The floor sump was permanently closed by sealing the outfall pipe and capping the sump with six inches of concrete cement. The septic crib was found to be filled in with dirt during closure activities. Soil samples were collected from approximately 1 foot beneath the outfall pipe and from soil representing the former floor of the filled crib. Samples were analyzed for gasoline, diesel, and residual range organics (GRO, DRO, and RRO), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), arsenic, cadmium, chromium, and lead. Results from the sample collected at the former floor of the septic crib had DRO above the cleanup level. Arsenic was detected above the cleanup level in both samples.

Shop Building 302 had a floor drain that discharged to a septic crib. The floor drain was plugged during building renovations in 1983. Soil samples were collected from 1 foot below the floor of the septic crib. The sample was analyzed for GRO, DRO, RRO, VOCs, SVOCs, PCBs, arsenic, cadmium, chromium, and lead. Results for DRO and arsenic were above the cleanup level. It should be noted that the detection limits for several VOCs and SVOCs are above the cleanup levels.

This report meets the requirements of 18 AAC 75 and is approved. If you have any questions please e-mail me at melody.debenham@alaska.gov or call me at (907) 451-5175.

Sincerely,

A handwritten signature in black ink, appearing to read "Melody Debenham".

Melody Debenham
Environmental Program Specialist

cc: Anne Christopher, EPA (e-mail)
Fred Vreeman, DEC (e-mail)



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

JUL 11 2013

OFFICE OF
COMPLIANCE AND ENFORCEMENT

Reply To: OCE-082

David C. Allen
FAA Anchorage ARTCC District Office
700 N. Boniface Parkway
Anchorage, Alaska 99506

Re: Conditional Approval of Permanent Closure of Two Injection Wells at Federal Aviation Administration's Bethel Station Buildings 300 and 302, Bethel, Alaska 99559
(UIC Facility ID # AK050F5-12-13367)
Administrative Order on Consent (SDWA-10-2010-0071)

Dear Mr. Allen:

The Federal Aviation Administration (FAA) closed two Class V injection wells at Bethel Station Buildings 300 and 302 under an Administrative Order on Consent (AOC) (SDWA-10-2010-0071). Only the Building 300 injection well was inventoried and listed in the AOC for this site; however, the FAA discovered during the preparation of the closure plan that an additional injection well at Bethel Station Building 302 had not been sampled and completed the closure of this well according to the requirements in the AOC.

As required in the AOC, on May 12, 2011, the EPA received a well closure plan for the injection wells located at Bethel Station Buildings 300 and 302. On June 15, 2011, the EPA conditionally approved the closure plan. On November 3, 2011, the EPA received a draft well closure report summarizing work conducted from July 25-26, 2011, toward the closure of the injection wells. On February 17, 2012, the EPA sent comments on the draft well closure report that were coordinated with the Alaska Department of Environmental Conservation's Contaminated Sites Program (ADEC CSP). These comments included the requirement of additional work to excavate the wells, remove all contamination caused by the wells, collect confirmatory samples, and backfill the excavations. The EPA received the FAA's response to the comments on April 10, 2012, which indicated that they would submit a work plan for the removal of the wells and contamination to occur during the summer of 2012. The EPA sent additional comments on June 1, 2012. On August 29, 2012, the FAA submitted a draft work plan for the removal of the wells and contamination and the EPA sent comments on August 31, 2012. The work was completed in September 2012, the EPA received the draft report for work on November 14, 2012, and the EPA sent comments on December 19, 2012. The EPA received the final well closure report for the work completed in July 2011 on August 31, 2012, and received the final report for the work completed in September 2012 on February 25, 2013. According to the AOC, the work was required to be completed by December 31, 2012, and the report was to be submitted by March 1, 2013, so the FAA has met both deadlines.

The injection wells at Bethel Station Buildings 300 and 302 are categorized as a motor vehicle waste disposal wells. The sampling and the closure of the injection wells is conducted under 40 C.F.R. §§ 144.82, 144.89, and 146.10(c).

The information provided to the EPA about the closure activities for the injection wells at this site is summarized as follows:

Bethel Station Building 300

The motor vehicle waste disposal well at the Bethel Station Building 300 consisted of an 18 inch by 12 inch concrete floor sump approximately 20 inches deep with a 3 inch pipe equipped with a grease trap that flowed out the east side of the building into a 5-foot square wooden leaching crib. The leaching crib was approximately 10 feet east of the building and was found to be filled in with soil during the closure work.

During the 2011 closure work, the floor sump was cleaned, the outfall pipe was sealed, and the sump was partially filled with clean soil and capped with 6 inches of concrete cement. The grease trap connected to the outfall pipe was clogged and was left in place; however, the concrete cap encased and completely covered it. Approximately 3 inches of freeboard were left in the sump to allow for the accumulation of snowmelt. Approximately 40 kilograms of waste soil was removed from the sump and was disposed of accordingly.

Since the leaching crib was filled with soil at some point before the closure work, in order to characterize soil impacted within the crib and at the base of the crib, one end point sample and one duplicate were collected approximately one foot beneath the end of the outfall pipe within the crib and one sample was collected from visually-impacted soil representing the former floor of the leaching crib. The samples were analyzed for gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals (arsenic, cadmium, chromium, and lead). The sample results indicated that DRO and arsenic were present at concentrations that exceed ADEC's cleanup standards (1,320 mg/kg compared to the 230 mg/kg standard for DRO and 5.18-8.35 mg/kg compared to the 3.9 mg/kg standard for arsenic). The 1,320 mg/kg concentration of DRO was found in the sample collected from the former floor of the leaching crib. It was noted that the detection limits for several VOCs and SVOCs were above the state cleanup levels.

Bethel Station Building 302

This well is not listed in the AOC, but the FAA discovered that the well was not sampled when it was plugged, so the FAA committed to finish the closure work for this well. The former floor drain was reportedly plugged when the building was converted from a shop to an office around 1983. The well consisted of a 20 inch by 20 inch floor sump with a 3 inch pipe that flowed out the north side of the building into a 5-foot square wooden leaching crib. The leaching crib was also equipped with a 4 inch overflow drain that extended to the ground surface 80 feet north of and at a lower grade than the well.

During the 2011 closure work, the leaching crib was accessed using a hand shovel. The crib was buried approximately 3.5 feet below ground surface (bgs) and the bottom of the crib was approximately 7 feet bgs. An end point sample was collected one foot below the floor of the crib and was analyzed for GRO, DRO, RRO, VOCs, SVOCs, PCBs, and metals (arsenic, cadmium, chromium, and lead). The sample results indicated that DRO and arsenic were present at

concentrations that exceed ADEC's cleanup standards (748 mg/kg compared to the 230 mg/kg standard for DRO and 7.1 mg/kg compared to the 3.9 mg/kg standard for arsenic). It was noted that the detection limits for several VOCs and SVOCs were above the state cleanup levels.

Additional Closure Work for Both Wells

In EPA's February 17, 2012 comments on the draft well closure report, EPA required that the FAA excavate the wells, remove all contaminated soil in and around the leaching cribs, collect confirmatory samples, and backfill the excavations with clean soil. The confirmatory samples were required to be analyzed for DRO, arsenic, VOCs, and SVOCs.

On September 17, 2012, the FAA excavated all wooden timbers associated with the wooden leaching cribs. Field screening was conducted using a photoionization detector (PID). Soil was excavated until all visually stained soil was removed, petroleum odors were no longer present, and field screening results from the excavation limits exhibited less than five parts per million (ppm) readings. Two PID readings from samples collected at the base of the Building 300 excavation exceeded this limit (5.1 ppm and 26.6 ppm). Approximately 35 and 24 cubic yards of DRO-contaminated soil was removed from the wells at Buildings 300 and 302, respectively. Groundwater or saturated soil was not encountered in either of the excavations. Nine confirmatory samples (five from Building 300 and four from Building 302) were collected from the excavation limits from the locations with the highest PID readings and were analyzed for DRO, arsenic, VOCs, and SVOCs. The excavations were then backfilled with clean sand. The contaminated soil and wooden timbers were disposed of accordingly.

Concentrations of arsenic ranged from 3.46-10.6 mg/kg in the confirmation samples compared to the 3.9 mg/kg standard. One additional sample was collected from soil that was not impacted by the leaching crib to quantify background arsenic levels. Its concentration of 4.93 mg/kg also exceeded the standard for arsenic, so the FAA believes the elevated levels of arsenic are naturally-occurring and not caused by the injection well. Concentrations of DRO in eight of the nine confirmation samples were below ADEC's cleanup standard; however one sample collected from nine feet bgs from the floor of the excavation at Building 302 had a DRO concentration of 270 mg/kg compared to the 230 mg/kg standard. It was again noted that the detection limits for several VOCs and SVOCs were above the state cleanup levels.

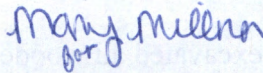
The FAA has submitted the final report to the ADEC CSP and has notified them of the findings of the investigation. EPA understands that the FAA will continue to work with the ADEC CSP to address the remaining issues related to the analytical results if necessary.

The UIC program has reviewed the information provided and consulted with staff of the ADEC CSP regarding the closure activities. The EPA UIC program file for this facility has been updated to show that two Class V injection wells have been permanently closed with the following condition:

1. Because the levels of DRO and arsenic were detected above ADEC cleanup criteria for the well at Bethel Station Building 302, the level of arsenic was detected above ADEC cleanup criteria for the well at Bethel Station Building 300, and the detection limits for several VOC and SVOC analytical results were higher than the state cleanup standards, the FAA will work with the ADEC CSP to determine appropriate next steps for these two sites.

If additional information becomes available indicating that the injection well closure activities at this site were inadequate, you are required to provide the additional information to the EPA and further efforts may be required in the future. You are also advised that you are responsible for compliance with all other federal, state, or local laws and regulations. If you have any questions, please contact Anne Christopher of my staff, at (206) 553-8293.

Sincerely,

A handwritten signature in blue ink that reads "Peter Contreras". The signature is written in a cursive style and is positioned above the printed name.

Peter Contreras, Manager
Ground Water Unit

cc by email: Scott Berglund
Federal Aviation Administration

Derrick Wilkerson
Federal Aviation Administration

Aemon Wetmore
Federal Aviation Administration

Fred Vreeman
Alaska Department of Environmental Conservation
Contaminated Sites Program

Melody Debenham
Alaska Department of Environmental Conservation
Contaminated Sites Program