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October 23, 2007

Jim Frechione
Contaminated Sites Program
Division of Spill Prevention and Response
Alaska Department of Environmental Conservation
610 University Avenue
Fairbanks, AK 99709-3643

**Subject: Slope Repeater Site Closure Report**

**ENSR Project Number 00550-341**

Dear Mr. Frechione,

ENSR Corporation (ENSR) is pleased to submit this report on behalf of Mr. Larry Bamberger, AT&T Environmental, Health, and Safety Operations Manager, in support of a No Further Action (NFA) determination for the Slope Repeater. The following report presents the results of Site Assessment work conducted by ENSR at the Slope Repeater and summarizes all field activities performed at the site, including a review of sampling results, data quality, and site management recommendations.

The remediation program was conducted in accordance with the Alaska Department of Environmental Conservation (ADEC)-approved Work Plan[1] and the requirements specified in State of Alaska regulations in Title 18 of the Alaska Administrative Code (AAC), Chapter 75.335.

## PROGRAM HISTORY

ENSR, on behalf of AT&T Inc. (AT&T), has been conducting site characterization and petroleum hydrocarbon contamination cleanup actions at AT&T microwave repeater facilities along the Trans-Alaska Pipeline System (TAPS). Environmental investigations began in 2002 when a Phase I Site Assessment at each of 26 repeater sites was conducted in accordance with American Society for Testing of Materials (ASTM) standards. Based on information obtained during the Phase I, a more comprehensive Phase II investigation was implemented for the repeaters. For the next 4 years, the AT&T TAPS Site Assessment/Remediation Program was conducted in accordance with discussions and decisions between AT&T, Alyeska Pipeline Services Co. (APSC), and ADEC Prevention and Emergency Response Program (PERP). Stakeholder meetings were held biannually to review site characterization findings and remedial excavation activities and agree to any required follow-up work. As a result, each year's site characterization (site assessment) and cleanup actions (remediation) were conducted based on field observations, field screening measurements, and analytical laboratory sampling results mutually agreed to by AT&T, APSC,

[1] ENSR. 2003. Investigation and Remediation Memorandum Work Plan. May 1.

and ADEC PERP staff. The program was also conducted in accordance with requirements as specified in Title 18 of the Alaska Administrative Code, Chapter 75 (18 AAC 75), also known as the Oil and Hazardous Substances Pollution Control Regulations.

Figures illustrating the site location, facility layout, sampling locations, and field and analytical results are provided in Attachment 1. Laboratory analytical results from 2004 to the 2006 are provided in tables in Attachment 2. Site photos for each field visit are Attachment 3. Attachment 4 includes photographs of AT&T current site refueling process.

## INTRODUCTION

The Slope Repeater, a remote communications facility, is located on a mountain top north of the Brooks Range near Pump Station 3. The repeater site is not road-accessible, and helicopters are used to access the site. The facility consists of four 1,250-gallon aboveground storage tanks (ASTs), a generator module, a battery (equipment) module, and a microwave repeater tower. The facility is level with the natural ground surface. The soils at this location occur in a thin, discontinuous horizon of poorly sorted soil and fine sand (talus fines) that overlie bedrock and talus. No groundwater was encountered at this site. The nearest surface waters are the headwaters of various unnamed streams located greater than 1 mile from the site. Vegetation on site is sparse and comprised mainly of lichens and other alpine tundra vegetation. Figures illustrating the site location and layout, analytical results tables, and selected site photos are attached.

In 2003, the ASTs and associated piping were completely retrofitted with new spill protection equipment. This retrofit included overfill protection, double wall supply and return lines, and other current performance based fuel system upgrades. The retrofit was followed by implementation of new best management practices for the fueling operations, including new procedures for the annual refueling operations. Currently, a portable secondary containment device is sling-loaded to the site prior to delivery of the fuel bladder and set up in designated areas near the ASTs. The bladders are subsequently placed inside the secondary containment during the refueling process. The secondary containment prevents any spillage during initial fuel line connections, fueling process and disconnection activities. Photographs of the refueling equipment and process are provided in Attachment 4.

## FIELD ACTIVITIES

ENSR conducted an Environmental Assessment site inspection on July 8, 2004. Remedial action conducted in the AST area during 2004 was concentrated beneath the valve of AST 1. Approximately 0.5 cubic yards of potentially contaminated soil was removed from this excavation to a depth of 12 inches. Field screening confirmed that all potentially contaminated soils were removed from the AST area.

Fuel Bladder Staging Area

Based on a field screening grid established by the SLR Consulting, one hotspot was located in the suspected Fuel Bladder Staging area. The hotspot, located approximately 40 feet southwest of the AST area, was excavated to a depth of 18 inches below ground surface (bgs) where fractured bedrock was encountered. One analytical sample was collected from the northern sidewall of the excavation at 18 inches bgs and reported an estimated DRO concentration of 15.9 mg/kg below the practical quantitative limit. Approximately 1 cubic yard of potentially contaminated soil was removed from the fuel bladder staging area.

Burn Pits

During the initial site walkover, three burn pit locations were observed. The photoionization detector (PID) results from the burn pits were below the action level of 10 parts per million (ppm), however, the burnt soil, nails, and other debris were removed. Approximately 0.5 cubic yards of soil and debris were removed from the three burn pit locations.

Generator Module

Potentially contaminated soil was removed from three small excavations around the perimeter of the Generator Module. One excavation on the north side of the Generator Module east of the door, a second in the northeast corner of the Generator Module, and a third in the southeast corner. The excavations were continued to depths ranging from 8 to 12 inches bgs. Field screening indicated that all potentially contaminated soil was removed from the Generator Module area. Less then 0.5 cubic yard of potentially contaminated soil was removed from the Generator Module area.

On July 15, 2005, ENSR returned to the Slope Repeater site to investigate a reported spill of lube oil beneath the Generator Module. During the 2005 field program, approximately 1 cubic yard of petroleum-contaminated soil was removed from beneath the northwest corner of the generator module. The excavation was guided using field screening with the PID meter. Two analytical samples were collected from the northern extent and the floor of the excavation. One sample, 05SLOPE02SL, collected from the floor of the excavation, reported a DRO concentration of 3,250 mg/kg, which is above the cleanup level.

On August 18, 2006, ENSR returned to the Slope Repeater site to remove any remaining contaminated material from beneath the Generator Module and collect confirmation samples from the floor and sidewall of the excavation. Approximately 0.5 cubic yard of potentially contaminated material was removed from beneath the northwest corner of the Generator Module. Both samples reported DRO concentrations below the established cleanup level.

Remedial excavations were backfilled and compacted using clean material available on site or clean D-1 (non-frost susceptible) material brought to the site by helicopter. Excavated soils, containerized in 1 cubic yard supersacks, were removed by helicopter and transported by truck to a facility in Big Delta owned and operated by FMW, LLC, where they were thermally remediated.

## SUMMARY AND RECOMMENDATIONS

The source of contamination at this site was due to a surface release that originated in the Generator Module. The likelihood of future surface spills has been significantly reduced because the ASTs and associated piping were completely retrofitted with new spill protection equipment in 2003, and concurrently implemented new refueling procedures; now SOP for the TAPS refueling operations.

Since 2004 ENSR has conducted annual site assessment/remediation activities at the Slope Repeater. An SLR scientist, representing Alyeska Pipeline Services Company, was present each year. In total, approximately 3 cubic yards of potentially contaminated soil was excavated and removed from this site. The highest remaining DRO concentration (58.8 mg/kg) was reported for a sample collected in 2006 at approximately 18 inches bgs beneath the northwest corner of the generator module. Soil cleanup levels at the Slope Repeater were previously established as ADEC Method One, Category D (2,000 mg/kg DRO).

The results of this multi-year remedial action were first documented in the Slope Repeater Site Assessment Report dated September 3, 2004. Findings were also presented at various project meetings. On March 28,

2006, in a meeting with ENSR, ADEC representatives, Alyeska Pipeline, and AT&T Corporation, it was agreed that no further site assessment/remediation activities would be warranted if all remaining contamination was removed. Based on this information, ENSR respectfully requests that you issue a determination of No Further Action for the Slope Repeater site.

Sincerely,

Chris Humphrey
Project Manager

ATTACHMENT 1: FIGURES

Figure 1. Slope Repeater Site Remediation

Figure 1. Slope Repeater Site Layout (2007)

Figure 5. Slope Repeater Site Layout (2006)

Figure 1. Soil Repeater Field and Analytical Results (2004)

ATTACHMENT 2: TABLES

Table 1: 2006 Soil Sampling Analytical Results

Table 1: 2005 Soil Sampling Analytical Results

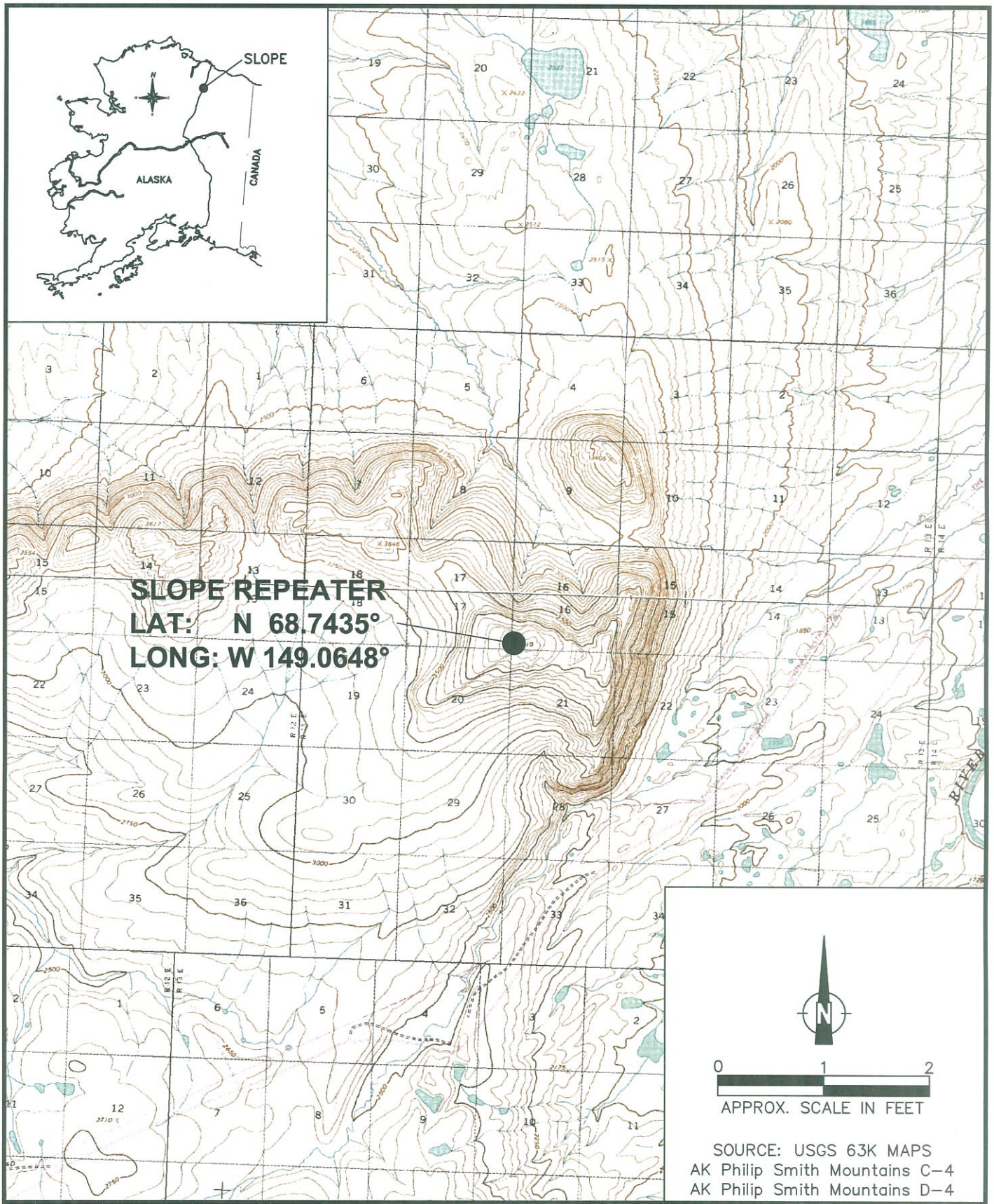
Table 1: 2004 Soil Sampling Analytical Results

ATTACHMENT 3: AT&T SITE PHOTOGRAPHS

ATTACHMENT 4: AT&T REFUELING PROCESS PHOTOGRAPHS

# ATTACHMENT 1

# FIGURES

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1835 S. BRAGAW ST. #490
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(907) 561-5700
FAX: (907) 273-4555

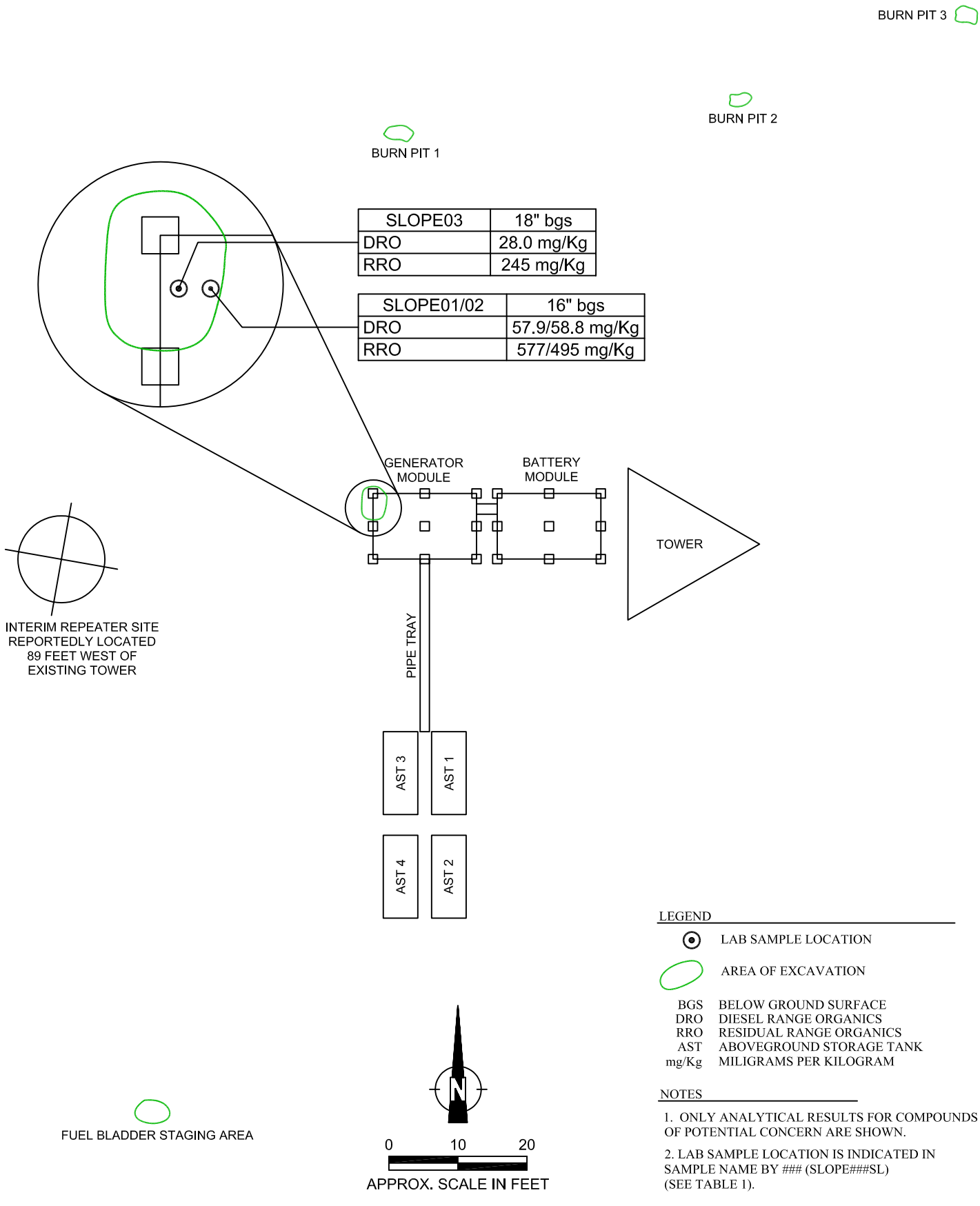
FILE: COSTA1
C/SC: NA
DATE: 03/27/06
DRAWN: JAH
ZIP: NA
CHECK: J.HARGY

FIGURE 4

SLOPE REPEATER
SITE REMEDIATION

T8N R13E SEC 16 UMIAT MERIDIAN

PROJECT 00550-338




LEGEND

- LAB SAMPLE LOCATION
- AREA OF EXCAVATION

| | |
|---|---|
| BGS | BELOW GROUND SURFACE |
| DRO | DIESEL RANGE ORGANICS |
| RRO | RESIDUAL RANGE ORGANICS |
| AST | ABOVEGROUND STORAGE TANK |
| mg/Kg | MILIGRAMS PER KILOGRAM |

NOTES

1. ONLY ANALYTICAL RESULTS FOR COMPOUNDS OF POTENTIAL CONCERN ARE SHOWN.
2. LAB SAMPLE LOCATION IS INDICATED IN SAMPLE NAME BY ### (SLOPE###SL) (SEE TABLE 1).

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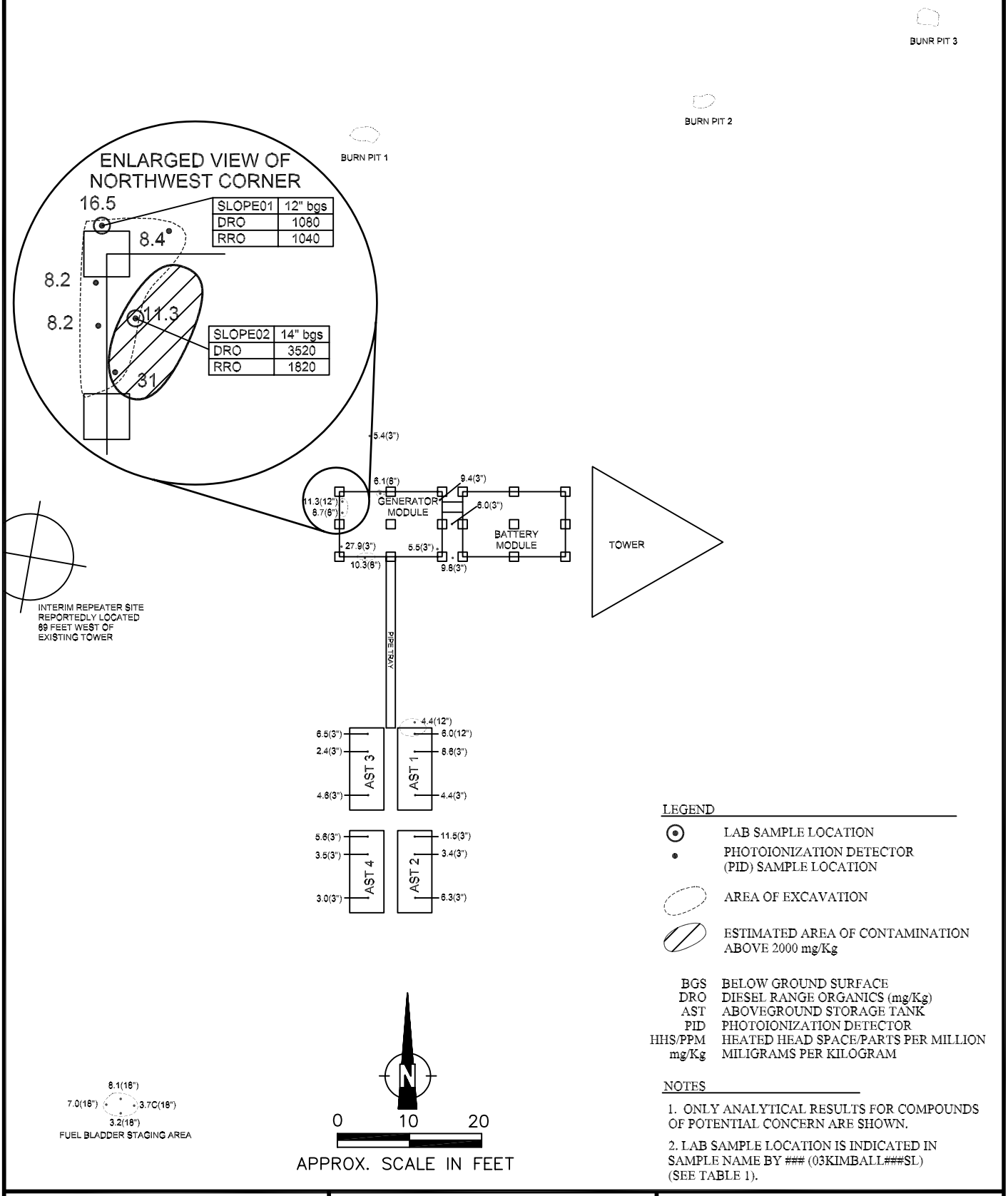
# SLOPE REPEATER SITE LAYOUT

AT&T 2007 SITE ASSESSMENT/REMEDIATION PROGRAM

FIGURE NUMBER: 1

| DRAWN BY: | DATE: | PROJECT NUMBER: | CHECKED BY: |
|---|---|---|---|
| KM | 09/17/07 | 00550-341-2000 | JS |

FILENAME: 03SLOPE07




LEGEND

- LAB SAMPLE LOCATION
- PHOTOIONIZATION DETECTOR (PID) SAMPLE LOCATION
- AREA OF EXCAVATION
- ESTIMATED AREA OF CONTAMINATION ABOVE 2000 mg/Kg

| | |
|---|---|
| BGS | BELOW GROUND SURFACE |
| DRO | DIESEL RANGE ORGANICS (mg/Kg) |
| AST | ABOVEGROUND STORAGE TANK |
| PID | PHOTOIONIZATION DETECTOR |
| HHS/PPM | HEATED HEAD SPACE/PARTS PER MILLION |
| mg/Kg | MILIGRAMS PER KILOGRAM |

NOTES

1. ONLY ANALYTICAL RESULTS FOR COMPOUNDS OF POTENTIAL CONCERN ARE SHOWN.
2. LAB SAMPLE LOCATION IS INDICATED IN SAMPLE NAME BY ### (03KIMBALL###SL) (SEE TABLE 1).

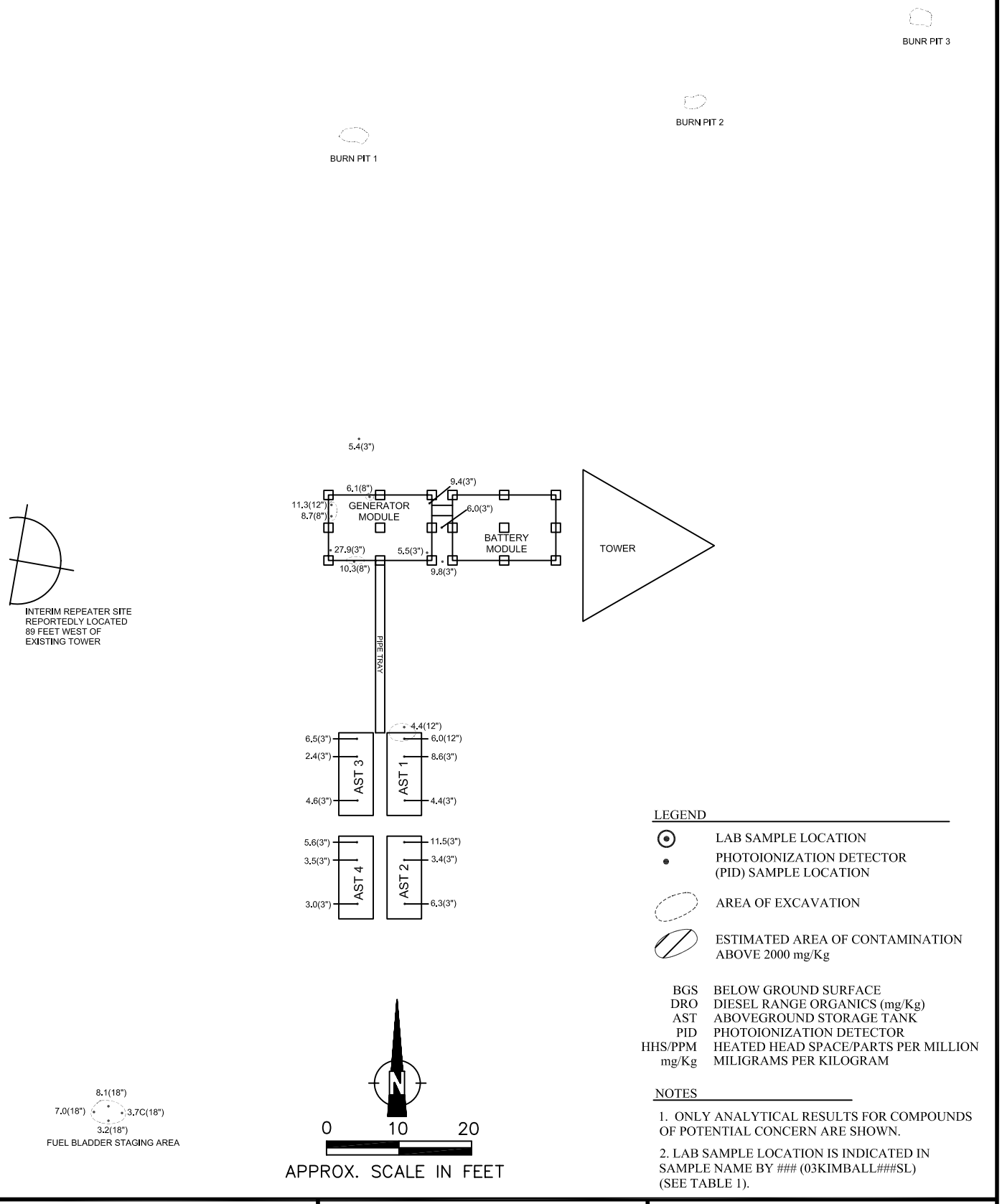
ENSR | AECOM
1835 S. BRAGAW STREET, #490
ANCHORAGE, AK 99512
(907) 561-5700
FAX: (907) 273-4555

FILE: SLOPE06 DRAWN: MNA
C/SC: 1:10 ZIP: NA
DATE: 03/27/06 CHECK: A.POST

# FIGURE 5
## SLOPE REPEATER SITE LAYOUT

2006 AT&T
SITE ASSESSMENT/
REMEDIATION PROGRAM

PROJECT 00550-338




LEGEND

- LAB SAMPLE LOCATION
- PHOTOIONIZATION DETECTOR (PID) SAMPLE LOCATION
- AREA OF EXCAVATION
- ESTIMATED AREA OF CONTAMINATION ABOVE 2000 mg/Kg

| | |
|---|---|
| BGS | BELOW GROUND SURFACE |
| DRO | DIESEL RANGE ORGANICS (mg/Kg) |
| AST | ABOVEGROUND STORAGE TANK |
| PID | PHOTOIONIZATION DETECTOR |
| HHS/PPM | HEATED HEAD SPACE/PARTS PER MILLION |
| mg/Kg | MILIGRAMS PER KILOGRAM |

NOTES

1. ONLY ANALYTICAL RESULTS FOR COMPOUNDS OF POTENTIAL CONCERN ARE SHOWN.
2. LAB SAMPLE LOCATION IS INDICATED IN SAMPLE NAME BY ### (03KIMBALL###SL) (SEE TABLE 1).


ENSR INTERNATIONAL
1835 SOUTH BRAGAW STREET, #490
ANCHORAGE, AK 99512
(907) 561-5700
FAX: (907) 273-4555


FILE: 05KIMBALL
C/SC: 1:10
DATE: 08/10/04
DRAWN: MNA
ZIP: NA
CHECK: A.POST

# FIGURE 1
## SLOPE REPEATER FIELD AND ANALYTICAL RESULTS

## 2004 AT&T PHASE IV SITE ASSESSMENT/ REMEDIATION PROGRAM

PROJECT 00550-338-100

# ATTACHMENT 2

# TABLES

Table 1: 2006 Soil Sampling Analytical Results

Table 1: 2005 Soil Sampling Analytical Results

Table 1: 2004 Soil Sampling Analytical Results

**Table 1: 2006 Soil Sampling Analytical Results, AT&T Site Assessment / Remediation Program**
**Slope Repeater Site**

| Parameter | Units | MCL | | Sample ID: 06SLOPE01SL<br>Sample Date: 8/18/2006<br>Sample QC Type:<br>Laboratory ID(s): 1064864006 | Sample ID: 06SLOPE02SL<br>Sample Date: 8/18/2006<br>Sample QC Type: Duplicate of 06SLOPE01SL<br>Laboratory ID(s): 1064864007 | Sample ID: 06SLOPE03SL<br>Sample Date: 8/18/2006<br>Sample QC Type:<br>Laboratory ID(s): 1064864008 |
|---|---|---|---|---|---|---|
| ***Petroleum Hydrocarbons [AK102, AK103]*** | | | | | | |
| Diesel Range Organics | mg/kg | 2,000 | E | 57.9 [2.05] | 58.8 [2.05] | 28.0 [1.88] |
| Residual Range Organics | mg/kg | 2,000 | E | 577 [2.05] | 495 [2.05] | 245 [1.88] |

**Key:**

-- = Analysis not performed on this sample.
J = Result is considered an estimate value.
M = migration to groundwater: ADEC Method Two Table B1.
E = See Technical Memorandum: Proposed Petroleum Hydrocarbon Cleanup Levels for TAPS Corridor Sites (August 18, 2003).

ND = analyte not detected above the practical quantitation limit (PQL).
na = no cleanup level applicable for this parameter.

**Notes:**

Values in brackets [ ] are PQLs and values in parentheses ( ) are laboratory detection limits.
Values in **bold** indicate exceedance of the ADEC Cleanup Level.

**Table 1: 2005 Soil Sampling Analytical Results, AT&T Phase V Site Assessment / Remediation Program**
**Slope Repeater Site**

| Parameter | Units | MCL | | Sample ID: 05SLOPE01SL<br>Sample Date: 6/21/2005<br>Sample QC Type:<br>Laboratory ID(s): 1053682011 | Sample ID: 05SLOPE02SL<br>Sample Date: 6/21/2005<br><br>Laboratory ID(s): 1053682012 |
|---|---|---|---|---|---|
| ***Petroleum Hydrocarbons [AK102, AK103]*** | | | | | |
| Diesel Range Organics | mg/kg | 2,000 | E | 1,080 [4.22] | 3,250 [21.4] |
| Residual Range Organics | mg/kg | 2,000 | E | 1,040 [4.22] | 1,820 [21.4] |
| ***Volatile Organic Compounds [SW8260B]*** | | | | | |
| Benzene | mg/kg | 0.02 | M | ND [4.5] | ND [4.16] |
| Ethylbenzene | mg/kg | 5.5 | M | ND [9.0] | ND [8.32] |
| o-Xylene | mg/kg | 78 | M | 12.7 [9.0] J | ND [8.32] |
| Toluene | mg/kg | 5.4 | M | 18.5 [17.3] J | 24.3 [16.0] J |
| Xylene, Isomers m & p | mg/kg | 78 | M | 18.2 [17.3] J | ND [16.0] |
| ***Total Solids [A2540G]*** | | | | | |
| Total Solids | mg/kg | na | | 93.4 | 92.4 |

**Key:**

-- = Analysis not performed on this sample.
J = Result is considered an estimate value.
M = migration to groundwater: ADEC Method Two Table B1.
E = See Technical Memorandum: Proposed Petroleum Hydrocarbon Cleanup Levels for TAPS Corridor Sites (August 18, 2003).
ND = analyte not detected above the practical quantitation limit (PQL).
na = no cleanup level applicable for this parameter.

**Notes:**

Values in brackets [ ] are PQLs and values in parentheses ( ) are laboratory detection limits.
Values in **bold** indicate exceedance of the ADEC Cleanup Level.

**Table 1: 2004 Soil Sampling Analytical Results, AT&T Phase IV Site Assessment / Remediation Program**
**Slope Repeater Site**

| Parameter | Units | MCL | | Sample ID: 04SLOPE01SL<br>Sample Date: 8/6/2004<br>Sample QC Type:<br>Laboratory ID(s): 1044940001 |
|---|---|---|---|---|
| ***Petroleum Hydrocarbons [AK102, AK103]*** | | | | |
| Diesel Range Organics | mg/kg | 2,000 | E | 15.9 [21.7] J |
| Residual Range Organics | mg/kg | 2,000 | E | 99.5 [21.7] |
| ***Volatile Organic Compounds [SW8260B]*** | | | | |
| Benzene | mg/kg | 0.02 | M | -- |
| Ethylbenzene | mg/kg | 5.5 | M | -- |
| o-Xylene | mg/kg | 78 | M | -- |
| Toluene | mg/kg | 5.4 | M | -- |
| Xylene, Isomers m & p | mg/kg | 78 | M | -- |
| ***Total Solids [A2540G]*** | | | | |
| Total Solids | mg/kg | na | | 86.0 |

**Key:**

-- = Analysis not performed on this sample.
J = Result is considered an estimate value.
M = migration to groundwater: ADEC Method Two Table B1.
E = See Technical Memorandum: Proposed Petroleum Hydrocarbon Cleanup Levels for TAPS Corridor Sites (August 18, 2003).
ND = analyte not detected above the practical quantitation limit (PQL).
na = no cleanup level applicable for this parameter.

**Notes:**

Values in brackets [ ] are PQLs and values in parentheses ( ) are laboratory detection limits.
Values in **bold** indicate exceedance of the ADEC Cleanup Level.

# ATTACHMENT 3

# AT&T SITE PHOTOGRAPHS

# AT&T SITE PHOTOGRAPHS

Site photograph of Slope Repeater AST area; view looking northeast.


Excavation in progress beneath AST 1 valve looking west.

## AT&T SITE PHOTOGRAPHS


Excavation beneath AST 1 valve in progress looking southwest.


Excavation beneath AST 1 valve completed looking south.

## AT&T SITE PHOTOGRAPHS

Final excavation of fuel bladder staging area looking north.

Fuel bladder staging area excavation backfilled with native material looking northeast.

Excavation beneath north side of the Generator Module looking south.

Excavation in the southwest corner of the Generator Module looking north.

## AT&T SITE PHOTOGRAPHS

Excavation of the Burn Pit 2 looking south.

Completed excavation and backfill of Burn Pit 1 looking south.

# AT&T SITE PHOTOGRAPHS


Site photograph of Slope Repeater AST area; view looking southeast.

Collecting PID samples around the perimeter of the Generator Module.

## AT&T SITE PHOTOGRAPHS

Excavation beginning beneath northwest corner of the Generator Module.

Excavation continuing along western edge of the Generator Module.

Completed excavation beneath northwest corner of the Generator Module with shovel for scale.

Completed excavation beneath northwest corner of the Generator Module.

## AT&T SITE PHOTOGRAPHS

Collecting confirmation samples from the completed excavation beneath northwest corner of the Generator Module.

Completed excavation beneath northwest corner of the Generator Module.

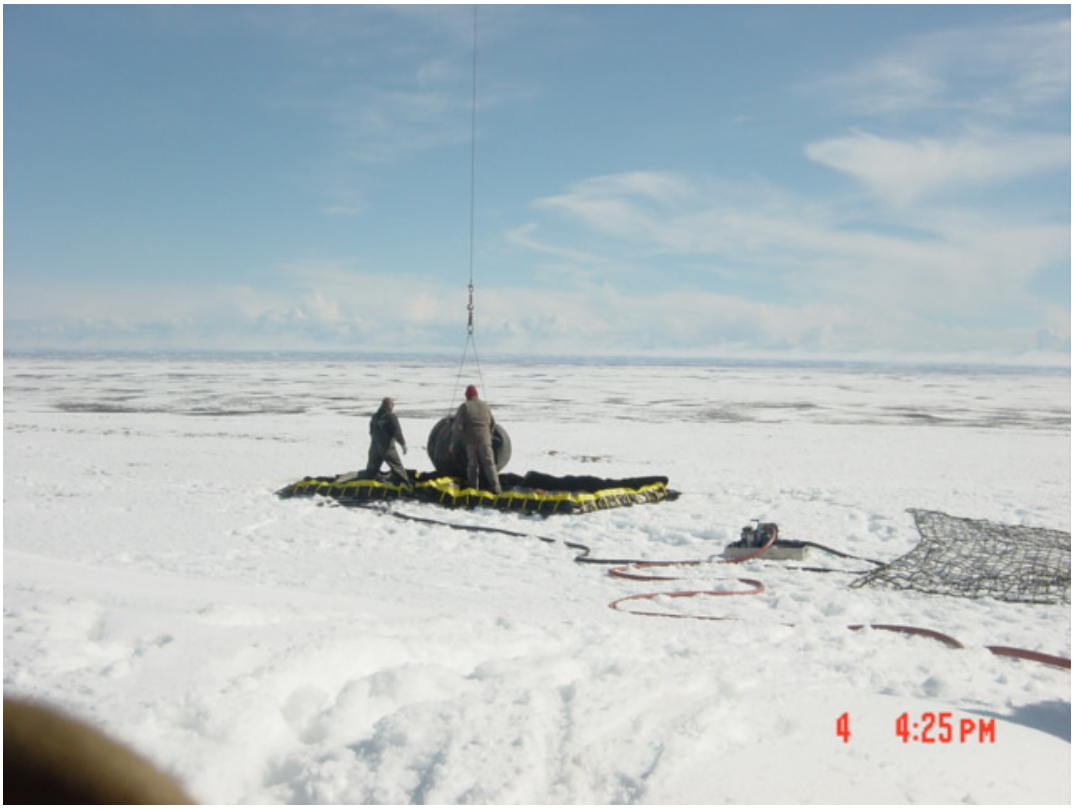
# ATTACHMENT 4

# AT&T REFUELING PROCESS PHOTOGRAPHS

## AT&T TAPS REPEATER SITES REFUELING PROCESS PHOTOGRAPHS


Highway site staging area. Filling fuel bladders within portable secondary containment


Fuel bladder sling load to portable secondary containment system on ground at repeater site.




Landing fuel bladder within portable secondary containment system.


Pump fuel from bladder in secondary containment via modular portable pump with secondary containment.