AGRA EARTH & ENVIRONMENTAL, INC.
SUMMARY REPORT FOR TANK CLOSURE
Yutana Barge Lines
Former Service Station

Submitted To:

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Submitted By:

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AGRA
Earth & Environmental

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1.0 INTRODUCTION

In July 1994, AGRA Earth and Environmental, Inc. (AGRA E&E) completed environmental monitoring and sampling activities during the excavation and removal of 3 underground storage tanks (USTs). The UST system was composed of 1 4,000-gallon and 2 5,000-gallon storage tanks and was located on the northern portion of the former Nenana Truck Stop property. All three USTs were reportedly taken out-of-service prior to 1993. The legal description of the project location is Block 75, Lot 1, Acreage Addition, Nenana, Alaska. The physical address of the property is 116 South Parks Highway in Nenana. Figure 1 (page 2) shows the project vicinity. Figure 2 (page 3) indicates the generalized site layout and the location of the UST system on site.

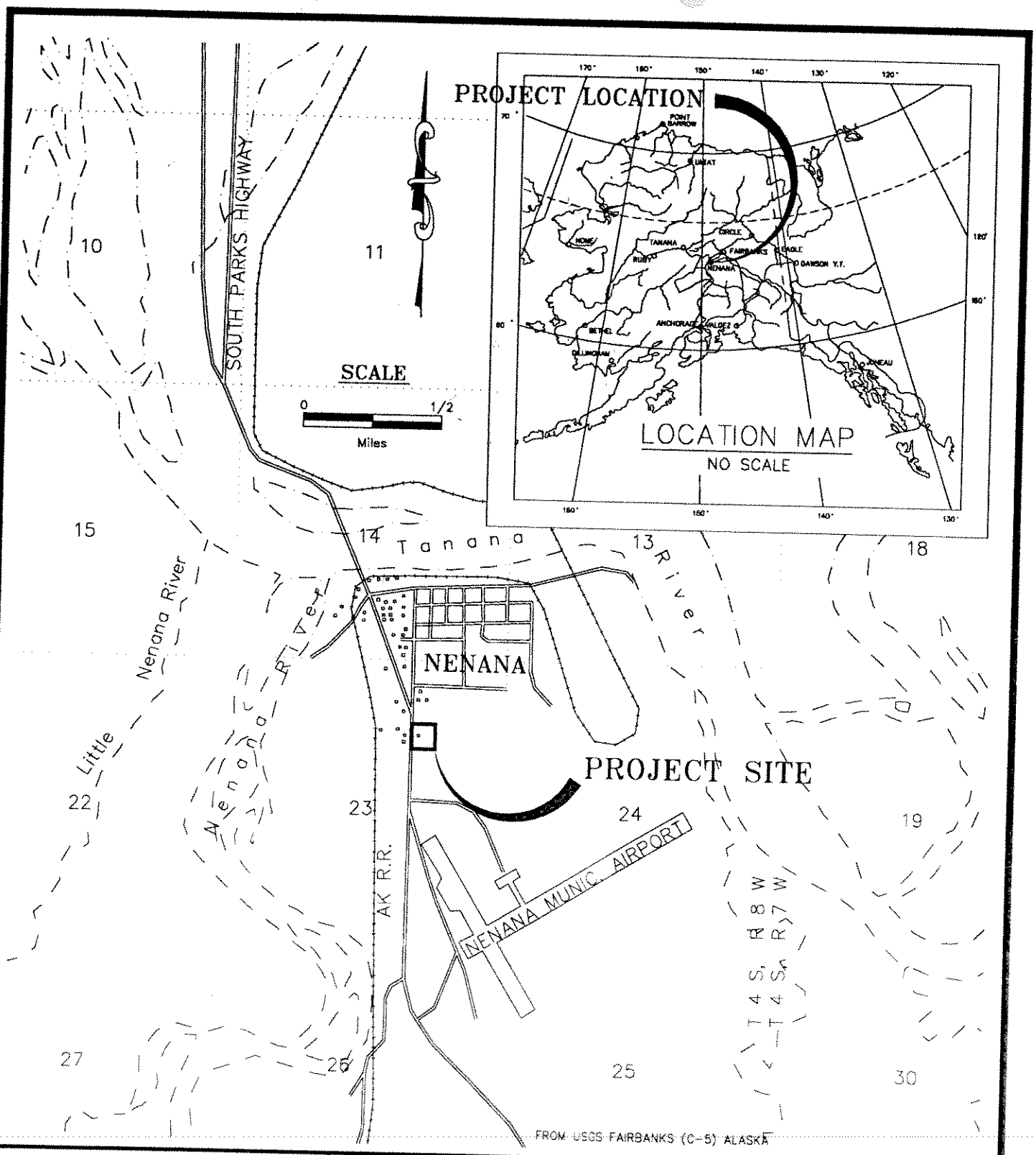
AGRA E&E has prepared this Summary Report to document the UST removal activities and associated soil sample analytical results. This report contains: a summary of on-site work conducted by Yutana Barge Lines (Yutana) and AGRA E&E personnel; photographs of work in progress; observations noting subsurface conditions, soil types, stratification, and zones of potential hydrocarbon impacts; measurements including the resultant size of the excavated area and the apparent depth to ground water at the excavation area; and maps locating the site. In addition, we describe the disposal method for all excavated soils.

1.1 PROJECT DESCRIPTION

The work conducted at the subject location is part of a larger effort by Yutana to remove and relocate both aboveground and underground petroleum storage tanks at the former station. AGRA E&E was responsible for completing a closure site assessment for the regulated USTs on site. Yutana personnel performed the UST excavation/removal, soils removal, and excavation backfill.

The objective of the project was to remove the referenced USTs in accordance with the Alaska Department of Environmental Conservation (ADEC) Underground Storage Tank regulations 18 AAC 78. The project included the following activities:

- Excavation and removal of three single-walled metal USTs;
- Environmental monitoring during the removal process;



RZA AGRA Alaska, Inc.
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ENVIRONMENTAL SERVICES
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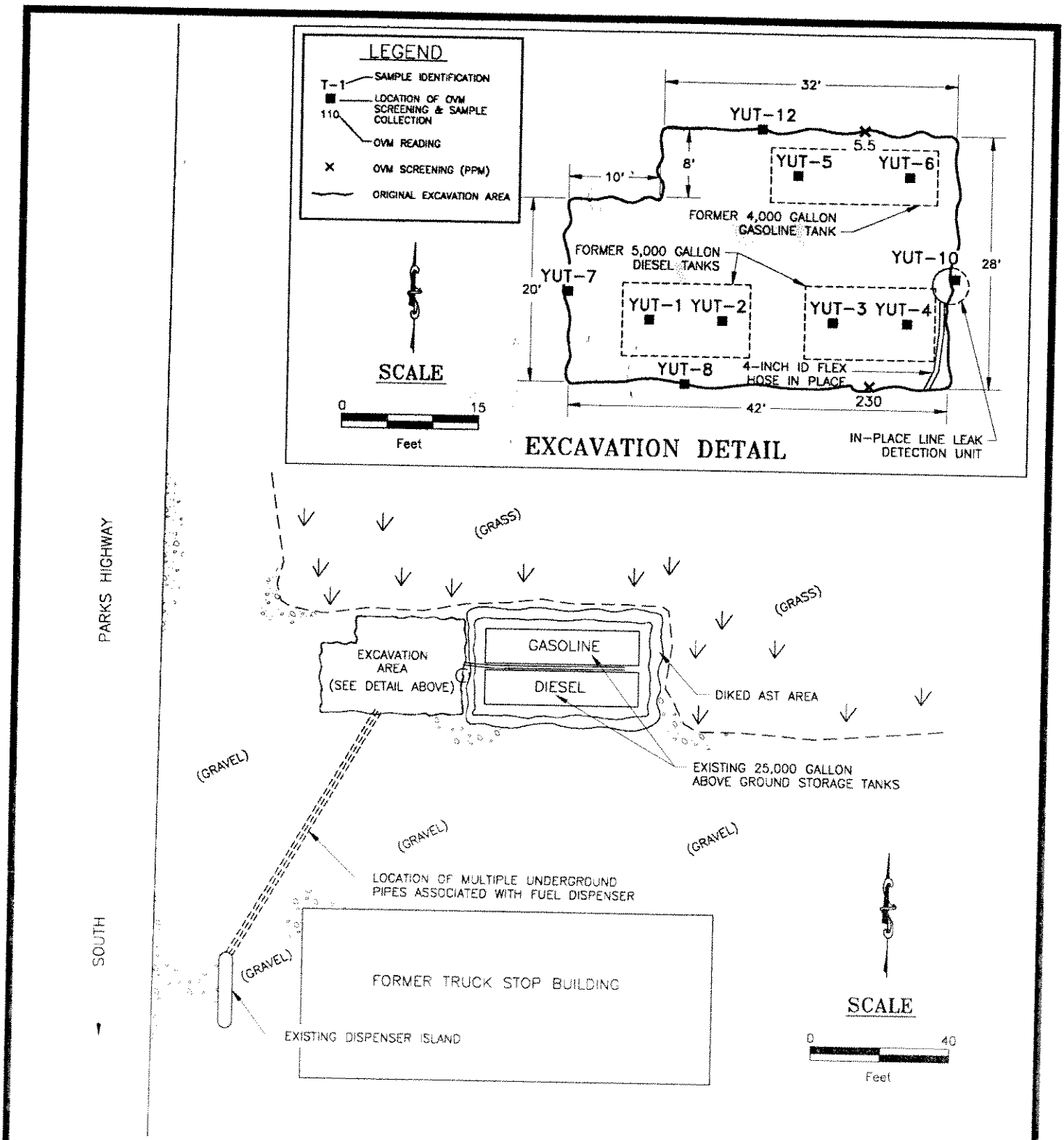
PROJECT	32-01126-00
DESIGN	JAS
DRAWN	PTS/F1126VIC
DATE	07/27/94
SCALE	AS SHOWN

LOCATION MAP

YUTANA BARGE LINES
116 SOUTH PARKS HIGHWAY
NENANA, ALASKA
UST REMOVAL

FIGURE 1



RZA AGRA Alaska, Inc. ENGINEERING & ENVIRONMENTAL SERVICES 600 University Avenue Suite 5E Fairbanks, Alaska 99709	PROJECT 32-01126-00 DESIGN JAS DRAWN PTS/F1126SIT DATE 07/29/94 SCALE AS SHOWN

SITE PLAN

YUTANA BARGE LINES
116 SOUTH PARKS HIGHWAY
NENANA, ALASKA
UST REMOVAL

FIGURE 2

- Collection of representative soil samples to document hydrocarbon impacts at the limits of the excavation and in the excavated soils; and

- Preparation of this Summary Report for Tank Closure.

1.2 SITE DESCRIPTION

The project site is located on the eastern side of the Parks Highway, approximately 1 mile south of the bridge crossing to the city of Nenana. The site consists of a large quonset-type structure, the front portion of which served as a store for the retail sale of fuel products and other goods. The store is no longer operational, and the UST system was reportedly removed from service in 1993. An aboveground storage tank (AST) system consisting of two 25,000-gallon metal fuel tanks in a bermed enclosure is located east of the underground tanks; however, the past uses of this system are unknown. A work area used for vehicle and heavy equipment maintenance is located on the eastern portion of subject lot.

The surface topography at the subject site is generally flat with minor changes in surface elevation at gravel/vegetation contacts. However, surface features vary considerably across the lot. The dispenser island area is covered with a compacted gravel surface. The soils overlying the UST area appeared to be more loosely packed gravel with coarse sand, supporting sparse vegetation. The western portion of the property adjacent to the Parks Highway consists of a long narrow strip of grassy soils. This grassy area defines a slight depression, presumably the top and midsection of a stabilized road shoulder. The conditions on the northern and eastern portions of the property show a marked thickness of vegetative cover at the property boundaries, eventually grading to a marsh-type cover on the adjacent lots. Figure 2 (page 3) delineates these distinct gravel/vegetation areas graphically.

Climatic conditions during this project included air temperatures of approximately 60 to 75 degrees Fahrenheit during midday with moderate winds. Site logistics were coordinated and managed in order to minimize the potential for generating excess dust and debris spillage from the excavation work. At the close of the excavation portion of the project, the site was barricaded with caution flagging to alert passersby of potential safety concerns.

2.0 METHODS

In each of the following subsections, AGRA E&E provides a summary of pertinent field methods used during the removal and site assessment operations.

2.1 TANK REMOVAL/SOIL EXCAVATION

Yutana personnel had removed the 5,000-gallon UST formerly located on the western portion of the excavated area (Figure 2), prior to AGRA E&E's arrival at the site. The 3 USTs were reportedly prepared for temporary closure prior to 1993. Yutana personnel removed the USTs in accordance with general industry standards. No product remained in any of the tanks, although the 4,000-gallon UST was partially filled with water which was pumped into a truck fitted with a holding tank prior to removing the tank. The water was treated by Yutana before disposal.

Yutana personnel transported the used tanks to the Yutana Complex for potential reuse in an aboveground storage capacity. The procedures employed by Yutana during the excavation program are summarized below.

During the removal of tank piping, sorbent materials were placed beneath each cut area to minimize the potential for product spillage onto the soils beneath the piping. The piping runs that formerly connected the tanks to the dispenser island had been previously cut approximately 20 feet south of the UST area. The pipe sections exposed during the removal process were chained and removed without significant trenching. The former piping trenches and dispenser island area will be assessed at a future date.

The tanks and associated piping were prepared for removal and disposal using the following sequence:

- Careful excavation exposed the top and sides of the tanks and piping;
- Piping was cut and removed to a distance of approximately 20 feet south of the current excavation;
- Each tank was secured with steel chains and removed from the ground;
- The excavated tanks were transported to the Yutana Complex for soundness testing prior to potential reuse in an aboveground capacity.

Potentially hydrocarbon-impacted soils removed during tank excavation were temporarily stockpiled adjacent to the excavation during the removal activities. Yutana personnel transported the impacted soils to a lined and bermed holding cell located at the Yutana Complex for temporary stockpiling in accordance with Alaska Department of Environmental Conservation Guidance for Storage, Remediation, and Disposal of Petroleum Contaminated Soils.

2.2 ENVIRONMENTAL ASSESSMENT MONITORING

AGRA E&E performed assessment monitoring in accordance with the ADEC UST regulations and the AGRA E&E Quality Assurance Program Plan (QAPP). The QAPP is approved by and is on file with the Northern Regional Office of the ADEC.

Throughout the soil excavation and tank removal process, AGRA E&E personnel were on site to observe and document project activities. A photographic log is included as Appendix A of this report. Additional site-specific field documentation included:

- Qualitative observations of the excavated soil (discoloration or odors);
- Field screening of the excavated soil using a Thermo Environmental Instruments, Model 580D Organic Vapor Monitor (OVM);
- Visual inspection of each tank and associated piping upon removal for holes and other signs of leakage; and
- Field drawings depicting the former location of each tank, associated piping, excavation limits, location of stockpiled soil, soil sample locations, and associated field soil screening measurements.

2.3 SAMPLE COLLECTION AND LABORATORY ANALYSES

Upon completion of tank removal operations, AGRA E&E collected two representative soil samples from the base of the excavated pit beneath each former storage tank in accordance with the ADEC UST regulations. Soil samples YUT-1 through YUT-6 were collected from beneath each tank as depicted in Figure 2. Samples were collected from approximately 7 feet below ground surface. The sidewalls of the excavation area were screened with an OVM to qualitatively identify potentially impacted soils. Soil samples YUT-7, YUT-8, YUT-10, and YUT-12 were submitted for testing to document hydrocarbon impacts at the lateral limits of the excavation. Stockpiled soils were sampled in accordance with ADEC guidelines.

AGRA E&E conducted soil-vapor headspace analysis on all samples. The headspace sample collection method consists of filling a clean, resealable plastic bag approximately half-full of soil and then sealing the bag. The headspace samples are allowed to warm to surface-ambient temperatures for approximately 20 minutes. The OVM probe is gently inserted into the plastic bag to sample the bag air space. The highest measured OVM concentration is recorded as the soil-vapor headspace measurement for each sample.

All samples collected during this activity were shipped in a chilled cooler to Superior Precision Analytical Laboratories (SPAL) of Martinez, California. SPAL is approved by the ADEC as a qualified laboratory for the analysis of petroleum hydrocarbons.

AGRA E&E selected 3 analytical test methods to characterize both the in-situ and excavated soils. These tests included: benzene, toluene, ethyl benzene, and xylenes (BTEX) by EPA Method 8020, gasoline range petroleum hydrocarbons (GRPH) by EPA Method 8015, and diesel range petroleum hydrocarbons (DRPH) by EPA Method 8100.

For the purposes of selecting analytical test methods for soil samples collected in the area of the 4,000-gallon UST, AGRA E&E assumed that the 4,000-gallon UST formerly contained gasoline products excavation. This assumption is based on the premise that the station was operated as a truck stop in the past and that the primary fuel used for truck refueling is diesel. Therefore, the two matching 5,000-gallon tanks most probably contained diesel fuel products, and the smaller tank likely was used for gasoline. Based on this reasoning, soil samples YUT-5 and YUT-6, collected from beneath the 4,000-gallon UST, were also tested for lead (Pb) by EPA Method 6010. In order to document the potential for lateral migration of lead in the moist to wet excavation base soils, AGRA E&E submitted one sample from beneath each of the 5,000-gallon tanks for lead analysis.

Because groundwater was encountered during the removal process, AGRA E&E personnel collected one water sample for laboratory analysis. The water sample was collected from the upper 4 inches of the water column present in sporadic locations across the pit bottom. The water was extracted from the pit by first filling a laboratory-cleaned-1-liter jar and then decanting the appropriate sample volume into laboratory containers. The water sample was submitted for analysis for BTEX by EPA Method 8020. Copies of the analytical reports for the samples selected for laboratory analysis appear in Appendix B.

Approximately 140 yd^3 of soil were excavated during the tank removal operation. Soil samples SS-1 through SS-4 were collected from the stockpiled materials to characterize the soils for disposal options. In addition, sample DUP-1 was collected as a laboratory-blind duplicate of sample SS-4 for quality control purposes.

3.0 OBSERVATIONS AND RESULTS

In each of the following subsections, AGRA E&E details the observations noted during the tank removal operations.

3.1 EXCAVATION AND REMOVAL

On July 12 and 13, 1994, Yutana personnel conducted the tank excavation and initiated the removal of potentially hydrocarbon-impacted soils. The tanks were situated approximately 1.5 feet below ground surface. During the removal process, Yutana personnel extracted the piping associated with the tank system to an approximate distance of 20 feet from the southern perimeter of the excavation. Piping remaining in the ground will be removed during excavation of the dispenser island at a future date.

During a preliminary site assessment by Yutana personnel, it was found that the 4,000-gallon tanks was partially full of water. Yutana pumped the water into a water transportation vehicle prior to extracting the tank. During removal of the 4,000-gallon tank, approximately 3 to 5 gallons of water drained into the excavation pit from a short pipe located at the base of the tank. The pipe appeared to have been cut at a previous time. The top of the pipe was located below the groundwater interface, and apparently enabled groundwater to communicate with the tank interior. Photos 5 and 6 show the condition of the piping during the removal process.

Upon removal of the remaining tanks, AGRA E&E personnel inspected the tank metal and associated piping. The tanks appeared to be in fair condition with moderate surface corrosion and no apparent holes or leaks. Associated piping showed appreciable surface rusting. It was not possible to determine the tightness of the pipe joints prior to removal, as some of the piping had been cut during past site work in the UST area. The excavation was terminated at approximately 7 feet below surface grade. A leak detection system associated with the aboveground tanks was left in place for future removal.

3.2 SUBSURFACE CONDITIONS

The excavation measured approximately 1,100 ft^2 at ground surface with a depth of 7 feet. The soils within the excavation were visually identified as medium brown, well-graded sand with gravel to approximately 2.5 feet below ground surface. A distinct contact with finer-grained soils was observed at this depth. The soils below the 2.5-foot depth were predominantly silty sands to silt with sand. The bottom of the excavation was marked by high organic content, including roots and tree branches.

AGRA E&E field personnel screened the in-situ soils as the tank removal work was completed. The top 2 to 3 feet of soil overlying the tanks consisted of relatively clean materials with OVM readings ranging from 0 to 22 ppm. AGRA E&E noted moderate hydrocarbon-type odors emanating from the excavated area during the removal of soils from the pit base. Groundwater

was encountered at a depth of approximately 7 feet below grade at the time of excavation. Soil samples YUT-1 through YUT-6, collected from within 6 inches of the base of the excavation, produced OVM readings ranging from 61 ppm to greater than 2,000 ppm.

3.3 ANALYTICAL RESULTS

confirms SAS ?.

Laboratory analysis of soil samples collected from the base of the excavation detected levels of hydrocarbon impact above ADEC cleanup criteria. The highest soil GRPH concentrations were reported for sample YUT-6 at 3,900 mg/kg. Benzene concentrations in the samples ranged from non-detectable levels to a high of 0.3 mg/kg in sample YUT-4. DRPH concentrations were reported to be highest in sample YUT-6 at 1,200 mg/kg. All other pit base samples were below the most stringent ADEC cleanup criteria for DRPH.

Soil samples collected from the stockpiled soils exhibited mixed results. No benzene was detected in any of the stockpile samples. GRPH concentrations ranged from non-detectable to 620 mg/kg in sample SS-4. Sample SS-4 also reported the highest DRPH level at 340 mg/kg. The analytical results for duplicate samples SS-4 and DUP-1 are within acceptable standards for error.

Total lead was detected in three soil samples at a maximum concentration of 17 mg/kg. Although there are no cleanup criteria for total lead in soil, ADEC has used levels as high as 1,000 mg/kg lead at other sites. On this basis, lead is not expected to be a contaminant of concern at this site.

The results of groundwater testing showed elevated levels of benzene at 1,200 µg/l in sample YUT-WS-1. The total xylenes concentration was also significant at 20,000 µg/l. All analytical and soil headspace screening results are summarized in Table 1.

Table 1

Summary of Sample Analytical Results
(Results for soil in mg/kg, for water in µg/L)

Sample ID	Lab ID	Collection Area	OVM Reading	Benzene	Total BTEX	GRPH	DRPH	Total Lead
YUT-1	92103-1	Excavation Base	61	ND(0.005)	0.357	ND(1)	ND(4)	NT
YUT-2	92103-2		> 2,000	ND(0.25)	717	2600	99	17
YUT-3	92103-3		1,662	ND(0.05)	26.99	180	70	NT
YUT-4	92103-4		74	0.3	0.956	7	ND(4)	15
YUT-5	92103-5		109	ND(0.005)	0.026	ND(1)	9	ND(5)
YUT-6	92103-6		502	0.19	33.32	3900	1200	7
YUT-7	92103-7	Excavation Sidewalls	6.2	ND(0.005)	0.007	ND(1)	14	NT
YUT-8	92103-8		106	ND(0.005)	0.312	5	NT	NT
YUT-10	92103-10		34	0.009	0.102	1	82	NT
YUT-12	92103-12		12.4	ND(0.005)	ND	ND(1)	19	NT
SS-1	92103-13	Stockpiled Soils	121	ND(0.02)	16.141	89	64	NT
SS-2	92103-14		116	ND(0.005)	ND	ND(1)	67	NT
SS-3	92103-15		170	ND(0.005)	ND	ND(1)	38	NT
SS-4	92103-16		1,346	ND(0.25)	141.3	620	340	NT
DUP-1	92103-17		---	ND(0.25)	153.1	760	370	NT
YUT-WS-1	92103-18	Water	---	1,200	28,680	NT	NT	NT

ND - indicates the analyte was not detected above the method detection limit; the detection limit is shown in parentheses.
NT - indicates that the sample was not tested for the given parameter.
Shading indicates that the tested parameter exceeds ADEC soil cleanup levels for this site.

MW 7

4.0 SOIL DISPOSAL

Yutana personnel transported all excavated soils to the Yutana Complex in Nenana for temporary stockpiling in accordance with ADEC guidelines. The soils were placed in a bermed and lined storage cell. The soils placed into the holding cell will be treated as part of future site work and remediation efforts.

5.0 ADEC SOIL CLEANUP LEVELS

The ADEC UST regulations provide cleanup levels for petroleum-impacted soils. The cleanup levels are generally determined from a matrix score sheet using site-specific criteria. Based on the analytical results for soil and groundwater samples collected from the base of the excavation, it is the professional judgement of AGRA E&E that groundwater at the pit location is hydrocarbon-impacted. In this situation, the ordinary site matrix evaluation is foregone, and the ADEC Level A cleanup criteria are automatically adopted for the site. Table 2 indicates the Level A cleanup criteria.

Table 2

Level A Cleanup Criteria

CONTAMINANT	CLEANUP LEVEL (mg/kg)	OBSERVED HIGHEST CONCENTRATION (mg/kg)	
DRPH	100	1,200	YUT-6
GRPH	50	3,900	YUT-6
Total BTEX	10	717	YUT-2
Benzene	0.1	0.3	YUT-4

6.0 CONCLUSIONS

Yutana contracted AGRA E&E to complete site assessment activities during the removal of 3 USTs located at the former Nenana Truck Stop in Nenana, Alaska. Because groundwater was encountered during the excavation process and the water appears to be impacted by hydrocarbons, the most stringent ADEC cleanup criteria were adopted for this site. AGRA E&E collected representative soil samples from the excavation base for laboratory analyses in accordance with ADEC UST Regulations. Based on the analytical results obtained, the soil at the base of the excavation contains petroleum hydrocarbons in concentrations exceeding the ADEC cleanup criteria for this site. In addition, preliminary testing of the groundwater at the base of the excavated pit detected benzene concentrations in the water that exceed ADEC drinking water standards.

At the close of tank removal, the excavation area was backfilled with clean pit-run materials. Yutana personnel then compacted the backfill in the former UST location to complete removal activities.

Sherwood Clouse
Yutana Barge Lines
P.O. Box 220
Nenana, AK 99760

September 6, 1994

Mr.Benjamin Thomas
Dept of Environmental Conservation
Northern Regional Office
610 University Ave.
Fairbanks, Ak. 99709-3643

Dear : Mr Thomas

Enclosed is a report on our tank closure project, the report is for your approval.

Sincerely,

Sherwood Clouse

Environmental Manager

Yutana Barge Lines Inc.

Soils excavated during this project were transported to the Yutana Complex in Nenana prior to treatment and subsequent disposal.

7.0 RECOMMENDATIONS

Based on the above discussion, AGRA E&E recommends the following:

1) To complete the UST closure for this site, the dispenser island and remaining piping should be removed from the ground. This additional work involves minimal soil screening during the trenching process and removal of the island. Documentary soil samples should be collected from the final excavation at approximate 20-foot intervals to complete the system close-out in accordance with ADEC site assessment requirements.

2) The groundwater quality should be evaluated downgradient of the former UST area. This work can be accomplished by installing a permanent monitoring well or by using retrievable well-points to collect groundwater samples. The method selected will be based on future monitoring requirements dictated by the ADEC.

3) Because measured impacts in the soil stockpile on the Yutana property exceed ADEC criteria for on-site disposal, these soils should be treated using an ADEC-approved work plan and treatment method. One possible method would utilize a portion of the relatively large yard space that Yutana currently occupies. Landfarming/spreading is a good treatment candidate for these soils because the contaminants in the soils are predominantly in the gasoline range and volatilize relatively easily. By using Yutana personnel on a limited basis to spread and till the soils, Yutana could keep treatment costs to a minimum.

8.0 LIMITATIONS

The observations and findings presented in this report are professional opinions based on the information gained from limited observations and analytical results from a limited number of soil and groundwater samples. Laboratory analyses were performed for specific parameters indicated by suspected past uses of the tank. Additional constituents, not tested for as part of this project, may be present. The measured concentrations of contaminants may not be representative of conditions at other locations on the subject site. No warranty or guarantee is expressed or implied.

Thank you for this opportunity to serve Yutana Barge Lines. If you have any questions or comments regarding this report, please do not hesitate to call our office at (907) 479-7586.

APPENDIX A

PHOTO-DOCUMENTARY LOG

Photo 1: Tank No. 1 subsequent to removal.

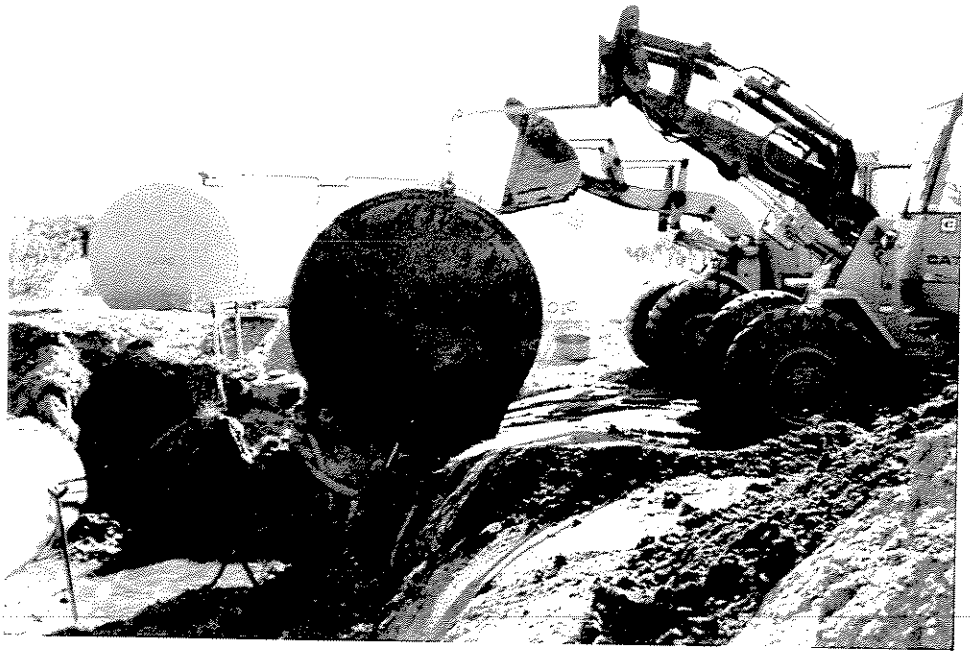


Photo 2: Tank No. 2 during removal.

Photo 3: General condition of Tank No. 2.

Photo 4: Tank No. 3, a 4,000-gallon UST, in place in the excavation.