ENVIRONMENTAL

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June 23, 2003

Mr. Mike Jaynes
ADEC Aboveground Storage Tank Program
410 Willoughby Avenue, Suite 105
Juneau, AK 99801-1795

Re: WORKPLAN – Site Characterization and Calculation of Method Three Alternative Soil Cleanup Levels for Koyukuk, Alaska Former Tank Farm(s)

Dear Mr. Jaynes:

This letter, combined with the project proposal, constitutes the work plan to perform a site assessment at Koyukuk, Alaska. A site description, investigation plan, and the intended field procedures are contained herein.

1 SITE DESCRIPTION

1.1 Background

Koyukuk, population 101, is located on the Yukon River near the mouth of the Koyukuk River, 30 miles west of Galena and 290 air miles west of Fairbanks. A vicinity map is provided as Figure 1. It lies adjacent to the Koyukuk National Wildlife Refuge and the Innoko Nation Wildlife Refuge. It lays at approximately 64.88093° North Latitude and –157.70103° West Longitude (Sec. 17, T007S, R006E, Kateel River Meridian). Koyukuk is located in the Nulato Recording District. The area encompasses 6.2 square miles of land and 0.0 square mile of water. The area experiences a cold, continental climate with extreme temperature differences. The average daily high temperature during July is in the low 70's (°F); the average daily low temperature during January ranges from 10 °F to below zero. Sustained temperatures of -40 °F is common during winter. Extreme temperatures have been measured from –64 °F to 92 °F. Annual precipitation is 13 inches, with 60 inches of snowfall annually. The River is ice-free from mid-May through mid-October.

The city delivers treated well water from the washeteria and hauls honeybuckets; household plumbing is not present. The school and washeteria use city water, with sewage disposal into a lagoon. A Master Plan is underway, and preliminary work has begun to upgrade the community to a flush/haul system. The landfill is newly completed.

The State-owned 3,000 ft. lighted gravel runway provides year-round transportation. The river is heavily traveled when ice-free, from mid-May through mid-October. Cargo is delivered by barge about four times each summer. Residents use numerous local trails

and winter trails to travel to Chance and Nulato. Snowmachines, ATVs and riverboats are used for local transportation.

The Alaska Energy Authority (AEA) is constructing a new aboveground tank farm in Koyukuk as part of ongoing Denali Commission efforts to merge and reconstruct village fuel supplies. The Alaska Department of Environmental Conservation (ADEC) is supporting the AEA by coordinating decommissioning and cleanup of the older tank farm areas. ADEC's goal is to efficiently manage these efforts to protect health of the local village and the surrounding environment.

1.2 Known Site Contamination/Spill Incidents

Heating oil leaked from an above ground fuel line. Unknown quantities were spilled/recovered. This line has since been removed. Estimated approximate effected surface area is 2,500 square feet. Soil has been removed and stockpiled.

1.3 Investigation Areas

Six areas have been targeted for investigation: Tank Farm 1, Tank Farm 2, Tank Farm 3, Marine Header and Line, Power House and the New Tank Farm. Figure 2 is an aerial photograph of the village showing the location of each investigation area.

1.3.1 Consolidated Tank Farms

Three tank farms are located within 120 feet from the school. Tank Farm 1 is owned/operated by the Yukon-Koyukuk School District.

Tank Farm 1 is comprised of 2 heating fuel bulk storage tanks (#1 and #2) directly behind the school and 1 day tank adjacent to the school. The fuel is used to augment the power plant waste heat for space and water heat at the school and teachers' quarters. The fuel is barge delivered. Details regarding specific tanks and pipelines are listed below:

- Tanks 1 and 2 are enclosed in a 6' high secure chain link fence with a locked gate that is also shared with Tank Farm 2. Both tanks are also contained within an adequately sized earthen berm dike with a liquid tight liner.
- Tanks 1 and 2 are single wall, vertical, welded steel tanks supported on a platform constructed with a combination of light wood and heavy timbers. Both tanks have 18" manholes and normal vents but no emergency vents.
- Tanks 1 and 2 have bottom-mounted threaded fill/withdrawal connections. Separate welded steel fill/withdrawal manifolds with a combination of flanged and threaded steel valves connect the tanks.
- Tanks 1 and 2 are equipped with flanged steel flexes at the fill manifold connections. The fill line on Tank 1 has a PRV.
- The fill manifold connects to a 1000' 3" welded steel pipeline. This pipeline is mostly above grade and runs to the marine header.
- A partially below grade 1-1/4" welded and 20 mil wrapped steel pipeline connects to the withdrawal header and runs 100' to a fuel transfer pump near the day tank.

- The pump discharge manifold is plumbed to the partially buried day tank as well as to a 1" threaded 20 mil wrapped buried pipeline running 300' to the teacher's quarters.
- The day tank is a single walled, horizontal, welded steel tank that has normal vents but no emergency vents. It has top mounted threaded fill/withdrawal connections. There is no secondary containment or over-fill protection.
- All above grade piping, valves, and fittings associated with Tank Farm 1 are in good condition. The piping is well supported and there are no active leaks.
- Both bulk tanks are in fair condition with heavy surface rust along the bottom seam. The visible portion of the day tank is in fair condition with moderate surface rust.
- The day tank is less than 5' from the school building, which is a minimum separation violation. None of the tanks are labeled.

Tank Farm 2 is leased by the City of Koyukuk from the Yukon Koyukuk School District.

Tank Farm 2 is comprised of 6 heating fuel bulk storage tanks. The tank farm is located directly behind the school adjacent to Tank Farm 1. The fuel is used to generate village electric power and provide for space and water heating at the city operated water treatment plant/washeteria. The fuel is barge delivered. Details regarding specific tanks are listed below:

- All tanks share the 6' high fence with Tank Farm 1. Tank Farm 2 is also contained within an earthen berm dike that has no liner and is not liquid tight.
- Tanks 1-6 are single wall, vertical welded steel tanks supported on 12X12 timbers. These tanks have normal vents and 20" manholes but no emergency vents.
- Tanks 1-6 have bottom-mounted threaded fill/withdrawal connections and threaded water draw valves. Separate 3" welded steel fill/withdrawal manifolds with a combination of flanged steel flexes and threaded steel valves connect the tanks.
- The fill line is on Tank 1 in Tank Farm 1, which has a PRV.
- The fill manifold connects to a 1000' 3" welded steel barge fill pipeline. Also used as a fill pipeline for Tank Farm 1. The pipeline is mostly above grade and runs to the marine header.
- The same pipeline is used for distributing fuel from the tank farm to the power plant day tank through a 2" welded steel branch line.
- A separate below grade 1-1/4" threaded steel pipe runs 300' from a bottom connection on Tank 3 to the water treatment plant and washeteria.

- All above grade piping, valves, and fittings associated with the Tank Farm 2 are in fair condition. The piping is well supported but there are two active, visible leaks. Both leaks are from the threaded water draw valve connections on the underside of the tank bottoms.
- All tanks are in fair to poor condition with considerable surface rust along the weld seams. All tanks are in need of new paint. There are no minimum separation violations.

Tank Farm 3 is comprised of 2 gasoline storage and dispensing tanks. The tank farm is located across the road from the school in the SE direction. The gasoline is sold retail to local residents. The fuel is barge delivered. Details regarding specific tanks are listed below:

- A 6' high secure chain link fence with a locked gate encloses both tanks. The tanks are contained within an earthen berm dike with a failed liner that is not liquid tight.
- Tanks 1 and 2 are single wall, horizontal, welded steel tanks supported on 12X12 timbers with wood chocks. These tanks have normal vents but no emergency vents or manholes.
- Tanks 1 and 2 have top mounted threaded fill and bottom mounted threaded withdrawal connections. Both tanks have bottom mounted threaded bronze water draw valves. Separate threaded steel fill/withdrawal piping manifolds with a combination of threaded steel flexes and threaded bronze valves connect the tanks.
- The withdrawal manifold piping is 1" to 1-1/2" threaded steel pipe. A 1-1/2" threaded steel pipeline runs from this manifold to a metered dispensing pump located 20' from Tank 2.
- A 3" threaded steel pipeline connects to the fill manifold. This above grade pipeline is 400' long, terminating at the marine header.
- There are no flexes or PRV's in any of the manifolds or pipelines.
- All above grade piping, valves, and fittings associated with the Tank Farm 3 are in fair condition. The piping is adequately supported and there are no visible leaks.
- All tanks are in good condition with fair paint.
- The distance between the dispensing tank and the dispenser is a minimum separation violation.

1.3.2 Marine Header and Line

The marine/barge header is adjacent to the Yukon River. The marine header connects to the three existing tanks farms. Flanged steel check and gate valves connect the pipeline running to Tank Farm 1 and 2. Tank Farm 3 is connected by a threaded bronze check and gate valve. Inadequately sized catch basins are provided for both connections. The exact route of the pipeline and location of the header will be determined during field work and will be added to the site figure.

1.3.3 Power House

The power house contains one packaged day tank and is located close to the school. The exact location of the power house will be determined during field work, and will be added to the site figure.

1.3.4 Proposed Tank Farm Areas

There are three potential locations for an upgraded consolidated fuel facility for Koyukuk. The most likely area for the new tank farm is just south of Tank Farm 3. OASIS plans to investigate each area, unless a decision has been made on the location of the new tank farm prior to completion of field work.

2 PROJECT OBJECTIVES

The primary objective for this site characterization is to characterize the nature and extent of petroleum, oil, and lubricant- (POL) contamination at the following locations:

1. Tank Farm 1,
2. Tank Farm 2,
3. Tank Farm 3,
4. Marine Header,
5. Power Plant, and
6. New Tank Farm Sites.

Data will be used to develop a conceptual site model for the site and to develop site-specific alternative (Method Three) soil cleanup levels. A project goal is to perform adequate characterization so that a detailed site remediation plan and cost estimate can be developed.

3 INVESTIGATION PLAN

3.1 Site Reconnaissance

Prior to beginning the sampling program, a thorough initial investigation will be conducted at the four sites to refine the site-sampling plan. The following items will be addressed:

- Complete a visual inspection to identify former and current leaks or spills,
- Record visual information by developing maps (discussed below) and taking photographs,
- Mark areas of interest identified during the visual investigation with pin flags or survey lath, and assign identification numbers or descriptors,
- Identify areas of stressed vegetation
- Draw a site sketch including details such as on-site structures, land ownership, topographic features, surface slope, drainages and presence of surface water, and
- Note/verify the locations of wells within ¼ mile of a fuel facility, and document the location(s) using GPS. The approximate location of each well will be depicted in the fuel facility figures as appropriate.

Local points of contact will be established to gather firsthand information on past spills and former tank locations:

- Landowners,
- Operators,
- Lease Holders,
- Village officials, and
- Government officials

3.2 Investigation Sites

The investigation will focus on the six sites described in Section 1.3. Figure 2 presents an aerial view of Koyukuk and the layout or general locations of the targeted facilities or investigation areas.

3.3 Preliminary Conceptual Site Model

The sources of contamination at the five sites with active facilities (excludes the new tank farm site) include diesel fuel (heating fuel and power generation) and gasoline.
Petroleum hydrocarbons may have been released to the environment as a result of spills, leaks, or overfills. Potential pathways are summarized below.

- The Yukon River is located within 250 feet of the nearest active site, Tank Farm 3, and approximately 400 feet from Tank Farm 2. The sewage lagoon appears to be less than 50 feet from Tank Farm 1, based on aerial photos.
- There is one community drinking water well that supplies water to the washeteria where it is treated. The exact location of the well will be determined during field work. Well location and construction will be confirmed to determine actual risk to drinking water supplies as a result of contaminated soil/water (if encountered) at any of the five sites.
- Ingestion of contaminated soil is a possible concern and shallow soil samples will be collected to further evaluate this potential pathway.

3.4 Sampling Strategy

Prior to beginning the field work each site will be inspected as described in Section 3.1. Information gathered during the reconnaissance at the sites will be used to refine the sampling plan and select initial locations for soil borings and test pits. Any changes to the sampling strategy will be documented in the field notebook. Proposed sampling locations are identified on Figure 2, Figure 3, and Figure 4. Sample locations are only approximate and will be adjusted in the field to accommodate utility conflicts, the actual locations of tanks, or areas of obvious contamination.

Following refinement of the sampling strategy, proper permission will be obtained from the tank farm operator/owner and utility operators to dig the exploration trenches or install hand-augered boreholes, install micro-wells, and collect samples. Details of the sampling strategy will also be provided to the ADEC project manager (verbal communication and transmittal of field notes, if practical). To the extent practicable, utility locates will be performed at each facility. Utility locations will be marked on the ground with spray paint,

where applicable. The village safety officer will be contacted to coordinate the utility locates.

Samples will primarily be analyzed for DRO/RRO. Only select samples will be analyzed for GRO/BTEX in instances where PID measurements or historical data indicate gasoline or significant volatiles are present. Samples will be submitted to Commercial Testing & Engineering Environmental Services (CT&E), an ADEC certified laboratory, in Anchorage, Alaska for analysis on a standard turnaround time of approximately 14-days. Samples will be collected in duplicate for quality control (QC) at a rate of 10 percent of total samples collected, and methanol-preserved trip blanks will be analyzed with the GRO/BTEX samples submitted for laboratory analysis. Each sample collected solely for GRO/BTEX will be accompanied by a separate unpreserved sample for determination of percent moisture.

Exact sample locations for soil samples will be based on soil PID field screening results and visual observations. PID field screenings will help to confirm presence or absence of volatile compounds such as GRO/BTEX. If no field screening locations yield PID readings greater than 10, GRO/BTEX samples will be collected based on site history and visual observations. The exact numbers of samples collected and analyzed at each location will be modified after the initial site reconnaissance has been completed.

Soil samples will be submitted for laboratory analysis for the following State of Alaska and Environmental Protection Agency (EPA) analytical methods:

- Diesel Range Organics (DRO) and Residual Range Organics (RRO) by State of Alaska Method AK102/103 – all samples selected for analysis.
- Gasoline Range Organics (GRO) by State of Alaska Method AK101, and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by USEPA Method SW8021B – approximately half of the samples submitted for analysis of DRO will also be submitted for GRO/BTEX analysis. Sample selection will be biased toward locations with the highest field screening results.
- Polynuclear aromatic hydrocarbons (PAH) by USEPA method SW8270C run in selective ion monitoring (SIM) mode – approximately one-third of the samples selected for GRO/BTEX analysis, biased toward sample locations with the highest field screening result).
- Up to eleven samples will be analyzed for total organic carbon (TOC) analysis. Soil samples collected for TOC analysis will be taken from clean background soils of a similar type.
- Up to four samples will be submitted for sieve analysis to aid calculation of Method Three alternative soil cleanup levels for the site. The number of sieve analyses will be lower if soils appear homogeneous with little variation in particle size. ASTM method D422 will be used to perform the particle size analysis.

OASIS anticipates collecting the numbers and types of samples (ten percent of the samples will be quality assurance duplicates) indicated in Table 1.

Table 1. Sampling Plan

Location	DRO/RRO	GRO/BETX	PAH	TOC	Petro Flag ™
Tank Farm 1 (soil)	12	4	2	2	4
Tank Farm 2 (soil)	12	4	2	2	4
Tank Farm 3 (soil)	3	8	1	2	3
Barge Header and Line (soil)	4	2	1	2	3
Power house (soil)	4	2	1	2	3
New Tank Farm (soil)	3	3		1	4
Soil QC	4	2	1		
Total Soil	42	25	8	11	21
Tank Farm 1 & 2 (groundwater)	4	4	4		
Tank Farm 3 (groundwater)	3	3	3		
Water QC	1	1	1		
Total Water	8	8	8		

Note: Historical storage or use of gasoline at a particular site will be justification for increasing the number of samples submitted for GRO/BTEX analysis. Sampling may be increased as field screening warrants to further identify extent of contamination.

3.5 SAMPLING PROCEDURES

All soil sample locations (both screening and analytical), excavation areas, and microwell locations will be depicted on a detailed map of each site. GPS coordinates, and swing-tie measurements from existing structures for key sample points and areas will be noted on the map as well. Elevation will be reported based on the depth below the ground surface. Below-grade sample depths will be measured using a steel tape. Standard sampling procedures described in the ADEC Underground Storage Tanks Procedures Manual will be followed. All trenches will be logged and the approximate locations indicated on the site maps. Photographs of the sample locations will be taken and provided in the report.

3.5.1 Soil Sampling

In the vicinity of each of the four sites, shallow soil samples (typically <3 feet below ground surface [bgs], but up to approximately 10 feet, depending on site conditions) will be initially collected using hand-sampling tools such as a shovel or a hand auger. These samples will be field screened using a PID and/or a sheen test. Field screening results will be used to select test pit locations, as well as to select shallow soil samples for laboratory analysis.

As appropriate, laboratory samples may also be collected from the backhoe bucket by clearing soil from the top of the bucket and collecting the sample from soil in the center of the bucket (a new pair of sampling gloves will be used to collect each sample). Extra samples may be collected in the field and transported back to Anchorage, where the decision can be made to either submit them for laboratory analysis or dispose of them.

For shallow soil screening samples, the surface of the ground will be scraped with the backhoe bucket (or a shovel) to break up any compacted soil. The loose soil will be cleared after being scraped, and a sample will be collected by hand (wearing new sampling gloves for each sample). The sample will be placed into a new, sealable bag and the headspace allowed to equilibrate. A measurement will be taken by inserting the PID probe into the bag and noting the maximum reading from the instrument. New gloves will be used in-lieu of sampling tools, i.e. spoons or scoops.

If contamination is indicated by the sampling and field screening, OASIS may auger deeper to further characterize impact, or dig test pits or trenches using a local excavator, if available and operational, to gain a better understanding of the extent and magnitude of contamination present at each site (use of the excavator is planned). The presence and location of fuel distribution piping and other surface/subsurface conflicts may dictate which method is most suitable. Additionally, test pits or trenches may be advanced in locations determined by information gathered during the local interviews. Up to six test pits or trenches at each tank farm site will be dug or each pit/trench may be replaced by 4 to 6 hand auger holes. Test trenches (or auger holes) will be advanced either to the extent of impact, to the extent of the backhoe reach, to hand auger limitations, to groundwater, or to permafrost, whichever occurs first. Field judgment will be used to determine the configuration of each trench or borehole at a testing location (e.g., each test trenching area may consist of a single pit, a longer trench to enable observations in two directions, or two trenches situated in an “X” fashion to estimate extent in multiple directions).

Soils in each trench or hand augured hole will be field screened to locate approximate limits of contamination. Up to three soil samples will be collected from each trench or series of auger holes for laboratory analysis to confirm results of field screening.

Photographs and test pit logs will be prepared to document the conditions encountered in each trench. Soils will be classified using the Unified Soil Classification System (USCS), and sample locations will be photographed with a digital camera.

For similar soil types, clean PID and/or Petroflag™ screening results backed up with at least two analytical results will suffice for delineating clean near surface soils.

Soils will be sampled at locations where either historical site operations or events suggest that contamination is likely to be present, or site observations indicate contamination is present (e.g., staining or odor). Effort will be made to collect sufficient field data to develop a site remediation work plan.

When excavation has been completed at any given area of concern, the excavated soil will be backfilled to its original location, even if the soil was found to be contaminated. Excavation with the backhoe will not be performed near pipelines. Excavation near pipelines will be accomplished with a hand shovel or hand auger. Sampling from the shovel will be accomplished by clearing disturbed soil from the top surface of the soil in the shovel to expose soil that has not had contact with the shovel. The hand auger will be decontaminated between boreholes. The tank farm containment area liner, if present, will not be pierced to collect soil samples. A liner is reported present in the containment area, consequently, many programmed sampling locations are shown outside the berm perimeter. Some samples within the lined area are indicated in case the liner is completely compromised or if there is substantial overburden on the liner.

3.5.2 Groundwater Sampling

If contamination is suspected to extend to groundwater an attempt will be made to collect a water sample for laboratory analysis. Microwells will consist of 2.5 feet of 1.25-inch inside-diameter, 10-slot, stainless-steel, wire-wrapped well screen and galvanized riser pipe, connected by threaded joints. Wells will be installed, depending on the total depth of the installation, using a driver, sledge hammer, or jackhammer, or alternatively the microwells may be installed into holes opened up to 10 feet deep using a hand auger and driven mechanically down to the depth of groundwater. Microwells would likely be installed only if the water table surface is approximately 10 to 15 feet below grade or less. The anticipated difficulty associated with driving well points in tight silts and fine sands will necessitate the use of a partially open hole approach to driving the well points into the saturated zone. The saturated zone should remain uncontaminated since the driving of the well point will start in soils immediately above the water table. Pilot test holes using a hand auger (if possible) will present a clearer picture of the location of the water table in the area slated for well installation. At least three wells would be installed at a site so a groundwater gradient can be determined. If installed, microwells will be sampled, and surveyed relative to an arbitrary datum. Groundwater samples will be analyzed for DRO/RRO, PAH, and GRO/BTEX, depending upon the type of contamination present in the soil. The presence and depth of groundwater is not known, so well installation and sampling is a contingent activity.

It is possible the micro-wells will not produce large amounts of water. Well points will not be developed because well point screens may quickly become plugged before adequate water volume for sample collection has been acquired. If ground water sample volume is limited, groundwater samples will be collected in the following order: GRO/BTEX, DRO, PAHs.

If possible, well logs will be obtained for all wells present in the study area. If access to the wells can be arranged the depth to water in the wells will be measured.

3.5.3 Surface Water Sampling

None planned.

4 WASTE HANDLING AND DECONTAMINATION

A modification of the standard decontamination procedures described in the UST Standard Sampling Procedures will be used. Due to the limited ability to deal with decon waste at this remote site, every effort will be made to minimize the need for generating decon wash water. Unless shovels used for excavation or sampling have been grossly contaminated, they will only be dry-brushed after use. If a shovel has been grossly contaminated it will be washed with Liquinox and tap water, and thoroughly rinsed with tap water. Alternatively, equipment wash/rinse water will be discharged in an area known to have hydrocarbon-impacted soil, which will need to be addressed as part of a remedial action effort. If on-site discharge occurs, the volume and point of discharge will be recorded and communicated in the assessment report. Used sample gloves and paper towels will be collected in plastic garbage bags and transported back to Anchorage for disposal. Collecting samples from undisturbed soil in the backhoe bucket effectively minimizes the potential for cross contamination.

5 EVALUATING THE NEED FOR IMMEDIATE REMOVAL ACTIVITIES

The need to perform soil excavation and long-term stockpiling to address immediate risk to the environment or human health will be evaluated while on-site based on field screening results. Recommendations will be discussed with the ADEC Project Manager while the investigation crew is in the field.

6 SCHEDULE AND WORK ACTIVITY SEQUENCE

The field crew will mobilize to Nikolai in mid to late summer 2003. We expect to complete soil sampling, using a hand auger and/or test pits within three days. If deemed necessary, microwell installations will be attempted. Microwell installation will add an additional day to the field time. Normal turnaround for analytical samples will be requested, although expedited turnaround may be requested for selected soil samples if contamination is identified in the area of the new tank farm or in areas that are scheduled for excavation to support the tank upgrade activities.

The need for remedial action this fall will be discussed with ADEC after soil sample field screening results are available.

If you have any question please call our office at your convenience (258-4880).

7 REFERENCES

- ADEC. March 4, 2003 RFP for a Site Characterization and Calculation of Method Three Alternative Soil Cleanup Levels for the Village of Koyukuk, Alaska.

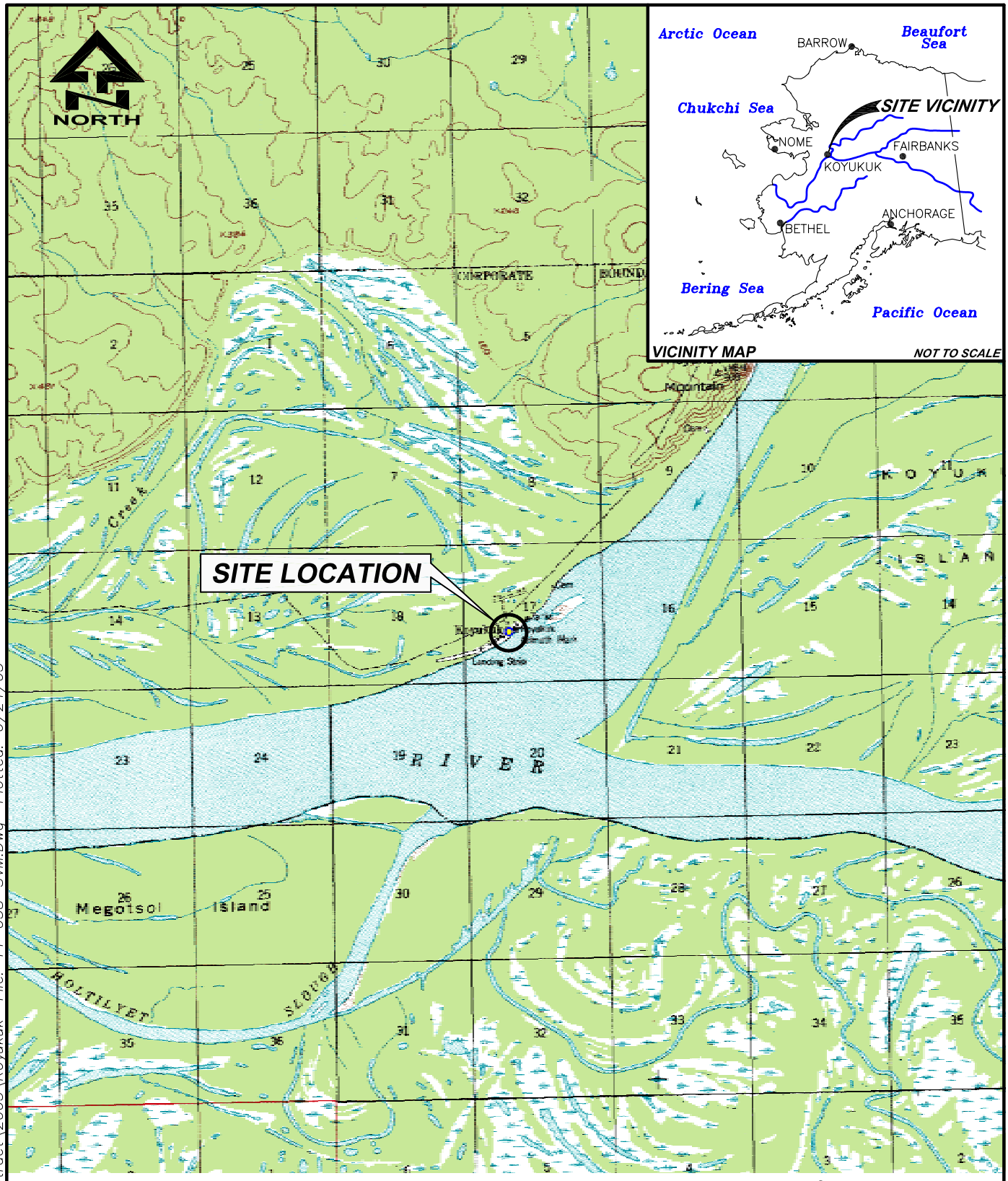
- DCRA, Division of Energy. Bulk Fuel Community Database (summaries for Tank Farms 1 through 5). February 13, 2003.
- Hattenburg Dilley & Linnell. *Bulk Fuel Upgrades for AIDEA/AEA Rural energy Group, Koyukuk, Alaska, Figure T-2.* September 25, 2002.

Sincerely

Brad Authier
Project Manager

Max Schwenne
Vice President

Attachments: *Figure 1 – Koyukuk Site Location Map*
Figure 2 – Site Map, Tank Farms 1-3 and New Tank Farm Locations
Figure 3 – Tank Farm No. 3 and New Tank Farm Locations, Proposed Sample Locations
Figure 4 – Tank Farms No.1 and No.2 and New Tank Farm Alternate Location 2, Proposed Sample Locations



PATH: \UST-AST Term Contract\2003\Koyukuk File: 14-038-SVM.Dwg Plotted: 6/24/03

DATE	JUNE 2003
CHKD	K.H.
DRAWN	C.E.H.
PROJ. NO	14-037

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807 G STREET, SUITE #250
ANCHORAGE, ALASKA 99501

KOYUKUK SITE LOCATION MAP

VILLAGE OF KOYUKUK SITE CHARACTERIZATION
KOYUKUK, ALASKA

FIGURE
1

SOURCE: AEROMAP INC. AERIAL PHOTOGRAPH FILE KOY_1-8.TIF DATED 8/26/1993.

NORTH

0 100 200

APPROX. SCALE IN FEET

PATH: \UST-AST Term Contract\2003\Koyukuk File: 14-037_FIG2.Dwg Plotted: 6/24/03

DATE	JUNE 2003
CHKD	K.H.
DRAWN	C.E.H.
PROJ. NO	14-037

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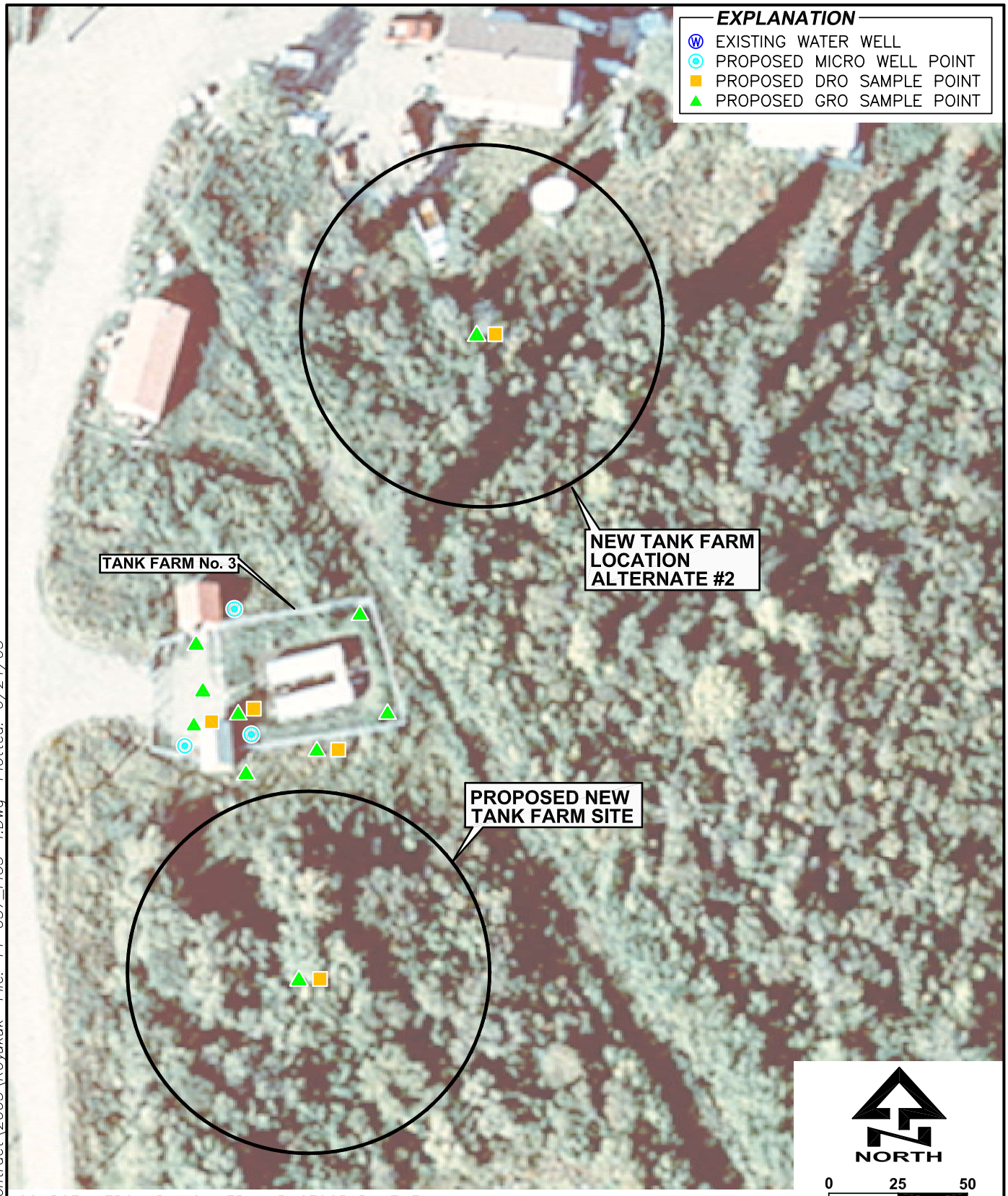
ANCHORAGE, ALASKA 99501

SITE MAP

VILLAGE OF KOYUKUK SITE CHARACTERIZATION
KOYUKUK, ALASKA

FIGURE

2



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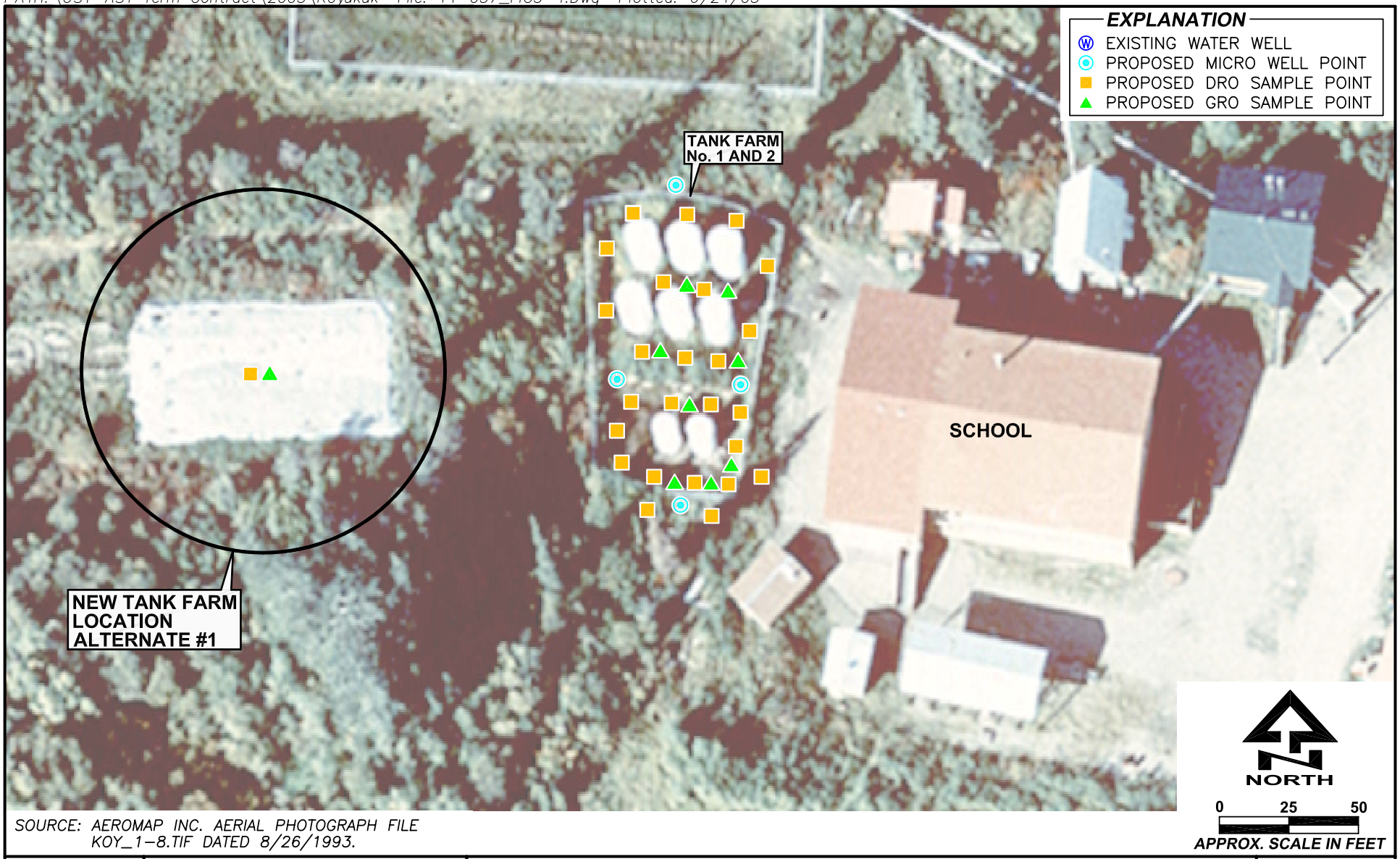
PATH: \UST-AST Term Contract\2003\Koyukuk File: 14-037_FIG3-4.Dwg Plotted: 6/24/03

DATE JUNE 2003 CHKD K.H. DRAWN C.E.H. PROJ. NO 14-037	oasis ENVIRONMENTAL 807 G STREET, SUITE #250 ANCHORAGE, ALASKA 99501	**TANK FARM No. 3 AND NEW TANK FARM PROPOSED SAMPLE LOCATIONS** VILLAGE OF KOYUKUK SITE CHARACTERIZATION KOYUKUK, ALASKA	FIGURE **3**

PATH: \UST-AST Term Contract\2003\Koyukuk File: 14-037_FIG3-4.Dwg Plotted: 6/24/03



SOURCE: AEROMAP INC. AERIAL PHOTOGRAPH FILE KOY_1-8.TIF DATED 8/26/1993.

DATE JUNE 2003
CHKD K.H.
DRAWN C.E.H.
PROJ. NO 14-037

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TANK FARMS No. 1, No. 2, AND NEW TANK FARM PROPOSED SAMPLE LOCATIONS

VILLAGE OF KOYUKUK SITE CHARACTERIZATION
KOYUKUK, ALASKA

FIGURE 4