

Monitoring Well Sampling Work Plan  
Sahn Investments  
Lots 2,3,4, & 8 Block 137, Weeks Field Subdivision  
Fairbanks, Alaska

June 2009

**ALASKA RESOURCES & ENVIRONMENTAL SERVICES, LLC**



SUBMITTED TO:  
Alaska Department of Environmental Conservation  
Northern Regional Office  
Contaminated Sites Program  
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## **INTRODUCTION**

This Work Plan was prepared on behalf of Mr. Jeff Zuckerman of Sahn Investments, who has contracted with Alaska Resources & Environmental Services (ARES) to perform the groundwater monitoring well installation and groundwater investigation associated with the known UST release that occurred on the subject property. This Work Plan was prepared in general accordance with the Alaska Department of Environmental Conservation (ADEC) Oil and Hazardous Substances Regulations, 18 AAC 75 revised October 09, 2008.

The environmental purpose of this Work Plan is to obtain ADEC approval for the groundwater sampling event based on the previous installation of three permanent groundwater monitoring wells in order to determine baseline conditions and to determine if contaminants are migrating onto the site from an off-site source or if the contaminants found at the site are the result of a former leaky UST heating oil tank.

## **SITE BACKGROUND**

### **Site Description**

The Sahn Investment parcel (subject property) is situated on an approximate 1-acre site located north of Airport Way at 1406 Kellum Street, Fairbanks, Alaska (Figure 1). The site is located in the U.S. Geological Survey (USGS) Fairbanks D-2 quadrangle. The legal description for the property is as follows: Tax Lots 2,3,4, & 8 Block 137, Weeks Field Subdivision.

### **Topography**

The United States Geological Survey (USGS) Fairbanks Quadrangle (D-2) provides topographic map coverage of the site (Figure 1). Fairbanks is located in the northern part of the Tanana Basin, which is a relatively flat floodplain of the Tanana River. The subject property is situated approximately 2.5 miles north of the Tanana River and 0.5 miles south of the Chena River. Based upon the topographic map of the Fairbanks Quadrangle, the site elevation is approximately 446 feet above the mean sea level.

### **Regional Hydrology**

The Chena and Tanana rivers are the dominant influence on ground-water flow in the subject area. Two discharge peaks characterize the Chena River: spring snowmelt runoff and late summer precipitation. The stage of Chena River typically rises and falls in response to stage changes of the Tanana River. The depth to groundwater varies in response to these controlling factors. Based on interpretation of USGS data, regional groundwater flow direction is generally to the west-northwest.

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## **History**

ARES was authorized to perform a Site Characterization associated with the removal of two UST's located on the property. Tank #1 consisted of a 1,000-gallon UST and Tank # 2 consisted of a 300-gallon UST. Both tanks were used for the storage of # 2 diesel fuel for the purpose of heating structures located on the property.

While conducting the Site Assessment during removal and close-out of a Tank # 2, petroleum contaminated soils were encountered. Soils had a strong diesel odor, however, soils were not saturated and exhibited characteristics typical of older releases.

During excavation and removal of the 300-gallon UST (Tank # 2) approximately 80 cubic yards (77 tons) of petroleum-contaminated soils were removed and hauled off-site for thermal remediation. The remainder of the excavated contaminated soils (approximately 216 yds<sup>3</sup>) was stockpiled on-site and landfarmed in accordance with ADEC approved Work Plan. Soil sample results for the 300-gallon UST site indicate that soils remain in place within the vadose zone (10' bgs) above ADEC cleanup levels for soil. Soil samples collected from the sidewalls and endwalls of the 300-gallon UST site were found to be below ADEC target cleanup levels.

Per agreement with ADEC as a condition to close out the site, a groundwater monitoring well (MW-1) was installed hydraulically down gradient from the source area and sampled on June 15, 2009 for BTEX by EPA method 8260B and DRO by method AK 102. Sample results indicate that benzene was found to be above ADEC target cleanup levels in groundwater at 82.8 ug/L. The cleanup level for benzene is 5 ug/L. Toluene, ethylbenzene, xylenes, and DRO (non-detect) were below ADEC cleanup levels for groundwater.

Based on a groundwater sample results from MW-1, ARES recommended two additional monitoring wells be installed to determine if contaminants are migrating onto the property from an off-site source or if the contaminants are originating from the subject property. The two monitoring wells were installed on June 25, 2009. Monitoring well MW-2 was installed at the site of the former 300-gallon UST and monitoring well MW-3 was installed hydraulically up gradient on the east property boundary in order to determine the up-gradient conditions. Locations of the monitoring wells are shown in Figure 2.

## **Well Installation**

In order to assess potential impacts to groundwater at the site, ARES installed three (3) permanent monitoring wells MW-1, MW-2 and MW-3 at the subject property located at 1406 Kellum Street. The monitoring well locations are shown in Figure 2.

The groundwater monitoring wells were installed using direct-push probe with the first five feet pre-drilled. Placement of the well screen was roughly centered at the soil/groundwater interface. The monitoring well casings were set above grade. The

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wells are capped and locked after use. Monitoring well design characteristics for the permanent monitoring wells is as follows:

Material = galvanized pipe  
Well screen = 10 ft  
Slot size = 0.010 in.  
Outside diameter = 1.25 in.

Bentonite pellets were placed 0-5' bgs to provide annular seal and prevent cross-contamination from infiltration and to confine well screen to the sampling interval. GPS coordinates will be collected for well locations following final sampling event. Groundwater elevations and well casing measurements will also be collected and the groundwater direction determined by the triangulation method.

Fieldwork described in this work plan will be conducted in accordance with 18 AAC 75 *Oil and Other Hazardous Substances Pollution Control*, as amended through October 9, 2008. ADEC's *Underground Storage Tanks* as amended through October 27, 2006, and the *UST Procedures Manual* and amended through November 7, 2002, will be used as a guide for standard sampling procedures.

Mr. Lyle Gresehover, Principle Investigator for ARES, will monitor fieldwork activities. Mr. Gresehover is listed as a 'Qualified Person' by the Alaska Department of Environmental Conservation (ADEC) under 18 AAC 78.

### **Sampling and Analysis**

The monitoring wells MW-2 and MW-3 will be developed and purged three times the calculated well volume before sampling. Water parameters will be recorded to include temperature, pH, conductivity, turbidity, dissolved oxygen, and salinity using a Horba Water Meter Model U-10. Initial groundwater depth, casing depth, and final groundwater depth/recharge rate will be monitored during purging, and measured before and after sampling using a Heron Oil/Water Interface Probe.

Purge water collected during the sampling event will be placed in 5-gallon buckets and transferred to a single 55-gallon steel drum supplied by ARES. The drum will be labeled Sahn Investments MW Sampling and will be temporarily stored off-site until status of water quality can be determined. Upon receipt of sample results, purge water and investigative waste water determined to be above ADEC groundwater cleanup levels will be disposed at OIT Inc., for processing.

Samples for all monitoring wells will be collected utilizing a peristaltic pump with new disposal plastic tubing and Nitrile gloves. Water samples collected will be immediately placed into laboratory supplied VOC viles/sampling containers. Volatile samples will be collected first and without any headspace in the bottle. All bottles will be labeled and placed in a pre-chilled cooler (at approximately 4°C) and submitted to Test America in Anchorage under signed chain of custody. Monitoring wells will be capped and locked after use.

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Water samples will be analyzed as follows:

- Water samples will be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds by EPA Method 8260B.
- Water samples will be analyzed for diesel range organics (DRO) by AK Method 102.
- One water sample will also be collected as a blind duplicate for QA/QC purposes and analyzed for BTEX and DRO.

**Schedule of Activities**

The groundwater sampling event will commence upon ADEC Work Plan approval.

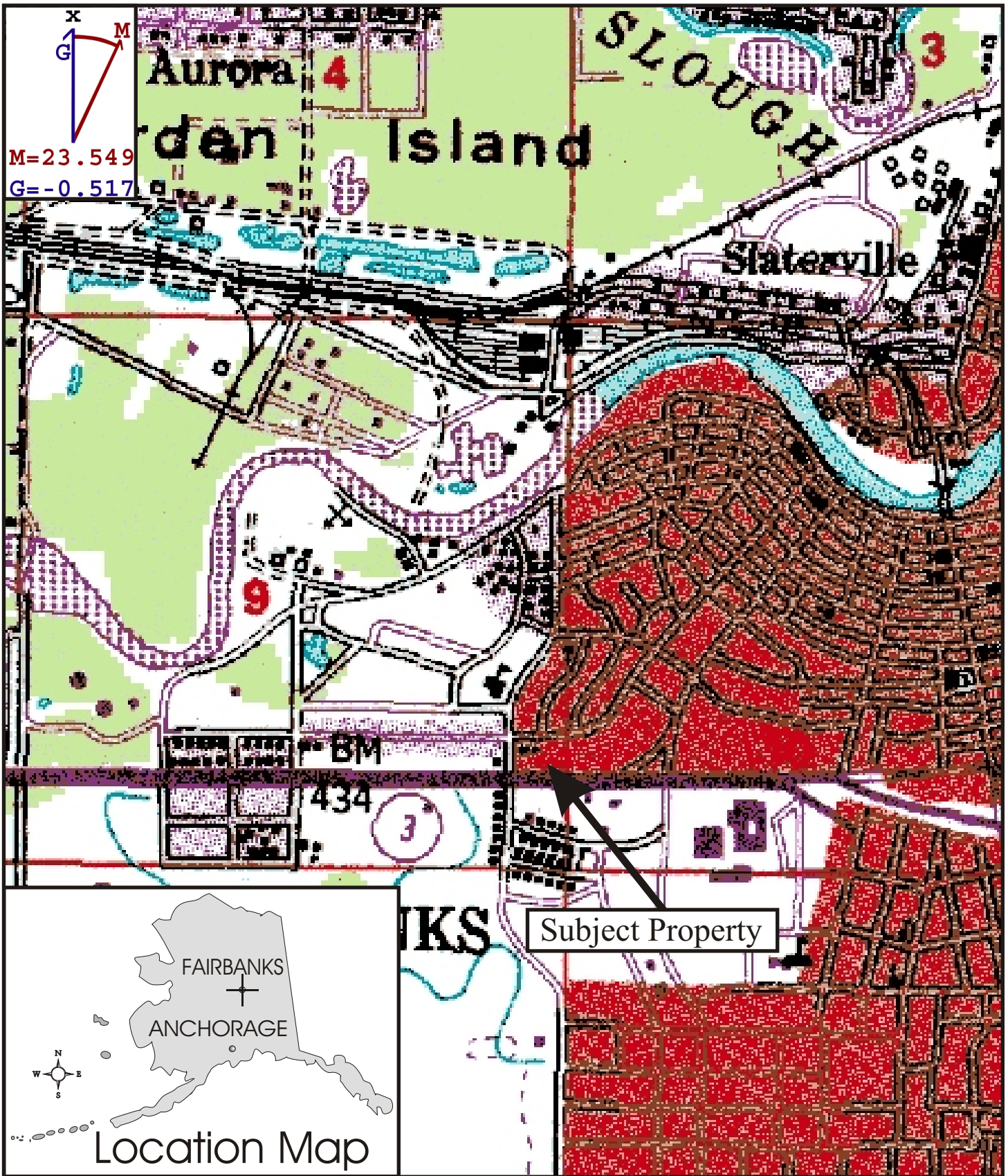
**Well Installation and Sample Results Report**

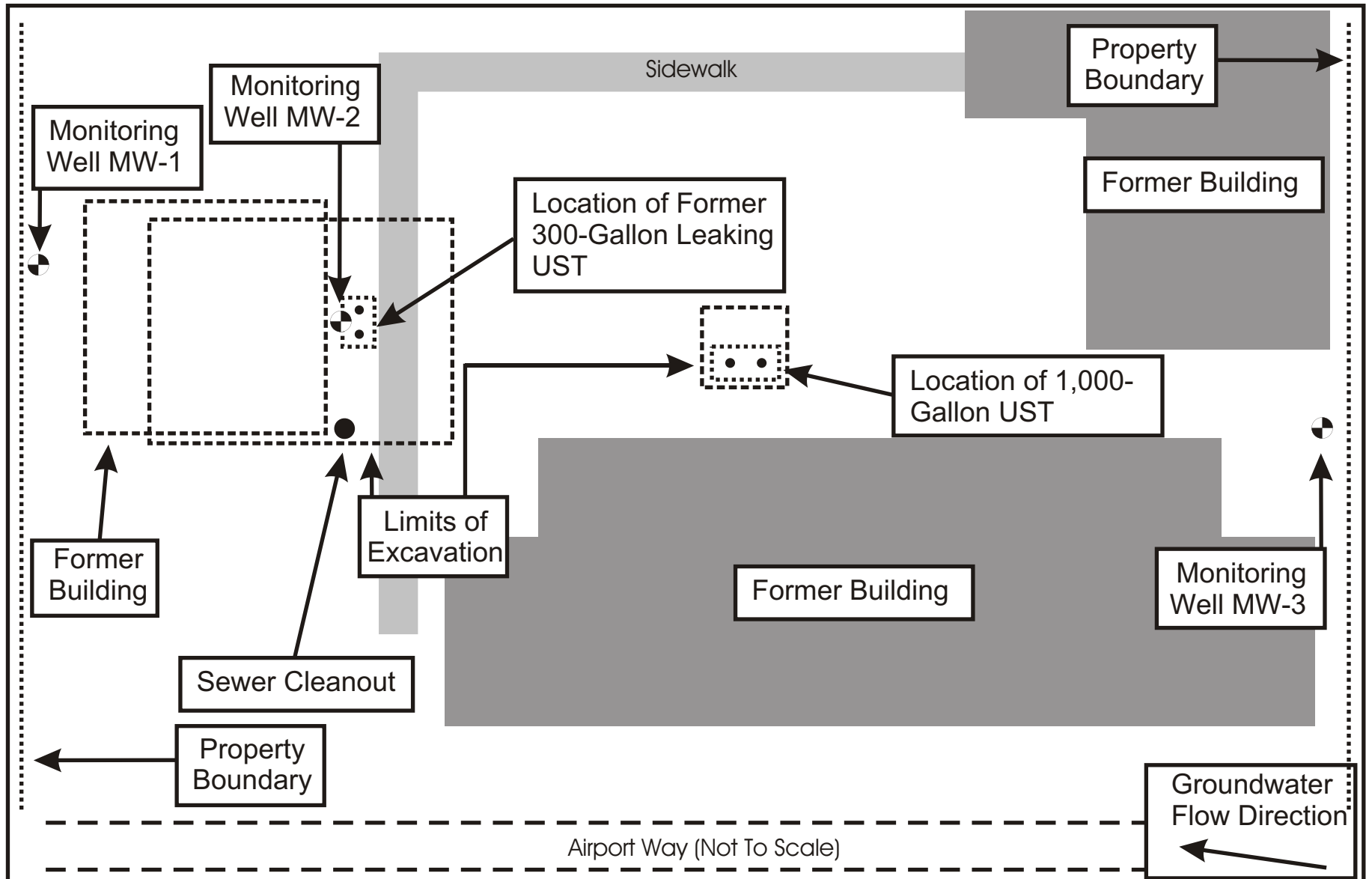
A final report with analytical sample results and description of field activities will be submitted to ADEC upon completion of project.

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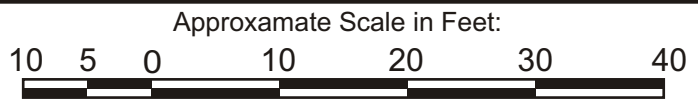
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**FIGURES**





**Site Map  
Fairbanks, Alaska**



**Monitoring Wells  
1406 Kellum Street  
Fairbanks, AK 99701**

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**FIGURE 2**

**ARES**  
Alaska Resources and  
Environmental Services, LLC  
284 Topside  
Fairbanks AK 99701