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Site Characterization Report

Block 14, E M Jones Subdivision
2615 Twentieth Avenue
Fairbanks, Alaska

April 18, 2008

Prepared For:

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APPENDICES

1.0 EXECUTIVE SUMMARY

NORTECH has completed environmental characterization at 2615 Twentieth Avenue in Fairbanks, Alaska. The property is listed as Block 14 of the EM Jones Subdivision and operated by Construction Machinery Industrial, LLC as a construction equipment maintenance facility. The primary building has office and warehouse space as well as a large shop. A detached tent shop and a cold storage structure are also located on the property. ADEC concerns at the Site were related to a known dissolved benzene plume in the area. Additionally, an EPA inspection of the Site identified the shop floor drains as potential sources of environmental contamination. This report documents the activities that have been conducted at the site to address these concerns and makes recommendations for future site activities and long-term monitoring at the facility.

A 10,000-gallon buried heating oil tank and a 1,000-gallon gasoline underground storage tank were removed from the Site in the mid-1990s. Approximately 50 yards of contaminated soil were excavated during these closure efforts and laboratory results at the limits of excavation met ADEC cleanup levels. The contaminated soil was treated and disposed of on-site in 1998. Groundwater samples in this area in 2006 and 2007 were non-detect for all analytes. These tanks have been properly assessed and the contaminated soil has been treated, indicating that the prior presence of these tanks is not contributing to the benzene contamination in the EM Jones Subdivision. No additional investigation of these tanks is recommended

The facility had an on-site septic tank and soil absorption system (ST/SAS) for wastewater disposal from construction in the 1970s until connection to the public wastewater system in 2000. The prior owner indicated that the shop floor drain was connected to the ST/SAS and soil sampling near the SAS indicated no contamination was present in 1995. A groundwater sample from this area in 2006 confirmed that contamination was not present. Subsequent dye testing indicated that the shop floor drain was not connected to the former ST/SAS. The former ST/SAS is no longer considered a potential Class V injection well or suspected source of contamination.

A trench drain is present in the detached tent shop. This drain discharges to a buried holding tank located on the east side of the shop. This tank should be inspected regularly, particularly to verify capacity prior to a large project in this shop. A regular pumping and maintenance schedule should be established for this tank and should be based on use and/or coordinated with the cleaning of the oil water separator in the main shop. No specific environmental concerns related to this system were noted and no additional investigation of this tank is recommended or necessary.

A trench drain is also present in the main shop area. This drain was determined to discharge directly to the subsurface beneath the concrete slab as a Class V injection well. This discharge was stopped through the installation of an oil water separator system in April 2007. The oil water separator discharges to the Golden Heart Utilities wastewater treatment system and has been approved by GHU as a pretreatment unit. The oil water separator installation was completed in accordance with manufacturer's specifications and inspected by the City of Fairbanks. A regular inspection and maintenance program should be established and documented for this system.

The former discharge beneath the shop floor resulted in contamination of soil and groundwater. An ADEC-approved excavation removed approximately 35 cubic yards of contaminated soil and sludge during installation of the oil water separator system. A portion of the former discharge structure was left in place to maintain the structural integrity of the shop floor. Approximately 30 cubic yards of contaminated soil are estimated to remain above the groundwater beneath the slab. Laboratory results indicate that DRO is the primary contaminant of concern. PCE, RRO, and isophorone also exceed the ADEC soil cleanup levels and are secondary contaminants of concern. Other VOCs and SVOCs meet the ADEC cleanup levels and RCRA metals are below Fairbanks background concentrations. Remaining contaminated soil is encapsulated by the concrete slab and exposure to this contamination is limited to future excavation. This material should be managed in place through institutional controls with additional assessment and/or remediation upon building demolition.

Groundwater sampling in this area indicated that DRO, RRO, and benzene are the contaminants of concern in the groundwater. Other VOCs, SVOCs, and metals meet ADEC regulatory limits and dissolved contamination does not extend to the edge of the building. This limited area of contamination has not contributed to the area-wide EM Jones Subdivision concerns. The contaminant concentrations should decrease now that the source has been eliminated. Exposure to this contaminated groundwater is limited to workers during a remedial action and a long-term groundwater monitoring plan is recommended. The proposed plan includes sampling of the well in the former source area for DRO, RRO, and VOCs. Annual sampling in November/December 2008 and 2009 is recommended with a reduction in sampling frequency (every two-to-five years) following three consecutive years of stable/decreasing results.

This report should be submitted to ADEC to document the closure of the Class V injection well and that the Site is not contributing to the benzene contamination in the EM Jones Subdivision. Additionally, this report requests development of institutional controls for the Site and approval of the long-term monitoring plan as outlined in the recommendations. This report should also be submitted to EPA to register and close the former floor drain structure as a Class V injection well. Additionally, a copy of this report should be maintained at the Site to document floor drain discharge locations in the event of future inspections or other concerns. Oil water separator and tent shop tank cleaning and maintenance records should also be maintained on site.

2.0 PROJECT LOCATION AND HISTORY

2.1 General Site Setting and Description

The CMI facility is located at 2615 W 20th Avenue, Fairbanks Alaska. The property is located within Section 17, Township 1 South, Range 1 West of the Fairbanks Meridian and is identified as Block 14 of the EM Jones Subdivision. The property is situated on the floodplain between the Chena and Tanana Rivers at an elevation of approximately 445 feet above mean sea level. The topography is flat with little elevation change across the site.

The facility is comprised of one primary building, a tent shop, cold storage, and an equipment yard (see Figure 3). The main building is located on the northwest corner of the property and is approximately 6,600 square feet. This building includes offices and warehouse in the western portion of the building and an equipment maintenance shop in the eastern part of the structure. The warehouse portion of the structure is an addition that was completed during 2006 and extended the western half of the building to the south. The tent shop is approximately 1,800 square feet and is located east of the main shop. The two cold storage buildings total approximately 3,200 square feet southeast of the shop and the remainder of the property is used for equipment storage.

The Fairbanks area is in the physiographic province termed the Tanana Lowlands, which is an actuate band between the Alaska Range to the south and the Tanana Upland to the north. The present day lowland consists of vegetated floodplain, and low benches of the Tanana and Chena Rivers. Runoff from spring melt water and summer storms causes periodic flooding over parts of the floodplain. The main river of this floodplain is the Tanana River, which is the tributary of the Yukon River.

Subsurface soils are composed of inter-bedded sand, gravel and silt deposits of alluvial origin. A large, shallow, unconfined groundwater aquifer exists beneath the site with groundwater occurring at a depth of approximately 10 to 15 feet below the ground surface. Seasonal fluctuations of the aquifer elevation are reported to be between 2-5 feet. The primary source of recharge to the groundwater is by precipitation as well as the Chena and Tanana Rivers.

2.2 Previous Investigations

2.2.1 The Site

Phase I & II site assessments were completed by ***NORTECH*** in 1995 at this property as part of a property transfer. At that time, the site was known as the CJM property and addressed as 1949 Ada Street. The assessments were conducted to address several issues of potential environmental concern, including a waste oil tank, the reported discharge of floor drains to the on-site septic system, removal of the buried heating oil tank, and assessment of a previously removed gasoline tank.

The aboveground used oil tank had an open secondary containment drain indicating discharges to the surface may have occurred. Total petroleum hydrocarbons (TPH) was detected in soil samples beneath the drain at 0.5 foot and 2.0 feet below the ground surface (bgs) during the site assessments. TPH were detected at a concentration of 7,740 mg/kg at 0.5-foot bgs, and at 410 mg/kg at 2.0 feet bgs. The estimated quantity of contamination in this area was considered de minimus.

The two floor drains in the shop were reported to be connected to the on-site wastewater disposal system, which consisted of a septic tank with a soil absorption system (ST/SAS). Soil samples collected near the ST/SAS did not exhibit VOC concentrations above the detection limit for 27 analytes, including PCE, TCE, and BTEX compounds. A groundwater sample was collected from a test pit to evaluate groundwater impacts from the septic absorption system; the results were below the detection limit for each VOC compound.

A 10,000-gallon buried heating oil tank was removed from the north side of the building. This tank was in the vicinity of a former registered gasoline UST that was removed by the owner in 1993. Approximately 50 to 65 cubic yards of contaminated soil were removed during the buried heating oil tank closure and stockpiled on the site according to ADEC regulations. Field observations indicated that this contamination was more likely related to the former gasoline tank than the heating oil tank. Vadose zone soil and groundwater closure samples had contaminant concentrations below the most stringent ADEC levels at the time of this site work and additional investigation was not considered necessary.

ADEC setup a leaking underground storage tank (LUST) file for this contaminated site in 1997. The reports from 1995 were used as the basis for the file. ADEC requested sampling of the stockpile in 1997 for disposal. The stockpile was sampled by Amundsen Environmental Services in 1998 and analytical results indicated that the stockpiled soil met the ADEC cleanup levels and could be spread on site. ADEC issued a notice of no further action in 2003 for the LUST file and the file was closed.

2.2.2 Nearby Contaminated Sites

Several sites in the surrounding area are known to be contaminated. The two largest plumes are from the ADOT&PF Peger Road Operations and Maintenance Facility (Peger O&M Facility) and Tesoro Northstore #114 in the northwest quadrant of the intersection of Davis and Peger Roads. A petroleum and chlorinated solvent plume has been observed migrating from the Peger O&M Facility and a dissolved benzene plume may be coming from the Tesoro facility.

ADEC is managing the ADOT&PF Peger O&M Facility assessment and cleanup for ADOT. In 2006, ADEC completed a review of all known contaminates sites in the area to evaluate other properties that may be contributing to the plume of contamination in the EM Jones Subdivision that was associated with the ADOT&PF facility. This evaluation concluded that data collected during the 1995 work at the Site was not sufficient to rule out the possibility that the CMI/CMJ site may be contributing to the groundwater contamination in the EM Jones Subdivision.

2.3 2006 EPA Inspection and ADEC Letter

In June 2006, an EPA inspection was conducted at the subject property. The inspector notified the operator that documentation of the discharge location of the floor drain in the main shop area was required. The EPA indicated that floor drains discharging directly to the subsurface constitute Class V injection wells that are regulated through the EPA Underground Injection Control (UIC) program. Class V injection wells must be registered and shop floor drain discharges though Class V injection wells are banned. No documentation of the actual discharge location of the floor drain was available other than the previous owner's verbal report that the drain discharged to the former ST/SAS.

In July 2006, ADEC sent a letter to CMI requesting additional information regarding the site. ADEC's primary concern was that the large plume of benzene in the area is impacting drinking water wells down-gradient of the Site. ADEC agreed with the suggestion that the 1995 samples were not adequate to characterize the groundwater at the site. Additionally, ADEC indicated that the floor drain discharge needed to be documented and closed in an appropriate manner if it was a banned Class V injection well. ADEC requested a meeting to discuss additional groundwater testing.

2.4 Project Objectives and Scope of Work

CMI contacted ***NORTECH*** to develop a scope of work to provide documentation of the floor drain discharge location and the additional groundwater testing required by ADEC. ***NORTECH***'s ADEC approved work plan included the following activities:

- Installation of two temporary groundwater monitoring points
- Purging and sampling of these sampling points including field duplicates and trip blanks
- Laboratory analysis of the groundwater samples to meet ADEC and EPA requirements

- Dye-trace testing of the floor drains
- Reporting the findings of this investigation

The results of this investigation indicated that the shop floor drain was not connected to the public wastewater treatment system. The following scope of work was added to identify the discharge location, install and connect an oil water separator to the municipal wastewater system, and complete a site assessment of the facility:

- Video inspection
- Oil water separator system design and installation coordination and oversight
- Assessment and closure of the discharge structure
- Groundwater assessment at the site

3.0 METHODOLOGY

The field activities undertaken during the initial dye testing were intended to provide data to address the specific issues raised in the July 2006 letter. These field activities were approved by ADEC prior to completing the field work. Subsequent activities were also approved by ADEC via email work plans and approvals. These activities were conducted in general accordance with ADEC guidance and this section briefly summarizes the major components of each field methodology.

3.1 Direct Push Techniques and Groundwater Sampling

The installation of temporary groundwater sampling points was conducted utilizing direct-push techniques. ***NORTECH*** subcontracted with GeoTek Alaska (GTA) from Anchorage, Alaska, to provide the direct-push equipment and operators for this project. The sampling technique advanced a screened stainless steel sampling rod (screen point) at each sample location using the Geoprobe rig. The screen points were set at a depth such that the screen intersected the top of the water table. Upon completion of the sampling activities, the screen points were retrieved from each boring and decontaminated while the boring was filled with bentonite. These sampling points require minimal development to reduce sediment prior to sampling (described below).

GTA also advanced a single permanent prepacked microwell within the footprint of the building. This ¾-inch diameter well was driven to a depth of 17 feet below grade and has 10 feet of screen (two five-foot sections). This microwell was installed by driving a hollow drive casing to the selected depth through the monument that had been installed in the concrete floor near the source area. The microwell sections were assembled and installed in the drive casing, which was then removed and decontaminated. This well required minimal development to reduce sediment prior to sampling.

During the oil water separator installation, a water sample was collected from a temporary sampling point driven by hand through the bottom of the excavation. A clean 1.5-inch diameter sand point with a 48-inch screen was driven until the screen intersected the water table. This sampling point was developed until the water was generally free of sediment prior to sampling.

Each groundwater sampling point/well was purged of at least five well volumes (as estimated from the depth of water measured in the sampling point) and sampled using a peristaltic pump and low-flow sampling techniques. Groundwater samples were collected into clean, laboratory-supplied jars, appropriately labeled, and placed immediately into a cooler with ice. The groundwater samples were submitted to the laboratory for some or all of the analyses described in Section 3.4 below.

3.2 Headspace Field Screening

Field screening for POL (petroleum, oil, and lubricant) contamination was performed during the excavation activities associated with removal/cleaning of the former floor drain discharge structure and the installation of the new oil water separator. ***NORTECH*** used the headspace method of field screening in general accordance with Section 4 of the ADEC UST *Procedures Manual and Standard Sampling Procedures* (the SSP). A Photovac 2020 Hand Held Air Monitor/Photoionization Detector (PID) was used for field screening. Headspace screening consists of partially (30%-50%) filling a clean resealable bag with freshly uncovered soils to be field screened. The resealable bag was closed and headspace vapors were allowed to develop for at least 10 minutes and not more than on hour. The bag was agitated at the beginning and end of the headspace development period. In accordance with the SSP, the highest PID reading from each sample was recorded.

3.3 Soil Sampling

Soil samples were collected to characterize the soil that remained in place beneath the building at the limits of excavation. Representative sample locations were identified through field screening and the number and type of laboratory samples was determined in the field. Soil sampling generally followed the procedures outlined in the ADEC SSP, including specific sample container and preservation requirements and QA/QC procedures.

Soil samples were collected using a combination of hand equipment, such as shovels, trowels, and spoons and disposable sampling equipment such as gloves. Sampling equipment that contacted environmental media was decontaminated both before initial use and between sampling locations to avoid cross contamination. Soil was placed into laboratory-provided, clean glass sample containers, appropriately labeled, and placed into an on-site cooler in the custody of ***NORTECH*** personnel. Sample containers were filled quickly in the order of volatilization sensitivity. Samples were delivered under chain-of-custody to SGS Environmental Services for chemical analysis.

3.4 Laboratory Analyses

Groundwater and soil samples were collected to characterize the environmental concerns at the Site. The following analytical methods were used on each of the samples collected during the field investigative efforts:

- Gasoline Range Organics (GRO) by Alaska Method AK 101
- Diesel Range Organics (DRO) by Alaska Method AK 102
- Residual Range Organics (RRO) by Alaska Method AK102
- Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by SW8021B

Selected soil and/or groundwater samples were also analyzed using the following methods:

- Volatile Organic Compounds (VOCs) by Method SW8260B
- Semi-volatile Organic Compounds (SVOCs) by Method 8270C SIMS
- RCRA 8 Metals (Ag, As, Ba, Cd, Cr, Hg, Pb, Se) by 6010/7421

As indicated above, specific sample container and preservation requirements and QA/QC procedures are described in the ADEC SSP, along with more details regarding sample management. Each chain of custody included field duplicates and trip blanks as described in Section 5.4, Quality Control Summary.

3.5 Soil and Groundwater Cleanup Levels

The ADEC Method Two soil cleanup levels are typically used as cleanup goals for sites managed through the ADEC contaminated sites program and are provided in 18 AAC 75. The Method Two soil cleanup levels have been developed to be protective of human health and the environment under the wide range of conditions found in Alaska. ADEC has proposed significant revisions to this regulation that are expected to take effect in the next few months. The Method Two soil cleanup levels for the Migration to Groundwater in the Under 40 Inch Zone (dated December 30, 2006) are current as of the date of this report and are shown in Table 2 and used to evaluate compliance. The proposed Method Two soil cleanup levels are also shown in Table 2.

This report uses the Method Two soil cleanup to evaluate the results for this site. ADEC regulations also provide for site-specific alternative cleanup levels to be used on sites based on site-specific soil characteristics and a number of other parameters. ADEC Method Three and ADEC Method Four provide approaches for developing site-specific, risk-based alternative cleanup levels for a site. The use of Method Two for evaluation purposes in this report does not preclude the future development of alternative cleanup levels for this site using either of the ADEC risk assessment approaches.

ADEC groundwater cleanup levels are based on drinking water standards with the understanding that most groundwater in Alaska is or could be used for drinking water. These cleanup levels are also outlined in 18 AAC 75 and are not expected to change in the revised regulations. These cleanup levels are shown in Tables 1, 3, and 4. Alternative groundwater cleanup levels could be proposed and approved by ADEC by completing a risk assessment of the site, but this is not considered necessary for this Site at this time.

The Fairbanks area is known to have naturally occurring metals which regularly leads to soil and groundwater metals concentrations in excess of the ADEC cleanup levels. The Army Corps of Engineers Alaska District published *Background Data Analysis for Arsenic, Barium, Cadmium, Chromium, & Lead on Fort Wainwright, Alaska* in 1994 to address theses elevated background concentrations of these metals regularly observed in the Fairbanks area. While this data is specific to Fort Wainwright, ADEC routinely allows application of the background concentration levels calculated in this document to be applied throughout Fairbanks. These values are also included for comparison in Tables 1 though 4.

4.0 FIELD ACTIVITIES

4.1 Initial Assessment (September/October 2006)

NORTECH personnel inspected the site, identified appropriate sample locations, and completed utility locates in early September 2006. A brief work plan to meet the objectives of the ADEC letter was approved by ADEC. Ron Pratt of ***NORTECH*** and the GTA crew mobilized to the site on September 11, 2006 to install and sample two temporary groundwater monitoring points (see Figure 3). One point was located in the vicinity of the former gasoline UST on the north side of the facility. The second sampling point was located within close proximity to and down-gradient of the former soil absorption system (SAS).

A total of three groundwater samples, one from each location and one field duplicate, were collected. Sample CMI-1 was collected from the UST area and analyzed for volatile organic compounds (VOCs). Samples CMI-3 and CMI-4 (the field duplicate) were collected near the SAS and analyzed for VOCs, semi- volatile organic compounds (SVOCs), and for arsenic (As), cadmium (Cd), chromium (Cr), and lead (Pb).

On September 19, 2006, ***NORTECH*** personnel conducted dye-trace testing at the facility. The dye test procedure include the introduction of approved fluorescent and/or phosphorescent dyes into facility fixtures (toilets, floor drains, etc), flushing the fixtures with water, and then inspecting the cleanout and/or the nearest Golden Heart Utilities (GHU) manhole for the presence of the dye. A UV light was used in some locations to observe phosphorescence in the dye. GHU was contacted to locate the appropriate manhole and notified of the introduction of the dye into the wastewater system. An initial test was conducted by introducing dye into one of the toilets at the facility. This was done to verify that the facility was connected to the GHU system and that dye could be observed in the cleanout trap and the nearest manhole. The floor drain and cleanout locations and identifiers are shown in Figure 4 along with the GHU manhole.

Dye testing began in the tent shop floor drain (FD-2, see Figure 4). A five-gallon bucket of dye solution was introduced into the floor drain and a hose was placed into the drain to flush the dye though the system. The dye was not detected in either the primary building clean-out or the GHU manhole. An apparent cleanout pipe was identified adjacent to the northeast of the garage door entrance to this shop fluid levels inside this pipe were rising during the introduction of liquid to the floor drain. This pipe was determined to be connected to a buried tank and the bottom of the tank was approximately eight feet below grade. The top of the tank was measured to be approximately four feet below grade, but the length and total volume of this tank were not determined. The tank appeared to be filled with an oily material floating on an undetermined volume of water. A small diameter tube was inserted to the bottom of the tank and a sample of the water was extracted using a peristaltic pump. Visual and fluorescent observations of the water confirmed the presence of the dye introduced into the floor drain inside the shop.

Dye testing in the main building indicated that the final cleanout before the service connection to the GHU system was CO-1, located outside the building near the door on the east side of the warehouse. Floor drains and cleanouts in the warehouse (FD-7, FD-6, CO-4, CO-5, and CO-3) were determined to drain through CO-1. The bathrooms on the northern side of the building between the offices and the shop were determined to also discharge through CO-1. FD-5, located in the utility room, was completely sealed with sediment, rust, and assorted debris and CMI personnel indicated this drain had not been used in many years. The shop sink located in this room was determined to discharge through CO-1, so FD-5 was assumed to as well.

FD-4, located in a storage area between the shop and the offices, was plugged with a rag. CMI personnel indicated that this floor drain smelled like the shop when the rag was removed, which was confirmed by ***NORTECH*** personnel. Dye testing indicated that this floor drain did not discharge through CO-1 and was not otherwise connected to the GHU manhole.

Dye testing was also completed for the primary shop floor drain, FD-3. A five gallon bucket of dye solution was introduced into the floor drain and a hose was placed into the drain to flush the dye though the system. The dye was not detected in either the primary building clean-out or the GHU manhole. Over 100 gallons of water were estimated to have been introduced to the floor drain before the investigation was considered inconclusive and stopped. A snake was used to try to evaluate the floor drain discharge piping, but was also inconclusive. Introduction of this quantity water lead to an increased odor in FD-4, suggesting that these two drains could be linked.

On October 3rd, Mr. Pratt was onsite to oversee a video survey of the trench floor drain inside the primary shop building. The video survey was conducted by Fairbanks Pumping and Thawing and involved inserting a submersible video camera into the floor drain and watching the camera on a portable television. The camera also has a graduated cable to determine the distance from the insertion point. The video survey indicated that this floor drain discharged to a sump structure less than four feet from the floor drain. The sump structure appeared to be a large diameter corrugated culvert installed vertically beneath the concrete slab floor of building. No access or cleanout to reach the culvert were identified in the slab. The water in the culvert appeared to be several feet deep and an oily emulsion was observed on the surface. This sump structure had slots for drainage and appeared to be a Class V injection well.

The video inspection identified a second small pipe entering the top of sump structure from the west. Approximately two gallons of water were introduced into FD-4 and was observed discharging through the second pipe confirming that FD-4 also drained to this sump structure.

FD-5 was also cleaned out and tested on October 3rd. FD-5 was found to discharge through CO-1 to the GHU manhole. No additional testing of FD-5 was needed.

4.2 Oil Water Separator Installation (April 2007)

The sump structure beneath the shop slab was determined to be a Class V injection well and needed to be closed and assessed. Since the shop is an active maintenance facility and the floor drain was required for washing equipment during the winter, an oil water separator was needed to meet GHU pretreatment requirements. ***NORTECH*** and

CMI coordinated the oil water separator system design and planned the installation and environmental assessment during the winter of 2006/2007.

In April 2007, the existing floor drain system and injection well were cleaned and removed during the installation of the new oil-water-separator system. Upon removal of the concrete, the injection well was determined to be a four-foot diameter culvert oriented vertically beneath the floor slab adjacent to the trench drain as shown in Figure 5. The culvert contained approximately two feet of water on top of six feet of settled sludge. The culvert was perforated to allow drainage of liquids. The culvert was surrounded by approximately six inches of crushed rock around the outside to facilitate water drainage from the structure.

Excavation and cleaning of the sump structure was completed by CMI, ***NORTECH***, and Fairbanks Pumping and Thawing (FPT). As approved in the work plan, excavation was limited to grossly contaminated soil (saturated with sludge) and the extents needed to install the new oil-water-separator system. Sludge and water were pumped into a sealed roll-off box supplied by (FPT). A small quantity of clean soil from beneath the slab was stockpiled in the shop for later reuse as backfill. Material more than three feet below the concrete slab was considered contaminated based on field screening results and was placed in a second sealed roll-off box for later disposal. The culvert was cut down the side and approximately half of the culvert was removed to facilitate removal of the sludge. The remainder of the culvert was left in place to reduce the potential structural impacts to the existing concrete slab and trench drain.

Field screening at two foot intervals from the surface to the bottom of the excavation was completed to evaluate the contamination remaining in place beneath the slab. Approximately 21 field screening samples were collected from the limits (see Figure 5) and were generally <20 ppm near the surface and opposite the trench drain. Elevated field screening results were observed at depths exceeding six feet below the slab and were highest adjacent to the culvert. Based on these field screening results, a total of seven soil samples collected for laboratory analysis as shown in Figure 5.

A temporary direct push sampling point was advanced in the bottom of the excavation. This location was within a few feet of the culvert and represented the groundwater conditions in the source area. The location of the sampling point is shown in Figure 5. The groundwater had a petroleum odor and slight sheen. A laboratory sample and field duplicate were collected from this sampling point.

Laboratory sampling of the contaminated soil and sludge met the disposal criteria for thermal treatment at OIT Moose Creek, Alaska. Approximately 31 tons were delivered to OIT for thermal remediation.

After removal of the sludge and completion of the sampling activities, the excavation was backfilled and compacted for the installation of the oil water-separator system. The oil water separator system includes a sediment trap and a commercial oil water separator. The system connects to the existing building plumbing adjacent to FD-5 in the utility room. The oil-water-separator system was installed in accordance with the manufacturer's instructions, standard plumbing practice, and the City of Fairbanks codes. Several code inspections were completed and the system was tested and approved by GHU for discharge to the GHU wastewater system. The system was backfilled and the concrete slab was repaired. A monument was installed in the slab for the installation of a pre-packed microwell in the source area.

4.3 Groundwater Assessment (November 2007)

Based on the results and observations during the oil water separator installation, ADEC requested groundwater sampling around the exterior perimeter of the building. The ADEC-approved work plan included five temporary sampling points on the north and west sides of the building and one microwell in the former source area (as shown in Figure 6). ***NORTECH*** and GTA completed the groundwater sampling program on November 20, 2007. The sample from CMI-21 had an odor and appearance similar to the groundwater sample collected during the oil water separator installation and the field duplicate was collected from this location. No odor or sheen was observed on the samples collected outside the building.

During this sampling event, the CMI indicated that the former drinking water well in the utility room would be decommissioned. CMI planned to hire a professional water well drilling company to decommission the well in accordance with ADEC guidance, although a specific schedule for decommissioning had not been set.

5.0 RESULTS

5.1 Initial Groundwater Evaluation

As indicated above, a total of three groundwater samples (two primary samples and one field duplicate) were collected during the initial characterization effort. CMI-1 was collected from the former tank location and CMI-3 and CMI-4 were collected from the former soil absorption system (SAS) location. The laboratory results are summarized in Table 1 and the laboratory report is attached in Appendix 4. Field duplicate quality control information is summarized in Table 5 and discussed in Section 5.4 below.

No VOCs, SVOCs, or metals analytes were detected above the laboratory detection limits in CMI-1. Two compounds, dichlorodifluoromethane and trichlorofluoromethane, were detected in CMI-3 and CMI-4 at concentrations slightly above the detection limit. No other VOCs, SVOCs, or metals analytes were detected in CMI-3 and CMI-4.

5.2 Oil Water Separator Installation Results

A total of seven soil samples and two groundwater samples, including a groundwater field duplicate, were collected during the installation of the oil water separator. Soil results are summarized in Table 2 and groundwater results are summarized in Table 3. Field duplicate quality control information is summarized in Table 5 and discussed in Section 5.4 below. The soil and groundwater results were analyzed under separate chains of custody and copies of the laboratory reports are included in Appendix 4.

The locations of the soil samples collected during the excavation of the injection well are shown in Figure 5. Sample SS-1 was collected from the sand bedding that was left in place within the bottom of the culvert. DRO, RRO, and tetrachloroethene (PCE) concentrations in this sample were 9,230, 17,300, and 0.177 mg/kg respectively, each approximately one order of magnitude above the respective cleanup levels. Benzene was detected in this sample at 0.0235 mg/kg, above the current cleanup level and below the proposed cleanup level. A variety of other petroleum related compounds, primarily benzene derivatives, were also detected in this sample at concentrations below the respective cleanup levels. The methylene chloride detection limit was above the cleanup level and methylene chloride is discussed in the quality control summary (Section 5.4) below.

Sample SO-14d was collected from the location with the highest field screening results. This sample had the highest DRO concentration (11,900 mg/kg) and the PCE concentration (0.102 mg/kg) also exceeded the ADEC cleanup level. A variety of other VOCs, primarily benzene derivatives, were also detected in this sample at concentrations below the cleanup levels and those observed in Sample SS-1. The estimated methylene chloride concentration exceeded the ADEC cleanup level and this is discussed in the quality control summary (Section 5.4) below. The RRO concentration was 9,020 mg/kg, which was below the ADEC cleanup level. As the highest field screening location, this sample was also submitted for SVOC and RCRA 8 metals analysis. Isophorone was detected at 8.53 mg/kg, above the cleanup level of 3 mg/kg. Bis(2-ethylhexyl)phthalate was detected at 7.64 mg/kg, below the cleanup level of 1,200 mg/kg. Traces of four other SVOCs were detected. Each of the eight RCRA metals was detected in the sample. Only arsenic (5.24 mg/kg) exceeded the ADEC cleanup level (2 mg/kg), but this concentration was below the established Fairbanks background concentration of 14 mg/kg.

The remaining five samples were collected from the sidewalls and bottom of the excavation outside of obvious areas of contamination. DRO was detected in each of the five samples, ranging from 6.89 mg/kg (SO-12d) opposite the culvert to 1,640 mg/kg (SO-10c) relatively near the culvert. The highest PCE concentration (0.0312 mg/kg) was observed in SO-12d, opposite the culvert. This concentration is slightly above the cleanup level of 0.03 mg/kg. Trace levels of PCE and other VOCs were detected in one or more of the other samples. Methylene chloride is discussed in the quality control summary (Section 5.4) below.

The groundwater sample and field duplicate were collected from a sand point well hand-driven into the groundwater through the bottom of the excavation as shown in Figure 5. The DRO and RRO concentrations were 31.1 mg/L and 4.14 mg/l, respectively, above the cleanup levels of 1.5 mg/l and 1.1 mg/l. Benzene was also detected at 0.0342 mg/l, above the cleanup level of 0.005 mg/l. Thirteen other VOCs and two SVOCs were also detected below the cleanup levels. Three of eight RCRA metals were detected at concentrations below the cleanup levels.

5.3 Groundwater Delineation Results

A total of seven groundwater samples, including one field duplicate, were collected to delineate the potential groundwater contamination beneath and around the building. The sample locations are shown in Figure 6 and the results are summarized in Table 4. The quality control summary for the duplicate pair is located in Table 5.

Samples CMI-21 and CMI-21(a) were the field duplicate collected from a permanent microwell installed in the former source area. DRO and RRO concentrations were 6.27 mg/l and 1.88 mg/l respectively, above the ADEC cleanup levels. The benzene concentration was 0.00330 mg/l, below the ADEC cleanup level. Ten other VOCs were detected at concentrations below the ADEC cleanup levels.

No contaminants of concern were detected in the five samples collected from the exterior perimeter of the building.

5.4 Quality Control Summary

Three primary tasks were completed during this project: initial characterization, oil water separator installation, and groundwater characterization. One field duplicate pair was collected during each major task and the duplicate pair and quality control summary is shown in Table 5. Field duplicate precision is acceptable for each duplicate pair.

Table 2 indicates that methylene chloride was detected at a concentration between the method detection limit (MDL) and the practical quantitiation limit (PQL) in most soil samples from the oil water separator installation. These estimated concentration exceeded the ADEC cleanup levels for methylene chloride. However, methylene chloride is used as a solvent in analytical laboratories and is often inadvertently introduced into samples during the analytical process. The laboratory indicated that they were not aware of a known methylene chloride problem during the handling or analysis of these samples. However, the methylene chloride concentrations are similar in each sample and show no correlation with the known contaminants of concern at the site. Therefore, methylene chloride is not considered a contaminant of concern at the site and the concentrations are not highlighted in Table 2.

A laboratory quality review checklist has been completed for each of the four laboratory reports that were used to characterize the environmental conditions at the site. These checklists are included in Appendix 4 with copies of laboratory reports. A variety of quality control issues, primarily related to internal laboratory duplicates, were noted during this review. The compounds with affected results were not detected in the laboratory samples and the detection limits were well below the ADEC cleanup levels. Other quality control issues were typically related to surrogate recovery issues due to elevated concentrations of contaminants in the samples. One SVOC was measured outside of hold time, but was not detected in the sample and is not a contaminant of concern at the site. More detailed discussions of the specific issues and impacts are included in the checklists. All data was considered usable for the purposes described in this report.

5.5 Conceptual Site Model

The conceptual site model (CSM) is a method used to systematically evaluate the potential receptors that may exist at a site now or at any time in the future. ADEC now requires that all site characterization work plans and/or characterization reports contain at least a preliminary CSM. The goal of the CSM is to outline all scenarios that theoretically could lead to an adverse impact on human and/or environmental receptors that are present on and off the site.

A draft conceptual site model (CSM) scoping form has been completed for this site. The CSM scoping form and graphic are included in Appendix 5. This scoping form indicates that the incidental soil ingestion, dermal contact with soil, ingestion of groundwater, and inhalation of both indoor and outdoor air are the exposure pathways that are known to be complete at this time. Potential receptors include workers (including future construction workers) and visitors to the contaminated area.

NORTECH also reviewed the Ecoscoping Guidance issued by ADEC in December 2007. No direct impacts or acute toxicity impacts were observed at this site as described in Scoping Factor 1. The receptor-pathway interactions (Scoping Factor 2) described in the guidance are not complete because the site landscaping is not expected to reach the contaminants and the contaminants are not migrating to a point that they could be contacted. Additionally, the presence of the petroleum indicator compounds listed in Tables 3 and 4 are contained beneath the shop floor slab and have not migrated to the edge of the building or to the surface. Based on these factors, an ecological conceptual site model is considered unnecessary for the site.

6.0 ANALYSIS

NORTECH has completed characterization of soil and groundwater at 2615 Twentieth Avenue in Fairbanks, Alaska. The facility is currently operated by Construction Machinery Industrial, LLC and is used as a construction equipment maintenance facility. The property has office space, warehouse space, and a large shop in the primary building. A detached tent shop and cold storage building are also located on the property. ADEC concerns related to a known contaminant plume in the area and an EPA inspection of the Site identified potential sources of environmental contamination that ADEC requested be addressed. This report documents the activities that have been conducted at the site to address these concerns and makes recommendations for future site activities and long-term monitoring at the facility.

6.1 Former Underground Gasoline and Heating Oil Storage Tanks

A 10,000-gallon buried heating-oil tank and associated piping were removed and closed in 1995. Vadose zone soil and groundwater closure samples were collected at this time, and analytical results indicated contaminant concentrations were below the most stringent ADEC levels at the time of this site work. Approximately 50 to 65 cubic yards of contaminated soil were removed during the tank closure and stockpiled on the site according to ADEC regulations. A *Closure Site Assessment of Stockpiled UST Contaminated Soils* report was submitted to ADEC in December 1997, which concluded that cleanup levels for GRO, DRO, RRO, benzene, and total BTEX constituents had been met. Stockpile sampling in 1998 indicated that this material met the cleanup criteria and the material was reused on site.

The buried heating oil tank was located in close proximity to a 1,000-gallon gasoline UST that had been removed by the property owner in 1993. The contaminated soil removal effort included the area that may have been impacted by either tank. No evidence of contamination was observed at the limits of excavation and laboratory results were below the reporting limit for GRO, DRO, and BTEX constituents.

A review of the file by ADEC during evaluation of a large benzene plume in the EM Jones Subdivision indicated that the soil results may not be adequate to determine that the groundwater had not been impacted by the former gasoline tank. ADEC requested a groundwater sample to evaluate this tank. On September 11, 2006 ***NORTECH*** collected a groundwater sample to assess the potential for benzene in the water table near these tanks at a location approved by ADEC. No contaminants of concern were detected in this sample. Based on these results, no additional investigation is considered necessary to address this potential environmental concern.

6.2 Former Onsite Septic Tank and Soil Absorption System

During the 1995 Phase I & II ESA investigation, the prior owner of the site stated that the shop floor drains were all plumbed to the onsite septic tank and soil absorption system (ST/SAS). The 1995 report recommended documenting the discharge location of the floor drains and connecting the building to the public wastewater system, when available. A soil sample collected in 1995 from a test pit in the vicinity of the SAS indicated no contaminants of concern were present. The facility was connected to the public wastewater collection and treatment system during renovations in 2000.

The ADEC file review in 2006 suggested that the data gathered in 1995 may not have been adequate to fully assess the contamination that could be associated with this former SAS. Additionally, the EPA completed an inspection of the facility in 2006 to determine the potential presence of a Class V injection well. EPA requested documentation of the discharge location of the floor drain to confirm that the floor drain was not a Class V injection well.

NORTECH completed sampling in the location of the former SAS on September 11, 2006. Two VOC compounds, dichlorodifluoromethane and trichlorofluoromethane were detected in this location. These compounds are both refrigerants and/or aerosol propellants. The concentrations of these compounds were three to four orders of magnitude below the respective ADEC cleanup levels. These are not considered contaminants of concern at the site.

Dye testing was completed to confirm that the floor drains had been connected to the public wastewater system. The dye testing indicated that the bathrooms and floor drains in the new warehouse connected to the wastewater system. One floor drain in the utility room was also connected to the utility system. The discharge location of the shop floor drain and the floor drain in the storage room adjacent to the shop were determined to not be connected to the wastewater system and is discussed in the Section 6.4, below. By extension, these two floor drains were not connected to the original ST/SAS, indicating that the clean groundwater results found in the vicinity of the

SAS would be expected because discharge through this system did not include shop wastewater. No additional investigation of the former ST/SAS is considered necessary or recommended.

6.3 Tent Shop Floor Drain and Storage Tank

A detached tent shop has been installed near the northeast corner of the main shop. This shop has a concrete floor with a trench floor drain, similar to the main shop. This drain was found discharge to a buried tank installed on the east side of the shop. The tank appears to have a diameter of approximately four feet and the total capacity was not determined. No records of pumping or maintenance were available.

This shop was reported to be used less frequently than the main shop and appeared to have relatively long-term projects, such as major generator or engine maintenance. As expected with a shop discharge, a thin layer of oily material was found floating on top of the water in the tank. This system appears adequate to control the discharge from the floor drain and no environmental concerns were noted. This tank should be put on a regular pumping and maintenance schedule, probably either every six or twelve months, depending on the shop usage. Tank pumping and liquid disposal could be completed by an outside contractor or by CMI personnel with liquid disposal through the oil water separator system in the main shop. The schedule and records should be coordinated with the oil water separator maintenance and records discussed below.

6.4 Main Shop Floor Drain Removal and Closure

The main shop area has a large trench drain that is used primarily to dispose of melt water from equipment that is brought in covered with snow. During the 1995 Phase I, the previous owner (and builder of the building) reported that this floor drain was connected to the on-site wastewater disposal system (ST/SAS), but this was not confirmed during the investigation. The Phase I recommended closing the floor drain or connecting it to the public wastewater system or an on-property holding tank.

CMI believed that the connection of the facility to the public wastewater system in 2000 adequately addressed the discharge of the floor drain. EPA requested documentation of the discharge of the shop floor drain during an inspection in 2006. EPA has been completing unannounced inspections of industrial shops throughout Region 10 for several years due potential shop discharges of a number of petroleum lubricants, solvents, and fuels. Floor drains that discharge directly to the subsurface or to the subsurface through a ST/SAS are considered Class V Injection Wells and are required to be inventoried using EPA's Class V Injection Well Inventory form. Shop floor drains are prohibited from discharging to Class V injections wells.

As a result of the EPA inspection, ***NORTECH*** was contracted by CMI to determine the discharge location this floor drain and provide documentation to EPA. The discharge of the floor drain was determined through dye testing and video inspection and found to be a Class V injection well beneath the slab of the shop. EPA and ADEC indicated that this discharge needed to be stopped and any associated contamination required characterization and remediation, as necessary. ***NORTECH*** and CMI designed an oil water separator system to meet the pre-treatment requirements of the public wastewater system (Golden Heart Utilities).

The oil water separator system was installed in April 2007 and inspected and approved by GHU and the City of Fairbanks. Relevant paperwork and laboratory results related to these approvals are available at the CMI facility. The system should be cleaned and inspected semi-annually or annually, depending on use, and records of these activities should be kept at the facility. Additionally, the EPA Class V injection well registration and closure forms are attached to this report in Appendix 6.

The ADEC-approved work plan for characterization and remediation indicated that excavation beneath the floor slab would be limited to sludge within the injection well and adjacent soil as needed to install the oil water separator system due to structural concerns based on the location of the contamination beneath the building. A portion of the discharge structure was left in place to support the concrete slab due to the proximity to the trench drain. Characterization of the soil remaining beneath the shop floor was required, as was characterization of the groundwater near the source area and along the down-gradient perimeter of the building.

6.4.1 Soil Characterization

Soil sample results indicate that DRO is the primary contaminant of concern remaining beneath the floor slab. DRO concentrations exceed the cleanup level by two to three orders of magnitude within five feet of the remaining discharge structure. The DRO concentrations increase with depth below the shop floor and fall with distance from the discharge structure. Generally the DRO concentration was observed to be below the cleanup levels within five feet of the former discharge structure, although some slightly elevated results were observed up to 10 feet away. DRO is the primary compliance compound for the eventual cleanup and final closure of the floor drain.

PCE and RRO are considered secondary contaminants of concern in the soil remaining beneath the shop floor. RRO was detected in each sample collected, but only exceeded the cleanup level in the sample collected at the bottom of the former discharge structure. This is expected due to the lower mobility of RRO compared to DRO. PCE was also detected in most of the soil samples that were collected. The concentration exceeded the cleanup level in three of the samples, but was less than an order of magnitude above the cleanup level in each of these samples. Similar to DRO, the highest concentration was also detected in the sample beneath the former discharge structure. PCE and RRO testing will be required for final closure.

Benzene exceeded the current ADEC cleanup level in the soil sample from beneath the former discharge structure. This concentration is below the proposed ADEC cleanup level that is expected to go into effect soon. Benzene was not detected in any of the other soil samples and is not considered a contaminant of concern in the soil. Benzene testing should not be necessary at final closure as the benzene results meet the proposed cleanup levels in the soil.

Isophorone, an SVOC, exceeded the ADEC cleanup level in the sample with the highest DRO result. This was the only sample which had SVOC analysis. The isophorone concentration was approximately three times its cleanup level while the DRO concentration was approximately fifty times its cleanup level in this location. This compound is considered a secondary contaminant of concern in the soil and additional SVOC testing for isophorone will be required for final closure of the site soils.

Arsenic exceeded the ADEC cleanup level in the location with the highest DRO and the isophorone detection, which was the only sample analyzed for metals. However, the arsenic concentration at this location was below the established Fairbanks concentration. Since the measured concentration is well below the local background level, arsenic is not considered a contaminant of concern at this site and no additional metals testing should be necessary for closure of the soil.

Based on these observations and results, a total of 40 to 60 cubic yards of vadose zone soil are estimated to been contaminated by the floor drain discharge. All of the most contaminated material from within the former floor drain structure was removed and slightly less than half of the total volume was removed. Approximately 20 to 30 cubic yards of contaminated soil are estimated to remain beneath the slab and above the groundwater smear zone, with most of this material located more than five feet below the slab elevation.

The presence of this contamination remaining beneath the slab indicates that clean closure was not achieved and ADEC will require long term management of the material. The building effectively encapsulates this remaining contaminated material, protecting it from precipitation. The removal of the floor drain and associated water discharge indicates that the contaminants remaining beneath the building are unlikely to migrate to the groundwater. Additional characterization and/or remediation are not necessary or recommended until the building is demolished. Once the building has been removed and complete closure of this former floor drain structure is undertaken, analytical testing of soils for DRO, VOCs (PCE), and SVOCs (isophorone) is recommended.

ADEC is expected to require institutional controls for managing this contamination until final closure is achieved. These institutional controls are expected to include notification of ADEC in the event of building demolition and/or excavation of soil in the vicinity of the floor drain structure. Additionally, the institutional controls are expected to include limitations on dewatering and groundwater usage. These controls are normally recorded with the property deed to provide adequate notification to potential purchasers of the property. The recommendations in this report are considered the outline of a corrective action plan for cleanup and a final corrective action plan should be developed during the planning process for building demolition.

6.4.2 Groundwater Characterization

A temporary sampling point was advanced through the bottom of the excavation for the new oil water separator in April 2007. This location was approximately five feet from the former discharge structure. A sample and field duplicate were collected and laboratory analysis included all potential contaminants of concern, including petroleum fractions, SVOCs, VOCs, and RCRA metals. This sample was considered representative of the groundwater contamination in the source area of the former discharge structure.

DRO exceeded the ADEC groundwater cleanup level by one to two orders of magnitude and is considered the primary contaminant of concern in the groundwater. Benzene exceeded the cleanup level by less than an order of magnitude and is also considered a primary contaminant of concern due to the higher mobility of this compound. RRO exceeded the cleanup level by less than an order of magnitude and is considered a secondary contaminant of concern. Two SVOCs and 13 other VOCs (PCE) were detected in the samples, but were below the ADEC cleanup levels and these compounds are not considered contaminants of concern in the groundwater. Three of the eight RCRA metals were detected at concentrations well below the ADEC cleanup levels and Fairbanks background concentrations.

Based on these results, a direct-push microwell was installed approximately eight feet from the former discharge structure, as close as possible with the configuration of the oil water separator. This well represents the groundwater in the former source area. This well was sampled in November 2007 for petroleum fractions and VOCs. DRO exceeded the cleanup level by about five times, while RRO only slightly exceeded the cleanup level. Benzene was detected at a concentration below the ADEC cleanup level. Ten other VOCs, including PCE, were also detected at concentrations below the ADEC cleanup levels. This sampling event confirmed that DRO is the primary contaminant of concern at the site.

Five direct-push temporary sampling points were installed along the north and west (down-gradient) sides of the building during the November 2007 sampling event. These wells were also tested for petroleum fractions and VOCs. No contaminants of concern were detected in any of these wells. This indicates that contaminant migration from the source area with the groundwater flow is minimal. No off-site properties or receptors are impacted by this groundwater contamination and potential contact with the groundwater contaminants is limited by the presence of the shop building. The potential for further contamination of the groundwater from the site has been significantly reduced through the removal of the source and secondary source soils adjacent to the former discharge structure.

Based on these results, long-term monitoring of the monitoring well in source area is recommended to verify that the groundwater contamination is stable and/or naturally degrading over time. Sampling events for this well should be planned for the November or December timeframe to provide relatively comparable data over time. Laboratory analysis should include DRO, RRO, and VOCs. The first sampling event was in November 2007 and annual sampling events are recommended for 2008 and 2009. Following three annual sampling events showing the concentrations are stable or decreasing, a reduction in sampling frequency to every two to five years is recommended. In the event that an unexpected result is obtained, a second sampling event to confirm the results is recommended prior to undertaking additional characterization and/or delineation efforts.

ADEC approval of the recommendations in this report may be adequate as approval of the long-term groundwater monitoring program. If requested by ADEC, a short groundwater monitoring plan should be developed and submitted for approval. As indicated above, the presence of this contamination is expected to result in institutional controls for the site, including notification of ADEC if dewatering or groundwater use is planned.

6.5 Potential Exposure Pathway Summary

The conceptual site model indicates that inhalation is the primary long-term pathway for potential exposure to the petroleum contamination in the soil and groundwater at the site. In the current facility configuration, potential exposure is limited to facility employees, visitors, and trespassers since no residential facilities exist at the facility. Remaining soil contamination is well below the inhalation cleanup levels for outdoor exposure and is contained beneath the concrete floor of the shop building. The potential for inhalation through vapor intrusion exists, although the removal of the floor drain structure and the installation of the oil-water-separator and sealing of the concrete slab around significantly reduced the potential for vapor intrusion into the building. The contaminants of concern are used throughout the shop during most activities. Indoor air quality testing to evaluate vapor intrusion is not expected to be effective or considered necessary.

The other primary methods of exposure are through direct contact with contaminated soil and ingestion of contaminated groundwater. Contaminated soil remaining at the site is more than five feet below the repaired slab, which significantly limits the potential for contact. Groundwater contamination is limited to a small area beneath the building. The former on-site well has been decommissioned in accordance with ADEC regulations, leaving the monitoring well as the only penetration of the groundwater at the site. In the current configuration, contact with contaminated soil and groundwater is not considered a concern.

Future excavation into contaminated soil and groundwater onsite may expose construction workers through inhalation, ingestion, and direct contact. On-site soil and groundwater contamination is well-defined and future excavation is not expected until the building is demolished and remediation of the remaining contaminated soil is undertaken. A corrective action plan to meet the ADEC institutional controls is expected to be submitted and approved by ADEC during the design of the demolition project.

7.0 CONCLUSIONS AND RECOMMENDATIONS

NORTECH has completed characterization of soil and groundwater at 2615 Twentieth Avenue in Fairbanks, Alaska. The facility is currently operated by Construction Machinery Industrial, LLC and is used as a construction equipment maintenance facility. The property has office space, warehouse space, and a large shop in the primary building. A detached tent shop and cold storage building are also located on the property. ADEC concerns related to a known contaminant plume in the area and an EPA inspection of the Site identified potential sources of environmental contamination that ADEC requested be addressed.

Based on the data collected during the activities at the Site, ***NORTECH*** has developed the following conclusions and recommendations regarding the environmental conditions at the Site:

Former Underground Gasoline and Heating Oil Storage Tanks

- Both of these tanks were removed in the mid-1990s
- Laboratory sampling in 1995 indicated that all contaminated soil had been excavated and that the limits of excavation met ADEC cleanup levels

- Approximately 50 yards of contaminated soil from the closure of these tanks were treated and approved for disposal on-site in 1998
- Groundwater samples from this area in 2006 and 2007 were non-detect for all analytes
- These tanks are not contributing to the benzene contamination in the EM Jones Subdivision
- These tanks have been properly closed and the contaminated soil has been treated
- No additional investigation of these tanks is recommended

Former On-site Septic Tank and Soil Absorption System

- The facility had an on-site ST/SAS wastewater disposal system from the time of construction until connection to the public wastewater system in 2000
- The prior owner indicated that the shop floor drain was connected to this system
- No contaminants of concern were identified in a soil sample in the vicinity of the SAS in 1995
- No contaminants of concern were identified in a groundwater sample in the vicinity of the former SAS in 2006
- Dye testing indicated that the shop floor drains were not connected to the former ST/SAS
- The former ST/SAS is not considered a banned Class V injection well
- No additional investigation of the ST/SAS is recommended

Tent Shop Floor Drain and Storage Tank

- A trench drain is present in the concrete floor of a detached tent shop adjacent to the main shop
- This drain discharges to a buried storage tank that can be pumped from outside the shop
- This tank should be monitored regularly to verify capacity
- A regular pumping and maintenance schedule should be established for this tank

- This schedule should be based on use and coordinated with the cleaning of the oil water separator
- No additional environmental investigation of this tank is recommended or necessary

Main Shop Floor Drain

- The trench drain in the main shop discharged directly to the subsurface beneath the concrete slab
- This discharge resulted in the contamination of soil and groundwater beneath the shop floor
- This discharge was stopped through the installation of an oil water separator system in April 2007
- The oil water separator discharges to the Golden Heart Utilities wastewater treatment system and has been approved by GHU
- The oil water separator system was installed in accordance with manufacturer's specifications and the City of Fairbanks code
- Regular inspection and maintenance programs should be established to keep this system functioning adequately

Soil Characterization

- Approximately 35 cubic yards of contaminated soil were removed during excavation for installation of the oil water separator system
- Half of the former discharge structure was left in place to maintain the structural integrity of the shop floor and trench drain
- All sludge was removed from the former discharge structure
- Approximately 30 cubic yards of contaminated soil are estimated to remain above the groundwater beneath the slab
- Laboratory results indicate that DRO is the primary contaminant of concern
- PCE, RRO, and isophorone also exceed the ADEC cleanup levels and are secondary contaminants of concern
- Other VOCs, including benzene, and SVOCs meet the ADEC cleanup levels
- Arsenic and other metals are below Fairbanks background concentrations and are not considered contaminants of concern

- Contaminated materials remaining are encapsulated by the concrete floor slab
- Exposure during excavation and migration to groundwater are the primary exposure pathways for this soil
- This material should be managed in place through institutional controls
- A corrective action plan for assessment and/or remediation will be necessary upon building demolition

Groundwater Characterization

- Temporary and permanent sampling points identified ground contamination related to the former discharge structure
- DRO, RRO, and benzene are the contaminants of concern in the groundwater
- Other VOCs, SVOCs, and metals are not contaminants of concern
- Dissolved contamination does not extend beyond the edge of the building
- This former discharge structure was not contributing to the benzene and PCE contamination in the EM Jones subdivision
- Groundwater contaminant concentrations should stabilize or decrease following removal of the source
- Exposure to this contaminated groundwater is limited to workers during a remedial action
- A long-term groundwater monitoring plan should be approved by ADEC and is proposed here:
    - The single sampling location is the microwell in the former source area
    - Laboratory analyses are DRO, RRO, and VOCs
    - Annual sampling in November/December 2008 and 2009
    - Decreased sampling frequency (every two-to-five years) following three consecutive years of stable/decreasing results

Administrative Management

- This report should be submitted to ADEC to provide documentation of the following:
    - The Site is not contributing to the benzene contamination in the EM Jones Subdivision

   - Closure of the former Class V injection well structure
   - Documentation of contamination remaining in place beneath the building
   - Request for development of institutional controls for the Site as outlined above
   - Request for approval of the long-term groundwater monitoring plan as outlined above
- This report should be submitted to EPA to register and close the former floor drain structure as a Class V injection well
- A copy of this report should be maintained at the Site to document floor drain discharge locations
- Oil water separator cleaning and maintenance records should be maintained on site
- Tent shop tank pumping records should be maintained on site

8.0 LIMITATIONS AND NOTIFICATIONS

NORTECH provides a level of service that is performed within the standards of care and competence of the environmental engineering profession. However, it must be recognized that limitations exist within any site investigation or assessment. This report provides results based on a restricted work scope and from the analysis and observation of a limited number of samples. Therefore, while it is our opinion that these limitations are reasonable and adequate for the purposes of this report, actual site conditions may differ. Specifically, the unknown nature of exact subsurface physical conditions, sampling locations, the analytical procedures' inherent limitations, as well as financial and time constraints are limiting factors.

The report is a record of observations and measurements made on the subject site as described. The data should be considered representative only of the time the site investigation was completed. No other warranty or presentation, either expressed or implied, is included or intended. This report is prepared for the exclusive use of CMI. If it is made available to others, it should be for information on factual data only, and not as a warranty of conditions, such as those interpreted from the results presented or discussed in the report. We certify that except as specifically noted in this report, all statements and data appearing in this report are in conformance with ADEC's Standard Sampling Procedures. ***NORTECH*** has performed the work, made the findings, and proposed the recommendations described in this report in accordance with generally accepted environmental engineering practices.

9.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

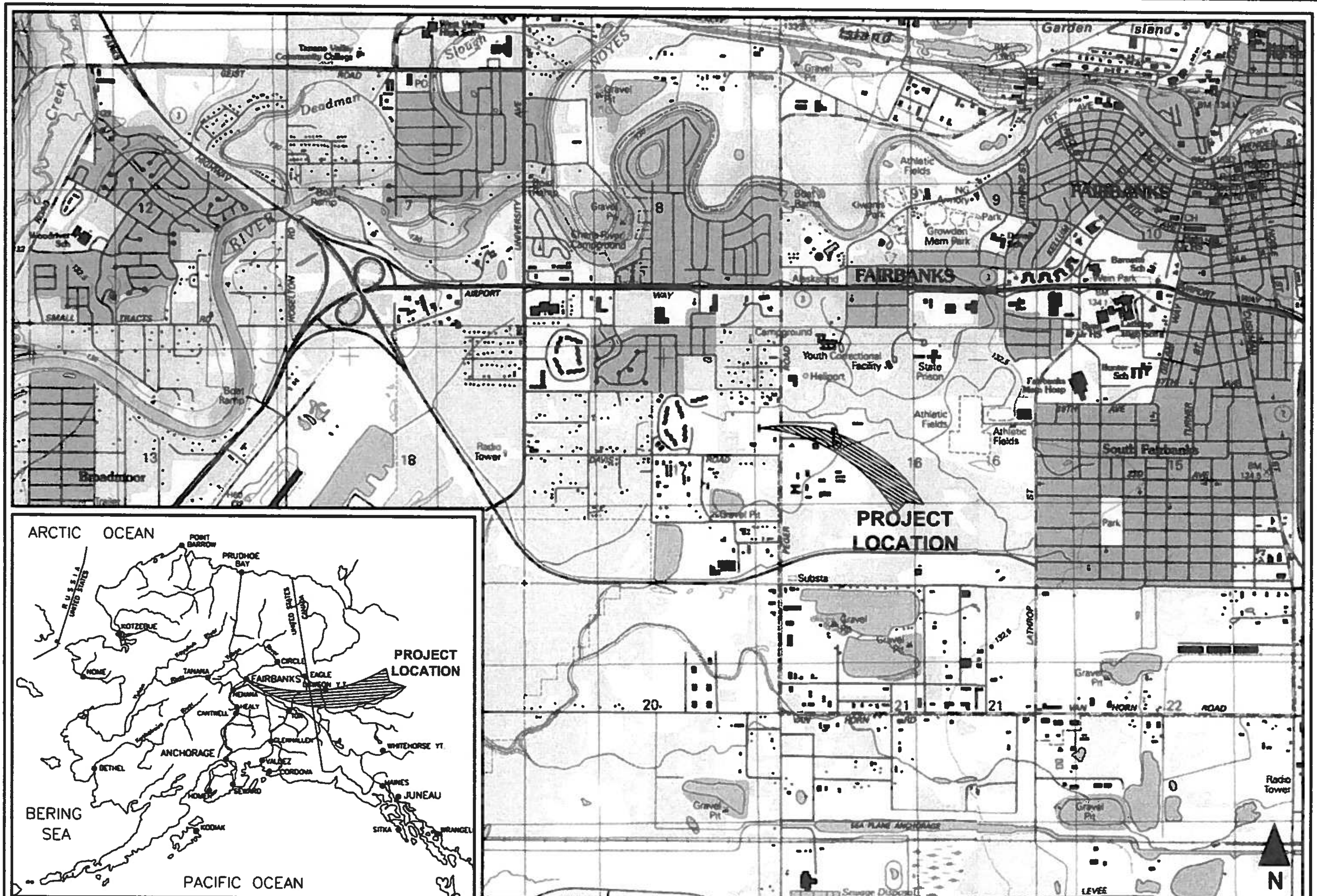
Jeff Gimbel, Staff Scientist, has a B.S. degree in Biochemistry/Molecular Biology from the UAF. Mr. Gimbel has been involved in Environmental and Industrial Hygiene related work for two years. His experience includes assistance in Phase I ESAs, hazardous material surveys, and remediation projects for private, commercial and government clients.

Jeff Gimbel
Staff Scientist

Peter Beardsley, PE, Environmental Engineer for ***NORTECH*** has a B.S. degree in Environmental Engineering and is a registered Civil Engineer in Alaska. He has worked on all aspects of environmental investigations and cleanup efforts and is well versed in ESA regulatory requirements.

Peter Beardsley, PE
Environmental Engineer

Appendix 1



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ENVIRONMENTAL & ENGINEERING CONSULTANTS

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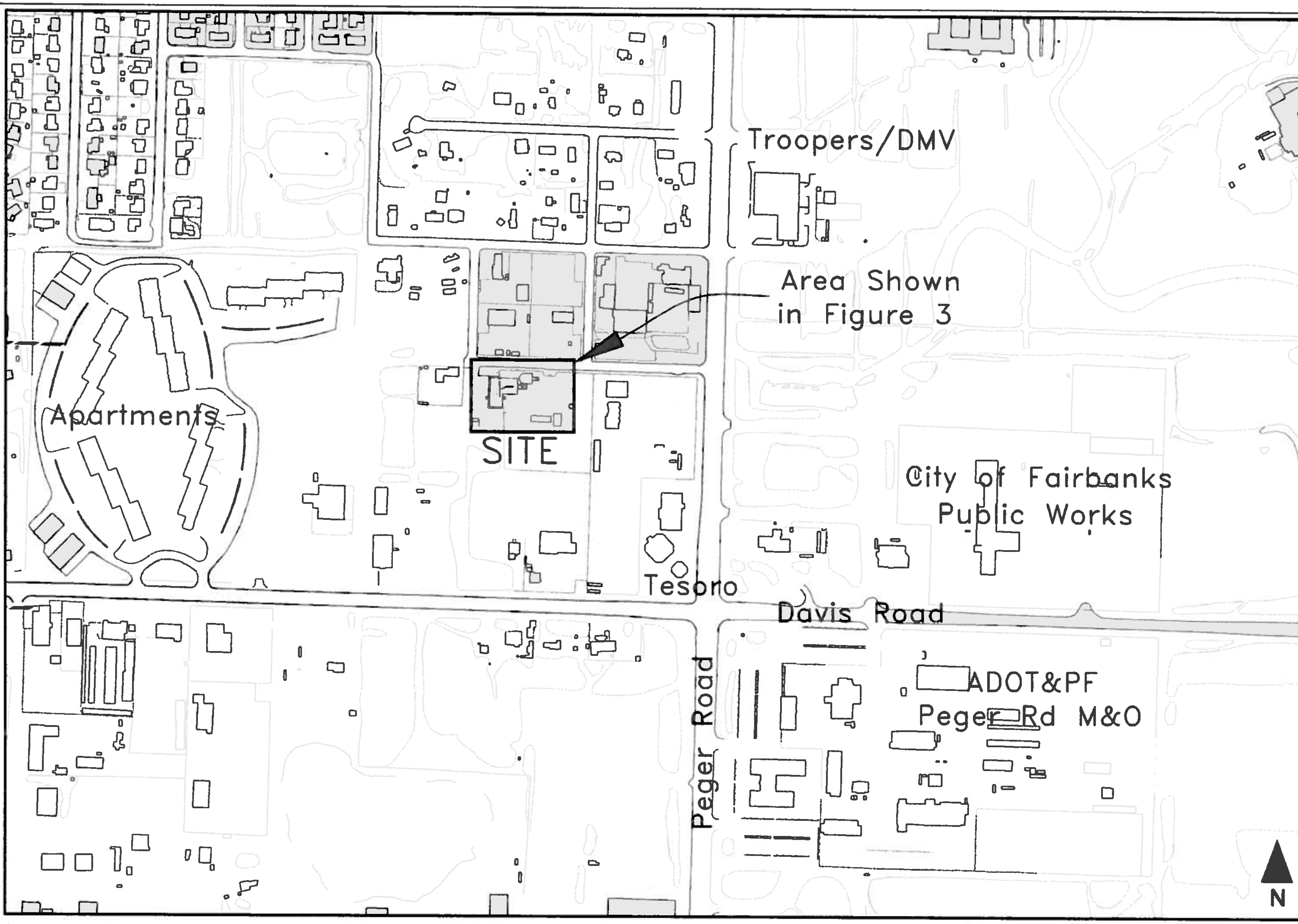
(907) 452-5688 FAX: (907) 452-5694

Location Map
CMI Site Characterization
Fairbanks, Alaska

DATE: 04/15/08	SCALE: 1"=1/2mi
DESIGN: PLB	PROJECT: 06-1056
DRAWN: PLB	DWG: 061056i(01)

FIGURE 1



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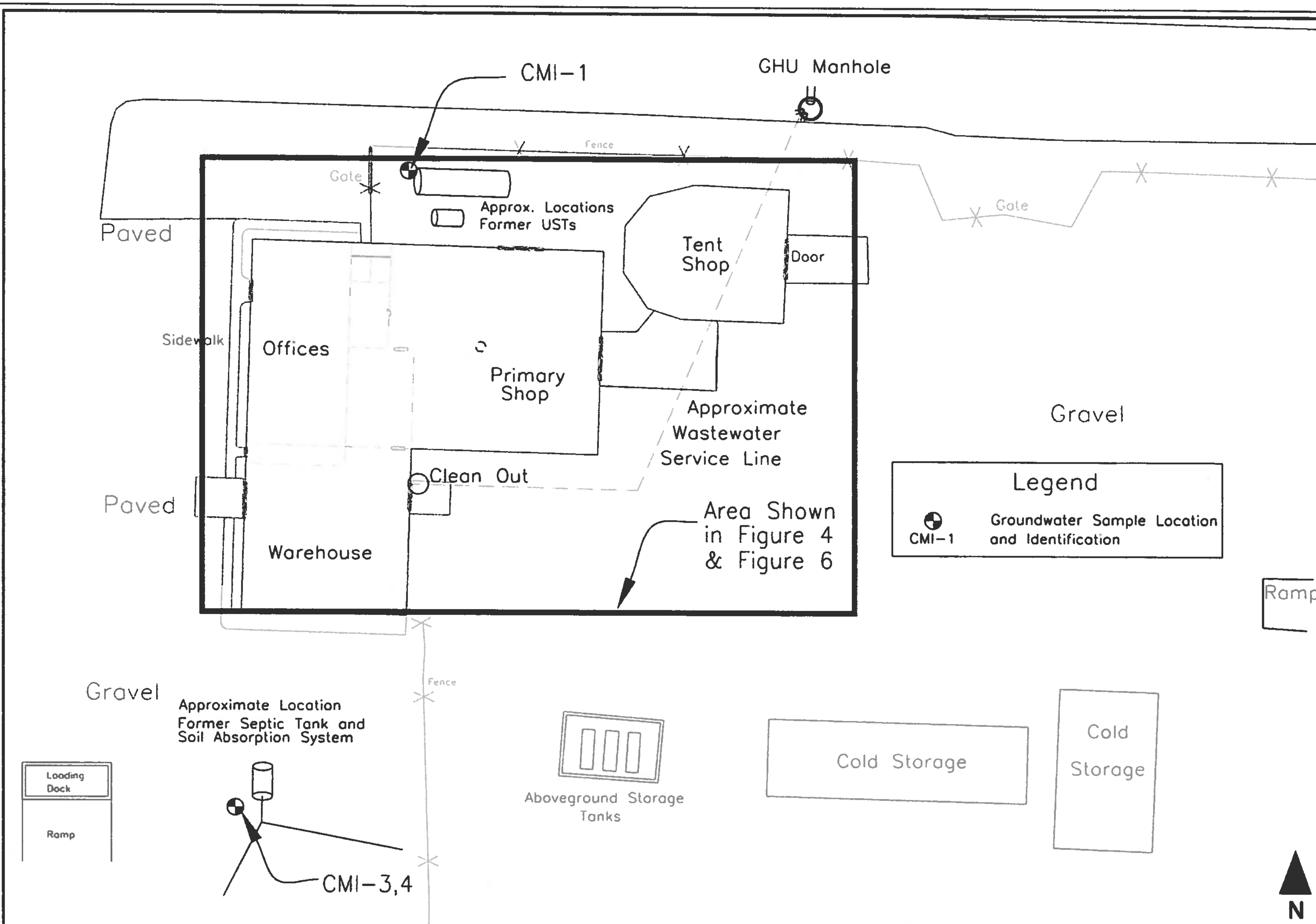
Vicinity Map
CMI Site Characterization
Fairbanks, Alaska

DATE:	04/15/08	SCALE:	1"=500'
DESIGN:	PLB	PROJECT:	06-1056
DRAWN:	PLB	DWG:	061056i(02)

FIGURE 2



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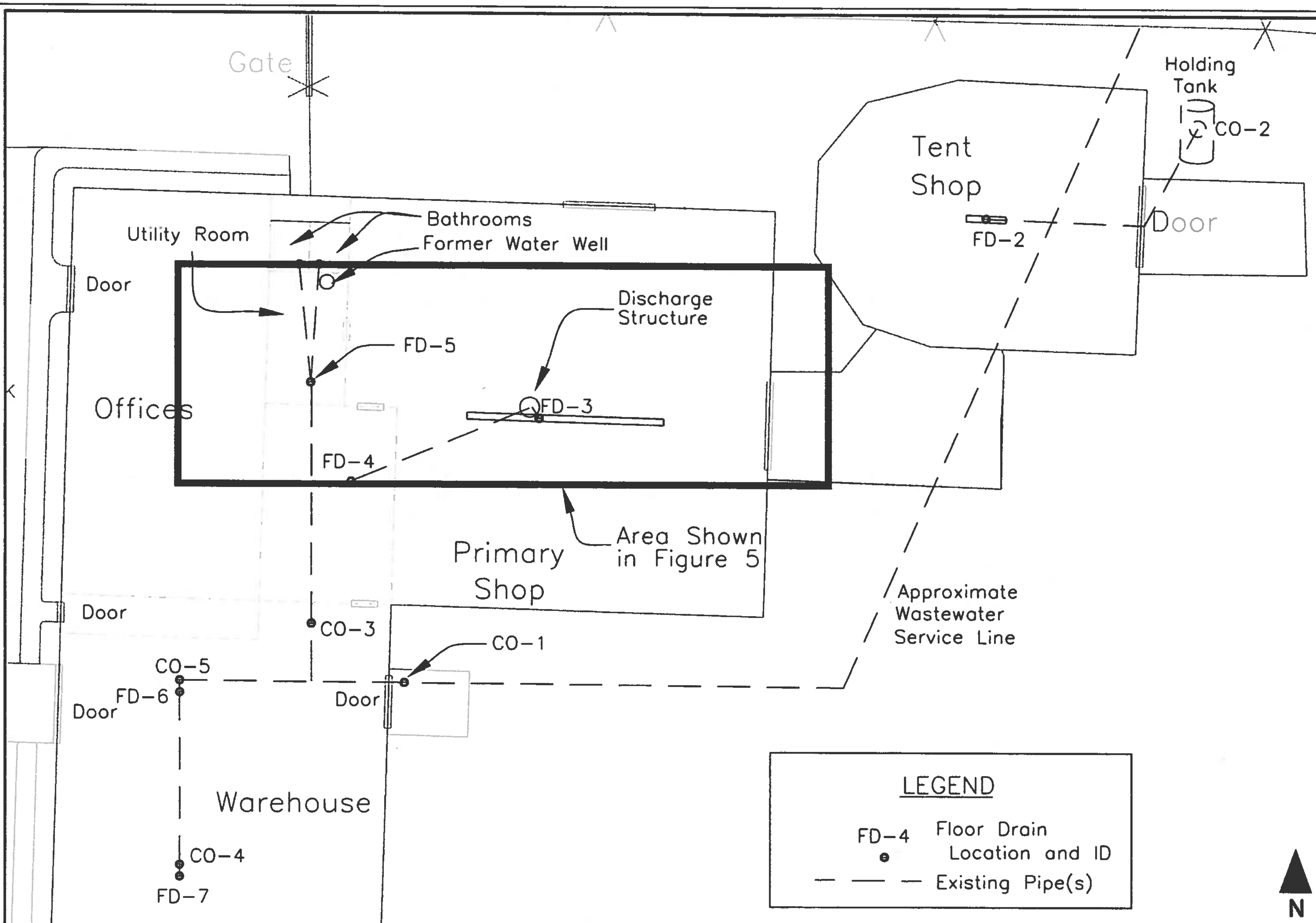
Site Map and 2006 Samples
CMI Site Characterization
Fairbanks, Alaska

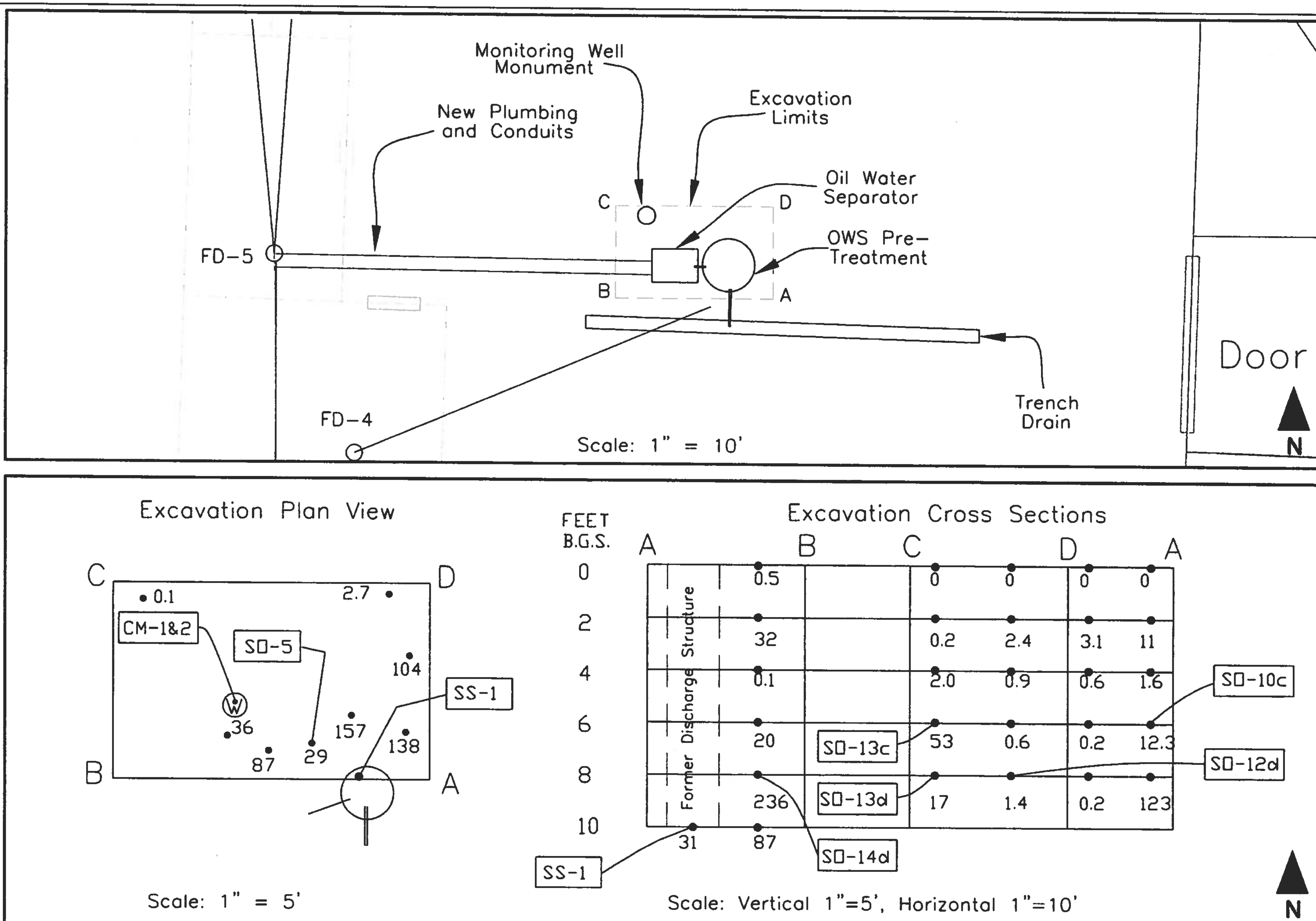
DATE:	04/15/08	SCALE:	1" = 40'
DESIGN:	PLB	PROJECT:	06-1056
DRAWN:	RJP	DWG:	06-1056i(03)

FIGURE 3



NORTECH ENVIRONMENTAL & ENGINEERING CONSULTANTS, 2400 College Road, Fairbanks, Alaska 99709, (907) 452-5688 FAX: (907) 452-5694	Floor Drain Locations CMI Site Characterization Fairbanks, Alaska	DATE: 04/15/08 DESIGN: PLB DRAWN: PLB	SCALE: 1" = 20' PROJECT: 06-1056 DWG: 06-1056i(04)

FIGURE 4



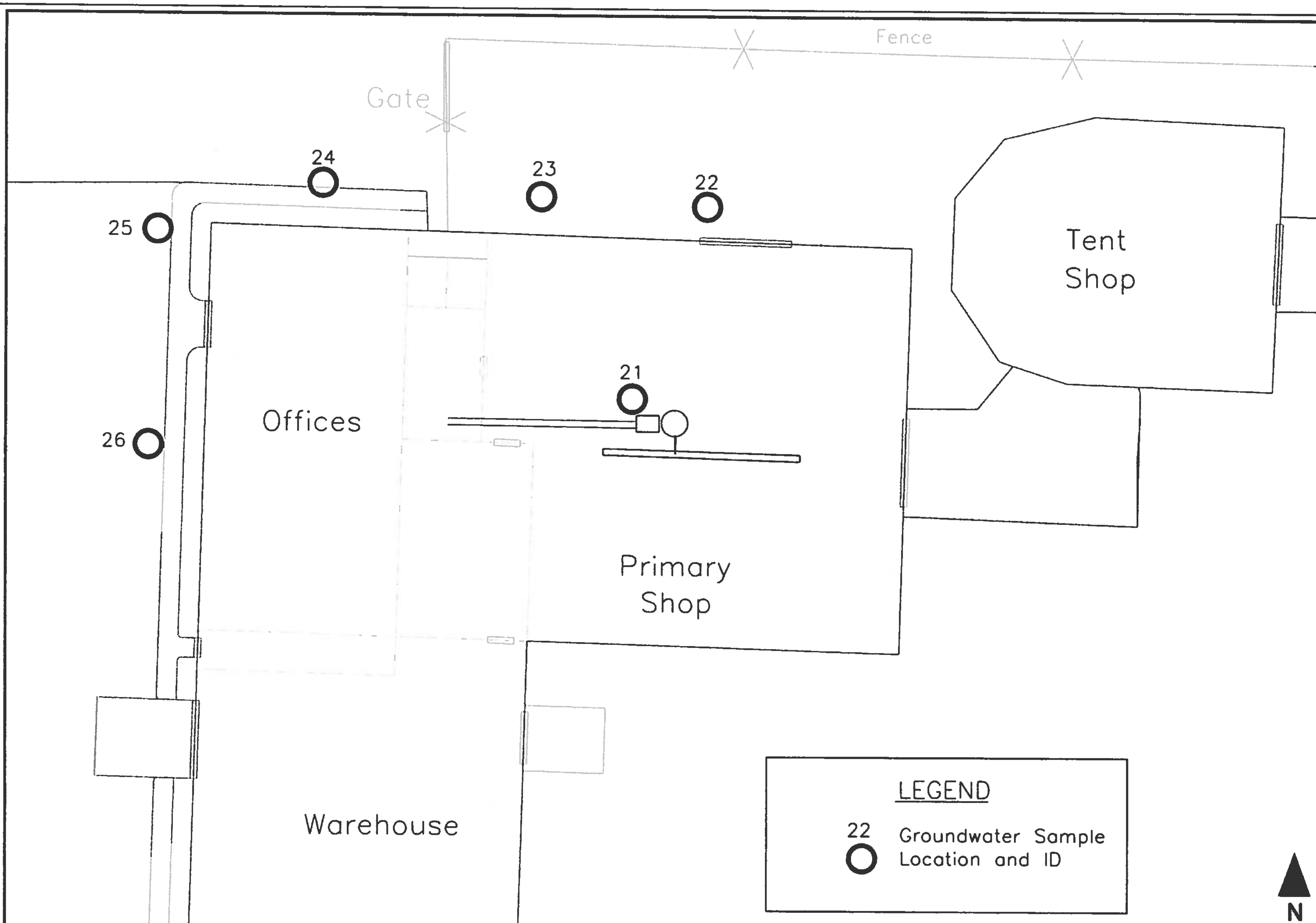
NORTECH

ENVIRONMENTAL & ENGINEERING CONSULTANTS
2400 College Road, Fairbanks, Alaska 99709
(907) 452-5688 FAX: (907) 452-5694

Excavation and Sample Locations
CMI Site Characterization
Fairbanks, Alaska

DATE: 04/15/08	SCALE: As Shown
DESIGN: PLB	PROJECT: 06-1056
DRAWN: PLB	DWG: 06-1056i(05)

FIGURE 5



NORTECH

ENVIRONMENTAL & ENGINEERING CONSULTANTS

2400 College Road, Fairbanks, Alaska 99709
(907) 452-5688 FAX: (907) 452-5694

Groundwater Sample Locations
CMI Site Characterization
Fairbanks, Alaska

DATE:	04/15/08	SCALE:	1" = 20'
DESIGN:	PLB	PROJECT:	06-1056
DRAWN:	PLB	DWG:	06-1056i(06)

FIGURE 6

Appendix 2

Table 1
Groundwater Results
Initial Investigation - September 2006

Sample ID		ADEC	CMI-1	CMI-3	CMI-4
Analyte		Limit	mg/l	mg/l	mg/l
**Selected VOCs (Method 8260B) ** **					
Benzene		0.005	0.0005U	0.0005U	0.0005U
Toluene		1	0.0005U	0.0005U	0.0005U
Ethylbenzene		0.7	0.0005U	0.0005U	0.0005U
Xylenes (total)		10	0.0005U	0.0005U	0.0005U
Tetrachloroethene		0.005	0.0005U	0.0005U	0.0005U
Trichloroethene		0.005	0.0005U	0.0005U	0.0005U
Dichlorodifluoromethane		7.3	0.0005U	0.00075	0.00073
Trichlorofluoromethane		11	0.0005U	0.011	0.011
Napthalene (8260)		1.46	0.002U	0.002U	0.002U
SVOCs (Method 8270C)					
No SVOCs detected - See laboratory report for analyte list					
EPA Floor Drain Metals					
Sample ID	Back-	ADEC	CMI-1	CMI-3	CMI-4
Analyte	Ground	Standard	mg/l	mg/l	mg/l
Arsenic	0.072	0.010	0.010U	0.010U	0.010U
Cadmium	0.009	0.005	0.002U	0.002U	0.002U
Chromium (tot)	0.125	0.1	0.004U	0.004U	0.004U
Lead	0.066	0.015	0.001U	0.001U	0.001U

U	Analyte not detected at the listed detection limit
NT	Analyte not analyzed for
Shade	Analyte detected in concentration below the ADEC Cleanup level
Bold	Analyte detected in concentration exceeding the ADEC Cleanup level
**	Selected VOCs only, other VOC analytes listed in laboratory report

Table 2
Soil Sampling Analysis Results
Oil Water Separator Installation

Sample ID	ADEC	ADEC	SO-10c	SO-12d	SO-13c	SO-13d	SO-14d	SO-5	SS-1
Analyte	Method 2	Prop	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Field Screening Result			12.3	1.4	53	17.2	236	29	31
Petroleum Fractions									
DRO	250	250	1,640	6.89J	560	100	11,900	18.2J	9,230
RRO	11000	10800	2320	23.6	986	239	9020	51	17,300
Detected SVOCs (Method 8270)									
Isophorone	3	3.1	NT	NT	NT	NT	8.53	NT	NT
Benzoic Acid	390	410	NT	NT	NT	NT	10.1J	NT	NT
Napthalene	21	20	NT	NT	NT	NT	2.97U	NT	NT
Fluorene	270	220	NT	NT	NT	NT	1.13J	NT	NT
Phenanthrene	4300	3000	NT	NT	NT	NT	1.62J	NT	NT
Di-n-butylphthalate	1700	80	NT	NT	NT	NT	1.16J	NT	NT
bis(2-ethylhexyl)phthalate	1200	13	NT	NT	NT	NT	7.64	NT	NT
Detected VOCs (Method 8260)									
Benzene	0.02	0.025	0.0081U	0.0149U	0.0108U	0.0137U	0.0120U	0.0154U	0.0235
Toluene	5.4	6.5	0.0311U	0.0572U	0.0415U	0.0527U	0.0463U	0.0591U	1.310
Ethylbenzene	5.5	6.9	0.0156U	0.0286U	0.0207U	0.0263U	0.0537	0.0295U	0.967
Xylenes (total)	78	63	0.0623U	0.114U	0.0139J	0.1050U	1.080	0.0422J	7.980
Trichloroethene	0.027	0.02	0.0156U	0.0286U	0.0207U	0.0263U	0.0231U	0.0295U	0.023U
Tetrachloroethene	0.03	0.024	0.0177	0.0312	0.0133J	0.00869J	0.102	0.0295U	0.177
Isopropylbenzene	227	51	0.0156U	0.0286U	0.0207U	0.0263U	0.190	0.0295U	0.581
n-Propylbenzene	NE	15	0.0156U	0.0286U	0.0207U	0.0263U	0.264	0.0295U	0.798
1,3,5-Trimethylbenzene	25	23	0.00996J	0.0286U	0.0207U	0.0263U	1.220	0.0100J	1.980
1,2,4-Trimethylbenzene	95	23	0.0146J	0.0286U	0.0207U	0.0263U	1.870	0.0290J	6.000
sec-Butylbenzene	NE	12	0.0156U	0.0286U	0.0207U	0.0263U	0.038	0.0295U	0.557
4-Isopropyltoluene	NE	NE	0.0167	0.0286U	0.0207U	0.00843J	22.600	0.0295U	1.450
n-Butylbenzene	NE	15	0.0156U	0.0286U	0.0207U	0.0263U	0.033	0.0295U	0.548
Methylene Chloride	0.015	0.016	0.0327J	0.0727J	0.0458J	0.033U	0.0558J	0.037U	0.029U
Napthalene	21	20	0.0311U	0.0572U	0.0415U	0.0527U	2.140	0.0239J	1.430

RCRA Metals										
Sample ID	Back-	ADEC	ADEC	SO-10c	SO-12d	SO-13c	SO-13d	SO-14d	SO-5	SS-1
Analyte	ground	Meth 2	Prop	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Arsenic	14	2	3.9	NT	NT	NT	NT	***<u>5.24</u>***	NT	NT
Barium	115	1100	1100	NT	NT	NT	NT	93.3	NT	NT
Cadmium	1.8	5	5	NT	NT	NT	NT	0.289	NT	NT
Chromium	11.6	26	25	NT	NT	NT	NT	18.4	NT	NT
Lead	26	1000	1000	NT	NT	NT	NT	7.74	NT	NT
Mercury	NA	1.4	1.4	NT	NT	NT	NT	0.0251J	NT	NT
Selenium	NA	3.5	3.4	NT	NT	NT	NT	0.433J	NT	NT
Silver	NA	21	11.2	NT	NT	NT	NT	0.115J	NT	NT

U	Analyte not detected at the listed detection limit
J	The quantitation is an estimate below the linear range of the instrument
NT	Analyte not analyzed for
Shade	Analyte detected in concentration below the ADEC Cleanup level
Bold	Analyte detected in concentration exceeding the ADEC Cleanup level
<u>BIU</u>	Concentration exceeds ADEC cleanup level but is below background
NE	Cleanup Level for listed Analyte has not been established

Table 3

Groundwater Sampling Analysis Results

Oil Water Separator Installation

Sample ID / Analyte	ADEC Limit	CM-1 mg/l	CM-2 mg/l
Petroleum Fractions (Method AK 102, AK 103)			
DRO	1.5	**31.1**	**26.0**
RRO	1.1	**4.14**	**3.34**
Detected SVOCs (Method 8270C)			
Napthalene	1.46	0.182	NT
3&4-Methylphenol	1.8	0.654	NT
Detected VOCs (Method 8260B)			
Benzene	0.005	**0.0342**	**0.0301**
Toluene	1	0.224	0.219
Ethylbenzene	0.7	0.0331	0.0361
Xylenes (total)	10	0.348	0.365
Trichloroethene	0.005	0.00185	0.00146
Tetrachloroethene	0.005	0.00177	0.00167
Isopropylbenzene	3.7	0.00859	0.00792
n-Propylbenzene	0.37	0.0102	0.00994
tert-Butylbenzene	0.37	0.00101	0.0010U
1,3,5-Trimethylbenzene	1.8	0.0330	0.0315
1,2,4-Trimethylbenzene	1.8	0.0538	0.0683
n-Butylbenzene	0.37	0.00208	0.00215
4-Isopropyltoluene	NE	0.0610	0.0925
Napthalene (8260)	1.46	0.0482	0.048

RCRA Metals

Sample ID / Analyte	Back-Ground	ADEC Standard	CM-1 mg/l	CM-2 mg/l
Arsenic	0.072	0.010	0.010U	NT
Barium	0.988	2	0.472	NT
Cadmium	0.009	0.005	0.002U	NT
Chromium (tot)	0.125	0.1	0.00661	NT
Lead	0.066	0.015	0.00633	NT
Mercury	NA	0.002	0.002U	NT
Selenium	NA	0.05	0.010U	NT
Silver	NA	0.18	0.002U	NT

U	Analyte not detected at the listed detection limit
NT	Analyte not analyzed for
Shade	Analyte detected in concentration below the ADEC Cleanup level
Bold	Analyte detected in concentration exceeding the ADEC Cleanup level
NE	Cleanup Level for listed Analyte has not been established

Table 4
Groundwater Sampling Analysis Results
November 2007

Sample ID	ADEC	CMI-21	CMI-21(a)	CMI-22	CMI-23	CMI-24	CMI-25	CMI-26
Analyte	Limit	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Petroleum Fractions (Method AK 102, AK 103)								
DRO	1.5	**5.67**	**6.27**	0.323U	0.319U	0.319U	0.326U	0.319U
RRO	1.1	**1.67**	**1.88**	0.538U	0.532U	0.532U	0.543U	0.532U
VOCs (Method 8260B)								
Benzene	0.005	0.00249	0.00330	0.0004U	0.0004U	0.0004U	0.0004U	0.0004U
Toluene	1	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
Ethylbenzene	0.7	0.00759	0.00956	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
Xylenes (total)	10	0.04720	0.05730	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U
Trichloroethene	0.005	0.0010U	0.00110	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
Tetrachloroethene	0.005	0.00437	0.00392	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
Isopropylbenzene	3.65	0.00309	0.00363	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
1,3,5-Trimethylbenzene	1.8	0.00676	0.00804	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
1,2,4-Trimethylbenzene	1.8	0.02090	0.02430	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
4-Isopropyltoluene	NE	0.00901	0.01060	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
cis-1,2-Dichloroethene	0.07	0.00285	0.00360	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U
Napthalene (8260)	1.46	0.00902	0.01090	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U

U	Analyte not detected at the listed detection limit
NT	Analyte not analyzed for
Shade	Analyte detected in concentration below the ADEC Cleanup level
Bold	Analyte detected in concentration exceeding the ADEC Cleanup level
NE	Cleanup Level for listed Analyte has not been established
	CMI-21(a) is a field duplicate of CMI-21

Table 5
Quality Control Summary - Detected Analytes

Initial Characterization

Sample ID	CMI-3	CMI-4	Average	Difference	RPD
Analyte	mg/L	mg/L	mg/L	mg/L	%
Dichlorodifluoromethane	0.00075	0.0007	0.0007	0.0000	-3%
Trichlorofluoromethane	0.011	0.011	0.0110	0.0000	0%

Oil Water Separator Installation

Sample ID	CMI-21	CMI-21(a)	Average	Difference	RPD
Analyte	mg/L	mg/L	mg/L	mg/L	%
DRO	31.1	26	28.6	-5.1	-18%
RRO	4.14	3.34	3.74	-0.8	-21%
Benzene	0.0342	0.0301	0.03215	-0.0041	-13%
Toluene	0.224	0.219	0.2215	-0.005	-2%
Ethylbenzene	0.0331	0.0361	0.0346	0.003	9%
Xylenes (total)	0.348	0.365	0.3565	0.017	5%
Trichloroethene	0.00185	0.00146	0.001655	-0.00039	-24%
Tetrachloroethene	0.00177	0.00167	0.00172	-0.0001	-6%
Isopropylbenzene	0.00859	0.00792	0.008255	-0.00067	-8%
n-Propylbenzene	0.0102	0.00994	0.01007	-0.00026	-3%
tert-Butylbenzene	0.00101	0.0010U	NA	NA	NA
1,3,5-Trimethylbenzene	0.033	0.0315	0.0323	-0.0015	-5%
1,2,4-Trimethylbenzene	0.0538	0.0683	0.06105	0.0145	24%
n-Butylbenzene	0.00208	0.00215	0.002115	7E-05	3%
4-Isopropyltoluene	0.061	0.0925	0.0768	0.0315	41%
Napthalene (8260)	0.0482	0.048	0.0481	-0.0002	0%

Groundwater Characterization

Sample ID	CMI-21	CMI-21(a)	Average	Difference	RPD
Analyte	mg/L	mg/L	mg/L	mg/L	%
DRO	5.67	6.27	5.97	0.60	10%
RRO	1.67	1.88	1.78	0.21	12%
Benzene	0.00249	0.00330	0.00290	0.00081	28%
Toluene	0.0010U	0.0010U	NA	NA	NA
Ethylbenzene	0.0076	0.00956	0.00858	0.00197	23%
Xylenes (total)	0.0472	0.05730	0.05225	0.01010	19%
Trichloroethene	0.0010U	0.00110	NA	NA	NA
Tetrachloroethene	0.0044	0.00392	0.00415	-0.00045	-11%
Isopropylbenzene	0.0031	0.00363	0.00336	0.00054	16%
1,3,5-Trimethylbenzene	0.0068	0.00804	0.00740	0.00128	17%
1,2,4-Trimethylbenzene	0.0209	0.02430	0.02260	0.00340	15%
4-Isopropyltoluene	0.0090	0.01060	0.00981	0.00159	16%
cis-1,2-Dichloroethene	0.0029	0.00360	0.00323	0.00075	23%
Napthalene (8260)	0.00902	0.0109	0.00996	0.00188	19%

NA The calculation is not applicable.
RPD Relative percent difference

Appendix 3

Appendix 3 - Site Photographs
CMI Injection Well Closure and Site Characterization

Photo 01 - Trench drain in main shop floor as originally constructed

Photo 02 - Start of excavation for dry well structure removal and oil water separator system installation

Appendix 3 - Site Photographs
CMI Injection Well Closure and Site Characterization

Photo 03 - Removal of liquid and sludge from former dry well structure

Photo 04 - Excavation of contaminated soil adjacent to former dry well structure

Appendix 3 - Site Photographs
CMI Injection Well Closure and Site Characterization

Photo 05 - Removal of remaining sludge from dry well structure, remainder of dry well structure left in place to support concrete floor and trench drain

Photo 06 - Groundwater sampling of manually installed temporary sampling point in the bottom of the excavation

Appendix 3 - Site Photographs
CMI Injection Well Closure and Site Characterization

Photo 07 - Final limits of excavation prior to oil water separator system installation

Photo 08 - During installation of oil water separator system (sediment trap in foreground)

Appendix 3 - Site Photographs
CMI Injection Well Closure and Site Characterization

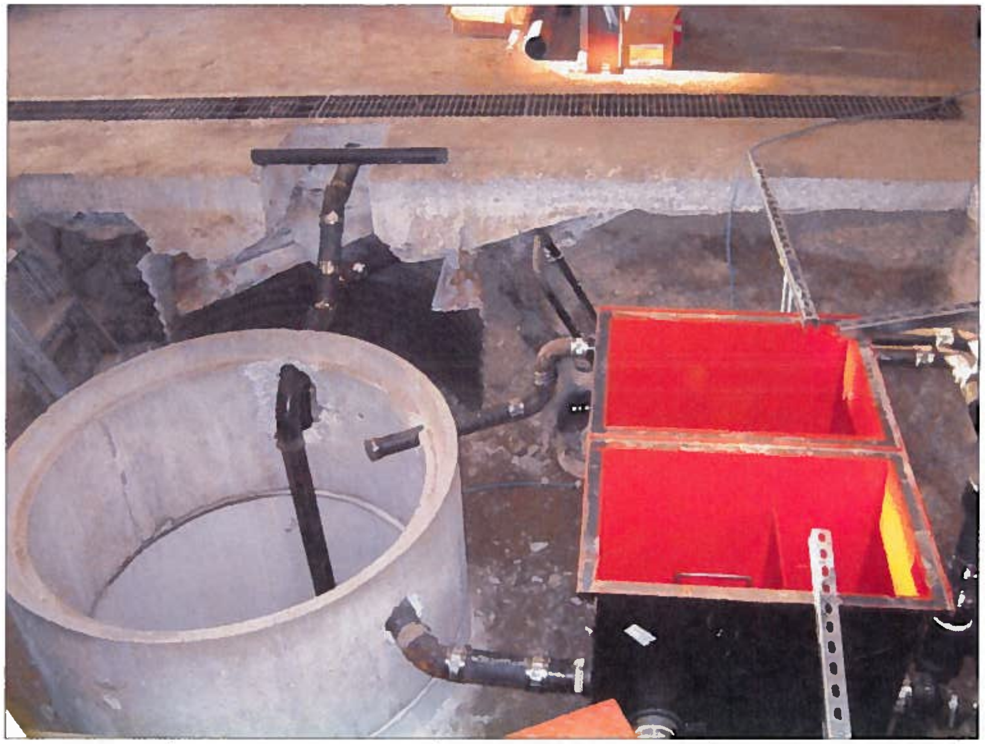


Photo 09 - Piping from trench drain to oil water separator system

Photo 10 - Completion of oil water separator system installation with monitoring well located in the small monument on the right

Appendix 4

Lab Reports and ADEC Laboratory Data Quality Checklists are Available Upon Request

Appendix 5

Human Health Conceptual Site Model
Scoping Form

Site Name: Construction Machinery Inc former CJM

File Number: 102.38.144

Completed by: Peter Beardsley

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, a CSM graphic and text must be submitted with the site characterization work plan.

General Instructions: Follow the italicized instructions in each section below.

1. *General Information:*

Sources *(check potential sources at the site)*

- ☐ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☑ Other: Former injection well

Release Mechanisms *(check potential release mechanisms at the site)*

- ☐ Spills
- ☐ Leaks
- ☑ Direct discharge
- ☐ Burning
- ☐ Other: ________

Impacted Media *(check potentially-impacted media at the site)*

- ☐ Surface soil (0-2 feet bgs*)
- ☑ Subsurface Soil (>2 feet bgs)
- ☐ Air
- ☑ Groundwater
- ☐ Surface water
- ☐ Other: ________

Receptors (*check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☑ Commercial or industrial worker
- ☑ Construction worker
- ☐ Subsistence harvester (i.e., gathers wild foods)
- ☐ Subsistence consumer (i.e., eats wild foods)
- ☑ Site visitor
- ☑ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other: ________

* bgs – below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact –

1 Incidental Soil Ingestion

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☑

If both boxes are checked, label this pathway complete: complete

2 Dermal Absorption of Contaminants from Soil

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☑

Can the soil contaminants permeate the skin? (Contaminants listed below, or within the groups listed below, should be evaluated for dermal absorption). ☑

Arsenic	Lindane
Cadmium	PAHs
Chlordane	Pentachlorophenol
2,4-dichlorophenoxyacetic acid	PCBs
Dioxins	SVOCs
DDT	

If all of the boxes are checked, label this pathway complete: complete

b) Ingestion –

1 Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, OR are contaminants expected to migrate to groundwater in the future? ☑

Could the potentially affected groundwater be used as a current or future drinking water source? *Please note, only leave the box unchecked if ADEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350.* ☑

If both the boxes are checked, label this pathway complete: complete

2 Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water OR are contaminants expected to migrate to surface water in the future? ☐

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? *Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities).* ☐

If both boxes are checked, label this pathway complete: ____________

3 Ingestion of Wild Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild food? ☐

Do the site contaminants have the potential to bioaccumulate (*see* Appendix A)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. the top 6 feet of soil, in groundwater that **could be** connected to surface water, etc.) ☐

If all of the boxes are checked, label this pathway complete: ____________

c) Inhalation

1 Inhalation of Outdoor Air

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☑

Are the contaminants in soil volatile (*See Appendix B*)? ☑

If all of the boxes are checked, label this pathway complete: Complete

2 Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be placed on the site in an area that could be affected by contaminant vapors? (i.e., within 100 feet, horizontally or vertically, of the contaminated soil or groundwater, or subject to "preferential pathways" that promote easy airflow, like utility conduits or rock fractures) ☑

Are volatile compounds present in soil or groundwater (*See Appendix C*)? ☑

If both boxes are checked, label this pathway complete: complete

3. Additional Exposure Pathways: *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Exposure from this pathway may need to be assessed only in cases where DEC water-quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include:

- o Climate permits recreational use of waters for swimming,
- o Climate permits exposure to groundwater during activities, such as construction, without protective clothing, or
- o Groundwater or surface water is used for household purposes.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Household Water

Exposure from this pathway may need to be assessed only in cases where DEC water-quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include:

- o The contaminated water is used for household purposes such as showering, laundering, and dish washing, <u>and</u>
- o The contaminants of concern are volatile (common volatile contaminants are listed in Appendix B)

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Fugitive Dust

Generally DEC soil ingestion cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway, although this is not true in the case of chromium. Examples of conditions that may warrant further investigation include:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers. This size can be inhaled and would be of concern for determining if this pathway is complete.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during recreational or some types of subsistence activities. People then incidentally **ingest** sediment from normal hand-to-mouth activities. In addition, **dermal absorption of contaminants** may be of concern if people come in contact with sediment and the contaminants are able to permeate the skin (see dermal exposure to soil section). This type of exposure is rare but it should be investigated if:

- Climate permits recreational activities around sediment, and/or
- Community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

ADEC soil ingestion cleanup levels are protective of direct contact with sediment. If they are determined to be over-protective for sediment exposure at a particular site, other screening levels could be adopted or developed.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

Remaining contaminated soil is more than five feet below the surface near former injection well in the center of the building and contained beneath the building slab. No soil or groundwater contamination has been identified at the exterior perimeter of the building.

APPENDIX A

BIOACCUMULATIVE COMPOUNDS

Table A-1: List of Compounds of Potential Concern for Bioaccumulation

Organic compounds are identified as bioaccumulative if they have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5. Inorganic compounds are identified as bioaccumulative if they are listed as such by EPA (2000). Those compounds in Table X of 18 AAC 75.345 that are bioaccumulative, based on the definition above, are listed below.

Aldrin	DDT	Lead
Arsenic	Dibenzo(a,h)anthracene	Mercury
Benzo(a)anthracene	Dieldrin	Methoxychlor
Benzo(a)pyrene	Dioxin	Nickel
Benzo(b)fluoranthene	Endrin	PCBs
Benzo(k)fluoranthene	Fluoranthene	
Cadmium	Heptachlor	Pyrene
Chlordane	Heptachlor epoxide	Selenium
Chrysene	Hexachlorobenzene	Silver
Copper	Hexachlorocyclopentadiene	Toxaphene
DDD	Indeno(1,2,3-c,d)pyrene	Zinc
DDE		

Because BCF values can relatively easily be measured or estimated, the BCF is frequently used to determine the potential for a chemical to bioaccumulate. A compound with a BCF greater than 1,000 is considered to bioaccumulate in tissue (EPA 2004b).

For inorganic compounds, the BCF approach has not been shown to be effective in estimating the compound's ability to bioaccumulate. Information available, either through scientific literature or site-specific data, regarding the bioaccumulative potential of an inorganic site contaminant should be used to determine if the pathway is complete.

The list was developed by including organic compounds that either have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5 and inorganic compounds that are listed by the United States Environmental Protection Agency (EPA) as being bioaccumulative (EPA 2000). The BCF can also be estimated from a chemical's physical and chemical properties. A chemical's octanol-water partitioning coefficient (K_{ow}) along with defined regression equations can be used to estimate the BCF. EPA's Persistent, Bioaccumulative, and Toxic (PBT) Profiler (EPA 2004) can be used to estimate the BCF using the K_{ow} and linear regressions presented by Meylan et al. (1996). The PBT Profiler is located at http://www.pbtprofiler.net/. For compounds not found in the PBT Profiler, DEC recommends using a log K_{ow} greater than 3.5 to determine if a compound is bioaccumulative.

APPENDIX B

VOLATILE COMPOUNDS

Table B-1: List of Volatile Compounds of Potential Concern
Common volatile contaminants of concern at contaminated sites. A chemical is defined as volatile if the Henry's Law constant is 1 x 10^{-5} atm-m^3/mol or greater and the molecular weight less than 200 g/mole (g/mole; EPA 2004a). Those compounds in Table X of 18 AAC 75.345 that are volatile, based on the definition above, are listed below.

Acenaphthene	1,4-dichlorobenzene	Pyrene
Acetone	1,1-dichloroethane	Styrene
Anthracene	1,2-dichloroethane	1,1,2,2-tetrachloroethane
Benzene	1,1-dichloroethylene	Tetrachloroethylene
Bis(2-chlorethyl)ether	Cis-1,2-dichloroethylene	Toluene
Bromodichloromethane	Trans-1,2-dichloroethylene	1,2,4-trichlorobenzene
Carbon disulfide	1,2-dichloropropane	1,1,1-trichloroethane
Carbon tetrachloride	1,3-dichloropropane	1,1,2-trichloroethane
Chlorobenzene	Ethylbenzene	Trichloroethylene
Chlorodibromomethane	Fluorene	Vinyl acetate
Chloroform	Methyl bromide	Vinyl chloride
2-chlorophenol	Methylene chloride	Xylenes
Cyanide	Naphthalene	GRO
1,2-dichlorobenzene	Nitrobenzene	DRO

APPENDIX C

COMPOUNDS OF CONCERN FOR VAPOR MIGRATION

Table C-1: List of Compounds of Potential Concern for the Vapor Migration

A chemical is considered sufficiently toxic if the vapor concentration of the pure component poses an incremental lifetime cancer risk greater than 10-6 or a non-cancer hazard index greater than 1. A chemical is considered sufficiently volatile if it's Henry's Law constant is 1 x 10^{-5} atm-m^3/mol or greater.

Acenaphthene	Dibenzofuran	Hexachlorobenzene
Acetaldehyde	1,2-Dibromo-3-chloropropane	Hexachlorocyclopentadiene
Acetone	1,2-Dibromoethane (EDB)	Hexachloroethane
Acetonitrile	1,3-Dichlorobenzene	Hexane
Acetophenone	1,2-Dichlorobenzene	Hydrogen cyanide
Acrolein	1,4-Dichlorobenzene	Isobutanol
Acrylonitrile	2-Nitropropane	Mercury (elemental)
Aldrin	N-Nitroso-di-n-butylamine	Methacrylonitrile
alpha-HCH (alpha-BHC)	n-Propylbenzene	Methoxychlor
Benzaldehyde	o-Nitrotoluene	Methyl acetate
Benzene	o-Xylene	Methyl acrylate
Benzo(b)fluoranthene	p-Xylene	Methyl bromide
Benzylchloride	Pyrene	Methyl chloride chloromethane)
beta-Chloronaphthalene	sec-Butylbenzene	Methylcyclohexane
Biphenyl	Styrene	Methylene bromide
Bis(2-chloroethyl)ether	tert-Butylbenzene	Methylene chloride
Bis(2-chloroisopropyl)ether	1,1,1,2-Tetrachloroethane	Methylethylketone (2-butanone)
Bis(chloromethyl)ether	1,1,2,2-Tetrachloroethane	Methylisobutylketone
Bromodichloromethane	Tetrachloroethylene	Methylmethacrylate
Bromoform	Dichlorodifluoromethane	2-Methylnaphthalene
1,3-Butadiene	1,1-Dichloroethane	MTBE
Carbon disulfide	1,2-Dichloroethane	m-Xylene
Carbon tetrachloride	1,1-Dichloroethylene	Naphthalene
Chlordane	1,2-Dichloropropane	n-Butylbenzene
2-Chloro-1,3-butadiene (chloroprene)	1,3-Dichloropropene	Nitrobenzene
Chlorobenzene	Dieldrin	Toluene
1-Chlorobutane	Endosulfan	trans-1,2-Dichloroethylene
Chlorodibromomethane	Epichlorohydrin	1,1,2-Trichloro-1,2,2-trifluoroethane
Chlorodifluoromethane	Ethyl ether	1,2,4-Trichlorobenzene
Chloroethane (ethyl chloride)	Ethylacetate	1,1,2-Trichloroethane
Chloroform	Ethylbenzene	1,1,1-Trichloroethane
2-Chlorophenol	Ethylene oxide	Trichloroethylene
2-Chloropropane	Ethylmethacrylate	Trichlorofluoromethane
Chrysene	Fluorene	1,2,3-Trichloropropane
cis-1,2-Dichloroethylene	Furan	1,2,4-Trimethylbenzene
Crotonaldehyde (2-butenal)	Gamma-HCH (Lindane)	1,3,5-Trimethylbenzene
Cumene	Heptachlor	Vinyl acetate
DDE	Hexachloro-1,3-butadiene	Vinyl chloride (chloroethene)

Source: EPA 2002.

HUMAN HEALTH CONCEPTUAL SITE MODEL

Site: Construction Machinery Inc former CJM Construction

Follow the directions below. Do not consider engineering or land use controls when describing pathways.

Completed By: Peter Beardsley

Date Completed: April 2, 2008

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Briefly list other mechanisms or reference the report for details.*

(3) *Check exposure media identified in (2).*

(4) *Check exposure pathways that are complete or need further evaluation. The pathways identified must agree with Sections 2 and 3 of the CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, or "C/F" for both current and future receptors.*

Media / Transport Mechanisms

Media	Transport Mechanisms	
☐ Surface Soil (0-2 ft bgs)	Direct release to surface soil	check soil
	☐ Migration or leaching to subsurface	check soil
	☐ Migration or leaching to groundwater	check groundwater
	☐ Volatilization	check air
	☐ Runoff or erosion	check surface water
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☑ Subsurface Soil (2-15 ft bgs)	Direct release to subsurface soil	check soil
	☑ Migration to groundwater	check groundwater
	☑ Volatilization	check air
	☐ Other (list):	
☐ Ground-water	Direct release to groundwater	check groundwater
	☐ Volatilization	check air
	☐ Flow to surface water body	check surface water
	☐ Flow to sediment	check sediment
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☐ Surface Water	Direct release to surface water	check surface water
	☐ Volatilization	check air
	☐ Sedimentation	check sediment
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☐ Sediment	Direct release to sediment	check sediment
	☐ Resuspension, runoff, or erosion	check surface water
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	

Exposure Media / Exposure Pathways / Current & Future Receptors

Exposure Media	Exposure Pathways	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion		C/F	C/F	F			
	☑ Dermal Absorption of Contaminants from Soil		C/F	C/F	F			
☑ groundwater	☑ Ingestion of Groundwater		C/F	C/F	F			
	☐ Dermal Absorption of Contaminants in Groundwater							
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ air	☑ Inhalation of Outdoor Air		C/F	C/F	F			
	☑ Inhalation of Indoor Air		C/F	C/F	F			
	☐ Inhalation of Fugitive Dust							
☐ surface water	☐ Ingestion of Surface Water							
	☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Inhalation of Volatile Compounds in Tap Water							
☐ sediment	☐ Direct Contact with Sediment							
☐ biota	☐ Ingestion of Wild Foods							

Appendix 6

Type or print all information. See reverse for instructions.

OMB No. 2040-0042 Approval Expires 4/30/07

INVENTORY OF INJECTION WELLS

EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF GROUND WATER AND DRINKING WATER

(This information is collected under the authority of the Safe Drinking Water Act)

1. DATE PREPARED *(Year, Month, Day)*: 08-06-03

2. FACILITY ID NUMBER: NA

PAPERWORK REDUCTION ACT NOTICE

The public reporting burden for this collection of information is estimated at about 0.5 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, 2136, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

3. TRANSACTION TYPE *(Please mark one of the following)*

- [ ] Deletion
- [ ] Entry Change
- [ ] First Time Entry
- [ ] Replacement

4. FACILITY NAME AND LOCATION

A. NAME *(last, first, and middle initial)*: Construction Machinery Industrial, LLC

B. STREET ADDRESS/ROUTE NUMBER: 2615 Twentieth Avenue

C. LATITUDE

DEG	MIN	SEC
64	49	45.

D. LONGITUDE

DEG	MIN	SEC
147	46	48.

E. TOWNSHIP/RANGE

TOWNSHIP	RANGE	SECT	1/4 SECT
1S	1W	17	SW

F. CITY/TOWN: Fairbanks

G. STATE: Alaska

H. ZIP CODE: 99709

I. NUMERIC COUNTY CODE:

J. INDIAN LAND *(mark "x")*: [ ] Yes [x] No

5. LEGAL CONTACT:

A. TYPE *(mark "x")*: [ ] Owner [x] Operator

B. NAME *(last, first, and middle initial)*: Chee Kong Toh

C. PHONE *(area code and number)*: (907) 563-3822

D. ORGANIZATION: Construction Machinery Industrial, LLC

E. STREET/P.O. BOX: 5400 Homer Drive

F. CITY/TOWN: Anchorage

G. STATE: Alaska

H. ZIP CODE: 99518

I. OWNERSHIP *(mark "x")*: [x] PRIVATE [ ] PUBLIC [ ] SPECIFY OTHER [ ] STATE [ ] FEDERAL

6. WELL INFORMATION:

A. CLASS AND TYPE		B. NUMBER OF WELLS COMM	B. NUMBER OF WELLS NON-COMM	C. TOTAL NUMBER OF WELLS	D. WELL OPERATION STATUS UC	AC	TA	PA	AN
V	J	1		1				1	
				0					
				0					
				0					
				0					
				0					
				0					

COMMENTS *(Optional)*:

KEY:

DEG = Degree
MIN = Minute
SEC = Second

SECT = Section
1/4 SECT = Quarter Section

COMM = Commercial
NON-COMM = Non-Commercial

AC = Active
UC = Under Construction
TA = Temporarily Abandoned
PA = Permanently Abandoned and Approved by State
AN = Permanently Abandoned and not Approved by State

SECTION 1. DATE PREPARED: Enter date in order of year, month, and day.

SECTION 2. FACILITY ID NUMBER: In the first two spaces, insert the appropriate U.S. Postal Service State Code. In the third space, insert one of the following one letter alphabetic identifiers:

D - DUNS Number,
G - GSA Number, or
S - State Facility Number.

In the remaining spaces, insert the appropriate nine digit DUNS, GSA, or State Facility Number. For example, A Federal facility (GSA - 123456789) located in Virginia would be entered as : VAG123456789.

SECTION 3. TRANSACTION TYPE: Place an "x" in the applicable box. See below for further instructions.

Deletion. Fill in the Facility ID Number.
First Time Entry. Fill in all the appropriate information.
Entry Change. Fill in the Facility ID Number and the information that has changed.
Replacement.

SECTION 4. FACILITY NAME AND LOCATION:

- **A. Name.** Fill in the facility's official or legal name.
- **B. Street Address.** Self Explanatory.
- **C. Latitude.** Enter the facility's latitude (all latitudes assume North Except for American Samoa).
- **D. Longitude.** Enter the facility's longitude (all longitudes assume West except Guam).
- **E. Township/Range.** Fill in the complete township and range. The first 3 spaces are numerical and the fourth is a letter (N,S,E,W) specifying a compass direction. A township is North or South of the baseline, and a range is East or West of the principal meridian (e.g., 132N, 343W).
- **F. City/Town.** Self Explanatory.
- **G. State.** Insert the U.S. Postal Service State abbreviation.
- **H. Zip Code.** Insert the five digit zip code plus any extension.

SECTION 4. FACILITY NAME & LOCATION (CONT'D.):

- **I. Numeric County Code.** Insert the numeric county code from the Federal Information Processing Standards Publication (FIPS Pub 6-1) June 15, 1970, U.S. Department of Commerce, National Bureau of Standards. For Alaska, use the Census Division Code developed by the U.S. Census Bureau.
- **J. Indian Land.** Mark an "x" in the appropriate box (Yes or No) to indicate if the facility is located on Indian land.

SECTION 5. LEGAL CONTACT:

- **A. Type.** Mark an "x" in the appropriate box to indicate the type of legal contact (Owner or Operator). For wells operated by lease, the operator is the legal contact.
- **B. Name.** Self Explanatory.
- **C. Phone.** Self Explanatory.
- **D. Organization.** If the legal contact is an individual, give the name of the business organization to expedite mail distribution.
- **E. Street/P.O. Box.** Self Explanatory.
- **F. City/Town.** Self Explanatory.
- **G. State.** Insert the U.S. Postal Service State abbreviation.
- **H. Zip Code.** Insert the five digit zip code plus any extension.
- **I. Ownership.** Place an "x" in the appropriate box to indicate ownership status.

SECTION 6. WELL INFORMATION:

- **A. Class and Type.** Fill in the Class and Type of injection wells located at the listed facility. Use the most pertinent code (specified below) to accurately describe each type of injection well. For example, 2R for a Class II Enhanced Recovery Well, or 3M for a Class III Solution Mining Well, etc.
- **B. Number of Commercial and Non-Commercial Wells.** Enter the total number of commercial and non-commercial wells for each Class/Type, as applicable.
- **C. Total Number of Wells.** Enter the total number of injection wells for each specified Class/Type.
- **D. Well Operation Status.** Enter the number of wells for each Class/Type under each operation status (see key on other side).

CLASS I Industrial, Municipal, and Radioactive Waste Disposal Wells used to inject waste below the lowermost Underground Source of Drinking Water (USDW).

TYPE	1I	Non-Hazardous Industrial Disposal Well.
	1M	Non-Hazardous Municipal Disposal Well.
	1H	Hazardous Waste Disposal Well injecting below the lowermost USDW.
	1R	Radioactive Waste Disposal Well.
	1X	Other Class I Wells.

CLASS II Oil and Gas Production and Storage Related Injection Wells.

TYPE	2A	Annular Disposal Well.
	2D	Produced Fluid Disposal Well.
	2H	Hydrocarbon Storage Well.
	2R	Enhanced Recovery Well.
	2X	Other Class II Wells.

CLASS III Special Process Injection Wells.

TYPE	3G	*In Situ* Gassification Well
	3M	Solution Mining Well.

CLASS III (CONT'D.)

TYPE	3S	Sulfur Mining Well by Frasch Process.
	3T	Geothermal Well.
	3U	Uranium Mining Well.
	3X	Other Class III Wells.

CLASS IV Wells that inject hazardous waste into/above USDWs.

TYPE	4H	Hazardous Facility Injection Well.
	4R	Remediation Well at RCRA or CERCLA site.

CLASS V Any Underground Injection Well not included in Classes I through IV.

TYPE	5A	Industrial Well.
	5B	Beneficial Use Well.
	5C	Fluid Return Well.
	5D	Sewage Treatment Effluent Well.
	5E	Cesspools (non-domestic).
	5F	Septic Systems.
	5G	Experimental Technology Well.
	5H	Drainage Well.
	5I	Mine Backfill Well.
	5J	Waste Discharge Well.

PAPERWORK REDUCTION ACT The public reporting and record keeping burden for this collection of information is estimated to average 0.5 hours per response. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW., Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

Type or print all information. See reverse for instructions

Form Approved 12/99 OMB No. 2040-0214

United States Environmental Protection Agency

UIC Federal Reporting System

Class V Well ~~Pre~~-Closure Notification Form

1. Name of facility: Construction Machinery Industrial, LLC

Address of facility: 2615 20th Avenue

City/Town: Fairbanks State: AK Zip Code: 99709

County: Fairbanks North Star Location: 64° 49' 45" N Lat./Long.: 147° 46' 48"

2. Name of Owner/Operator: Construction Machinery Industrial, LLC

Address of Owner/Operator: 5400 Homer Drive

City/Town: Anchorage State: AK Zip Code: 99518

Legal contact: Chee Kong Toh Phone number: (907) 563 3822

3. Type of well(s): Class V Number of well(s): 1

4. Well construction (check all that apply):

- [x] Drywell
- [ ] Septic tank
- [ ] Cesspool
- [ ] Improved sinkhole
- [ ] Drainfield/leachfield
- [ ] Other

5. Type of discharge: Primary discharge of water from melting snow on shop floor
Secondary discharge of petroleum & other materials from shop floor

6. Average flow (gallons/day): not known 7. Year of well construction: 1984

8. Type of well closure (check all that apply):

- [ ] Sample fluids/sediments
- [ ] Clean out well
- [ ] Appropiate disposal of remaining fluids/sediments
- [ ] Install permanent plug
- [ ] Remove well & any contaminated soil
- [ ] Conversion to other well type
- [x] Other (describe): refer to report for all closure activities

9. ~~Proposed~~ date of well closure: April 2007

10. Name of preparer: Peter Beardsley, Nortech Date: January 2011

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

Name and Official Title (*Please type or print*)	Signature	Date Signed
CHEE KONG TOH DIR. OF FIN & CR	[signature]	2/1/11

EPA Form 7520-17

INSTRUCTIONS FOR EPA FORM 7520-17

This form contains the minimum information that you must provide your UIC Program Director if you intend to close your Class V well. This form will be used exclusively where the EPA administers the UIC Program: AK, AS, AZ, CA, CO, DC, DE, HI, IA, IN, KY, MI, MN, MT, NY, PA, SD, TN, VA, VI, and on all Tribal Lands. If you are located in a different State or jurisdiction, ask the agency that administers the UIC Program in your State for the appropriate form.

If you are closing two or more Class V wells that are of similar construction at your facility (two dry wells, for example) you may use one form. If you are closing Class V wells of different construction (a septic system and a dry well, for example) use one form per construction type.

The numbers below correspond to the numbers on the form.

1. Supply the name and street address of the facility where the Class V well(s) is located. Include the City/Town, State (U.S. Postal Service abbreviation) and Zip Code. If there is no street address for the Class V well, provide the route number or locate the well(s) on a map and attach it to this form. Under "Location," provide the Latitude/Longitude of the well, if available.

2. Provide the name and mailing address of the owner of the facility, or if the facility is operated by lease, the operator of the facility. Include the name and phone number of the legal contact for any questions regarding the information provided on this form.

3. Indicate the type of Class V well that you intend to close (for example, motor vehicle waste disposal well or cesspool). Provide the number of wells of this well type at your location that will be closed.

4. Mark an "X" in the appropriate box to indicate the type of well construction. Mark all that apply to your situation. For example, for a septic tank that drains into a drywell, mark both the "septic tank" and "drywell" boxes. Please provide a generalized sketch or schematic of the well construction if available.

5. List or describe the types of fluids that enter the Class V well. If available, attach a copy of the chemical analysis results and/or the Material Safety Data Sheets for the fluids that enter the well.

6. Estimate the average daily flow into the well in gallons per day.

7. Provide the year that the Class V well was constructed. If unknown, provide the length of time that your business has been at this location and used this well.

8. Mark an "X" in the appropriate box(s) to indicate briefly how the well closure is expected to proceed. Mark all that apply to your situation. For example, all boxes except the "Remove well & any contaminated soil" and "Other" would be marked if: the connection of an automotive service bay drain leading to a septic tank and drainfield will be closed, but the septic system will continue to be used for washroom waste disposal only, and the fluids and sludge throughout the system will be removed for proper disposal, the system cleaned, a cement plug placed in the service bay drain and the pipe leading to the washroom connection, and the septic tank/drainfield remains open for septic use only. In this example, the motor vehicle waste disposal well is being converted to another well type (a large capacity septic system).

9. Self explanatory.

10. Self explanatory.

PLEASE READ . . .

The purpose of this form is to serve as the means for the Class V well owner or operator's notice to the UIC Director of his/her intent to close the well in accordance with Title 40 of the Code of Federal Regulations (40 CFR) Section 144.12(a). According to 40 CFR §144.86, you must notify the UIC Program Director at least 30 days prior to well closure of your intent to close and abandon your well. Upon receipt of this form, if the Director determines that more specific information is required to be submitted to ensure that the well closure will be conducted in a manner that will protect underground sources of drinking water (as defined in 40 CFR §144.3), the Director can require the owner/operator to prepare, submit and comply with a closure plan acceptable to, and approved by the Director.

Please be advised that this form is intended to satisfy Federal UIC requirements regarding pre-closure notification only. Other State, Tribal or Local requirements may also apply.