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SAMPLING & ANALYSIS PLAN

AIRCRAFT PARTS STORAGE, FTW 336A FORT WAINWRIGHT, ALASKA

TECHNICAL SPECIFICATIONS SECTION 31 09 20.00 29 W911KB-10-C-0007

Rockwell E&C Job No. 1008

Prime Contractor:

Tunista Arctic Rim / TBI Construction, LLC
301 Calista Ct
Anchorage, AK 99518-3028

Consultant:

ROCKWELL ENGINEERING & CONSTRUCTION SERVICES, Inc.

Shann Jones
Environmental Professional

Mark Rockwell
President

Revised April 27, 2010

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CHART AND TABLES

APPENDICES

ABBREVIATIONS & ACRONYMS

ADEC	Alaska Department of Environmental Conservation
APSB	Aircraft Parts Storage Building
ASTM	American Society for Testing and Materials
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CO	Contracting Officer
COC	Chain of Custody
Cy	Cubic Yards
DPW	Directorate of Public Works
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
FSP	Field Sampling Plan
FTWW	Fort Wainwright
GRO	Gasoline Range Organics
mL	Milliliter
mm	Millimeter
PID	Photoionization Detector
ppm	Parts Per Million
POL	Petroleum, Oils and Lubricants
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
QAR	Quality Assurance Representative
QC	Quality Control
QCSM	Quality Control Systems Manager
RRO	Residual Range Organics
Rockwell E&C	Rockwell Engineering & Construction Services, Inc.
SAP	Sampling and Analysis Plan
SGS	SGS North America, Inc.
SHP	Safety & Health Program
SSSHP	Site Specific Safety & Health Plan
TAR/TBI	Tunista Arctic Rim / TBI Construction LLC
TS	Technical Specifications
USACE	United States Army Corps of Engineers
UST	Underground Storage Tank

EXECUTIVE SUMMARY

The purpose of this project is to construct a 20,000 square foot Aircraft Parts Storage Building (APSB) for the Aviation Task Force on Fort Wainwright, Alaska. The project includes the building, exterior storage parking, site improvements and force protection measures.

Major work areas are:

- Constructing the new APSB, north of Building 2079.
- Constructing the accompanying parking and service yards for the APSB west of Building 2079 and north of Montgomery Road.
- Constructing of an enclosed outdoor storage area directly north of the new APSB.

The United States Army Corps of Engineers (USACE) contracted Tunista Arctic Rim / TBI Construction LLC (TAR/TBI) to perform all work under contract number W911KB-10-C-0007. TAR/TBI subcontracted Rockwell Engineering and Construction Services, Inc. to field screen and headspace sample excavated soils for petroleum, oil, and lubricant (POL) contamination under TS Section 31 09 20.00 29 Field Screen Testing of Soils for POL Contamination. Rockwell E&C will not be onsite for any demolition or removal of asbestos or lead containing materials.

Field screening and soil sampling will be conducted in general accordance with: TS Section 31 09 20.00 29 Field Screen Testing of Soils for POL Contamination; this Sampling and Analysis Plan (SAP); and the Alaska Department of Environmental Conservation (ADEC) approved Quality Assurance Program Plan (Appendix A).

TS Section 31 09 20.00 29 Field Screen Testing of Soils for POL Contamination Paragraph 3.2 specifies that no contaminated soil is expected during the project outside of the 300 cubic yards identified in TS Section 02 61 13. When contamination is encountered, segregation and sampling will be conducted as outlined in TS 31 09 20.00 29, Paragraph 3.3.4 and TS 02 61 13, Paragraph 3.4. Should Rockwell E&C encounter visible stains, smell of fuels, or volatiles, or readings above background in any field screening test, Rockwell E&C will immediately notify TAR/TBI. TAR/TBI will immediately notify the USACE/Contracting Officer (CO) by telephone and in writing. TAR/TBI will re-evaluate the SHP as appropriate and await direction from the USACE CO before proceeding with the excavation. If contaminated soil is encountered within the site boundaries, the USACE/CO may direct sampling and analysis not outlined in this SAP. This additional sampling and analysis will be directed in writing by the CO.

Excavated contaminated and/or potentially contaminated soils, if encountered, will require segregation, stockpiling, characterization, treatment, and disposal in accordance with the State of Alaska laws and ADEC regulations.

Laboratory samples, when needed, will be collected in general accordance with the ADEC approved QAPP and the ADEC Underground Storage Tank Procedures Manual, dated November 7, 2002. Rockwell E&C will collect 10% QC duplicates and 5% trip blanks as required by ADEC 18 AAC 75 and the UST Procedures Manual.

Rockwell E&C will provide a Field Report covering all site assessment activities conducted under and in accordance with TS Section 31 09 20.00 29 Field Screen Testing of Soils for POL Contamination, Paragraph 3.7. The Final Closure Report covering all sampling and site assessments activities conducted under TS 02 61 03 will be submitted separately as necessary.

1.0 INTRODUCTION

This SAP includes the Field Sampling Plan (FSP) in Section 2.0 and the QAPP in Appendix A. The FSP describes the field screening and headspace sampling methods and frequencies to be used during excavation activities as well as procedures for collecting analytical soil samples, when necessary.

1.1 Purpose

This SAP contains the methods and procedures to perform a general site inspection, field screening during excavation to identify soil contamination, and analytical sampling for soil characterization, if necessary.

1.2 Project Organization

The Department of the Army is the landowner. The USACE awarded this project to TAR/TBI under contract number W911KB-10-C-0007. TAR/TBI subcontracted Rockwell E&C to prepare plans, perform field screening tests and laboratory sampling as specified in TS Section 31 09 20.00 29, Field Screen Testing of Soils for POL Contamination, Paragraph 3.3. TAR/TBI will retain Rockwell E&C to prepare work plans, perform field screening tests and laboratory sampling as specified in TS Section 02 61 13, Excavation and Handling of Contaminated Material, Paragraph 3.4, and as directed by the USACE/CO.

Chart 1.1 on page 3 represents the abbreviated chain of command for this project.

1.3 Related Documents

- Contract – Aircraft Parts Storage, W911KB-10-C-0007. TS Sections:
  - 01 19 30.01 29 Special Items;
  - 01 33 00 Submittal Procedures;
  - 01 35 26 Governmental Safety Requirements
  - 01 57 20.00 10 Environmental Protection;
  - 01 57 34.00 29 Storm Water Pollution Prevention Measures;
  - 02 61 13 Excavation and handling of Contaminated Material; and,
  - 31 09 20.00 29 Field Screen Testing of Soils for POL Contamination.
- FTW 336A Aircraft Parts Storage, W911KB-09-R-0007.

- Safety & Health Requirements Manual, EM 385-1-1. US Army Corps of Engineers, November 3, 2003.
- Oil and Hazardous Substances Pollution Control, 18 AAC 75. Alaska Administrative Code, as amended through October 9, 2008.
- Underground Storage Tanks, 18 AAC 7. Alaska Administrative Code, as amended through October, 2006.
- Underground Storage Tank Procedures Manual. Alaska Department of Environmental Conservation, November 7, 2002.
- Description and Identification of Soils (Visual-Manual Procedure) ASTM D 2488. American Society for Testing and Materials Publication, 1996.

1.4 Scope of Work

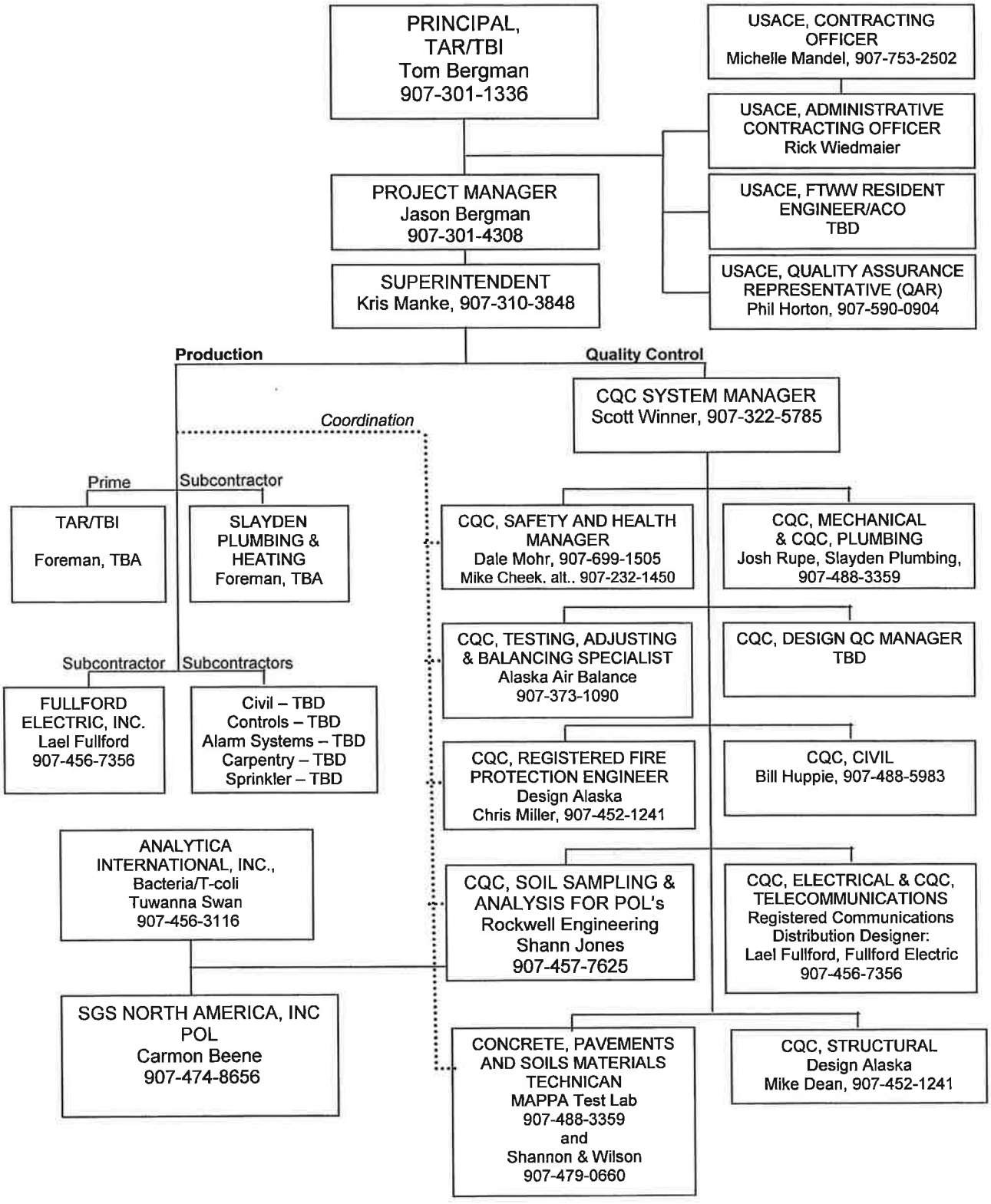
The scope of work for this project consists of the following tasks:

- ✓ Task 1: Perform a general site inspection and field screening of excavated soil for POL contamination.
- ✓ Task 2: If suspect or contaminated soil is encountered, segregate by field screening, and stockpile contaminated soil. Collect laboratory confirmations soil samples at the direction of the USACE/CO.
- ✓ Task 3: Prepare and submit deliverables to the USACE/CO through TAR/TBI, including this SAP, daily field screening results, laboratory results, a Field Report, and Closure Report (as required).

Site work will occur for three excavations on this project. The first consists of excavating approximately 6,700 cy of soil at the APSB site. The APSB site sits on the north side of Montgomery Road, east of its intersection with Luzon Avenue. The new utilities run between the APSB and the existing utilidor on the north side of Montgomery Road. The second excavation for the parking lot located west of Buildings 2079. Approximately 2,100 cy of soil will be excavated at this site. The third excavation is for the enclosed outdoor storage area directly north of the new APSB. Approximately 2,900cy of soil will be excavated at this site. Based on project drawings, the typical excavation depth ranges from approximately three (3) to 10 feet below grade.

Rockwell E&C's scope of work does not include any testing or screening of asbestos or lead containing materials; and Rockwell E&C will not be present during asbestos or lead removal activities for health and safety reasons.

Chart 1.1: Project Chain of Command



The resumes of Rockwell E&C personnel are provided in Appendix F of this submittal and the Consultants Qualifications submittal, provided separately.

1.5 Site Description

Fort Wainwright lies east of downtown Fairbanks, Alaska. The proposed 20,000 square foot APSB is located on Montgomery Road, north of Building 2079 and west of Building 2080. For a work location map, see Sheet LV1.01 in Appendix B. There are associated sections of road/driveway, parking lots, sidewalks, and utilities that will be removed and replaced or disposed of during construction.

According to Sheet 3.01 *FTW 336A Aircraft Part Storage RFP,* the surface of the groundwater ranges from 11 to 16 bgs, fluctuates seasonally and should not impact excavation and backfill work. TAR/TBI does not anticipate encountering groundwater during excavation. Upon the discovered of groundwater, Rockwell E&C personnel will notify the TAR/TBI Superintendent and/or CQSM. Subsequently, TAR/TBI will prepare a dewatering plan and permit for ADEC Approval.

2.0 FIELD SAMPLING PLAN

2.1 Health and Safety

Fieldwork will be completed in general accordance with the USACE Safety & Health Requirements Manual, EM 385-1-1, 2003. Rockwell E&C will comply with TAR/TBI's Safety and Health Program and Site Specific Safety and Health Plan.

TAR/TBI is responsible for acquiring authorization to dig and utility clearances. It is anticipated excavations will consist of open pits, deep trenches and manholes up to approximately 15 feet below ground surface; sloping or shoring of the excavation will be required. Rockwell E&C personnel have been trained to evaluate unsafe excavation conditions and will not enter an unsafe excavation area. Screening and sampling in excavations greater than four (4) feet deep below grade shall be completed from the excavation bucket when entering trenches is unsafe. Rockwell E&C will not be working in areas requiring confined space entry procedures.

Rockwell E&C personnel will wear personal protective equipment consisting of hardhats, hearing protection, steel toed boots, blaze orange safety vests, and safety glasses. Rockwell E&C personnel will make eye contact with operators and wait until the area is safe prior to moving near or around equipment. Upon discovery of a contaminated area, Rockwell E&C shall consult with the TAR/TBI SSHO regarding appropriate PPE that effectively prevents or reduces exposure to hazards and meets the requirements of 29 CFR 1910.132-138.

Accidents and emergencies will be reported to TAR/TBI immediately. Rockwell E&C will complete the USACE Immediate Report of Accident POD Form 265-R, June 2007 and an Accident Investigation Report Eng. Form 3394 (March 1999 Version 2). The completed forms will be submitted to TAR/TBI to be forwarded to the USACE/CO. These forms are presented in Appendix C.

2.2 Classification of Soil Contamination

No contaminated soil is anticipated at the site. During field screening, soil will be classified according to the following descriptions:

- *Non-Contaminated*: No visible stains, no smell of fuels or volatiles, and no PID readings above 20 ppm.
- *Potentially Contaminated (Suspect)*: Visible stains, smell of fuels or volatiles and/or PID readings greater than 20 parts per million and less than 100 ppm.
- *Contaminated*: Visible stains, smell of fuels or volatiles and/or PID readings greater than 100 ppm.

If visible stains, smells of fuels or volatiles, or readings above background are discovered in any field-screening test, Rockwell E&C will notify TAR/TBI, who will then notify the USACE/CO immediately, by phone and in writing, as per TS Section 31 09 20.00 29 Field Screen Testing of Soils for POL Contamination Paragraph 3.2.2. TAR/TBI will then re-evaluate the SHP and SSSHP, as appropriate. Rockwell E&C will await direction from the USACE/CO through TAR/TBI before the excavation continues.

The criterion for identifying contaminated soil stated in TS Section 31 09 20.00 29 Paragraph 3.3 relies on laboratory testing. Meeting or exceeding ADEC cleanup levels in the excavation area and stockpiles can only be determined by laboratory testing, not field screening techniques alone.

Whenever Rockwell E&C personnel suspect or have knowledge of a leak, spill, or release of oil, hazardous substance, or regulated substance not previously identified in the contract documents, (s)he will immediately notify TAR/TBI by telephone then prepare an ADEC Oil and Hazardous Substances Spill Notification Form (Appendix C). Rockwell E&C will submit the completed form to TAR/TBI, who will hand deliver or FAX the report to the USACE/CO. The construction site will have the capacity to control, contain, and remove such spills if they occur. Spill kits will be readily available and all employees on site will be trained in their use. Spills in excess of reportable quantities will be reported as required in 40 CFR 110.

TAR/TBI SSHO, Dale Mohr (Alternate: Kris Manke, Superintendent) will be responsible to report any spills or hazardous substance releases and will follow up with complete documentation. The individual will immediately notify the CO, FTWW Fire Department, and Directorate of Public Works (DPW) Environmental. DPW Environmental will be responsible for reporting to regulatory agencies by legally required Federal, State, and local reporting channels (including the National Response Center) if a reportable quantity is released to the environment. Kris Manke, Superintendent, will be responsible for implementing and supervising the containment and clean-up as outlined in the Environmental Protection Plan (EPP) . Rockwell E&C will be the designated spill contractor and will respond upon direction from the USACE/CO through TAR/TBI. Any field screening or clean-up activities related to a spill or release are not services covered under this SAP.

2.3 Field Screening and Headspace Sampling

Rockwell E&C will field screen during all new excavations associated with this Aircraft Parts Storage Building project. **Rockwell E&C requires 48-hour advanced notification of upcoming excavation activities when such activities do not occur on successive dates. For ongoing excavation (i.e., consecutive days), the TAR/TBI Project Manager and/or Superintendant shall notify Rockwell E&C personnel on-site as to the excavation plans for the next business day**.

2.3.1 Equipment and Instruments

Rockwell E&C will use BW Gas Alert Micro5 PIDs, which are intrinsically safe. The PID will be calibrated daily in 0 ppm free air and 100 or 106 ppm isobutylene, using a response factor of 1.0, according to the manufacturer's instructions.

Latex or nitrile gloves will be worn during all field screening activities. Clean hand tools will be used to unearth sampling locations. Paper towels or a stiff brush will be used to remove loose soil from the tools before sampling each location. A plastic Ziploc® bag will be used to hold headspace samples. If contaminated soil is encountered, tools will be decontaminated in general accordance with the QAPP.

2.3.2 Field Screening Procedures

Rockwell E&C personnel will maintain a continuous presence during excavation. Because construction will be happen on multiple sites, Rockwell E&C will deploy multiple screeners to ensure a continuous presence at each site. Field screening personnel will consist of Rockwell E&C permanent environmental staff and qualified seasonal staff. Soil will be screened during excavation by using the PID and a small funnel to contain vapors. When safe to enter the vicinity of heavy equipment, Rockwell E&C personnel will place the large opening of the funnel in the freshly exposed soil and insert the PID probe into the small opening to measure petroleum vapors collecting within the funnel. This method prevents soil particles from coming into contact with the PID probe, minimizes the effects of wind blowing the vapors away, and reduces the chance of erroneous measurements from ambient air, which may contain equipment exhaust fumes or other extraneous contaminants.

2.3.3 Headspace Sampling Procedures

The headspace procedure will be in accordance with the QAPP. The procedure consists of partially filling a clean Ziploc bag with the sample to be screened. Headspace vapors will be allowed to develop in the bag for at least 10 minutes, but no longer than one (1) hour. The soil temperature will be warmed to at least 40°F. The bag will be agitated for approximately 15 seconds just prior to screening to assist volatilization. The PID probe will then be carefully inserted into the bag to measure headspace gases. The highest PID reading will be recorded along with soil temperature on a daily field screening report sheet (Appendix D).

2.3.4 Screening and Sampling Frequency

Table 2.1 below lists the minimum frequency of headspace samples to be collected.

Table 2.1: Minimum Field Sampling Frequency

Sampling Areas	Field Screening During Excavation (Funnel)	Headspace Sampling	
		During Excavation	Final Excavation Limits
Building Excavations and Utility Trenches			
Clean/background	1/10 yd^3	1/30 yd^3	1/100 feet length on side walls and 1/250 ft^2 on floor
Suspect/ Potentially Contaminated/ Contaminated	1/2 yd^3	1/10 yd^3	1/100 feet length on side walls and 1/250 ft^2 on floor

2.4 Laboratory Sampling and Testing

As per TS Section 02 61 13, Excavation and Handling of Contaminated Materials, Paragraph 1.6, collection and laboratory testing of soil samples is necessary, and shall be carried out only when directed in writing by the USACE/CO. Such required sampling shall be conducted in accordance with 18 AAC 75.

Contaminated and potentially-contaminated soils are anticipated at the site as per TS Section 02 61 13, Excavation and Handling of Contaminated Materials, Paragraph 1.5. When encountered, these soils will be segregated using the PID and placed into a temporary stockpile at a location selected by the USACE/CO, and indicated in the FTW 336A Environmental Protection Plan. All temporary potentially contaminated stockpiles will be constructed according to ADEC regulations 18 AAC 78 and will be lined with a minimum of 10 mil plastic and covered. An earthen berm underlying the plastic liner will contain all soil.

2.4.1 Soil Sampling Procedures

When directed by the USACE/CO, Rockwell E&C will collect soil samples for laboratory testing using the procedures outlined in the UST Procedures Manual. All samples will be grab samples. Samples will be obtained from freshly uncovered soil.

Soil samples from excavation equipment buckets must be obtained from the center of the bucket and away from the bucket sides; at least six (6) inches of soil must be removed immediately before collection. For stockpile sampling a minimum of 18 inches of soil will be removed immediately before collection.

To minimize volatilization, the lab jars will be filled in order of decreasing analytical volatility. Soil samples will be handled using disposable gloves. All jars will be filled quickly and completely to eliminate excess headspace within the jar.

Sample jars will be properly labeled and placed into a pre-chilled cooler. The chilled temperature within the cooler will be maintained at approximately 4°C using frozen gel packages during transportation to SGS North America, Inc. (SGS), the laboratory subcontracted for this project. A signed Chain-of-Custody form will accompany the samples to the lab. Appendix E presents SGS' Laboratory Certifications.

2.4.2 Laboratory Testing

Soil samples will be tested for the following parameters using the methods listed when directed by the USACE/CO:

- ✓ GRO by AK101
- ✓ DRO by AK102
- ✓ RRO by AK103
- ✓ BTEX by SW 8021B
- ✓ Polycyclic Aromatic Hydrocarbons (PAH) by EPA Method 8270 SIMS
- ✓ Lead by EPA Method 6020
- ✓ Other analytes as requested by USACE, ADEC, EPA or FTWW DPW Environmental

2.4.3 Required Sample Frequency

The number of primary soil samples and sampling locations will be determined by the USACE/CO when contamination is encountered or suspected. Rockwell E&C will

perform required post excavation (excavation limit sampling) in addition to stockpile sampling to demonstrate complete removal or quantify the levels of remaining POL contaminated soils. Stockpile sampling will be conducted in accordance with 18 AAC 78.605 (c), "For untreated stockpiled soil, at least two grab samples must be collected from stockpiles of 50 cubic yards or less, with at least one additional sample collected from each additional 50 cubic yards of soil or portion thereof over the initial 50 cubic yards".

Post excavation sampling will be conducted in accordance with 18 AAC 78.090 (d)(2)(B)(ii), "...an excavated pit area equal to or greater than 250 square feet, at least two samples must be collected from the pit area as required under (i) of this subparagraph; one additional sample must be collected for each additional 250 square feet of pit area, or portion thereof over the initial 250 square feet, at points where contamination is most likely to be present, as determined by field screening conducted as required by the *UST Procedures Manual*; for example, if the total pit area is 1,270 square feet, five additional samples are required".

Quality control sampling is not stated under TS Section 31 09 20.00 09 Field Screen Testing of Soils for POL Contamination. ADEC 18 AAC 75 and the UST Procedures Manual require field QC sampling of 10 percent field duplicates (one per set of 10 samples) for each analytical method and 5 percent trip blanks (one per set of 20 volatile samples). Rockwell E&C will collect 10 percent QC duplicates and 5 percent trip blanks as required by ADEC 18 AAC 75 and the UST Procedures Manual if laboratory sampling is necessary.

Quality Assurance sampling is not stated under TS Section 31 09 20.00 09 Field Screen Testing of Soils for POL Contamination. QA sampling consists of 10% triplicate sample collection with the QA sample analyzed at a laboratory selected by the USACE. QA sampling will occur only at the direction of the USACE/CO.

2.4.4 Limits of Data Acceptability

Qualitative and quantitative quality assurance objectives are precision, accuracy, completeness, representativeness, and comparability.

Rockwell E&C will review the laboratory results for completeness, accuracy, and unexpected results. All holding times to extract and analyze will be reviewed. QC data will be provided by AAL, which will report whether all acceptance criteria were met. The practical quantitation limits will be checked as to whether the limits are within acceptable ranges. The lab data report will be reviewed as to whether it meets the requirements for data reporting, Section 8.4 UST Procedures Manual.

The analytical results will be reviewed to check whether the results generally agree with field observations and screening results. Corrective action will be initiated if the inconsistencies between the laboratory results and the field observations and screening cannot be accounted for or resolved. If necessary, corrective action could include re-analysis of samples by the laboratory or recollection of the samples from the site.

2.5 Quality Control (QC)

Rockwell E&C will perform *preparatory* quality control measures before beginning work. This includes, but is not limited to reviewing all procedures outlined in the SAP by field personnel; reviewing plans and specs applicable to Rockwell E&C work; reviewing project drawings; and equipment checks. The equipment and/or materials check includes gathering and testing equipment/materials to be used during field activities before excavation is scheduled to begin. Rockwell E&C will attend the preparatory meeting conducted by the Quality Control Systems Manager (QCSM), as required.

Initial quality control measures will be taken to ensure accurate field data is being collected. These measures will include determining if PID readings are logical, calibrating the PID(s) to be used, and filling out daily QC reports. As part of Rockwell E&C's field procedures, a bound daily logbook will be used to record field screening activities.

For safety, a daily health and safety inspection report (Appendix D) will be completed before any field Rockwell E&C personnel begin work. Rockwell E&C personnel will review contractor health and safety plans, and attend contractor safety meetings when they are scheduled to be on the job site.

Follow up quality control measures will be taken to verify the field data collected during soil screening. Rockwell E&C will complete a daily quality control report, a field

screening report (Appendix D) and a site drawing or sketch showing field screening and sampling locations. The daily QC report, field screening report, and site drawing(s) will be copied and given to the TAR/TBI QCSM at the end of each day or the following day. Rockwell E&C field personnel will report to their office and speak with a supervisor at least once daily. Any problems will be reported to a Rockwell E&C supervisor and TAR/TBI as soon as time allows.

All field activities will be reviewed in order to ensure field procedures outlined in the SAP were followed throughout the duration of data collection. Also, review of the communication of problems, if any, encountered during soil screening will be performed to determine if procedural changes are needed. The discovery of any "out of control" situation requires a written notification to Rockwell E&C management.

3.0 REPORTING

Rockwell E&C will prepare and submit a copy of the draft and final Field Report to the USACE/CO through TAR/TBI as per the requirements described in TS Section 31 09 20.00 29 Field Screen Testing of Soils for POL Contamination Paragraph 3.7.2. The report will include, at a minimum, the information described in TS Section 31 09 20.00 29, Paragraph 3.7.1 subparagraphs *a* through *i*:

a) Owner's name and address;
b) Operator's name and address (if different from above);
c) Name and business address of all supervisors of site assessment;
d) Scaled site sketch;
e) Photographic history
f) Local climatological conditions during on site work;
g) Field screening information;
h) General site inspection; and,
i) Field notes.

Should TAR/TBI be directed by the USACE/CO to excavate and handle contaminated material as specified in TS Section 02 61 13, Rockwell E&C will send a Closure Report to the USACE/CO via TAR/TBI after completion of all such work at the site. Rockwell E&C will prepare and submit a copy of the draft and final Closure Report to the USACE/CO through TAR/TBI as per the requirements described in TS Section 02 61 13

Paragraph 1.3. The report will include, at a minimum, the information described in TS Section 02 61 13, Paragraph 3.6 subparagraphs *a* through *h*:

a) Cover letter with verifying signature;
b) Narrative report;
c) Copies of all test results;
d) Copies of all manifests and land disposal restriction notifications;
e) Sign copies of all final disposal certifications;
f) Waste profile sheets;
g) Scale drawings; and,
h) Photographic log.

Rockwell E&C does not anticipate any correspondence with other government agencies; however, copies of any such correspondence will be furnished to the Contracting Officer immediately upon issue or receipt. Any correspondence with ADEC shall be through the USACE/CO. Cover letters shall be appropriately addressed with "TO:" and "THROUGH:" headings.

APPENDIX A

QUALITY ASSURANCE PROGRAM PLAN

ROCKWELL ENGINEERING & CONSTRUCTION SERVICES, Inc.

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Quality Assurance Program Plan

Acceptance of the Standard Sampling Procedures published by the Alaska Department of Environmental Conservation.

Rockwell Engineering & Construction Services, Inc. (Rockwell E&C) adopted the Alaska Department of Environmental Conservation (ADEC) Standard Sampling Procedures for the purposes of a Quality Assurance Project Plan (QAPP).

Effective December 1, 1999, and updated November 7, 2002, ADEC published the Underground Storage Tank (UST) Procedures Manual. The complete Procedures Manual is readily available at www.state.ak.us/dec.

In *Chapter 2 Standard Sampling Procedures,* ADEC has standardized sampling and testing requirements, which are approved by ADEC for Site Assessment Firms. These requirements included quality control and quality assurance functions.

As an ADEC approved Site Assessment Firm, Rockwell E&C must conduct environmental sampling, testing, and reporting in accordance with Chapter 2. Therefore, we adopted the Standard Sampling Procedures in lieu of a separate QAPP. These procedures are presented on the following pages.

State of Alaska

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

Underground Storage Tanks Procedures Manual

GUIDANCE FOR TREATMENT OF
PETROLEUM-CONTAMINATED SOIL AND WATER
AND
STANDARD SAMPLING PROCEDURES

November 7, 2002

This publication was released by the Alaska Department of Environmental Conservation. It was printed in Juneau, Alaska, and contains information adopted by reference in department regulations. It was produced at a cost to the department of $9.50 per copy, including $3.00 postage. B2

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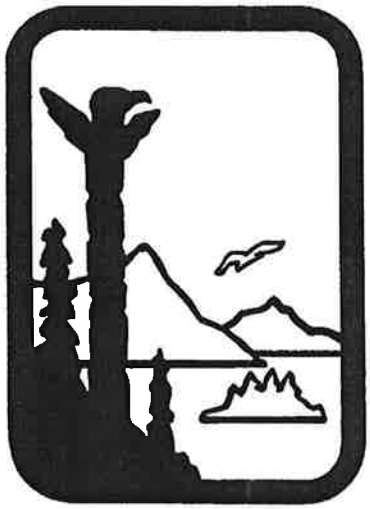

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CHAPTER 1

GUIDANCE FOR TREATMENT OF PETROLEUM-CONTAMINATED SOIL AND WATER AT UNDERGROUND STORAGE TANK SITES

CHAPTER 1. GUIDANCE FOR TREATMENT OF PETROLEUM-CONTAMINATED SOIL AND WATER AT UNDERGROUND STORAGE TANK SITES

For more information regarding remedial technologies that are available, refer to the document entitled *How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites, A Guide for Corrective Action Plan Reviewers*, EPA 510-B-94-003, dated October 1994, published by the United States Environmental Protection Agency, and available from that agency. A copy is available for review at the Department of Environmental Conservation's offices in Anchorage, Fairbanks, Juneau, and Soldotna.

CHAPTER 1 NOT INCLUDED

CHAPTER 2

STANDARD SAMPLING PROCEDURES

CHAPTER 2. STANDARD SAMPLING PROCEDURES

SECTION 1. PROGRAM DESCRIPTION

1.1 Program Objectives

This manual outlines the standard operating procedures, quality control procedures, and data quality objectives for regulated underground storage tank (UST) site characterizations, site assessments, release investigations, and corrective actions. It directs the collection, interpretation, and reporting of data. This data will enable tank owners and operators and ADEC to evaluate the presence, degree, and extent of any groundwater, surface water, and soil contamination and to determine if further action is necessary.

The term "assessment firm," wherever used in this manual, refers to the organization conducting the activity.

1.2 Program Approach

To meet program objectives, this manual outlines a systematic approach to conducting UST site assessments and investigations. This approach is based on scientific studies, United States Environmental Protection Agency (EPA) guidance and methods, Alaska's UST regulations in 18 AAC 78, guidelines, input from the Alaska UST regulations workgroup, and assessment strategies used in Alaska and other states. This manual details sampling, laboratory analysis, and data reporting procedures, along with all required quality control functions. It also lists persons responsible for the major tasks required by 18 AAC 78. The manual covers activities in the following areas:

* personnel and responsibilities
* data quality objectives
* sampling procedures
* sample transfer log
* laboratory analytical procedures
* equipment maintenance and calibration
* data reduction, validation, and reporting
* quality control checks
* precision, accuracy, and completeness assessment
* corrective action scenarios
* internal audits

* reporting to management

Information about site sampling locations and site history, with reference to any existing documents for historical information and data available, must be included in the site-specific project plan or report submitted for each project undertaken for which a plan is required.

SECTION 2. PROGRAM ORGANIZATION AND RESPONSIBILITIES

2.1 Personnel and Responsibilities

The Qualified Personnel Form, Appendix A, must be submitted to ADEC with a resume for each qualified person to document that all activities under this chapter, including the collection, interpretation, and reporting of data, are conducted or supervised by a qualified person as required by 18 AAC 78. The submitted document must also identify the assessment firm's key UST personnel including the principal investigator and the quality assurance (QA) officer. One person may perform both the principal investigation and quality assurance officer tasks. The responsibilities for these tasks under this chapter are as follows:

(1) The assessment firm's principal investigator is responsible for overall management of the UST site assessment and site investigation program, including adherence to the procedures outlined in this chapter.

(2) The assessment firm's QA officer is responsible for overall quality assurance of the assessment firm's UST program. The QA officer is responsible for conducting scheduled field audits and providing ongoing review, monitoring, and evaluation of the field and laboratory activities. The QA officer shall validate or supervise validation of all reports to ADEC.

2.2 Accountability

While a laboratory must assure satisfactory levels of quality control within the laboratory to maintain its status with ADEC, the owner or operator shall ensure that the assessment firm

(1) verifies the status of the laboratory being used; a list of certified and provisionally approved laboratories is available from ADEC;

(2) ensures that analytical testing meets the objectives of this chapter that refer to laboratories and the applicable requirements of 18 AAC 78;

(3) reports in any project report connected with this chapter any deviation from standard laboratory procedures of which it becomes aware;

(4) takes appropriate corrective actions as outlined in Section 10 of this manual if questions or problems arise with the laboratory analysis.

2.3 Changes in Personnel or Responsibilities

If a change in personnel or responsibilities occurs after submitting the Qualified Personnel Form, the

form must be amended to reflect the new personnel or responsibilities and resumes must be forwarded to ADEC with the revised form. Resubmittals or amendments to the form must be received by ADEC before or concurrently with any site-specific project plans or reports that are submitted subsequent to the personnel change.

SECTION 3. QUALITY ASSURANCE

3.1 Responsibility and Definitions

Quality assurance (QA) objectives are quantitative and qualitative criteria needed to support specific regulatory action and describe the acceptability of data. The assessment firm has primary responsibility for field QA and is accountable for the overall QA of the samples.

Quantitative QA criteria are precision, accuracy, and completeness. Qualitative QA criteria are representativeness and comparability. QA is determined on a site-specific basis for each project based on the following:

(1) **Precision**: Precision is a measure of the variability or random error in sampling, sample handling, preservation, and laboratory analysis.

(2) **Accuracy**: Accuracy is a measure of the closeness of an individual measurement or an average of a number of measurements to the true value.

(3) **Completeness**: Completeness is a measure of the amount of valid data obtained compared to the amount expected. For purposes of this chapter, completeness is calculated as the amount of usable samples divided by the minimum number of required samples, expressed as a percentage. A minimum confidence level of 85 percent is required. The formula to be used follows:

$$\%C = (V/N) \times 100$$

Where %C = Completeness

V = Number of valid samples, as determined by above calculations and by procedures outlined Section 8.3.3 of this manual (Determining the final validity of samples)

N = Total number of measurements necessary to achieve a specified statistical level of confidence in decision making.

(4) **Representativeness**: Representativeness describes the degree to which data characterize the actual conditions at a site.

(5) **Comparability**: Comparability expresses the confidence with which one data set can be compared with another. Data must be reported in the same units of quantitation and in accordance with the reporting requirements of 18 AAC 78. Sampling and laboratory reports and

procedures might be audited to assure that they follow standard procedures and reporting formats.

SECTION 4. SAMPLING PROCEDURES

4.1 Overview of Sampling Approach

The systematic sampling approach outlined below must be used to assure that data collection activities provide usable data.

(1) Sampling must begin with an evaluation of background information, historical data, and site conditions. This evaluation is used to prepare a site-specific sampling strategy.

(2) In combination with the requirements of 18 AAC 78 and the results of the pre-sampling investigation, field screening results must be used to determine where samples will be collected. Field screening results may also be used to segregate soils, based on apparent levels of contamination, to help monitor potential exposures, and for health and safety monitoring. However, field screening may not take the place of laboratory samples required as discussed in Section 4.5 of this chapter (Determining sample locations).

(3) Samples must be collected with appropriate, clean tools. Decontamination of sampling equipment must follow the practices described in this section.

(4) Stockpiles must be sampled in accordance with Section 4.5.1 of this chapter (Sample locations for contaminated untreated stockpiles).

(5) If necessary, sufficient monitoring and observation wells must be properly installed to determine the presence, degree, or extent of groundwater contamination. Sampling of groundwater must follow the standard procedures outlined in Section 4.7.2 of this chapter (Sampling groundwater monitoring wells).

(6) Samples must be collected and preserved in appropriate sample containers, as listed in Table 1.

Table 1: Reference Guide to Sample Collection and Laboratory Analysis Part A: Soils, Sediments, Sludges, and Fill Materials					
Parameter	**Preparation/ Analytical Method[1]**	**Method Detection Limit[2]**	**Practical Quantitation Limit[3]**	**Container Description (Minimum) [Clear glass may be substituted for amber if samples are protected from exposure to light, this exception does not apply to metals]**	**Preservation/ Holding Time**
Gasoline range organics	AK101*	2 mg/kg	20 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Diesel range organics	AK102*	2 mg/kg	20 mg/kg	4 oz. amber glass, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Residual range organics	AK103*	10 mg/kg	100 mg/kg	4 oz. amber glass, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Aliphatic gasoline range organics	AK101AA*	2 mg/kg	20 mg/kg	4 oz. wide-mouth amber glass jar with Teflon lined silicon rubber septum seal	Methanol preservative / 28 days from sampling
Aromatic gasoline range organics	AK101AA*	2 mg/kg	20 mg/kg	4 oz. wide-mouth amber glass jar with Teflon lined silicon rubber septum seal	Methanol preservative / 28 days from sampling
Aliphatic diesel range organics	AK102AA*	2 mg/kg	20 mg/kg	4 oz. wide-mouth amber glass jar, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Aromatic diesel range organics	AK102AA*	2 mg/kg	20 mg/kg	4 oz. wide-mouth amber glass jar, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Aliphatic residual range organics	AK103AA*	10 mg/kg	100 mg/kg	4 oz. wide-mouth amber glass jar. TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Aromatic residual range organics	AK103AA*	10 mg/kg	100 mg/kg	4 oz. wide-mouth amber glass jar, TLC	Cool 4° ± 2°C / 14 days to extraction of sample, less than 40 days to analysis of extract
Benzene	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Toluene	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Ethylbenzene	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Total xylenes	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Total BTEX	AK101**, 8021B or 8260B	0.007 mg/kg	0.05 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Polynuclear Aromatic Hydrocarbons (PAH)[4]	8270C or 8310	0.1 mg/kg	1 mg/kg	4 oz. amber glass, TLS	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Total Volatile Chlorinated Solvents[6]	8260B or 8021B	0.008 mg/kg	0.08 mg/kg	4 oz. amber glass, TLS	Methanol preservative, Cool 4° ± 2°C / 28 days
Polychlorinated biphenyls (PCBs)	8082	0.01 mg/kg	0.05 mg/kg	4 oz amber glass, TLC	Cool 4° ± 2°C / 14 days to extraction, less than 40 days to analysis of extract
Total Arsenic	6010B, 6020, 7060A, or 7061A	0.3 mg/kg	3 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Barium	6010B, 6020, 7080A, or 7081	20 mg/kg	200 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months

Table 1: Reference Guide to Sample Collection and Laboratory Analysis Part A: Soils, Sediments, Sludges, and Fill Materials					
Parameter	**Preparation/ Analytical Method[1]**	**Method Detection Limit[2]**	**Practical Quantitation Limit[3]**	**Container Description (Minimum) [Clear glass may be substituted for amber if samples are protected from exposure to light, this exception does not apply to metals]**	**Preservation/ Holding Time**
Total Cadmium	6010B, 6020, 7130, or 7131A	0.8 mg/kg	8.0 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Chromium	6010B, 6020, 7190, or 7191	2 mg/kg	20 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Lead	6010B, 6020, 7420, 7421	2 mg/kg	20 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Nickel	6010B, 6020, 7520, or 7521	2 mg/kg	20 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months
Total Vanadium	6010B, 7911, 6020, or 7910	20 mg/kg	200 mg/kg	100mL Widemouth HDPE jar[5], TLC	6 months

Legend to follow Part B

Notes to Table 1, Part A:

1 Unless otherwise noted, all preparation and analytical methods refer to those contained in EPA's *Test Methods for the Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, adopted by reference in 18 AAC 78.090(i).

2 Method detection limits (MDL), specified in 40 C.F.R. Part 136, Appendix B, revised as of July 1, 1996, adopted by reference, are determined at the department's chemistry laboratory and participating department-approved laboratories.

3 Practical quantitation limits (PQL), like method detection limits, are instrument specific. PQLs must be established by each laboratory and must equal or have a value lower than the PQL in the table. For purposes of this chapter, PQL = 10 x MDL, except for PCB which is PQL = 5x MDL.

4 Naphthalene can be analyzed by AK101.

5 HDPE, High Density Polyethylene sample collection bottles, critically cleaned for trace metals analysis.

6 May be analyzed out of AK101 methanol preserved sample, if not used, then sample must be preserved with methanol in the field.

* ADEC Analytical Methods AK101, AK102, and AK103 are included in Appendix D. ADEC Analytical Methods AK101AA, AK102AA, and AK103AA are included in Appendix E.

** The AK101 method can be extended for specific determination of volatile aromatics (BTEX) as specified in EPA Method 8021B for solids utilizing methanol preservation option only. All AK101 samples must be preserved with methanol.

Table 1: Reference Guide to Sample Collection and Laboratory Analysis (cont.)
Part B: Ground, Surface, Waste, and Marine Waters[4]

Parameter	Preparation/ Analytical Method[1]	Method Detection Limit[2]	Practical Quantitation Limit[3]	Container Description	Preservation/ Holding Time
Gasoline range organics	AK101*	10 µg/L	100 µg/L	40 mL VOA, TLS	HCL to pH less than 2, 4° ± 2°C /14 days from sampling
Diesel range organics	AK102*	80 µg/L	800 µg/L	1 L amber glass, TLC	HCL to pH less than 2, 4° ± 2°C /14 days to extraction, 40 days to analysis of extract
Residual range organics	AK103*	50 µg/L	500 µg/L	1 L amber glass, TLC	Acidify to a pH of 2 using HCL, H_2SO_4 or HNO_3 / 7 days to extraction, 40 days to analysis of extract
Aliphatic gasoline range organics	AK101AA**	2 µg/L	20 µg/L	40 ml VOA with Teflon lined silicon rubber septum seal	HCL to a pH of 2 / 14 days from sampling
Aromatic gasoline range organics	AK101AA**	0.2 µg/L	2 µg/L	40 ml VOA with Teflon lined silicon rubber septum seal	HCL to a pH of 2 / 14 days from sampling
Aliphatic diesel range organics	AK102AA**	20 µg/L	200 µg/L	1 L amber glass, TLC	Acidify to a pH of 2 using HCL, H_2SO_4 or HNO_3 / 7 days to extraction, 40 days to analysis of extract
Aromatic diesel range organics	AK102AA**	20 µg/L	200 µg/L	1 L amber glass, TLC	Acidify to a pH of 2 using HCL, H_2SO_4 or HNO_3 / 7 days to extraction, 40 days to analysis of extract
Aliphatic residual range organics	--	--	--	--	--
Aromatic residual range organics	AK103AA**	50 µg/L	500µg/L	1 L amber glass, TLC	Acidify to a pH of 2 using HCL, H_2SO_4 or HNO_3 / 7 days to extraction, 40 days to analysis of extract
Benzene	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Toluene	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Ethylbenzene	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Total xylenes	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Total BTEX	AK101, 8021B, or 8260B	0.7 µg/L	5 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C /14 days
Polynuclear Aromatic Hydrocarbons (PAH)[6]	8270C or 8310	1 µg/L	10 µg/L	1 L amber glass, TLS	4° ± 2°C, Ascorbic acid, dark / 7 days to extraction, 40 days to analysis of extract
Total Volatile Chlorinated Solvents	8021B or 8260B	0.8 µg/L	8 µg/L	duplicate 40 mL vials/sample, TLS	HCL to pH less than 2, 4° ± 2°C $Na_2S_2O_3$/ 14 days
Polychlorinated biphenyls (PCBs)	8081A or 8082	1 µg/L	5 µg/L	1 L amber glass, TLC	4° ± 2°C / 7 days to extraction / 40 days to analysis of extract
Total Arsenic †	6010B, 6020, 7060, or 7061	8 µg/L	80 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Barium	6010B, 6020, 7080A, or 7081	10 µg/L	100 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Cadmium †	6010B, 6020, 7130, or 7131A	0.6 µg/L	6 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Chromium †	6010B, 6020, 7190, or 7191	10 µg/L	100 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time

Table 1: Reference Guide to Sample Collection and Laboratory Analysis (cont.) Part B: Ground, Surface, Waste, and Marine Waters[4]					
Parameter	**Preparation/ Analytical Method[1]**	**Method Detection Limit[2]**	**Practical Quantitation Limit[3]**	**Container Description**	**Preservation/ Holding Time**
Total Lead †	6010B, 6020, 7420, or 7421	2.0 µg/L	20 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Nickel	6010B, 6020, 7520, or 7521	10 µg/L	100 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time
Total Vanadium	6010B, 6020, 7910, or 7911	20 µg/L	200 µg/L	min. 100 mL HDPE[5]	HNO_3 to pH less than 2 / 6 months max. total holding time

Notes to Table 1, Part B:

[1] Unless otherwise noted, all preparation and analytical methods refer to those contained in EPA's *Test Methods for the Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, (PB84128677), adopted by reference in 18 AAC 78.090.

[2] Method detection limits (MDL), specified in 40 C.F.R. Part 136, Appendix B, revised as of July 1, 1996, adopted by reference, are determined at the department's chemistry laboratory and participating department-approved laboratories.

[3] Practical quantitation limits (PQL), like method detection limits, are instrument specific. PQLs must be established by each laboratory and must equal or have a value lower than the PQL in the table. For purposes of this chapter, PQL = 10 x MDL, except for PCBs which is PQL = 5 x MDL.

[4] Sample collection and laboratory analyses for water collected from drinking water sources must be done in accordance with 18 AAC 80.

[5] HDPE, High Density Polyethylene sample collection bottles, critically cleaned for trace metals analysis.

[6] Naphthalene can be analyzed by 8021B or 8260B.

* ADEC Analytical Methods AK101, AK102, and AK103 are included in Appendix D. ADEC Analytical Methods AK101AA, AK102AA, and AK103AA are included in Appendix E.

† Analytical methods 6010B, 7080A, 7130, 7420, 7520, and 7910 are for high contaminant level screening only. These can be used for closure only if site specific MDL criteria are met. Analytical methods 6020, 7031A, 7060, 7061, 7081A. 7190, 7191, 7421, 7521, and 7911 are acceptable for closure.

Legend to Table 1:

PAH = acenaphthene, anthracene, benzo-a-anthracene, benzo-a-pyrene, benzo-b-fluoranthene, benzo-k-fluoranthene, chrysene, dibenzo-a,h-anthracene, fluorene ideno-123-cd-pyrene, naphthalene, and pyrene
VOA = Volatile Organic Analysis;
TLC = Teflon lined screw caps;
TLS = Teflon lined septa sonically bonded to screw caps

4.2 Documentation of Sampling Procedures

A field log book or another type of field record must be used to document the collection of samples and site data. This record must include:

(1) the name of each qualified person on site supervising or conducting a characterization, assessment, or investigation;

(2) the date and time of sampling;

(3) weather conditions, including temperature, wind speed, humidity, and precipitation;

(4) the name of each person who physically collected the samples;

(5) clear photographs of the site, bottom of excavation, and removed tanks;

(6) the results of an inspection of the tank and piping for corrosion;

(7) a site sketch that, at a minimum, shows

(A) locations of all known present and past USTs, piping and pump islands, including UST identification numbers assigned by ADEC;

(B) distances from tanks to nearby structures;

(C) property line locations;

(D) sampling locations and depths and corresponding sample ID numbers;

(E) any release sites;

(F) any free product sites;

(G) scale; and

(H) a north arrow.

When appropriate, the site sketch should include the following relevant features:

(1) a description of the size of the excavation;

(2) field instrument readings;

(3) location of stockpiled soils;

(4) depth, width, and type of backfill material used to surround tanks and piping;

(5) soil types;

(6) utility trenches;

(7) wells within 100 feet;

(8) depth to groundwater or seasonal high groundwater level; and

(9) surface drainages, including potential hydraulic connections with groundwater.

4.3 Pre-Sampling Activities

Before conducting field sampling activities, the site background information must be collected and recorded, the site conditions must be compiled as provided in Sections 4.3.1 and 4.3.2 of this chapter, and the necessary notifications must be made to agencies as provided in Section 4.3.3 of this chapter.

4.3.1 Site Background

Before beginning field work, the following information must be collected and recorded:

(1) the names, addresses, and telephone numbers of the owner, operator, and businesses on the site;

(2) for rural areas, the quarter section, township, and range of the site;

(3) locations of all present and past USTs, piping, and pump islands;

(4) a description of known UST systems, including capacity, dimension, age, and material of construction and location and types of fill and vent pipes, valves, and connectors;

(5) history of types of products stored in the tanks;

(6) history of known releases and available data from previous soil or groundwater sampling at the site;

(7) type and classification of native soil;

(8) location of wells within 100 feet of the site;

(9) surface waters and wetlands in the immediate vicinity of site;

(10) depth to groundwater or seasonally high groundwater level;

(11) property line locations;

(12) distances from tanks to nearby structures; and

(13) type and location of below ground utility lines that could create pathways for contaminant migration.

In addition, where relevant and practical, the following information on the site must be collected and recorded:

(1) location of each hold-down pad or anchoring system, if any;

(2) the name of the contractor who installed the tank, if known;

(3) dates of each installation and upgrade;

(4) performance history, including repair records, inventory records, tightness testing records, leak detection system records, or records of water pullouts;

(5) depth and width of backfill area and type of backfill material used to surround tanks and piping;

(6) surface drainage characteristics, including potential hydraulic connections with groundwater;

(7) location of other nearby USTs, either active or inactive, or other potential sources of contamination; and

(8) previous site uses, including historical waste handling procedures.

4.3.2 Surface Observation of Site Conditions

An observation of the site's surface must be conducted before sample collection to assist in determining field sampling approaches and locations. Activities that must be completed during this observation include:

(1) locating the aboveground components of each UST;

(2) confirmation of the amount of fuel currently in each tank;

(3) determination of tank size;

(4) observation for aboveground utilities;

(5) underground utility locations (contact utility location centers where available);

(6) visual inspection for surface indications of releases;

(7) if practical and no safety hazard exists, check for odor of petroleum in nearby structures (basements); and

(8) check sumps and access manholes for evidence of pump leakage.

Key areas that must be observed for surface indications of a release include:

(1) vent pipes and fill holes;

(2) pavement depressions, buckling, cracks, or patches that could indicate that subsurface problems have historically occurred;

(3) cracks or stains at base of pumps; and

(4) evidence of stressed vegetation that may have resulted from a release or spill.

The results of the site observations must be recorded in a field log book or other appropriate document.

4.3.3 Notification to Agencies

Notification to ADEC, local governments, and fire departments is required before any site assessment work is performed for closure or change-in-service and is subject to the requirements of 18 AAC 78.085.

4.4 Field Screening

Field screening is the use of portable devices capable of detecting petroleum contaminants on a real-time basis or by rapid field analytical technique. Field screening must be used to help assess the following locations where contamination is most likely to be present:

Tank Area

* areas of suspected or obvious contamination;

* adjacent to and below all fill and vent pipes;

* excavation sidewalls below the tank midline;

* one representative sample for at least every 100 square feet of excavation bottom

Piping Run

* areas of suspected or obvious contamination;

* below piping joints, elbows, connections, and damaged piping components; if these locations are unknown then screening must occur below original level of piping at 10 foot-intervals; the 10-foot interval is chosen because pipe sections commonly used are 10-foot lengths and because of limits of detection of soil gas vapors from the release source;

* adjacent to and below all dispensers.

When possible, field screening samples should be collected directly from the excavation or from the excavation equipment's bucket. If field screening is conducted only from the equipment's bucket, then a minimum of one field screening sample must be collected from each 10 cubic yards of excavated soil. If instruments or other observations indicate contamination, soil must be separated into stockpiles based on apparent degrees of contamination. At a minimum, soil suspected of contamination must be segregated from soil observed to be free of contamination. Two levels of field screening procedures are:

(1) use of field screening devices to perform synoptic surveys of potentially contaminated areas to determine the approximate locations containing contaminants (qualitative screening); and

(2) use of field screening devices to provide a semi-quantitative estimate of the amount of contaminant present at a specific location (semi-quantitative screening).

4.4.1 Field Screening Devices

Many field screening instruments are available for detecting petroleum contaminants in the field on a rapid or real-time basis. Acceptable field screening instruments must be suitable for the contaminant being screened. The procedure for field screening using photoionization detectors (PIDs) and flame ionization detectors (FIDs) is described in Section 4.4.2 of this chapter. If other instruments are used, a description of the instrument or method and its intended use must be provided to ADEC. Whichever field screening method is chosen, the accuracy of the method must be verified throughout the sampling process through use of appropriate standards to match the use intended for the data. Unless ADEC indicates otherwise, wherever the requirement for field screening is stated in this chapter, instrumental or analytical methods of detection must be used, not olfactory or visual screening methods.

4.4.2 Headspace Analytical Screening Procedure for Field Screening (Semi-Quantitative Field Screening)

The most commonly used field instruments for UST site assessments in Alaska are FIDs and PIDs. The following headspace screening procedure to obtain and analyze field screening samples must be adhered to when using FIDs and PIDs:

(1) partially fill (one-third to one-half) a clean jar or clean ziplock bag with the sample to be analyzed; total capacity of the jar or bag may not be less than eight ounces (app. 250 ml), but the container should not be so large as to allow vapor diffusion and stratification effects to significantly affect the sample;

(2) if the sample is collected from a split spoon, it must be transferred to the jar or bag for headspace analysis immediately after opening the split-spoon; if the sample is collected from an excavation or soil pile, it must be collected from freshly uncovered soil;

(3) if a jar is used, its top must be quickly covered with clean aluminum foil or a jar lid; screw tops or thick rubber bands must be used to tightly seal the jar; if a ziplock bag is used, it must be quickly sealed shut;

(4) headspace vapors must be allowed to develop in the container for at least 10 minutes but no longer than one hour; containers must be shaken or agitated for 15 seconds at the beginning and end of the headspace development period to assist volatilization; temperatures of the headspace must be warmed to at least 40° F (approximately 5° C), with instruments calibrated for the temperature used;

(5) after headspace development, the instrument sampling probe must be inserted to a point about one-half the headspace depth; the container opening must be minimized and care must be taken to avoid uptake of water droplets and soil particulates;

(6) after probe insertion, the highest meter reading must be taken and recorded, which normally will occur between two and five seconds after probe insertion; if erratic meter response occurs at high organic vapor concentrations or conditions of elevated headspace moisture, a note to that effect must accompany headspace data;

(7) calibration of PID and FID field instruments must follow the procedures outlined in Section 7.1 of this chapter (Calibration and maintenance of field instruments); and

(8) all field screening results must be documented in the field record or log book.

4.5 Determining Sample Locations

The locations and numbers of laboratory samples to be taken depend on the requirements of 18 AAC 78 for the specific type of sampling activity. The results of field screening must be used to determine the location from which to obtain samples. Samples must be obtained from locations that field screening and observations indicate are most heavily contaminated. A positive field screening result is one in which any deflection in the meter reading occurs at locations where samples are required. Samples analyzed with field screening devices may not be substituted for required laboratory samples. Specific types of sampling activity are as follows:

(1) site assessment for a UST closed in place (18 AAC 78.090);

(2) site assessment for a UST that has been removed (18 AAC 78.090);

(3) site assessment for temporary closure, or change in service, of a UST (18 AAC 78.090);

(4) investigating a suspected release (18 AAC 78.200 - 18 AAC 78.235);

(5) release investigation (18 AAC 78.235); and

(6) documentation that corrective actions have met applicable cleanup standards for soil (18 AAC 78.610) and water (18 AAC 78.620) through final verification sampling.

Within the constraints for sampling locations listed above, laboratory samples must be taken where contamination is most likely to be present.

4.5.1 Sample Locations for Contaminated Untreated Stockpiles

As noted in Section 4.4 of this chapter (Field screening), soils must be segregated during excavation based on apparent degrees of contamination. Soils must be stockpiled in accordance with 18 AAC 78.274.

Characterizing stockpiled soil is necessary to determine whether treatment or disposal of the soil is needed, to assist with selection of treatment or disposal methods, and to establish baseline data for use in evaluating the effectiveness of treatment.

To determine if untreated stockpiled soils can be disposed or considered not contaminated, stockpiled soils must be characterized by using

(1) field screening; at least one soil sample must be obtained from each 10 cubic yards of stockpiled soil for field screening purposes; samples must be obtained from various depths in the pile, but none less than 18 inches beneath the exposed surface of the pile; field screening must follow the procedures outlined in this section and results must be documented in a site log book; and

(2) the number of grab samples collected from each stockpile as required by 18 AAC 78.605(c).

4.5.2 Alternative Sample Collection Procedures

Alternative sampling collection procedures, such as Cone Penetrometer Testing, HydroPunch, and Borehole Geophysical Logging may be used to determine soil hydrogeologic characteristics, contaminant distribution, and contaminant concentration.

These procedures may be useful, with proper evaluation, in providing essential data to assess and delineate the extent of contamination during site characterizations, release investigations, and corrective actions. These alternative procedures may not be used in collecting samples for final verification during site assessment or corrective action.

4.5.3 Sample Locations for Treated Excavated Soils

To determine if excavated soil has been treated, final corrective action verification samples must be from the location and depth of areas showing the highest levels of contamination during field screening.

Unless otherwise approved by the ADEC project manager, at least one field screening sample must be obtained from each 10 cubic yards of treated soil. Field screening samples must be obtained from various depths, but not less than 18 inches beneath the exposed surface of the soil. Field screening must follow the procedures outlined in this section and the results must be documented in a site log book.

The number of grab samples collected from the treated soil must be as required by 18 AAC 78.605(b).

4.6 Collecting Soil Samples

As required by 18 AAC 78, the following procedures must be used to collect soil samples for laboratory analysis:

(1) unless otherwise approved by ADEC, all laboratory soil samples must be grab samples and may not be composited before analysis, except that soil samples for total arsenic, cadmium, chromium, and lead that are for screening purposes may be composited in the field or in the laboratory before analysis;

(2) soil samples taken directly from the surface of excavations must be obtained from freshly uncovered soil; a minimum of six inches of soil must be removed immediately before collection, and the sample must be obtained from the newly uncovered soil; if the excavation has been open for longer than one hour, at least 18 inches of soil must be removed immediately before collection;

(3) soil samples collected from excavation equipment buckets must be obtained from the center of the bucket and away from the bucket sides; at least six inches of soil must be removed immediately before collection;

(4) if soil samples are collected from a soil boring, samples should be collected using a hollow stem auger and split spoon sampler or Shelby tube; using an auger, the drill hole must be advanced to the desired depth; then the center rods of the auger must be withdrawn from the drill hole and the plug and pilot bit removed from the center rods; the sampler must be attached to the correct length of drill rod and must be driven ahead of the auger flights in order to collect a relatively undisturbed sample; after the split spoon or Shelby tube has been retrieved back out of the boring, the desired sample section must be immediately removed from the sampling device; only soil from the middle portion of the spoon may be used for samples; soil from the very ends of the spoon must be discarded as they often contain disturbed soils; a clean sampling tool must be used to quickly collect the sample from the undisturbed portion with a minimum of disturbance and the sample container must be quickly capped, sealed, and labeled; and

(5) soil samples for all parameters listed in Table 1 must be collected in accordance with method specifications.

Alternative methods to obtain soil samples may be used only if the methods have been approved by ADEC before sampling.

The following steps must be taken to minimize collection errors:

(1) all samples must be collected with disposable or clean tools that have been decontaminated as outlined in Section 4.8 of this chapter (Decontamination of field equipment);

(2) disposable gloves must be worn and changed between sample collections;

(3) sample containers must be filled quickly;

(4) soil samples must be placed in containers in the order of volatility; for example, volatile organic aromatic samples must be taken first, gasoline range organics next, heavier range organics next, and soil classification samples last;

(5) containers must be quickly and adequately sealed, and rims must be cleaned before tightening lids; tape may be used only if known not to affect sample analysis;

(6) sample containers must be labeled as outlined in Section 4.9.2 of this chapter (Labeling sample containers);

(7) containers must immediately be preserved according to procedures in Section 4.9.1 of this chapter (Sample containers); unless specified otherwise, at a minimum, the samples must be immediately cooled to 4±2°C and this temperature must be maintained through delivery to laboratory until samples are analyzed.

If groundwater is encountered while soil sampling, the provisions of 18 AAC 78.090 must be followed concerning sampling of the groundwater interface.

4.7 Obtaining Groundwater Samples From Borings/Wells

Groundwater samples might be required if contamination of the groundwater is suspected. Water sampled directly from an excavation is not necessarily representative of normal groundwater conditions and will not be evaluated as a representative groundwater sample. In such cases, installation and sampling of a groundwater monitoring well might be required, as determined by ADEC under 18 AAC 78.615.

4.7.1 Installing Groundwater Monitoring Wells

Unless otherwise directed by ADEC, if groundwater monitoring wells are required, the installation must be as required by 18 AAC 78.615(b), and the following procedures must be used:

(1) if the direction of groundwater flow is known, at least three monitoring wells must be installed and sampled, one upgradient and two downgradient of the potential contamination source;

(2) if the direction of groundwater flow is unknown, it is recommended that the number of wells installed be sufficient to characterize the groundwater flow using horizontal and vertical control measures; at least three monitoring wells must be installed and sampled;

(3) well drilling equipment must be decontaminated as outlined in Section 4.8 of this chapter (Decontamination of field equipment) before drilling at each new location; and

(4) wells should be driven with a hollow stem auger or cable drill; if other methods are used, ADEC approval must be obtained before the well is installed.

The following details of well construction must be recorded in the field record:

(1) well location, determined by reference to site bench mark;
(2) total depth of boring;
(3) depth to groundwater at time of drilling;
(4) diameter of boring;
(5) depth to top and bottom of screened interval;
(6) diameter of screened interval;
(7) diameter of casing;
(8) well construction material;
(9) depth of packed filter interval;
(10) depth and thickness of seals;
(11) type of surface cap;
(12) names of drilling firm and drilling personnel; and
(13) soil log completed using the Unified Soil Classification System, U. S. Soil Conservation Service classification system, or another similar soil classification system.

Under 11 AAC 93.140, a log of the well must be submitted to the Alaska Department of Natural Resources (ADNR) within 45 days after installing a well. The log must include the location and depth of the well, an accurate log of the type and depths of soil and rock formations encountered, the depth and diameter of the casing, screened intervals, well completion materials, and the static water level in the well. Well logs should be submitted to ADNR/Mining and Water Management, P.O. Box 107005, Anchorage, AK 99510; (907) 762-2165. Well logs for sites within the northern region should be sent to ADNR/Division of Water, 3700 Airport Way, Fairbanks, AK 99706; (907) 451-2772. Well log reporting forms are available from the ADNR/Alaska Hydrologic Survey at the above addresses.

4.7.2 Sampling Groundwater Monitoring Wells

If multiple wells are sampled, the wells upgradient of the site should be sampled first to minimize cross-contamination. Before sampling wells, the depth to groundwater must be determined by manual or electronic means. Measurement devices must be calibrated before use to an accuracy of at least 0.02 foot.

4.7.2.1 Determining Well Depth and Presence of Non-Aqueous Phase Liquids

Before sampling a monitoring well, the column of water in the well casing must be checked for the presence of nonaqueous phase liquids, including free petroleum products that might be floating on top of the water or in a separate layer at the bottom of the casing. Nonaqueous phase liquids are identified by:

(1) carefully lowering a clean bailer, in a manner that will create minimum disturbance, into the well before purging and observing the liquids removed from the top and the bottom of the water column;

(2) using a paste type of detector with ingredients that will not lead to cross-contamination; or

(3) using an electronic device designed to detect nonaqueous liquids and to measure the thickness of the nonaqueous layer.

If free product is present, the well must be bailed or pumped to remove the product and must be monitored to evaluate the recharge rate.

4.7.2.2 Well Purging

Monitoring wells must be purged before sampling unless otherwise approved by ADEC, using the following procedure (or an equivalent):

(1) at least three casing volumes of water must be removed from the well before sample collection or, for low yield wells, until the well bore is evacuated; or instead of purging three casing volumes, measure the purge water temperature, pH, and conductivity until these parameters are stable to within 10 percent variability between measurements;

(2) all purged water must be carefully collected, containerized, and stored for proper disposal pending evaluation of groundwater sample analyses; the results of the analyses and the applicable federal, state, and local water quality criteria must determine the acceptable method for disposal of the purge water; and

(3) upgradient wells should be purged before downgradient wells to help minimize possible cross contamination.

4.7.2.3 Collecting Groundwater Samples with Bailers

If a bailer is used to collect samples, the following procedure must be used:

(1) after purging the well, sufficient time must be allowed for the well to equilibrate and fines to settle; if full recovery exceeds two hours, samples must be extracted as soon as sufficient volume is available;

(2) the water level must be remeasured after purging has occurred and water level has returned to the static level;

(3) if decontaminated equipment is used to collect the water sample, the sampler must be rinsed with analyte-free distilled or deionized water; a portion of this rinsate must be collected into a container appropriate for the most volatile analyte suspected (typically BTEX); this equipment blank (also termed decontamination blank) must be contained, preserved, and analyzed according to the procedures outlined in this chapter for that analyte;

(4) bailers must be made of glass, Teflon, stainless steel, other suitable materials, or of disposable materials such as Teflon or polyethylene; polyvinyl chloride (PVC) bailers are not acceptable for sampling volatile organic compounds; all bailers must be decontaminated as outlined in Section 4.8 of this chapter (Decontamination of field equipment);

(5) the bailer must be fitted with a new bailer line for each well sampled; the bailer and line may be handled only by personnel wearing decontaminated or disposable gloves;

(6) the bailer should be slowly lowered to minimize disturbance of the well and water column; the bailing line should be prevented from contact with the outside of the well, equipment, and clothing; special care must be taken to minimize disturbance of the water table interface when inserting the bailer;

(7) samples must be obtained as close as possible to the water level/air interface, unless analysis indicates that contamination is at a different depth;

(8) grab samples must be obtained;

(9) the bailer must be slowly lifted and the contents transferred to a clean sample container with a minimum of disturbance and agitation to prevent loss of volatile compounds; if different analytes are sampled, samples must be transferred to containers in the order of their volatility; headspace in the sample container must be minimized by filling the sample jar until a positive meniscus is present;

(10) containers must be quickly and adequately sealed; container rims and threads must be cleaned before tightening lids; unless otherwise specified, Teflon-lined screw caps must be used to seal the jar;

(11) sample containers must be labeled as outlined in Section 4.9.2 of this chapter (Labeling sample containers); and

(12) containers must be preserved immediately according to procedures in Section 4.9.1 of this chapter (Sample containers). Unless specified otherwise, at minimum the samples must be immediately cooled to 4±2°C and this temperature must be maintained through delivery to the laboratory until the samples are analyzed.

4.7.2.4 Alternative Methods of Collecting Groundwater Samples

If a positive displacement pumping system or another system is used instead of a bailer, it must be clean or decontaminated as described in Section 4.8 of this chapter (Decontamination of field equipment). Disturbance of the well, water column, and samples must be minimized. Only grab samples may be obtained, not composite samples. Samples must be obtained as close as possible to the water level/air interface unless analysis indicates that contamination is at a different depth. If different analytes will be sampled, samples must be transferred to containers in the order of volatility. Volatiles must be collected first, followed, in order, by gasoline range organics, heavier range organics, and metals. Container headspace must be minimized by filling the sample jar until a positive meniscus is present. Containers must be quickly and adequately sealed. Rims must be cleaned before tightening lids. Sample containers must be labeled as outlined in Section 4.9.2 of this chapter (Labeling sample containers). Containers must be preserved immediately according to procedures in Section 4.9.1 of this chapter (Sample containers). Unless specified otherwise, at a minimum the samples must be immediately cooled to 4±2°C and this temperature must be maintained through delivery to laboratory until the samples are analyzed.

4.8 Decontamination of Field Equipment

Decontamination of personnel, sampling equipment, and containers before and after sampling must be used to ensure collection of representative samples and to prevent the potential spread of contamination. Decontamination of personnel prevents ingestion and absorption of contaminants and must be done with a soap and water wash and deionized or distilled water rinse.

All previously used sampling equipment must be properly decontaminated before sampling and between sampling locations to prevent introduction of contamination into uncontaminated samples and to avoid cross-contamination of samples. Cross-contamination can be a significant problem when attempting to characterize extremely low concentrations of organic compounds or when working with soils that are highly contaminated.

Clean, solvent-resistant gloves and appropriate protective equipment must be worn by persons decontaminating tools and equipment.

4.8.1 Decontamination of Soil Sampling Tools

At a minimum, soil sampling tools must be cleaned and decontaminated by the following three-step procedure:

(1) tools must be scrubbed with a stiff brush in a solution of hot water and laboratory-grade, critical cleaning detergent such as Alconox or a similar product;

(2) tools must be rinsed twice in clean water; and

(3) tools must be thoroughly rinsed with distilled or deionized water.

If concentrated petroleum products or highly contaminated soils are encountered during sampling, an appropriate solvent should be used to remove heavy petroleum residues from the sampling tools. This must be followed by the minimum cleaning procedure outlined above. If a solvent is used, it must be properly collected, stored, and disposed of according to acceptable hazardous waste disposal guidelines.

4.8.2 Decontamination of Water Sampling Tools

Drill auger sections, split spoons, and drive hammers that come in contact with bore holes must be cleaned before use and between borings using the following three-step procedure:

(1) tools must either be

(A) scrubbed with a stiff brush in a solution of water and laboratory grade, critical cleaning detergent such as Alconox or a similar product; or

(B) cleaned with high pressure hot water or steam and a laboratory grade, critical cleaning detergent;

(2) tools must be rinsed twice in clean water; and

(3) tools must be thoroughly rinsed with distilled or deionized water.

Steel tapes, well sounders, transducers, and water quality probes must be rinsed with clean water and then with deionized water.

Reusable bailers must be washed in Alconox or another laboratory grade, critical cleaning detergent solution, rinsed twice in clean water, and then rinsed with distilled or deionized water.

4.8.3 Excavation Equipment

Excavation equipment must be clean before each site excavation begins.

4.8.4 Cleaning Sample Containers

Sample containers must be cleaned and prepared by an analytical laboratory. The exterior of sample containers must be cleaned after the samples are collected and the container lids are tightly sealed. Solvents may not be used for this procedure because of the potential to contaminate the sample.

4.8.5 Disposal of Washwater, Rinsate, and Disposable Sampling Tools

Washwater and rinsate solutions must be collected in appropriate containers and disposed of properly in accordance with federal, state, and local regulations. Bailing strings and wires and other disposable sampling tools must be properly discarded after use at each well.

4.9 Sample Containers and Holding Conditions

Containers used to collect samples must be chosen based on their suitability for the analyte of interest and may vary according to the laboratory contracted to perform the analysis. Preservation methods and maximum holding conditions are method-specific and must be adhered to.

4.9.1 Sample Containers

Most containers should be glass jars with Teflon-lined lids. Sample jars of the acceptable type of material, size, and type of lid are shown in Table 1. Use of sample containers must conform to these specifications. Also shown in that table are the preservation methods and maximum

holding times for each analyte of interest.

All sample containers must be inspected before transit to the site to ensure that they have undamaged lids and are tightly sealed. Jars must be placed into containers that are secured to prevent damage or tampering in transit to the site. Containers and lids must be re-inspected at the job site; containers that have lost lids or that have been damaged may not be used for sample containment.

4.9.2 Labeling Sample Containers

Indelible, waterproof ink must be used to label sample containers. Labels, if used, must be securely fastened to the container. All information entered onto the label or container must be duplicated in the field record or log book. Information on the containers or labels must include:

(1) unique identifying number assigned to the sample for laboratory analysis;

(2) date and time of collection;

(3) name of person collecting the sample;

(4) each intended laboratory analysis for the sample;

(5) preservation method.

If possible, the following information should also be included on the container or label:

(1) project name and location of sample;

(2) maximum holding time (or date by which sample must be extracted and analyzed).

4.9.3 Holding Times, Conditions, and Methods of Preservation

Sample handling, transport, and analysis must be arranged so that the holding times and conditions shown in Table 1 are met. Also, volatile compounds must be extracted and analyzed as quickly as practical after collection.

Appropriate acidic preservation of samples must be provided if required in Table 1.

4.9.4 Site Safety Plan

The assessment firm is responsible for a site safety plan for construction activities and activities within a confined space.

SECTION 5. SAMPLE TRANSFER LOG

5.1 Sample Transfer Log

The requirements in this section apply to all sampling associated with a site assessment, from initial investigation through all final verification samples.

A transfer log is required for each sample taken, including all associated field quality control (QC) samples. A transfer log consists of a document or label that physically accompanies each sample bottle and sample, or each batch of bottles and samples, and that provides for the name of each person assigned control of the sample and the period covered by each person's assignment. Sufficient space must be provided on the form to accommodate several different control persons, the name of their respective organization or agency, and specific spaces for commercial carriers.

The laboratory receiving samples must process the samples using control procedures documented in its approved Quality Assurance (QA) Manual and Standard Operating Procedures. This section does not apply to internal laboratory procedures.

SECTION 6. ANALYTICAL PROCEDURES

6.1 Field Screening Procedures

Use of field screening analyses with Photo Ionization Detectors (PIDs) and Flame Ionization Detectors (FIDs) must follow the relevant procedures outlined in Section 4 of this manual (Sampling Procedures) and Section 7 of this manual (Calibration and Maintenance of Field Equipment). If other instruments are used, a written description of that use must be provided to ADEC by the assessment firm.

6.2 Identification of Laboratory Conducting Analyses

Only results from a laboratory certified by ADEC will be accepted by ADEC for use in reports prepared under this chapter. ADEC will not accept laboratory results unless the laboratory's current state laboratory UST identification number accompanies those results.

6.3 Determination of Analyses for Petroleum Hydrocarbons

Unless approval to deviate from these specifications is obtained in advance from ADEC, selection and use of all laboratory analyses must conform to the provisions of Table 2A and appropriate sections of this chapter. Table 2A indicates which product is to be tested for each

petroleum range using Alaska Series Methods, AK 101, AK 102, AK103, AK101AA, AK102AA, and AK103AA and for the various indicator compounds listed in Table 2B, using methods from EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, adopted by reference in 18 AAC 78.090(d). Methods are specified for each analyte in Table 1, Part A and B of this Manual. The identity of a released refined petroleum product is assumed to be unknown unless a laboratory analysis shows that a contaminant is only a gasoline or only a nongasoline refined product, unless this requirement is waived by ADEC.

The soil cleanup standards for petroleum in 18 AAC 75.340 are based on gas chromatographic analytical measurements corresponding to a specific measured range of petroleum hydrocarbons as follows:

(1) gasoline-range organics: light-range petroleum products such as gasoline, with petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of n-hexane (C_6) to the beginning of n-decane (C_{10}) and with a boiling point range between approximately 60 - 170 degrees Centigrade;

(2) diesel-range organics: mid-range petroleum products such as diesel fuel, with petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of n-decane (C_{10}) to the beginning of n-pentacosane (C_{25}) and with a boiling point range between approximately 170 - 400 degrees Centigrade; and

(3) residual-range organics: heavy-range petroleum products such as lubricating oils, with petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of n-pentacosane (C_{25}) to the beginning of n-hexatriacontane (C_{36}) and with a boiling point range between approximately 400 - 550 degrees Centigrade.

If it can be documented that only one type of product was stored or distributed during the operational life of a facility, a waiver may be requested from ADEC for the requirement to determine the identity of the product, in accordance with 18 AAC 78.600(d). The information collected in the examination of the site background (Section 4.3.1 of this chapter) will be used to determine if a waiver should be sought.

If leaded gasoline is a potential contaminant at the site, a preliminary laboratory analysis for lead might be required. The ADEC project manager must be contacted for this determination.

10.1.2 **Table 2A**

Determination of Sampling and Laboratory Analysis for Soil(s) and Groundwater(GW)

Petroleum Product	C6-C10 GRO	C10-C25 DRO	C25-C36 RRO[6]	BTEX Constituents	PAH[1, 2, 7]	Metals and Solvents
Leaded Gasoline	S & GW			S & GW	S & GW	(S & GW)[5]
Aviation Gasoline	S & GW			S & GW	S & GW	(S & GW)[5]
Gasoline	S & GW			S & GW	S & GW	
JP-4	S & GW	S & GW		S & GW	S & GW	
Diesel #1/Arctic Diesel	S & GW	S & GW		S & GW	S & GW	
#2 Diesel		S & GW		S & GW	S & GW	
#3 - #6 Fuel Oils		S & GW	S & GW	S & GW	S & GW	
JP-5, JP-8, Jet A	S&GW	S & GW		S & GW	S & GW	
Waste Oil/Used oil	S & GW	S & GW	S & GW	S & GW	S & GW	(S & GW)[3,4]
Kerosene	S & GW	S & GW		S & GW	S & GW	
Unknown	S & GW	S & GW	S & GW	S & GW	S & GW	(S & GW)[3,4]

Legend:
GRO = Gasoline Range Organics {using AK 101 or AK 101AA}
DRO = Diesel Range Organics {using AK 102 or AK 102AA}
RRO = Residual Range Organics {using AK 103 (for soil) or AK 103AA (for soil and groundwater)}
BTEX = refers to individual indicator compounds to be analyzed: benzene, toluene, ethylbenzene, and total xylenes.
PAH = acenaphthene, anthracene, benzo-a-anthracene, benzo-a-pyrene, benzo-b-fluoranthene, benzo-k-fluoranthene, chrysene, dibenzo-a,h-anthracene, fluorene ideno-123-cd-pyrene, naphthalene, and pyrene

[1] PAH analysis for soils would be required for all petroleum releases, unless the sum of the applicable soil cleanup concentrations based on laboratory results in accordance with Table 2, for individual petroleum hydrocarbon fractions or ranges determined for the site by applying the corresponding Method 2 – 4 referenced in 18 AAC 75.340 is equal or less than 500 mg/kg. PAH analysis is not required for Method 1 referenced in 18 AAC 75.340.

[2] All of the PAH indicator compounds listed in Table 2A would be required for all petroleum products except gasoline and JP-4 fuel spill analysis which would be limited to the naphthalene only, unless the project manager requires otherwise.

[3] Metals analysis, except where noted, would include: arsenic, barium, cadmium, chromium, lead, nickel, and vanadium.

[4] Volatile chlorinated solvents and other additives listed in Table 2A must be performed if required by the project manager.

[5] Metal analysis for lead only must be performed if required by the project manager.

[6] For sampling groundwater for RRO use the "aromatic residual range organics" fraction parameter method listed in Table 1, Part B, of this manual.

[7] PAH analysis for groundwater is required if there is a requirement for PAH analysis in soil.

TABLE 2B
Indicator Compounds
For Petroleum Contaminated Sites

Volatiles (BTEX)
- benzene
- toluene
- ethyl benzene
- total xylene

*Polynuclear Aromatic Hydrocarbons (PAHs)** - **Carcinogens***
- benzo(a)pyrene
- chrysene
- indeno(1.,2,3-cd)pyrene
- benzo(k)fluoranthene
- benzo(b)fluoranthene
- benzo(a)anthracene
- dibenzo(a, h)anthracene

*Polynuclear Aromatic Hydrocarbons (PAHs)** - **Noncarcinogens**
- anthracene
- acenaphthene
- pyrene
- naphthalene
- fluorene

Metals as required on a case by case basis
- Arsenic
- Barium
- Cadmium
- Chromium
- Lead
- Nickel
- Vanadium

Others as needed on a case by case basis
- ethylene dibromide (EDB)
- 1,2 dichloroethane (EDC)
- methyl 1 tert-butylether (MTBE)
- volatile chlorinated solvents

SECTION 7. CALIBRATION AND MAINTENANCE OF FIELD EQUIPMENT

Calibration and proper maintenance of field instruments is critical to obtaining acceptable data. Improper calibration or failure of an instrument in the field might result in improper choice of sample locations, failure to detect contamination, and inefficient and inadequate segregation of clean soils from contaminated soils and, thus, potentially much higher disposal or treatment costs.

7.1 Calibration and Maintenance of Field Instruments

To ensure that field instruments will be properly calibrated and remain operable in the field, the procedures set out in this section must be used.

7.1.1 Calibration

(1) If PID and FID field instruments are used, instruments must be calibrated before each testing session to yield "total organic vapors" in parts per million to a benzene equivalent. The PID instrument must be operated with a lamp source that is able to detect the contaminants of concern, operates at a minimum of 10.6 eV, and is capable of ionizing those contaminants of concern.

(2) Field instruments must be calibrated onsite.

(3) All standards used to calibrate field instruments must meet the minimum requirements for source and purity recommended in the instrument's operation manual.

(4) If the instrument's operation manual recommends specific calibration requirements for other criteria in calibrating the instrument (such as pH, conductivity, temperature, etc.), those criteria must be adhered to.

(5) Acceptance criteria for calibration must be determined depending on the potential contaminant(s) and must be within the limits set in the manufacturer's operations manual.

(6) The dates, times, and results of all calibrations and repairs to field instruments must be recorded in the field record and in the instrument's log.

(7) All users of the instrument must be trained in the proper calibration and operation of the instrument and must be required to read the operation manual before initial use.

7.1.2 Maintenance

(1) At a minimum, operation, maintenance, and calibration must be performed in accordance with the instrument manufacturer's specifications.

(2) All users of the instrument must be trained in routine maintenance, including battery and lamp replacement, lamp and sensor cleaning, and battery charging.

(3) Each instrument's operation and maintenance manual must be present at the site.

(4) Field instruments must be inspected before departure for the site and on site.

(5) Instrument battery charge must be inspected far enough ahead of time to bring the instrument up to full charge before departure for the site.

(6) At a minimum, a source of extra batteries and lamps (if applicable) must be readily available.

SECTION 8. DATA REDUCTION, VALIDATION, AND REPORTING

Data reduction describes the handling of standard, sample, and blank results; how blank analysis results must be used in calculating final results; examples of data sheets; and positions of persons responsible for data reduction.

Data validation is the systematic process of reviewing the data against criteria to assure the adequacy of the data.

Data reporting details how reports will be generated and what must be included in them.

8.1 Responsibility for Laboratory Data

The laboratory must conduct these activities on, and be responsible for, data that is processed within the laboratory. The owner or operator shall ensure that the assessment firm reviews final laboratory data reduction, validation, and reporting and

(1) selects a laboratory based on demonstrated ability to properly reduce, validate, and report data;

(2) verifies laboratory approval status; a list of approved laboratories is available from ADEC; and

(3) reviews all laboratory results and performance to ensure that the objectives of this chapter are met; if questions or problems arise with the laboratory analysis, the owner or operator shall ensure that the assessment firm takes appropriate corrective actions as outlined in

Section 10 of this chapter (Corrective actions); significant problems must be reported to ADEC.

8.2 Final Data Reduction

Data reduction is the compilation, condensation, and simplifying of information into a more easily understood product. The owner or operator shall ensure that the product furnished by the laboratory is examined, using standard statistical methods, by assessment firm personnel with the education, professional experience, and training necessary to meet a project's technical and regulatory requirements, and that these personnel conduct or supervise any further reduction of field and laboratory data into the final report.

8.3 Final Data Validation

The owner or operator shall ensure that validation of field data by the assessment firm occurs before the data are inserted into a report. The results of the evaluations discussed in this subsection must be documented in the report, must be used in data interpretation, and may be used to initiate corrective actions outlined in Section 10 of this chapter (Corrective actions).

8.3.1 Validation of Field Reports

The owner or operator shall ensure that the assessment firm QA officer examines all information collected through the field documentation process (Section 4.2 of this chapter). This information must be checked for

(1) completeness;

(2) accuracy (for example, transcription errors, internal consistency);

(3) unexpected results, with accompanying possible explanations;

(4) adherence to sampling procedures outlined in Section 4 of this chapter;

(5) comparison of field instrument results with laboratory results.

8.3.2 Review of Laboratory Data

The owner or operator shall ensure that the assessment firm reviewers pay special attention to the establishment of detection and control limits and deviations from them; if deviations are identified, they must be flagged for discussion in final reports and possible corrective action. Examples of limits and deviations include

(1) any limits outside of the acceptable range;

(2) lack of documentation showing the establishment of necessary controls; and

(3) unexplainable trends.

8.3.3 Determining the Final Validity of Samples

Samples collected in accordance with this chapter are considered valid unless otherwise indicated. Samples that are not collected in accordance with this chapter will be considered invalid; in particular, a sample will be considered invalid if

(1) the sample collection was not conducted by or supervised by a qualified person as required by 18 AAC 78;

(2) the sample was collected with previously-used tools that were not decontaminated as outlined in this chapter;

(3) the sample was not taken at the location or depth specified by this chapter;

(4) the sample was not taken at a location determined by a correctly calibrated and operated field instrument or by other documented observation to be representative of the most likely areas of contamination;

(5) the sample was collected using a method not listed in this chapter or a method that is inappropriate for the analyte;

(6) the sample was composited before analysis, unless compositing of the sample is explicitly specified by this chapter or approved by ADEC in the workplan required under 18 AAC 78;

(7) the sample jar was not clean before soils or water were deposited into it;

(8) the sample was incorrectly labeled (or not labeled) and field records do not show the location where the sample was collected;

(9) a water sample from a boring or well was not collected in accordance with Section 4.7 of this chapter;

(10) an improper analysis method was performed on the sample;

(11) the analysis of the sample was conducted by a laboratory that was not approved by ADEC at the time of analysis.

8.4 Data Reporting

8.4.1 Information to Be Included in Reports

Reports prepared under this chapter must, at a minimum, contain the following:

(1) the laboratory's data summary as required by Section 8.4.2 of this chapter (Laboratory data reports for samples) for each sample analyzed;

(2) an interpretation of data and sampling results, as required by the tasks discussed in Section 8.3 of this chapter (Final data validation);

(3) a table that contrasts the required field quality control data (discussed in Section 9.1.1 of this chapter) with the limits specified by this chapter (Section 8.4.2, below);

(4) a case narrative for the project;

(5) a separate section or attachment that discusses all deviations from procedures outlined in this chapter and any relevant information compiled from field records or other information required by 18 AAC 78 including a discussion of any deviations from this chapter for any sampling or analytical methods and procedures, whether used by the assessment firm or by the laboratory;

(6) for corrective action sampling activities, a separate section or attachment that discusses all corrective actions taken as required by Section 10 of this chapter, and any other corrective action for other deviations from this chapter including corrective action (such as resubmission of the sample) for sample results that fall within a factor of 2 of the action level after having had corrections for matrix interferences applied (see discussion in Section 10.4 of this chapter--Corrective actions with laboratory);

(7) a summary of the site assessment or release investigation information, provided to the owner or operator on a form available from ADEC (Site Assessment and Release Investigation Summary Form, see Appendix B), or similar format containing the same information; and

(8) other items required for reports by 18 AAC 78.

8.4.2 Laboratory Data Reports for Samples

(a) For each project conducted under this chapter, the owner or operator shall ensure that the assessment firm provides a data transmittal summary for each sample analyzed by the laboratory, including all field and laboratory QC samples, whether the samples are rejected or not. The following items must be submitted in the report:

(1) laboratory name, address, telephone number, fax number (if available), UST Lab ID number, and the name of the person authorizing release of laboratory data;

(2) report date;

(3) type of analysis (gasoline, diesel, etc.);

(4) the analytical and extraction method used and method number (see Tables 1 and 2);

(5) the type of matrix;

(6) the field sample number;

(7) the laboratory sample number;

(8) the UST laboratory identification number assigned by ADEC;

(9) the date sampled;

(10) the date received;

(11) the date extracted and digested;

(12) the date analyzed;

(13) the location of the sample collection point;

(14) the site or project name;

(15) the concentrations of analyte (reported in micrograms per liter for liquids, milligrams per kilogram, dry weight basis for solids);

(16) definitions of any characters used to qualify data;

(17) precision and accuracy values for each sample set, with at least one precision and accuracy evaluation for each set of 20 samples;

(18) the ambient temperature of the interior of the shipping container adjacent to the sample container WHEN RECEIVED by the laboratory;

(19) a copy of the sample transfer logs for each sample or group of samples;

(20) the analyst's name, signature or initials, and date signed;

(21) the dilution factor;

(22) a narrative summary report for each set of samples (not to exceed 20 samples per set), including a discussion of any significant matrix interferences, low surrogate recoveries, or analyte identifications as appropriate; and

(23) Laboratory Data Report Check Sheet (Appendix C).

(b) The following items must be retained on file by the laboratory for at least ten years after the analysis. They are not required in the report, but must be made available to ADEC upon request:

(1) the UST laboratory identification number assigned by ADEC;

(2) copies of all sample gas chromatogram traces with the attached integration report; copies of the reconstructed ion chromatograms (RIC's) must be provided if performing the analysis by mass spectroscopy; chromatograms must be provided for all samples, method blanks, and daily calibration standard; chromatograms must be identified with a sample identification and the time and date of analysis;

(3) a document containing the date and time for the initial calibration and the standards used to verify instrument settings for the data reported; include the composition and concentration range of standards used to establish and verify maintenance of instrument calibration; and

(4) a document explaining laboratory quality control samples used for the data reported and results obtained; include information concerning surrogates, alkane standard, column performance, matrix spike and matrix spike duplicate samples, blank data, and reference samples.

8.4.3 Submission of Reports to Tank Owner or Operator

All reports must be submitted to the tank owner or operator by a qualified person identified in Section 2.1 of this chapter (Personnel and responsibilities). If submission of reports to ADEC is required by the Qualified Personnel Form required under 18 AAC 78 or by ADEC, the assessment firm must inform the tank owner or operator of the requirement.

SECTION 9. INTERNAL QUALITY CONTROL CHECKS

Required quality control (QC) checks include field QC check samples and laboratory QC samples. Comparison of acceptable tolerances and actually derived values for each required QC element must appear in each project report submitted, as discussed in Section 8.4.1 of this chapter (Information to be included in reports).

9.1 Field Quality Control Checks

This section defines the types of field QC checks that must be used and the circumstances in which each type is to be used. All field QC check samples must be analyzed, the results of the analysis used to calculate data quality indicators, and must be summarized as shown in Table 3 or a similar format. When used, QC measures must be performed, at a minimum, for the most volatile analyte under investigation.

TABLE 3
Example of Field Quality Control Summary

Quality Control Designation	Tolerance	Results This Project
Holding time w/methanol GRO for soil	28 days	
Holding time GRO for water	14 days at 4° ± 2° C	
Holding time to extract DRO for soil	14 days at 4° ± 2° C	
Holding time to extract DRO for water	14 days at 4° ± 2° C	
Holding time to analyze DRO for soil	Less than 40 days	
Holding time to analyze DRO for water	Less than 40 days	
Holding time to extract RRO for soil	14 days at 4° ± 2° C	
Holding time to analyze RRO for soil	Less than 40 days	
Holding time to analyze; BTEX; soil	14 days at 4° ± 2° C or per method requirements	
Holding time BTEX for water	14 days at 4° ± 2° C	
Holding time to extract PAH for soil	14 days at 4° ± 2° C	
Holding time to extract PAH for water	7 days at 4° ± 2° C	
Holding time to analyze PAH for soil	Less than 40 days	
Holding time to analyze PAH for water	Less than 40 days	
Holding time Total VCS for soil	14 days at 4° ± 2° C	
Holding time Total VCS for water	14 days at 4° ± 2° C	
Holding time to extract PCB for soil	14 days at 4° ± 2° C	
Holding time to extract PCB for water	7 days at 4° ± 2° C	
Holding time to analyze PCB for soil	Less than 40 days	
Holding time to analyze PCB for water	Less than 30 days	
Holding time on digestate Total arsenic for soil	6 months max.	
Holding time on digestate Total arsenic for water	6 months max	
Holding time on digestate Total cadmium for soil	6 months max	
Holding time on digestate Total cadmium for water	6 months max	
Holding time on digestate Total chromium for soil	6 months max	
Holding time on digestate Total chromium for water	6 months max	
Holding time on digestate Total lead for water	6 months max	
Completeness	85%	
Field Duplicate	From ADEC project manager	
Decontamination Blank (s)	Less than practical quantitation limit	
Trip Blank (s)	Less than practical quantitation limit	
Methanol Trip Blank	Less than practical quantitation limit	
Field Blank	Less than practical quantitation limit	
Background Sample (s)	Assess background influence on final verification samples	

Legend: BTEX = Benzene, Toluene, Ethyl-benzene, Xylene;
DRO = Diesel Range Organics;
GRO = Gasoline Range Organics;
RRO= Residual Range Organics;
PAH = Polynuclear Aromatic Hydrocarbons; individual indicator PAH compounds
PCB = Polychlorinated Biphenyls;
VCS = Volatile Chlorinated Solvents

9.1.1 Minimum Field QC Sample Requirements

Table 4 shows the minimum level of sample QC scrutiny that must be applied to field sampling. A description of each type of field QC sample appears in Sections 9.1.2. - 9.1.5 of this chapter. Reference to sets of samples in this and subsequent subsections refers to samples taken from the same site (or, for multiple sampling points within a single project, from the same area within a site that has uniform characteristics such as grain size and organic content) during the same sampling event during a discrete time period. It does not apply to sampling points from different sites, samples taken at significant time differences from each other, nor multiple samples from the same site, but with nonuniform site characteristics.

Table 4. Minimum Quality Control Scrutiny

Minimum Field QC Samples Required	When Required	Allowable Tolerance
Field Duplicate (One per set of 10 samples, minimum of one)	All soil and water samples	Precision set by Project Manager
Decontamination or Equipment Blank (One per set of 20 similar samples, minimum of one)	All soil and water samples Where sampling equipment is decontaminated between samples	Less than the practical quantitation limit listed in Table 1
Trip Blank (One per set of 20 volatile samples, minimum of one)	All water samples Being analyzed for GRO, BTEX, or volatile chlorinated solvents.	Less than the practical quantitation limit listed in Table 1
Methanol Trip Blank (One per set of 20, minimum of one)	All soil samples Being analyzed for GRO, BTEX or volatile chlorinated solvents using AK101or AK101AA field methanol preservation	Less than the practical quantitation limit listed in Table 1
Field Blank (One per set of 20, minimum of one)	Per project specifications. Used for highly contaminated sites with volatile organic contaminants	Less than the practical quantitation limit listed in Table 1

9.1.2 Field Duplicate Sample

Field duplicate samples are useful in documenting the precision (variability) of the sampling process and the site. They are independent samples collected as close as possible to the same point in space and time. They are two separate samples taken from the same source, stored in separate containers, and analyzed independently.

At least one field duplicate must be collected for every 10 samples for each matrix sampled, for each target compound. Duplicate water samples must be collected as close as possible to the same point in space and time and must be collected before any decontamination blanks are collected. Duplicate soil samples must be collected as close as possible to the same point in space and time. All field duplicates must be blind samples and must be given unique sample numbers just like any other field sample. Their collection should be adequately documented. The results from field duplicate samples must be used to calculate a precision value for field sampling quality control.

9.1.3 Decontamination or Equipment Blank

A decontamination or equipment blank is used to determine if contamination occurred from sampling equipment such as pumps and bailers and checks to make sure equipment decontamination procedures have been effective. This blank is a sample of contaminant-free media used to rinse sampling equipment. It must be collected after completion of decontamination procedures and before sampling. Decontamination blanks for water samples must be collected as described in Section 4.7.2 of this chapter (Sampling groundwater monitoring wells). Decontamination blanks for soil samples must be collected in a similar manner. Decontamination blanks would not be required if disposable bailers are used for each sample taken.

If decontamination blanks are required, at least one decontamination blank must be collected and analyzed for each set of water samples that might contain volatiles. In addition, at least one decontamination blank must be collected and analyzed for every 20 soil samples collected each day.

9.1.4 Trip Blank and Methanol Trip Blank

A trip blank is used to document if contamination occurred in the sample containers during shipping, transport, or storage procedures. This blank is a sample of contaminant-free media taken from the laboratory to the sampling site along with each batch of samples and returned to the laboratory **unopened**. An aqueous trip blank would contain organic free water and a methanol trip blank would contain methanol. This type of blank can be especially useful in documenting when trace volatile organic compounds are being investigated. A trip blank would be used for samples being analyzed for all volatile organic compounds such as GRO, BTEX, and volatile chlorinated solvents.

If a trip or methanol trip blank is required, at least one trip or methanol trip blank must accompany each set of 20 samples that might contain volatile organic contaminants.

9.1.5 Field Blank

A field blank is used to document if sample contamination occurred as a result of reagent and/or environmental contamination from contaminated air at the sample location. This blank is especially helpful for highly contaminated sites with volatile organic compounds. A field blank is a sample of contaminant-free media taken from the laboratory to the sampling site and **opened onsite** during the sampling procedure. The field blank is then sealed and appropriately labeled and returned to the laboratory for analysis with the sample batch. The field blank does not replace the trip blank. If required, a field blank must accompany each set of 20 samples destined for volatile organics analysis.

9.1.6 Background Sample

A background sample is optional and is taken to document and assess contaminant baseline or historical information. This sample is collected in an area judged to be free of a site contaminant. A background sample must be collected whenever, in the QA officer's judgment, it is required:

(1) to document the occurrence of naturally occurring organics, especially when their presence might interfere with analytical tests;

(2) to document the presence of contamination by migration of contaminants from off-site or non-UST-related sources; and

(3) in a corrective action or treatment plan.

9.2 Laboratory Quality Control Samples

Laboratory quality control (QC) samples typically accompany the field samples during the laboratory preparation and analysis. The number of laboratory QC samples are dependent on the standard operating procedures of the method used. Labs do not generally charge for quality control analyses. The only laboratory quality control that would affect field sampling procedures would be the addition of a surrogate(s) that is included in the methanol preservation solution for use on soil samples being analyzed for volatile organic contaminants, especially GRO and BTEX using AK101 or AK101AA. . Example checklists for data and for quality control review for Alaska Petroleum Hydrocarbon Methods AK 101, AK 102, and AK 103 are found in Tables 5A-5F. A list of common laboratory QC samples are in Section 9.2.1 of this chapter:

TABLE 5A. AK 101 Gasoline Range Organics- Sample Result Check Sheet

SAMPLE INFORMATION

Matrix	☐ Aqueous ☐ Soil ☐ Sediment ☐ Other:
Containers	☐ Satisfactory ☐ Broken ☐ Leaking:
Aqueous Preservation	☐ N/A ☐ pH<2 ☐ pH>2 Comment:
Temperature	☐ Received on Ice ☐ Received at 4°C ☐ Other:
Extraction Method	Water: Soil:

11 AK 101 ANALYTICAL RESULTS FOR FIELD SAMPLES

Field ID						
Lab ID						
Date Collected						
Date Received						
Date Extracted						
Date Analyzed						
Dilution Factor						
% Moisture (soil)						
Units						
RESULTS						
Total Gasoline Range Organics[1] Results						
Field Sample Surrogate % Recovery						
Field Sample Surrogate Acceptance Range	50-150%	50-150%	50-150%	50-150%	50-150%	50-150%

[1]Gasoline Range Organics data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

12 CERTIFICATION

1. Were all QA/QC procedures REQUIRED by the AK 101 Method followed? ☐Yes ☐No-Details attached
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? ☐Yes ☐No-Details attached
3. Were any significant modifications made to the AK 101 method? ☐No ☐Yes-Details attached

SIGNATURE: _____

PRINTED NAME: _____ DATE: _____

Table 5B. AK 101 Gasoline Range Organics- Quality Assurance/Quality Control Sheet

SAMPLE INFORMATION

Matrix	☐ Aqueous ☐ Soil ☐ Sediment ☐ Other:
Extraction Method	Water: Soil:

13 AK 101 QUALITY CONTROL RESULTS FOR ANALYTICAL BATCH

Type	M. B.	LFB 1	LFB 2	CCS	CVS		
Field ID							
Lab ID							
Date Received							
Date Extracted							
Date Analyzed							
Dilution Factor							
% Moisture (soil)							
Units							
Method Blank Results							
Lab Fortified Blank (#1) % Recovery							
Lab Fortified Blank (#2) % Recovery							
LFB Acceptance Range		**60-120%**	**60-120%**				
LFB % RPD							
LFB % RPD Acceptance Limit			**20%**				
Continuing Calibration Sample Results							
CCS Acceptance Range				**75-125%**			
Curve Verification Sample (CVS) Results							
CVS Acceptance Range					**75-125%**		
Matrix Spike Result							
Matrix Spike Duplicate Result							
Surrogate % Recoveries for all QC							
Surrogate Acceptance Range	60-120%	60-120%	60-120%	60-120%	60-120%		

[1]Gasoline Range Organics data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

14 CERTIFICATION

1. Were all QA/QC procedures REQUIRED by the AK 101 Method followed? ☐Yes ☐No-Details attached
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? ☐Yes ☐No-Details attached
3. Were any significant modifications made to the AK 101 method? ☐No ☐Yes-Details attached

SIGNATURE: _____

PRINTED NAME: _____ DATE: _____

Table 5C. AK 102 Diesel Range Organics- Sample Result Check Sheet

SAMPLE INFORMATION

Matrix	☐ Aqueous ☐ Soil ☐ Sediment ☐ Other:
Containers	☐ Satisfactory ☐ Broken ☐ Leaking:
Aqueous Preservation	☐ N/A ☐ pH<2 ☐ pH>2 Comment:
Temperature	☐ Received on Ice ☐ Received at 4°C ☐ Other:
Extraction Method	Water: Soil:

15 AK 102 ANALYTICAL RESULTS FOR FIELD SAMPLES

Field ID						
Lab ID						
Date Collected						
Date Received						
Date Extracted						
Date Analyzed						
Dilution Factor						
% Moisture (soil)						
Units						
RESULTS						
Total Diesel Range Organics[1] Results						
Field Sample Surrogate % Recovery						
Field Sample Surrogate Acceptance Range	50-150%	50-150%	50-150%	50-150%	50-150%	50-150%

16 CERTIFICATION

1. Were all QA/QC procedures REQUIRED by the AK 102 Method followed? ☐Yes ☐No-Details attached
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? ☐Yes ☐No-Details attached
3. Were any significant modifications made to the AK 102 method? ☐No ☐Yes-Details attached

SIGNATURE: _____

PRINTED NAME: _____ DATE: _____

Table 5D. AK 102 Diesel Range Organics- Quality Assurance/Quality Control Check Sheet

SAMPLE INFORMATION

Matrix	☐ Aqueous ☐ Soil ☐ Sediment ☐ Other:
Extraction Method	Water: Soil:

17 AK 102 Quality Control RESULTS FOR ANALYTICAL BATCH

Type	M. B.	LFB 1	LFB 2	CCS	CVS		
Field ID							
Lab ID							
Date Received							
Date Extracted							
Date Analyzed							
Dilution Factor							
% Moisture (soil)							
Units							
Method Blank Results							
Lab Fortified Blank (#1) % Recovery							
Lab Fortified Blank (#2) % Recovery							
LFB Acceptance Range		75-125%	75-125%				
LFB % RPD							
LFB % RPD Acceptance Limit			20%				
Continuing Calibration Sample Results							
CCS Acceptance Range				75-125%			
Curve Verification Sample (CVS) Results							
CVS Acceptance Range					75-125%		
Surrogate % Recoveries for all QC							
Surrogate Acceptance Range	60-120%	60-120%	60-120%	60-120%	60-120%		

[1]Deisel Range Organics data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

18 CERTIFICATION

1. Were all QA/QC procedures REQUIRED by the AK 102 Method followed? ☐Yes ☐No-Details attached
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? ☐Yes ☐No-Details attached
3. Were any significant modifications made to the AK 102 method? ☐No ☐Yes-Details attached

SIGNATURE: _____

PRINTED NAME: _____ DATE: _____

Table 5E. AK 103 Residual Range Organics- Sample Result Check Sheet

SAMPLE INFORMATION

Matrix	☐ Soil ☐ Sediment ☐ Other:
Containers	☐ Satisfactory ☐ Broken ☐ Leaking:
Temperature	☐ Received on Ice ☐ Received at 4°C ☐ Other:
Extraction Method	Soil:

19 AK 103 ANALYTICAL RESULTS FOR FIELD SAMPLES

Field ID						
Lab ID						
Date Collected						
Date Received						
Date Extracted						
Date Analyzed						
Dilution Factor						
% Moisture						
Units						
RESULTS						
Total Residual Range Organics[1] Results						
Field Sample Surrogate % Recovery						
Field Sample Surrogate Acceptance Range	50-150%	50-150%	50-150%	50-150%	50-150%	50-150%

20 CERTIFICATION

1. Were all QA/QC procedures REQUIRED by the AK 103 Method followed? ☐Yes ☐No-Details attached
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? ☐Yes ☐No-Details attached
3. Were any significant modifications made to the AK 103 method? ☐No ☐Yes-Details attached

SIGNATURE: _____

PRINTED NAME: _____ DATE: _____

Table 5F. AK 103 Diesel Range Organics- Quality Control/Quality Assurance Check Sheet

SAMPLE INFORMATION

Matrix	☐ Soil ☐ Sediment ☐ Other:
Extraction Method	Soil:

21 AK 103 Quality Control RESULTS FOR ANALYTICAL BATCH

Type	M. B.	LFB 1	LFB 2	CCS	CVS		
Field ID							
Lab ID							
Date Received							
Date Extracted							
Date Analyzed							
Dilution Factor							
% Moisture							
Units							
Method Blank Results							
Lab Fortified Blank (#1) % Recovery							
Lab Fortified Blank (#2) % Recovery							
LFB Acceptance Range		**60-120%**	**60-120%**				
LFB % RPD							
LFB % RPD Acceptance Limit			**20%**				
Continuing Calibration Sample Results							
CCS Acceptance Range				**75-125%**			
Curve Verification Sample (CVS) Results							
CVS Acceptance Range					**75-125%**		
Surrogate % Recoveries for all Quality Control							
Surrogate Acceptance Range	60-120%	60-120%	60-120%	60-120%	60-120%		

[1]Residual Range Organics data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

22 CERTIFICATION

1. Were all QA/QC procedures REQUIRED by the AK 103 Method followed? ☐Yes ☐No-Details attached
2. Were all performance/acceptance standards for the required QA/QC procedures achieved? ☐Yes ☐No-Details attached
3. Were any significant modifications made to the AK 103 method? ☐No ☐Yes-Details attached

SIGNATURE: _____

PRINTED NAME: _____ DATE: _____

9.2.1 List of Common Laboratory Quality Control Samples

Surrogates: The surrogate is analyzed and the recovery, expressed as a percentage, is intended to indicate the percent recovery of the contaminant. A surrogate is added to every sample that is being analyzed for organic compounds, including field quality control samples before sample preparation and analysis. In AK101, a methanol/surrogate solution is used in the field for preserving soil samples being analyzed for volatile organic compounds, especially, GRO and BTEX.

Retention time standard: A retention time standard is method specific and is used to verify the integration range. It also provides data for column performance. The elution pattern indicates expected boiling ranges for petroleum products that have boiling range production criteria.

Laboratory spike and laboratory spike duplicates samples: These samples are used to determine precision and accuracy of the analytical results through the percent recovery and relative percent difference. Quantities of stock solutions of the target contaminant(s) are added to laboratory matrix before it is extracted/digested and analyzed.

Matrix spike and matrix spike duplicate samples: These samples are used to assess and document the precision and bias of a method as a result of that specific sample matrix.

Reagent blank: The reagent blank is used to evaluate possible contamination of analytical process by target contaminants. No contaminant should be present in the reagent blank at a concentration greater than the method detection limit.

Bottle blanks: Bottle blanks may be used for diesel and gasoline organic analyses to determine if the bottles used are contaminant free.

Instrument blanks: The instrument blanks are used for diesel and gasoline analyses to determine if the instruments used are contaminant free.

SECTION 10. CORRECTIVE ACTIONS

Corrective actions are procedures and actions taken to correct unacceptable or unexpected deviations in sampling or analysis. An example is the re-analysis of one or more affected samples or the reporting of questionable data with a note of explanation on the situation. Ultimate responsibility for corrective actions rests with the assessment firm. While appropriate corrective actions for out-of-control situations in the laboratory must be addressed by laboratory QA/QC documents, the owner or operator is responsible for ensuring that the assessment firm shows that all corrective actions enable the data quality objectives to be met.

10.1 Handling Invalid Samples

If an invalid sample is taken, the following procedures must be followed:

(1) if the completeness objective for the project is met and observations and field screening

do not indicate the invalid sample was collected at a location with higher than the average contamination levels at the site, an explanatory note of the deviation from this chapter must accompany the report and no further corrective action for deviation is required; and

(2) if the completeness objective for samples at the site is not met or observations and field screening indicate the invalid sample was collected at a location with higher than the average contamination levels at the site, sample(s) must be recollected at the proper location on the site, properly analyzed and reported, and an explanatory note of the deviation from this chapter must accompany the data report.

10.2 Field Instrument Failure and Improper Use

If field instruments are being improperly used (or are not used), field data must be re-collected.

10.3 Failures in Data Processing, Management, or Analysis

Problems with data processing, management, or analysis is typically discovered during data reduction, validation, and reporting (see Section 8 of this chapter). If these problems occur, the owner or operator shall ensure that the QA officer or another appropriate person is notified. Upon review of the problem, the owner or operator shall ensure that the QA officer or other appropriate person

(1) initiates actions to correct the improper procedure; and

(2) adheres to procedures outlined for notifying the QA officer and project manager of potential problems with data quality.

10.4 Corrective Actions with Laboratory

Normally, any corrective actions necessary in a laboratory are handled internally by the approved laboratory through its approved QA/QC procedures on file with ADEC. The need for corrective action in the laboratory is identified by

(1) the laboratory's internal QC checks;

(2) the data review conducted by the assessment firm (see Section 8.3 of this chapter); or

(3) the laboratory's performance audits.

APPENDIX A
Qualified Personnel Form

This form must be submitted before any work conducted by the assessment firm under Chapter 2, Standard Sampling Procedures of the Underground Storage Tanks Procedures Manual. Resumes and any other pertinent documents must be submitted as attachments to demonstrate that the personnel listed below are "qualified" as defined in 18 AAC 78 and 18 AAC 75. Resumes must contain dates of degrees obtained, educational institution's name and location where degree was obtained, and professional experience and work history relating to the equivalent of one year of professional experience requirement. The year's worth of experience must be completed after the bachelor degree was obtained. The assessment firm shall notify ADEC of all amendments to this listing and submit a revised form along with documentation of personnel changes and resumes. The list below must include names of all qualified persons working for the firm including any staff that need to go through the qualified person approval process. If additional staff are added and need to be approved by ADEC, place an asterisk next to each name to identify staff that need to be considered and submit a resume for each additional person to the department.

Assessment Firm Name	Rockwell Engineering & Construction Services, Inc.
Address	2375 University Ave., S
City, State, Zip Code	Fairbanks, AK 99709
Phone Number	(907) 457-7625
Fax Number	(907) 457-7620
Email	rockwellcorp@acsalaska.net
Principal Investigator	Mark L. Rockwell, P.E.
QA Officer	Shann Jones

QUALIFIED PERSONNEL

A "qualified person" is a person who actively practices environmental science or engineering, geology, physical science, hydrology, or a related field and meets the following minimum requirements: (A) a bachelor's degree or equivalent from an accredited postsecondary institution in environmental science or engineering, geology, hydrology, physical science, or a related field; "equivalent" means that the person earned at least 128 semester hours, 168 trimester hours, or 192 quarter hours, at an accredited postsecondary institution, of which at least 24 semester credits (or at least 18 percent of credits) were in the science major and at least 16 semester credits (or at least 13 percent of credits) were in upper division level courses; and (B) at least one year of professional experience in environmental science or engineering, geology, physical science, or a related field, completed after the degree described in (A) was obtained.

1. Mark L. Rockwell, P.E.
2. Shann Jones
3. Jeff Gimbel
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____

APPENDIX B

Site Assessment and Release Investigation Summary Form

This document summarizes information from site assessments and release investigation reports that are required by Alaska's Underground Storage Tanks Regulations (18 AAC 78). It is intended to ensure minimum requirements are met when submitting full reports to ADEC. It cannot be substituted for comprehensive site assessment or release investigation reports. Site assessments (as defined in AS 46.03.450) are conducted to check for the presence or absence of petroleum contamination. If contamination of soil or groundwater is identified, then a release investigation is required. Site assessments and release investigations must be conducted by a qualified impartial third party (as defined in 18 AAC 78) and in accordance with Chapter two of the *Underground Storage Tanks Procedures Manual (UST Manual)*.

How to fill out this form
Type or print in ink the requested information and sign in ink the "signature" blocks on page 7. Please attach this form to the comprehensive site assessment or release investigation report (or include it in the report introduction) and submit it to the nearest ADEC field operations office (Juneau, Anchorage, Fairbanks, or Soldotna).

1. General Information

Purpose of Site assessment/ Release investigation: _____
(Closure, Change-in-service, Suspected or confirmed release, Compliance check, Other)

Owner of site: _____
Name of company/legal entity that owns the site Phone number

_____
Mailing address City, State, Zip code

Operator of site: _____
Name of company/legal entity that operates the site Phone number

_____
Mailing address of operator City, State, Zip code

Location of site: _____
Name of site (e.g. John Doe's Service Station) Phone number

_____
Physical address of site (be as specific as possible) City, State, Zip code

_____ _____
Legal description of site Section/township/range

_____ _____
Type of business at site Facility ID # / Tank ID number(s)

Financial Assistance

Applications filed (this site only) Site assessment/__ tightness test Tank cleanup__ Tank upgrade__ Tank closure__

Reports on file with ADEC: Tightness test__ Closure notice__ Other___ _____

2. System and tank status

Describe the status, size, and contents of the tanks that have been at the site:

Tank ID Number:	Tank No. ___	Tank No. ___	Tank No. ___	Tank No. ___	Tank No. ___
Tank status (check one) Currently in use	_____	_____	_____	_____	
Temporarily closure	_____	_____	_____	_____	
Closed/left in place	_____	_____	_____	_____	
Closed/removed	_____	_____	_____	_____	
Total capacity (gallons)	_____	_____	_____	_____	
Contents (diesel, etc)	_____	_____	_____	_____	

3. Firm conducting site assessment and release investigation

_____
Name of firm Phone number

_____
Mailing address City, State, Zip code

_____
Site assessment supervisor(s) Person(s) collecting samples

4. Site history

Based on the best available knowledge, please check the appropriate box below:

Y	N	
__	__	Was soil contamination observed or identified?
__	__	Was groundwater contamination observed or identified?
__	__	Did inventory control or prior tank repairs indicate a possible release?
__	__	Has a tank tightness test been performed on any USTs on the site?
__	__	Have any of the facility's USTs or piping ever failed a tightness test?
__	__	Have there been any previous site assessments performed at this site?
__	__	Do previous site assessments indicate any contamination has occurred?

If the answer to any of these questions is yes, please describe (or attach copy of report discussion). Give dates and circumstances, use continuation sheet if necessary:

5. Field screening analysis

Date(s) of field screening:_____ Temperature(s) during screening:_____
Estimated wind speeds:_____ Weather (clear, raining, etc):_____
Type of field detection instrument used:_____
Brand:_____ Model: _____ Date calibrated: _____
Number of tests:_____ Range of results:_____

If an instrument wasn't used, what field detection method was used?_____
Number of tests:_____ Range of results:_____

6. Collection of soil samples

For site assessments done for USTs remaining in place

Check the appropriate boxes below (if not applicable, leave blank):

Y	N	
__	__	Were samples taken from borings (or test pits) within 5 feet of the UST?
__	__	Were samples collected from within 2 feet below the bottom of the UST?
__	__	Were dispensers connected to the UST system?
__	__	Were samples taken from borings (or test pits) adjacent to dispensers?
__	__	Were samples taken from borings (or test pits) adjacent to piping?

How many borings/pits were made?_____ How many samples were analyzed? _____

For site assessments done at excavation and removal of USTs:

Check the appropriate boxes below (if not applicable, leave blank):

Y	N	
__	__	Were any areas of obvious contamination identified or observed?
__	__	Were samples taken from areas of obvious contamination?
__	__	Were at least two discrete analytical samples taken from excavated pit area?
__	__	Was at least one sample taken from below each dispensing island's piping?
__	__	Was at least one sample taken from the piping trench?
__	__	Were the samples referenced above collected taken from native soil within two feet below the bottom of the tank pit or dispenser/piping trench?
__	__	If multiple tanks were removed, were at least three samples collected?
__	__	Were additional samples collected for each 250 square feet of excavated pit over 250 square feet?

Number of distinct points sampled:_____ Estimated excavation's surface area: _____

For all site assessments

Check the appropriate boxes below:

Y	N	
__	__	Were field duplicate samples collected and analyzed?
__	__	Were all samples kept at the appropriate temperature until analysis?
__	__	Were all samples extracted & analyzed within recommended holding times?
__	__	Did chain-of-custody/transfer logs accompany samples to laboratory?

7. Laboratory analysis of soil samples

(see Table 1 of *UST Procedures Manual*)

Identify the possible contaminants (gasoline, BTEX, diesel, etc.): _____

Please list the analytical methods used to detect these contaminants in the soil samples, the number of samples analyzed by each method, and the range of results for each method:

Possible product	**Analytical method**	**Number of samples**	**Range of results**	**Location(s) of sample point(s) w/highest level of contamination**
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

8. Groundwater investigation

Check the appropriate boxes below:

Y	N	
__	__	Was groundwater encountered during the excavation or drilling work?
__	__	Were borings drilled/pits dug at least five feet below the USTs bottom?
__	__	Is groundwater or seasonal high water table known or suspected to exist within five feet of the bottom of the USTs?

Y	N	
__	__	Were samples taken from borings drilled/test pits dug to this water level?
__	__	Were all these samples analyzed within recommended holding times?

How many groundwater/saturated-soil samples were collected & analyzed? _____

How many of these samples were taken from the top 6" of water table? _____

How many field QC samples were analyzed? _____ _____ _____
Trip blanks Duplicates Decon blanks

9. Laboratory analysis of water samples
(see Table 1 of *UST Procedures Manual*)

Identify the possible contaminants at the site: _____

Identify the analytical methods used to detect these contaminants in the water samples, the number of samples analyzed by each method, and the range of results for each method:

Analytical method	**Number of samples**	**Range of results (ppm)**	**Location(s) of sample point with highest level of contamination**
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

10. Disposal of material

Check the appropriate boxes below (if not applicable, leave blank):

Y	N	
__	__	Were tanks cleaned in accordance with API 2015 (Cleaning Petroleum Storage Tanks)?
__	__	Were the tanks and piping removed and disposed in accordance with API 1604 (Removal and disposal of used petroleum Storage tanks)?

Where were the tanks and piping disposed?_____
_____

Where was the tank sludge and rinsewater disposed?_____
_____

11. Stockpiles

Check the appropriate boxes below:

Y	N	
__	__	Is any soil stockpiled at the site?
__	__	Are soils stockpiled in accordance with 18 AAC 78.274?

12. Release investigation

Check the appropriate box below:

Y	N	
__	__	Was any petroleum contamination identified during site assessment? (Answer "yes" if any evidence a release occurred; if no, proceed to item 13)

If contamination was found, what was matrix score for site? _____
(Attach completed matrix score sheet to this form)

When did release occur? _____ (Date & time) When was release confirmed? _____ (Date & time)

When was ADEC notified? _____ (Date & time) List ADEC staff notified: _____ (Name)

What is status of UST that prompted the investigation?

____	_____	_____	_____
In use	Out-of-use, product still in system	Out-of-use, system empty	Permanently closed

Briefly describe (or attach copy of report discussion) the steps taken to prevent further migration of the release and steps taken to monitor and mitigate fire and safety hazards: _____

_____

_____

13. Site sketch

Sketch the site in the space below. Alternatively, attach a site map to the back of the form. The sketch (or accompanying narrative) should include the following information:

locations of all USTs, piping, and dispensers
distances from tanks to nearby structures
property line locations
location and dimensions of excavation(s)
type of backfill used to surround system
locations of any known historical releases
locations of any observed contamination
location of any boreholes and test pits
soil types
field screening locations and readings
sampling locations, depths, & sample ID numbers
water wells and monitoring wells (if present)
depth to groundwater/seasonal high location
locations of any stockpiled soils
north arrow
bar scale (specify feet or meters)
current land use; human and environmental receptors

For release investigations, in addition to the above information, show the groundwater gradient; surface drainages (including potential hydraulic connections with groundwater) and utility trenches.

14. Quality assurance

Check the appropriate boxes below:

Y	N	
___	___	Were there deviations from Chapter 2 of the *UST Procedures Manual*? (Note that any deviations must be documented in a section of the comprehensive report)
___	___	Is a field quality control summary included in the reports?
___	___	Is a laboratory QC summary included in the report for all samples used to verify cleanup standards have been met?

15. Certification

The following certification is to be signed by the assessment firm's principal investigator or Quality Assurance Officer:

I certify that except as specifically noted in this report, all statements and data appearing in this report are in conformance with the provisions of Chapter 2 of the *UST Procedures Manual*.

_____ _____

(Print name) (Title)

_____ _____

(Signature) (Date)

The following certification is to be signed by the UST owner/operator (or designated representative):

I certify that I have personally examined and am familiar with the information in this and all attached documents and based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

_____

(Print name)

_____

(Specify if owner, operator, representative)

_____ _____

(Signature) (Date)

_____ _____

(Street Address) (City, State, Zip)

16. Attachments

Please check the boxes showing any comprehensive reports attached to this summary:

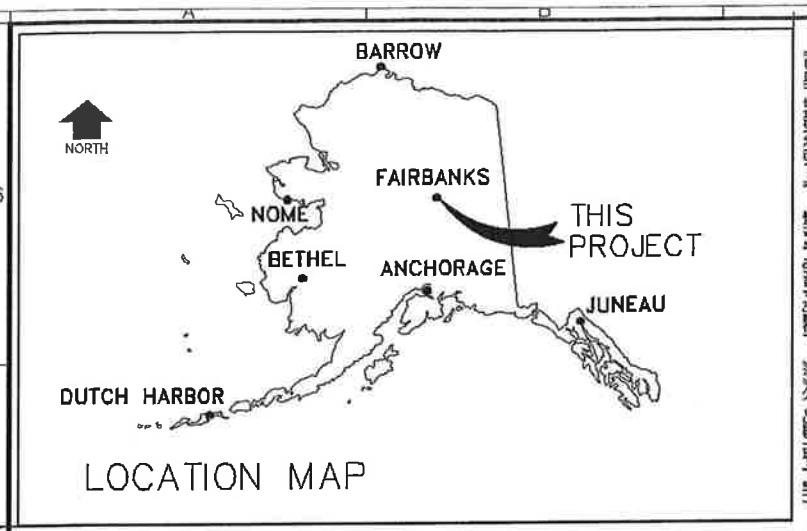
____ Site Assessment Report (include if no release investigation is needed)

____ Release Investigation Report (include if release investigation is needed)

APPENDICES C-F ARE NOT INCLUDED

APPENDIX B

SITE DRAWINGS



CLEAN SOIL DISPOSAL

MAIN GATE

HAUL ROUTE

PROJECT LOCATION

CONTRACTOR'S STAGING/LAYDOWN LOCATION: SEE NOTE 5

CONTAMINATED SOIL STOCKPILE LOCATION

LOCATION AND VICINITY MAP

1" = 800'

0 400 800 1600 2400 3200

GRAPHIC SCALE

LEGEND

HAUL ROUTE

PROJECT LOCATION

NOTES:

1. THIS DRAWING IS OF GENERAL NATURE, CONSTRUCTED AT APPROXIMATELY 1" = 800'. DO NOT USE THIS DRAWING FOR DESIGN APPLICATIONS.
2. SEE LEGEND FOR THE HAUL ROUTE DESIGNATION.
3. THE POST SANITARY LANDFILL AREA SHALL NOT BE USED. CONTRACTOR IS RESPONSIBLE FOR DISPOSING ALL MATERIALS OFF THE INSTALLATION.
4. NO GOVERNMENT BORROW MATERIAL IS AVAILABLE.
5. STAGING/LAYDOWN AREA SHALL BE LOCATED WEST OF THE PROJECT SITE. EMPLOYEE PARKING SHALL BE LOCATED SOUTH OF MONTGOMERY ROAD. CONTRACTOR SHALL COORDINATE WITH THE CONTRACTING OFFICER FOR STAGING/LAYDOWN LIMITS, ENTRANCE POINTS ONTO THE STAGING AREA, ETC. STAGING/LAYDOWN AREA SHOWN IS ONLY APPROXIMATE.

BID

US ARMY CORPS OF ENGINEERS ALASKA DISTRICT

CONTRACT NO. _____
CONTRACTOR _____
CITY _____ STATE _____
PRIME CONTRACTOR
RESIDENT ENGINEER
Recommended: _____ Approved: _____ Date: _____

Item	Action	Description	Date Issued

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ANCHORAGE, ALASKA

Designed: MED
Drawn: J.S.D.
Checked: T. Lubnick
Submitted: D. Fowler
Date: 22 SEPTEMBER 2009
Dwg Scale: AS NOTED
Plot Scale: 1:2
File: FTW336A-003-LV1-01
Drawing #: F-211-13-01

PN 65076 FTW336A
INV. NO. W91TKB-09-R-0007

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
CIVIL
GENERAL
LOCATION AND VICINITY MAP

Reference number: LV1.01
Sheet 3 of 120

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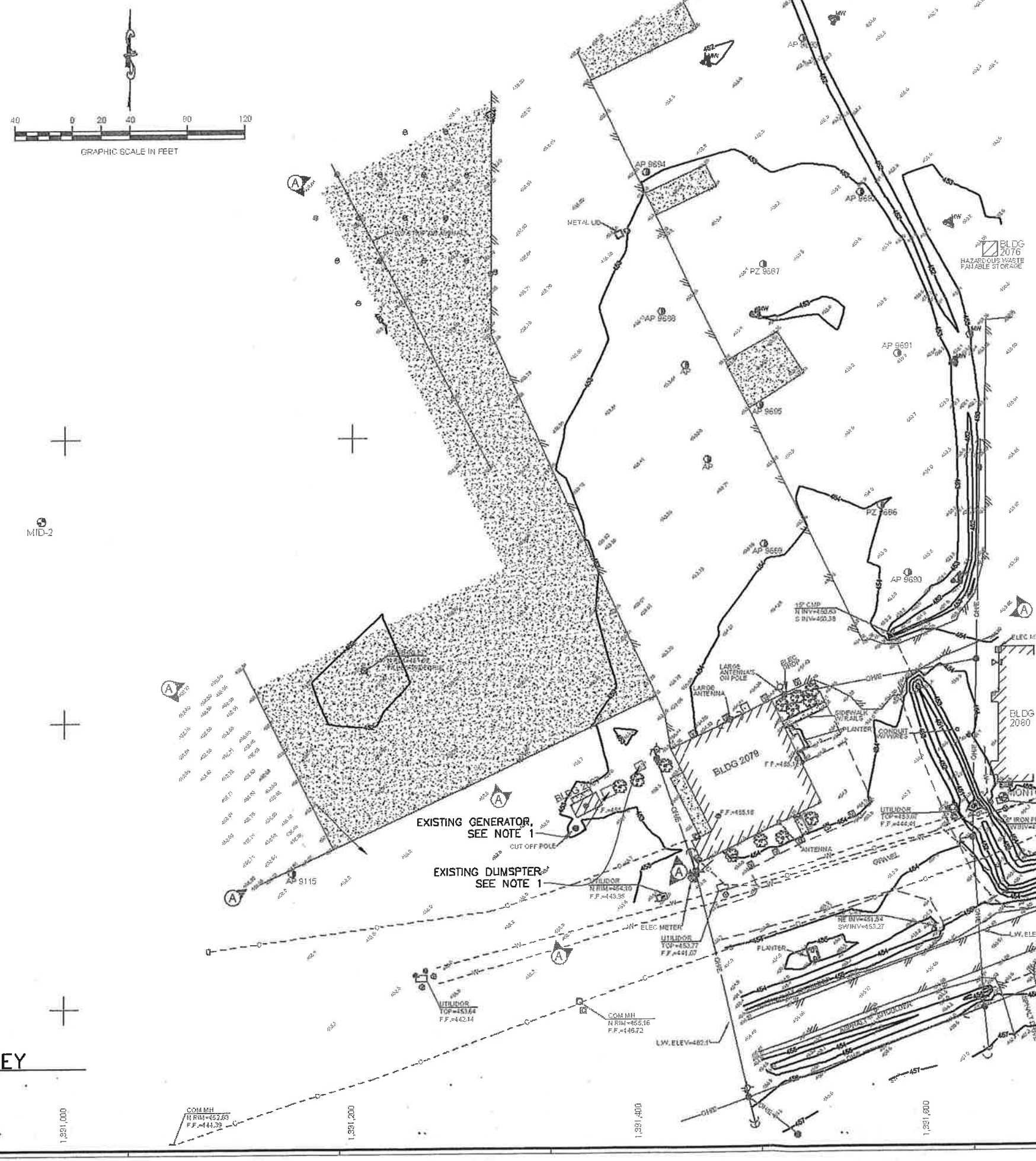

SURVEY CONTROL

HORIZONTAL CONTROL

Coordinates are ASPC Zone 3, NAD83 in U.S. Feet. The Basis of Coordinates is U.S.C. & G.S. Station "INITIAL" (PID TT6711), a Brass Cap having a value of N3,973,388.28 and E1,384,879.67.

VERTICAL CONTROL

Elevations are based on NAVD88 Datum for U.S. Engineer Office monument "LADD WEST BASE" (PID TT2777), a Brass Cap having a value of 447.31 feet above Mean Sea Level.

SCALE FACTOR

The **Project Combined** Scale Factor **is 0.99994000**. To convert ground **distance to** ASP **grid distances, multiply** by a **combined scale** factor of 0.99994000. **To convert** ASP **grid distances to** ground distances, **multiply** by a combined scale **factor of** 100,000,000/99,994,900.

UTILITY NOTES

The utilities shown have been located by field survey methods. The surveyor makes no guarantees that the utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated if marked by others. He does certify that they are located as accurately as possible from information available.

Fort Wainwright utility personnel responded to the request to locate utilities, but they may not have located all utilities on this site.

A title search was not performed and there was no attempt to locate easements of record.

HISTORICAL UTILITY ASBUILT DRAWINGS AND OTHER INFORMATION MAY NOT RELATE TO THE HORIZONTAL AND VERTICAL DATUM FOR THIS PROJECT. USE HISTORICAL INFORMATION WITH CAUTION!

SURVEY CONTROL POINTS

NAME	Northing	Easting	Elevation	Description
MOUT-1	3,951,157.99	1,390,201.46	455.69	Brass Cap
MOUT-2	3,950,901.67	1,389,185.33	455.66	Brass Cap
MONTG-1	3,951,343.97	1,391,653.72	455.81	Brass Cap

NOTES:

1. THE EXISTING GENERATOR AND DUMPSTER ARE SITUATED ON MOVABLE OBJECTS AND WERE NOT SURVEYED. THEIR LOCATIONS SHOWN ARE ONLY APPROXIMATE.

LEGEND

- SURVEY MONUMENT
- TREE
- POWER POLE
- GUY ANCHOR
- POWER POLE W/ LIGH
- TRANSFORMER
- JUNCTION BOX
- ELECTRIC PEDESTAL
- VEHICLE HEATER OUT
- COMMUNICATION PED
- FIRE HYDRANT
- STORM DRAIN
- VENT PIPE
- CULVERT
- GUARD POST / BOLLAI
- AUGER POINT
- MW MONITORING WELL
- F.F. FINISH FLOOR
- AIRCRAFT TIE DOWN
- OHE OVERHEAD ELECTRIC
- COMMUNICATION LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- BUILDING
- CONCRETE
- 101 MINOR CONTOUR
- 100 MAJOR CONTOUR
- SPOT ELEVATION

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. ——
CONTRACTOR ——
CITY ——
STATE ——
Recommended ——
Approved ——
Date ——

U.S. ARMY ENGINEER DISTRICT, CORPS OF ENGINEERS, ANCHORAGE, ALASKA
Designed: MED
Drawn: MED
Checked: T. Gutknecht
Quality Check: T. Gutknecht
Submitted: D. Forster
Chief, Engineering Division: ——
Chief, Construction Division: ——
Date: 22 SEPTEMBER 2009
Orig. Scale: AS NOTED
Plot Sheet: 1:2
File: FTW336A-004-V1-01
Drawing #: F-211-13-01

IINV. NO. W911KB-09-R-0007
PN 65076
FTW336A

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
CIVIL
GENERAL
SURVEY

Reference number:
V1.01
Sheet 4 of 120

BID

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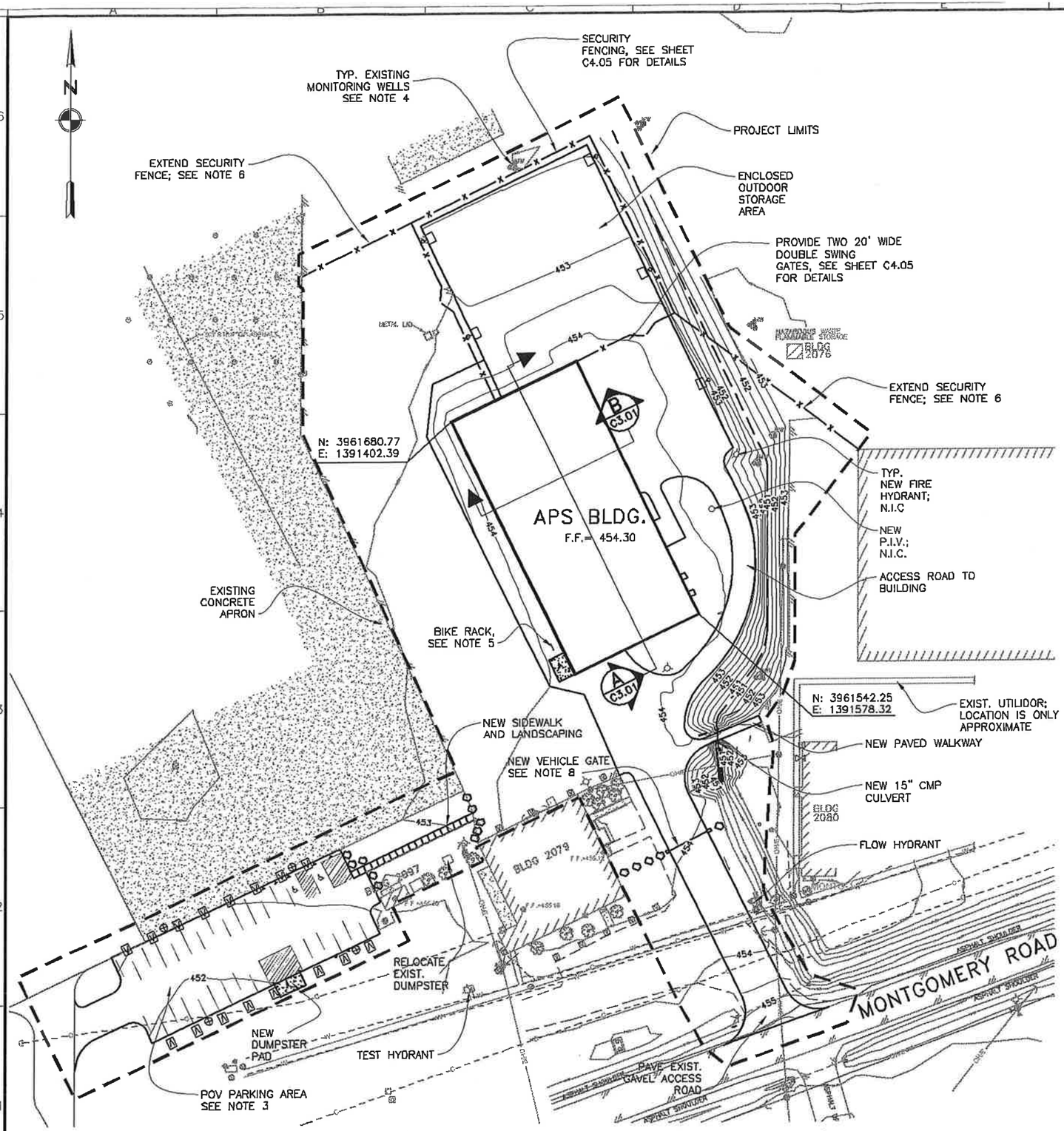


OVERALL SITE PLAN
1" = 40'

0 20 40 80 120 160
GRAPHIC SCALE

NOTES:

1. SEE SHEET D1.01 FOR LEGEND FOR EXISTING AND SHEET C2.02 FOR NEW.

2. PERMANENT UTILITY SYSTEMS (WATER, SEWER, STEAM AND CONDENSATE AND ELECTRICITY) TO THIS FACILITY WILL BE DESIGNED AND INSTALLED BY DOYON UTILITIES (DU) UP TO THE DEMARCATION POINTS.

POINTS OF DEMARCATION (POD) ARE AS FOLLOWS:
- WATER: POD IS THE DISTRIBUTION SIDE OF THE FIRST VALVE AFTER THE METER. WHERE DU PROVIDES FOR FIRE SERVICE LINES COMBINED WITH BUILDING SERVICE WATER LINES, THE POD FOR THE FIRE SERVICE IS THE DOWNSTREAM SIDE OF THE FIRST COUPLING AFTER THE FIRE SERVICE LINE SPLITS FROM THE WATER SERVICE LINE INSIDE THE FACILITY; THE POD FOR THE WATER SERVICE LINE REMAINS AT THE DISTRIBUTION SIDE OF THE FIRST VALVE AFTER THE FIRST METER.
- SEWER: POD IS UPSTREAM OF THE FIRST CLEANOUT OUTSIDE THE BUILDING. THE CONTRACTOR SHALL PROVIDE THE CLEANOUT UNLESS DU AND THE GOVERNMENT DETERMINE A CLEANOUT IS NOT NEEDED, IN WHICH CASE THE POD IS WHERE THE SERVICE LINE EXITS THE STRUCTURE. SEE MECHANICAL FOR LOCATION OF CLEANOUT.
- STEAM: POD IS AT THE DISTRIBUTION SIDE OF THE FIRST VALVE AFTER THE METER.
- CONDENSATE: POD IS IMMEDIATELY AFTER THE GATE VALVE (OR CHECK VALVE IF NO GATE VALVES ARE PRESENT) DOWNSTREAM FROM THE FACILITY'S CONDENSATE PUMPS.
-POWER TO FACILITY: A METER AND DISCONNECTING MEANS WILL BE PROVIDED AND INSTALLED BY DU ON THE EXTERIOR OF THE STRUCTURE. THE LOAD SIDE OF THE DISCONNECTING MEANS IS THE POD FOR ELECTRICAL POWER.

3. PROVIDE 30 POV PARKING SPACES. SEE SHEET C2.02 FOR NEW PARKING AREA REQUIREMENTS.

4. PROTECT EXISTING MONITORING WELLS TO REMAIN ON SITE. MONITORING WELLS THAT HAVE BEEN DAMAGED DURING THE CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE GOVERNMENT.

5. PROVIDE A BICYCLE RACK; REFERENCE SPECIFICATION 12 93 00 SITE FURNISHINGS FOR BICYCLE RACK REQUIREMENTS AND SHEET C4.03 FOR DETAIL.

6. PROVIDE SECURITY FENCING FROM THE NORTHWEST CORNER OF THE ENCLOSED OUTSIDE PARTS STORAGE AREA FENCE LINE TO EDGE OF CONCRETE APRON; CONNECT TO FENCE TO BE INSTALLED UNDER FTW336D IF IT IS IN PLACE WHEN FENCE IN THIS CONTRACT IS INSTALLED. PROVIDE SECURITY FENCING FROM A POINT 6-INCHES OFF THE NORTHWEST CORNER OF BUILDING 2077 (HANGAR 7 & 8) TO THE SOUTHEAST CORNER OF THE ENCLOSED OUTSIDE PARTS STORAGE AREA FENCE LINE. BUILDING 2077 SHOWN ON THIS SHEET AND ON SHEET C2.01 IS ONLY APPROXIMATE. EXACT LOCATION OF THE FENCE IN THIS AREA WILL BE FIELD VERIFIED AND COORDINATED WITH CONTRACTING OFFICER; COORDINATES, DIMENSIONS, PROVIDED ARE ONLY APPROXIMATE.

7. BUILDINGS 2097, 2079, 2077 AND 2080 WILL REMAIN OPERATIONAL DURING THE CONSTRUCTION OF THE AIRCRAFT PARTS STORAGE BUILDING, PARKING AREA AND ACCESS ROAD. THE CONTRACTOR SHALL COORDINATE WITH THE CONTRACTING OFFICER TO ESTABLISH ENTRY/EXIT INTO PROJECT SITES; TEMPORARY CONSTRUCTION BARRICADES; ETC.

8. THE CONTRACTOR SHALL PROVIDE A DROP DOWN VEHICLE GATE AT THE ACCESS ROAD OFF OF MONTGOMERY ROAD. THE VEHICLE GATE WILL BE DSC7000 DELTA SCIENTIFIC GATE OR EQUAL. THE VEHICLE GATE SHALL BE A DS (DIPLOMATIC SECURITY) CERTIFIED ANTI-RAM VEHICLE BARRIER. VEHICLE GATE SHALL BE INSTALL PER MANUFACTURER'S RECOMMENDATION. PROVIDE BOULDERS ON EACH SIDE OF THE VEHICLE GATE; SEE SHEET L1.01 FOR BOULDER DETAIL.

9. TOPSOIL AND SEED ALL DISTURBED AREAS.

US ARMY CORPS OF ENGINEERS ALASKA DISTRICT

CONTRACT NO. ____
CONTRACTOR ____
CITY ____ STATE ____
Recommended: ____ Approved: ____
Date: ____

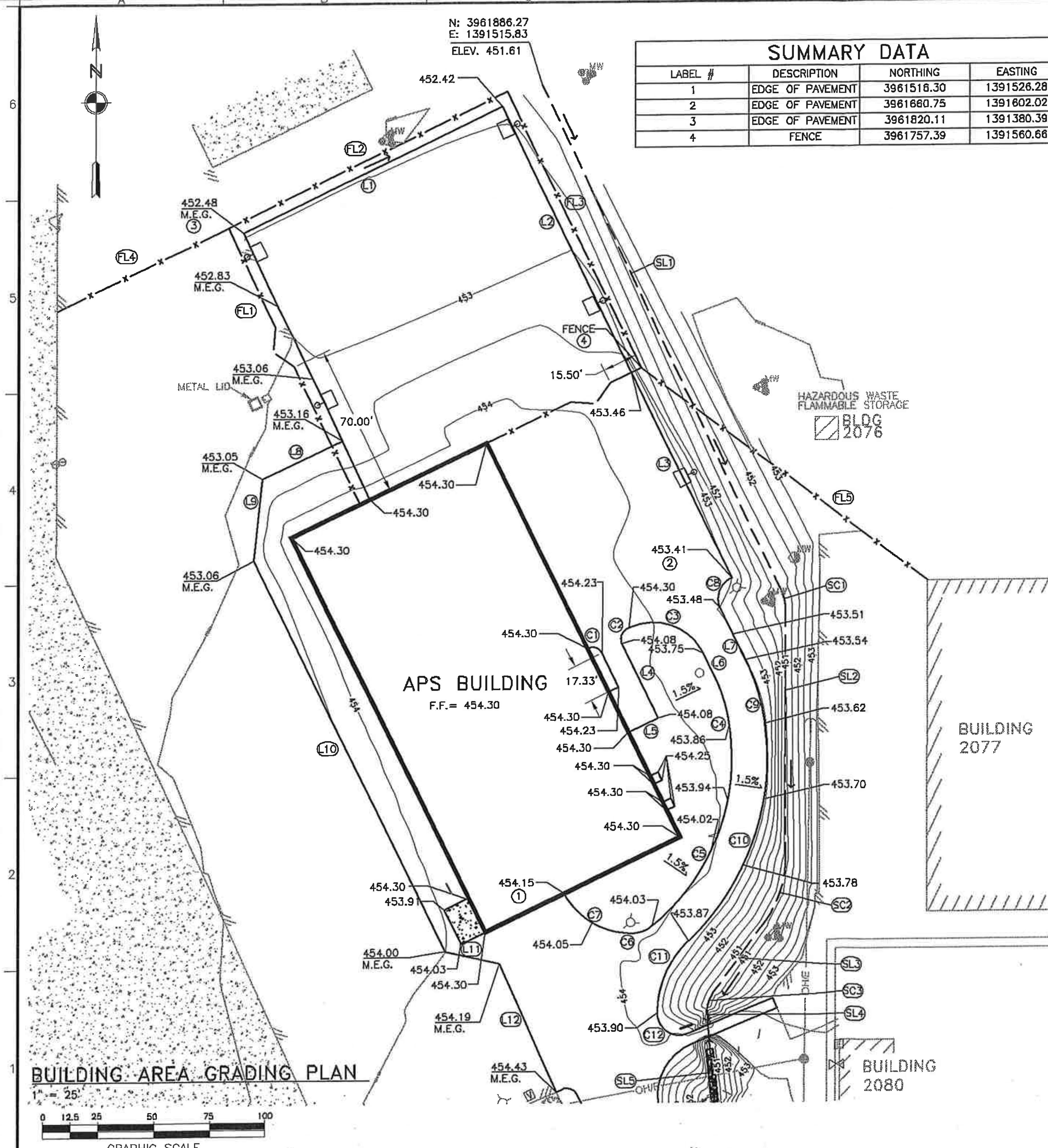
Mark Addition / Description / Date / Appvd

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ANCHORAGE, ALASKA
Designed: MED
Drawn: MED
Checked: ____
Quality Control: ____
Submitted: D. Fowler
Chief: ____
Date: 22 SEPTEMBER 2009
Plot Scale: AS NOTED
Plot Style: 1:2
File: FTW336A-ODB-C1-01
Drawing # F-211-13-01
INV. NO. W911KB-09-R-0007
PN 65076
FTW336A

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
CIVIL
PLANS
OVERALL SITE PLAN

Reference number:
C1.01
Sheet 8 of 120

BID



SUMMARY DATA

LABEL #	DESCRIPTION	NORTHING	EASTING
1	EDGE OF PAVEMENT	3961516.30	1391526.28
2	EDGE OF PAVEMENT	3961660.75	1391602.02
3	EDGE OF PAVEMENT	3961820.11	1391380.39
4	FENCE	3961757.39	1391560.66

CURVES

LABEL #	LENGTH	RADIUS	Δ
C1	7.85	5.00	90.00
C2	7.85	5.00	90.00
C3	40.33	25.04	92.30
C4	28.25	78.86	20.52
C5	98.22	98.00	57.43
C6	10.58	15.00	40.42
C7	36.32	35.00	59.46
C8	15.71	10.00	90.00
C9	33.60	94.73	20.33
C10	105.87	114.00	53.21
C11	36.33	45.18	46.07
C12	19.92	10.00	114.11

LINES

LABEL #	LENGTH	BEARING
FL1	49.95	N25° 18' 24.48" W
FL2	140.01	N64° 10' 06.34" E
FL3	140.00	S25° 49' 53.67" E
FL4*	85.65	S64° 10' 06.34" W
FL5	162.92	N52° 57' 03.84" W
L1	130.05	N64° 10' 06.34" E
L2	135.00	S25° 49' 53.67" E
L3	105.00	S25° 49' 53.67" E
L4	38.00	N25° 49' 53.67" W
L5	15.00	N64° 10' 06.33" E
L6	11.49	S25° 49' 53.69" E
L7	26.49	S25 49' 53.69" E
L8	40.27	N64° 41' 35.52" E
L9	37.69	N06° 04' 10.88" E
L10	199.33	S25° 49' 53.67" E
L11	25.09	S76° 48' 29.61" E
L12	63.59	N23° 58' 56.01" W

NOTES:

1. SEE SHEET D1.01 FOR LEGEND FOR EXISTING AND SHEET C2.02 FOR NEW.
2. SEE C1.01 FOR PROJECT LIMITS.
3. NEW ASPHALT SHALL MEET EXISTING GRADE ALONG EXISTING ASPHALT PAVEMENTS.
4. REGRADE EXISTING SWALE SYSTEM MAINTAINING ITS EXISTING FLOW LINE. FLOW LINE SHALL BEGIN AS INDICATED ON DRAWING AND MEET NEW 15" CMP CULVERT INVERT ELEVATION AT 450.57'.
5. SEE SHEET C2.03 FOR CONCRETE LANDINGS, SWALE AND CULVERT DATA TABLES.
6. MINIMUM WIDTH OF PAVED DRIVEWAY TO MECHANICAL AND FIRE PUMP ROOM IS 10.00'.
7. TOPSOIL AND SEED AREA BETWEEN THE NEW BUILDING AND ACCESS ROAD.
8. DATA WITH ASTERISK "*" IS ONLY APPROXIMATE IF THE FTW 336D AIRFIELD PERIMETER FENCE PROJECT IS ALREADY INSTALLED.

BID

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

INV. NO. W911KB-09-R-0007
PN 65076
FTW336A

Date: 22 SEPTEMBER 2009
Dwg Scale: AS NOTED
File: FTW336A-009-C2-01
Drawing # F-21-13-01

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
CIVIL
PLANS
BUILDING AREA GRADING PLAN

Reference number:
C2.01

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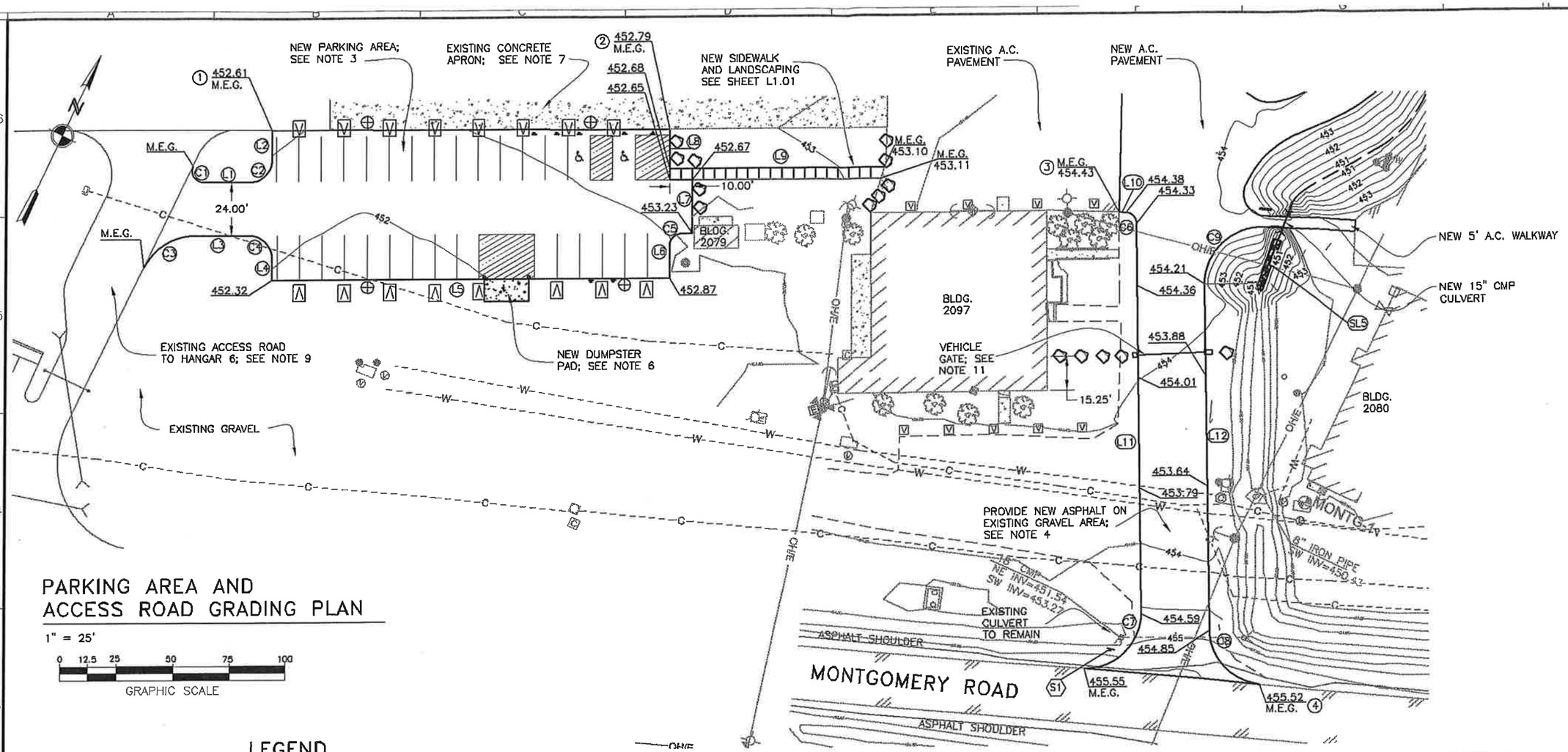


PARKING AREA AND ACCESS ROAD GRADING PLAN

1" = 25'

0 12.5 25 50 75 100

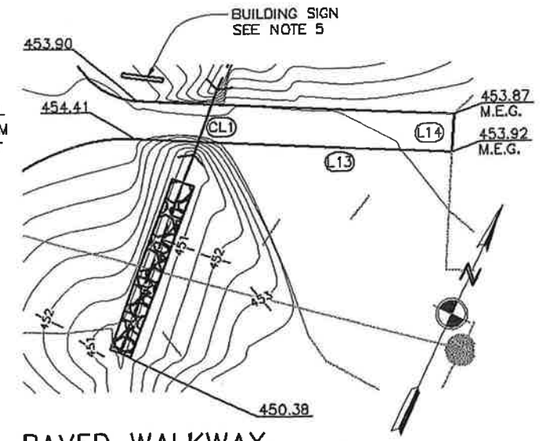
GRAPHIC SCALE

LEGEND

NEW BUILDING	MINOR CONTOUR
NEW A.C. PARKING/ PAVEMENT	MAJOR CONTOUR
NEW FENCE LINE/GATE	M.E.G. MEET EXISTING GRADE
SWALE	N.I.C. NOT IN CONTRACT
DATA SUMMARY MARKER	CULVERT
SIGNAGE MARKER	PROJECT LIMITS
SIGN	HEAD BOLT HEATER SEE ELECTRICAL
CONCRETE LANDINGS/ DUMPSTER PAD	FUTURE LIGHTING; N.I.C. SEE ELECTRICAL
PROPOSED FIRE HYDRANT LOCATION; N.I.C.	POLE MOUNTING EXTERIOR LIGHTING; SEE ELECTRICAL
PROPOSED PIV LOCATION; N.I.C.	VEHICLE GATE
ROCK	BOULDER
	BOLLARD

NOTES:

1. SEE SHEET D1.01 FOR LEGEND FOR EXISTING.
2. SEE C1.01 FOR PROJECT LIMITS.
3. PARKING AREA: NEW ASPHALT SHALL MEET EXISTING GRADE ALONG THE EXISTING CONCRETE APRON (NORTH) AND ALONG EXISTING ACCESS ROAD TO HANGAR 6 (WEST). SEE SHEET C4.03 FOR PAVEMENT MARKINGS DETAIL.
4. ACCESS ROAD: PROVIDE NEW ASPHALT FROM MONTGOMERY ROAD TO AIRCRAFT PARTS STORAGE BUILDING AS SHOWN. NEW ASPHALT SHALL TIE INTO EXISTING GRAVEL ALONG THE WEST SIDE OF THE ACCESS ROAD AND MEET EXISTING GRADE. EAST OF THE ACCESS ROAD GRADE TO EXISTING GRADE, MAINTAIN EXISTING SLOPES. EXCAVATE EXISTING ROAD TO PLACE AND COMPACT MINIMUM 2" AGGREGATE BASE LEVELING COURSE PLUS 2" ASPHALT PAVEMENT.
5. THE BUILDING SIGN SHALL BE RELOCATED FROM BUILDING 3475 TO THE LOCATION SHOWN ON THIS SHEET. AFTER THE REMOVAL OF THE EXISTING SIGN; THE CONTRACTOR SHALL FILL ANY HOLES WITH UNCLASSIFIED FILL TO EXISTING GRADE AND TOPSOIL AND SEED DISTURBED AREAS. EXACT LOCATION SHALL BE COORDINATED WITH ANY THE CONTRACTING OFFICER.
6. SEE SHEET C4.02 FOR DUMPSTER AND ENCLOSURE DETAILS.
7. PROJECT FTW336D WILL BE INSTALLING A SECURITY FENCE ALONG THE EXISTING CONCRETE APRON. INSTALL NEW SIGN POSTS AND HEADBOLT HEATERS AT A MINIMUM 1.5 FT FROM THE EXISTING CONCRETE APRON. DO NOT INSTALL SIGN POSTS AND HEADBOLT HEATERS IN CONCRETE APRON.
8. PROVIDE A THAW PIPE FOR THE NEW 15" CMP CULVERT; SEE SHEET C4.06 FOR DETAILS.
9. EXISTING ACCESS ROAD TO HANGAR 6 IS ONLY APPROXIMATE. NO SURVEY WAS PERFORMED OF THE THE ACCESS ROAD AND THE AREA BETWEEN THE EXISTING ACCESS ROAD AND NEW PARKING AREA. THE DATA PROVIDED IN THIS AREA IS ONLY APPROXIMATE.
10. SEE SHEET C2.03 FOR DATA TABLES ASSOCIATED WITH THIS SHEET.
11. VEHICLE GATE SHALL BE FIELD VERIFIED WITH THE CONTRACTING OFFICER. LOCATE APPROXIMATELY 15.25'.



PAVED WALKWAY

1" = 10'

0 5 10 20 30 40

GRAPHIC SCALE

BID

US ARMY CORPS OF ENGINEERS ALASKA DISTRICT

CONTRACT NO. ---
CONTRACTOR ---
CITY ---
STATE ---
Recommended: ---
Approved: ---
Date: ---

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ANCHORAGE, ALASKA
Designed: MED
Drawn: MED
Checked: F. Lisbeck
Quality Control: ---
Submitted: D. Frenier
Chief, Engineering Division: ---
Date: 22 SEPTEMBER 2009
Dwg. Scale: AS NOTED
Plot Scale: 1:2
Plot: FTW336A-010-C2-02
Drawing #: F-211-13-01
INV. NO. W911KB-09-R-0007
PN 65076
FTW336A

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
CIVIL
PLANS
PARKING AREA GRADING PLAN

Reference number:
C2.02
Sheet 10 of 120

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NOTES:

ALL WORK SHALL BE IN ACCORDANCE WITH ARMY I3A TECHNICAL GUIDANCE

1. PROVIDE 2PVC–4"SCHEDULE 40 PVC CONCRETE ENCASED DUCT BANK FROM THE NEW BUILDING COMM ROOM TO A NEW MANHOLE (MH5–41A) BETWEEN BUILDINGS 2097 AND 2079. THE NEW MANHOLE SHALL INTERCEPT TWO EXISTING 4 INCH PVC DUCTS ONE DUCT HAS 4–1 INCH PVC SUBDUCTS WITHIN WHICH CARRY BOTH ACTIVE FIBER OPTIC AND COPPER CABLE SERVICES TO BUILDING 2079. THE CONTRACTOR SHALL COORDINATE A MINIMAL DISRUPTION WEEKEND SERVICE OUTAGE WITH THE CUSTOMER OF BUILDING 2079, THE ARMY COMMUNICATIONS CENTRAL OFFICE (CO) AND LOCAL NETWORK COMM CENTER, THE OUTAGE SHALL BE LIMITED TO A TOTAL OF 64 HOURS BEGINNING FRIDAY @ 16:00HRS ENDING MONDAY MORNING @ 08:00HRS. DURING THIS TIME THE CONTRACTOR SHALL REMOVE ACTIVE 12 STRANDS SINGLE MODE FIBER OPTIC CABLE AND 50 PAIR 24 AWG COPPER CABLE (PE–89), THEN, CUT AND SWEEP THE EXISTING DUCTS INTO THE NEW MANHOLE FROM BOTH DIRECTIONS AND PROVIDE NEW CABLING TO AND REINSTALL SERVICE TO BLDG 2079..

2. A NEW 3 CELL, 3 INCH FABRIC INNERDUCT SHALL BE PROVIDED THROUGH EXISTING DUCTS AND MANHOLES ALONG MONTGOMERY ROAD AND FROM NEW MH5–41A TO NEW FACILITY MAIN COMMUNICATIONS ROOM AND BLDG 2079 COMMUNICATIONS SERVICE ENTRANCE. AN ADDITIONAL PULL CORD SHALL BE PLACED ALONG SIDE THE FABRIC INNERDUCT. CONTRACTOR SHALL COORDINATE DUCT ASSIGNMENTS AND DISTRIBUTION. CONTRACTOR IS RESPONSIBLE FOR ALL TRANSFER WORK AND REESTABLISHING ACTIVE SERVICES.

3. NEW EXTERIOR COMMUNICATIONS SHALL CONSIST OF NEW INSTALL/SPLICE/TEST 100 PAIR 24 AWG FILLED COPPER CABLE (PE–89) RUN FROM EXISTING MANHOLE 5–41 TO THE NEW MH5–41A. A NEW 50 PAIR 24 AWG FILLED COPPER CABLE (PE–89) SHALL RUN FROM THE NEW MH5–41A, THROUGH THE NEW 4" DUCT TO THE NEW BUILDING. AND A NEW 50 PAIR 24 AWG FILLED COPPER CABLE (PE–89) SHALL RUN FROM THE NEW MH5–41A, THROUGH THE EXISTING DUCT TO BUILDING 2079.

4. NEW 48 STRAND, SINGLE–MODE FIBER OPTIC CABLE WITH SERVICE LOOPS AND FUSION SPLICES SHALL BE PROVIDED FROM EXISTING MANHOLE 5–36 AT THE CORNER OF LUZON AND MONTGOMERY RD. TO MANHOLE 5–39.
A NEW 24 STRAND, SINGLE–MODE FIBER OPTIC CABLE WITH SERVICE LOOPS AND FUSION SPLICED SHALL BE PROVIDED FROM EXISTING MANHOLE 5–39 TO NEW MANHOLE 5–41.

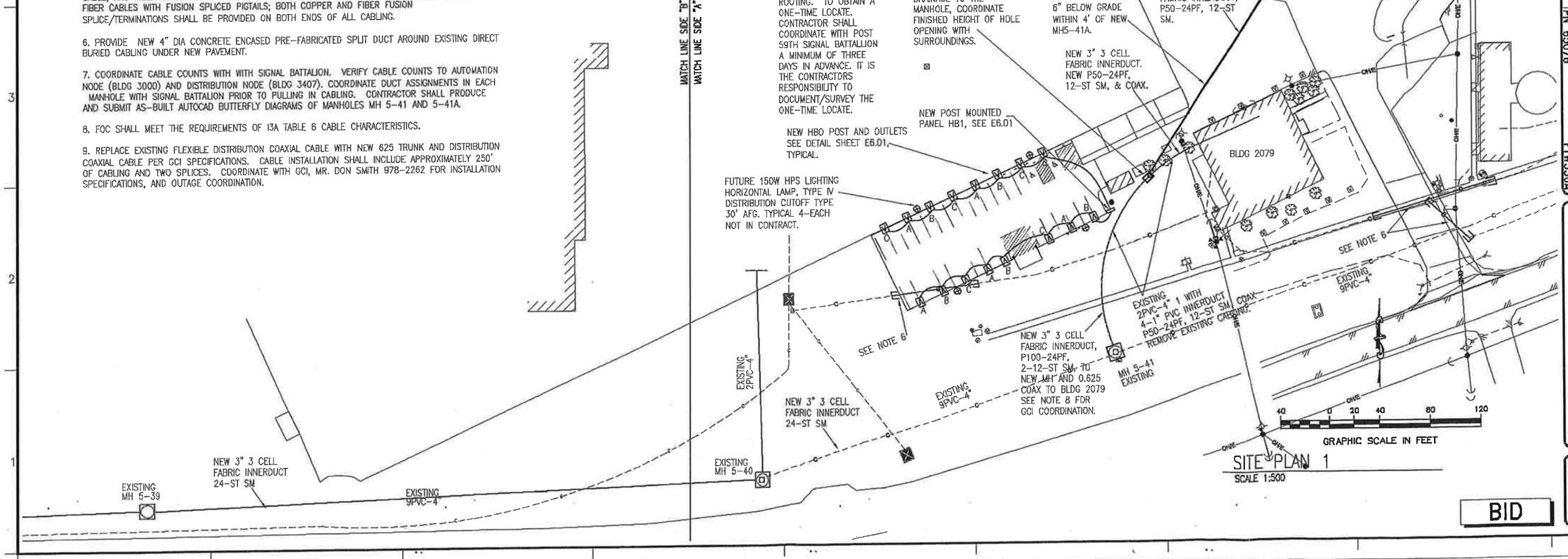
5. NEW 12 STRAND, SINGLE–MODE FIBER OPTIC CABLE WITH SERVICE LOOPS AND FUSION SPLICED SHALL BE PROVIDED FROM MANHOLE 5–41 THROUGH NEW MANHOLE 5–41A TO NEW FACILITY. A NEW 12 STRAND, SINGLE–MODE FIBER OPTIC CABLE WITH SERVICE LOOPS AND FUSION SPLICED SHALL BE PROVIDED FROM MANHOLE 5–41 THROUGH NEW MANHOLE 5–41A TO BUILDING 2079 A NEW BUILDING ENTRANCE PROTECTOR (BEP) SHALL BE PROVIDED FOR THE NEW BUILDING COPPER CABLE, AND FIBER OPTIC PATCH PANELS CABINETS SHALL BE PROVIDED FOR THE NEW BUILDING FIBER CABLES WITH FUSION SPLICED PIGTAILS; BOTH COPPER AND FIBER FUSION SPLICE/TERMINATIONS SHALL BE PROVIDED ON BOTH ENDS OF ALL CABLING.

6. PROVIDE NEW 4" DIA CONCRETE ENCASED PRE–FABRICATED SPLIT DUCT AROUND EXISTING DIRECT BURIED CABLING UNDER NEW PAVEMENT.

7. COORDINATE CABLE COUNTS WITH WITH SIGNAL BATTALION. VERIFY CABLE COUNTS TO AUTOMATION NODE (BLDG 3000) AND DISTRIBUTION NODE (BLDG 3407). COORDINATE DUCT ASSIGNMENTS IN EACH MANHOLE WITH SIGNAL BATTALION PRIOR TO PULLING IN CABLING. CONTRACTOR SHALL PRODUCE AND SUBMIT AS–BUILT AUTOCAD BUTTERFLY DIAGRAMS OF MANHOLES MH 5–41 AND 5–41A.

8. FOC SHALL MEET THE REQUIREMENTS OF I3A TABLE 6 CABLE CHARACTERISTICS.

9. REPLACE EXISTING FLEXIBLE DISTRIBUTION COAXIAL CABLE WITH NEW 625 TRUNK AND DISTRIBUTION COAXIAL CABLE PER GCI SPECIFICATIONS. CABLE INSTALLATION SHALL INCLUDE APPROXIMATELY 250' OF CABLING AND TWO SPLICES. COORDINATE WITH GCI, MR. DON SMITH 978–2262 FOR INSTALLATION SPECIFICATIONS, AND OUTAGE COORDINATION.



SITE PLAN 1
SCALE 1:500

BID

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. _____
CONTRACTOR _____
CITY _____ STATE _____
PRIME CONTRACTOR Recommended: Approved:
RESIDENT ENGINEER Date:

Mark	Action	Description	Date Signed

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ANCHORAGE, ALASKA

Designed: TH
Drawn: TH
Checked: R. Bolton
QC'd: — Date: —
Revised: R. Bolton
Submitted: D. Fowler
Drawing #: F-211-13-01
File: FTW336A-101-E2-01
Date: 22 SEPTEMBER 2009
Dwg Scale: AS NOTED
PM Scale: 1:2

INV. NO. W91TK9–09–R–0007
PN 65076
FTW336A

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
ELECTRICAL
PLANS
SITE PLAN 1

Reference number:
E2.01
Sheet 101 of 120

Drawing x:\UNIFIED\EN–TE\Jobs\FTW336A\Dwgs\FTW336A–101–E2–01.dwg last saved on 9/22/2009 12:25 PM was plotted by Curfew, Donald L POA on 9/22/2009 12:57 PM

US ARMY CORPS OF ENGINEERS ALASKA DISTRICT

CONTRACT NO. _____
CONTRACTOR _____
CITY _____ STATE _____

Recommended:	Approved:	Date:
PRIME CONTRACTOR	RESIDENT ENGINEER	

Sym	Action	Description	Date	Apprd

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

Designed: T.H.
Drawn: T.H.
Reviewed: R. Bolton — Chief, CEPOA-EN-TE-MZ — Section
Submitted: D. Frenier — Chief, CEPOA-EN-TE — Branch
Date: 22 SEPTEMBER 2009
Dwg Scale: AS NOTED
Plot Scale: 1:2
File: FTW336A-102-E2-02
Drawing #: F-211-13-01
INV. NO. W911KB-09-R-0007
PN 65076 FTW336A

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
ELECTRICAL
PLANS
SITE PLAN 2

Reference number: E2.02
Sheet 102 of 120

BID

MATCH LINE SIDE "A"
MATCH LINE SIDE "B"

NEW HANGER
FF=453.10

EXISTING 9PVC-4"

NEW 3" 3 CELL FABRIC INNERDUCT 24-ST SM

EXISTING MH 5-39

NEW 3" 3 CELL FABRIC INNERDUCT 48-ST SM

EXISTING 9PVC-4"

EXISTING MH 5-38

2104

MATCH LINE SIDE "C"
MATCH LINE SIDE "D"

SITE PLAN 2
SCALE 1:500

GRAPHIC SCALE IN FEET
40 0 20 40 80 120

Drawing x:\UNIFIED\EN-TE\Jobs\FTW336A\Dwgs\FTW336A-102-E2-02.dwg last saved on 9/22/2009 12:25 PM was plotted by Curfew, Donald L POA on 9/22/2009 12:57 PM

SITE PLAN 3

SCALE 1:500

GRAPHIC SCALE IN FEET

40 0 20 40 80 120

EXISTING MH 5-36

NEW 3" 3 CELL FABRIC INNERDUCT 48-ST SM

EXISTING MH 5-37

NEW 3" 3 CELL FABRIC INNERDUCT 48-ST SM

EXISTING 9PVC-4"

2104

MATCH LINE SIDE "D"

MATCH LINE SIDE "C"

EXISTING MH 5-38

BID

Reference number: E2.03

Sheet 103 of 120

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
ELECTRICAL
PLANS
SITE PLAN 3

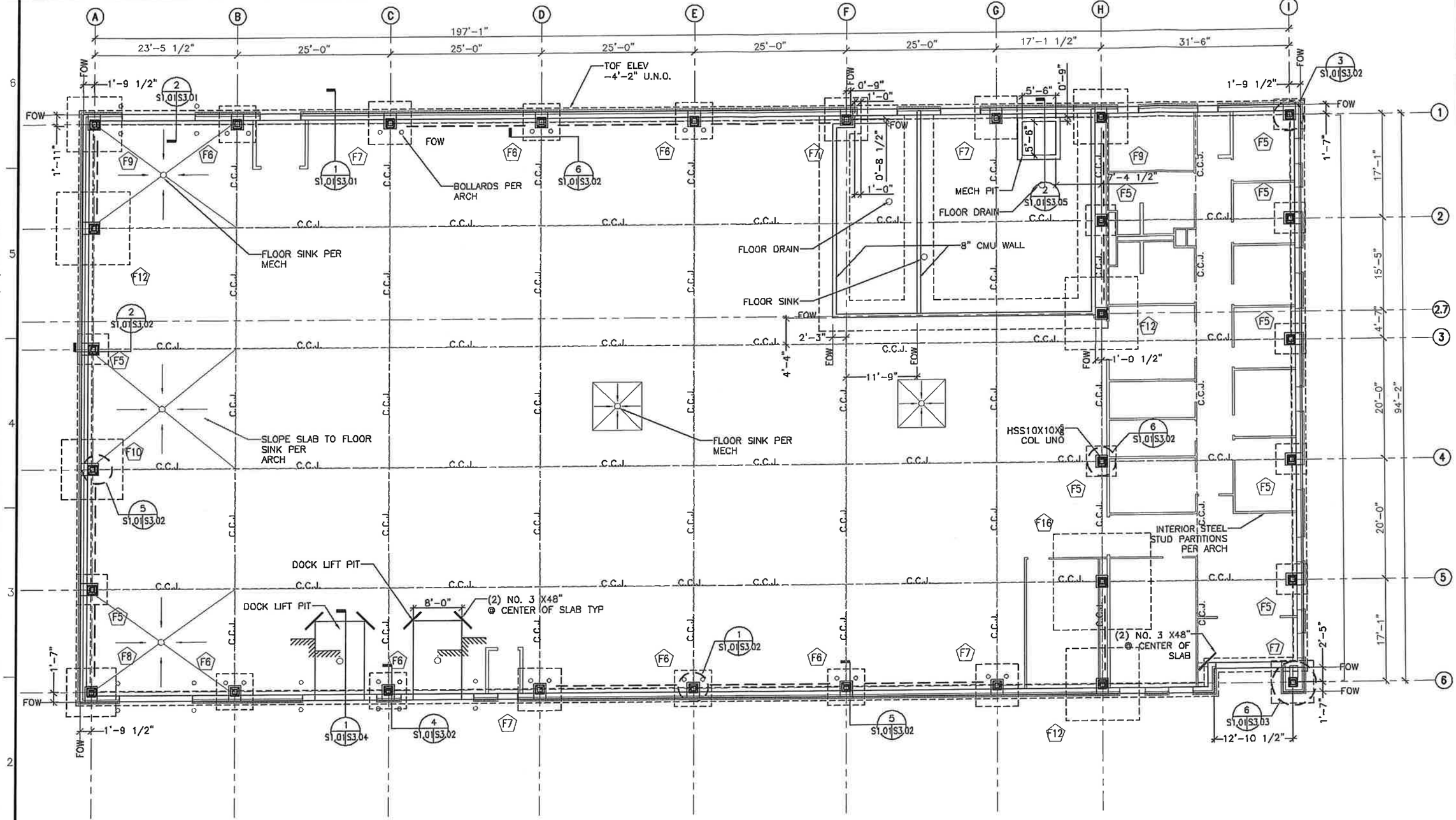
Designed: T.H.
Drawn: T.H.
Date: 22 SEPTEMBER 2009
Dwg Scale: AS NOTED
Plot Scale: 1:2
File: FTW336A-103-E2-03
Reviewed: R. Bolton
Chief: CEPOA-EN-TE-MC Section
Submitted: D. Fowler
Chief: CEPOA-EN-TE Branch
Drawing #: F-211-13-01
INV. NO. W911KB-09-R-0007
PN 65076 FTW336A

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

Symbol	Action	Description	Date	Agency

Recommended: _____ Approved: _____ Date: _____
PROJECT CONTRACTOR / RESIDENT ENGINEER
CONTRACTOR _____
CITY _____ STATE _____
CONTRACT NO. _____

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT



DENOTES HSS10X10X5/8 COL

DENOTES CONCENTRICALLY BRACED FRAME LOCATION

1 S1.01|S1.01 FOUNDATION PLAN
SCALE: 1/8"=1'-0"

NOTES:
1. TOP OF SLAB-ON-GRADE ELEVATION 0'-0" U.N.O.
2. TOP OF PEDESTAL ELEVATION -8" U.N.O..
3. TOP OF EXTERIOR FOUNDATION WALL -8" U.N.O.
4. TOP OF INTERIOR/EXTERIOR FOOTING ELEVATION -50" U.N.O..
5. SEE FOOTING SCHEDULE ON SHEET S0.4.
6. TOTAL 8" SLAB-ON-GRADE THICKNESS ON 2" SAND 95% COMPACT ON INSULATION PER MECHANICAL PLANS. REINFORCE WITH NO. 5 @ 12" OC EA. WAY W/ 2.5" COVER FROM TOP. f'c=4000 psi. NO ENTRAINED AIR IN POWER TROWELED SLAB-ON-GRADE. PROTECT SLAB-ON-GRADE FROM FREEZE-THAW AFTER INSTALLATION.
7. FLOOR DRAIN LOCATIONS PER PLUMBING PLANS. HOUSE KEEPING PAD LOCATIONS PER MECHANICAL PLANS. SLOPE SLAB PER ARCHITECTURAL PLANS:
8. VERIFY AND COORDINATE DOCK LIFT PIT DIMENSIONS WITH DOCK LIFT MANUFACTURER.

BID

US ARMY CORPS OF ENGINEERS ALASKA DISTRICT

CONTRACT NO.
CONTRACTOR
CITY STATE
Date Recommended
Date Approved
Date Accepted

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ANCHORAGE, ALASKA

Designed: SMH
Drawn: SMH
Reviewed: P. Lam
Submitted: D. Fowler
Date: 22 SEPTEMBER 2009
Dwg Scale: AS NOTED
Plot Scale: 1:2
Plot: FTW336A-049-S1-01
Drawing #: F-211-13-01

INV. NO. W911KB-09-R-0007
PN 65076
FTW336A

FT. WAINWRIGHT, ALASKA
AIRCRAFT PARTS STORAGE
STRUCTURAL
PLANS
FOUNDATION PLAN

Reference number: S1.01
Sheet 49 of 120

APPENDIX C

ADEC SPILL NOTIFICATION FORM

ADEC MONTHLY SPILL LOG

ADEC CONTAMINATED SOIL TRANSPORT AND TREATMENT APPROVAL FORM

ADEC OIL & HAZARDOUS MATERIALS INCIDENT FINAL REPORT

USACE ACCIDENT NOTIFICATION FORMS

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

OIL & HAZARDOUS SUBSTANCES SPILL NOTIFICATION FORM

ADEC USE ONLY

ADEC SPILL #:	ADEC FILE #:	ADEC LC:

PERSON REPORTING:	**PHONE NUMBER:**	**REPORTED HOW? (ADEC USE ONLY)** ☐ Phone ☐ Fax ☐ Troopers
DATE/TIME OF SPILL:	**DATE/TIME DISCOVERED:**	**DATE/TIME REPORTED:**
INCIDENT LOCATION/ADDRESS:	**DATUM:** ☐ NAD27 ☐ NAD83 ☐ WGS84 ☐ Other _____ **LAT.** **LONG.**	**PRODUCT SPILLED:**

QUANTITY SPILLED:	**QUANTITY CONTAINED:**	**QUANTITY RECOVERED:**	**QUANTITY DISPOSED:**
☐ gallons ☐ pounds	☐ gallons ☐ pounds	☐ gallons ☐ pounds	☐ gallons ☐ pounds

	POTENTIAL RESPONSIBLE PARTY:	**OTHER PRP, IF ANY:**	**VESSEL NAME:**
Name/Business:			
Mailing Address:			**VESSEL NUMBER:**
Contact Name:			**> 400 GROSS TON VESSEL:** ☐ Yes ☐ No
Contact Number:			

SOURCE OF SPILL:

CAUSE OF SPILL: ☐ **Under Investigation**

CAUSE CLASSIFICATION:
☐ Accident
☐ Human Factors
☐ Structural/Mechanical
☐ Other

CLEANUP ACTIONS:

DISPOSAL METHODS AND LOCATION:

AFFECTED AREA SIZE:	**SURFACE TYPE:** *(gravel, asphalt, name of river etc.)*	**RESOURCES AFFECTED/THREATENED:** *(Water sources, wildlife, wells, etc.)*

COMMENTS:

ADEC USE ONLY

SPILL NAME:	**NAME OF DEC STAFF RESPONDING:**	**C-PLAN MGR NOTIFIED?** ☐ Yes ☐ No

DEC RESPONSE:	**CASELOAD CODE:**	**CLEANUP CLOSURE ACTION:**
☐ Phone follow-up ☐ Field visit ☐ Took Report	☐ First and Final ☐ Open/No LC ☐ LC Assigned	☐ NFA ☐ Monitoring ☐ Transferred to CS or STP

COMMENTS:

Status of Case: ☐ **Open** ☐ **Closed** **DATE CASE CLOSED:**

REPORT PREPARED BY:	**DATE:**

Revised 2/5/2008

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
MONTHLY OIL SPILL REPORTING LOG

Only for minor spills, solely to land, not to creeks, sewers or storm drains.
(see Discharge Reporting requirements, 18 AAC 75.300)

LARGE SPILLS, HAZARDOUS SUBSTANCE SPILLS OR SPILLS AFFECTING WATERWAYS MUST BE REPORTED IMMEDIATELY.

Call the nearest ADEC office for more information:
Anchorage: 269-3063 **Fairbanks**: 451-2121 **Juneau**: 465-5340 **After Hours:** 1-800-478-9300

FACILITY NAME AND ADDRESS:
REPORT MONTH/YEAR:
REPORTED BY:

DATE / TIME OF SPILL	LOCATION	PRODUCT SPILLED	QTY SPILLED (GALLONS)	CAUSE OF SPILL & AREA AFFECTED	WHO RESPONDED	CLEANUP & METHOD / PLACE OF DISPOSAL

Rev. 6/2008

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Prevention and Emergency Response Program

Contaminated Soil Transport and Treatment Approval Form

ADEC SPILL #	SPILL NAME	
SPILL LOCATION		
CONTAMINATED SOIL'S CURRENT LOCATION	**SOURCE OF THE CONTAMINATION**	
TYPE OF CONTAMINATION	**ESTIMATED VOLUME**	**DATE(S) STOCKPILE GENERATED**
POST TREATMENT ANALYSIS REQUIRED *(such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)*		
COMMENTS		

Facility Accepting the Contaminated Soil

NAME OF THE FACILITY	ADDRESS/PHONE NUMBER

Responsible Party and Contractor Information

BUSINESS/NAME	ADDRESS/PHONE NUMBER

Name of the Person Requesting Approval (printed) | Title/Association

Signature | Date | Phone Number

----------**ADEC USE ONLY**----------

Based on the information provided, ADEC approves transport of the above mentioned material for treatment in accordance with the approved facility operations plan. The RP or their consultant must submit to the ADEC Project Manager a copy of weight receipts of the loads transported to the facility and a post treatment analytical report or other approved ADEC treatment/disposal notification. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

ADEC Project Manager Name (printed) | Project Manager Title

Signature | Date | Phone Number

State of Alaska
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

OIL & HAZARDOUS MATERIALS INCIDENT FINAL REPORT

The following written report is required by State regulations 18 AAC 75.300(e), following departmental notification of a discharge of oil and hazardous materials. The report is due within 15 days after the cleanup is completed, or if no cleanup occurs, within 15 days after the discharge. Forward the report to the nearest DEC office of the department. The report must contain, as applicable:

1. Date and time of the discharge:

2. Location of the discharge:

3. Name of the site, facility or operation:

4. Name, mailing address, and telephone number of:

A. Person or persons causing or responsible for the discharge:

B. Owner and operator of the site, facility or operation:

5. Type and amount of each oil or hazardous substance discharged:

6. Cause of the discharge:

7. Description of any environmental damage caused by the discharge or containment, to the extent the damage can be identified:

8. Description of cleanup actions taken:

9. Estimated amount of:
(A) oil or hazardous substance cleaned up:

(B) oily or hazardous waste generated:

10. Date, location, and method of ultimate disposal of the oil, hazardous substance and any contaminated materials, including cleanup materials:

11. Description of actions being taken to prevent recurrence of the discharge:

12. Other information the department requires to fully assess the cause and impact of the discharge (receipts for disposal if available):

Signature	**Printed name**
Date	**Title**

MAIL OR FAX TO the Closest A.D.E.C. Office below

Anchorage
Phone: 269-3063
Fax: 269-7648
555 Cordova Street
Anchorage, AK 99501

Fairbanks
Phone: 451-2121
Fax: 451-2362
610 University Ave.
Fairbanks, AK 99709-3643

Juneau
Phone: 465-5340
Fax: 465-2237
410 Willoughby Ave., Suite 309
Juneau, AK 99801-1795

DEC USE ONLY	
ADEC Project Manager:	ADEC Spill #:

(For Safety Staff only)	REPORT NO.	EROC CODE	UNITED STATES ARMY CORPS OF ENGINEERS ACCIDENT INVESTIGATION REPORT (For Use of this Form See Help Menu and USACE Suppl to AR 385-40)	REQUIREMENT CONTROL SYMBOL: CEEC-S-8(R2)

1. ACCIDENT CLASSIFICATION

PERSONNEL CLASSIFICATION	INJURY/ILLNESS/FATAL	PROPERTY DAMAGE	MOTOR VEHICLE INVOLVED	DIVING
GOVERNMENT ☐ CIVILIAN ☐ MILITARY	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ CONTRACTOR	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ PUBLIC	☐ FATAL ☐ OTHER		☐	

2. PERSONAL DATA

a. Name (Last, First, MI)	b. AGE	c. SEX ☐ MALE ☐ FEMALE	d. SOCIAL SECURITY NUMBER	e. GRADE

f. JOB SERIES/TITLE	g. DUTY STATUS AT TIME OF ACCIDENT	h. EMPLOYMENT STATUS AT TIME OF ACCIDENT
	☐ ON DUTY ☐ TDY ☐ OFF DUTY	☐ ARMY ACTIVE ☐ ARMY RESERVE ☐ VOLUNTEER ☐ PERMANENT ☐ FOREIGN NATIONAL ☐ SEASONAL ☐ TEMPORARY ☐ STUDENT ☐ OTHER (Specify)

3. GENERAL INFORMATION

a. DATE OF ACCIDENT (month/day/year)	b. TIME OF ACCIDENT (Military time) hrs	c. EXACT LOCATION OF ACCIDENT	d. CONTRACTOR'S NAME (1) PRIME: (2) SUBCONTRACTOR:

e. CONTRACT NUMBER	f. TYPE OF CONTRACT	g. HAZARDOUS/TOXIC WASTE ACTIVITY
☐ CIVIL WORKS ☐ MILITARY ☐ OTHER (Specify)	☐ CONSTRUCTION ☐ SERVICE ☐ A/E ☐ DREDGE ☐ OTHER (Specify)	☐ SUPERFUND ☐ DERP ☐ IRP ☐ OTHER (Specify)

4. CONSTRUCTION ACTIVITIES ONLY *(Fill in line and corresponding code number in box from list - see help menu)*

a. CONSTRUCTION ACTIVITY (CODE) #	b. TYPE OF CONSTRUCTION EQUIPMENT (CODE) #

INJURY/ILLNESS INFORMATION *(Include name on line and corresponding code number in box for items e, f & g - see help menu)*

SEVERITY OF ILLNESS/INJURY (CODE) #	b. ESTIMATED DAYS LOST	c. ESTIMATED DAYS HOSPITALIZED	d. ESTIMATED DAYS RESTRICTED DUTY

e. BODY PART AFFECTED	g. TYPE AND SOURCE OF INJURY/ILLNESS
PRIMARY (CODE) #	TYPE (CODE) #
SECONDARY (CODE) #	SOURCE (CODE) #
f. NATURE OF ILLNESS/INJURY (CODE) #	

6. PUBLIC FATALITY *(Fill in line and correspondence code number in box - see help menu)*

a. ACTIVITY AT TIME OF ACCIDENT (CODE) #	b. PERSONAL FLOATATION DEVICE USED? ☐ YES ☐ NO ☐ N/A

7. MOTOR VEHICLE ACCIDENT

a. TYPE OF VEHICLE	b. TYPE OF COLLISION	c. SEAT BELTS	USED	NOT USED	NOT AVAILABLE
☐☐ PICKUP/VAN ☐☐ AUTOMOBILE ☐☐ TRUCK ☐☐ OTHER (Specify)	☐ SIDE SWIPE ☐ HEAD ON ☐ REAR END ☐ BROADSIDE ☐ ROLL OVER ☐ BACKING ☐ OTHER (Specify)	(1) FRONT SEAT			
		(2) REAR SEAT			

8. PROPERTY/MATERIAL INVOLVED

a. NAME OF ITEM	b. OWNERSHIP	c. $ AMOUNT OF DAMAGE
(1)		
(2)		
(3)		

9. VESSEL/FLOATING PLANT ACCIDENT *(Fill in line and correspondence code number in box from list - see help menu)*

a. TYPE OF VESSEL/FLOATING PLANT (CODE) #	b. TYPE OF COLLISION/MISHAP (CODE) #

10. ACCIDENT DESCRIPTION *(Use additional paper, if necessary)*

CEPOD
IMMEDIATE REPORT OF ACCIDENT

SOHO USE ONLY

Date Rec'd: _____

Time Rec'd: _____

TO (COE office): _____ FROM: _____

1. Name of person reporting accident(print): _____ Phone No. _____

2. Accident Information (Check all that apply):

Property Damage	☐	Initial Report	☐	Contractor	☐	Fatality	☐
Injury	☐	Follow Up Report*	☐	Government	☐		
Illness	☐	Final Report	☐	Public	☐	Other (explain)	☐ _____

***A follow up report is due within 24 hours of any changes or additional information related to the accident (i.e., workers duty status)**

3. Contractor: _____ 3a. Contract Number: _____

4. Location of accident (be specific): _____

5a. Date of accident: _____ 5b. Time of accident: _____

5c. An explanation is required if this report is being submitted more than 24 hours after the accident occurred.

_____

6. Injured persons: Name: _____ Age: ____ Occupation: _____

7. What was the activity before the accident occurred? Describe the activity, as well as the tools, equipment, or material the employee was using (i.e., excavating with back hoe, electrical equipment installation, demolition of facility, erecting structural steel):

_____ Continued on page 2

8. What Happened? Tell how the injury, illness or property damage occurred (i.e., struck by, contacted by, cut by, strained by, fell from same or different level, stung by):.

_____ Continued on page 2

9. What was the injury, illness or property damage (i.e., contusion, bruise, muscle strain, fracture, respiratory, allergic reaction, skin disease, poisoning, collapsed boom crane, engine fire, damaged utilities)?:

_____

10. Is the injury or illness recordable as defined in OSHA 29 CFR Part 1904? (If yes an ENG Form 3394 must be completed and submitted within 10 days.) Note: An injury or illness is recordable if it results in death, days away from work, transfer to another job, restricted work, medical treatment beyond first aid, loss of consciousness or other significant illness. First aid treatment is clearly defined in OSHA 29 CFR part 1904. YES ☐ NO ☐

11. What medical treatment was required for the injury or illness (i.e. first aid, sutures, prescription medication, x-rays, cast)?

_____

12. If medical treatment was given away from the work site, where was it given? _____

13. Was employee hospitalized overnight as an in-patient? Yes ☐ No ☐ 14c. Estimated days hospitalized: ____

14a. Estimated days away from work: _____ 14b. Estimated Job Transfer or Restricted Days: _____

15. Did accident result in property damage? Yes ☐ No ☐ If yes, estimated property damage:

(If property damage is $2000 or greater an ENG Form 3394 must be completed and submitted

16. **Accident Board of Investigation Required: Yes ☐ No ☐ If yes, was immediate notification to the designated authorities made? The District Safety Office and Commander must be notified of all serious cases. Yes ☐ No ☐

**A board of investigation is required if the accident resulted in: a) a fatality, b) three or more people being admitted to a hospital, c) permanent total or partial disability, or d) property damage of $200,000 and greater.

17. Who investigated this accident (print name and title): _____

18a. Signature of person making report: _____ 18b. DATE SIGNED *(YYYYMMDD)* _____

19a. Title of person making report: _____ 19b. Phone: _____

CEPOD
IMMEDIATE REPORT OF ACCIDENT (cont.)

Previous Page

11. CAUSAL FACTOR(S) *(Read Instruction Before Completing)*

a. (Explain YES answers in item 13)	YES	NO
DESIGN: Was design of facility, workplace or equipment a factor?	☐	☐
INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor?	☐	☐
PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor?	☐	☐
OPERATING PROCEDURES: Were operating procedures a factor?	☐	☐
JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred?	☐	☐
HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident?	☐	☐
ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident?	☐	☐

a. *(CONTINUED)*	YES	NO
CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident?	☐	☐
OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident?	☐	☐
SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task?	☐	☐
PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident?	☐	☐
DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident	☐	☐

b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?

☐ YES *(If yes, attach a copy.)* ☐ NO

12. TRAINING

a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?	b. TYPE OF TRAINING.	c. DATE OF MOST RECENT FORMAL TRAINING.
☐ YES ☐ NO	☐ CLASSROOM ☐ ON JOB	(Month) (Day) (Year)

13. FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES *(See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)*

a. DIRECT CAUSE

b. INDIRECT CAUSE(S)

14. ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).

DESCRIBE FULLY:

5. DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.

a. BEGINNING (Month/Day/Year)	b. ANTICIPATED COMPLETION (Month/Day/Year)

c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT CORPS _____ CONTRACTOR _____	d. DATE *(Mo/Da/Yr)*	e. ORGANIZATION IDENTIFIER *(Div, Br, Sect)*	f. OFFICE SYMBOL

16. MANAGEMENT REVIEW *(1st)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE

17. MANAGEMENT REVIEW *(2nd - Chief Operations, Construction, Engineering, etc.)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE

18. SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW

a. ☐ CONCUR b. ☐ NON CONCUR c. ADDITIONAL ACTIONS/COMMENTS

SIGNATURE	TITLE	DATE

19. COMMAND APPROVAL

COMMENTS

COMMANDER SIGNATURE	DATE

*U.S. GOVERNMENT PRINTING OFFICE: 1993-0-791-757

10. ACCIDENT DESCRIPTION *(Continuation)*

a. DIRECT CAUSE *(Continuation)*

13b.	INDIRECT CAUSES *(Continuation)*

14.	ACTION(S) TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE(S) *(Continuation)*

APPENDIX D

DAILY FIELD FORMS:

DAILY QUALITY CONTROL REPORT

DAILY FIELD SCREENING REPORT

INITIAL/DAILY HEALTH AND SAFETY SITE INSPECTION REPORT

ROCKWELL ENGINEERING & CONSTRUCTION SERVICES, Inc.

2375 UNIVERSITY AVE. SOUTH
FAIRBANKS, ALASKA 99709
PHONE: (907) 457-7625 FAX: (907) 457-7620

DAILY QUALITY CONTROL REPORT

CLIENT _____ **JOB NAME** _____ **JOB #** _____

PROJECT LOCATION _____ **REPORT DATE/TIME** _____

PRECIPITATION: Light Heavy Rain Snow None **SURFACE CONDITION:** Dry Damp Moist Wet Saturated Snow Frozen

CLOUDINESS: Clear Partly Mostly Overcast **TEMP LOW:** **TEMP HIGH:** **WIND SPEED/DIRECTION:**

DAILY SITE SAFETY INSPECTION (circle all that apply)

NON-CHEMICAL HAZARDS					CHEMICAL HAZARDS	
Underground Utilities	Noise	Confined Space	Electrical	Avalanches	Petroleum	Lubricants
Overhead Utilities	Cold Exposure	Radiation	Lightning	Explosive Atmospheres	Oils	Metals
Slips Trips and Falls	Heat Exposure	Biologic	Water		Solvents	Compressed Gas
Heavy Equipment	Trenches	Fire	Unstable Surfaces		PCBs	Carbon Monoxide

ACTION TAKEN TO MITIGATE HAZARD(S) Review H&S Plan Reduce Eliminate Consult PPE
Notes:

PERSONNEL	TASK/ACTIVITY	MILES	ST	OT

SUPPLIES	QTY	FIELD INSTRUMENTS	QTY	FIELD INST/EQUIP	QTY	REIMBURSABLE EXPENSES
❑ Sample Kit		❑ PID #		❑ Toxic Gas Dect.		❑ Lodging
❑ Bailers		❑ Petroflag® Kit		❑ Detector Tubes		❑ Meals:
❑ Digital Camera		❑ H2O Level Meter		❑ Water Pump		❑ Rental Instrument
❑ Respirator		❑ Comb. Gas Meter		❑ Pump Tubing		❑ Rental Vehicle
❑ Tyvek/Booties		❑ Air Sample Kit		❑ Field Vehicle		❑ Materials

METER	MEASUREMENTS	UNITS	LOCATION(S)

LABORATORY TESTING

SAMPLE ID	SOIL	H2O	BTEX	GRO	DRO	RRO	METALS	VOC	OTHER	TIME	CHLORINE LEVEL (mg/L)	T-COLI/ BACTERIA	LOCATION

WORK PERFORMED

_____

_____

_____

_____

_____

INSTRUCTIONS RECEIVED/ISSUES TO BE RESOLVED

_____

_____

FIELD INVESTIGATOR _____ **QC REVIEW** _____

ROCKWELL ENGINEERING & CONSTRUCTION SERVICES, Inc.

2375 UNIVERSITY AVENUE, SOUTH
FAIRBANKS, ALASKA 99709
Phone: (907)457-7625 Fax: (907)457-7620

INITIAL/DAILY HEALTH & SAFETY SITE INSPECTION REPORT

CLIENT _____ **JOB** _____

PROJECT LOCATION _____

COMPLETED BY _____

Legend: OK = Satisfactory; NA = Not applicable; CR = Corrective action required; ZT = Zero tolerance item.

Note: Put the location of the item requiring corrective action. If the corrective action box is checked, complete Section II below.

SECTION I.

NON-CHEMICAL HAZARDS				
HOUSEKEEPING	**OK**	**NA**	**CR**	**LOCATION**
Egress Areas Clear				
Workstation Neat				
Equipment Storage				
Material Storage				
Trash Removal				
HAZARD COMMUNICATION				
Current Chemical Inventory				
Posted MSDS				
Container Labeling				
Use of PPE				
PERSONAL PROTECTIVE EQUIPMENT				
Hard hats				
Safety Shoes				
Eye Protection				
Hearing Protection				
Appropriate Clothing				
Respiratory Protection				
HAND TOOLS & EQUIPMENT				
General Tool Condition				
General Tool Storage				
Monitoring Equipment				
LADDERS				
General Condition				
Ladder Placement and Use				
ELECTRIC AND UTILITY LOCATE				
Underground Utilities				
Overhead Utilities				
Electrical				
ENVIRONMENT				
Radiation				
Biologic				
Lightning				
Water				
Fire				
Avalanche				
Unstable Surfaces				
Cold / Heat Exposure				

NON-CHEMICAL HAZARDS (cont.)	OK	NA	CR	LOCATION
TRENCHES & EXCAVATION (ZT) *The primary contractor is responsible for trenches and excavations. Rockwell E&C personnel must not enter an excavation or trench that is not checked OK.*				
Benching & Sloping (MAX = 1.5/1)				
Entry/Egress Means (> 4 foot depth)				
Lateral travel to egress (less than 25 feet)				
Perimeter Protection				
Water accumulation Control				
Explosive Atmospheres				
Heavy Equipment Location				
FALL PROTECTION (ZT)				
Controlled Access Zones				
Openings covered/protected				
Safety fencing				
CONFINED SPACE Rockwell E&C has been trained to identify a confined space. It is company policy that Rockwell E&C personnel will not enter a confined space.				

CHEMICAL HAZARDS	OK	NA	CR	LOCATION
Gasoline				
Diesel				
Solvents				
Metals				
Oil				
Grease				
PCBs				
Carbon Monoxide				
Compressed Gas				
Pesticides				
Other:				

ACTION TAKEN TO MITIGATE HAZARD(S)

Review H&S Plan Reduce Eliminate Consult PPE

CATEGORY	LOCATION	CORRECTIVE ACTION TAKEN

SITE SAFETY OFFICER _____ **DATE/TIME** _____

ROCKWELL ENGINEERING & CONSTRUCTION SERVICES, Inc.

2375 UNIVERSITY AVENUE, SOUTH
FAIRBANKS, ALASKA 99709
PHONE: (907)457-7625
FAX: (907) 457-7620
rockwellcorp@acsalaska.net
www.rockwellengr.com

DAILY FIELD SCREENING REPORT

Client Name: _____

Project Name and Job #: _____

Project Location: _____

Date and Site Conditions: _____

Instrument Used: _____ **Completed by:** _____

Time	*HDSP # ID*	*Depth* Feet = ' Inches = "	*Temp* ° *F*	*PID* Reading ppm*	*Location*	*Soil Class*	Final Exc. Limit mark x

Time	*HDSP # ID*	*Depth* Feet = ' Inches = "	*Temp* ° *F*	*PID* Reading ppm*	*Location*	*Soil Class*	Final Exc. Limit mark x

APPENDIX E

LABORATORY CERTIFICATIONS

THE STATE OF ALASKA

Department of Environmental Conservation
Laboratory Certification Program

Certificate of Approval for Contaminated Sites Analysis

SGS North America, Inc.

200 E. Potter Drive
Anchorage, AK 99518

UST-005

has complied with the provisions set forth in 18 AAC 78 and is hereby recognized by The Department of Environmental Conservation as **Approved** for the analytical parameter listed on the accompanying Scope of Accreditation. This certificate is effective **12/18/09**, and expires **12/18/10**.

Thomas K. Hathaway, Ph.D.
State of Alaska Certification Authority

Lance W. Morris
Laboratory Chemistry Certification Officer

THE STATE OF ALASKA
Department of Environmental Conservation
Laboratory Certification Program

Scope of Accreditation

Expiration: 11/04/2010

SGS North America, Inc **AK00971**
200 W. Potter Drive
Anchorage, AK 99518

is certified by the State of Alaska Department of Environmental Conservation, pursuant to 18 AAC 80, to perform analysis for the parameters listed below using the analytical methods indicated. Accreditation for all parameters is final unless indicated in a note.Accreditation is for the latest version of a method unless specified otherwise in a note. EPA refers to the U.S. Environmental Protection Agency. SM refers to American Public Health Association's publication, Standard Methods for the Examination of Water and Wastewater, 18th, 19th or 20th Edition unless otherwise noted. ASTM refers to the American Society for Testing and Materials.

Drinking Water Chemistry

Method/Test Name	Reference	Analyte	Matrix	Status
200.7	EPA	Aluminum	Water	Approved
200.7	EPA	Barium	Water	Approved
200.7	EPA	Beryllium	Water	Approved
200.7	EPA	Calcium	Water	Approved
200.7	EPA	Chromium	Water	Approved
200.7	EPA	Copper	Water	Approved
200.7	EPA	Iron	Water	Approved
200.7	EPA	Magnesium	Water	Approved
200.7	EPA	Manganese	Water	Approved
200.7	EPA	Nickel	Water	Approved
200.7	EPA	Sodium	Water	Approved
200.8	EPA	Aluminum	Water	Approved
200.8	EPA	Antimony	Water	Approved
200.8	EPA	Arsenic	Water	Approved
200.8	EPA	Barium	Water	Approved
200.8	EPA	Berylium	Water	Approved
200.8	EPA	Cadmium	Water	Approved
200.8	EPA	Chromium	Water	Approved
200.8	EPA	Copper	Water	Approved

Drinking Water Chemistry

Method/Test Name	Reference	Analyte	Matrix	Status
200.8	EPA	Lead	Water	Approved
200.8	EPA	Manganese	Water	Approved
200.8	EPA	Nickel	Water	Approved
200.8	EPA	Selenium	Water	Approved
200.8	EPA	Silver	Water	Approved
200.8	EPA	Thallium	Water	Approved
200.8	EPA	Zinc	Water	Approved
2120B	SM	Color	Water	Approved
2130B	SM	Turbidity	Water	Approved
2150B	SM	Odor	Water	Approved
2320B	SM	Alkalinity	Water	Approved
2330B	SM	Corrosivity	Water	Approved
245.1	EPA	Mercury	Water	Approved
2510B	SM	Conductivity	Water	Approved
2540C	SM	TDS	Water	Approved
300.0	EPA	Bromide	Water	Approved
300.0	EPA	Chloride	Water	Approved
300.0	EPA	Flouride	Water	Approved
300.0	EPA	Nitrate-N	Water	Approved
300.0	EPA	Nitrate-Nitrite as N	Water	Approved
300.0	EPA	Nitrite-N	Water	Approved
300.0	EPA	Ortho-phosphate	Water	Approved
300.0	EPA	Sulfate	Water	Approved
4500-CN-C, E	SM	Cyanide	Water	Approved
4500-H-B	SM	pH	Water	Approved
4500-NO3-F	SM	Nitrate-N	Water	Approved
4500-NO3-F	SM	Nitrite-N	Water	Approved
4500-P-E	SM	Ortho-phosphate	Water	Approved
524.2-THM	EPA	Bromodichloromethane	Water	Approved
524.2-THM	EPA	Bromoform	Water	Approved
524.2-THM	EPA	Chloroform	Water	Approved
524.2-THM	EPA	Dibromochloromethane	Water	Approved

Drinking Water Chemistry

Method/Test Name	Reference	Analyte	Matrix	Status
524.2-THM	EPA	Total THM	Water	Approved
524.2-Vinyl Chloride	EPA	Vinyl Chloride	Water	Approved
524.2-VOC	EPA	1,1,1-Trichloroethane	Water	Approved
524.2-VOC	EPA	1,1,2-Trichloroethane	Water	Approved
524.2-VOC	EPA	1,1-Dichloroethylene	Water	Approved
524.2-VOC	EPA	1,2,4-Trichlorobenzene	Water	Approved
524.2-VOC	EPA	1,2-Dichlorobenzene	Water	Approved
524.2-VOC	EPA	1,2-Dichloroethane	Water	Approved
524.2-VOC	EPA	1,2-Dichloropropane	Water	Approved
524.2-VOC	EPA	1,4-Dichlorobenzene	Water	Approved
524.2-VOC	EPA	Benzene	Water	Approved
524.2-VOC	EPA	Carbon Tetrachloride	Water	Approved
524.2-VOC	EPA	Chlorobenzene	Water	Approved
524.2-VOC	EPA	cis-1,2-Dichloroethylene	Water	Approved
524.2-VOC	EPA	Dichloromethane (Methylene Chloride)	Water	Approved
524.2-VOC	EPA	Ethylbenzene	Water	Approved
524.2-VOC	EPA	Styrene	Water	Approved
524.2-VOC	EPA	Tetrachloroethylene	Water	Approved
524.2-VOC	EPA	Toluene	Water	Approved
524.2-VOC	EPA	Total Xylenes	Water	Approved
524.2-VOC	EPA	trans-1,2-Dichloroethylene	Water	Approved
524.2-VOC	EPA	Trichloroethylene	Water	Approved
5310B	SM	Dissolved Organic Carbon (DOC)	Water	Approved
5310B	SM	Total Organic Carbon (TOC)	Water	Approved

STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

TELEPHONE: (907) 375-8200
FAX: (907) 929-7335
5251 Hinkle Road
Anchorage, AK 99507

www.alaska.gov/dec/eh

DIVISION OF ENVIRONMENTAL HEALTH
Environmental Health Laboratory
SAFE DRINKING WATER ACT LAB CERTIFICATION
http://www.alaska.gov/dec/eh/lab/dw/dwchem.htm

11/4/2009

Sarah Lesowski
SGS North America, Inc
200 W. Potter Drive
Anchorage, AK 99518

Reference: 2010 Drinking Water Certification-AK00971, Chemistry

Sarah Lesowski:

Thank you for submitting the application for renewal of SGS North America, Inc drinking water certification by the State of Alaska.

SGS North America, Inc, EPA # AK00971, located at 200 W. Potter Drive, Anchorage, AK, is granted full certification for the analysis of drinking water by the State of Alaska for the contaminants listed in the State of Alaska Scope of Accreditation.

Certified contaminants are valid until 2010 or until SGS North America, Inc fails to meet the criteria as specified in the Certification Manual (EPA 815-R-05-004) and Alaska Administrative Manual (18 AAC 80) as they pertain to the certification of laboratories conducting Chemical analyses of drinking water.

SGS North America, Inc is required to notify the State of Alaska certification authority in writing, within 30 days, of any major changes in personnel, equipment, laboratory location or any other activity that might impair the lab's analytical capability.

Application for renewal must be made 90 days prior to your expiration date of 11/04/2010.

Please download a copy of the application from the following site:
<http://www.state.ak.us/dec/eh/lab/dw/dwchem.htm>

Your State of Alaska laboratory ID number is AK00971. Please remember to include this number in ALL correspondence concerning your Alaska Certification and on all data transmittals.

In order to assure timely handling please address all correspondence to the attention of 'SDWA Certification Officer - Chemistry'.

If you have any questions, please contact the Alaska Department of Environmental Conservation Environmental Health Laboratory at (907)375-8200 or at the following email address Lance.Morris@Alaska.gov.

Respectfully

Lance W. Morris

Digitally signed by Lance W. Morris
Date: 2009.11.03 15:21:18 -09'00'

Lance W. Morris
SDWA Certification Officer-Chemistry

cc: Laboratory File
Enc: State of Alaska Certificate, Scope of Accreditation

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION

DIVISION OF ENVIRONMENTAL HEALTH
ENVIRONMENTAL HEALTH LABORATORY

SARAH PALIN, GOVERNOR

5251 Hinkle Road
Anchorage, AK 99507
PHONE: (907) 375-8200
FAX: (907) 929-7335
http://www.dec.state.ak.us/

June 30, 2009

Chuck Homestead
SGS North America, Inc
200 W. Potter Drive
Anchorage, AK 99518-1605

RE: FY10 Drinking Water Microbiology Laboratory Certification Permit # AK00971

Dear Mr. Homestead:

Thank you for your request to renew your laboratory certification for the microbiological analysis of drinking water in the State of Alaska. Having received the necessary materials needed to renew certification for the 2010 fiscal year compliance periods, I am pleased to grant SGS North America, Inc, permit #AK00971, full certification for the attached scope of microbiological methods. This year's certification document format has changed slightly in that the approved methods and applications are included in a Scope of Accreditation, and will no longer be listed on the actual certificate.

Certification must be maintained by adherence to the standards set forth in the 5th Edition of the *Manual for the Certification of Laboratories Analyzing Drinking Water: Criteria and Procedures, Quality Assurance*, and Alaska's Drinking Water Regulations 18 AAC 80.1100 (links to documentation are available online: http://www.dec.state.ak.us/eh/lab/dw/dwmicro.htm).

Please note that all Drinking Water compliance data, both chemical and microbiological, must be submitted via the electronic data reporting system (EDRS). Please contact Maria Ridgway, 907-269-7625, for further information. If you are approved to analyze source water samples for Long Term Surface Water Treatment Rule Phase 2 (LT2) *E. coli* monitoring, additional instruction will be provided under separate cover.

Enclosed is your Certificate of Approval; certification is valid through June 30, 2010. If you have any questions regarding the State's laboratory certification program or the contents of this letter, please contact Sherri Trask, Microbiology Certification Officer, at (907) 375-8209 or via e-mail at sherri.trask@alaska.gov.

Sincerely,

Thomas K. Hathaway, Ph.D.
Certification Authority
Chief, Environmental Health Laboratory

Attachments: FY2010 Micro Certificate of Approval and Scope of Accreditation

THE STATE OF ALASKA
Department of Environmental Conservation
Laboratory Certification Program

Scope of Accreditation

Expiration: 06/30/2010

SGS North America, Inc **AK00971**
200 W. Potter Drive
Anchorage, AK 99518

is certified by the State of Alaska Department of Environmental Conservation, pursuant to 18 AAC 80, to perform analysis for the parameters listed below using the analytical methods indicated. Accreditation for all parameters is final unless indicated in a note.Accreditation is for the latest version of a method unless specified otherwise in a note. EPA refers to the U.S. Environmental Protection Agency. SM refers to American Public Health Association's publication, Standard Methods for the Examination of Water and Wastewater, 18th, 19th or 20th Edition unless otherwise noted. ASTM refers to the American Society for Testing and Materials.

Drinking Water Microbiology

Method/Test Name	Reference	Analyte	Matrix	Status
Colilert MPN (SM 9223)	SM	E. coli (LT2)	Water	Approved
Colilert PA (SM 9223)	SM	Total Coliform/E. coli	Water	Approved
Colilert-18 MPN (SM 9223)	SM	E. coli (LT2)	Water	Approved
Colilert-18 MPN (SM 9223)	SM	Total Coliform/E. coli	Water	Approved
Colilert-18 PA (SM 9223)	SM	Total Coliform/E. coli	Water	Approved
EC Broth (SM 9221 E)	SM	Fecal Coliform	Water	Approved
HPC Pour Plate (SM 9215 B)	SM	Heterotrophic Plate Count	Water	Approved
MF mEndo (SM 9222 B)	SM	Total Coliform	Water	Approved
MF mFC (SM 9222 D)	SM	Fecal Coliform	Water	Approved

THE STATE OF ALASKA

Department of Environmental Conservation
Laboratory Certification Program

Certificate of Certification for Drinking Water Analysis

SGS North America, Inc

Anchorage, Alaska

AK00971

has complied with the provisions set forth in 18 AAC 80 and is hereby recognized by The Department of Environmental Conservation as **Fully Certified** for the analytical parameters listed on the accompanying Scope of Accreditation. This certificate is effective **July 1, 2009**, and expires **June 30, 2010**.

Thomas K. Hathaway, Ph.D.
State of Alaska Certification Authority

Sherri L. Trask, M.S., ASQ CQA
Microbiology Certification Officer

The American Association for Laboratory Accreditation

World Class Accreditation

Accredited DoD ELAP Laboratory

A2LA has accredited

SGS NORTH AMERICA INC. - ALASKA DIVISION

Anchorage, AK

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2005, the 2003 NELAC Chapter 5 Standard, and the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in the DoD Quality Systems Manual for Environmental Laboratories (QSM v4.1); accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 3rd day of February 2010.

President & CEO
For the Accreditation Council
Certificate Number 2944.01
Valid to December 31, 2011

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

World Class Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

SGS North America Inc. – Alaska Division
200 W Potter Dr.
Anchorage, AK 99518
Stephen Ede Phone: (907)-550-3204
Stephen.ede@sgs.com

ENVIRONMENTAL

Valid To: December 31, 2011 Certificate Number: 2944.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO IEC 17025:2005, the 2003 NELAC Chapter 5 Standard, and the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in the DoD Quality Systems Manual for Environmental Laboratories (DoD QSM v4.1)) accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Inductively Coupled Plasma Atomic Emission Spectroscopy, Inductively Coupled Plasma Mass Spectroscopy, ICP/MS, Gas Chromatography, Gas Chromatography/Mass Spectrometry, Gravimetry, Ion Chromatography, Misc.- Electronic Probes (pH, O_2), Oxygen Demand, Hazardous Waste Characteristics Tests, Spectrophotometry (Visible), Spectrophotometry (Automated), Total Organic Carbon, Total Organic Halide, Turbidity

Parameter/Analyte	Waters and Soils
Metals	
Aluminum	EPA 3010A EPA 3050B EPA 6020
Antimony	EPA 3010A EPA 3050B EPA 6020
Arsenic	EPA 3010A EPA 3050B EPA 6020
Barium	EPA 3010A EPA 3050B EPA 6020
Beryllium	EPA 3010A EPA 3050B EPA 6020

5301 Buckeystown Pike, Suite 350 | Frederick, Maryland 21704-8373 | Phone: 301 644 3248 | Fax: 301 662 2974 | www.A2LA.org

Parameter/Analyte	Waters and Soils
Boron	EPA 3010A EPA 3050B EPA 6020
Cadmium	EPA 3010A EPA 3050B EPA 6020
Calcium	EPA 3010A EPA 3050B EPA 6020
Chromium	EPA 3010A EPA 3050B EPA 6020
Cobalt	EPA 3010A EPA 3050B EPA 6020
Copper	EPA 3010A EPA 3050B EPA 6020
Iron	EPA 3010A EPA 3050B EPA 6020
Lead	EPA 3010A EPA 3050B EPA 6020
Magnesium	EPA 3010A EPA 3050B EPA 6020
Manganese	EPA 3010A EPA 3050B EPA 6020
Mercury	EPA 7470A EPA 7471B
Molybdenum	EPA 3010A EPA 3050B EPA 6020
Nickel	EPA 3010A EPA 3050B EPA 6020
Potassium	EPA 3010A EPA 3050B EPA 6020
Selenium	EPA 3010A EPA 3050B EPA 6020
Silver	EPA 3010A EPA 3050B EPA 6020
Sodium	EPA 3010A EPA 3050B EPA 6020
Thallium	EPA 3010A EPA 3050B EPA 6020

Parameter/Analyte	Waters and Soils
Vanadium	EPA 3010A EPA 3050B EPA 6020
Zinc	EPA 3010A EPA 3050B EPA 6020
Nutrients	
Nitrate (as N)	EPA 9056A
Nitrate-nitrite (as N)	EPA 9056A
Nitrite (as N)	EPA 9056A
Orthophosphate (as P)	EPA 9056A
Demands	
Total organic carbon	EPA 9060A
Wet Chemistry	
Chloride	EPA 9056A
Fluoride	EPA 9056A
Sulfate	EPA 9056A
Purgeable Organics (volatiles)	
Acetone	EPA 5030B EPA 5035A EPA 8260B
Benzene	EPA 5030B EPA 5035A EPA 8260B EPA 8021B
Bromobenzene	EPA 5030B EPA 5035A EPA 8260B
Bromochloromethane	EPA 5030B EPA 5035A EPA 8260B
Bromodichloromethane	EPA 5030B EPA 5035A EPA 8260B
Bromoform	EPA 5030B EPA 5035A EPA 8260B
Bromomethane	EPA 5030B EPA 5035A EPA 8260B
2-Butanone	EPA 5030B EPA 5035A EPA 8260B
n-Buytlbenzene	EPA 5030B EPA 5035A EPA 8260B
sec-Butylbenzene	EPA 5030B EPA 5035A EPA 8260B
tert-Butylbenzene	EPA 5030B EPA 5035A EPA 8260B

Parameter/Analyte	Waters and Soils
Carbon disulfide	EPA 5030B EPA 5035A EPA 8260B
Carbon tetrachloride	EPA 5030B EPA 5035A EPA 8260B
Chlorobenzene	EPA 5030B EPA 5035A EPA 8260B
Chloroethane	EPA 5030B EPA 5035A EPA 8260B
2-Chloroethyl vinyl ether	EPA 5030B EPA 5035A EPA 8260B
Chloroform	EPA 5030B EPA 5035A EPA 8260B
Chloromethane	EPA 5030B EPA 5035A EPA 8260B
Chlorotoluene	EPA 5030B EPA 5035A EPA 8260B
Dibromochloromethane	EPA 5030B EPA 5035A EPA 8260B
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030B EPA 5035A EPA 8260B
Dibromomethane	EPA 5030B EPA 5035A EPA 8260B
1,2 Dibromomethane (EDB)	EPA 5030B EPA 5035A EPA 8260B
1,2-Dichlorobenzene	EPA 5030B EPA 5035A EPA 8260B
1,3-Dichlorobenzene	EPA 5030B EPA 5035A EPA 8260B
1,4-Dichlorobenzene	EPA 5030B EPA 5035A EPA 8260B
Dichlorodifluoromethane	EPA 5030B EPA 5035A EPA 8260B
1,1-Dichloroethane	EPA 5030B EPA 5035A EPA 8260B
1,2-Dichloroethane	EPA 5030B EPA 5035A EPA 8260B

Parameter/Analyte	Waters and Soils
1,1-Dichloroethene	EPA 5030B EPA 5035A EPA 8260B
cis-1,2-Dichloroethene	EPA 5030B EPA 5035A EPA 8260B
trans-1,2-Dichloroethene	EPA 5030B EPA 5035A EPA 8260B
1,2-Dichloropropane	EPA 5030B EPA 5035A EPA 8260B
1,3-Dichloropropane	EPA 5030B EPA 5035A EPA 8260B
2,2-Dichloropropane	EPA 5030B EPA 5035A EPA 8260B
1,1-Dichloropropene	EPA 5030B EPA 5035A EPA 8260B
cis-1,3-Dichloropropene	EPA 5030B EPA 5035A EPA 8260B
trans-1,3-Dichloropropene	EPA 5030B EPA 5035A EPA 8260B
Ethyl benzene	EPA 5030B EPA 5035A EPA 8260B EPA 8021B
2-Hexanone	EPA 5030B EPA 5035A EPA 8260B
Hexachlorobutadiene	EPA 5030B EPA 5035A EPA 8260B
Isopropylbenzene	EPA 5030B EPA 5035A EPA 8260B
Methylene chloride	EPA 5030B EPA 5035A EPA 8260B
Methyl ethyl ketone (MEK)	EPA 5030B EPA 5035A EPA 8260B
4-Methyl-2-pentanone	EPA 5030B EPA 5035A EPA 8260B
Naphthalene	EPA 5030B EPA 5035A EPA 8260B

Parameter/Analyte	Waters and Soils
n-Propylbenzene	EPA 5030B EPA 5035A EPA 8260B
Styrene	EPA 5030B EPA 5035A EPA 8260B
1,1,1,2-Tetrachloroethane	EPA 5030B EPA 5035A EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 5030B EPA 5035A EPA 8260B
Tetrachloroethene	EPA 5030B EPA 5035A EPA 8260B
Toluene	EPA 5030B EPA 5035A EPA 8260B EPA 8021B
1,1,1-Trichloroethane	EPA 5030B EPA 5035A EPA 8260B
1,1,2-Trichloroethane	EPA 5030B EPA 5035A EPA 8260B
Trichloroethene	EPA 5030B EPA 5035A EPA 8260B
Trichlorofluoromethane	EPA 5030B EPA 5035A EPA 8260B
1,2,3-Trichloropropane	EPA 5030B EPA 5035A EPA 8260B
1,2,4-Trimethylbenzene	EPA 5030B EPA 5035A EPA 8260B
1,3,5-Trimethylbenzene	EPA 5030B EPA 5035A EPA 8260B
Vinyl chloride	EPA 5030B EPA 5035A EPA 8260B
Xylenes, total	EPA 5030B EPA 5035A EPA 8260B EPA 8021B
1,2-Xylene (As O –Xylene)	EPA 5030B EPA 5035A EPA 8260B EPA 8021B
1,3-Xylene (As P & M –Xylenes)	EPA 5030B EPA 5035A

Parameter/Analyte	Waters and Soils
1,4-Xylene	EPA 8260B EPA 8021B
Total Petroleum Hydrocarbons (TPH)	
Gasoline Range Organics	EPA 5030B EPA 5035A AK 101 (AK State Method)
Diesel Range Organics	EPA 3520C EPA 3550C AK 102 (AK State Method)
Residual Range Organics	EPA 3520C EPA 3550C AK 103 (AK State Method)
Extractable Organics (semivolatiles)	
Acenaphthene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Acenaphthylene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Anilene	EPA 3520C EPA 3550C EPA 8270D
Anthracene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Benzoic acid	EPA 3520C EPA 3550C EPA 8270D
Benzo (a) anthracene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Benzo (b) fluoranthene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Benzo (k) fluoranthene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Benzo (ghi) fluoranthene	EPA 3520C EPA 3550C EPA 8270D
Benzo (a) pyrene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Benzyl alcohol	EPA 3520C EPA 3550C EPA 8270D

Parameter/Analyte	Waters and Soils
Bis (2-chloroethoxy) methane	EPA 3520C EPA 3550C EPA 8270D
Bis (2-chloroethoxy) ether	EPA 3520C EPA 3550C EPA 8270D
Bis (2-chloroisopropyl) ether	EPA 3520C EPA 3550C EPA 8270D
Bis (2-ethylhexyl) phthalate	EPA 3520C EPA 3550C EPA 8270D
4-Bromophenylphenyl phthalate	EPA 3520C EPA 3550C EPA 8270D
Butyl benzyl phthalate	EPA 3520C EPA 3550C EPA 8270D
4-Chloroaniline	EPA 3520C EPA 3550C EPA 8270D
4-Chloro-3-methylphenol	EPA 3520C EPA 3550C EPA 8270D
1-Chloronaphthalene	EPA 3520C EPA 3550C EPA 8270D
2-Chloronaphthalene	EPA 3520C EPA 3550C EPA 8270D
2-Chlorophenol	EPA 3520C EPA 3550C EPA 8270D
4-Chlorophenyl phenyl ether	EPA 3520C EPA 3550C EPA 8270D
Chrysene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Cresols	EPA 3520C EPA 3550C EPA 8270D
Dibenzo (a,h) anthracene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Dibenzofuran	EPA 3520C EPA 3550C EPA 8270D
1,2-Dichlorobenzene	EPA 3520C EPA 3550C EPA 8270D

Parameter/Analyte	Waters and Soils
1,3-Dichlorobenzene	EPA 3520C EPA 3550C EPA 8270D
1,4-Dichlorobenzene	EPA 3520C EPA 3550C EPA 8270D
3,3'-Dichlorobenzidine	EPA 3520C EPA 3550C EPA 8270D
2,4-Dichlorophenol	EPA 3520C EPA 3550C EPA 8270D
Diethyl phthalate	EPA 3520C EPA 3550C EPA 8270D
2,4-Dimethylphenol	EPA 3520C EPA 3550C EPA 8270D
Dimethyl phthalate	EPA 3520C EPA 3550C EPA 8270D
Di-n-butyl phthalate	EPA 3520C EPA 3550C EPA 8270D
Di-n-octyl phthalate	EPA 3520C EPA 3550C EPA 8270D
2,4-Dinitrophenol	EPA 3520C EPA 3550C EPA 8270D
2,4-Dinitrotoluene	EPA 3520C EPA 3550C EPA 8270D
2,6-Dinitrotoluene	EPA 3520C EPA 3550C EPA 8270D
Fluoroanthene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Fluorene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Hexachlorobenzene	EPA 3520C EPA 3550C EPA 8270D
Hexachlorobutadiene	EPA 3520C EPA 3550C EPA 8270D
Hexachlorocyclopentadiene	EPA 3520C EPA 3550C EPA 8270D

Parameter/Analyte	Waters and Soils
Hexachloroethane	EPA 3520C EPA 3550C EPA 8270D
Indeno (1,2,3-cd) pyrene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
Isophorone	EPA 3520C EPA 3550C EPA 8270D
2-Methyl-4,6-Dinitrophenol	EPA 3520C EPA 3550C EPA 8270D
2-Methylphenol (As O cresol)	EPA 3520C EPA 3550C EPA 8270D
4-Methylphenol (As P & M cresol)	EPA 3520C EPA 3550C EPA 8270D
Naphthalene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
2-Nitroaniline	EPA 3520C EPA 3550C EPA 8270D
3-Nitroaniline	EPA 3520C EPA 3550C EPA 8270D
4-Nitroaniline	EPA 3520C EPA 3550C EPA 8270D
Nitrobenzene	EPA 3520C EPA 3550C EPA 8270D
2-Nitrophenol	EPA 3520C EPA 3550C EPA 8270D
4-Nitrophenol	EPA 3520C EPA 3550C EPA 8270D
N-Nitrosodi-n-propylamine	EPA 3520C EPA 3550C EPA 8270D
N-Nitrosodiphenylamine	EPA 3520C EPA 3550C EPA 8270D
Pentachlorophenol	EPA 3520C EPA 3550C EPA 8270D
Phenanthrene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM

Parameter/Analyte	Waters and Soils
Phenol	EPA 3520C EPA 3550C EPA 8270D
Pyrene	EPA 3520C EPA 3550C EPA 8270D EPA 8270D SIM
1,2,4-Trichlorobenzene	EPA 3520C EPA 3550C EPA 8270D
2,4,5-Trichlorophenol	EPA 3520C EPA 3550C EPA 8270D
2,4,6-Trichlorophenol	EPA 3520C EPA 3550C EPA 8270D
Pesticides/Herbicides/PCBs	
Aldrin	EPA 3520C EPA 3550C EPA 8081B
alpha-BHC	EPA 3520C EPA 3550C EPA 8081B
beta-BHC	EPA 3520C EPA 3550C EPA 8081B
delta-BHC	EPA 3520C EPA 3550C EPA 8081B
gamma-BHC	EPA 3520C EPA 3550C EPA 8081B
Chlordane (technical)	EPA 3520C EPA 3550C EPA 8081B
4,4'-DDD	EPA 3520C EPA 3550C EPA 8081B
4,4'-DDE	EPA 3520C EPA 3550C EPA 8081B
4,4',-DDT	EPA 3520C EPA 3550C EPA 8081B
Dieldrin	EPA 3520C EPA 3550C EPA 8081B
Endosulfan I	EPA 3520C EPA 3550C EPA 8081B
Endosulfan II	EPA 3520C EPA 3550C EPA 8081B

Parameter/Analyte	Waters and Soils
Endonsulfan sulfate	EPA 3520C EPA 3550C EPA 8081B
Endrin	EPA 3520C EPA 3550C EPA 8081B
Endrin aldehyde	EPA 3520C EPA 3550C EPA 8081B
Endrin ketone	EPA 3520C EPA 3550C EPA 8081B
Heptachlor	EPA 3520C EPA 3550C EPA 8081B
Heptachlor epoxide	EPA 3520C EPA 3550C EPA 8081B
Methoxychlor	EPA 3520C EPA 3550C EPA 8081B
PCB-1016 (Arochlor)	EPA 3520C EPA 3550C EPA 8082A
PCB-1221	EPA 3520C EPA 3550C EPA 8082A
PCB-1232	EPA 3520C EPA 3550C EPA 8082A
PCB-1242	EPA 3520C EPA 3550C EPA 8082A
PCB-1248	EPA 3520C EPA 3550C EPA 8082A
PCB-1254	EPA 3520C EPA 3550C EPA 8082A
PCB-1260	EPA 3520C EPA 3550C EPA 8082A
Toxaphene	EPA 3520C EPA 3550C EPA 8082A
Hazardous Waste Characteristics	
Corrosivity	EPA 9040B EPA 9045C
Ignitability	EPA 1020A
Toxicity Characteristic Leaching Procedure	EPA 1311

[1] This laboratory offers on-site testing services.
[2] Test are performed in the laboratories mobile facilities.

Prep methods are listed before the analytical method when applicable.

Oregon

Environmental Laboratory Accreditation Program

Department of Agriculture, Laboratory Division
Department of Environmental Quality, Laboratory Division
Department of Human Services, Public Health Division

NELAP Recognized
Oregon State Public Health Laboratory
3150 NW 229th Avenue, Suite 100
Hillsboro, OR 97124
PH (503) 693-4122
FAX (503) 693-5602
TTY (503) 731-4031

September 2, 2009

Stephen Ede, QA Officer
SGS North America, Inc. Anchorage
200 W Potter Drive
Anchorage, AK 99518

Dear Mr. Ede,

We are pleased to inform you that your laboratory has been granted accreditation by ORELAP in accordance with NELAC Standards. The ORELAP Certificate of Accreditation and an attachment listing the Fields of Accreditation (Matrix-Method-Analyte) are enclosed. The attachment is considered to be an official document.

Your lab's accreditation status has been revised as follows:

SOLIDS

Accredited:

1. AK102/ DRO
2. 3050B2
3. 3550C
4. 7471B
5. 8081B
6. 8082A
7. 8270D
8. 8270D SIM / all analytes requested
9. 9060A

Applied but not accredited:

1. AK101/ GRO (PTs)
2. AK103 (lab did not apply)

3. 8021B 2 (PTs)

Withdrawn:

1. 3550B 2
2. 7471A 1/ mercury
3. 8015B 2/ all analytes
4. 8081A 1/ all analytes
5. 8082/ all analytes
6. 8270C 3/ all analytes
7. 9060/ TOC

It is important to note that, in order to maintain accreditation, the laboratory must grant ORELAP personnel access to the facility during any regular scheduled work hour.

Use and display of the Certificate of Accreditation

You must post the most recent Certificate of Accreditation in a prominent place in the laboratory facility.

You must make accurate statements concerning the parameters for which you are accredited.

- You may not use the ORELAP Certificate, NELAP accreditation status or NELAC logo to imply endorsement by ORELAP.

- Any use of ORELAP's or NELAC's name on general literature such as catalogues, advertising, business solicitations, proposals, quotations, laboratory analytical reports or other materials, must be accompanied by the phrase "accredited in accordance with NELAC" and your ORELAP identification number.

If you choose to make reference to your ORELAP-NELAP accreditation in any literature such as catalogues, advertising, business solicitations, proposals, quotations, laboratory analytical reports or other materials, you must:

- Distinguish between the parameters for which you are accredited by ORELAP and those for which you are not accredited by ORELAP.

- Include your ORELAP identification number.

If, for any reason other than expiration, the laboratory loses accreditation or withdraws from the program, the Certificate of Accreditation must be returned to ORELAP and the lab must discontinue use of all literature that contains reference to ORELAP accreditation status.

Changes in your laboratory

You must notify ORELAP of any key changes within 30 calendar days. Such changes include, but are not limited to, key personnel, equipment, or standard operating procedures. A change in address requires that you also complete and submit section 1 (demographics) of the ORELAP application.

You must notify ORELAP of any change in ownership within 30 calendar days by completing section 1 of the ORELAP application. The seller and buyer must also sign the ORELAP change of ownership agreement.

No application fee will be assessed for either change in address or ownership. Charges for an on-site assessment, if deemed necessary, will be invoiced to the laboratory prior to the visit.

Participation in proficiency testing program

In order to maintain accreditation, the laboratory is required to continue to analyze performance testing samples according to Chapter 2 of the 2003 NELAC Standards, continue to meet quality systems standards according to those set forth in Chapter 5 of the 2003 NELAC Standards.

Please be aware that the NELAC Standards 2.7.4 requires laboratories, in the event of a failed PT, to submit a copy of the records of the investigation of the cause and the corrective actions taken.

If you have any questions, you may contact me at (503) 693-4122.

Sincerely,

Irene E. Ronning, PhD
ORELAP Administrator

Note: In compliance with the Americans with Disabilities Act (ADA), if you need this information in an alternate format, please contact Dr. Irene Ronning at (503) 693-4122 at the Oregon Environmental Laboratory Accreditation Program.

OREGON

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

NELAP Recognized

SGS North America Inc - Alaska Division

AK100001

200 W. Potter Drive

Anchorage, AK 99518

IS GRANTED APPROVAL BY ORELAP UNDER THE 2003 NELAC STANDARDS, TO PERFORM ANALYSES ON ENVIRONMENTAL SAMPLES IN MATRICES AS LISTED BELOW:

Air	*Drinking Water*	*Non Potable Water*	*Solids and Chem. Waste*	*Tissue*
			Chemistry	

AND AS RECORDED IN THE LIST OF APPROVED ANALYTES, METHODS, ANALYTIC TECHNIQUES, AND FIELDS OF TESTING ISSUED CONCURRENTLY WITH THIS CERTIFICATE AND REVISED AS NECESSARY.

ACCREDITED STATUS DEPENDS ON SUCCESSFUL ONGOING PARTICIPATION IN THE PROGRAM AND CONTINUED COMPLIANCE WITH THE STANDARDS.

CUSTOMERS ARE URGED TO VERIFY THE LABORATORY'S CURRENT ACCREDITATION STATUS IN OREGON.

Irene E. Ronning

Irene E. Ronning, Ph.D.
ORELAP Administrator
3150 NW 229th Ave, Suite 100
Hillsboro, OR 97124

ISSUE DATE: 9/1/2009

EXPIRATION DATE: 8/31/2010

Certificate No: AK100001-002

Oregon

Environmental Laboratory Accreditation Program

Public Health Laboratory
3150 NW 229th Ave, Suite 100
Hillsboro, OR, OR 97124
(503) 693-4122
FAX (503) 693-5602

Department of Agriculture, Laboratory Division
Department of Environmental Quality, Laboratory Division
Department of Human Services, Public Health Laboratory

NELAP Recognized

ORELAP Fields of Accreditation

ORELAPID: AK100001
EPACode: AK 00971

Certificate:
AK100001-002

SGS North America Inc - Alaska Division

200 W. Potter Drive
Anchorage, AK, 99518

Issue Date: 9/1/2009 ***Expiration Date:*** 8/31/2010

As of 09/01/2009 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

MATRIX: Solids

Reference		*Code*	*Description*
AK102 DRO		90015206	Determination of Diesel Range Organics - Alaska Department of Environ
Analyte Code	***Analyte***		
9369	Diesel range organics (DRO)		
EPA 1020A 1		10117007	Ignitability Setaflash Closed-cup Method
Analyte Code	***Analyte***		
1780	Ignitability		
EPA 1311		10118806	Toxicity Characteristic Leaching Procedure
Analyte Code	***Analyte***		
125	Extraction/Preparation		
EPA 3010A 1		10133605	Acid Digestion of Aqueous samples and Extracts for Total Metals
Analyte Code	***Analyte***		
125	Extraction/Preparation		
EPA 3050A		10135407	Acid Digestion of Sediments, Sludges, and soils
Analyte Code	***Analyte***		
125	Extraction/Preparation		
EPA 3050B 2		10135601	Acid Digestion of Sediments, Sludges, and soils
Analyte Code	***Analyte***		
125	Extraction/Preparation		
EPA 3520C 3		10139001	Continuous Liquid-liquid extraction
Analyte Code	***Analyte***		
125	Extraction/Preparation		
EPA 3550C		10142004	Ultrasonic Extraction
Analyte Code	***Analyte***		
125	Extraction/Preparation		
EPA 5030B 2		10153409	Purge and trap for aqueous samples
Analyte Code	***Analyte***		
125	Extraction/Preparation		
EPA 5035A		10284807	Closed-System Purge-and-Trap and Extraction for Volatile Organics in So
Analyte Code	***Analyte***		
125	Extraction/Preparation		
EPA 6010B 2		10155609	ICP - AES
Analyte Code	***Analyte***		
1000	Aluminum		
1005	Antimony		
1010	Arsenic		
1015	Barium		
1020	Beryllium		

ORELAP Fields of Accreditation

ORELAPID: AK100001
EPACode: AK 00971

Certificate:
AK100001-002

SGS North America Inc - Alaska Division

200 W. Potter Drive
Anchorage, AK, 99518

Issue Date: 9/1/2009 ***Expiration Date:*** 8/31/2010

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Customers: Please verify the current accreditation standing with ORELAP.

1025	Boron
1030	Cadmium
1035	Calcium
1040	Chromium
1050	Cobalt
1055	Copper
1070	Iron
1075	Lead
1085	Magnesium
1090	Manganese
1100	Molybdenum
1105	Nickel
1140	Selenium
1150	Silver
1155	Sodium
1160	Strontium
1185	Vanadium
1190	Zinc

EPA 6020		10156000	Inductively Coupled Plasma-Mass Spectrometry
Analyte Code	***Analyte***		
1000	Aluminum		
1005	Antimony		
1010	Arsenic		
1015	Barium		
1020	Beryllium		
1025	Boron		
1030	Cadmium		
1035	Calcium		
1040	Chromium		
1050	Cobalt		
1055	Copper		
1070	Iron		
1075	Lead		
1085	Magnesium		
1090	Manganese		
1100	Molybdenum		
1105	Nickel		
1125	Potassium		
1140	Selenium		
1150	Silver		
1155	Sodium		
1165	Thallium		
1185	Vanadium		
1190	Zinc		

EPA 7470A 1		10165807	Mercury in Liquid Waste by Cold Vapor Atomic Absorption
Analyte Code	***Analyte***		
1095	Mercury		

EPA 7471B		10166402	Mercury by Cold Vapor Atomic Absorption
Analyte Code	***Analyte***		
1095	Mercury		

ORELAP Fields of Accreditation

ORELAPID: AK100001
EPACode: AK 00971

SGS North America Inc - Alaska Division

200 W. Potter Drive
Anchorage, AK, 99518

Certificate:
AK100001-002

Issue Date: 9/1/2009 ***Expiration Date:*** 8/31/2010

As of 09/01/2009 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

EPA 8021B 2 10174808 Aromatic and Halogenated Volatiles by GC with PID and/or ECD Purge &

Analyte Code	Analyte
4375	Benzene
4765	Ethylbenzene
5245	m-Xylene
5250	o-Xylene
5255	p-Xylene
5140	Toluene

EPA 8081B 10178800 Organochlorine Pesticides by GC/ECD

Analyte Code	Analyte
7355	4,4'-DDD
7360	4,4'-DDE
7365	4,4'-DDT
7025	Aldrin
7110	alpha-BHC (alpha-Hexachlorocyclohexane)
7240	alpha-Chlordane
7115	beta-BHC (beta-Hexachlorocyclohexane)
7105	delta-BHC
7470	Dieldrin
7510	Endosulfan I
7515	Endosulfan II
7520	Endosulfan sulfate
7540	Endrin
7530	Endrin aldehyde
7535	Endrin ketone
7120	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)
7245	gamma-Chlordane
7685	Heptachlor
7690	Heptachlor epoxide
7810	Methoxychlor

EPA 8082A 10179201 Polychlorinated Biphenyls (PCBs) by GC/ECD

Analyte Code	Analyte
8880	Aroclor-1016 (PCB-1016)
8885	Aroclor-1221 (PCB-1221)
8890	Aroclor-1232 (PCB-1232)
8895	Aroclor-1242 (PCB-1242)
8900	Aroclor-1248 (PCB-1248)
8905	Aroclor-1254 (PCB-1254)
8910	Aroclor-1260 (PCB-1260)

EPA 8260B 2 10184802 Volatile Organic Compounds by purge and trap GC/MS

Analyte Code	Analyte
5105	1,1,1,2-Tetrachloroethane
5160	1,1,1-Trichloroethane
5110	1,1,2,2-Tetrachloroethane
5165	1,1,2-Trichloroethane
4630	1,1-Dichloroethane
4640	1,1-Dichloroethylene
4670	1,1-Dichloropropene
5150	1,2,3-Trichlorobenzene
5180	1,2,3-Trichloropropane
5155	1,2,4-Trichlorobenzene

ORELAP Fields of Accreditation

ORELAPID: AK100001
EPACode: AK00971

SGS North America Inc - Alaska Division

200 W. Potter Drive
Anchorage, AK, 99518

Certificate:
AK100001-002

Issue Date: 9/1/2009 ***Expiration Date:*** 8/31/2010

As of 09/01/2009 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

5210	1,2,4-Trimethylbenzene
4570	1,2-Dibromo-3-chloropropane (DBCP)
4585	1,2-Dibromoethane (EDB, Ethylene dibromide)
4610	1,2-Dichlorobenzene
4635	1,2-Dichloroethane (Ethylene dichloride)
4655	1,2-Dichloropropane
5215	1,3,5-Trimethylbenzene
4615	1,3-Dichlorobenzene
4660	1,3-Dichloropropane
4620	1,4-Dichlorobenzene
4665	2,2-Dichloropropane
4410	2-Butanone (Methyl ethyl ketone, MEK)
4500	2-Chloroethyl vinyl ether
4535	2-Chlorotoluene
4860	2-Hexanone
4540	4-Chlorotoluene
4995	4-Methyl-2-pentanone (MIBK)
4315	Acetone
4375	Benzene
4385	Bromobenzene
4390	Bromochloromethane
4395	Bromodichloromethane
4400	Bromoform
4450	Carbon disulfide
4455	Carbon tetrachloride
4475	Chlorobenzene
4575	Chlorodibromomethane
4485	Chloroethane (Ethyl chloride)
4505	Chloroform
4645	cis-1,2-Dichloroethylene
4680	cis-1,3-Dichloropropene
4595	Dibromomethane (Methylene bromide)
4625	Dichlorodifluoromethane (Freon-12)
4765	Ethylbenzene
4835	Hexachlorobutadiene
4900	Isopropylbenzene
4950	Methyl bromide (Bromomethane)
4960	Methyl chloride (Chloromethane)
5000	Methyl tert-butyl ether (MTBE)
4975	Methylene chloride (Dichloromethane)
5245	m-Xylene
4435	n-Butylbenzene
5090	n-Propylbenzene
5250	o-Xylene
5255	p-Xylene
4440	sec-Butylbenzene
5100	Styrene
4445	tert-Butylbenzene
5115	Tetrachloroethylene (Perchloroethylene)
5140	Toluene
4700	trans-1,2-Dichloroethylene

SGS North America Inc - Alaska Division

200 W. Potter Drive
Anchorage, AK, 99518

Issue Date: 9/1/2009 ***Expiration Date:*** 8/31/2010

As of 09/01/2009 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

4685	trans-1,3-Dichloropropylene
5170	Trichloroethene (Trichloroethylene)
5175	Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)
5235	Vinyl chloride
5260	Xylene (total)

EPA 8270D 10186002 Semivolatile Organic compounds by GC/MS

Analyte Code	*Analyte*
5155	1,2,4-Trichlorobenzene
4610	1,2-Dichlorobenzene
4615	1,3-Dichlorobenzene
4620	1,4-Dichlorobenzene
5790	1-Chloronaphthalene
6835	2,4,5-Trichlorophenol
6840	2,4,6-Trichlorophenol
6000	2,4-Dichlorophenol
6130	2,4-Dimethylphenol
6175	2,4-Dinitrophenol
6185	2,4-Dinitrotoluene (2,4-DNT)
6190	2,6-Dinitrotoluene (2,6-DNT)
5795	2-Chloronaphthalene
5800	2-Chlorophenol
6360	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)
6385	2-Methylnaphthalene
6400	2-Methylphenol (o-Cresol)
6460	2-Nitroaniline
6490	2-Nitrophenol
5945	3,3'-Dichlorobenzidine
6405	3-Methylphenol (m-Cresol)
6465	3-Nitroaniline
5660	4-Bromophenyl phenyl ether
5700	4-Chloro-3-methylphenol
5745	4-Chloroaniline
5825	4-Chlorophenyl phenylether
6410	4-Methylphenol (p-Cresol)
6470	4-Nitroaniline
6500	4-Nitrophenol
5500	Acenaphthene
5505	Acenaphthylene
5545	Aniline
5575	Benzo(a)anthracene
5580	Benzo(a)pyrene
5590	Benzo(g,h,i)perylene
5600	Benzo(k)fluoranthene
5585	Benzo[b]fluoranthene
5610	Benzoic acid
5630	Benzyl alcohol
5760	bis(2-Chloroethoxy)methane
5765	bis(2-Chloroethyl) ether
5780	bis(2-Chloroisopropyl) ether
5670	Butyl benzyl phthalate
5855	Chrysene

SGS North America Inc - Alaska Division

200 W. Potter Drive
Anchorage, AK, 99518

Issue Date: 9/1/2009 **Expiration Date:** 8/31/2010

As of 09/01/2009 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)
5895	Dibenz(a,h) anthracene
5905	Dibenzofuran
6070	Diethyl phthalate
6135	Dimethyl phthalate
5925	Di-n-butyl phthalate
6200	Di-n-octyl phthalate
6265	Fluoranthene
6270	Fluorene
6275	Hexachlorobenzene
4835	Hexachlorobutadiene
6285	Hexachlorocyclopentadiene
4840	Hexachloroethane
6315	Indeno(1,2,3-cd) pyrene
6320	Isophorone
5005	Naphthalene
6530	n-Nitrosodimethylamine
6545	n-Nitrosodi-n-propylamine
6535	n-Nitrosodiphenylamine
6590	Pentachlorobenzene
6615	Phenanthrene
6625	Phenol
6665	Pyrene
5095	Pyridine

EPA 8270D SIM 10242509 Semivolatile Organic compounds by GC/MS Selective Ion Monitoring

Analyte Code	Analyte
6380	1-Methylnaphthalene
6385	2-Methylnaphthalene
5500	Acenaphthene
5505	Acenaphthylene
5555	Anthracene
5575	Benzo(a)anthracene
5580	Benzo(a)pyrene
5590	Benzo(g,h,i)perylene
5600	Benzo(k)fluoranthene
5585	Benzo[b]fluoranthene
5855	Chrysene
5895	Dibenz(a,h) anthracene
6265	Fluoranthene
6270	Fluorene
6315	Indeno(1,2,3-cd) pyrene
5005	Naphthalene
6615	Phenanthrene
6665	Pyrene

EPA 9040B 2 10197203 pH Electrometric Measurement

Analyte Code	Analyte
1900	pH

EPA 9045C 3 10198400 Soil and Waste pH

Analyte Code	Analyte
1900	pH

ORELAP Fields of Accreditation

ORELAPID: AK100001
EPACode: AK00971

SGS North America Inc - Alaska Division

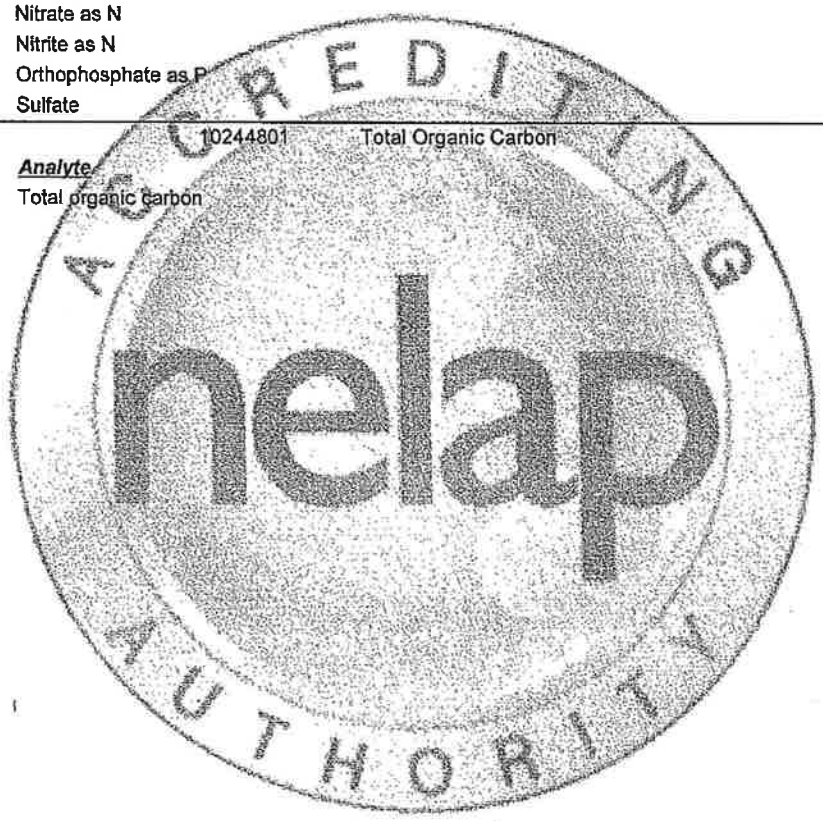
Certificate:
AK100001-002

200 W. Potter Drive
Anchorage, AK, 99518

Issue Date: 9/1/2009 ***Expiration Date:*** 8/31/2010

As of 09/01/2009 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

EPA 9056 0		10199403	Determination of Inorganic Anions by Ion Chromatography
Analyte Code	***Analyte***		
1540	Bromide		
1575	Chloride		
1730	Fluoride		
1810	Nitrate as N		
1840	Nitrite as N		
1870	Orthophosphate as P		
2000	Sulfate		
EPA 9060A		10244801	Total Organic Carbon
Analyte Code	***Analyte***		
2040	Total organic carbon		



NELAP Recognized

THE STATE OF ALASKA

Department of Environmental Conservation
Laboratory Certification Program

Certificate for Chemical Analysis in Drinking Water

SGS North America, Inc.

200 W. Potter Drive
Anchorage, AK 99518

AK00971

has complied with the provisions set forth in 18 AAC 80 and is hereby recognized by The Department of Environmental Conservation as **Fully Certified** for the analytical parameter listed on the accompanying Scope of Accreditation. This certificate is effective **11/4/09**, and expires **11/4/10**.

Thomas K. Hathaway, Ph.D.
State of Alaska Certification Authority

Lance W. Morris
Laboratory Chemistry Certification Officer

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION

SEAN PARNELL, GOVERNOR

TELEPHONE: (907) 375-8200
FAX: (907) 929-7335
5251 Hinkle Road
Anchorage, AK 99507

www.alaska.gov/dec/eh

DIVISION OF ENVIRONMENTAL HEALTH
Environmental Health Laboratory
CONTAMINATED SITES LAB APPROVAL

12/18/2009

Stephen Ede
SGS North America, Inc
200 W. Potter Drive
Anchorage, AK 99518

Reference: 2010 ADEC Contaminated Sites Lab Approval-UST-005

Stephen Ede:

Thank you for your continued interest in the State of Alaska Contaminated Sites Laboratory Approval. Based on a review of the materials received, and of those on file, SGS North America, Inc located at 200 W. Potter Drive, Anchorage, AK, is approved as detailed below to do work under the January 30, 2003 revision of AS 18 AAC 78.

SGS North America, Inc located at 200 W. Potter Drive, Anchorage, AK, is granted ***Full Approval*** to perform the analyses listed in the State of Alaska Scope of Approval for Alaska contaminated sites projects including UST/LUST.

Be aware that you must retain method detection limit (MDL) data on file for each method and instrument for which you are seeking approval under the AK CS Program. These may be kept in your in-house files. They need not be submitted to ADEC at this time, however, they may be subject to inspection in the event of an on-site investigation or ADEC may ask they be submitted as part of the approval process. Please remember your expiration date is 12/18/2010.

You must submit the required documentation for renewal no earlier than 90 days and no later than 30 days before your date of expiration. We must receive your application, fees, acceptable performance evaluation results, and the latest revision of your quality assurance manual during this window.

You may download a copy of the application from the following site:
<http://www.state.ak.us/dec/eh/lab/cs/csapproval.htm>

Your laboratory identifying number remains UST-005. Please remember to include this number in ALL correspondence concerning your Alaska CS approval and on all data transmittals. In order to assure timely handling please address all correspondence to the attention of 'Lance Morris, CS Lab Approval Officer'.

If you have any questions, please contact the Alaska Department of Environmental Conservation Environmental Health Laboratory at (907)375-8200 or at the following email address Lance.Morris@Alaska.gov.

Respectfully,

Lance W. Morris

Digitally signed by Lance W. Morris
Date: 2009.12.21 11:07:55 -09'00'

CS Lab Approval Officer

cc: Laboratory File
enc: Certificate

THE STATE OF ALASKA
Department of Environmental Conservation
Laboratory Approval Program

Scope of Approval

Expiration: 12/18/2010

SGS North America, Inc **UST-005**
200 W. Potter Drive
Anchorage, AK 99518

is approved by the State of Alaska Department of Environmental Conservation, pursuant to 18 AAC 78, to perform analysis for the parameters listed below using the analytical methods indicated. Approval for all parameters is final. Approval is for the latest version of a method unless specified otherwise in a note. EPA refers to the U.S. Environmental Protection Agency. AK refers to Alaska Methods 101, 102 and 103 for the determination of gasoline, diesel and residual range organics in soil and water. ASTM refers to the American Society for Testing and Materials.

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6020	EPA	Total Arsenic	Soil	Approved
6020	EPA	Total Barium	Soil	Approved
6020	EPA	Total Cadmium	Soil	Approved
6020	EPA	Total Chromium	Soil	Approved
6020	EPA	Total Lead	Soil	Approved
6020	EPA	Total Nickel	Soil	Approved
6020	EPA	Total Vanadium	Soil	Approved
6020	EPA	Total Arsenic	Water	Approved
6020	EPA	Total Barium	Water	Approved
6020	EPA	Total Cadmium	Water	Approved
6020	EPA	Total Chromium	Water	Approved
6020	EPA	Total Lead	Water	Approved
6020	EPA	Total Nickel	Water	Approved
6020	EPA	Total Vanadium	Water	Approved
8021B	EPA	BTEX	Water	Approved
8021B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Soil	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Water	Approved
8260B	EPA	BTEX	Soil	Approved

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270D	EPA	PAH	Soil	Approved
8270D	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
AK102-SV	AK	Diesel Range Organics-small volume	Water	Approved
AK103	AK	Residual Range Organics	Soil	Approved

APPENDIX F

CONTRACTOR QUALIFICATIONS

Shann Jones, Environmental Professional

2375 University Avenue South
Fairbanks, Alaska 99709
(907) 457-7625 – phone
(907) 457-7620 - fax

Environmental Engineering
Geotechnical Investigations
Mining/Transportation
OSHA Compliance Investigations
Quality Control/Quality Assurance

Education (degrees, year, specialization)

2009 M.A. Aquatic & Environmental Education, University of Alaska Fairbanks (UAF)
1999 B.S. Mining Engineering, University of Alaska Fairbanks

Professional Employment History

2008-Present Environmental Professional, Rockwell Engineering & Construction Services, Inc.
2000-2008 Science Assistant, UAF Geophysical Institute, Fairbanks, AK
1992-2000 Geoscience Technician, Alaska Cooperative Extension, Fairbanks, AK

Licenses and Certifications (Initial Date Certified)

2009 Certified Erosion & Sediment Control Lead (CESCL)
2008 40-Hr. Hazwoper
1999 State of Alaska, Engineer-in-Training (Apr 99)

KEY EXPERIENCE:

- Construction Quality Control/Quality Assurance (QC/QC) Inspections and Management
- Stormwater Pollution Prevention Plans (SWPPP) include site inspections, and filing NOIs and NOTs
- Spill Prevention Control and Countermeasure (SPCC) plans and site inspections.
- Site Specific Safety and Health Plans, Quality Control Plans and Project and Technical Reports.
- Collected magnetic field measurements, reduced field data, and prepared magnetic field data for U.S. Geological Survey worldwide magnetometer network.
- Conducted field screenings for petroleum contamination.
- Sample well development, groundwater sampling, and purge water handling processing and disposal
- Conducted mineral, geochemical and geophysical sampling for proposed metal mining prospects.
- Performed hazardous chemical inventories and wrote chemical hygiene plans.
- Crushed, screened and analyzed rock samples for several small mining companies throughout Alaska.
- Performed permafrost sink hole investigations.

Fall 2009

References and additional information available upon request

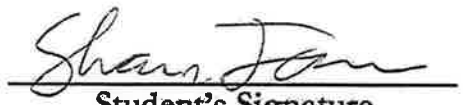
MAPS ONLINE LLC

CERTIFICATE OF COURSE COMPLETION

Hazwoper 8 Hour Annual Refresher Course

in compliance with the 29 CFR 1910.120 Standard

Shann Jones		12/21/2009 16:42 CST
Student's Name	Course Title	Course Completion Date



Student's Signature

1417082

Certificate Number

8

# of hours approved

I hereby attest that I have completed the above named safety course in accordance with the ethical guidelines defined by, Maps Online LLC. I acknowledge that I consumed all information and took all Pertinent quizzes and/or final tests.

Maps Online LLC.
4372, Glenallen Ct.
Hillard, OH, 43026.
Tel: 614-989-9947.

ENVIRONMENTAL
MANAGEMENT
INCORPORATED

Certificate of Training

T - 20948 - 15436
Certificate Number

This is to certify that

Shann Jones

has satisfactorily completed 40 hours

of

Hazardous Waste Operations & Emergency Response - 40 Hours

In compliance with 29 CFR 1910.120

Class Start Date: 12/15/2008 *Class End Date: 12/19/2008*

for David Haggith	12/19/2008	12/19/2009	Stuart M. Jacques
	Exam Date	*Cert. Exp. Date*	*Director*

Environmental Management Inc. 206 E. Fireweed Lane Suite 201, Anchorage Alaska 99503 907-272-8852

GOES 746

LITHO. IN U.S.A.

CERTIFICATE OF ACHIEVEMENT

This certifies that

Shann Jones

has successfully completed

Alaska Certified Erosion & Sediment Control Lead (AK-CESCL) Storm Water Training Program

Continuing Education Credits Earned:
16 Continuing Competency Credits Residential Endorsement Holders
Course approved by Alaska State Home Builders Association
16 Professional Development Hours for Architects, Engineers and Landscape Architects
AGC of Alaska
Construction Education Foundation
8005 Schoon Street
Anchorage, Alaska 99518

Instructor	Course Date	Location
May 13 & 14, 2009	Fairbanks, Alaska	

Robert Cress, AGC Training Director	Certification Date	Expiration Date
May 14, 2009	May 13, 2012	

Jeff L. Gimbel, Environmental Specialist

2375 University Avenue South
Fairbanks, Alaska 99709
(907) 457-7625 - phone
(907) 457-7620 - fax

Environmental Science

Education (degrees, year, specialization)

2005 B.S. Biochemistry / Molecular Biology, University of Alaska, Fairbanks, AK

Professional Employment History

Present	Environmental Specialist, Rockwell Engineering & Construction Services, Inc.
2006-2008	Environmental Scientist, Nortech Environmental, Health and Safety, Fairbanks, AK
2005-2006	Substitute Teacher, Fairbanks North Star Borough School District, Fairbanks, AK
2004-2005	Landscape Construction, Great Northwest Inc., Fairbanks, AK

Licenses and Certifications (Initial Date Certified)

2009 AK CDL Class A (April 09)
2009 Haz-Mat Transportation Awareness – CFR 172.704 (April 09)
2009 OSHA Forklift Cert (April 09)
2009 AK Flagger Cert (April 09)
2008 8-hour Niton XRF (Jan 08)
2008-10 8-hour HAZWOPER refresher (June 08 through April 2010, expires 2011)
2007 Alaska Department of Environmental Conservation (ADEC)
Contaminated Sites Qualified Person (May 07)
2007 HAZWOPER 40-hour (June 07)

KEY EXPERIENCE:

- Performed numerous Phase I, II and III Environmental Site Assessments (ESA) at various locations throughout the Interior and North Slope.
- Conducted field screening for petroleum, oils, and lubricants (POLs) using photoionization detectors (PIDs), Hanby test kits, and visual observations on a number of military construction projects located on Fort Wainwright, Eielson Air Force Base, and commercial and private properties located in the Interior and South-East Alaska.
- Conducted field screening for petroleum, oils, and lubricants (POLs) and other contaminants of concern using photoionization detectors (PIDs), Hanby test kits, and visual observations in remote locations including Deadhorse and off-grid areas surrounding Juneau
- Conducted numerous field and site specific Lead Assessments using real time data collection with a hand-held Niton XRF
- Supervised removal of contaminated soil with regards to home heating oil and POL contamination at several commercial and residential sites located throughout the Interior
- Conducted numerous Indoor Air Quality Assessments (IAQs) using Q-trac, P-trac, and PPB meters for workplace and residential air monitoring purposes
- Conducted laboratory sampling of air, water, and soil for contaminants including BTEX, GRO, DRO, RRO, VOCs, Metals, PCBs, and Asbestos in accordance with project sampling and analysis plans, ADEC 18 AAC 75, 18 AAC 78, the Underground Storage Tank (UST) Procedures Manual and AHERA.
- Prepared Sampling and Analysis Plans (SAPs), Sampling and Site Characterization Plans, Site Specific Safety and Health Plans (SSSHPs), Remedial Action Plans (RAP), and Spill Prevention, Control and Countermeasures (SPCC) plans).
- Conducted biological clearance sampling for private properties and residences throughout the Interior

Spring 2010

References and additional information available upon request

ENVIRONMENTAL
MANAGEMENT
INCORPORATED

Certificate of Training

T - 20232 - 12527
Certificate Number

This is to certify that

Jeff L. Gimbel

has satisfactorily completed 40 hours

of

Hazardous Waste Operations & Emergency Response - 40 Hours

In compliance with 29 CFR 1910.120

Class Start Date: 6/11/2007 *Class End Date: 6/15/2007*

Jerry Trainor	6/15/2007	6/15/2008	Stuart M. Jacques
Jerry Trainor	*Exam Date*	*Cert. Exp. Date*	*Director*

Environmental Management Inc. 206 E. Fireweed Lane Suite 201, Anchorage Alaska 99503 907-272-8852

University of Alaska Fairbanks

The Board of Regents of the University of Alaska System
on recommendation of the University Faculty and by virtue of the
Authority vested in Them by Law have conferred upon

Jeffrey Lee Gimbel

the degree of

Bachelor of Science

Chemistry: Biochemistry/Molecular Biology

with all the Rights, Privileges, Honors, and Obligations pertaining thereto
Given at the University of Alaska Fairbanks, this month of December, A.D., 2006.

UNIVERSITY OF ALASKA
AD SUMMUM
1917

Chair, Board of Regents

President, University of Alaska System

Chancellor, University of Alaska Fairbanks