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**Decommissioning Report for the Bioventing  
System at Building 986 POL Laboratory,  
Fort Richardson, Alaska**

**FORT RICHARDSON, ALASKA  
CONTRACT NO. DACA85-01-P-0080**

Prepared for:

U.S. Army Corps of Engineers, Alaska District  
CEPOA-PM-M-A  
P. O. Box 6898  
Elmendorf AFB, Alaska 99506-6898

Prepared By:



AGVIQ, LLC  
2121 Abbott Road  
Anchorage, Alaska 99507

Project #5020011

September 2004

**Decommissioning Report for the Bioventing System at Building 986  
POL Laboratory, Fort Richardson, Alaska  
September 2004**

The following is the decommissioning report for the Bioventing System at Building 986 POL (petroleum, oil, and lubricants) Laboratory, Fort Richardson, Alaska. System decommissioning and site work took place over three days in May 2004. This activity was conducted in accordance with the Scope of Work (SOW) written for the Soil Vapor Extraction (VE) and Bio-Venting (BV) System Operation and Maintenance, dated April 2003. This document was prepared by AGVIQ, LLC for the U.S. Army Corps of Engineers under Contract Number DACA85-01-P-0080.



Permitting and installation access clearances were completed prior to site work. The attached Excavation Clearance Request form was completed and signed through the Directorate of Public Works, Fort Richardson, Alaska.

On the 25<sup>th</sup> of May 2004, the utility disconnection of telephone and electrical service was completed by ALCAN Electric. The telephone line was disconnected from main phone box and blower shed building. The electrical service was also disconnected at the power pole and the blower shed building.

Personnel and equipment were mobilized to Building 986 on May 26<sup>th</sup>. Equipment used for decommissioning included a F350 pickup truck, a HATACHI EX 55 excavator, and a KOMATSU 180 loader. An AGVIQ site superintendent and laborer were on site.



May 26<sup>th</sup> 2004, excavation and removal of the vapor extraction flex hose from the blower building to vapor extraction wells VE-1, VE-2, VE-3 was started. The excavator was used to excavate soil at a depth of approximately 2.5 feet to expose the flex hose and two layers of 2 inch thick polystyrene insulation. Flex hose was cut at the blower building below flow control gate valves and at the adapter fitting connection at the vapor extraction wells. Hose and insulation were disposed of in the Anchorage Municipal Landfill.



Sod (2-4 inches thick) was removed and placed in a separate stockpile for replacement following backfill. Areas around vapor extraction wells were exposed approximately 3 to 4 feet in diameter in preparation for decommissioning by subcontractor Denali Drilling. Trenches and excavation were backfilled and graded on the 26<sup>th</sup> and 27<sup>th</sup> of May.



On the 27<sup>th</sup> of May decommissioning of vapor extraction wells (VE-1, VE-2, VE-3) and bioventing wells (BVT01, BVT02, BVT03, BVT04, BVT05, BVT06, BVT07, BVT08, BVT09, BVT10, BVT11, BVT12, BVT13, BVT14) was subcontracted to Denali Drilling, Inc. Denali was on site the 27<sup>th</sup> of May to decommission the wells according to Alaska Department of Environmental Conservation requirements. The bioventing wells consisted of 2" diameter PVC casings placed in vertical positions around the bioventing area. No monuments had been installed at the bioventing wells. Denali Drilling used a truck-mounted drill rig to pull casings from the ground. Bentonite chips were used to backfill the vapor extraction and monitoring wells then capped with pea gravel to contain and stabilize the bentonite chips. The excavations were then backfilled with the excavated material to match existing grade. Well casing and tubing were removed and disposed of at the Anchorage Municipal Landfill.



Soil and gas monitoring points (MP-1, MP-2, and MP-3) were removed by Denali Drilling on May 27<sup>th</sup>. The green and blue plastic tubes were pulled from the well annulus and the iron monuments removed. Sand was removed from the annulus to the depth of 2 feet below ground surface. Bentonite chips were replaced on the sand and then capped with pea gravel. The iron monuments were distributed to Denali Drilling for reuse. Groundwater monitoring wells AP-3020, AP-3022, and AP-3648 were not decommissioned as part of this SOW.



A small excavation of the original utility trench was done with the **Hatachi EX55** excavator to expose conduit and cable on May 27<sup>th</sup>. Telephone cable and 1 inch electrical conduit were pulled and disposed of at Anchorage Municipal Landfill. The excavation was backfilled after cable and conduit were removed.

Blower building anchors were excavated and exhaust stack removed. Building and exhaust stack were relocated with the loader to the staging area behind Building 955.





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Mark Prieskat, DPW, inspected the site on May 27<sup>th</sup>. All items of the SOW were approved of as complete.

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**Attachment A**

**Excavation Clearance Request**

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#8 Book-16

EXCAVATION CLEARANCE REQUEST  
DIRECTORATE OF PUBLIC WORKS, FORT RICHARDSON, ALASKA

NOTE: Locates require 10 working days advance notice (except where indicated)

WAREHOUSE ST.  
South Side

clearance to proceed with work at: POL LABORATORY BLDG 986  
(specific location)

Order /Contract #: 04C85-01-P-0080 Contractor Firm: AGUIQ, LLC

Director POC Name/Phone: Scott Kendall 753-5661 / Ryan Garner 365-6280

TYPE OF WORK REQUIRED: (provide brief but complete description of work to be performed. Attach additional sheets as necessary.)

~~Removal of existing~~ Removing Remedial Wells

Dates: \_\_\_\_\_ thru \_\_\_\_\_ Above Construction Checked for Conflicts with the Following:

Department	Conflict	Signing Official	Date
Bldg. 700 (Steam, Gas, Water)	Yes <input checked="" type="radio"/> No	J.A. Dias	19 May 04
Bldg. 700 377 (Elect. Alarms)	Yes <input checked="" type="radio"/> No	J.M. Muffetto	26 May 04
s. Bldg. 700 (sewer/POL)	Yes <input checked="" type="radio"/> No	F. H. Dias	19 May 04
ental, Bldg. 724 2 / 3295	Yes <input checked="" type="radio"/> No	L.K. Riet	20 May 04
→ Institutional Controls <sup>1</sup>	Yes <input checked="" type="radio"/> No	Source Area: _____	

Planning, Bldg. 730

Yes ☒ No ☒ STKTECH 18 May 04

ng, Contract Mgmt., Bldg. 724

Yes ☒ No ☒ B.C.R. 20 May 04

y. Borrow Pit / Mat'l disposal site coordinator  
Contract Mgmt., Bldg. 724

Yes ☒ No ☒ B.C.R. 20 May 04

partment, Bldg. 654  
/ 3131

Yes ☒ No ☒ J. J. J. 18 May 04

! Bn, Bldg. 652  
(communications)

Yes ☒ No ☒ Chris V. 18 May 04 5-81

und Locating Service - Local Request No.: 210444

13<sup>00</sup> HRS p.m. 20<sup>TH</sup> May Bonnie

278-3121 covers: ACS Yes No  
ENSTAR Yes No  
GCI Cable Yes No

ion of Conflicts Identified Above (annotate on drawings or include additional information sheets)

Dig with caution so as to not damage Electrical that is Marked in Area

Railroad - if excavation within 100 ft. of railroad right-of-way, (907) 265-2401 (10 day advance notice required)  
Storage Area A or B, Bldg. 706 Mark Marsh, 384-3643 (Security only)  
it Marshal, Bldg. 656, 384-0801 (Road closures only)  
tomer Service Desk, Bldg. 700, 384-3664 / 3620 (Loss of utility only)  
partment, Bldg. 654, 384-0774 (Loss of hydrant water or road closures)

onal Controls are in force in the excavation area, additional preparation, reporting, monitoring, and record-keeping requirements will apply. The  
ractor project manager must confer with DPW Environment Resources for specific instructions including specific controls required by decision documents  
s of Decision (RODs).

S6# Df509617/KR

0103 1701 450-50-81

**EXCAVATION CLEARANCE REQUEST (continued)**  
**DIRECTORATE OF PUBLIC WORKS, FORT RICHARDSON, ALASKA**  
**NOTE; Locates require 72-hour advance notice (except where indicated)**

<u>Department</u>	<u>Conflict</u>	<u>Signing Official</u>	<u>Date</u>
<b>Electrical Distribution Primary</b> <b>Alarms (Ammo Area Only)</b> <b>Utility Distribution</b> Located Bldg 700, 384-1807	Yes <input checked="" type="radio"/> No <input type="radio"/>	<i>J. Muffoletto</i>	<i>20 May 04</i>
<b>Electrical Distribution (Secondary)</b> <b>Lighting underground feed and facility</b> <del>Shaw 384-1270</del> Located Bldg 700, 384-1807	Yes <input checked="" type="radio"/> No <input type="radio"/>	<i>J. Muffoletto</i>	<i>20 May 04</i>
<b>Natural Gas</b> <b>Utility Distribution</b> Located Bldg 700, 384-1807	Yes <input type="radio"/> No <input checked="" type="radio"/>	<i>J. H. Dias</i>	<i>19 May 04</i>
<b>Sanitary Sewer</b> <b>Utility Distribution &amp; AFH Services</b> Located Bldg 700, 384-1807	Yes <input type="radio"/> No <input checked="" type="radio"/>	<i>J. H. Dias</i>	<i>19 May 04</i>
<b>Sanitary Sewer Service Other Than AFH</b> Shaw 384-1270	Yes <input type="radio"/> No <input checked="" type="radio"/>	<i>J. H. Dias</i>	<i>19 May 04</i>
<b>Storm Sewer</b> Shaw 384-1270	Yes <input type="radio"/> No <input checked="" type="radio"/>	<i>J. H. Dias</i>	<i>19 May 04</i>
<b>Storm Sewer AFH only</b> <b>Utility Distribution</b> Located Bldg 700, 384-1807	Yes <input type="radio"/> No <input checked="" type="radio"/>	<i>J. H. Dias</i>	<i>19 May 04</i>
<b>Water Distribution</b> <b>Utility Distribution &amp; Army Family Housing (AFH) Services</b> Located Bldg 700, 384-1807	Yes <input type="radio"/> No <input checked="" type="radio"/>	<i>J. H. Dias</i>	<i>19 May 04</i>
<b>Water Distribution Services Other than AFH</b> Shaw 384-1270	Yes <input type="radio"/> No <input checked="" type="radio"/>	<i>J. H. Dias</i>	<i>19 May 04</i>
<b>Railroads on Ft. Richardson</b> <b>Chief Logistics Support Div</b> Located Bldg 977, phone 384-1898	Yes <input type="radio"/> No <input checked="" type="radio"/>	<i>N/A ch. B. Sr.</i>	<i>20 May 04</i>

### GENERAL REQUIREMENTS FOR EXCAVATION / SOIL BORING WORK

In conducting excavation and/or soil boring work on Fort Richardson, the unit or contractor may uncover or expose soil and/or groundwater CONTAMINATED with hazardous waste. The unit or contractor is required to recognize the following **REQUIREMENTS** during the course of any / all work at Fort Richardson, *regardless of location or environmental status of the work site*:

**MONITORING:** The unit or contractor shall monitor the excavation or boring for signs or indications of contaminated soil or water. These may include active or passive, physical or instrumental, or other methods. DPW Environment Resources may stipulate the methods or procedures for monitoring. Evidence of contamination includes (but is not limited to):

- a) Chemical, hydrocarbon, or petroleum odors
- b) Iridescent / petroleum sheen on water or soil surfaces
- c) Free/floating non-aqueous liquids. Such liquids frequently float on water.
- d) Observation of colored or off-color inclusions or concretions of non-soil material
- e) Articles, materials, or containers which may contain hazardous chemicals or hazardous waste
- f) Instrumental field screening (PID instrument) and/or sampling and laboratory analysis for specific chemicals or classes of chemicals
- g) Other indicators as appropriate or necessary or as specified by DPW Environment Resources.

**NOTIFICATION:** At the first sign or indication of hazardous waste contamination in the excavated soil or perched water, the unit or contractor project manager must notify the Fire Department (334-0774) or 911. Work must cease and not resume until DPW Environment Resources has investigated the problem and authorized work to continue. Proper notification in cases of suspected contamination is a condition of continuing project approval.

**STOP WORK:** The unit or contractor will immediately stop work if evidence of contamination is encountered during excavation or soil boring work.

**MONITORING RECORDS:** The unit or contractor is required to create and maintain monitoring records during the course of the work. He may be required to provide originals or copies of monitoring records to DPW Environment Resources.

**SITE INSPECTIONS:** DPW Environment Resources will conduct site inspection(s) during the course of work. The unit or contractor's project manager will notify DPW Environment Resources' project manager on the first day of site work and both managers will schedule the inspection(s). The DPW Environment Resources project manager for this project is:

Prieksch

DPW Environment Resources Project Manager's Name

384-3042

Phone number

### GENERAL CONDITIONS OF PROJECT APPROVAL

1. This clearance authorizes commencement of excavation work only and **THIS IS NEITHER A NOTICE TO PROCEED NOR A WORK AUTHORIZATION.**
2. This excavation clearance is effective upon the date of signature by DPW official below: **EXCAVATION SHALL COMMENCE WITHIN 30 CALENDAR DAYS.**
3. Requester's Project Manager will provide two copies of required work site drawings with Excavation Clearance Request form. DPW Environment Resources will retain one copy of these drawings.
4. Requester will retain original completed Excavation Clearance Request form. DPW Customer Service Desk will retain a copy of the approved request form.
5. Boring locations must be marked on a 1/100 scale drawing.
6. All soil and/or water excavated or removed from the work site shall be disposed of in accordance with guidance from DPW Environmental Resources.
7. Obtain written instruction from Environment Resources Project Manager on procedures for sampling, analysis, soil/water containerization, storage, removal, etc.
8. An after action report concerning work at sites where institutional controls are in place shall be submitted to the project manager, DPW Environment Resources Dept. NLT 30 days following completion of work.
9. Approval of this Excavation Clearance Request is conditional upon Unit/Contractor's continued compliance with the terms and conditions of mandated Institutional Controls, environmental monitoring, notification, record-keeping, etc., requirements specified in this document and any attachments. Failure to comply with these conditions and requirements may result in immediate repeal of this approval.

APPROVED

Jeffery J. Brandel, Sr. 20 May 04

Authorizing DPW Officer or designee / Date

Unit/Contractor Project Manager's Signature Date

EXPIRATION DATE (+30 days from above approval date): 20 Jun 04

☐ Additional sheets/instructions attached. Number of sheets attached: \_\_\_\_\_

☐ Institutional Controls and / or additional control or monitoring requirements attached. Number of sheets attached: \_\_\_\_\_

# AFTER THE LOCATE

# AK ONE-CALL MEMBERS

- ❖ Notify the Call Center Immediately if you are missing locate markings. Have your Ticket Number ready to expedite matters.
- ❖ Plan your work to minimize damage to markings.
- ❖ You must utilize extreme caution and hand dig within 2 feet of either side of a buried utility; if digging deeper than 10 feet, hand dig within 30 horizontal inches.
- ❖ Utilities cannot guarantee the depth of their facilities, as they have no control over depth variation caused by human intervention, weather or other circumstance.
- ❖ Report Damaged Facilities to the Facility Owner.
- ❖ ABOVE ALL, DIG SAFELY!



- ACS
- AK Native Medical Center
- Alaska Fiberstar
- Alaska Railroad Corporation
- Anchorage School District
- Anchorage Water & Wastewater
- AT&T Alascom
- Chugach Electric Association
- City of Wasilla
- Enstar Natural Gas
- GCI
- Homer Electric Association
- Marathon Oil Company
- Matanuska Electric Association
- Matanuska Telephone Association
- Municipal Light & Power
- Municipality of Anchorage Public Works Department
- Phillips Petroleum
- Rogers Cable Systems
- State of Alaska Street Lights (Municipality of Anchorage Area)
- TelAlaska
- Tesoro Pipeline
- United Utilities
- Unocal
- Yukon Telephone

# BEFORE YOU DIG!

LOCATE CALL CENTER  
OF ALASKA, INC.

2221 E Northern Lights Blvd., Suite 136  
Anchorage, AK 99508

Statewide Locates: 1-800-478-3121  
Anchorage Area: 278-3121  
Fax-A-Locate: 278-0696  
E-Ticket: [www.akonecall.com](http://www.akonecall.com)

# HOW THE ONE-CALL WORKS:

## WHO SHOULD CALL?

- Anyone digging.

## WHY SHOULD I CALL?

- To prevent damage to costly underground utilities and/or personal injury from damaging underground facilities. Better to be safe than sorry.

It's the Law: AS 42.30.400  
AMC 26.90

## WHEN SHOULD I CALL?

- A minimum of 2 Working Days Prior to Excavation.
- Monday through Friday 8-5.

## HOW MUCH DOES IT COST?

- Utility Locate Service is free.
- Repairs for damaged facilities, medical expenses, lost wages and idle crews -- are not.

# WHAT DO I NEED TO CALL?

- ❖ Contact person & phone number.
- ❖ Address: Street Address and/or Subdivision lot & block number, and the closest intersecting street.
- ❖ Where the proposed area of excavation is in relation to that address: front yard, back yard, north, south east, west, road right of way, railroad right of way etc.
- ❖ What type of work will be done: foundation, driveway, fence, addition to building, landscaping etc.
- ❖ Approximate Depth of Excavation
- ❖ We recommend that you pre-mark your dig area with white spray paint.



# WHAT'S NEXT?

- ❖ You will be given:
  - A list of participating members of the One-Call that will be notified.
  - The date and time the underground facilities will be surface marked by.
  - A ticket number confirming that an order has been placed.
- ❖ Within 2 business days representatives from member utilities will come to the work site and spray paint their facilities on the ground within the specified dig area.
- ❖ Utilities use the following APWA Color Code:
  - ELECTRIC = RED
  - GAS-OIL-STEAM = YELLOW
  - PHONE-CATV = ORANGE
  - WATER = BLUE
  - SEWER = GREEN
  - SURVEY MARKINGS = PINK
  - PROPOSED EXCAVATION = WHITE

c. 42.30.450. Waiver of requirements by written agreement.

operator and an excavator may, by written agreement, waive the requirements of AS 42.30.400 - 42.30.490 that the excavator notify the creator of planned excavations and that the excavator locate underground facilities. The agreement must identify the geographic areas to which the waiver applies and the time period for which the waiver is valid.

c. 42.30.460. Underground facility owner.

The operator of an underground facility is not the owner of the facility and if the operator cannot be identified or has been identified but cannot be reached in a reasonable amount of time, the excavator may give the notice required by AS 42.30.400 - 42.30.490 to the owner of the underground facility and the owner shall assume duties and responsibilities of the operator under 42.30.400 - 42.30.490.

c. 42.30.490. Definitions.

(1) "damage" means

(2) the substantial weakening of structural or load support of an underground facility.

(3) penetration, impairment, or destruction of any underground protective coating, housing, or other protective device; and

(4) the partial or complete severance of an underground facility to the extent that the project creator or facility operator determines that repairs are required.

(5) "emergency" means

(6) a condition that constitutes a clear and present danger to life, health, or property; or

(7) an unplanned service interruption.

(8) "excavation" means

(9) an activity in which earth, rock, or other material is below the ground is moved or otherwise disturbed by any means.

(11) road maintenance that changes the original road grade.

(12) demolition or movement of earth by equipment, tools, or explosive device except tilling of the soil less than 12 inches in depth for agricultural purposes.

(13) "excavator" means a person who conducts excavation in the state.

(14) "inaccessible" means impossible or unreasonably difficult to reach due to conditions beyond the control of the underground facility operator.

(15) "notification center" or "center" means a service through which a person is able to call one number to notify member operators of underground facilities that an excavation is proposed and to request the operators to mark facilities located inside of the proposed excavation area.

(16) "operator" means a person who supplies a service for commercial or public use by means of an underground facility.

(17) "person" means any individual, public or private corporation, political subdivision, government agency, municipal industry, partnership, copartnership, association, firm, trust, estate, or any other entity whatsoever.

(18) "remote" means not accessible by road.

(19) "underground facility" means a pipe, sewer, conduit, cable, valve, line, or wire, including attachments and those parts of poles or anchors that are below ground, for use in connection with the storage or conveyance of water, sewage, telecommunications, cable television, electricity, petroleum, petroleum products, hazardous liquids, or flammable, toxic, or corrosive gas.

(20) "unstaffed" means not normally staffed with employees.

(21) "working day" means a day on which an underground facility operator is open for regular business.

# ALASKA STATUTES

## TITLE 42

### PUBLIC UTILITIES

&

#### CARRIERS

Sec. 42.30.400. Excavator's notice of proposed excavation.

(a) Before beginning an excavation, an excavator shall give notice of the proposed excavation to each underground facility operator who has an underground facility in the area of the proposed excavation and request the operator to field mark the location of its underground facility. The excavator shall notify an underground facility operator who subscribes to a notification center by giving notice to the center. The excavator shall notify an underground facility operator listed in the applicable telephone directory who is not a subscriber to a notification center by giving notice directly to the operator.

(b) Except in the case of an emergency locate request or a request to locate in a remote, unstaffed, or inaccessible location, the excavator shall notify an underground facility operator who may have a facility in the area of a proposed excavation at least two but not more than 15 working days before the date scheduled for beginning the excavation. In the case of a request to locate in a remote or unstaffed location, the excavator shall notify the operator at least 10 but not more than 20 working days before the scheduled date for beginning excavation.

(c) In an emergency, the excavator shall immediately notify each underground facility operator in the area of the emergency and of the need for the excavation and request prompt location of underground facilities.

## REQUIREMENTS FOR UTILITY LOCATES.

THE UTILITY LOCATE PROCESS AND PROCEDURES IN THE ATTACHED BROCHURE WILL BE STRICTLY ENFORCED BY THE DPW CONSTRUCTION MANAGEMENT BRANCH ,THE DPW UTILITY SHOPS, AND THE FORT RICHARDSON POST SAFETY OFFICE.

BOTH THE CONTRACTOR AND THE DPW UTILITY SHOPS MUST USE THE AMERICAN PUBLIC WORKS ASSOCIATION ( APWA) COLOR CODES.

PRIOR TO REQUESTING A LOCATE, IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD MARK THE LIMITS OF THE PROPOSED EXCAVATION USING WHITE PAINT. THE DPW UTILITY SHOPS WILL FIELD MARK (LOCATE ) UTILITIES WITHIN THE LIMITS OF EXCVATION INDICATED IN WHITE BY THE CONTRACTOR ON THE GROUND IN THE FIELD.

FOR SAFETY REASONS, ALL LOCATES MUST BE DONE BEFORE EXCAVATION BEGINS.

ALASKA DIGLINE INC.  
Locate Request Confirmation

Ticket #:2004210444

Work to Begin Date:

05/20/2004

Reason Code:STANDARD

Time: 12:36:00 PM

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CALLER INFORMATION

GEORG BRENDEL  
FT RICHARDSON DPW

Excavator Type:OTHER  
Tel.:(907)384-3722  
Cell.:(907)632-2984

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DIG LOCATION

City:FORT RICHARDSON

Subdivision:BLDG 986

Address : To:

Street : WAREHOUSE STREE

Nearest Intersecting Street : LOOP ROAD

Second Intersecting Street :

Billing Info:

WO/JOB #:

---

Type of Work: WELL

Additional Dig Information:

REMOVING REMEDIAL WELLS// LOCATE JUST

S OF BLDG 986; INSIDE FENCED AREA// LOCATE 5' R

AROUND EACH PIPE FOR EXISTING WELLS//

Remarks:

MAP PAGE: AN0642

Dig Deeper than 4 ft.: Y 10 ft.: Y

Road R/O/W: N Railroad R/O/W: N

---

The following utility owners have been notified of  
your proposed excavation site:

ACS ANC

ALASKA RAILROAD1

ENSTAR ANC/ER

GCI ANC/ER

GLOBAL/ACS-CEA

LOCATING INC. ANCHORAGE

---

PLEASE REMEMBER:

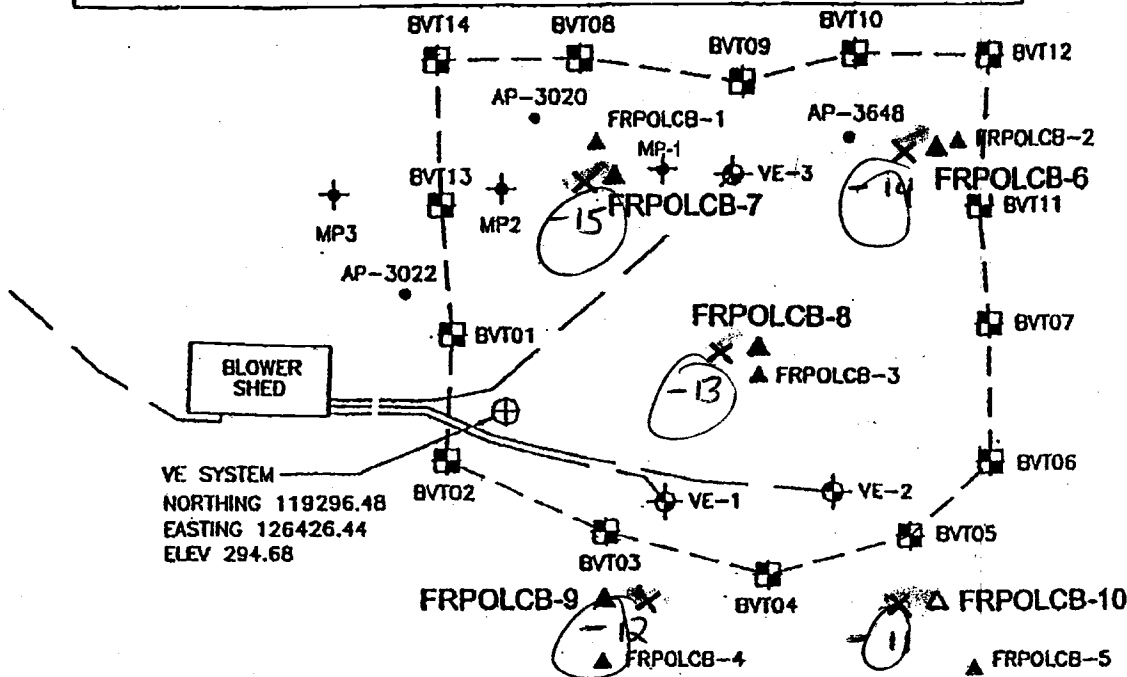
HAND DIG WITHIN 2 FT OF EITHER SIDE OF THE BURIED UTILITY, IF DIGGING  
DEEPER THAN 10 FT HAND DIG 30". DEPTH OF LINES IS NOT GUARANTEED,  
PRIVATE LINES ARE NOT LOCATED, CALL FOR A NEW LOCATE IF THERE ARE  
CHANGES. FAXED LOCATES PROCESSED SAME AS PHONED IN LOCATES. UTILITIES  
NOTIFIED ARE LISTED ON YOUR CONFIRMATION. PLEASE PROOF YOUR LOCATE(S) &  
CALL THE CENTER ASAP IF THERE ARE ANY ERRORS. FAXES PROCESSED  
APPROXIMATELY 7 AM TO 4:30 PM MONDAY THRU FRIDAY



# Warehouse Street



BUILDING 986  
POL LABORATORY



## NOTE:

CONTROL IS BASED ON COORDINATES PROVIDED BY COE SURVEY SECTION IN LOCAL FORT RICHARDSON GRID SYSTEM. ELEVATIONS ARE TO MEAN SEA LEVEL DATUM. UG LINES SHOWN CONNECTING THE VE WELLS TO THE BLOWER ARE AS DESCRIBED BY EMCON STAFF AND LOCATED BY STAKES PLACED AT ANGLE POINTS ON GROUND SURFACE. MONUMENT "VE SYSTEM" IS A STANDARD COE DISK MONUMENT SET AS PER EM 1110-1-1002 WITH FINNED ROD SECTION, DRIVEN TO A 4' REFUSAL DEPTH.

## LEGEND

- ✚ MP1 SOIL GAS MONITORING POINTS
- ⊕ VE-1 VAPOR EXTRACTION WELL
- AP-3020 MONITORING WELL
- ▲ FRPOLCB-4 CONFIRMATION BORING LOCATION
- ⊠ BVT01 BIOVENTING WELLS
- ⊕ MONUMENT
- SUBSURFACE PIPE
- ✕ Proposed January 2003 Boring
- ▲ FRPOLCB-6 2000 CONFIRMATION BORING LOCATION

**AGVIO**  
AGVIO ENVIRONMENTAL SERVICES  
2121 Abbott Road Suite 100  
Anchorage, Alaska 99507-4433

DATE DEC. 1997  
DWN. 99lrf2.dwg  
CKD. L. RAYMORE

FORT RICHARDSON  
BUILDING 986 REMEDIAL ACTION  
Anchorage, Alaska

SITE LAYOUT

Figure 1