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HAZARDOUS WASTE MANAGEMENT FACILITY STANDARDIZED PERMIT

U.S. Environmental Protection Agency
Region 10 (AWT-121)
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101
(206) 553-0201

Issued in accordance with the Resource Conservation and Recovery Act (RCRA) as amended, 42 U.S.C. §6901 et. seq., and the Hazardous and Solid Waste Amendments of 1984 (HSWA), and the regulations promulgated thereunder in Title 40 of the Code of Federal Regulations (CFR) Parts 124 and 260 through 271).

ISSUED TO: BP EXPLORATION (ALASKA) INC. (BPXA)
EPA I.D. No.: AKD 00064 3239

This Permit is effective as of November 30, 2009, and shall remain in effect until November 29, 2019, unless revoked and reissued under 40 CFR § 270.41, or terminated under 40 CFR § 270.43, or continued in accordance with 40 CFR § 270.51(a) [40 CFR § 270.260]. This Permit will be reviewed five (5) years after the date of issuance, in accordance with Section 3005(c)(3) of RCRA, 42 U.S.C. §6925(c)(3), and 40 CFR § 270.50, and will be modified as necessary to assure that the facility continues to comply with the currently applicable requirements of Sections 3004 and 3005 of RCRA, 42 U.S.C. §§6924 and 6925.

ISSUED BY: The U.S. ENVIRONMENTAL PROTECTION AGENCY

Richard Albright, Director
Office of Air, Waste and Toxics
U.S. Environmental Protection Agency, Region 10

10/15/09
Date

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MODULE I - GENERAL PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

The Permittee is allowed to store and non-thermally treat hazardous waste in accordance with the conditions of this Permit. Any storage and/or treatment of hazardous waste not authorized in this Permit is prohibited. Subject to 40 CFR 270.4, compliance with this Permit generally constitutes compliance, for purposes of enforcement, with Subtitle C of RCRA. Issuance of this Permit does not convey any property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local law or regulations. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Sections 3008(a), 3008(h), 3013, or 7003 of RCRA; Sections 106(a), 104, or 107 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA), or any other law providing for protection of public health or the environment. [40 CFR 270.4, 270.30(g)]

I.B. PERMIT ACTIONS

I.B.1. Permit Modification

This Permit may be modified for routine, routine with prior approval, and significant changes through compliance with the requirements at 40 CFR 270.320, 124.211 through 124.214, and 270.41.

I.B.2. Permit Revocation and Re-issuance, and Termination

This Permit may be revoked and reissued, or terminated for cause, as specified in 40 CFR 270.41 and 270.30(f). The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any permit condition. [40 CFR 124.5(c), 270.4(a), 270.30(f) and 270.41]

I.B.3. Permit Renewal

This Permit may be renewed as specified in 40 CFR 270.30(b) and Permit Condition I.E.2. Review of any application for a Permit renewal shall consider improvements in

the state of control and measurement technology, as well as changes in applicable regulations. [40 CFR 270.30(b) and HSWA Sec. 212]

I.C. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. [40 CFR 124.16(a)]

I.D. DEFINITIONS

For the purposes of this Permit, terms used herein shall have the same meaning as those in 40 CFR parts 124, 260, 266, 267, 268, and 270, unless this Permit specifically provides otherwise. Where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

"Director" means the Regional Administrator of the EPA Region 10, or his/her designee or authorized representative.

I.E. DUTIES AND REQUIREMENTS

I.E.1. Duty to Comply

The Permittee shall comply with all conditions of the Permit, except to the extent and for the duration that noncompliance is authorized by an emergency Permit. Any Permit noncompliance, other than noncompliance authorized by an emergency Permit, constitutes a violation of RCRA and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or for denial of a Permit renewal application. [40 CFR 270.30(a)]

I.E.2. Duty to Reapply

If the Permittee wishes to continue an activity allowed by this Permit after the expiration date of this Permit, the Permittee shall submit a complete application for a new Permit at least 180 days prior to the Permit expiration. [40 CFR 270.10(h) and 270.30(b)]

I.E.3. Permit Expiration

Pursuant to 40 CFR 270.50, this Permit shall be effective for a fixed term not to exceed ten years. As long as EPA is the Permit-issuing authority, this Permit and all conditions herein will remain in effect beyond the Permit's expiration date, if the Permittee has submitted a timely, complete notice of intent under 40 CFR 124.202(b) requesting coverage under a RCRA standardized Permit and, through no fault of the Permittee, the Director has not issued a new permit, as set forth in 40 CFR 270.51. If the Director deems that the Permittee is not eligible for a standardized permit, the conditions of the expired permit will continue. [40 CFR 270.50 and 270.51]

If the Permittee is no longer deemed to be eligible for a standardized permit, the Permittee shall provide to the Director a RCRA permit application in accordance with the applicable requirements for 40 CFR Parts 264 and 270.

I.E.4. Need to Halt or Reduce Activity Not a Defense

The Permittee shall not use as a defense that the Permittee must reduce permitted activities in order to maintain compliance with the conditions of the Permit in the event of an enforcement action. [40 CFR 270.30(c)]

I.E.5. Duty to Mitigate

In the event of noncompliance with the Permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures that are reasonable to prevent significant adverse impacts on human health or the environment. [40 CFR 270.30(d)]

I.E.6. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit, in accordance with 40 CFR 270.30(e).

I.E.7. Duty to Provide Information

The Permittee shall furnish to the Director, within a reasonable time, any relevant information which the Director may request to determine whether cause exists for

modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit, pursuant to 40 CFR 267.72(a) and 270.30(h).

I.E.8. Inspection and Entry

Pursuant to 40 CFR 270.30(i), the Permittee shall allow the Director, or an authorized representative to have entry to the facility, have access to records, and to conduct sampling.

I.E.9. Monitoring and Records

The Permittee shall comply with the requirements for gathering and maintaining monitoring information at 40 CFR 270.30(j).

I.E.10. Reporting Planned Changes

The Permittee shall give notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility. [40 CFR 270.30(l)(1)]

I.E.11. Reporting Anticipated Noncompliance

The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. [40 CFR 270.30(l)(2)]

I.E.12. Certification of Unit Modification

The Permittee may not treat or store hazardous waste in any modified portion of the facility until the Permittee has submitted to the Director, by certified mail or hand delivery, a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the Permit; and followed the remaining requirements at 40 CFR 270.30(l)(2).

I.E.13. Transfer of Permits

This Permit is not transferable to any person except after notice to the Director. A change in the ownership or operational control of the facility shall be made through a routine change with prior written approval submitted to the Director, in accordance with 40 CFR 124.213. [40 CFR 270.30(l)(3), 270.40]

I.E.14. Twenty-four Hour Reporting

The Permittee shall report to the Director any noncompliance which may endanger health or the environment and comply with 40 CFR 270.30(l)(6).

I.E.15. Other Noncompliance

The Permittee shall report all instances of noncompliance not reported under Permit Conditions I.E.10 through I.E.14, at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition I.E.14, as per 40 CFR 270.30(l)(10)

I.E.16. Other Information

Whenever the Permittee becomes aware that they failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, the Permittee shall comply with 40 CFR 270.30(l)(11).

I.F. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to or requested by the Director, his designee, or authorized representative, shall be signed and certified in accordance with 40 CFR 270.11 and 270.30(k).

I.G. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DIRECTOR

All reports, notifications, or other submissions which are required by this Permit to be sent or given to the Director shall be sent by certified mail or given to:

BPXA/Prudhoe Bay Project Manager
Office of Air, Waste and Toxics, AWT-121
U.S. EPA Region 10
1200 Sixth Avenue, Suite 900
Seattle,WA 98101

I.H. GENERAL DOCUMENTS AND INFORMATION TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility or other accessible location as designated by the Director, until closure is completed and certified by an independent, registered professional engineer, the materials listed at 40 CFR 270.290.

I.I. UNIT-SPECIFIC INFORMATION TO BE MAINTAINED AT THE FACILITY

I.I.1. Container-Specific Information to be Maintained at the Facility

The Permittee shall maintain at the facility or other accessible location as designated by the Director, until closure is completed and certified by an independent, registered professional engineer, container-specific documents and information and all amendments, revisions and modifications to these documents and information as listed at 40 CFR 270.300.

I.I.2 Tank-Specific Information to Be Maintained at the Facility

Not Applicable.

I.J. EQUIPMENT INFORMATION TO BE MAINTAINED AT THE FACILITY

Not applicable.

I.K. AIR EMISSION CONTROL INFORMATION TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility or other accessible location as designated by the Director, until closure is completed and certified by an independent, registered professional engineer, the air emission control documents and information and all amendments, revisions and modifications to these documents and information as required by 40 CFR 270.315.

MODULE II - DESCRIPTION OF THE FACILITY AND OWNERSHIP

II.A. OWNER

The owner of the land underlying the facility is the State of Alaska, as administered by the Alaska Department of Natural Resources, herein referred to as the "owner". [40 CFR 270.13]

II.B. OPERATOR

The operator of the facility is BP Exploration (Alaska) Inc. ("Permittee" or "BPXA"), a wholly-owned subsidiary of BP America, Inc., which is a wholly-owned subsidiary of BP p.l.c. BPXA operates the facility on behalf of the owners of the Prudhoe Bay Unit. [40 CFR 270.13]

II.C. LOCATION

II.C.1. Location of Facility

BPXA/Prudhoe Bay is located in the North Slope Borough on the North Slope of Alaska at Prudhoe Bay, adjacent to the town of Deadhorse, Alaska. The organizational address for the BPXA/Prudhoe Bay container storage area to be permitted by this Permit is:

BP Exploration (Alaska) Inc.
900 East Benson Blvd.
P.O. Box 196612
Anchorage, AK 99519-6612

II.C.2. Facility Layout Map

Site maps showing the layout of BPXA/Prudhoe Bay and the location of its Hazardous Waste Process Facility (the RCRA storage unit) are provided in Attachment A.

MODULE III - GENERAL FACILITY CONDITIONS

III.A. DESIGN AND OPERATION OF FACILITY

The Permittee shall design, construct, maintain, and operate the facility as specified in 40 CFR 267.31.

III.B. GENERAL WASTE ANALYSIS

The Permittee shall follow the waste analysis requirements of 40 CFR 267.13, and as described in the Waste Analysis Plan.

III.C. SECURITY

The Permittee shall prevent, and minimize the possibility for, livestock and unauthorized people from entering the active portion of the facility, pursuant to 40 CFR 267.14.

III.D. GENERAL INSPECTION REQUIREMENTS

The Permittee shall conduct inspections, record keeping, and remedy of problems, according to 40 CFR 267.15.

III.E PERSONNEL TRAINING

The Permittee shall ensure that the training requirements of 40 CFR 267.16 are met.

III.F. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall take precautions when managing ignitable or reactive waste by following the requirements of 40 CFR 267.17.

III.G. LOCATION STANDARDS

The Permittee shall ensure the location standards of 40 CFR 267.18 are met.

III.H. PREPAREDNESS AND PREVENTION

III.H.1. General Design and Operation Standards

The facility shall be designed, constructed, maintained, and operated in a manner meeting the requirements of 40 CFR 267.31.

III.H.2. Required Equipment

The Permittee shall ensure that the facility will be equipped to meet the requirements of 40 CFR 267.32.

III.H.3. Testing and Maintenance of Equipment

The Permittee shall test and maintain all the required facility equipment specified at 40 CFR 267.33.

III.H.4. Access to Communications or Alarm Systems

The Permittee shall ensure that all personnel shall have immediate access to an internal alarm system or emergency communications device as required by 40 CFR 267.34.

III.H.5. Required Aisle Space

Aisle space shall be maintained according to the requirements of 40 CFR 267.35.

III.H.6. Arrangements with Local Authorities

Arrangements and agreements shall be made with local authorities according to 40 CFR 267.36.

III.I. CONTINGENCY PLAN AND EMERGENCY PROCEDURES

The Permittee shall have a contingency plan and emergency procedures meeting the applicable requirements of 40 CFR 267 subpart D.

III.J. RECORDKEEPING, REPORTING AND NOTIFICATION (40 CFR 267 Subpart E)

The Permittee shall comply with the applicable manifest requirements of 40 CFR Part 262 and 40 CFR 267.70 through 267.72.

III.J.1. Recordkeeping

The Permittee shall keep a written operating record at the facility, until facility closure, as specified at 40 CFR 267.73.

III.K. CLOSURE

The Permittee shall obtain clean closure of the facility in compliance with 40 CFR 267 Subpart G and the Permittee's Closure Plan (Attachment C). If clean closure is not obtainable, the Permittee shall obtain an individual post-closure permit separate from this Permit. [40 CFR 267.110]

MODULE IV - CONTAINERS, TANKS, AND CONTAINMENT BUILDINGS

IVa CONTAINERS

IVa.A. GENERAL DESCRIPTION

The Permittee shall manage and/or store hazardous waste in containers in the designated container storage area (CSA) specified in Table IVa-1. The Permittee shall not manage and/or store hazardous waste in excess of the maximum capacity for the CSA identified in Table IVa-1.

TABLE IVa-1
BPXA/Prudhoe Bay Container Storage Area
Waste Types and Design Capacity

TYPE OF STORAGE (Area)	EPA HAZARDOUS WASTE TYPE	DIMENSIONS (ft) AREA (sq ft)	MAXIMUM VOLUME OF WASTE (gal)/ MAXIMUM NUMBER OF DRUMS
CSA Allowing Liquid and Solid Waste			
Hazardous Waste Process Facility	**Wastes allowed to be managed and stored, including EPA waste codes, are listed in Attachment B to this Permit.**	**60ft x 50ft Area: 3000 sq ft**	**24,420 gallons/ 444 55-gal drums**

The Permittee shall comply with the following conditions:

IVa.A.1. Description and Dimension of Storage Unit

Hazardous wastes shall be stored and/or non-thermally treated in containers at the indoor Hazardous Waste Process Facility (HWPF), located on the Base Operations Center (BOC) Pad in the Western Operating Area (WOA) of the Prudhoe Bay Unit. The HWPF is a building (formerly known as the POL Building) which is a 50-foot by 60-foot structural steel frame building with insulated wall panels and a sealed concrete

floor. Hazardous waste may be managed and stored throughout this building. Figure 1 provides a potential floor plan shown at the maximum storage capacity of the HWPF.

IVa.A.2. Maximum Amount and Type of Wastes

Hazardous waste stored at the HWPF at any one time shall not exceed 24,420 gallons. Hazardous waste stored at the HWPF at any one time shall not exceed 444 55-gallon drums. Types of waste to be stored at the HWPF are limited to the wastes listed in Attachment B to this Permit.

IVa.A.3. Description and Capacity of Containment System

The coated and sealed concrete floor and containment curb of the HWPF serve as the containment system for the storage area. The four-inch containment curb extends around the entire interior building perimeter and continues the floor surface coating and sealant. The floor is not sloped or designed to drain liquids to sumps or other drainage areas. The containment system has a capacity of 7405 gallons.

IVa.A.4. Unique or Special Features

Not Applicable

IVa.A.5. Special Permit Conditions

Hazardous waste undergoing transfer into or out of the HWPF shall be managed within secondary containment to minimize the potential for a release.

IVa.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

IVa.B.1. Permitted Waste

The Permittee may store and manage solid and/or liquid hazardous waste at the HWPF in quantities not to exceed the amounts shown in Table IVa-1, subject to the terms of this Permit.

All containers shall be labeled with appropriate U.S. EPA Hazardous Waste Codes.

IVa.B.2. Prohibited Waste

The Permittee is prohibited from managing and storing in the HWPF any hazardous waste that is not identified in Permit Condition IVa.B.1., above.

a. Not applicable: The Permittee is not prohibited from accepting or storing waste with certain F-list codes if those wastes are identified in IVa.A.2.

b. Not applicable: the Permittee is not prohibited from storing wastes containing free liquids at any of the CSAs.

IVa.C. CONDITION OF CONTAINERS

The Permittee shall ensure that all containers are in good condition, as per 40 CFR 267.171(a).

The Permittee shall only store hazardous waste in those container types identified in Table IVa-2 only.

TABLE IVa-2
ACCEPTABLE STORAGE CONTAINERS

CONTAINER STORAGE AREA	ACCEPTABLE CONTAINERS BY TYPE
Hazardous Waste Process Facility	**Containers ranging in size from 1 gallon to 100-gallons that comply with U.S. Department of Transportation regulations for packaging of hazardous materials at 49 CFR § 173 and §178**

IVa.D. COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee shall ensure compatibility of the waste with the container as per 40 CFR 267.171(b).

IVa.E. MANAGEMENT OF CONTAINERS

The Permittee shall manage their wastes in containers according to the requirements in 40 CFR 267.171(c).

IVa.E.1. Storage Configuration

The Permittee shall maintain adequate aisle space as per 40 CFR 267.35. The Permittee shall not exceed:

a. A reasonable and safe stack height for containers.

b. The maximum volume of waste for the HWPF as listed in Table IVa-1.

IVa.E.2. Storage Container Emission Controls

All containers used to contain hazardous waste shall control air pollutant emissions from each container in accordance with 40 CFR 264 Subparts AA, BB, CC.

IVa.F. CONTAINMENT SYSTEMS

The Permittee shall construct and maintain secondary containment systems as required by 40 CFR 267.173.

IVa.G. INSPECTION SCHEDULES AND PROCEDURES

The Permittee shall, at a minimum, conduct inspections of all areas holding storage containers as required by 40 CFR 267.172.

IVa.H. SPECIAL CONTAINER PROVISIONS FOR IGNITIBLE OR REACTIVE WASTE

IVa.H.1. Location of Ignitable and Reactive Wastes

The Permittee shall not locate containers holding ignitable or reactive waste within 50 feet (15 meters) from the facility property line, as per 40 CFR 267.174.

IVa.H.2. Procedures to Prevent Ignition/Reaction

The Permittee shall take all appropriate precautions to prevent accidental ignition or reaction of ignitable or reactive waste, as per 40 CFR 267.17, and shall follow procedures specified in the site Waste Analysis Plan.

IVa.H.3. Stacking of Ignitable and Reactive Waste Containers

Containers of ignitible and reactive wastes shall be stacked no more than two high, in order to comply with the National Fire Protection Association's *Flammable and Combustible Liquids Code.*

IVa.I. SPECIAL CONTAINER PROVISIONS FOR INCOMPATIBLE WASTE

If the Permittee stores incompatible wastes in containers, the applicable requirements of 40 CFR 267.175 must be followed.

IVa.J. PREPARATION FOR CLOSURE

The Permittee shall comply with the closure requirements as per Condition III.K. and Attachment C (Closure Plan) of this Permit.

IVb. - TANKS

Not Applicable.

IVc. - CONTAINMENT BUILDINGS

Not Applicable.

MODULE V - SUPPLEMENTAL INFORMATION

V.A. Corrective Action

The Permittee shall comply with all terms and conditions of the BPXA RCRA 3008(h) Administrative Order on Consent (Order), EPA Docket Number RCRA-10-2007-0222, dated October 3, 2007. This Order is hereby incorporated by reference into this Permit.

MODULE VI - RELEASES FROM SOLID WASTE MANAGEMENT UNITS

VI.A. GENERAL DESCRIPTION

The Permittee shall institute corrective action as necessary to protect human health and the environment meeting the requirements of 40 CFR 267.101.

VI.B. RELEASES

Specific corrective action permit conditions are specified in the supplemental portion (Module V) of this standardized permit, in accordance with this Permit Condition and 40 CFR Part 264, Subpart S. [40 CFR 267.101(b)]

VI.C. SCHEDULES OF COMPLIANCE AND FINANCIAL RESPONSIBILITY

The Permittee shall demonstrate compliance with Schedules of Compliance for corrective action (where corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing corrective action as specified in the supplemental portion (Module V) of this Permit. [40 CFR 267.101(b)]

VI.D. IMPLEMENTATION BEYOND FACILITY PROPERTY BOUNDARY

The Permittee shall implement corrective action beyond the facility property boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Director that, despite best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions. In addition, the Permittee shall not be relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases shall be determined on a case-by-case basis, and shall be addressed in Module V of this Permit. The Permittee shall provide assurances of financial responsibility for corrective action of off-site releases. [40 CFR 267.101(c)]

MODULE VII - FINANCIAL REQUIREMENTS AND LIABILITY

VII.A. FINANCIAL ASSURANCE UNDER SUBPART H OF 40 CFR 267

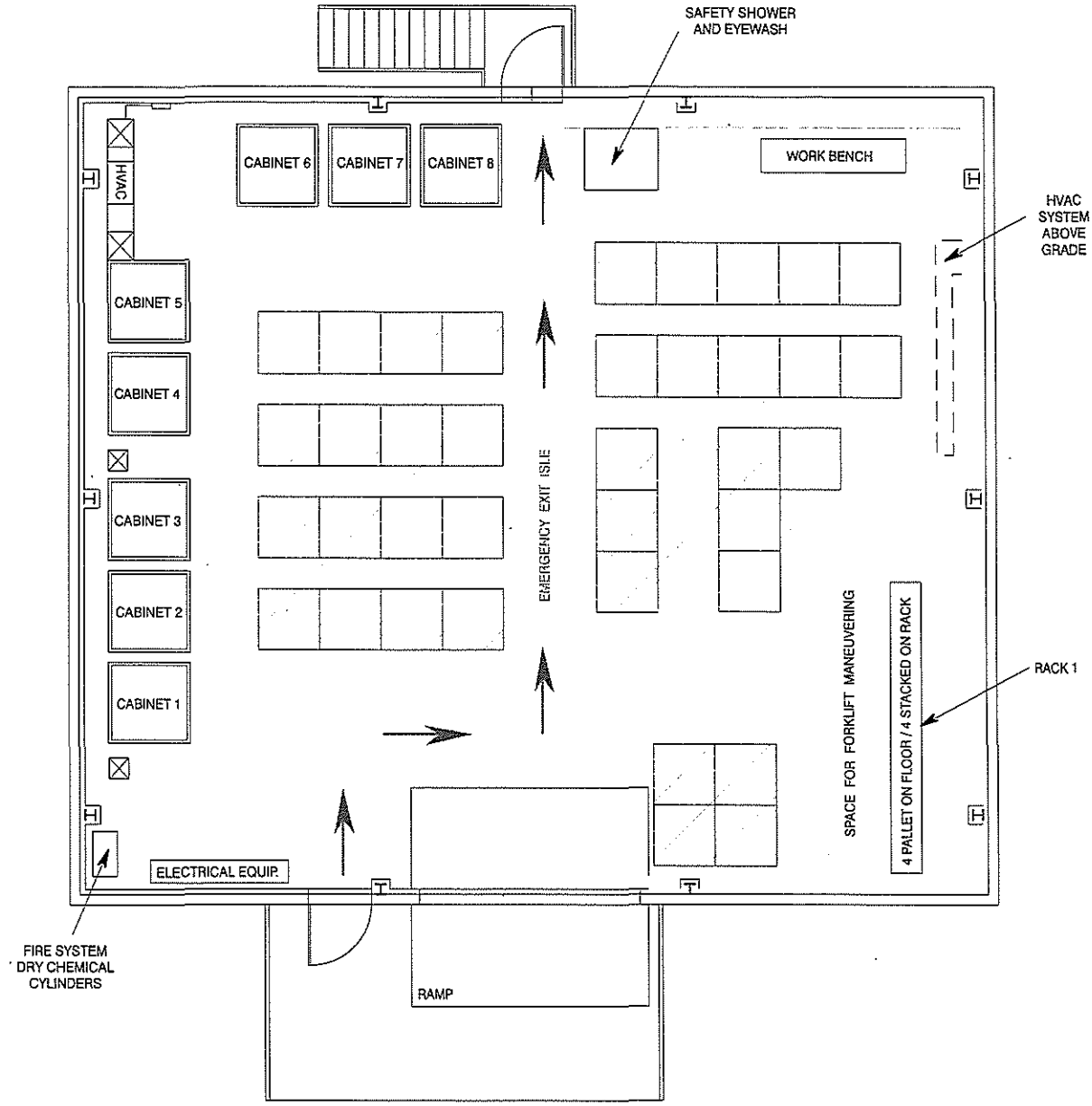
The Permittee must comply continuously with the requirements of 40 CFR 267 Subpart H.

VII.B. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION UNDER 40 CFR 267.101

The Permittee shall comply with all terms and conditions of the BPXA RCRA 3008(h) Administrative Order on Consent (Order), EPA Docket Number RCRA-10-2007-0222, dated October 3, 2007. This condition specifically includes Section XXXVII, Financial Responsibility, and Section XXXVIII, Insurance, of the Order. The 2007 Order is incorporated by reference into this Permit as per Condition V.A. of this Permit.

FIGURE 1

Floor Plan
Hazardous Waste Process Facility



LEGEND:

ADDITIONAL STORAGE OR PROCESSING WORK AREA

NOTES:

1. FLOOR PLAN SHOWN IS HYPOTHETICAL FOR MAXIMUM STORAGE QUANTITY ESTIMATION. STORAGE AND PROCESSING WILL BE ARRANGED WITHIN THE WORK AREA TO MEET THE FOLLOWING CONSTRAINTS.

a. MINIMUM ISLE SPACE OF 3 FEET WILL BE PROVIDED AT ALL TIMES

2. DRUMS WITHIN THE WORK AREA MAY BE DOUBLE-STACKED, EXCEPT FOR THE CLASS 1 FLAMMABLES.

3. ALL CABINETS ARE SUITABLE FOR EITHER HYDROCARBON OR CORROSIVES STORAGE.

4. SQUARES IN THE CENTER WORK AREA REPRESENT PALLETS.

5. THERE IS RACK STORAGE SPACE FOR 13 BOXES OR 52 DRUMS OF LIGHT BULBS ABOVE CABINETS 1-8.

BP EXPLORATION (ALASKA) INC.

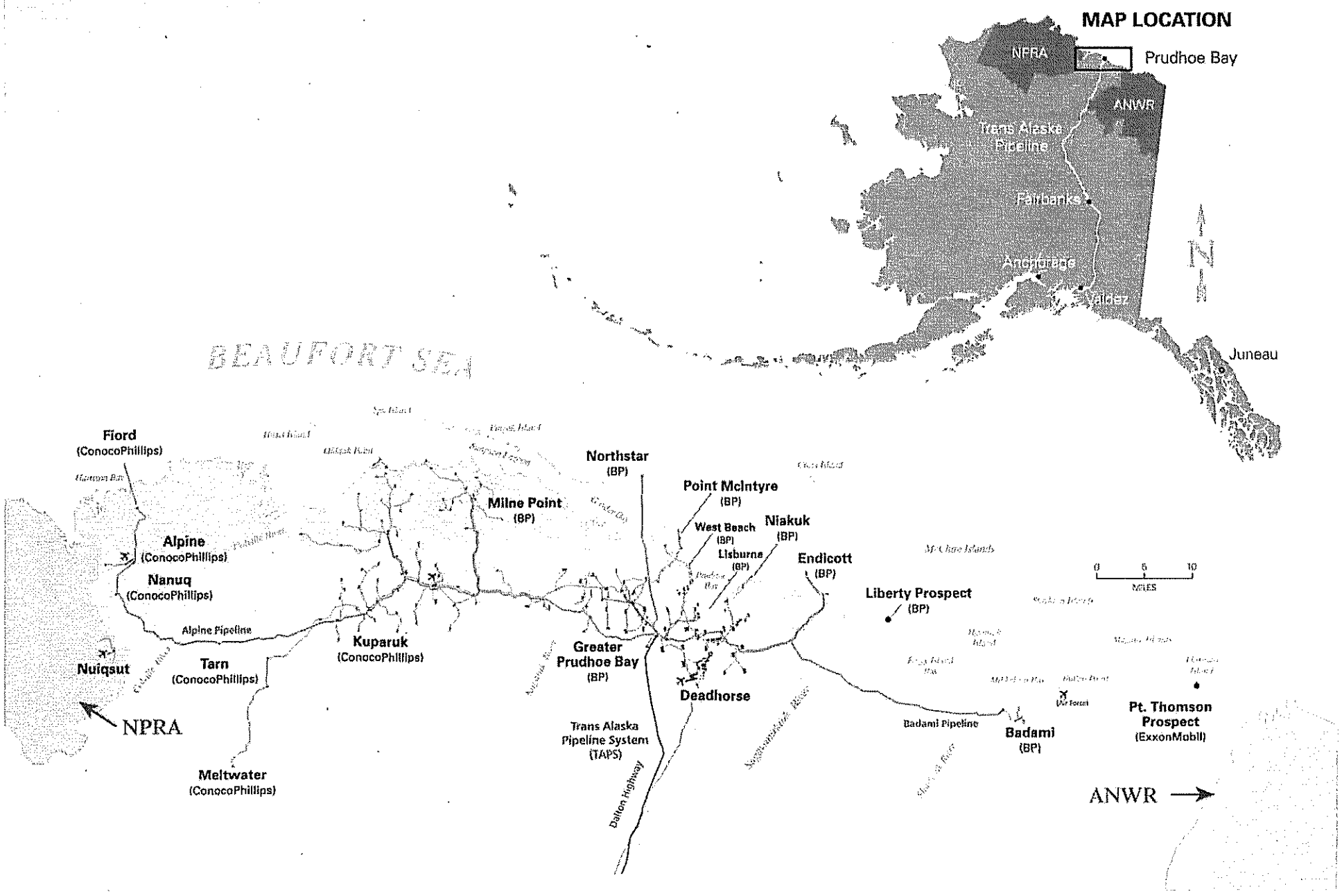
HAZARDOUS WASTE PROCESS FACILITY FLOOR PLAN

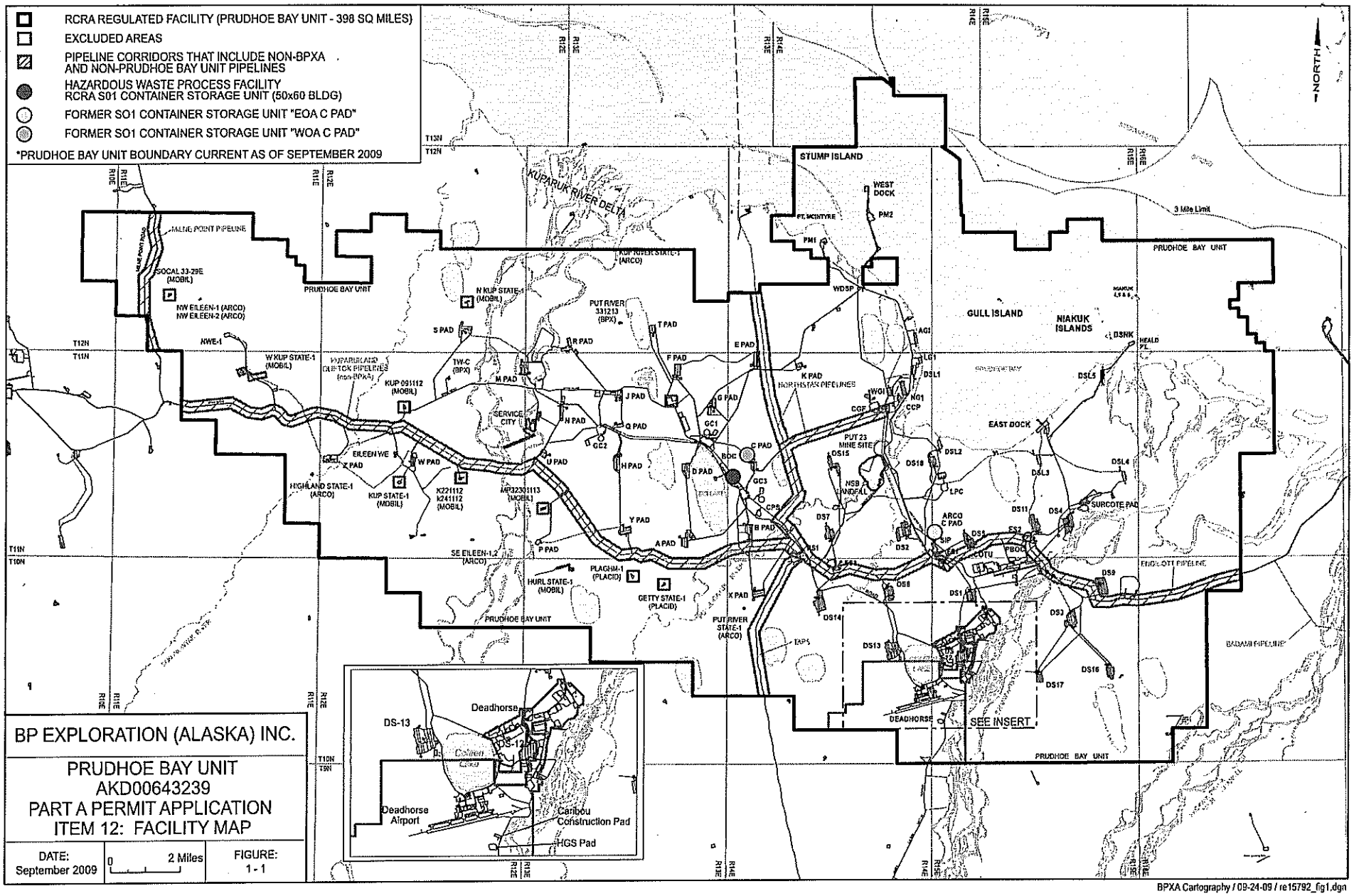
DATE:	SCALE:	FIGURE:
June 2009	NOT TO SCALE	1 - 3

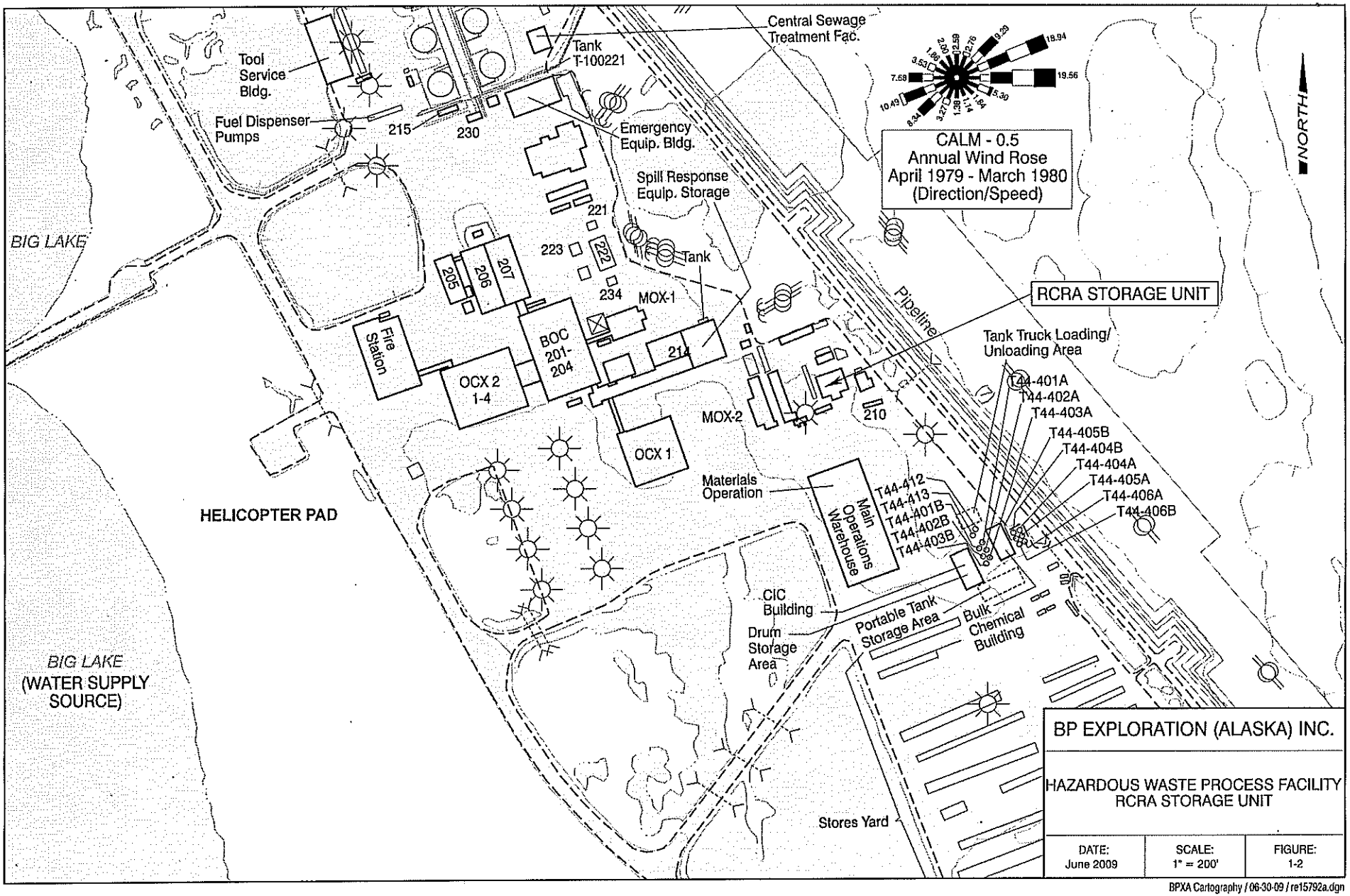
BPXA Cartography / 06-30-09 / re15792_fig3.dgn

ATTACHMENT A

Locator Map and Site Maps


MAP LOCATION
NPRA
Prudhoe Bay
ANWR
Trans Alaska Pipeline
Fairbanks
Anchorage
Valdez
Juneau
N
BEAUFORT SEA
Fiord
(ConocoPhillips)
Alpine
(ConocoPhillips)
Nanuq
(ConocoPhillips)
Alpine Pipeline
Nuiqsut
Tarn
(ConocoPhillips)
NPRA
Meltwater
(ConocoPhillips)
Kuparuk
(ConocoPhillips)
Milne Point
(BP)
Northstar
(BP)
Greater Prudhoe Bay
(BP)
Trans Alaska Pipeline System (TAPS)
Dalton Highway
Point McIntyre
(BP)
West Beach
(BP)
Lisburne
(BP)
Niakuk
(BP)
Endicott
(BP)
Deadhorse
Liberty Prospect
(BP)
Badami Pipeline
Badami
(BP)
Pt. Thomson Prospect
(ExxonMobil)
ANWR
0 5 10
MILES


RCRA REGULATED FACILITY (PRUDHOE BAY UNIT - 398 SQ MILES)
EXCLUDED AREAS
PIPELINE CORRIDORS THAT INCLUDE NON-BPXA AND NON-PRUDHOE BAY UNIT PIPELINES
HAZARDOUS WASTE PROCESS FACILITY RCRA S01 CONTAINER STORAGE UNIT (50x60 BLDG)
FORMER SO1 CONTAINER STORAGE UNIT "EOA C PAD"
FORMER SO1 CONTAINER STORAGE UNIT "WOA C PAD"
*PRUDHOE BAY UNIT BOUNDARY CURRENT AS OF SEPTEMBER 2009
NORTH
STUMP ISLAND
KUPARUK RIVER DELTA
GULL ISLAND
NIAKUK ISLANDS
PRUDHOE BAY UNIT
3 Mile Limit
WEST DOCK
EAST DOCK
SEE INSERT
Deadhorse
DS-13
DS-12
Deadhorse Airport
Caribou Construction Pad
HGS Pad
BP EXPLORATION (ALASKA) INC.
PRUDHOE BAY UNIT
AKD00643239
PART A PERMIT APPLICATION
ITEM 12: FACILITY MAP
DATE: September 2009
0 2 Miles
FIGURE: 1 - 1
BPXA Cartography / 09-24-09 / re15792_fig1.dgn


Central Sewage Treatment Fac.
Tool Service Bldg.
Tank T-100221
Fuel Dispenser Pumps
215
230
Emergency Equip. Bldg.
Spill Response Equip. Storage
CALM - 0.5
Annual Wind Rose
April 1979 - March 1980
(Direction/Speed)
NORTH
BIG LAKE
221
223
222
Tank
205
206
207
234
MOX-1
RCRA STORAGE UNIT
Pipeline
Fire Station
BOC 201-204
214
OCX 2 1-4
Tank Truck Loading/ Unloading Area
T44-401A
T44-402A
T44-403A
T44-405B
T44-404B
T44-404A
T44-405A
T44-406A
T44-406B
MOX-2
210
OCX 1
Materials Operation
Main Operations Warehouse
T44-412
T44-413
T44-401B
T44-402B
T44-403B
HELICOPTER PAD
CIC Building
Drum Storage Area
Portable Tank Storage Area
Bulk Chemical Building
BIG LAKE
(WATER SUPPLY SOURCE)
Stores Yard
BP EXPLORATION (ALASKA) INC.
HAZARDOUS WASTE PROCESS FACILITY
RCRA STORAGE UNIT
DATE: June 2009
SCALE: 1" = 200'
FIGURE: 1-2
BPXA Cartography / 06-30-09 / re15792a.dgn

ATTACHMENT B

List of Allowable Waste

Attachment B

Hazardous Wastes Allowed to be Stored
Hazardous Waste Process Facility

D001	ignitable
D002	corrosive
D003	reactive
D004	Arsenic
D005	Barium
D006	Cadmium
D007	Chromium
D008	Lead
D009	Mercury
D010	Selenium
D011	Silver
D017	2,4,5-TP (Silvex)
D018	Benzene
D019	Carbon tetrachloride
D020	Chlordane
D021	Chlorobenzene
D022	Chloroform
D023	o-Cresol
D024	m-Cresol
D025	p-Cresol
D026	Cresol
D027	1,4 - Dichlorobenzene
D028	1,2 - Dichloroethane
D029	1,1 - Dichloroethylene
D030	2,4 - Dinitrotoluene
D031	Heptachlor (and its epoxide)
D032	Hexachlorobenzene
D033	Hexachlorobutadiene
D034	Hexachloroethane
D035	Methyl ethyl ketone
D036	Nitrobenzene
D037	Pentachlorophenol
D038	Pyridine
D039	Tetrachloroethylene
D040	Trichloroethylene
D041	2,4,5-Trichlorophenol
D042	2,4,6-Trichlorophenol
D043	Vinyl chloride
F001	spent halogenated solvents (degreasing)
F002	spent halogenated solvents
F003	spent nonhalogenated solvents
F004	spent nonhalogenated solvents
F005	spent nonhalogenated solvents
F027	chlorodibenzo-p-dioxins, chlorodibenzofurans, chlorophenols
F037	Benzene, benzo(a)pyrene, chrysene, lead, chromium
K050	heat exchanger bundle sludge
K052	tank bottoms (leaded)
P001	2H-1-benzopyran-2-one,4-hydroxy-3-(3-oxo-1-phenylbutyl)-(Warfarin)
P030	Cyanides (soluble salts), NOS
P042	1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl](Epinephrine)
P081	Nitroglycerine
P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P098	Potassium cyanide
P105	Sodium azide
P106	Sodium cyanide
U002	Acetone
U003	Acetonitrile (I,T)
U027	Dichloroisopropyl ether
U031	1-Butanol (I)/n-Butyl alcohol (I)
U037	Chlorobenzene
U044	Chloroform
U056	Cyclohexane
U075	Dichlorodifluoromethane
U080	Methylene chloride
U112	Ethyl acetate (I)
U114	Ethylenebisdithiocarbamic acid, salts & esters
U117	Ethane, 1,1'-oxybis-
U120	Fluoranthene
U121	Methane, trichlorofluoro-
U122	Formaldehyde
U124	Furan
U126	Glycidylaldehyde
U134	Hydrogen fluoride
U136	Arsinic acid, dimethyl-
U144	Lead Acetate
U151	Mercury
U154	Methanol
U159	Methyl ethyl ketone
U161	Methyl isobutyl ketone
U165	Naphthalene
U188	Phenol
U196	Pyridine
U208	1,1,1,2-Tetrachloroethane
U210	Tetrachloroethylene
U211	Carbon tetrachloride
U213	Tetrahydrofuran (I)
U220	Toluene
U226	1,1,1-Trichloroethane
U228	Trichloroethene
U239	Xylene
U359	Ethylene glycol monoethyl ether

ATTACHMENT C

Closure Plan
Hazardous Waste Process Facility

Closure Plan

BP Exploration (Alaska) Inc.
Prudhoe Bay Unit
EPA ID# AKD000643239

Hazardous Waste Process Facility

Prepared By

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bp

Revision 0
July 10, 2009

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Introduction

This closure plan, including a closure cost estimate, is prepared in accordance with 40 CFR 270.275(g) and (h) requirements for an application for a Resource Conservation and Recovery Act (RCRA) Standardized Permit for Storage and Treatment Units (standardized permit) and to meet the regulatory requirements for closure summarized in 40 CFR 267, Subpart G at an existing hazardous waste management facility operated by BP Exploration (Alaska) Inc. (BPXA). The United States Environmental Protection Agency (EPA) Facility ID number for this facility is AKD000643239. The regulated unit specifically addressed in this closure plan is the hazardous waste container storage unit (process code S01) known as the Hazardous Waste Process Facility (HWPF).

BPXA has interim status to operate the Prudhoe Bay facility as an existing hazardous waste management facility. BPXA is applying for a standardized permit to store and non-thermally treat hazardous wastes on-site in containers in the Prudhoe Bay facility. The Prudhoe Bay facility is leased by BPXA from the State of Alaska Department of Natural Resources. The Prudhoe Bay facility, by agreement of EPA, is any land or operation under BPXA control within the Prudhoe Bay Unit on the North Slope of Alaska; i.e., the operating facility.

The regulated hazardous waste container storage unit that subjects the entire Prudhoe Bay facility to RCRA permitting is the HWPF. The HWPF is situated on the gravel pad containing BPXA's Base Operations Center (BOC) complex, and is a 50 foot x 60 foot structural steel frame building with insulated wall panels and a sealed concrete floor founded on steel piling. Figure 1 shows the floor plan of the HWPF.

BPXA submitted a revised Part B permit application in June 1998 to provide Part B permit application information of the HWPF as-built and to update the Part B permit application initially submitted on November 8, 1988. EPA authorized a change under interim status in the year 2000 to allow BPXA to begin storing hazardous waste generated on-site in the HWPF for greater than 90 days.

BPXA has prepared a Notice of Intent (NOI) and application for a RCRA standardized permit under the provisions of 40 CFR 267. This closure plan for the HWPF is submitted as part of that standardized permit application.

1.2 Facility Description

The Prudhoe Bay facility is a contiguous land area of approximately 385 square miles. Security gate checkpoints limit access to the oil field, and only persons authorized access are permitted through the checkpoints.

The Prudhoe Bay facility generates wastes related to oil and gas production operations and support facilities. Operations include, but are not limited to, oil and gas production wells, water and gas injection wells, operations centers, several flow stations/gathering centers, a central compressor plant, a central power plant, a seawater treatment plant, a seawater injection plant, a grind and inject facility, and a crude oil topping unit. Support facilities include vehicle maintenance shops, laboratories, paint shops, offices, warehouses, living quarters, dining facilities, pipelines, and electrical power transmission lines. Wastes accepted at the HWPF during the time it has been regulated under RCRA interim status regulations in 20 CFR Part 265 have predominantly included hazardous wastes generated by BPXA within the Prudhoe Bay facility boundary. As described in the 1998 RCRA Part B permit application, wastes have occasionally been accepted from outside the boundary on a case-by-case basis (e.g., from BPXA oil exploration projects and seismic operations). The standardized permit application has been prepared in accordance with 40 CFR 270.255(a)(1) to store or non-thermally treat hazardous waste generated by BPXA within the Prudhoe Bay facility.

1.3 Regional Features

The Prudhoe Bay facility is located on the North Slope of Alaska, approximately 250 miles north of the Arctic Circle and 175 miles west of the Alaska-Canada border, in the Arctic Coastal Plain region. The Prudhoe Bay facility is approximately 385 square miles in size and is comprised of the Eastern Operating Area (EOA) and Western Operating Area (WOA). Several discreet areas within the Prudhoe Bay facility boundary are excluded from the RCRA operating facility. These include individual Deadhorse least tracts, the Deadhorse airport, the North Slope Borough's Oxbow Landfill, specific gravel quarries, select exploration drilling sites, facilities owned and operated by oil industry support contractors such as Frontier Pad, Service City Pad, select pipeline corridors to non-Prudhoe Bay Unit facilities, and the Trans-Alaska Pipeline corridor.

The Prudhoe Bay facility occupies a region of low relief covered by numerous shallow lakes and drained lake basins. The mean annual precipitation (rain and snow) is less than 10 inches. Practical sources of groundwater do not exist in this region due to the presence of permafrost. Permafrost begins a few feet below the surface and extends to depths of 2,000 feet. The presence of permafrost also affects surface water features. Oriented thaw lakes cover over half the land surface of the region. These lakes form when permafrost prevents infiltration. The lack of topographic variation causes drainage patterns to be poorly defined, but surface streams and rivers generally flow north toward the Beaufort Sea.

1.4 Plan Objectives [Closure Performance Standard – 40 CFR 267.111]

This closure plan was prepared to be consistent with RCRA requirements for the "clean closure" of a hazardous waste container storage unit in the regulations; specifically, 40 CFR 267.111 - 267.115, and 267.176. Upon issuance of the RCRA standardized permit, the closure plan will become part of the permit. The HWPF is not expected to cease operations and close for many years, at which time the closure plan will be modified and

updated as needed to reflect changes in facility conditions including the types and amounts of hazardous waste that were handled, regulations, analytical and sampling methodologies, and other criteria.

This closure plan describes the measures to be taken by BPXA to minimize the need for further maintenance of the HWPF and to control, minimize, and eliminate, to the extent necessary to protect human health and the environment, the post-closure potential for releases or escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.

For purposes of this Closure Plan, which is for a future closure of the HWPF, draft screening level concentrations are presented for closure performance standards. Table 1 includes Draft Tier 1 Site Screening Levels that were developed in accordance with *Attachment D, Scope of Work for Site-Wide Project Work Plan, BPXA Administrative Order on Consent under Section 3008(h) of the Resource Conservation and Recovery Act (RCRA), BPXA's Prudhoe Bay Facility, Environmental Protection Agency ID No. AKD000643239, U.S. EPA Docket No. RCRA-10-2007-0222, October 3, 2007* (Order).

The draft screening levels are generic and for the most part do not take into consideration the site-specific conditions of Prudhoe Bay. The screening levels were compiled from a variety of sources including EPA and ADEC documents as well as background concentrations developed for certain constituents for soil and surface water in Prudhoe Bay. The screening levels were developed in consideration of both human health and ecological receptors. Typically, the lowest screening level value for each media and receptor type was chosen from among the reviewed sources. The draft screening levels represent highly conservative risk-based performance standards for use in identifying chemicals of potential concern for remedial investigations that are conducted under the Order, but may not be appropriate for use as remedial goals. As such, they may also be used to identify future site-specific chemicals of potential concern for further evaluation at the HWPF, if needed, at the time of closure.

In addition to the draft screening levels presented in Table 1, closure performance standards for polychlorinated biphenyls (PCBs) will also be considered at the time of closure. For purposes of this closure plan, a screening concentration of 10 micrograms PCBs per 100 square centimeters of applicable surfaces within the HWPF is presented; this concentration represents a conservative value for indoor unrestricted surfaces and is consistent with EPA policy in 40 CFR Part 761 Subpart G.

The HWPF's operating record of hazardous wastes that were managed in the unit and any releases of hazardous waste or hazardous waste constituents at the HWPF will also be used to identify chemicals of potential concern. Therefore, it is expected that the list of analytes and the closure standards will be updated and revised at the time of closure. Table 1 was submitted as an element of Part II of the Site-Wide Project Work Plan submittal under the Order (ref: *Screening Level Table (Tier 1) and Related Technical Memorandum, Elements of Part II of the Site-Wide Project Work Plan, March 2008*). The

screening levels were later included in an extended set of tables in Part III of the Site-Wide Work Plan submittal under the Order (ref: *Site-Wide Project Work Plan-Part III, Draft Conceptual Site Model and Screening Levels, June 2008*). The draft screening levels are under review by EPA Region 10; if there are changes to these screening levels in the future, it is expected that the revised levels will provide for equivalent or greater environmental and human health protection.

The closure plan includes procedures that will be used during the closure process to remove all hazardous waste and to decontaminate or remove hazardous waste residues, if any, from the HWPF so the closure performance standard is met. Once the HWPF has an EPA-approved closure plan, the closure plan is implemented, closure is certified by an independent, registered professional engineer, and EPA accepts the closure, it will no longer be designated as a hazardous waste management regulated unit and will be released to BPXA for other uses without any land use restrictions or institutional controls.

This plan also contains provisions for amending the closure plan, presents a schedule for closing the facility (at the time of closure), and provides an estimate of closure costs. Until final closure of the facility is completed and certified, copies of the closure plan and approved revisions to the approved closure plan will be maintained at the following locations, in addition to being accessible from the BPXA Health, Safety and Environment (HSE) Environmental Management System web site:

Hazardous Waste Process Facility Office
BPXA Base Operations Center
BPXA Prudhoe Bay Western Operating Area
Prudhoe Bay
North Slope Borough, Alaska

BPXA HSE Department
BP Exploration (Alaska) Inc.
900 E. Benson Blvd.
P.O. Box 196612
Anchorage, Alaska 99519-6612

2 PARTIAL CLOSURE OF FACILITY [40 CFR 267.112]

Partial closure of the RCRA facility is not planned since this is the only designated hazardous waste storage unit at the Prudhoe Bay facility. Two former hazardous waste container storage units located within the Prudhoe Bay facility have been closed. One was at C Pad in WOA (closure certificate dated August 17, 2004) and the other was at C Pad in EOA (closure certificate dated May 13, 2005). EPA accepted the two Certificates of Closure in correspondence dated February 27, 2007 and released BPXA from financial assurance specific to closure of the WOA C-Pad and EOA C-Pad in correspondence dated March 5, 2007. This closure plan does not address either of those two former

RCRA units or corrective action at any solid waste management units within the Prudhoe Bay facility.

3 FINAL CLOSURE OF FACILITY

3.1 Site Description

The existing hazardous waste management facility is the entire Prudhoe Bay facility, whereas the HWPF building is the one regulated unit that subjects the Prudhoe Bay facility to RCRA permitting requirements. The HWPF is designed to handle containerized wastes only; it does not include any hazardous waste tank systems, nor is it a Subpart DD Containment Building. The Handling Code (for Treatment, Storage and Disposal Methods, see 40 CFR 265 Appendix I, Table 2) for the HWPF is exclusively S01. Flammable and corrosive wastes have been stored separately, predominantly in hazardous materials cabinets which have built-in secondary containment.

3.2 Maximum Inventory of Wastes [40 CFR 267.112(b)(3)]

The maximum inventory of wastes is the design capacity of the HWPF. In the revised Part B permit application submitted in June 1998, and in the year 2000 when BPXA began storing hazardous waste inside the HWPF for greater than 90 days, the maximum inventory was 184 55-gallon drums. At that time, approximately half of the building was used for hazardous waste management activities and the remaining space was used for materials storage. The floor plan showing the maximum possible waste inventory was included in the June 1998 revision to the Closure Plan, and included in the June 1998 revised Part B permit application, as Figure 1. For the closure cost estimate in June 1998, the following breakdown of wastes was assumed, based on historical waste generation:

Flammable wastes:	150 drums
F-solvent wastes:	4 drums
Acid/base with RCRA metals:	10 drums
Light bulbs with lead:	20 drums

In 2002, the BPXA Materials Warehouse personnel relinquished control of areas within the building that they had used to store paint and other hazardous material (non-waste), and the entire building became available for hazardous waste container storage. Therefore, the storage capacity and thus the maximum inventory of wastes used for the closure cost estimate could be increased.

In the updated Closure Plan for the HWPF prepared in December 2004, the estimate was revised and updated, increasing the HWPF's maximum inventory to 444 drums, with the following breakdown of wastes, based on more recent historical waste generation:

Flammable and Off-Specification Oil (no halogenated compounds) drums	266
Chlorinated solvent/Waste Oil drums	40
Aqueous Acid/Base with RCRA metal drums	56
Lab Packs and RCRA Medical Waste drums	20
Mercury-Containing Waste drums	10
Lamps/Light Bulbs (containing lead and mercury) drums	52

This closure plan uses the maximum drum inventory and waste subcategory breakdown described above as merely a basis for estimating a closure cost. BPXA generates and stores a wide variety of hazardous waste, as indicated in the material receipt logs, in the RCRA Biennial Reports, and in Part A information included in the standardized permit application. Waste types and amounts also vary in conjunction with the types of projects, activities and waste minimization practices that are implemented throughout the Prudhoe Bay facility. This breakdown will be more accurately and precisely revised within 45 days of BPXA's written notification of final closure submitted under 40 CFR 267.112(d).

3.3 Closure Procedures [40 CFR 267.111]

When the HWPF is to be closed, the activities described below will be performed to achieve final closure. An updated project-specific BPXA Health and Safety Plan will also be followed for onsite closure activities.

3.3.1 Notification [40 CFR 267.112(d)(1)]

Regulatory agencies will be sent BPXA's written notification of final closure at least 45 days before BPXA expects to begin closure and the closure activities herein are initiated. Written notification of the intent to close the facility will be sent to EPA Region 10, the Alaska Department of Natural Resources and the Alaska Department of Environmental Conservation.

3.3.2 Inventory Removal [40 CFR 267.112(d)(2), .115(a), and .176]

After the notification to close the facility has been filed, no additional hazardous waste, non-hazardous waste, or hazardous materials will be accepted for storage at the facility. Closure will begin no later than 30 days after the final known volume of waste is accepted at the HWPF. Wastes present in the HWPF at the time of the final waste acceptance cut-off date will be inventoried and prepared for offsite shipment through waste disposal contractors that are under contract to BPXA at the time of closure.

Hazardous wastes that are on site at that time will be removed consistent with procedures followed during the active life of the unit. Wastes will be characterized for off-site disposal according to procedures outlined in BPXA's HWPF Waste Analysis Plan (WAP) and in accordance with waste analysis requirements in 40 CFR 267.13 and 40 CFR 268. It is anticipated that sampling of wastes in containers at the time of closure will be routine and minimal, as existing waste profiles will primarily be used for disposal. However, for purposes of the closure cost estimate and the requirement to use a worst-case estimate, it is assumed that the HWPF would have its maximum inventory (i.e., 444 drums of waste) and that half of the drums will require sampling and profiling. Disposable bailers will be used to sample drums to avoid cross-contamination and reduce decontamination-generated waste. Sampling procedures are described in the Sampling and Analysis section below, as well as the summary in Table 2.

All stored hazardous wastes will be removed within 90 days from the day that the last waste was accepted at the HWPF.

3.3.3 Decontamination [40 CFR 267.112(b)(4), .116, and .176]

Following removal of all containers of hazardous waste, universal waste, and non-hazardous solid waste, decontamination of equipment and the inside surfaces of the HWPF building will be performed by appropriately trained personnel. Any equipment that had been used in handling hazardous waste at the facility and that will not be disposed will be decontaminated. Such equipment and all areas of the facility, including storage areas, floors, and building walls will be decontaminated to the levels required by EPA Region 10 at the time of facility closure; i.e., closure performance standards.

The decontamination procedure will include, but not be limited to, the following activities for each type of equipment or surface.

Decontaminate Process Equipment:

a) Any hoses that have been in contact with hazardous waste and/or hazardous material will be placed in a container and characterized for offsite disposal.
b) A decontamination station will be established in an area convenient for performing the equipment decontamination activities and associated wastewater collection.
c) Equipment that had come in contact with hazardous waste and/or hazardous materials will be decontaminated, including the cabinets and secondary containment pallets used to store drummed waste.

d) Decontamination will be accomplished by manually scrubbing, washing, or spraying equipment with detergent solutions and/or steam or high pressure water.

e) Decontaminated equipment will be rinsed with tap water until all detergent and other residue is washed away. The rinsing can be completed with a squeeze bottle and/or pressure washer, depending on the equipment being decontaminated.

f) All spraying and steam cleaning will be conducted to minimize overspray and minimize the potential to spread waste constituents. Temporary berms may be installed to isolate and collect rinsate within areas of the building. All spent decontamination wash fluids and rinsate will be collected and containerized.

g) Equipment that has been decontaminated will be allowed to air dry in a clean area.

h) Any equipment used in the decontamination procedures (e.g., brushes, vacuum) will subsequently be either properly disposed or decontaminated by rinsing, flushing or steam cleaning. Steam cleaning will be conducted in a manner to minimize overspray, to keep from spreading the waste.

i) Equipment that can not be decontaminated by rinsing or steam cleaning to the acceptable closure performance standard will be managed and disposed in accordance with applicable waste characterization and disposal requirements at the time of closure.

j) All wastewater generated by decontamination activities will be collected in drums labeled as decontaminate rinsate. Such wastewater from various decontamination activities will be consolidated.

Decontaminate Process Area Floors, Building Walls, and Ceilings

a) The building floor, interior walls and ceiling will be decontaminated after all decontaminated equipment and materials are removed from the building.

b) The facility interior operating area will be swept free of dirt and debris.

c) Ceilings will not be cleaned unless a spill occurred that could have contaminated the ceiling or if stained areas are visually observable.

d) The following types of areas will be scrubbed and wipe cleaned in a focused manner with water and an ionic surfactant: any areas of visible staining, any known spill sites, and areas that for other reasons there is a concern of residual chemical contamination.

e) The floor and interior walls of the HWPF will be decontaminated by high pressure rinsing with hot water or steam and an anionic surfactant. Rinsing will be started at the highest point, with work progressing down towards the floor. To minimize the chance of spreading any potential contaminants, rinsing will be aimed away from areas that have already

been decontaminated. Temporary berms may be installed to isolate and contain rinsate within areas of the building. Careful consideration will be made to not recontaminate already decontaminated areas.

f) The rinsate will be vacuumed out until the area is dry and containerized for sampling and disposal.

g) The HWPF does not have any trenching, drains, or sumps that would require additional attention during decontamination.

Confirmation Wipe Sampling

Confirmation wipe sampling will be performed after decontamination activities. The wipe samples are appropriate to monitor non-volatile analytes (e.g., semi-volatile organics and metals) on smooth, non-porous surfaces (e.g., metal, coated concrete). The purpose of the confirmation wipe sampling is to confirm that either:

- Equipment, structures, and buildings are not contaminated; or
- Contaminated equipment, structures, and buildings have been properly decontaminated.

Verification wipe sample collection will be conducted using a biased random sampling approach for the determination of sample locations and will include known or likely areas of contamination as determined by the HWPF operating record at the time of closure. For purposes of this closure plan, wipe tests will be collected at 12 locations within the building including walls, floors, and equipment. The sampling locations will be selected from areas that had contained visible staining prior to decontamination, any known spill areas, and any other identified potential areas of concern. A minimum of four of the wipe samples will be from the floor of the building and four will be from the walls. If no potential areas of concern are identified from facility records or visual observation, then samples will be collected from the following locations:

- Floor under two areas where waste containers were stored
- Floor under two areas where wastes were consolidated
- Area of wall approximately 1 foot from the floor near waste consolidation area
- An area of wall approximately 3 feet from the floor near waste consolidation area
- Another area of wall approximately 3 feet from the floor.
- Two areas of wall approximately 6 feet from the floor.
- Three pieces of equipment (e.g., overhead drum hoist)

Sample locations will be documented in writing on appropriately scaled building diagrams and with photographs. Additionally, two background wipe samples will be collected from interior doors or walls (selecting smooth and non-porous surfaces) at two locations inside the neighboring BOC living quarters area. Background samples will be collected from an unoccupied sleeping quarters and a television lounge, both areas that would not be expected to have or have had industrial activities or contaminations.

In addition to the two background samples, the following field quality control samples will also be analyzed:

- Field/Gauze Blanks – A blank will be analyzed for each analytical parameter using an unopened gauze pad shipped to the field and returned to the laboratory. This blank will serve to demonstrate cleanliness of the wipes used to conduct sampling. One gauze of each type will be analyzed with the 12 samples and two background samples collected.
- Duplicates – One duplicate will be collected for each parameter collected for analysis. Although these samples are not true duplicates, they should be collected side-by-side or below the original sample location. This data can be used to determine potential differences in contamination of surface areas.

Confirmation wipe sampling will be conducted using the following general guidelines, which will be adjusted at the time of closure in accordance with the selected laboratory's requirements for sample amounts and preservation:

a) A template will be used to provide a fixed area for collecting wipe samples. The template will be constructed from a solid flat sheet of Teflon or an inert plastic, such as PVC or polyethylene, with a square opening of 10 centimeters by 10 centimeters.
b) The sample media (i.e. filter paper or cotton gauze) will be placed in a clean sample bottle (2 to 4 oz. glass bottle with Teflon-lined cap), to which a controlled volume of solvent is added by the laboratory performing the analyses. The amount of solvent used per sample bottle will be consistent throughout the wipe sampling program and should be sufficient to saturate the sampling media with little or no excess left in the bottle.
c) The solvent applicable to the species of analytes will be used, depending on the surface being sampled and the target analyte. The specific solvents will be described in revisions to this closure plan, at the time of closure, depending on the final selected list of target analytes. For purposes of this closure plan, total semivolatile organics will be sampled with methanol premoistened gauze pads, PCBs will be sampled with gauze pad

premoistened with hexane, and metals will be sampled with "Ghost Wipes" premoistened with deionized water.

d) Gloved hands or forceps will be used to handle the sampling media, including taking the clean sampling media from its packaging and placing it into the sample container.

e) Forceps will be stored in Ziploc bags between uses and decontaminated between samples. Alternatively, disposable forceps may be used to reduce cross contamination.

f) Disposable templates will be used to avoid potential cross contamination.

g) The sampler will approach each sample location with a wipe sample template, a prepared sample container, and the required gloves and other needed personal protection equipment.

h) The prepared sampling media will be removed from the sample bottle manually and folded in half or in quarters. Sufficient solvent should be present to premoisten the wipe; excess solvent should not be present.

i) The wipe sample template will be held firmly against the surface to be sampled with one gloved hand. Sufficient pressure should be maintained throughout the sampling process.

j) With the sampling media in the other gloved hand, systematically and thoroughly wipe in one direction (e.g., left to right) using S-strokes covering the entire surface from edge to edge.

k) While continuing to hold the template in the same location, refold the sampling media to expose unused surface and re-wiped the sampling location thoroughly using single strokes covering the entire surface from edge to edge again, this time at right angles to the first wipe (e.g., top to bottom).

l) The sample media will then be placed into the sample container and the cap secured.

m) Remove and discard gloves before handling the next the sampling media or container and between sampling locations.

n) The sample container will then be managed as described in the Sample Handling section below.

o) Sampling points will be marked with a tape measure from corners of the building, with sample coordinates recorded in the field notebook

p) Wipe sampling for semivolatile organics, PCBs and metal will occur in side by side locations following the steps outlined above.

q) Samples will be analyzed as described in the Sampling and Analysis section below.

r) If contaminants of concern are detected in the wipe samples at levels above closure performance standards, the floor and interior walls will be decontaminated a second time, followed by collection of a second set of 12 wipe samples and field quality control samples.

Management of Decontamination Wastes

a) All rinsate will be collected using a water-safe vacuum and collected and stored in compatible shipping containers.
b) A composite sample of the rinsate will be collected.
c) If analytical results indicate that the rinsate is hazardous waste, it will be evaluated for potential de-characterization (for fluids that only exhibit hazardous waste characteristics for ignitability, corrosivity, reactivity and toxicity) and disposal at a permitted BPXA Underground Injection Control (UIC) Class I non-hazardous injection well, in accordance with 40 CFR 268.1(c)(3) and 40 CFR 148.1(d). Alternately, if de-characterization is not feasible, the rinsate will be labeled, manifested, and disposed of at an appropriately permitted off-site treatment, storage or disposal facility (TSDF). If analytical results indicate that the rinsate is non-hazardous waste it will be disposed at a permitted BPXA UIC Class I non-hazardous injection well.
d) Solid residuals from the decontamination process (e.g., used rags, personal protective equipment, and other disposable equipment) will be collected, analyzed, and characterized for appropriate off-site disposal.

3.3.4. Sample Handling

Sample Numbering - The field sample identification code provides the tracing of the sample from the location in the field, through laboratory analysis, and finally to data presentation.

Each sample will be assigned a unique field sample identification code and labeled accordingly. This field sample identification code will contain information traceable to the site, location, and other appropriate information unique to that sample. This code will be used for all references to this particular sample in all field and project documentation and reports.

All field quality control samples will be labeled and numbered so that the laboratory cannot distinguish them from other site samples.

Sample Labeling and Documentation - Individual sample labels will be affixed to the sample containers. Waterproof indelible ink will be used to ensure the integrity of the sample identification code. The following information will be included on each sample label for samples submitted for laboratory analysis:

- Project site
- Project number
- Sample collector name and initials

- Date and time of collection
- Field sample identification codes
- Analyses requested
- Preservation

Sample Storage, Transport, and Chain of Custody - Following sample collection and labeling, samples will be packaged for transport to the analytical laboratory. Samples will be stored in a cooler with ice or gel ice packs, and shipped to the laboratory within 24 hours of collection. The following shipping procedures will be used:

- Each sample container will be placed in a resealable plastic bag and wrapped in bubble pack or another inert material to prevent breakage prior to placement in a cooler.
- Ice will be placed in the coolers to keep samples at a temperature of 4°C +/-2°C.
- Prior to shipping, the signed and dated chain-of-custody forms will be placed in a sealed bag that is then taped inside the cooler lid.
- Custody seals will be placed on the front right and back corners of each cooler. Seals will be covered with clear tape.
- "This Side Up" labels will be placed on four sides of the cooler and "Fragile" labels will be placed on two sides. All drains will be taped shut.

Chain-of-custody procedures will be followed in accordance with standard EPA protocol in order to track the custody of the samples. The chain-of-custody form is designed to document the transfer of samples from the field to the laboratory. As such, the form summarizes the contents of the shipment and tracks the dates and times of any custody transfer, and signatures of all parties relinquishing and receiving the samples. The sampler must sign the chain-of-custody form(s) in the designated "sampler" space and the "relinquished by" space. A copy of the form is taken before the cooler is sealed, and the original form is placed in the sealed plastic bag and sealed inside the cooler. If temporary storage of the cooler is needed prior to shipment, it will be stored in a secured location.

When completed, this form will contain the following information:

- Sample numbers (corresponding to the sample ID numbers on the sample labels)
- Project number
- Project/client name and location
- Sampler's signature
- Custody seal number
- Date/time of sample collection

- Type of samples (e.g., wipe, liquid, solid)
- Analytical requirements
- Number and type of containers
- Remarks (e.g., wipe sample surface area)
- Date/time samples relinquished
- Date/time samples received

From the time the sample is collected, it will be under the direct control of the contracted field team. If a sample cooler is left unattended, it must be secured with a custody seal and signed by the responsible party. The custody seal will have an identification number on it, which will be recorded on the chain-of-custody form. Copies of the chain-of-custody forms will be returned by the laboratory with the analytical results. The form will indicate personal custody of the sample by dated signature and the analytical suite for each sample.

3.3.5 Field Records

Field records will be maintained to demonstrate that closure activities are conducted in a manner that is consistent with the approved closure plan and to document approved deviations from the closure plan, if necessary. Field records for the closure of the HWPF will be compiled in bound field notebooks or logbooks. The field notebooks will have consecutively numbered pages and documentation will be recorded using waterproof ink. Incomplete lines, incomplete and blank pages, and changes in the notebooks will be lined out with a single line, dated and initialed (no obliteration of an incorrect entry or use of correction tape or fluid). The information that will be recorded in the notebooks will include, at a minimum:

- The responsible person's name;
- The date and time of the activities
- References to field monitoring forms as necessary
- Daily field instrument calibration information, including the calibrator's name; the
- Instrument name and model; date and time of calibration; standard lot numbers used and their source; ambient temperature (if needed); results of calibration; and any corrective actions necessary
- Weather conditions, if applicable
- Topics and attendees of daily tailgate meetings
- Activities that are scheduled for the day, including a notation as to whether they have been completed on that day
- Approved deviations to the closure plan and rationale for deviations
- Name of personnel onsite and their representative companies
- Decontamination information
- Sampling information, including information coordinating sample handling activities with the appropriate field activities and chain-of-

custody documentation; equipment and methods used for field preparation of samples; field measurements for samples, if applicable, drawings and diagrams of sample locations
- Waste shipment information
- Unusual site or schedule conditions, including issues that delay closure activities
- Communications to and from oversight BPXA representatives and EPA or other appropriate regulatory agencies
- Project comments

Photographs may be taken to photodocument certain activities when necessary and appropriate. Printed copies of the photographs will be initialed by the person who took the photo and dated when the photo as taken (unless the photo is imprinted with the date taken). A Photo-Log or other listing of the photographs that were taken will be completed as the photographs are taken to record the identity of the photographer(s), date, time, location and a brief description of the photo, including anything of special note. Photographs taken of closure activities and the Photo-Log will be maintained as part of the HWPF closure field records.

3.4 Sampling of Facility Floor and Gravel Pad Materials

To date, there have been no hazardous waste releases inside or in the immediate vicinity of the HWPF that would impact the surface or subsurface gravel surrounding the building, and there is no observed staining on the gravel pad surface around the building. There are no visible surface cracks, breaches, or scouring in the HWPF floor coating that would indicate the integrity of the surface coating has been compromised. Inspections of the floor and the loading areas where hazardous wastes are transferred in and out of the building are routinely conducted and documented by trained personnel. Therefore, migration of hazardous wastes or hazardous waste constituents is not anticipated.

If, at the time of closure, a review of release records indicates that no hazardous waste releases have been reported in the immediate vicinity of the HWPF and if no stained areas are observed (from hazardous waste transfer operations in and out of the building, as no outside storage of hazardous waste will be conducted), additional sampling of the gravel pad surrounding the building and gravel removal actions would not be performed. Therefore, this closure plan does not include sampling or removal of gravel pad material surrounding or under the HWPF. If releases of hazardous wastes or hazardous waste constituents are reported in the vicinity of the HWPF due to HWPF loading and unloading operations, the closure plan will be revised accordingly.

In order to focus decontamination activities within the HWPF to any identified areas of concern, sampling and analysis will be performed in a tiered approach, starting with decontaminated surfaces. If contamination above closure performance standards is detected in the post-decontamination wipe samples, then decontamination of those

surfaces will be repeated, as described above. If closure performance standards are met after the subsequent decontamination, no additional sampling would be performed. If contamination is still redetected at levels above closure performance standards after the second decontamination, then the closure plan will be modified to address potential migration of contaminants to the floor or outside the building. Additional sampling and analysis of the concrete floor and the gravel pad would be performed and, depending on analytical results, removal of concrete or gravel pad material may be completed in order to achieve clean closure.

3.5 Sampling and Analysis (40 CFR 267.112(b)(4) and .176)

This section describes the sampling and analysis that will be performed, with summaries provided in Table 2 - Samples and Table 3 - Analytical Methods.

The following types of samples are included in this closure plan and will be collected during HWPF closure:

- Contents of containers of hazardous waste on-site at the time of final inventory removal, as needed for complete waste characterization
- Surface wipe samples of interior surfaces from inside the BOC living quarters to determine background levels of potential contaminants of concern
- Surface wipe samples of decontaminated equipment and structures inside the HWPF, for confirmation of decontamination
- Rinsate resulting from the decontamination operations, for waste characterization
- Solid waste resulting from decontamination, for waste characterization

Samples collected during the closure activities will be analyzed for the constituents of the wastes managed at the facility. The sampling of waste containers during the building de-inventory will follow guidance in the most current version of the BPXA controlled document procedure, *Hazardous Waste Process Facility Waste Analysis Plan (#UPS-US-AK-GPB-ALL-HSE-DOC-oo177-4)*, at the time of closure. Waste sampling methods for typical types of wastes that are managed at the HWPF and that are listed in the procedure include:

TYPE OF WASTE	METHOD REFERENCE
Extremely viscous liquid	ASTM Standard D140-70
Crushed or powdered material	ASTM Standard D346-75
Soil or rock-like material	ASTM Standard D420-69
Soil-like material	ASTM Standard D1452-65
Fly-ash-like material	ASTM Standard D2234-76
Containerized liquid waste	"Coliwasa" from *SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, USEPA

For purposes of this closure plan, target analytes for the decontamination confirmation samples will include metals, PCBs, volatile organic compounds and semi-volatile organic compounds. Wipe samples will be analyzed for metals, PCBs and semi-volatile organic compounds only. Pesticides and herbicides are not used at the Prudhoe Bay facility and are not planned for inclusion in the target analytes list at this time. The list of analytes in Table 1 (Tier 1 Screening Levels) and PCBs is presented as the initial list of compounds that will be included for analysis and will be used in developing the final list of target analytes and closure performance standards at the time of closure. A summary of the analytical methods to be used during closure activities, the associated sample handling procedures, and the rationale for analyses are provided in Table 3. Table 4 provides the RCRA Toxicity Characteristic Leaching Procedure (TCLP) maximum concentrations that are referred to in Table 3, for waste characterization. The latest guidance available in SW-846 *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* the *RCRA Waste Sampling Draft Technical Guidance*, and other appropriate sources will be used to determine the final approved analytical methods at the time of closure.

BPXA will submit for acceptance a revised updated closure plan at the same time the notification of closure is submitted to EPA in order to include an updated target analyte listing and best available sampling and analysis methods. During closure activities, EPA and State of Alaska laws and regulations will be complied with, and applicable regulatory guidance documents will be considered and integrated into the updated closure plan.

For purposes of this closure plan, the *Draft Quality Assurance Project Plan for Administrative Order for Corrective Action Under 3008(h) of the Resource Conservation and Recovery Act (RCRA) - BPXA's Prudhoe Bay Facility, Environmental Protection Agency ID No. AKD000643239, EPA Docket No.: RCRA-10-2007-0222., October 3, 2007. Revision 0, October 31, 2008* is incorporated by reference. All sampling under the closure plan will follow the RCRA Quality Assurance Project Plan (QAPP) for the facility that is current and approved at the time of closure. The QAPP will provide the appropriate quality assurance (QA) and quality control (QC) measures to be applied during facility closure and to stipulate requirements/criteria associated with the following:

- QA objectives
- Laboratory procedures
- General sample collection, handling and preservation
- Laboratory custody procedures
- Calibration and maintenance procedures and protocols for laboratory equipment
- Data reduction, validation, and reporting procedures
- Internal QC checks
- QA performance and system audits
- Preventive maintenance procedures and schedules
- Data assessment procedures, including processing, interpretation, and presentation

- Corrective actions
- QA reports

The laboratory that analyzes the samples will use best accepted practices at that time, such as use of EPA-approved analytical methods; adherence to QA and QC programs; certification by state and/or federal agencies when applicable; and observance of sample holding time dates. Results will be reported in normal unit conversions (e.g., ug/l or mg/l for aqueous and TCLP samples; ug/kg or mg/kg for solid/soil samples; or ug/ or mg/wipe for the wipe samples). Results will be reported to the laboratory reporting limit or method detection limit depending on which limit is necessary to meet project data quality objectives.

3.6 Waste Containers [40 CFR 267.176]

The removal of containers of hazardous waste that were stored at the HWPF or generated as a result of closure activities will be verified by an independent registered professional engineer. Containers will be sealed and labeled prior to shipment in accordance with RCRA and DOT regulatory requirements. BPXA will manifest all of the final containers of hazardous waste from the HWPF to one or more of the RCRA permitted TSDFs on contract at that time. Uniform Hazardous Waste Manifests will be prepared for all offsite shipments of hazardous waste; copies of the manifests will be maintained by BPXA as required in regulations and BPXA record retention policies.

In 2009, BPXA has contracts for hazardous waste transportation and disposal services with PSC Environmental Services, Inc. (dba Burlington Environmental, Inc.) at 1813 East 1st Ave., Suite 101, Anchorage, AK 99507 (EPA ID# AKD983068602), which typically ships hazardous waste from BPXA facilities to the Burlington Environmental, Inc. TSD facility at 20245 77th Avenue South, Kent, WA, 98032 (EPA ID# WAD991281767); and Emerald Alaska, Inc at 425 Outer Springer Loop, Palmer, AK 99645, which transports hazardous waste from BPXA facilities using EPA Transporter ID# WAD058364647. There are currently no permitted commercial RCRA TSD facilities in Alaska; therefore, hazardous waste from BPXA facilities are ultimately manifested to permitted facilities out of state.

BPXA may or may not have contracts with the companies mentioned above or other hazardous waste management companies at the time of final closure. BPXA periodically reviews contracts with permitted off-site commercial TSDFs and audits their facilities. Based on these reviews and audits, the list of TSDFs during the closure activities may include these and/or other permitted off-site commercial TSDFs. BPXA does not consider compliance with this closure plan to be contingent upon amending this closure plan if the names, addresses, or statuses of the TSD facilities named above change in any way prior to BPXA's submittal of the notification of final closure; nor will BPXA amend the closure plan if BPXA no longer maintains a contract with any of the named companies. These are the TSD facilities that BPXA would include if BPXA were closing the HWPF at the time this closure plan is submitted as part of the standardized permit application. They are also described in accordance with 40 CFR 267.112(b)(3) regarding

the types of off-site hazardous waste management units to be used for removing, treating, storing, or disposing of all hazardous wastes. The selected TSD facilities will either manage the hazardous waste in permitted regulated units at their facilities or transfer the hazardous waste to other RCRA permitted TSD facilities accompanied by another manifest for further hazardous waste management, as is the current common practice.

3.7 Non-Applicable Requirements [40 CFR 267.111(c), .201, and .1108]

No hazardous waste tank systems or containment buildings are located at the HWPF storage unit or within the Prudhoe Bay facility.

3.8 Closure Certification [40 CFR 267.117]

A certification that the HWPF has been closed following the approved closure plan will be submitted to EPA by registered mail within 60 days of completion of closure. The certification will be signed by the owner-operator (BPXA) and by an independent registered professional engineer. Accompanying this certification will be documentation supporting the independent registered professional engineer's certification. BPXA will identify the independent registered professional engineer for EPA in BPXA's notice of closure.

The engineer will certify the facility closure, based on completion of the following activities:

- Review operation logs and reports from decontamination and sampling
- Review confirmation wipe sample analyses and verify compliance with closure performance standards
- Review manifest and accompanying documentation regarding shipment of hazardous wastes offsite from the RCRA Storage Facility, and receipt by designated waste disposal destination
- Review historical logs of past spills and releases from the unit that may have entered the environment
- Inspect facility for confirmation of waste removal and lack of staining or other evidence of incomplete waste removal

The closure report will include written documentation, which was completed during closure, that these activities have been completed. The closure report will include, at a minimum:

- Documentation of all closure activities
- Summary of all analytical data, including raw laboratory data and QA/QC data, produced during the closure activities
- Description and rationale for all variations or departures from the closure plan
- Verification sample results and comparison to closure performance standards

- Drawings, diagrams, photo log documentation for sampling locations and other relevant on-site activities and visual observations during closure activities
- Provision for certification by the owner-operator
- Provision for certification by the independent registered engineer

3.9 Post-Closure Care

Regulated container storage units are not subject to post-closure requirements in 40 CFR 264, Subpart G; therefore, no post-closure care is anticipated for the facility. The HWPF will be decontaminated and all hazardous waste and hazardous waste residues will be removed at the time of closure.

4 PLAN AMENDMENTS [40 CFR 267.112(c)]

In the event that operating plans, facility design, or the approved closure plan change during operation of the permitted RCRA facility, a written request for a permit modification will be submitted to EPA at least 60 days prior to implementing the change. At the time the written notice of final closure is submitted, BPXA anticipates submitting an amendment or revised closure plan that provides detailed descriptions of closure operations.

5 SCHEDULE

5.1 Notification of Final Closure [40 CFR 267.112(d)]

Regulatory agencies will be informed of BPXA's intent to close the facility at least 45 days before closure activities are initiated, by the submittal of a written notification of final closure. This notification will be sent to EPA Region 10, the Alaska Department of Natural Resources, and the Alaska Department of Environmental Conservation.

5.2 Closure Schedule [40 CFR 267.112(b)(6)]

The exact time of closure is currently unknown, but BPXA does not anticipate closing the storage unit during the initial 10-year term of the permit. When closure does take place, the following estimated schedule will be followed (Day 0 is the last day that waste is accepted at the facility):

Day	Activity
-45	Submit the written notification of final closure
0	No further wastes or hazardous materials are accepted at HWPF, and closure activities are initiated
30	If delayed, closure activities are initiated by this date.
90	All hazardous waste are shipped off-site and hazardous residues decontaminated by this date
120	Complete closure activities, including confirmation sampling
180	Certification of closure

Extensions of Closure Schedule [40 CFR 267.115]

If an extension of up to 180 days is necessary to achieve final closure (i.e., if final closure will not be completed within 180 days of the final volume of hazardous waste being accepted at the HWPF), a petition will be filed with EPA Region 10. This notice will be sent at least 30 days prior to the expiration of the initial 180 day period. To justify an extension or an amendment of the closure schedule presented above, BPXA will demonstrate the need for more than 180 days to implement final closure due to circumstances beyond BPXA's control and steps that have and will continue to be taken to prevent threats to human health and the environment from the unclosed but inactive facility. For example, BPXA may need to request an extension to accommodate the seasonal timing of sampling soil or gravel and super-permafrost groundwater under and adjacent to the HWPF (if required) since the gravel pads and porewater in the Prudhoe Bay facility only thaw between June and September.

6. CLOSURE COST ESTIMATE

An estimate of the costs associated with closure of HWPF is provided in Table 5. BPXA has demonstrated its eligibility for corporate guarantee of financial assurance based on the financial test specified in 40 CFR 267.143(g).

The cost estimate is based on BPXA hiring a third party to close the HWPF storage unit at the point in the unit's life when the extent and manner of its operation would make closure the most expensive. No salvage value was assumed for equipment or materials. This closure cost estimate also includes a 50% contingency to account for wide variation in the actual inventory of waste stored, types of waste stored and their distinct disposal costs, variation in decontamination and removal technique, sampling and analysis methodology and technique, the volume of decontaminated or contaminated equipment and other solid waste that is generated as a result of closure activities, and variation in personnel or labor rates.

During the active life of the facility, the closure cost estimate will be updated for inflation within 30 days after the close of BPXA's fiscal year and before submission of annual

updated financial assurance documentation to the EPA Region 10 Regional Administrator required in 40 CFR 267.143 [40 CFR 267.142(b)]. In addition, if this plan is modified during the active life of the facility, a revised closure cost estimate will be completed no later that 30 days after the Regional Administrator has approved the request to modify the closure plan, if the change in the closure plan increases the cost of closure [40 CFR 267.142(c)]. The closure plan itself will not be revised for each annual adjustment, but rather it will be reflected in the corporate guarantee BPXA provides annually to EPA for financial assurance under 40 CFR 267, Subpart H. The financial assurances are mailed to the EPA Regional Administrator at the end of March of each calendar year. The most recent closure cost estimates are also included in the Biennial Reports submitted to EPA by March 1 of each even numbered year. A copy of the latest adjusted closure cost estimate will be kept at the facility as required in 40 CFR 267.142(d).

Tables and Figures

Table 1: Draft Tier 1 Screening Levels
(submitted for *Prudhoe Bay Facility, Alaska, Administrative Order on Consent RCRA 10-10-2007-0222*)

COPC	Regulatory Agency		Tier 1 SLs			
			Soil (mg/kg)		Water (ug/L)	
	RCRA	ADEC	Human Health	Ecological	Human Health	Ecological
Volatiles						
1,1,1-Trichloroethane	x	x	460	15	200	11
1,1-Dichloroethane	x	x	85	15	1,200	47
1,1-Dichloroethylene	x	x	1.3	0.3	7.0	25
1,2-Dichloroethane	x	x	0.35	4	0.38	100
1,4-Dioxane	x	x	44	3.7	6.1	4,000
2-Butanone (methyl ethyl ketone)	x	x	3,200	35	7,100	14,000
4-Methyl-2-Pentanone (MIBK)	x	x	5,800	92	2,000	170
Acetone	x	x	1,400	20	3,650	1,500
Benzene	x	x	0.66	0.0068	2.2	21
Chlorobenzene	x	x	27	0.1	100	1.3
Chloroethane[a]	x	x	11	10	190	55,000
cis-1,2-Dichloroethylene	x	x	4.3	1	70	590
Ethylbenzene	x	x	23	0.02	530	7.3
Formaldehyde	x		11	0.1	1.5	50
Isopropylbenzene		x	585	NA	3,650	NA
Tetrachloroethylene (PCE)	x	x	0.6	0.1	0.69	84
Toluene	x	x	52	0.08	1,000	2.0
Xylenes	x	x	21	0.10	200	13
trans-1,2-Dichloroethylene	x	x	120	1	100	590
Trichlorethylene (TCE)	x	x	0.04	0.10	2.5	47
Trichlorofluoromethane	x	x	39	16	1,300	1,740
Vinyl chloride	x	x	0.04	0.10	0.03	1,300
Methanol		x	31,000	30	18,000	384,000
2,4-Dimethylphenol	x	x	120	20	380	21
2-Methylnaphthalene	x	x	2,740	3.2	780	130
2-Methylphenol (o-Cresol)	x	x	6,800	50	1,800	13
4-Methylphenol (p-Cresol)	x	x	31	163	180	25
Acenaphthene	x	x	370	20	20	5.8
Anthracene	x	x	2,200	1.6	8,300	0.01

(continued)

Table 1 (Continued)

COPC	Regulatory Agency		Tier 1 SLs			
			Soil (mg/kg)		Water (ug/L)	
	RCRA	ADEC	Human Health	Ecological	Human Health	Ecological
Semi-Volatiles						
Benzo(a)anthracene	x	x	0.15	0.1	0.0038	0.02
Benzo(a)pyrene	x	x	0.015	0.10	0.0038	0.01
Benzo(b)fluoranthene	x	x	0.15	0.1	0.0038	9.07
Benzo(g,h,i)perylene	x	x	4,100	33	1100	7.64
Benzo(k)fluoranthene[b]	x	x	1.5	0.1	0.0038	9.07
Chrysene	x	x	15	35	0.0038	7.0
Dibenzo(a,h)anthracene	x	x	0.015	0.1	0.0038	0.03
Di-n-butylphthalate	x	x	610	0.91	2,000	3.0
Fluoranthene	x	x	230	260	130	0.04
Fluorene	x	x	2,600	30	1,100	3.0
Indeno(1,2,3-cd)pyrene	x	x	0.15	0.1	0.0038	4.3
m-Cresol[c]	x	x	31	3.5	180	62
Naphthalene	x	x	12	0.1	6.2	1.1
Phenanthrene	x	x	41,000	0.1	11,000	0.4
Phenol	x	x	1,800	3.8	21,000	110
Pyrene	x	x	230	0.1	830	0.03
Metals						
Antimony		x	3.1	0.27	5.6	30
Arsenic	x	x	7.48	7.48	0.98	150
Barium	x	x	1,600	189	1,000	91
Cadmium	x	x	3.9	0.33	5.0	0.25
Chromium III			10,000	26	100	74
Chromium VI			30	81	100	11
Total Chromium	x	x	210	64	100	1.1
Copper	x	x	290	19	1,300	9.0
Lead	x	x	400	11	15	2.5
Mercury	x	x	2.3	0.3	2	0.8
Nickel	x	x	160	30	100	52
Selenium	x	x	39	0.52	50	5.0
Vanadium	x	x	39	8.0	180	19
Zinc	x	x	2,300	59	5,000	120
Inorganics						
Chloride		x	NA	NA	250,000	230,000
Sulfate		x	NA	NA	250,000	NA
Glycols						
Ethylene glycol		x	10,000	100	73,000	192,000
Propylene glycol[d]		x	3,003	100	18,000	500,000
Triethylene glycol[e]		x	10,000	100	73,000	192,000

(abbreviations and footnotes on following page)

TABLE 1

Abbreviations
ADEC = Alaska Department of Environmental Conservation
COPC = Constituent of Potential Concern
EPA = United States Environmental Protection Agency
NA = Not available/applicable
RCRA = Resource Conservation and Recovery Act
mg/kg = milligrams per kilogram
ug/L = micrograms per liter

Footnotes:
a Values for chloromethane used based on structural similarity.
b Ecological water value for benzo(b)fluoranthene used based on structural similarity.
c Human health values for p-cresol used based on structural similarity.
d Ecological soil value for ethylene glycol used based on structural similarity.
e Values for ethylene glycol used based on structural similarity.

Table 2 Samples

Media	Type of Samples	Number of Samples	Purpose of Sampling
Hazardous waste container contents	Grab sample	222	Profiling for waste characterization
Decontamination rinsate	Composite sample	6	Profiling for waste characterization
Solid residue from decontamination	Grab sample	6	Profiling for waste characterization
HWPF walls, floors, and equipment surfaces	Wipe samples	32	Confirmation of decontamination
Background wipe samples	Wipe samples	2	Comparison to decontaminated surfaces
Field QC samples Blank and side-by-side duplicate	Wipe samples	2	Confirmation of clean wipe material for blanks and determine potential differences in contamination of surface areas

Table 3 Analytical Methods, Handling and Rationale for Analyses

Analysis and Method	Recommended Container	Preservative	Holding Time	Rationale
Ignitability (flash point) 1010A (Pensky-Martens closed cup) 1020A (Setaflash closed cup)	250 ml glass, Teflon-lined cap	Chill to 4°C	7 Days	Hazardous waste determination for disposal of HWPF onsite waste inventory (liquids) and closure decontamination rinsate.
Corrosivity (pH) 9040C (Electronic meter) 9045D (Soil and waste pH)	250 ml polyethylene/glass	None	Field analysis: As soon as possible Lab analysis: 24 hours	Hazardous waste determination for disposal of HWPF onsite waste inventory and closure decontamination rinsate.
Reactivity Generator knowledge (See Exhibit 7B)				Hazardous waste determination for disposal of HWPF onsite waste inventory.
Toxicity Characteristic Leaching Procedure (TCLP) Extraction 1311	See below	See below	See below	Hazardous waste determination for disposal of HWPF onsite waste inventory and closure decontamination waste.
TCLP Metals 6010/6020 or 7000 series 7470 (Mercury: aqueous) 7471 (Mercury: soil/solid) Arsenic Barium Cadmium Lead Mercury Selenium Silver Chromium	Aqueous: 1000 mL plastic Soil/Solid: 8-oz. wide mouth jar	Cool to ≤6°	TCLP extraction within: 180 days except mercury (28 days) Prep and Analysis of TCLP leachate within: 180 days except mercury (28 days) Total days 56 for mercury, 360 days for metals	Hazardous waste determination for disposal of HWPF onsite waste inventory and closure decontamination waste.
Total Metals 6010/6020 or 7000 series 7470 (Mercury: aqueous) 7471 (Mercury: soil/solid)	Aqueous: 500 mL plastic	HNO_3 to pH≤2; Cool to ≤6°C or ambient	180 days except mercury (28 days)	Verification samples, including wipe samples, to document closure performance standards were met, including wipe samples.
	Soil/Solid: 8-oz. wide mouth jar	Cool to ≤6°C		
TCLP and Total Volatile Organics 8260B or equivalent (aqueous) 5035/8260B (soil/solid) Note: TCLP volatiles may require larger volumes of sample in the event of low percent solids	Aqueous: 40 ml VOA vials with septa, no headspace	Aqueous: HCL to pH<2 (unless analyzed within 7 days), Cool to ≤6°C	Totals: 14 days	TCLP analyses: Hazardous waste determination for disposal of HWPF onsite inventory and decontamination waste. Total analyses: verification samples to document closure performance standards are met, excluding wipe samples.
	TCLP Soil/Solid: 8-oz. wide mouth jar	Cool to ≤6°C	TCLP Extraction of sample within 14 days Analysis of TCLP leachate: 14 days (total 28 days)	
	Soil/Solid: Tared 40 ml VOA with 5 ml DI water, 5 grams sample for each vial	Soil/Solid: Cool to ≤6°C in field, frozen to ≤10°C at laboratory	Totals: 14 days	

Analysis and Method	Recommended Container	Preservative	Holding Time	Rationale
Polychlorinated Biphenyls (PCBs) 8082	Aqueous: 1 liter amber glass; Teflon-lined cap	Chill to ≤6°C	Extract within 7 days, analyze within 40 days of extraction	Total analyses: Verification samples to document closure performance standards
	Soil/Solid: 8-oz. amber wide-mouth jar		Extract within 14 days, analyze within 40 days of extraction	
TCLP and Total Semi-volatile Organics 8270C	Aqueous: 1liter amber glass, Teflon-lined cap Soil/Solid: 8-oz. amber wide-mouth jar	Chill to ≤6°C	TCLP Extraction within: 14 days, Preparation of TCLP Extract within 7 days, analyze within 40 days of extraction (61 total days) Aqueous Totals: 7 days to extraction, 40 days to analysis Soil/Solid Totals: 14 days to extraction, 40 days to analysis	TCLP analyses: Hazardous waste determination for disposal of HWPF onsite waste inventory, decontamination rinsate. Total analyses: verification samples to document closure performance standards are met, including wipe samples
WIPE SAMPLES				
Total Semi-volatile Organics 8270C	Premoistened 2"x2" gauze pad and methanol returned in 2-oz. glass jar	None	14 days to extraction, 40 days to analysis	Total analyses: Verification samples to document closure performance standards
Polychlorinated Biphenyls (PCBs) 8082	Premoistened 2"x2" gauze pad and hexane returned in 2-oz. glass jar	None	14 days to extraction, 40 days to analysis	Total analyses: Verification samples to document closure performance standards
Total Metals 6010/6020 7471 (Mercury: soil/solids)	"Ghost Wipes" premoistened with deionized water and a plastic vessel for storage	None	180 days, except mercury (28 days)	Total analyses: Verification samples to document closure performance standards

See *Quality Assurance Project Plan For Administrative Order for Corrective Action Under Section 3008(h) of the Resource Conservation and Recovery Act (RCRA) – BPXA's Prudhoe Bay Facility, Environmental Protection Agency ID No AKD 000643239, EPA Docket No.: RCRA-10-2007-0222, October 3, 2007* for additional sample handling and analytical methods requirements, including matrix QC samples (e.g., MS, MSD, and/or laboratory duplicate samples, trip samples for volatiles).

Table 4 Maximum Concentrations of Contaminants for the Toxicity Characteristic

As determined by Toxicity Characteristic Leaching Procedure [40 CFR 261.24]

Contaminant	Maximum concentration (mg/L)	Contaminant	Maximum concentration (mg/L)
TCLP Metals		**TCLP Semi-Volatiles**	
Arsenic	5.0	o-Cresol	200.0*
Barium	100.0	m, p-Cresol	200.0*
Cadmium	1.0	m, p-Cresol	200.0*
Chromium	5.0	Cresol (total)	200.0*
Lead	5.0	2,4-Dinitrotoluene	0.13**
Mercury	0.2	Hexachlorobenzene	0.13**
Selenium	1.0	Hexachlorobutadiene	0.5
Silver	5.0	Hexachloroethane	3.0
		Nitrobenzene	2.0
TCLP Volatiles		Pentachlorophenol	100.0
Benzene	0.5	Pyridine	5.0**
Carbon tetrachloride	0.5	2,4,5-Trichlorophenol	400.0
Chlorobenzene	100.0	2,4,6-Trichlorophenol	2.0
Chloroform	6.0		
1,4-Dichlorobenzene	7.5		
1,2-Dichloroethane	0.5		
1,1-Dichloroethylene	0.7		
Methyl ethyl ketone	200.0		
Tetrachloroethylene	0.7		
Trichloroethylene	0.5		
Vinyl chloride*	0.2		

* If o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol concentration is used.

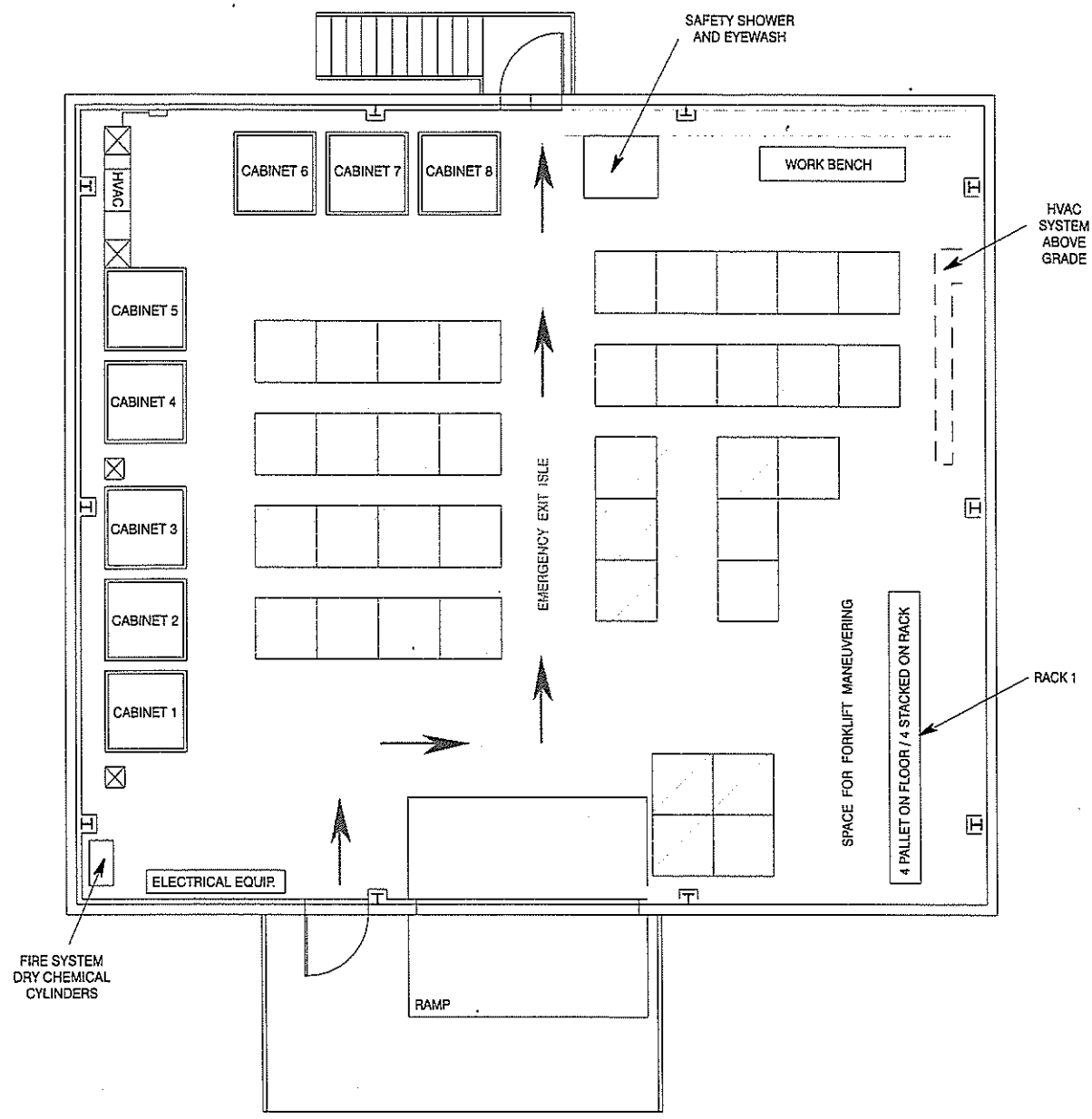
** Method quantitation limit is higher than regulatory limit. Use quantitation limit as maximum allowable level.

Note: Pesticides and herbicides are not used or expected to be present at BPXA; therefore, no testing for TCLP Pesticides/Herbicides is included.

Table 5 Closure Cost Estimate

June 2009 Costs

	Rate	Units	No	Cost
Task 1 Record Review, Closure, QAPP and HSE Plan Prep, Agency Meetings	$150	hour	191	**$28,650**
Task 2 Inventory Disposal (max inventory, 444 drums including bulbs/lamps)				**$385,880**
Drum Sampling, Pkg, Labeling	$62	hour	320	$19,840
Profile & Laboratory Analysis	$500	drum	222	$111,000
Shipping from Prudhoe to Anchorage	$5,500	truck	10	$55,000
Chlorinated Solvent/ Waste Oil Disposal	$350	drum	40	$14,000
Lamp/Bulb Disposal (containing lead and mercury)	$485	drum	52	$25,220
Mercury-contaminated waste	$4,125	drum	10	$41,250
Flammables and Off-Spec Oil Disposal (passes on halogens)	$133	drum	266	$35,378
Lab packs and medical waste	$490	drum	20	$9,800
Aqueous Acid/Base/Metals Disposal	$377	drum	56	$21,112
Shipping from Anchorage to Seattle	$120	drum	444	$53,280
Task 3 Facility Decontamination/Removal				**$36,720**
3.1 Dismantle and clean equipment				
Technicians	$62	hour	80	$4,960
Heavy Equipment	$300	hour	40	$12,000
3.2 Haul equipment to Fairbanks	$2,500	truck	4	$10,000
3.3 Landfill disposal charge	$122	yard	80	$9,760
Task 4 Sampling and Analysis				**$125,200**
4.1 Sample collection				
Labor	$62	hour	100	$6,200
Consumables				$2,000
4.2 Analytical Testing	$1,500	sample	70	$105,000
4.3 Analysis Evaluation/Recommendations	$150	hour	80	$12,000
Task 5 Disposal of Decontamination Wastes				**$13,080**
5.1 Decontamination Solids Disposal	$150	drum	8	$1,200
5.2 Decontamination Rinsate Disposal	$120	drum	20	$2,400
5.3 Drum Profiling, Pkg, Labeling	$62	hour	10	$620
5.5 Shipping from Prudhoe to Anchorage	$5,500	truck	1	$5,500
5.6 Shipping from Anchorage to Seattle	$120	drum	28	$3,360
Task 6 Closure Certification by Engineer	$150	hour	200	**$30,000**
Tasks 1-6 Contractor Travel and Per Diem				**$13,350**
Travel: Round trip Anchorage-Deadhorse	$825	trip	8	$6,600
Per Diem: Deadhorse lodging	$150	night	45	$6,750
Task 7 50% Contingency				**$316,440**
TOTAL ESTIMATED CLOSURE COSTS:				**$949,320**



LEGEND:

ADDITIONAL STORAGE OR PROCESSING WORK AREA

NOTES:

1. FLOOR PLAN SHOWN IS HYPOTHETICAL FOR MAXIMUM STORAGE QUANTITY ESTIMATION. STORAGE AND PROCESSING WILL BE ARRANGED WITHIN THE WORK AREA TO MEET THE FOLLOWING CONSTRAINTS.

a. MINIMUM ISLE SPACE OF 3 FEET WILL BE PROVIDED AT ALL TIMES

2. DRUMS WITHIN THE WORK AREA MAY BE DOUBLE-STACKED, EXCEPT FOR THE CLASS 1 FLAMMABLES.

3. ALL CABINETS ARE SUITABLE FOR EITHER HYDROCARBON OR CORROSIVES STORAGE.

4. SQUARES IN THE CENTER WORK AREA REPRESENT PALLETS.

5. THERE IS RACK STORAGE SPACE FOR 13 BOXES OR 52 DRUMS OF LIGHT BULBS ABOVE CABINETS 1-6.

BP EXPLORATION (ALASKA) INC.

HAZARDOUS WASTE PROCESS FACILITY FLOOR PLAN

DATE:	SCALE:	FIGURE:
June 2009	NOT TO SCALE	1

BPXA Cartography / 06-30-09 / re15792_fig3.dgn