



**WASTE MANAGEMENT
& RADIATION CONTROL**

UTAH HAZARDOUS WASTE POST-CLOSURE PERMIT

FOR POST-CLOSURE CARE AND CORRECTIVE ACTION OF
CLOSED HAZARDOUS WASTE MANAGEMENT FACILITY

Issued To

BP PRODUCTS NORTH AMERICA, INC.
EPA # UTD000826370

Davis County, Utah

Reissued
May 2019

STATE OF UTAH PERMIT

July 2018

Permittee:
BP Products North America, Inc.
Salt Lake County, Utah
EPA Identification Number UTD000826370

Pursuant to the Utah Solid and Hazardous Waste Act, 19-6-101, et. seq., Utah Code Annotated 1953, as amended, and the regulations promulgated by the Utah Waste Management and Radiation Control Board, codified in the Utah Administrative Code R315, and pursuant to the Solid Waste Disposal Act, 42 U.S.C. 3251 et. seq., as amended by the Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901 et. seq., and the Hazardous and Solid Waste Amendments of 1984 (HSWA), a permit is issued to the BP Products North America, Inc., (herein after called the "Permittee"), for post-closure care and corrective action at its Closed Hazardous Waste Management Facility (formerly known as the Remote Hazardous Waste Management Facility, 1700 West 1200 West, located at latitude 40°48'30" and longitude 111°55'30", in Salt Lake County, Utah.

The Permittee shall comply with all the terms and conditions of this permit. The permit consists of Modules I through VI and Attachments 1 through 3. The Permittee must comply with all applicable State regulations including R315-260 through R315-266, R315-124, R315-268, R315-270, R315-273, and R315-101 of the Utah Admin. Code.

Applicable rules are those that are in effect on the date of issuance of this permit and any self-implementing provisions and related rules that, according to the requirements of HSWA, are automatically applicable to the Permittee's hazardous waste management activities, notwithstanding the conditions of this permit.

This permit is based upon the premise that information submitted in the original 1986 permit application, as modified by subsequent amendments and permit modification requests received throughout the term of the original permit; the 2007 permit renewal application; and the 2018 permit renewal application dated March 2, 2017, is accurate. The permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time, shall be grounds for the termination or modification of this permit, the initiation of an enforcement action, including criminal proceedings, or any combination of these remedies. The Permittee shall inform the Director of the Division of Waste Management and Radiation Control (Director) of any deviation from the permit conditions or changes in the information on which the application is based which would affect the permittee's ability to comply with the terms or conditions of this permit. The Director shall enforce all conditions of this permit which are designated in this permit as State requirements. Any challenges to any condition of this permit shall be appealed pursuant to R305-7 of the Utah Administrative code and Utah code Section 19-1-301.5.

This permit is effective on xx^{date}, 2019 and shall remain in effect until xx, 2029, unless revoked and reissued pursuant to R315-270-41, terminated pursuant to R315-270-43, or continued in accordance with R315-270-51 of Utah Admin. Code, and the conditions of the permit.

Signature: _____

Ty Howard, Director
Division of Waste Management and Radiation Control

_____ Date

TABLE OF CONTENTS

<u>Volume 1</u>	<u>Page No.</u>
Introduction and Signatures.....	i
Table of Contents.....	ii
List of Attachments.....	v
Definitions	vi
 Module I - Standard Permit Conditions	
A <u>EFFECT OF PERMIT</u>	Module I - Page 1
B <u>ENFORCEABILITY</u>	Module I - Page 1
C <u>OTHER AUTHORITY</u>	Module I - Page 1
D <u>PERMIT ACTIONS</u>	Module I - Page 1
E <u>SEVERABILITY</u>	Module I - Page 2
F <u>DUTIES TO COMPLY</u>	Module I - Page 2
G <u>DUTY TO REAPPLY</u>	Module I - Page 3
H <u>PERMIT EXPIRATION</u>	Module I - Page 3
I <u>CONTINUATION OF EXPIRING PERMIT</u>	Module I - Page 3
J <u>NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE</u>	Module I - Page 3
K <u>DUTY TO MITIGATE</u>	Module I - Page 3
L <u>PROPER OPERATION AND MAINTENANCE</u>	Module I - Page 3
M <u>DUTY TO PROVIDE INFORMATION</u>	Module I - Page 3
N <u>INSPECTION AND ENTRY</u>	Module I - Page 4
O <u>MONITORING AND RECORDS</u>	Module I - Page 4
P <u>REPORTING PLANNED CHANGES</u>	Module I - Page 5
Q <u>REPORTING ANTICIPATED NONCOMPLIANCE</u>	Module I - Page 5
R <u>TRANSFER OF PERMIT</u>	Module I - Page 5
S <u>TWENTY-FOUR HOUR REPORTING</u>	Module I - Page 6
T <u>OTHER NONCOMPLIANCE</u>	Module I - Page 7
U <u>OTHER INFORMATION</u>	Module I - Page 7
V <u>SIGNATORY REQUIREMENT</u>	Module I - Page 7
W <u>REPORTS, NOTIFICATIONS, AND SUBMISSIONS</u>	Module I - Page 7
X <u>DOCUMENTS TO BE MAINTAINED FOR THE FACILITY</u>	Module I - Page 8
Y <u>PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT</u>	Module I - Page 8

Module II - General Facility Conditions

A APPLICABILITY Module II - Page 1
 B POST-CLOSURE CARE OF FACILITY Module II - Page 1
 C SECURITY Module II - Page 1
 D GENERAL INSPECTION REQUIREMENTS Module II - Page 2
 E PERSONNEL TRAINING Module II - Page 2
 F CONTINGENCY PLAN Module II - Page 3
 G RECORD KEEPING AND REPORTING Module II - Page 3
 H FINANCIAL ASSURANCE FOR FACILITY POST-CLOSURE CARE..... Module II - Page 3
 I LIABILITY REQUIREMENTS Module II - Page 3
 J INCAPACITY OF OWNER OR OPERATORS, GUARANTORS,
OR FINANCIAL INSTITUTIONS Module II - Page 3

Module III - Surface Impoundment Post-Closure Care

A POST-CLOSURE CARE..... Module III - Page 1
 B POST-CLOSURE MAINTENANCE Module III - Page 1
 C POST-CLOSURE GROUNDWATER MONITORING Module III - Page 1
 D INSPECTIONS Module III - Page 2
 E AMENDMENT OF PLAN Module III - Page 2
 E COST ESTIMATES FOR THE FACILITY POST-CLOSURE CARE..... Module III - Page 3

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Module IV - Groundwater Detection Monitoring

A POST-CLOSURE GROUNDWATER MONITORING Module IV - Page 1
 B GENERAL REQUIREMENTS Module IV - Page 1
 C GROUNDWATER PROTECTION STANDARD..... Module IV - Page 2
 D GROUNDWATER MONITORING REQUIREMENTS Module IV - Page 3
 E ELEVATION OF THE GROUNDWATER SURFACE Module IV - Page 4
 F SAMPLING AND ANALYSIS PROCEDURES Module IV - Page 4
 G MONITORING PROGRAM AND DATA EVALUATION Module IV - Page 6
 H RECORDKEEPING AND REPORTING Module IV - Page 6
 I SPECIAL REQUIREMENTS IF SIGNIFICANT INCREASES OCCUR IN VALUES FOR
PARAMETERS OR CONSTITUENTS Module IV - Page 7
 J ASSURANCE OF COMPLIANCE Module IV - Page 8
 K REQUEST FOR PERMIT MODIFICATION Module IV - Page 8

Module V - Groundwater Corrective Action

A CORRECTIVE ACTION PROGRAM SUBMITTAL.....Module V - Page 1
B CORRECTIVE ACTION IMPLEMENTATION.....Module V - Page 1
C HAZARDOUS CONSTITUENT TREATMENTModule V - Page 1
D DURATION OF CORRECTIVE ACTION PROGRAM.....Module V - Page 1
E COST ESTIMATES FOR CORRECTIVE ACTIONModule V - Page 1
F FINANCIAL ASSURANCE FOR CORRECTIVE ACTIONModule V - Page 1

LIST OF ATTACHMENTS

The following documents are hereby incorporated, in their entirety, by reference, into this permit. Attachment I provides enforceable conditions of this permit as modified by the specific permit conditions. Attachments II, III, and IV are attached as references to previous site conditions, approved designs, closure actions, and post-closure activities performed and/or required prior to this permit renewal. These prior requirements are replaced by enforceable conditions contained in the current permit and Attachment I.

Attachment I

Post-Closure Care and Monitoring Plan, BP Closed Hazardous Waste Management Facility (CHWMF), EPA ID No. UTD000826370, 2019.

~~Attachment II~~

~~Closure and Post-Closure Plans for Remote Hazardous Waste Management Facility, Revised July 1986, Volumes 1, 2, 3, and 4.~~

~~Attachment III~~

~~Summary Report, Stage 1 and 2 Construction, Quality Control and Certification, April 1988.~~

~~Attachment IV~~

~~Summary Report, Stage 3 and 4 Construction, Quality Control and Certification, Volumes 1, 2 and 3, July 1991.~~

~~Attachment V~~

~~Certification of Closure.~~

~~Attachment VI~~

~~Annual Reports for years 1991 through 2017, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, and 2006.~~

Comment [HZ1]: Delete Attachments II through VI from the permit. Need to request from BP a hard copy or an electronic copy of Attachment II, Volume 2, and Attachment IV.

DEFINITIONS

For purposes of this permit, the following definitions shall apply:

"Control Board" shall mean the Utah Waste Management and Radiation Control Board.

"Director" shall mean the director of the Utah Division of Waste Management and Radiation Control, Department of Environmental Quality.

"Facility" shall mean all contiguous land, and structures, and other appurtenances, and improvements on the land at the BP Products North America Inc. (BP) Closed Hazardous Waste Management Facility (CHWMF), EPA ID No. UTD000826370, Salt Lake County, Utah. The property description of the facility is presented on the survey map in Appendix B of the Post-Closure Care and Monitoring Plan (Attachment I). The facility was formerly referred to as the Amoco Oil Company (Amoco) Remote Hazardous Waste Management Facility.

"RCRA" shall mean the Resource Conservation and Recovery Act of 1976, as amended by The Solid and Hazardous Waste Amendments (HSWA) of 1984.

"Spill" shall mean the accidental discharging, spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous wastes or materials which, when spilled, become hazardous wastes, into or on any land or water.

All definitions contained in R315-260 through R315-266, R315-124, R315-268, R315-270, R315-273, and R315-101 of the Utah Admin. Code are hereby incorporated, in their entirety, by reference into this permit, except that any of the definitions used above shall supersede any definition of the same term given in R315 of Utah Admin. Code. 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.

MODULE I - STANDARD PERMIT CONDITIONS**I. A EFFECT OF PERMIT**

- I.A.1 The Permittee has closed and monitored [the hazardous waste management unit which consists of](#) four hazardous waste disposal surface impoundments at the BP Closed Hazardous Waste Management Facility (formerly referred to as the Amoco Remote Hazardous Waste Management Facility) in accordance with the previous permit dated June 12, 2007. The Permittee is required to provide post-closure care and monitoring in accordance with the conditions of this permit. Any treatment, storage, or disposal of hazardous waste not authorized in this permit, by [R315-270-61](#), by [R315-262 of Utah Administrative Code \(Utah Admin. Code\)](#), or any other RCRA permits is prohibited at this facility.
- I.A.2 Pursuant to [R315-270-30 through 34 of Utah Admin. Code](#), compliance with this permit constitutes compliance, for purposes of enforcement, with the Utah Solid and Hazardous Waste Act and RCRA, as amended by HSWA, except for those requirements not included in this permit which become effective by statute, or which are future regulatory changes including but not limited to, those requirements promulgated under [R315-268 of Utah Admin. Code](#) restricting the placement of hazardous wastes in or on the land.
- I.A.3 Issuance of this permit does not convey 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.

I. B ENFORCEABILITY

Violations duly documented through the enforcement process and upheld through judicial action, pursuant to Utah Code Annotated 19-6-113, may result in penalties as stated therein.

I. C OTHER AUTHORITY

The Utah Department of Environmental Quality expressly reserves any right of entry provided by law and any authority to order or perform emergency or other response activities as authorized by law.

I. D PERMIT ACTIONS

- I.D.1 This permit may be modified, revoked and reissued, or terminated for cause, as specified in [R315-270-41](#) or [R315-270-43 of Utah Admin. Code](#).
- I.D.2 The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, requiring prior agency approval, or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

- I.D.3 All permit conditions within this permit supersede conflicting statements, requirements or procedures found within the Attachments of the Permit.
- I.D.4 If a conflict exists between conditions within this permit, the most stringent condition, as determined by the [Director](#), shall be met. In the event that such a conflict is discovered, the [Director](#) shall provide written notice of his determination and shall allow Permittee reasonable time to meet the condition.
- I.D.5 If a conflict exists between procedures of the attachments of this permit, the most stringent procedure, as determined by the [Director](#), shall be met. In the event that such a conflict is discovered, the [Director](#) shall provide written notice of his determination and shall allow Permittee reasonable time to meet the condition.
- I.D.6 The [Director](#) may modify this permit when the standards or regulations on which the permit was based have been changed by statute, through promulgation of new or amended standards or regulations, or by judicial decision after the effective date of this permit ~~(in accordance with R315-270-41(a)(5) of Utah Admin. Code)~~ and shall allow permittee reasonably to comply.
- I.D.7 This permit may be modified at the request of the Permittee in accordance with the procedures of R315-[270-42 of Utah Admin. Code](#).
- I.D.8 In accordance with the Utah Solid and Hazardous Waste Act, [Utah Code Annotated](#) 19-6-108 (13), this permit shall be reviewed five (5) years after the effective date and modified, as deemed necessary by the [Director](#).

I. E 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. Invalidation of any State or federal statutory or regulatory provision which forms the basis for any condition of this permit does not affect the validity of any other State or federal statutory or regulatory basis for said condition.

I. F DUTIES TO COMPLY

The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with R315-[270-61\(a\) of Utah Admin. Code](#). Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of the Utah Solid and Hazardous Waste Act, and is grounds for enforcement action; for plan approval termination, revocation and reissuance, or modification; or for denial of a plan approval renewal application; or a combination of enforcement action and any of the other listed remedies.

I. G DUTY TO REAPPLY

The Permittee shall submit a complete application for a new permit at least 180 days before this permit expires.

I. H PERMIT EXPIRATION

This permit shall be effective for ten (10) years from the effective date of this permit.

I. I CONTINUATION OF EXPIRING PERMIT

This permit and all conditions herein shall continue in force until the effective date of a new permit, if the Permittee has submitted a timely application in accordance with Condition I.H., under R315-270-50 through 51 and R315-124 of Utah Admin. Code, and the applicable requirements of R315-270-14 through 29 of Utah Admin. Code ~~and the applicable sections of R315 through~~, which is a complete application for a new plan approval, and through no fault of the Permittee, the Director does not issue a new permit with an effective date on or before the expiration date of this permit.

I. J NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

I. K DUTY TO MITIGATE

In the event of noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases to the environment resulting from the noncompliance, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

I. L 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, machinery, and equipment) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. This provision requires the operation of back-up or auxiliary equipment or similar systems when necessary to achieve compliance with the conditions of this permit.

I. M DUTY TO PROVIDE INFORMATION

The Permittee shall furnish to ~~the Control Board or~~ the Director, within a reasonable time, any relevant information which ~~the Control Board or~~ 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. The Permittee shall also furnish to the Control Board or the [Director](#) upon request, copies of records required to be kept by this permit.

I. N INSPECTION AND ENTRY

Pursuant to R315-260-5 of [Utah Admin. Code](#) and [Utah Code Annotated](#) 19-6-109, the Permittee shall allow the Control Board, the [Director](#), or an authorized representative, upon the presentation of credentials and other documents, as may be required by law, to:

- I.N.1 Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records are kept as required by the conditions of this permit;
- I.N.2 Have access to and copy, at reasonable times, any records that are kept as required by the conditions of this permit;
- I.N.3 Inspect at reasonable times any portion of the Facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit;
- I.N.4 Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Utah Solid and Hazardous Waste Act or RCRA, any substances or parameters at any location; and
- I.N.5 Make record of inspection by photographic, electronic, videotape, or any other reasonable medium.

I. O MONITORING AND RECORDS

I.O.1 The Permittee shall retain records of all monitoring information at the Arcadis U.S., Inc. (Arcadis), Helena, Montana office, including all calibration and maintenance records and, where applicable, all original strip chart recordings (or equivalent recordings) for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report, certification, or recording unless a longer retention period for certain information is required by other conditions of this permit. These periods may be extended by request of the [Director](#) at any time prior to expiration of document retention period by written notification to the Permittee and the retention times are automatically extended during the course of any unresolved enforcement action regarding the Facility to three (3) years beyond the conclusion of the enforcement action with the proviso that permittee has received the complaint within the three (3) years.

I.O.2 Pursuant to R315-270-30(j), records of monitoring information shall specify at a minimum:

I.O.2.a The date(s), exact place, and times of sampling or measurements;

I.O.2.b The name(s), title(s), and affiliation of individual(s) who performed the sampling or measurements;

I.O.2.c The date(s) analyses were performed;

I.O.2.d The individual(s) who performed the analyses;

I.O.2.e The analytical techniques or methods used; and

I.O.2.f The results of such analyses.

I.O.3 Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Laboratory methods shall be those specified in Attachment I or in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846* (~~third Edition, November 1986,~~ ~~or~~ *prevailing edition, including all finalized Updates*) (hereafter referred to as SW-846)¹, *Standard Methods of Examination of Water and Wastewater* (*22nd Edition, 2012, or prevailing edition*). Other methods will be allowed if approved by the [Director](#).

I.O.4 When requesting substitute or additional analytical methods;

The Permittee shall submit to the [Director](#) a request for substitution of analytical methods(s) which is equivalent to the method(s) specifically approved for use in this permit, in accordance with [R315-270-42 of Utah Admin. Code](#). The request shall provide information demonstrating that the proposed method(s) requested to be substituted is equivalent or superior in terms of sensitivity, accuracy, and precision (i.e., reproducibility).

I. P REPORTING PLANNED CHANGES

The Permittee shall give written notice to the [Director](#) of any planned physical alterations or additions to any hazardous waste management unit or system being permitted or previously permitted in accordance with [R315-270-30\(f\)](#), [R315-270-30\(l\)\(1\)](#) and [R315-270-42 of Utah Admin. Code](#).

I. Q 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 requirements of this permit. Advance notice shall not constitute a defense for any noncompliance.

I. R TRANSFER OF PERMIT

This permit shall be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to [R315-270-40](#) and [R315-270-41 of Utah Admin. Code](#). Prior to transferring ownership of the Facility during the post-closure care period, the Permittee shall notify the new

¹ <https://www.epa.gov/hw-sw846>

owner or operator, in writing, of the requirements of R315-[15, 17, 101, 102, 103, and 260 through 320](#), and this permit.

I.S TWENTY-FOUR HOUR REPORTING

The Permittee shall report to the [Director](#) any noncompliance with the permit which may endanger human health or the environment. Any such information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. This report shall include, but not be limited to, the following:

- I.S.1 Information concerning the release of any hazardous waste which may endanger public drinking water supplies.
- I.S.2 Information concerning the release or discharge of any hazardous waste at the facility which could threaten the environment or human health outside the facility. The description of the occurrence and its cause shall include:
 - I.S.2.a Name, address, and telephone number of the permittee;
 - I.S.2.b Name, address, and telephone number of the facility;
 - I.S.2.c Name, address and telephone number of the reporting individual;
 - I.S.2.d Date, time and type of incident;
 - I.S.2.e Name and quantity of materials involved;
 - I.S.2.f The extent of injuries, if any;
 - I.S.2.g An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and
 - I.S.2.h Estimated quantity and disposition of recovered material that resulted from the incident. A written submittal shall also be provided within seven (7) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain, but not be limited to: a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and if not, the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Permittee need not comply with the seven (7) day written notice requirement if the [Director](#) waives the requirement and the Permittee submits a written report within fifteen (15) days of the time the Permittee becomes aware of the circumstances.
- I.S.3 The Permittee shall comply with the reporting requirements outlined in R315-9 at the time of the incident. The Permittee shall additionally notify the Salt Lake City/County Health Department of

any spill requiring reporting as outlined in this condition.

I. T OTHER NONCOMPLIANCE

The Permittee shall report in writing all other instances of noncompliance with this permit not otherwise required to be reported in accordance with permit condition I.S of this permit, within fourteen (14) days of discovering the noncompliance. The reports shall contain the information listed in permit condition I.S of this permit. Reporting shall not constitute a defense for any noncompliance.

I. U OTHER INFORMATION

Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report submitted to the [Director](#), the Permittee shall submit such facts or corrected information within fourteen (14) days.

I. V SIGNATORY REQUIREMENT

All applications, reports, or other information requested by the [Director](#) shall be signed and certified in accordance with R315-[270-31](#) and R315-[270-30\(k\)](#) of [Utah Admin. Code](#).

I. W REPORTS, NOTIFICATIONS, AND SUBMISSIONS

All reports, notifications, or other submissions which are required by this permit to be transmitted to the [Director](#) should be sent by certified mail or other means of proof of delivery to:

State of Utah
Department of Environmental Quality
Division of Waste [Management and Radiation Control](#)
[195 North 1950 West, 2nd Floor](#)
Post Office Box 144880
Salt Lake City, Utah 84114-4880
Phone: (801) [536-0200](#)

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During normal business hours (8 am to 5 pm, Monday through Friday, except Utah State holidays), required oral notifications shall be given only to the [Director](#) or an Environmental Manager, Environmental Scientist, or Engineer employed by the [Director](#) to assist him/her in administering the hazardous waste program. Notifications made at other times shall be made to one of the aforementioned persons if the Permittee can contact such person at the Facility or at the office of the Division of Solid and Hazardous Waste. Otherwise, notification shall be made to the twenty-four (24) hour answering service at 801-536-4123. Notifications made to the twenty-four (24) hour answering service shall include all applicable information required by this permit. The Permittee shall give oral notification to the [Director](#) or an Environmental Manager, Environmental Scientist,

or Engineer employed by the [Director](#) to assist him/her in administering the hazardous waste program on the first business day following notification to the twenty-four (24) hour answering service.

I. X DOCUMENTS TO BE MAINTAINED FOR THE FACILITY

The Permittee shall maintain the following documents and amendments, revisions and modifications to these documents at Arcadis, Helena, Montana office:

- I.X.1 The post-closure permit application as required by this permit;
- I.X.2 Cost estimate for post-closure (included in Section 7.0 of Attachment I) as required by R315-[264-140 through 151 of Utah Admin. Code](#) and this permit until completion of the post-closure care period is certified in accordance with II.B.4;
- I.X.3 Post-closure monitoring records, to include groundwater monitoring records, groundwater potentiometric maps, and analytical results, as required by this permit;
- I.X.4 Closure Certification (~~Attachment V of this permit~~[Appendix A of Attachment I](#)), as required by R315-[264-110 through 120 of Utah Admin. Code](#) and this permit until completion of the post-closure care period is certified in accordance with II.B.4;
- I.X.5 Personnel training documents (Section 4.0 of Attachment I, of this permit), and records, as required by R315-[264-16 of Utah Admin. Code](#) and this permit until closure for current employees, or for a period of three (3) years for former employees ~~(in accordance with R315-[264-16\(e\) of Utah Admin. Code](#));~~
- I.X.6 Contingency Plan (Section 5.0 and Appendix F of Attachment I of this permit), as required by R315-[264-52 of Utah Admin. Code](#) and this permit until closure is certified;
- I.X.7 Inspection logs (Section 3.0 and Appendix D of Attachment I of this permit), as required by R315-[264-15\(b\) of Utah Admin. Code](#) and this permit for a period of three (3) years in accordance with R315-[264-15\(d\) of Utah Admin. Code.](#);

I. Y PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Pursuant to Section 3005(c)(3) of RCRA (Section 212 of HSWA) R315-[270-32\(b\)\(2\)](#), this permit contains those terms and conditions determined necessary to protect human health and the environment.

MODULE II - GENERAL FACILITY CONDITIONS

II. A APPLICABILITY

The requirements of this permit module pertain to all hazardous waste management units identified within Module III, IV, and V.

II. B POST-CLOSURE CARE OF FACILITY

II.B.1 The Permittee shall monitor the closed impoundments throughout the post-closure care period, which commenced on July 29, 1991, in the manner specified in the Post-Closure Care and Monitoring Plan (Attachment I) in order to ensure detection of a release of hazardous waste, hazardous waste constituents, leachate, contaminated runoff or hazardous waste decomposition products to the soil, groundwater, or surface water from the closed facility. The Permittee shall maintain all containment and monitoring equipment throughout the post-closure care period in accordance with the Post-Closure Care and Monitoring Plan (Attachment I).

II.B.2 The Permittee shall maintain the slurry wall in accordance with the approved procedures contained in Section 3.0 of Attachment I of this permit.

II.B.3 Post-Closure Care Period. The Permittee began Post-Closure care for the Closed Hazardous Waste Management Facility as of July 29, 1991. The post-closure care period will continue for another ten thirty (1030) years for the duration of this permit after that date, and will be extended by the Director for the hazardous waste management unit, unlined surface impoundments, with waste remained in place in accordance with R315-264-117(a)(2)(ii) of Utah Admin. Code.

II.B.4 Certification of Completion of Post-Closure Care. The Permittee shall certify that the post-closure care period was performed in accordance with the specifications in the Post-Closure Plan, as required by R315-264-120 of Utah Admin. Code.

II. C SECURITY

The Permittee shall comply with the following security conditions:

II.C.1 A fence with locking gates surrounding the closed impoundments on all sides, which prevents unauthorized entry, shall be maintained throughout the post-closure care period.

II.C.2 Signs which read "DANGER, UNAUTHORIZED PERSONNEL KEEP OUT" shall be posted at the entrance gate and every 300 feet along the fence and shall be maintained throughout the post-closure care period. The signs must be legible from a distance of at least 25 feet in compliance with R315-264-14(c). All security equipment shall be routinely inspected throughout the post-closure care period. The Permittee has incorporated those security items (i.e., fence, signs of vandalism, etc.) to be inspected and the frequency of inspection on the inspection checklist in Attachment I which are required to be submitted by Condition II.D.1.

II.C.3 Damaged security equipment shall be noted in the inspection checklist and repairs shall be completed as soon as practicable. Reporting of problems and repairs shall be in accordance with the Post-Closure Care and Monitoring Plan (Attachment I).

II.C.4 The Permittee shall comply with all other security procedures as specified in Section 3.0 of Attachment I.

II. D GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedule found in Section 3.0 of Attachment I with at least three days prior notice orally or in-writing to the Director's project staff. In addition, the Permittee shall comply with the following conditions as well as conditions pertaining to inspections in Modules I, II, III, IV, and V.

II.D.1 The Permittee shall remedy any deterioration or malfunction in accordance with Attachment I to satisfy the requirement of R315-264-15(c) of Utah Admin. Code.

II.D.2 Records of inspections shall be kept as required by Attachment I.

II.D.3 The Permittee may make the following revisions to the Inspection Procedures (included as Section 3.0 of Attachment I of this permit), in accordance with the procedures for Class 1 permit modifications which require pre-approval from the Director, in accordance with R315-270-42 of Utah Admin. Code:

II.D.3.a. The Permittee may modify inspection requirements in an existing inspection form, table, figure, or record in cases where such modifications will result in additional inspection procedures.

II.D.3.b. If necessary, the Permittee shall create additional inspection forms, tables, figures, or records to address inspection requirements for equivalent replacement equipment which is to be routinely inspected.

II. E PERSONNEL TRAINING

The Permittee shall conduct personnel training as outlined in Section 4.0 of Attachment I. New personnel working with or around hazardous waste shall complete the required personnel training on or within six (6) months after their hire date or assignment to the facility or to a new position at the facility. In addition, the Permittee shall comply with the following conditions:

II.E.1 Facility personnel shall take part in an annual review of their initial training in both contingency procedures and the hazardous waste management procedures relevant to the positions in which they are employed.

II.E.2 The Permittee shall maintain training documents and records in accordance with the Training Plan in Attachment I.

II.E.3 The Permittee shall maintain a copy of the Training Plan at the Arcadis, Helena, Montana office, until completion of the post-closure care period.

II. F CONTINGENCY PLAN

II.F.1 Implementation of Plan. When dictated by the Contingency Plan (Appendix F of Attachment I), the Permittee shall immediately carry out the provisions of Appendix F of Attachment I and follow the emergency procedures described by R315-[264-56 of Utah Admin. Code](#). The Permittee shall comply with R315-[260-30 through 33 of Utah Admin. Code](#) in reporting releases to the [Director](#).

II.F.2 Copies of Plan. A copy of the Contingency Plan shall be maintained at the Arcadis, Helena, Montana office.

II.F.3 Amendments to Plan. The Permittee shall review the Contingency Plan in accordance with R315-[264-54 of Utah Admin. Code](#). The Permittee shall immediately amend, if necessary, the Contingency Plan, as specified by R315-[270-41 of Utah Admin. Code](#).

II. G RECORD KEEPING AND REPORTING

[II.G.1](#) The Permittee shall submit reports as required to the [Director](#) documenting post-closure groundwater monitoring activities and results from analyses of samples collected in compliance with closure and post-closure monitoring requirements. Copies of all appropriate records will be maintained at the Arcadis, Helena, Montana office. ~~Copies of the Permit, post closure care and monitoring plan, and at a minimum the three most recent annual reports shall be maintained in a public document repository at the J. Willard Marriott Library, 295 South 1500 East, Salt Lake City, Utah, 84112. These documents will be housed in the library's Special Collections Area and be accessible to the public.~~

II. H FINANCIAL ASSURANCE FOR FACILITY POST-CLOSURE CARE

[II.H.1](#) The Permittee shall maintain continuous compliance with R315-[264-140 through 151 of Utah Admin. Code](#).

II. I LIABILITY REQUIREMENTS

II.I.1 The Permittee shall maintain continuous compliance with [R315-264-140 through 151 of Utah Admin. Code](#), including documentation requirements, liability coverage for sudden accidental occurrences in the amount of at least one (1) million U.S. dollars per occurrence with an annual aggregate of at least two (2) million dollars, exclusive of legal defense costs for the post-closure

period.

II.I.2 The Permittee shall maintain continuous coverage for non-sudden accidental occurrences in the amount of at least \$3 million per occurrence, with an annual aggregate of at least \$6 million, exclusive of legal defense costs, for the post-closure period.

II. J INCAPACITY OF OWNER OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS

The Permittee shall comply with R315-[264-148 of Utah Admin. Code](#) whenever necessary.

MODULE III - SURFACE IMPOUNDMENT POST-CLOSURE CARE**III. A POST-CLOSURE CARE**

- III.A.1 The Permittee shall conduct all post-closure care activities in accordance with the approved post-closure plan (Attachment I) and this permit, in accordance with R315-~~264-110 through 120, and R315-124 and 270~~ of Utah Admin. Code.
- III.A.2 The Permittee shall maintain and monitor the closed impoundments, and continue to operate the waste containment systems during the Post-Closure Period in accordance Attachment I of this permit. The effective date of the certification of closure is July 29, 1991.

III. B POST-CLOSURE MAINTENANCE

The Permittee shall:

- III.B.1 Maintain the integrity and effectiveness of the final cover in accordance with Attachment I, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion or other events.
- III.B.2 Prevent run-on and run-off from eroding or otherwise damaging the final cover in accordance with Attachment I.
- III.B.3 Prohibit post-closure use of the property which will disturb the integrity of the final cover, containment systems, or monitoring system in accordance with Attachment I.

III. C POST-CLOSURE GROUNDWATER MONITORING

- III.C.1 The Permittee shall maintain and monitor the waste containment systems, including the slurry wall described in Sections 3.3.1.2 and the Closure and Post-Closure Plans for Remote Hazardous Waste Management Facility, Revised July 1986, Volumes 1, 2, 3, and 4, Appendix B of Attachment II.
- III.C.2 The requirements for pumping the drain system, along with other activities directly related to a pumping requirement, have expressly been deleted from this permit.
- III.C.3 The Permittee shall maintain a groundwater monitoring system as specified below in accordance with R315-~~264-97~~of Utah Admin. Code:

Monitoring Well Locations. Maintain and monitor the groundwater monitoring systems in compliance with Module IV, and Section 2.0 and Appendix D of Attachment I, which consist of the monitoring wells listed in Table 1 of Attachment I. During the post-closure period, water level measurements at the monitor wells listed in Table 1 shall be conducted in accordance with Section 2.1 of Attachment I at the Closed Hazardous Waste Management Facility. The Permittee shall

maintain groundwater monitoring wells at the locations specified on the map (Figure 1) in Attachment I. The Permittee may add wells as specified in Condition IV.D.7.

III.C.4 Monitoring Well Installation and Construction.

The Permittee shall maintain the monitoring wells identified in Table 1 of Attachment I, in accordance with the detailed plans and specifications presented in Attachment I and as specified in Condition IV.B.1.

III.C.5 The Permittee shall construct and maintain new monitoring wells, if any, in accordance with Condition IV.B.2.

III. D INSPECTIONS

Inspections shall be conducted during the post-closure care period in compliance with the procedures specified in Condition II.D and as specified in Attachment I. All records of inspections and remedial actions shall be retained at the Arcadis, Helena, Montana office, for a minimum of three years from the date of the inspection or remedial action. Any deterioration or malfunction discovered by an inspection shall be remedied in accordance with the procedures contained in Attachment I.

III. E AMENDMENT OF PLAN

The Permittee shall amend the post-closure plan in accordance with R315-264-110 through 120 of Utah Admin. Code whenever necessary or when required to do so by the Director.

III. F. COST ESTIMATES FOR THE FACILITY POST-CLOSURE CARE

III.F.1 The Permittee's post-closure cost estimate shall be prepared in accordance with R315-264-140 through 151 of the Utah Admin. Code.

III.F.2 Within ninety (90) days after the end of each BP Product North America fiscal year, the Permittee shall adjust the post-closure cost estimate for inflation and submit a copy of that adjusted post-closure cost estimate to the Director, and maintain the latest adjusted post-closure cost estimate in the Operating Record

III.F.3 The Permittee shall revise the post-closure cost estimate whenever there is a change in the facility's post-closure plan as required by R315-264-140 through 151 of the Utah Admin. Code

III.F.4 When the post-closure permit is reissued, the cost of post-closure care will be extended for the duration of the permit, so that at all times the Permittee shall maintain sufficient funds to conduct 10 years of post-closure care

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MODULE IV - GROUNDWATER DETECTION MONITORING

IV. A POST-CLOSURE GROUNDWATER MONITORING

IV.A.1 The Permittee shall monitor groundwater in the uppermost aquifer as described in Section 2 and Appendices D and E of Attachment I in order to satisfy the requirements of R315-~~264-228~~, R315-~~264-110 through 120-8-7~~, and R315-~~264-90 through 101 of Utah Admin. Code~~ during the post-closure care period as defined in Conditions II.H and IV.B.3.

IV.A.2 Solid waste management units (SWMUs) may be subject to provisions of this Module. The Director shall determine which SWMUs may be subject to some or all of the provisions of this Module. The Permittee must comply with the provisions of R315-~~264-101 of Utah Admin. Code~~.

IV.A.3 The Point of Compliance is a vertical surface located at the hydraulically downgradient boundary of the Closed Hazardous Waste Management Facility. The compliance point wells are listed in Condition IV.B.1.

IV. B GENERAL REQUIREMENTS

The Permittee shall maintain a groundwater monitoring system as specified below in accordance with R315-~~264-97 of Utah Admin. Code~~:

IV.B.1 Monitoring Well Locations. The Permittee shall maintain groundwater monitoring systems, which consist of monitoring wells situated hydraulically upgradient and downgradient of the closed units and in or near identified areas of contamination. Monitoring well number S-16 shall be considered hydraulically upgradient of the closed units at the Closed Hazardous Waste Management Facility. The following wells will be monitored as downgradient wells: WQ-1, WQ-2, WQ-3, WQ-4, and WQ-5 for the zone beneath the slurry wall that acts as a groundwater containment system, and TN-1A, TN-2A, TN-3A, TN-4A and TN-5A for an upper zone of the containment system. The Permittee shall maintain groundwater monitoring wells at the locations specified on the map (Figure 24) in Attachment I. The Permittee may add wells as specified in Condition IV.D.7. The Permittee may be required by the Director to install additional monitoring wells in the upper zone of the containment system in accordance with Condition IV.D.7. of the permit.

IV.B.2 Monitoring Well Installation and Construction. The Permittee shall maintain the monitoring wells identified in Condition IV.B.1, in accordance with the detailed plans and specifications presented in Attachment I. New or replacement wells shall be installed as specified below:

IV.B.2.a Upon written notification by the Director, or as a result of a compliance action, the Permittee may be required to install and sample additional wells at any time during the post-closure or compliance periods if new information or unforeseen circumstances reveal a need for additional monitoring to protect human health and the environment.

IV.B.2.b Existing monitoring wells shall be maintained in a fully operational condition for the duration of this permit. The Permittee shall notify the Director within fourteen (14) days when a well is

no longer properly functioning (as determined by monitor well integrity testing contained in Section 3.5 of Attachment I). The Permittee shall submit to the Director for approval a plan for any replacement or correction of improperly operating well(s). Replacement of an existing well that has been damaged or rendered inoperable, without change to location, design, or depth of the well shall constitute a Class 1 permit modification under Condition I.D.7.

IV.B.2.c The Permittee shall submit to the ~~Executive Secretary~~Director for approval a plan for any permanent removal of any well listed in IV.B.1 and Table 1 of Attachment I, or any well installed after permit issuance. A request for the removal of wells shall constitute a Class 2 permit modification.

IV.B.2.d The Permittee shall permanently remove wells from the monitoring well system in accordance with plugging and abandonment procedures approved by the Director. Well plugging and abandonment methods shall be submitted to the Director for approval thirty (30) days prior to the date the wells are to be removed from the monitoring program.

IV.B.2.e The Permittee shall provide for the proper disposal of groundwater generated during the development of any newly installed monitor wells.

IV.B.3 As indicated by R315-~~264-110 through 120~~ of Utah Admin. Code, the post-closure care period for the Closed Hazardous Waste Management Facility is thirty (30) years from the effective date of the certification of closure, ~~unless the post-closure care period is extended by the Director in accordance with R315-264-117(a)(2)(ii) of Utah Admin. Code and Condition II.B.3 of the Permit. If the Permittee is engaged in a corrective action program at the end of the compliance period, monitoring shall continue until the Permittee can demonstrate that the groundwater protection standard in Condition IV.C has not been exceeded for three (3) consecutive years [R315 8-6.11(f)].~~

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IV. C GROUNDWATER PROTECTION STANDARD

IV.C.1 Hazardous Constituents. If the detection monitoring program required by Condition IV.A confirms the release of hazardous constituents from the closed units, the Director will specify the hazardous constituents to which the groundwater protection standard applies according to the procedures set forth in R315-~~264-92~~ of Utah Admin. Code.

IV.C.2 Concentration Limits. If the detection monitoring program required by condition IV.A confirms the release of hazardous constituents from the closed units, the Director shall~~will~~ establish concentration limits for the hazardous constituents. The Director will determine appropriated concentration limits according to the criteria set forth in R315-~~264-94~~ of Utah Admin. Code and Table IV-1.

IV.C.3 The Permittee shall monitor wells ~~TN-1A through TN-5A and S-16~~ annually, and ~~WQ-1 through WQ-5~~ on a five-year basis starting the 5th year of the permit re-issuance, as described in Permit Condition IV.B.1, for the parameters or constituents listed in condition IV.C.4. ~~in accordance with [R315-264-98(a)]~~ of Utah Admin. Code.

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IV.C.4 The Permittee shall monitor the groundwater for the required parameters or constituents with required test methods listed in Table IV-1 below. The Permittee shall submit all groundwater monitoring records and laboratory reports with full analyte list as specified in EPA Method 8260C. Additional parameters or constituents may be added to Table IV-1 if detected. If an alternate test method is to be proposed for use, procedures in Condition I.O.4 shall be followed. If more than one test method is listed for a hazardous waste constituent, the Permittee shall report which method was used in the sample analysis report.

Table IV-1

GROUNDWATER MONITORING PARAMETERS AND CONSTITUENTS

<u>Parameter or Constituent</u>	<u>Test Method</u>	<u>Concentration Limit (ug/L)*</u>
1,1 Dichloroethane	8260C	5
1,1 Dichloroethylene	8260C	5
Chloroform	8260C	5
1,1,1 Trichloroethane	8260C	5
Carbon Tetrachloride	8260C	5
Benzene	8260C	5
Toluene	8260C	5
Ethylbenzene	8260C	5
Xylenes Total	8260C	5
Total/Dissolved Chromium	6010B	50

IV.C.5 Background values for those organic parameters and constituents in Permit Condition IV.C.4 (Table IV-1) will be defined as the listed concentration limits. Procedures for determination of a statistically significant increase are defined in Condition IV.G. The concentration limit for chromium is set at the maximum contaminant level (MCL).

IV.C.6 Based on evaluation of the monitoring data to be collected after the 10th year of this permit re-issuance, the Permittee may petition for the Director's approval to cease the groundwater monitoring at monitoring wells WQ-1 through WQ-5.

IV. D GROUNDWATER MONITORING REQUIREMENTS

The Permittee shall comply with the following general requirements for groundwater monitoring:

IV.D.1 The groundwater monitoring system shall consist of the wells specified in IV.B.1.

- IV.D.2 All new or replacement monitoring wells shall be constructed in accordance with the provisions in R315-~~264-97~~(c) of Utah Admin. Code and Condition IV.B.2.
- IV.D.3 The groundwater monitoring program included in Attachment I provides sampling and analysis procedures to satisfy R315-~~264-97~~(d) and (e) of Utah Admin. Code. The Permittee shall submit to the Director any revision to the Post-Closure Groundwater Detection Monitoring Plan in Appendix D of Attachment I.
- IV.D.4 The Permittee shall follow the requirements for measurement of the groundwater surface elevation in Attachment I to satisfy R315-~~264-97~~(f) of Utah Admin. Code.
- IV.D.5 If the Director receives information indicating that the surveyed well elevations of the wells in the groundwater system(s) as specified in Conditions III.C or IV.B.1, are inadequate, the Director shall require the Permittee to resurvey any or all of these well apron elevations.
- IV.D.6 The Permittee shall notify the Director orally or in writing at least seven (7) calendar days prior to any sampling event required under this permit.
- IV.D.7 The Permittee may add new wells as part of the monitoring well system only upon approval or request of the Director. Changes to the monitoring well system shall constitute a permit modification. The Permittee shall follow the procedures specified in Condition I.D.7 for modification of the permit.
- IV.D.8 The Permittee must at all times maintain a monitoring well system as specified in Condition IV.B.1. The compliance point wells listed in Condition IV.B.1 may not be removed from the monitoring well system without approval of the Director and submitting a permit modification, in accordance with R315-~~270-41~~ of Utah Admin. Code.
- IV.D.9 The Permittee shall provide for the proper disposal of contaminated groundwater generated during groundwater monitoring well sampling and during the development of new monitoring wells.
- IV.D.10 The Permittee shall monitor and sample all groundwater wells for the presence of hazardous constituents identified in Condition IV.C. The wells shall be sampled at a frequency and in a manner consistent with Condition IV.C and IV.G.2.

IV. E ELEVATION OF THE GROUNDWATER SURFACE

- IV.E.1 The Permittee shall determine the elevation of the groundwater surface at wells S-16, S-21, S-26, S-31, S-32, S-33, WQ-1 through WQ-5, and TN-1A through TN-5A each time the ground water is sampled, in accordance with Permit Condition IV.G.2 ~~and R315-264-97(f) of Utah Admin. Code.~~ All groundwater surface elevation readings for each sampling event shall be recorded within a 24 hour period.
- IV.E.2 The Permittee shall record the surveyed elevation of the monitoring well(s) when installed (with

as-built drawings). The information recorded shall include: The total depth of the well and the elevations of the following should be recorded: top of casing, ground surface and/or apron elevation.

IV. F SAMPLING AND ANALYSIS PROCEDURES

IV.F.1 The Permittee must include and maintain consistent sampling and analysis procedures in the groundwater monitoring program that are designed to ensure reliable monitoring results of groundwater quality downgradient of the Closed Hazardous Waste Management Facility. In order to satisfy R315-264-97(d) of [Utah Admin.Code](#), the program provided in Attachment I includes procedures and techniques for:

IV.F.1.a sample collection;

IV.F.1.b sample preservation and shipment;

IV.F.1.c analytical procedures;

IV.F.1.d chain-of-custody control; and

IV.F.1.e quality assurance and quality control.

IV.F.2 The sampling and analytical methods provided in Appendix D of Attachment I are appropriate for groundwater sampling and accurately measure hazardous waste constituents in groundwater samples, as required by R315-264-97(e) of [Utah Admin. Code](#).

IV.F.3 The Permittee shall use the following techniques and procedures when obtaining samples and analyzing samples from the groundwater monitoring wells and for obtaining and analyzing water samples from the Closed Hazardous Waste Management Facility:

IV.F.3.a Samples from all wells shall be collected in the order and by the techniques described in the approved Sampling Plan, located in Appendix D of Attachment I. All groundwater samples for each sampling event shall be collected within a forty-eight (48) hour period.

IV.F.3.b All samples shall be preserved and transported in accordance with the procedures specified in the approved Sampling Plan of Appendix D of Attachment I.

IV.F.3.c [BPPermittee](#) may request a modification to the detection parameters, sampling frequency, and sampling and analysis procedures. All such changes shall constitute a permit modification following the procedures of Condition I.D.7.

IV.F.3.d All samples shall be analyzed according to test methods delineated in Condition IV.C, or an equivalent EPA-approved method that has been pre-approved, by the [Director](#) as per Permit Condition I.O.4. In addition:

1. For each sampling event under the groundwater monitoring program, the use of quality control sample data shall be explained in full detail in the annual reports. The Permittee shall collect and analyze for each daily sampling event, at least one (1) volatile constituent trip blank. In addition, one blind duplicate will be taken and analyzed during each annual sampling event. The laboratory shall provide method blanks, spikes, and duplicates. If nondedicated sampling equipment is used, the Permittee shall collect and analyze one (1) equipment blank for analysis at each daily sampling event.
2. The **Director** may request at any time all laboratory QA/QC documentation and supporting data on any sampling episode. The raw organics information for required analysis, including organics gas chromatographic printouts, mass spectral analyses, and QA/QC data, will be retained by the laboratory in accordance with its standard procedures. Copies of laboratory reports of results including surrogate and spiking results shall be retained at the Arcadis, Helena, Montana office throughout the post-closure care period.
3. All samples shall be tracked and controlled using the chain-of-custody procedures specified in the Sampling Plan as indicated in Appendix D of Attachment I.
4. In case of loss of sample integrity (i.e., breakage, loss), resampling shall take place within twenty-one (21) days of notification to the facility of the loss.

IV. G MONITORING PROGRAM AND DATA EVALUATION

IV.G.1 The Permittee shall collect, preserve, and analyze samples pursuant to Condition IV.F.

IV.G.2 The Permittee shall determine groundwater quality at each water quality monitoring well at the compliance point ~~annually~~ during the post-closure period of the Closed Hazardous Waste Management Facility, ~~in accordance with R315-264-98(d) of Utah Admin. Code and Conditions IV.B.1 and IV.C3 of the Permit.~~ The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant increases. The statistical method to be used shall follow the USEPA Unified Guidance (2009), as detailed in Section 17.3.2 (Mann-Kendall Trend Test) or in Section 17.3.3 (Theil-Sen Trend Line), for intra-well tests, as appropriate for upper aquifer monitoring wells TN-1A through TN-5A, at the one-sided 95% confidence level.

IV.G.3 The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually ~~in accordance with R315-264-98(e) of Utah Admin. Code and Conditions IV.E.1 and IV.E.2 of the Permit.~~ The Permittee shall submit a groundwater potentiometric map indicating the groundwater surface elevation and flow direction. This information shall be included in the April 15 annual report specified by Condition IV.H.4.

IV.G.4 The Permittee shall determine whether there is a statistically significant increase over the background values for each organic parameter identified in Condition IV.C and whether chromium

exceeds the MCL each time groundwater quality is determined at the compliance point. In determining whether such an increase has occurred, the Permittee must compare the groundwater quality at each monitoring well specified in Condition IV.B.1 to the background value specified in Condition IV.C, in accordance with the statistical procedures specified in Section 2.2 of Attachment I ~~and R315-264-98(f) of Utah Admin. Code.~~

IV. H RECORDKEEPING AND REPORTING

IV.H.1 The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Condition IV.D in the operating record ~~in accordance with R315-264-73 of Utah Admin. Code.~~ The data must include all statistical evaluations required by Condition IV.C.5.

IV.H.2 The established background values and the computations necessary to determine background values must be submitted to the Director.

IV.H.3 The Permittee shall determine whether there is a statistically significant increase in the detection monitoring parameters as required by Condition IV.G.4 within sixty (60) days after completion of sampling ~~in accordance with R315-264-98(f)(2) of Utah Admin. Code.~~

IV.H.4 The Permittee shall include the analytical results required by Condition IV.E and IV.F and results of statistical analyses required by Condition IV.G.4 in the ~~April 15~~ annual report ~~submitted for the Director's review on or before April 15th of each year,~~ along with other required information as specified in the Post-Closure Care and Monitoring Plan (Attachment I).

IV. I SPECIAL REQUIREMENTS IF SIGNIFICANT INCREASES OCCUR IN VALUES FOR PARAMETERS OR CONSTITUENTS

IV.I.1 If the Permittee determines, pursuant to Condition IV.G, there is a statistically significant increase above the concentration limits in Table IV-1 or the background values for any of the organic indicator parameters specified in Condition IV.C, or that the MCL for chromium has been exceeded, the Permittee shall:

IV.I.1.a Notify the Director in writing within seven days ~~in accordance with R315-264-98(g)(1) of Utah Admin. Code.~~

IV.I.1.b ~~As soon as possible~~ Immediately, sample the groundwater in all groundwater quality monitoring wells and determine the concentration of all constituents identified in Appendix IX of ~~R315-264 in accordance with R315-264-98(g)(2) of Utah Admin. Code.~~

IV.I.1.c Establish the background values for each Appendix IX constituent found in the groundwater in accordance with R315-264-98(g)(3) of Utah Admin. Code.

IV.I.1.d Within 90 days, submit to the Director an application for a permit modification to establish a compliance monitoring program ~~in accordance with R315-264-98(g)(4) of Utah Admin.~~

Code. The application must include the following information:

- IV.I.1.d.1 An identification of the concentration of each Appendix IX constituent found in the groundwater at each monitoring well at the compliance point ~~in accordance with R315-264-98(g)(4)(i) of Utah Admin. Code.~~
- IV.I.1.d.2 Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of compliance monitoring in accordance with R315-264-99 and R315-264-98(g)(4)(ii) of Utah Admin. Code.
- IV.I.1.d.3 Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of compliance monitoring in accordance with R315-264-99 and ~~R315-264-98(g)(4)(iii) of Utah Admin. Code.~~
- IV.I.1.d.4 For each hazardous constituent found at the compliance point, a proposed concentration limit, or a notice of intent to seek an alternate concentration limit for a hazardous constituent in accordance with R315-264-98(g)(4)(iv) of Utah Admin. Code.
- IV.I.1.e. Within 180 days of the submittal of alternate concentration limits for the hazardous constituents for the Director's review and approval, the Permittee shall submit all data to support the alternate concentration limit proposed and a corrective action feasibility plan that meets the requirements of Module V of the Permit and R315-264-98(g)(5) of Utah Admin. Code.
- IV.I.2 If the Permittee determines, pursuant to Condition IV.G, there is a statistically significant increase above the background values or concentration limits for the parameters specified in Condition IV.C, he/she may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. In such cases, the Permittee shall:
- IV.I.2.a Notify the Director in writing within seven (7) days that he/she intends to make a demonstration ~~in accordance with R315-264-98(g)(6)(i) of Utah Admin. Code.~~
- IV.I.2.b Within 90 days, submit a report to the Director which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation ~~in accordance with R315-264-98(g)(6)(ii) of Utah Admin. Code.~~
- IV.I.2.c Within 90 days, submit to the Director an application for a permit modification to make any appropriate changes to the detection monitoring program at the facility ~~in accordance with R315-264-98(g)(6)(iii) of Utah Admin. Code.~~
- IV.I.2.d Continue to monitor in accordance with the detection monitoring program at the facility ~~in accordance with R315-264-98(g)(6)(iv) of Utah Admin. Code.~~

IV. J ASSURANCE OF COMPLIANCE

The Permittee shall assure the Director that groundwater monitoring and corrective action measures necessary to achieve compliance with the groundwater protection standard in accordance with R315-264-92 of Utah Admin. Code are taken during the term of the Permit ~~in accordance with R315-264-99 and , R315-264-100 of Utah Admin. Code.~~

IV. K REQUEST FOR PERMIT MODIFICATION

If the Permittee or the Director determines the detection monitoring program no longer satisfies the requirements of the regulations, the Permittee must, within 90 days of the determination, submit an application for a permit modification to make any appropriate changes to the program which will satisfy the regulations ~~in accordance with R315-264-99(j) of Utah Admin. Code.~~

IV. M DATA VALIDATION

All groundwater samples and the quality control data collected from compliance monitoring wells during the Annual Groundwater Sampling event defined in this Module shall be subjected to a Level 3 Data Validation to assess the quality of the groundwater samples and analyses for use in technical reports and for decision making purposes. Data validation shall follow the USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review, January 2017 and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017, or the most recent editions. Data validation report shall be included in the annual report.

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MODULE V - GROUNDWATER CORRECTIVE ACTION**V. A CORRECTIVE ACTION PROGRAM SUBMITTAL**

The Permittee shall submit a Corrective Action Program (CAP) for any contamination associated with the Closed Hazardous Waste Management Facility, within 180 days of notification of the Permittee by the [Director](#) that a CAP is required. Upon submittal of the CAP, the [Director](#) will review the plan and either approve or disapprove the CAP. If the CAP is not approved, ~~BP~~[the Permittee](#) will provide corrective solutions to the CAP deficiencies within 90 days of notification. If the CAP resubmittal is not approved, the [Director](#) will modify the CAP and this will become the approved version.

V. B CORRECTIVE ACTION IMPLEMENTATION

Upon approval of the CAP by the [Director](#), the Permittee shall implement the CAP, in a manner which will prevent hazardous waste constituents from exceeding their respective detection and/or concentration limits, as defined by Condition V.C, at the Compliance Point, by removing the hazardous waste constituents, or by treating them in place.

V. C HAZARDOUS CONSTITUENT TREATMENT

The Permittee shall conduct a CAP to remove or treat in place, in accordance with Condition B above, any hazardous waste constituents that has migrated from the Closed Hazardous Waste Management Facility and exceeds concentration limits in the groundwater beyond the Compliance Point as outlined in Condition IV.A.3.

V. D DURATION OF CORRECTIVE ACTION PROGRAM

The Permittee shall continue corrective action measures until the Groundwater Protection Standard of Condition IV.C has not been exceeded for three (3) consecutive years.

V. E COST ESTIMATES FOR CORRECTIVE ACTION

The corrective action plan required by Condition V.A shall provide a cost estimate of the actions required by Condition V.C.

V. F FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

The Permittee shall maintain continuous compliance with [requirements of R315-264-140 through 151 of Utah Admin. Code.](#) Upon approval of the corrective action plan and cost estimates by the [Director](#), the Permittee shall within thirty (30) days of that approval ensure that financial assurance exists for implementing and maintaining the approved corrective action plan.

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Permittee: BP Products North America, Inc.

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**ATTACHMENT I
POST-CLOSURE CARE AND
MONITORING PLAN**

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Closed Hazardous Waste Management Facility
Salt Lake City, Utah
EPA ID No. UTD000826370

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February 2019

CONTENTS

1	Introduction.....	1
1.1	General	1
1.2	Location of Records.....	2
2	Groundwater Level and Quality Monitoring.....	3
2.1	Groundwater Level Monitoring	3
2.2	Hazardous Constituent Groundwater Detection Monitoring.....	3
3	Inspections and Maintenance	6
3.1	Security Inspection	6
3.2	Cover Inspection.....	6
3.3	Groundwater Level Monitoring	7
3.4	Monitor Well Integrity Testing.....	7
4	Personnel and Training.....	10
4.1	Personnel	10
4.2	Training Plan	10
4.3	Training Schedule.....	11
5	Contingency Plan	12
6	Reporting Requirements.....	13
7	Post-Closure Cost Estimate	14

TABLES

Table 1	Monitoring Well Construction Detail and Sampling Rationale
Table 2	Summary of Parameters and Analytical Methods
Table 3	Designated Responsible Personnel
Table 4	Job Qualifications/Descriptions
Table 5	Post-Closure Cost Estimate

POST-CLOSURE CARE AND MONITORING PLAN

FIGURES

- Figure 1 Site Location Map
- Figure 2 CHWMF Facility Drawing
- Figure 3 Schematic Diagram of Post-Closure Detection Monitoring Wells
- Figure 4 Report Decision Flow Chart

APPENDICES

- Appendix A Certification of Closure
- Appendix B Affidavit Notice to Deed and Closure Survey Plat
- Appendix C Post-Closure Monitoring and Inspection Checklists
- Appendix D Post-Closure Groundwater Detection Monitoring Plan
- Appendix E Contingency Plan for Post-Closure Care and Monitoring

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1 INTRODUCTION

1.1 General

This Post-Closure Care and Monitoring Plan describes a program for post-closure care and monitoring of the closed surface impoundments at BP Products North America, Inc.'s (BP) Closed Hazardous Waste Management Facility (CHWMF). The CHWMF is a former refinery waste containment facility that consisted of four surface impoundments and two evaporation pond areas. The facility consists of approximately 87 acres and is located in northern Salt Lake City, Utah. A site location map is provided as Figure 1 and a site layout map is shown on Figure 2.

Prior to 1991, this facility was known as Amoco Oil Company's (Amoco) "Remote Hazardous Waste Management Facility" (RHWMF) with the same U.S. Environmental Protection Agency (EPA) Identification Number (UTD 000826370). In 2003, Amoco's name was changed to BP Products North America, Inc. in a revised version of the Post Closure Care and Monitoring Plan.

This Post-Closure Care and Monitoring Plan accompanies and is incorporated by reference into the CHWMF Post-Closure Permit for the facility. Included in this document are descriptions of post-closure program elements including training, groundwater monitoring, inspections and maintenance, and reporting. The Groundwater Detection Monitoring Plan, the Contingency Plan, and post-closure monitoring and inspection checklists are components of this revised plan and are contained in the appendices to this document. The appendices specifically address issues pertinent to post-closure care and monitoring at the CHWMF. The CHWMF Post-Closure Permit describes these and all other actions that are required for the facility. The current Post-Closure Permit was renewed in 1997 and is valid for ten years.

The CHWMF was certified closed on July 29, 1991, and activities at the CHWMF have since entered the post-closure period. The post-closure ~~care period continues with the requirements of the permit. extends 30 years after closure certification, thus terminating in the year 2024.~~ A copy of the certification of closure for the facility is attached as Appendix A.

BP owns the land occupied by the CHWMF and the land up to 1,000 feet north of the CHWMF. Access to the property is limited to authorized BP personnel and contractors by entrance through a locked gate located near the southern property boundary. Vehicular traffic on the final capped areas, which overlie the wastes, is limited to authorized personnel in the performance of required maintenance or monitoring activities. Post-closure use of the area in which hazardous wastes remain after closure shall be open space and BP will not allow disturbance of the integrity of the final cover, slurry wall, or any other components of the containment system, or the function of the facility's monitoring systems, unless the Utah Division of ~~Waste Management and Radiation Control~~~~Solid and Hazardous Waste~~ (UD~~WMRCSHW~~) finds that the disturbance:

- Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; and/or
- Is necessary to reduce a threat to human health or the environment

POST-CLOSURE CARE AND MONITORING PLAN

The property owned by BP containing the CHWMF was purchased as three separate parcels, one in 1960, and two in 1963. A 29.69-acre parcel was purchased from the Salt Lake City Corporation in 1960; 27.60 acres and 29.68 acres were purchased in 1963 from the Portland Cement Association and the Snow Estate, respectively. In December 1984, an instrument was added to the deed for each property acknowledging the presence of hazardous waste on the properties, ~~in accordance with 40 Code of Federal Regulations CFR 264.120.~~

On October 25, 1991, ~~a revised Affidavit Notice to Deed and Closure Survey Plat~~ were delivered to the Salt Lake County Recorder for recording as required by the Post-Closure Permit. As instructed by the County Recorder's office, an original survey plat was delivered to the County Surveyor's office, so it could be properly filed with land records. Written verification was also provided to the Utah Solid and Hazardous Waste Committee and EPA Region VIII that these two instruments were filed. A copy of the Deed and Plat are attached in Appendix B.

Comment [HZ1]: Need Review and update as necessary.

1.2 Location of Records

Since there are no structures at the CHWMF to house documents pertaining to the post-closure period, all plans, records and reports generated during the post-closure period will be housed in the Arcadis Helena, Montana office located at 46 N Last Chance Gulch, Suite 2A in Helena, Montana 59601. Copies of the post-closure permit, post-closure care and monitoring plan, ~~and at a minimum the three most recent annual reports shall be maintained in a public document repository at the J. Willard Marriott Library, 295 South 1500 East, Salt Lake City, Utah, 84112. These documents will be housed in the library's Special Collections Area and be accessible to the public.~~

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2 GROUNDWATER LEVEL AND QUALITY MONITORING

Groundwater level and quality monitoring will be performed on an annual basis. In accordance with requirements of the Post-Closure Permit, BP must notify the ~~Executive Secretary~~Director of the Utah Division of Waste Management and Radiation Control (the Director) orally or in writing at least seven calendar days in advance of any sampling event. All groundwater level measurements must be made within a 24-hour period. All groundwater samples for each sampling event must be collected within a 48-hour period.

2.1 Groundwater Level Monitoring

Monitoring of water levels around the containment system will be performed annually during the post-closure period ~~during the permit period through 2021~~ at the well locations listed in Table 1. ~~Monitoring will be performed on a 5-year basis following the completion of the 30-year post-closure period.~~ The locations of the wells are shown on Figure 2.

Monitoring wells and a stream gauge in the adjacent Northwest Drain Canal (NWDC) will be used to measure water levels:

- Monitoring wells (TN-A series, S-series and WQ-series wells) will be used to monitor pressures and water quality as required by the Post-Closure Permit, in the ~~uppermost portion of the~~ aquifer, ~~generally within 20-25 feet of the ground surface~~ referenced in Table 1.
- Stream gauge SG-2300 will also be monitored since the NWDC is interconnected with and influences groundwater flow in the shallow aquifer.

The purpose of the water level monitoring system is to determine groundwater flow direction. BP must submit, at least annually, a potentiometric map indicating the groundwater surface elevation, groundwater flow direction and an evaluation and determination that a minimum of three, point of compliance wells are downgradient of the facility. If the findings of the hydrogeological evaluation indicate conditions have changed, and the condition is not temporary, then changes in the monitoring program will be presented to the ~~Executive~~ Director in the annual report. BP shall initiate appropriate permit modification as needed to meet the requirements of the applicable permit conditions.

2.2 Hazardous Constituent Groundwater Detection Monitoring

The point-of-compliance for hazardous constituent monitoring defined in the Post-Closure Permit is the vertical plane at the hydraulically downgradient limit of the waste management area. This corresponds with the northern and western limits of the slurry wall as shown on Figure 2. A schematic diagram of the detection monitoring wells is shown on Figure 3.

Groundwater samples will be obtained ~~annually~~ using the methods detailed in the Post-Closure Groundwater Detection Monitoring Plan (Appendix D to this document). Groundwater samples will be obtained from compliance point monitoring wells ~~(WQ-1 through WQ-5)~~ on five-year basis, and TN-1A through TN-5A annually) and the upgradient monitoring well (S-16) annually. In the case of a loss of sample integrity (i.e., breakage, loss), resampling must take place within 21 days of notification of the loss with prior notice to the UDW/MRC.

POST-CLOSURE CARE AND MONITORING PLAN

Samples will be analyzed for nine volatile organic constituents and dissolved chromium as listed in the table below and in Table 2 using USEPA method 8260~~CB~~ as referenced under Permit Table IV-1 or the most current approved USEPA alternate method. The volatile organic constituents selected for detection monitoring are not present at detectable concentrations in upgradient monitoring well S-16. The concentration limit for any of the ~~nine~~ volatile organic constituents is established for the purpose of assessing a potential release from the waste containment system through the slurry wall. The laboratory reporting limits must be below the concentration limits performed by certified analytical laboratories, by the analytical methodology in SW-846 and the analytical laboratory-based actual sample matrix conditions. Dissolved chromium is also a detection monitoring parameter. Chromium is a naturally occurring constituent of soils but was found in the wastes contained within the CHWMF at concentrations above background soils. The concentration limit for chromium is set at 50 micrograms per liter (µg/l), consistent with the value in Table 1 - Maximum Concentration of Constituents for Groundwater Protection (R315-8 6.5).

The concentration limits for the parameters of interest are:

Detection Monitoring Parameter	Concentration Limit (µg/l)
1,1 Dichloroethane	<u>5</u>
1,1 Dichloroethylene	<u>5</u>
Chloroform	<u>5</u>
1,1,1 Trichloroethane	<u>5</u>
Carbon Tetrachloride	<u>5</u>
Benzene	<u>5</u>
Toluene	<u>5</u>
Ethylbenzene	<u>5</u>
Xylene (total)	<u>5</u>
Chromium	50

The results of the analyses must be evaluated to determine if there is a statistically significant increase over the background values for each organic parameter and whether chromium exceeds the Maximum Contaminant Level each time groundwater quality is determined at the compliance point. The statistical test is a two-step process.

1. After each sampling event, the reported values obtained at each compliance well with the concentration limit will be compared. If a reported value is less than the concentration limit stated above, then there has not been a statistically significant increase over background.
2. If the reported value is greater than the concentration limit, then the following steps will be followed in order to determine if a statistical increase has occurred. Any sample reported by the laboratory to have a concentration which exceeds the concentration limit of a detection monitoring parameter will be resampled. If the resample confirms the exceedance of the concentration limit, then a statistically significant increase over background will have been determined. If the resample does not confirm an exceedance of the concentration limit, then a statistically significant increase over background will not have been determined. The Director must be notified within seven (7) days of an exceedance of the concentration limit after receiving resampled results.

POST-CLOSURE CARE AND MONITORING PLAN

BP must determine whether there is a statistical increase in the detection monitoring parameters within sixty (60) days after completion of sampling. If a statistically significant increase is determined, BP must comply with the requirements of Permit Condition IV.I.1 in Part B Module 4, which includes notifying the ~~Executive Secretary~~ Director within seven (7) days. If BP wishes to make a demonstration that the increase was due to an error in sampling, analysis, or another error, the ~~Executive Secretary~~ Director must be notified of the intent to make a demonstration within seven (7) days.

In addition, samples from each compliance well and the upgradient well will be analyzed in the field for pH, temperature, and specific conductance. These additional parameters are measured for informational purposes only.

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3 INSPECTIONS AND MAINTENANCE

Regularly scheduled routine maintenance activities will be performed either on a quarterly or an annual basis. Maintenance requirements identified during the quarterly inspections will be addressed on an as-needed basis. A summary of activities conducted each year will be presented in annual reports.

A summary of inspections to be performed during the post-closure period and their frequency are presented below. The inspection forms included in Appendix C detail the observations to be made during each inspection.

Type of Inspection	Frequency
Security Inspection	Quarterly
Cover Inspection	Quarterly
Groundwater Level Monitoring	Annually
Groundwater Monitoring and Evaluation	Annually
Monitoring Well Integrity	Annually
Sediment Accumulation in Wells	Annually

3.1 Security Inspection

The quarterly security inspections consist of verifying the integrity of the fence around the perimeter, proper posting of warning signs (every 300 feet along the fence), and proper locks on the gates. Holes in the fence or missing locks will be repaired or replaced immediately. Missing or unreadable warning signs will be replaced within thirty (30) days. Security inspection observations and findings will be recorded on Form AMR-21 (Appendix C).

3.2 Cover Inspection

The cover over the wastes will be monitored quarterly during the post-closure period and maintained as necessary to preserve its integrity. Cover inspection observations and findings will be recorded on Form AMR-22 (Appendix C). Detailed cover inspections will include the following:

- Inspections to identify trees or shrubs initiating growth on the cover. Any deep rooting species identified will be removed during regularly scheduled maintenance activities.
- Inspection for holes or erosion through the cover. If an area larger than 10 square feet which partially penetrates the cover is identified, it will be repaired during regularly scheduled maintenance.
- Any depressions and/or ponded water identified on the cover will be repaired during regularly scheduled maintenance.
- Any seepage observed emanating through the cover will be investigated and repaired after the cause has been identified.
- The cover area will be inspected for signs of the presence of burrowing animals. If burrows are identified and are large enough to suggest the presence of animals larger than mice or voles (such as ground squirrels, fox, badger), positive steps will be taken to remove these animals from the CHWMF

POST-CLOSURE CARE AND MONITORING PLAN

area. Action will depend upon specific circumstances but might include trapping or poisoning. Advice from the U.S. Fish and Wildlife Service's Salt Lake City Animal Damage Control office will be sought regarding recommended methods.

- The gas vent risers will be inspected for damage or cracks. Damaged risers will be repaired during routine maintenance activities.
- The 18-inch diameter pipes used to convey runoff from the evaporation ponds area to the south drainage canal will be inspected each quarter. The valves will be checked for working order and debris found in the pipes will be removed.

3.3 Groundwater Level Monitoring

Groundwater elevations will be measured annually at the locations listed in Table 1 and recorded on Form AMR-14 (Appendix C). Groundwater levels and flow directions will be evaluated, and actions will be taken as described in Section 2.1.

3.4 Monitor Well Integrity Testing

Surface Seals

All monitoring wells listed in Table 1 will be checked annually to ensure that the surface seals are sufficient to prevent surface water from entering the wells and affecting water level elevations. The results of monitoring well integrity testing will be recorded on Form AMR-15 (Appendix C).

Monitoring well surface seals will be checked by visual inspection. Those wells which show visual signs of faulty seals will be tested by placing a 12 to 20-inch diameter tube on the ground surface concentric about the well casing, filling it with 6 inches of water, and monitoring the water level in the well for 15 minutes. Wells which exhibit an increased water level of more than one inch during the testing period will be resealed and retested.

Clogging of Screen Openings

Well response in the shallow wells which may indicate clogging of the screen openings leading to erroneous water level measurements will be tested annually by removing a small volume of water from the well casing and observing the change in water level. A well that is functioning properly will closely return to its original water level within 10 minutes to 8 hours after removing the water, depending upon the hydraulic characteristics of the aquifer materials. Wells that do not closely return to their original water level within 8 hours after withdrawal will be redeveloped by surging the casing, removing the sediments accumulated in the well, and retesting. Wells that do not function after redevelopment will be replaced.

Sediment Accumulation in Wells

All monitoring wells listed in Table 1 will be checked annually for sediment accumulation. The results of sediment accumulation checks will be recorded on Form AMR-16 (Appendix C). Those which exhibit 2 feet or more of sediment will be evaluated for maintenance to remove the sediment.

Responses to Inspection Results

There are two basic types of responses envisioned as a result of failing to meet inspection criteria:

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POST-CLOSURE CARE AND MONITORING PLAN

1. Immediate Response - for situations in which prompt action is required to prevent potential exposure to, or release of hazardous waste or hazardous constituents to the environment. Appropriate actions will be initiated within 48 hours of notification.
2. Reporting Responses - for situations where maintenance is required but there is no imminent danger of potential release of hazardous waste or hazardous constituents to the environment.

Situations during the post-closure period in which immediate responses are required are those when:

- Site security has been breached, or
- Groundwater quality monitoring results indicate there may have been a release of hazardous constituents from the closed facility.

Events requiring immediate response will trigger initiation of the Contingency Plan (Appendix E) and the reporting requirements.

Inspection findings which require only reporting responses, such as sediment accumulation in wells, cover defects, inadequate surface seals, and unresponsive monitor wells, will receive prompt attention (i.e., repair or replacement prior to the next inspection where feasible). Maintenance repairs and routine maintenance will be documented and reported with the other items included in the annual report to [UDSHW/MRC](#).

Listed in the table below are the responses that will be required for each of the items on the indicated checklists.

Checklist Item	Response Required	Action
Annual Groundwater Level Monitoring (Form AMR-14)		
Groundwater flow direction indicates that fewer than three water quality monitoring wells are downgradient	Annual Report	Evaluate cause and recommend action
Annual Monitoring Well Integrity Tests (Form AMR-15)		
Surface seals for monitoring wells are inadequate	Annual Report	Schedule for maintenance
Monitoring well does not respond	Annual Report	Investigate, replace well if necessary
Annual Monitoring Well Sediment Inspections (Form AMR-16)		
Sediment accumulation in excess of limit	Annual Report	Schedule for maintenance
Quarterly Cover Inspection (Form AMR-21)		
Breaks in security fence	Immediate	Repair
Damaged or missing gate lock	Immediate	Replace

Any inspections which identify a problem requiring an immediate response will culminate with a written report to the [UDW/MRCSHW](#) within seven (7) days of identifying the problem. The report will contain a description of the problem, the corrective action taken, the period over which the problem existed, and the effect on the CHWMF site. More immediate and frequent reporting to governmental agencies will be initiated if a sample from a compliance point monitoring well exhibits a concentration of a constituent in excess of the groundwater protection standard. Details are provided in the Contingency Plan for Post-Closure Care and Monitoring (Appendix E). A flow chart (Figure 4) summarizes how the results of post-closure inspections will be handled.

4 PERSONNEL AND TRAINING

4.1 Personnel

Personnel involved in hazardous waste management at the facility during post-closure will be the Facility Coordinator (FC), the Alternate Facility Coordinator (AFC) and the Facility Inspector (FI) or Alternate Facility Inspector (AFI).

The FC and AFC are members of BP management, or their designated representatives, who have had years of work experience and are familiar with the facility and the Post-Closure [Permit and the Post-Closure Care and Monitoring](#) Plan. They are qualified to perform all closure inspection and monitoring activities and to direct any activities described in the Contingency Plan. No person will be allowed to perform any maintenance, repair, or contingency response activity except under the supervision of the FC or AFC.

The FI and AFI are also experienced and familiar with the facility and have had field experience in inspection and groundwater monitoring activities.

The personnel designated as the FC, AFC, FI, and AFI are identified in Table 3 and job descriptions/qualifications for these positions are presented in Table 4. If there are changes in personnel, BP will submit a Class I permit modification.

4.2 Training Plan

Annual training will consist of a review of:

- Post-Closure Permit
- Post-Closure Care and Monitoring Plan, including:
 - Post-Closure Groundwater Detection Monitoring Plan
 - Contingency Plan for Post-Closure Care and Monitoring
- Potential maintenance operations.

The following specific topics will also be covered during training:

- Groundwater level monitoring requirements
- Groundwater quality monitoring requirements
- Inspection and reporting requirements
- Maintenance requirements
- Contingency Plan
- Security
- Pertinent BP procedures and Occupational Safety and Health Administration Health and Safety Regulations

POST-CLOSURE CARE AND MONITORING PLAN

- General requirements of the Post-Closure Permit for the CHWMF.

4.3 Training Schedule

The FC will conduct formal training in a classroom with the AFC and FIs annually. On or before July 1 of each year, the FC, AFC, FI, and AFI will sign the Annual Training Certification Form (Form AMR-41) verifying completion of annual training. A copy of AMR-41 is included with the forms in Appendix C. This personnel training will meet the requirements of R315-~~264-168-2-7~~ of [Utah Admin. Code](#).

In the event of a change in personnel and a new person is assigned as the FC, AFC, FI, or AFI, that person will receive the above-described training prior to performing any activities relating to the facility. The newly assigned person will sign a statement attesting to their training and qualifications to verify that they are trained. All signed statements verifying training sessions will become part of the operating record and will be maintained in the document repository at the Arcadis Helena, Montana office until the end of the post-closure period.

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5 CONTINGENCY PLAN

The Contingency Plan for Post-Closure Care and Monitoring is attached as Appendix E. The purpose of the plan is to describe response personnel, response activities, and procedures when and if contingencies arise during the post-closure period. Contingency Plan actions or activities will be invoked when any inspection deficiency requires response classified as "immediate" as described in Section 3.4.

No contingencies or lists of equipment have been developed for the threat of fire, explosions, or similar sudden releases of hazardous constituents because there is no likelihood of the waste material or hazardous constituents causing an explosion or fire. The waste materials disposed at the CHWMF were stabilized with cement and soil into a non-flammable, solid mass that will not support combustion, and are isolated beneath a 3-foot thick engineered clay cap.

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6 REPORTING REQUIREMENTS

Two types of reports will be submitted to UD~~WMRCSHW~~ during the post-closure period. Any inspections which identify a problem requiring an immediate response will culminate with a written report to the UD~~WMRCSHW~~, as described in Section 3.0 and in the Contingency Plan. On or before April 15 of each year an annual report will be submitted to UD~~SHWWMRC~~ summarizing the events of the previous calendar year at the CHWMF. The annual report will include a description of the following:

- A summary of routine inspections and maintenance performed
- A summary of any inspection items that initiated the Contingency Plan and a brief description of how the problem was corrected
- A summary of groundwater level monitoring data collected and an evaluation of groundwater flow directions
- A summary of groundwater quality data obtained from the groundwater detection monitoring system
- A revision of estimated post-closure costs.

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7 POST-CLOSURE COST ESTIMATE

The costs for operation and maintenance of the CHWMF during the remainder of the post-closure period are summarized in Table 5. Note that the costs in Table 5 are based on groundwater monitoring conducted on a semi-annual basis, not annual as is being proposed in this updated plan. Assuming UD~~WMRCSHW~~ approves this plan, the costs for operation and maintenance of the CHWMF will be revised and an updated estimate included in the annual report, which is due on April 15, each year.

The permit requires that the post-closure cost estimate be revised on an annual basis to account for inflation and other conditions. A revised cost estimate will be included in each subsequent annual report.

The instrument for financial assurance was previously forwarded to UD~~WMRCSHW~~ prior to closure. Assuming no major changes in post-closure operation and maintenance requirements, the total amount required for financial assurance will decrease each year during the post-closure period.

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TABLES



Table 1
Monitoring Well Construction Detail and Sampling Rationale

BP Closed Hazardous Waste Management Facility
Salt Lake City, Utah

Station	Ground Elevation (ft amsl)	Top of Casing Elevation (ft amsl)	Casing Material	Screened Interval (ft bgs)	Constructed Total Depth (ft below TOC)	Rationale for Sampling
S-16	4217.71	4219.45	2" PVC	1.0-20.0	23.6 ¹	Upgradient Monitoring Well
S-21	4211	4213.14	2" PVC	1.0-21.0	22.6	Water level only
S-26	NM	4212	2" PVC	1.0-21.0	22.5	Water level only
S-31	4218.72	4219.45	2" PVC	19.4-23.8	25	Water level only
S-32	4218.67	4219.13	2" PVC	19.6-24.1	25	Water level only
S-33	4218.63	4219.26	2" PVC	19.8-24.2	25.4	Water level only
WQ-1	4213.45	4214.06	2" PVC	34.8-43.8	44.6	Compliance Point Monitoring Well
WQ-2	4213.33	4213.97	2" PVC	33.7-42.8	44.3	Compliance Point Monitoring Well
WQ-3	4213.44	4214.08	2" PVC	34.4-43.5	44.7	Compliance Point Monitoring Well
WQ-4	4214.41	4214.88	2" PVC	34.7-43.8	44.9	Compliance Point Monitoring Well
WQ-5	4214.34	4214.89	2" PVC	34.0-43.1	44.4	Compliance Point Monitoring Well
TN-1A	4212.84	4213.46	2" PVC	20.6-25	26.2	Compliance Point Monitoring Well
TN-2A	4212.26	4212.83	2" PVC	20.4-24.8	25.7	Compliance Point Monitoring Well
TN-3A	4211.91	4212.67	2" PVC	19.9-24.3	25.6	Compliance Point Monitoring Well
TN-4A	4212.64	4213.28	2" PVC	19.8-24.2	25.4	Compliance Point Monitoring Well
TN-5A	4212.38	4212.9	2" PVC	20.3-24.7	25.9	Compliance Point Monitoring Well

Notes:

amsl = above mean sea level

bgs = below ground surface

NM = not measured

NA = not applicable

TOC = top of PVC casing

¹ Constructed total depth of S-16 originally given as 21.9 in Monitoring Plan; this is from ground surface, the total depth from Top of Casing is 23.6 feet.

Table 2
Summary of Parameters and Analytical Methods

BP Closed Hazardous Waste Management Facility
Salt Lake City, Utah

Analytical Parameters				
Monitoring	Method ¹	Bottle Type	Preservative	Filter
1,1 Dichloroethane	8260C	3-Glass 40 ml vials	HCl	No
1,1 Dichloroethylene	8260C	3-Glass 40 ml vials	HCl	No
Chloroform	8260C	3-Glass 40 ml vials	HCl	No
1,1,1 Trichloroethane	8260C	3-Glass 40 ml vials	HCl	No
Carbon Tetrachloride	8260C	3-Glass 40 ml vials	HCl	No
Benzene	8260C	3-Glass 40 ml vials	HCl	No
Toluene	8260C	3-Glass 40 ml vials	HCl	No
Ethylbenzene	8260C	3-Glass 40 ml vials	HCl	No
Xylene (total)	8260C	3-Glass 40 ml vials	HCl	No
Chromium (Dissolved)	6010C	500 mo Poly	HNO ₃	Yes

Notes:

Field Measurements - pH, Specific Conductance, Temperature

¹ U.S. EPA SW-846, 1986 and EPA-600/4-79-020, revised 1983.

Table 3
Designated Responsible Personnel

BP Closed Hazardous Waste Management Facility
Salt Lake City, Utah

Title	Name and Address	Telephone Business	Alternate
Facility Coordinator (FC)	Travis Phelps Arcadis US Inc 575 Double Eagle Court, Suite 200 Reno, NV 89521	775.233.4747	775.229.8863 (office)
Alternate Facility Coordinator (AFC)	Patrick Keller Arcadis US, Inc 630 Plaza Drive, Suite 100 Highlands Ranch, CO 80129	303.971.3490	720.480.8223 (cell)
Facility Inspector (FI)	Ryan Anderson Anderson Engineering Co 2053 N Hillcrest Rd. Saratoga Springs, UT 84045	801.972.6222	801.349.9677 (cell)
1st Alternate Facility Inspector (AFI)	Andres Sanchez Anderson Engineering Co 2053 N Hillcrest Rd. Saratoga Springs, UT 84045	801.972.6222	
Certifying BP Representative	Steve Ferry BP Products North America, Inc. 317 East Anaconda Road Butte, MT 59701	406.723.1818	406.491.7132 (cell)

Table 4
Job Qualifications/Descriptions

BP Closed Hazardous Waste Management Facility
Salt Lake City, Utah

Title	Qualifications/Descriptions
Facility Coordinator (FC)	The Facility Coordinator (FC) must have at least 3 years of industrial experience and 1 year of work experience relating to compliance to RCRA regulations. The FC shall be familiar with the closure design of the CHWMF and those conditions. that would be detrimental to the integrity of the facility. The FC shall be familiar with the requirements of the Post Closure Permit and able to arrange for any needed maintenance and repair activities. The FC will insure that activities performed at the site are done so in a manner that complies with the Permit. The FC shall be familiar with the facility inspections and direct the duties of the Facility Inspector and will review and approve the inspection reports. The FC coordinates <i>all</i> activities that take place at the CHWMF and issues letters and reports on behalf of BP regarding the facility. The facility coordinator acts as Emergency Coordinator in case of an emergency.
Alternate Facility Coordinator (AFC)	The same requirements as stated above apply to the Alternate Facility Coordinators.
Facility Inspector (FI)	The Facility Inspector (FI) must have at least 3 months of industrial experience and be familiar with the design of the CHWMF. The inspector is to be familiar with the Post Closure Permit and understands the reasons for the inspections and how the items checked during the inspection could effect the facility. The FI knows how to conduct the required inspections and report the results. The FI reports any unusual observations to the Facility Coordinator.
1st Alternate Facility Inspector (AFI)	The same requirements as stated above for the Facility Inspector apply to the Alternate Facility Inspectors.

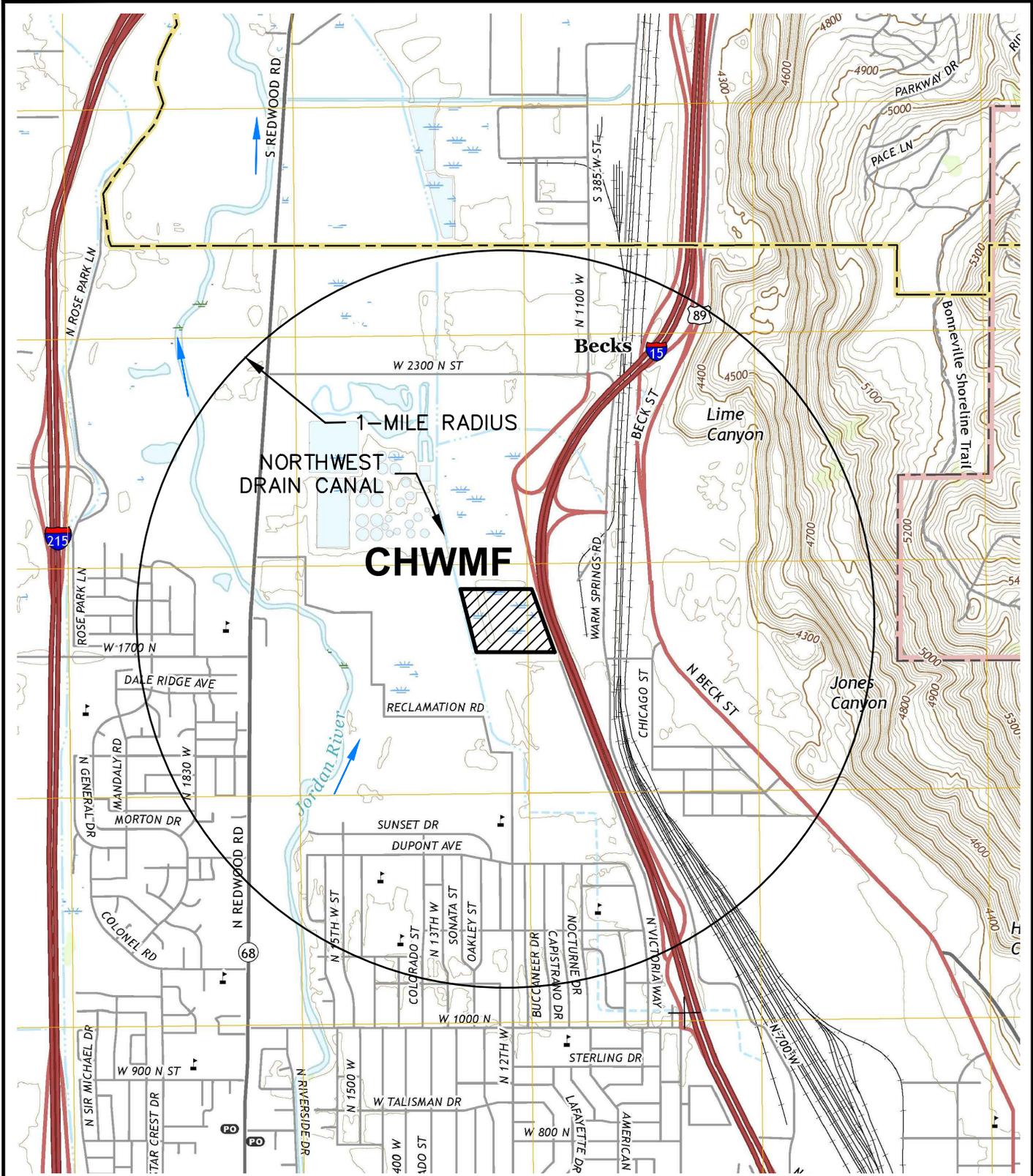
Table 5
Post-Closure Cost Estimate (for 2018 - 2027)

BP Closed Hazardous Waste Management Facility
Salt Lake City, Utah

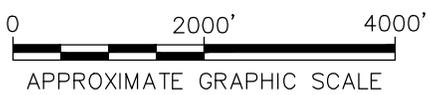
Item	2018 Annual Cost	2019 Through 2021	2022 Through 2027	Total 2018 Through 2027
Quarterly Facility Inspections (quarterly through 2021 and annual through 2027)				
Cover and security inspection - FI, 6 hr @ \$84.09/hr x 4 inspections	\$2,018	\$6,054	\$3,027	\$11,100
Equipment and materials - \$120.13 x 4 events	\$481	\$1,442	\$721	\$2,643
Ground Water Monitoring (annual through 2021 and one event 2026)				
Sampling - FI and Assistant, 68 hr @ \$72.08/hr	\$4,901	\$14,704	\$4,901	\$24,507
Evaluation and reporting - FC, 8 hr @ \$120.13/hr	\$961	\$2,883	\$961	\$4,805
Analytical costs, equipment and materials - \$6,006.73	\$6,007	\$18,020	\$6,007	\$30,034
Ground Water Levels (annual through 2021 and one event 2026)				
Ground water level monitoring - FI and Assistant, 16 hr @ \$72.08/hr	\$1,153	\$3,460	\$1,153	\$5,766
Equipment and materials - \$300.34	\$300	\$901	\$300	\$1,502
Annual Inspection (annual through 2027)				
Monitor well integrity tests - FI and Assistant, 40 hr @ \$72.08/hr	\$2,883	\$8,650	\$17,299	\$28,832
Equipment and materials - \$480.54	\$481	\$1,442	\$2,883	\$4,805
Annual Training - 3 staff, 4 hr each @ \$84.09/hr (annual through 2021 and one	\$1,009	\$3,027	\$1,009	\$5,045
Irregular Maintenance (annual through 2021 and one event 2026)				
Cover soils and vegetation	\$1,802	\$5,406	\$10,812.12	\$18,020
Surface water and drain maintenance	\$901	\$2,703	\$5,406.06	\$9,010
Security maintenance	\$901	\$2,703	\$5,406.06	\$9,010
Replacement of monitoring wells: - assume replace 5 wells every 3 years @ \$6,006.73/well over remaining period:	\$10,011	\$30,033	\$60,066	\$100,110
Post Closure Permit Review				
Negotiation and permit amending - FC, 72 hr @ \$120.13/hr (one permit review 2018 and one in 2026)	\$8,649	\$0	\$8,649	\$17,299
Reporting, Management and Safety/GHSEr (annual through 2021 and one event	\$13,214	\$39,642.90	\$13,214	\$66,072
Labor - FC, 110 hr @ \$120.13/hr				
Equipment and materials	\$961	\$2,883.24	\$961	\$4,805
Subtotal:	\$56,634	\$143,954	\$142,777	\$343,366
Contingency at 10%:	\$5,663	\$14,395	\$14,278	\$34,337
Total Post-Closure Costs:	\$62,298	\$158,350	\$157,055	\$377,702

FIGURES





MAP SOURCE: USGS 7.5 MIN. QUADRANGLE
SALT LAKE CITY NORTH, UTAH, 2017



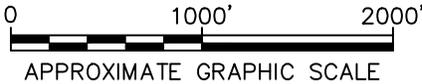
BP PRODUCTS NORTH AMERICA, INC. SALT LAKE CITY, UTAH CHWMF 2018 PERMIT	
SITE LOCATION MAP EPA NO. UTD000826370	
FIGURE	1

XREFS: E3471XAP SLGN.jpg
IMAGES:



MAP SOURCE: SALT LAKE COUNTY ORTHOS (SALT LAKE COUNTY ASSESSOR) 11/15/16.

NOTE: PROCESS CODE T04 (INSITU VITRIFICATION) IS WITHIN THE BOUNDARIES OF PROCESS CODE D80.



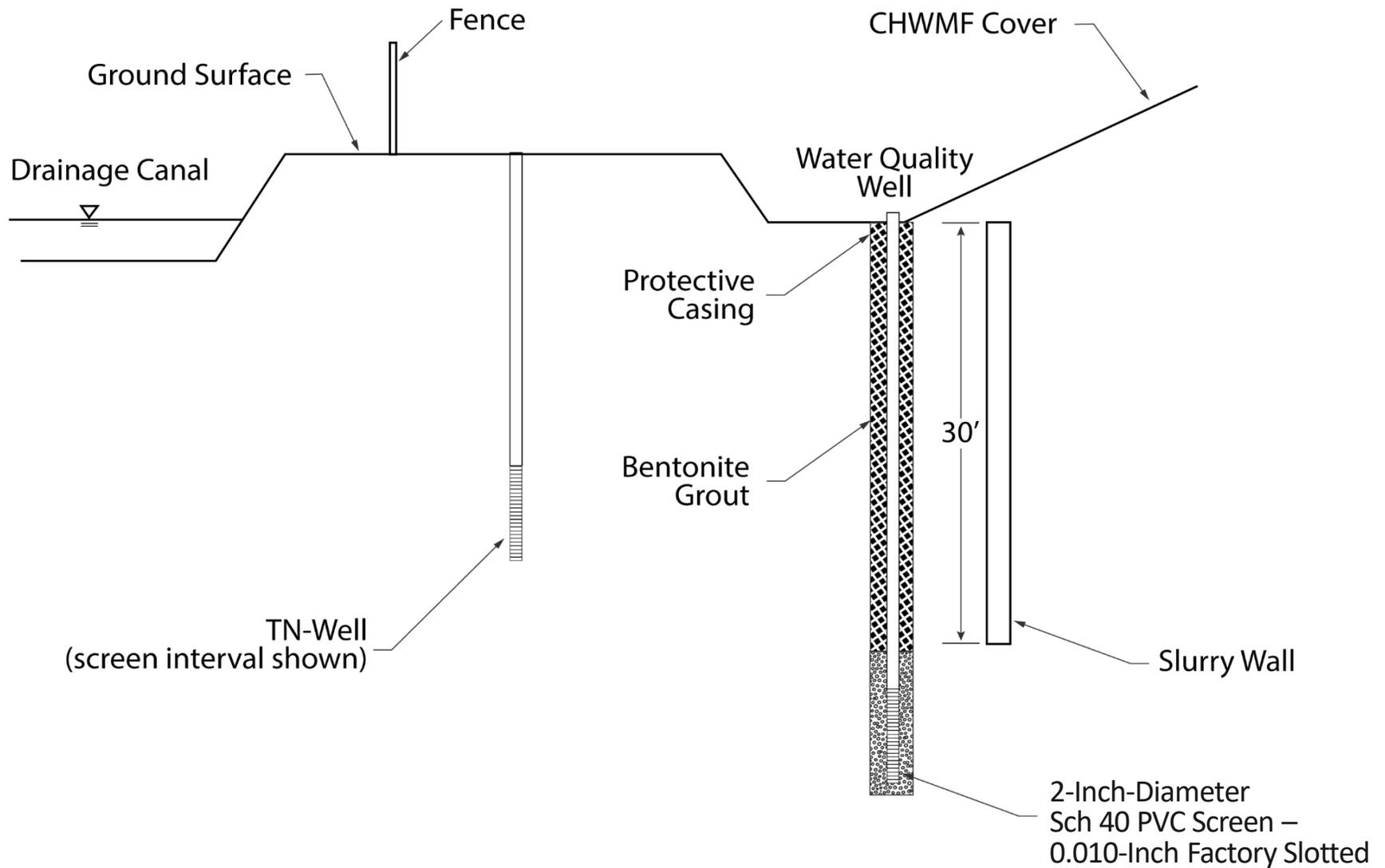
LEGEND:

- ▲ COMPLIANCE WATER QUALITY MONITORING WELL
- WATER LEVEL MONITORING WELL (SHALLOW)
- - - SLURRY WALL



BP PRODUCTS NORTH AMERICA, INC. SALT LAKE CITY, UTAH CHWMP 2018 PERMIT
CHWMP AERIAL PHOTO EPA NO. UTD000826370
FIGURE 2

XREFS: IMAGES: Utah_StatePlane_12500.jpg
 E3471XAP

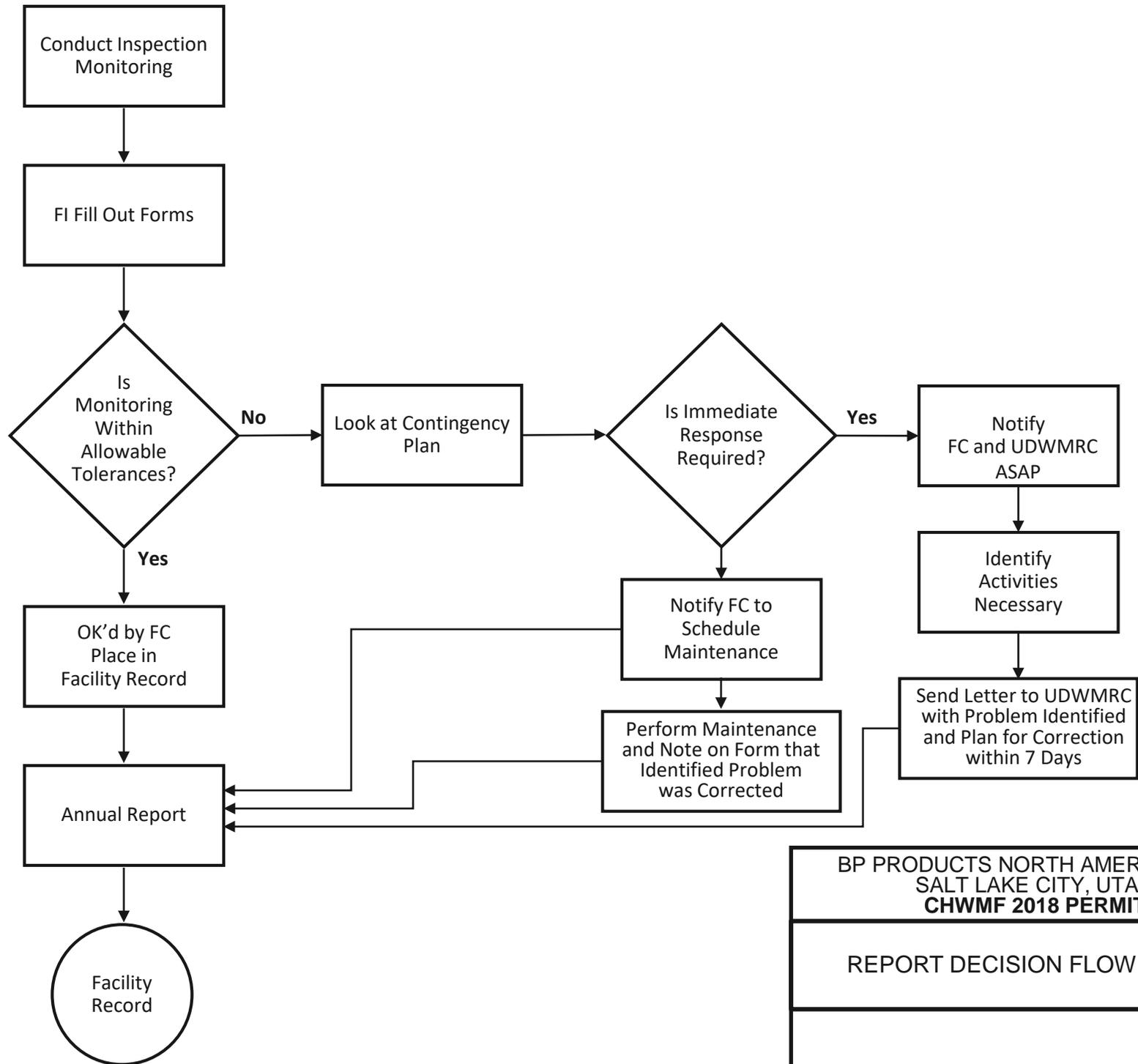


BP PRODUCTS NORTH AMERICA, INC.
 SALT LAKE CITY, UTAH
CHWMF 2019 PERMIT

SCHEMATIC DIAGRAM OF POST-CLOSURE
 DETECTION MONITORING WELL
 (WQ AND TN WELLS)

Not to Scale

FIGURE
3



BP PRODUCTS NORTH AMERICA, INC.
 SALT LAKE CITY, UTAH
CHWMF 2018 PERMIT

REPORT DECISION FLOW CHART

FIGURE
4

APPENDIX A

Closure Certification





Amoco Oil Company
Salt Lake City Refinery
474 West 900 North
Salt Lake City, Utah 84103-1494

R. L. Couch
Manager, Salt Lake City Business Unit

July 15, 1991

Mr. Dennis R. Downs, Executive Secretary
Utah Department of Health
Bureau of Solid and Hazardous Waste
288 North 1460 West, Box 16690
Salt Lake City, UT 84116-0690

**RE: CERTIFICATION OF CLOSURE
REMOTE HAZARDOUS WASTE MANAGEMENT FACILITY
AMOCO SALT LAKE CITY REFINERY
EPA ID NO. UTD000826370**

Dear Mr. Downs:

Please find enclosed documentation and a report for closure of the above referenced Hazardous Waste Management Unit for Amoco's Salt Lake Refinery located in Salt Lake City, Utah.

I hereby acknowledge in accordance with 40 CFR 265.110 - 120 and 265.228, incorporated by reference in the R450 Administrative Rules for the Utah Solid and Hazardous Waste Committee, implemented January 3, 1989, that, to the best of my knowledge, all waste disposal activities and closure construction outlined in the Closure Plan for the Remote Hazardous Waste Management Facility UT D000826370, submitted to the Utah Bureau of Solid and Hazardous Waste (UBSHW) in July, 1986 and the State of Utah Hazardous Waste Post-Closure Plan Approval and Permit dated September 30, 1986, have been completed in accordance with the Closure Plan and Module III of the Permit. All construction activities were completed on June 6, 1990, and have been inspected and accepted by the Certifying Engineer at regular intervals since 1987 to verify compliance with the Closure Plan.

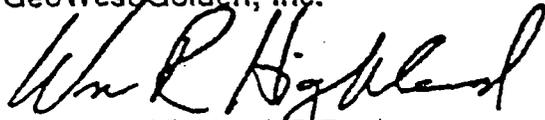
If you or your staff have any questions regarding the closure activities, please contact the undersigned.

Amoco Oil Company



Randy Couch
Manager, Salt Lake City Business Unit

GeoWest Golden, Inc.



William R. Highland, P.E.
Utah Professional Engineer No. 6642

cc: B. Sinclair, UBSHW
E. Deputy, UBSHW
M. Dinterman, Amoco SLBU
L. Judkins, Amoco SLBU
S. Maulding, Amoco RSD
C. Rehn, GeoWest-SLC
H. Passales, Amoco RSD
H. Cobo, Amoco RSD

APPENDIX B

Affidavit Notice to Deed and Closure Survey Plat



Affidavit

5145051
25 OCTOBER 91 03:51 PM
KATIE L. DIXON
RECORDER, SALT LAKE COUNTY, UTAH
AMOCO OIL COMPANY
REC BY: REBECCA GRAY DEPUTY

Mark D. Dinterman, being first duly sworn states that he is the
Manager, EA&S of Amoco Oil Company, a Maryland
corporation, is over 21 years of age, and is a resident of the County of
Salt Lake and State of Utah.

Having first duly sworn the undersigned Mark D. Dinterman
states that of his own knowledge he is aware that Amoco Oil Company is
the owner of the following described property situated in the City of Salt
Lake, County of Salt Lake, State of Utah.

Begin at a point which is South 1335.97 feet and East 698.66 feet from
the Southwest corner of Section 14, Township 1 North, Range 1 West,
Salt Lake Base and Meridian (bearing base from Southwest quarter
to West quarter corner of Section 14 = N 00°05'05" E) and running
thence S 81°24'47" E 991.66 feet, thence S 04°41'31" E 801.61 feet,
thence N 84°42'41" W 369.41 feet, thence N 05°36'05" W 1172.07 feet
to the point of beginning.

Contains 14.465 acres ±.

The foregoing described land has been used to manage hazardous waste;
that the foregoing land's use is restricted under 40 CFR 264 Subpart G
regulations, and

A survey plat and record of the type, location, and quantity of hazardous
waste disposed of within the area of the facility as required in Section
264.119 of the aforesaid Code of Federal Regulations has been filed with
the local zoning authority with jurisdiction over land use and with the
regional administrator of the Environmental Protection Agency.

Further, the deponent sayeth not.

AFTER RECORDING MAIL TO:
MARK DINTERMAN
AMOCO OIL COMPANY
474 WEST 900 NORTH
SALT LAKE CITY, UT 84103-1494

Mark D. Dinterman
Signature

Mark D. Dinterman
Typed Name

Manager, Environmental Affairs & Safety
Title

Subscribed to and sworn before me this 25th day of October,
1991

Alta L. Bennett
Notary Public



NOTARY PUBLIC
ALTA L. BENNETT
in East Taylor
Surray, Utah
My Commission Expires
Jan 1, 1992
STATE OF UTAH

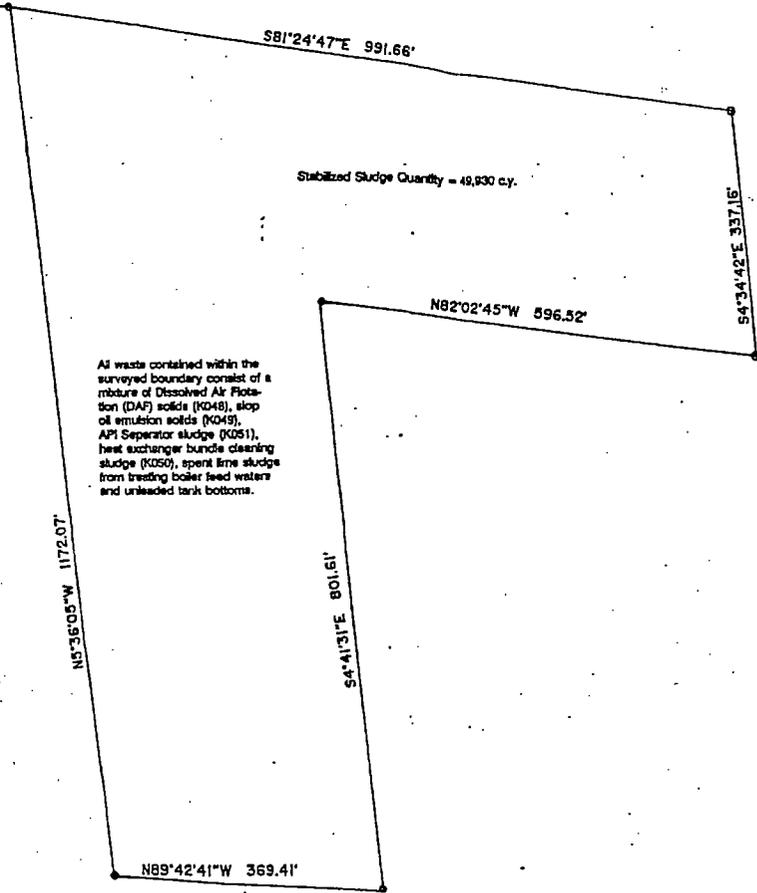
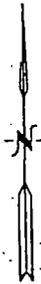
RECEIVED JAN 09 1992

5145051
22N W 23 - 08 - 23 - 100 - 00 2
1/1/92

BR 6369PG 1291

A PART OF THE NW 1/4 OF SEC.
23, TIN, RIW, S.L.B. & M., SALT
LAKE CITY, SALT LAKE CO., UTAH.

BEARING BASE
N0°05'05"E
W 1/4 COR. SEC. 14,
T1N, RIW, SLB&M.
SW COR. SEC. 14,
T1N, TIW, SLB&M.
SOUTH
EAST
698.66'



Stabilized Sludge Quantity = 48,830 cy.

All waste contained within the surveyed boundary consist of a mixture of Dissolved Air Flotation (DAF) solids (K048), sludge oil emulsion solids (K045), API Separator sludge (K051), heat exchanger bundle cleaning sludge (K050), spent lime sludge from treating boiler feed waters and unleaded tank bottoms.

PROPERTY DESCRIPTION

BEGIN AT A POINT WHICH IS SOUTH 1333.97 FEET AND EAST 698.66 FEET FROM THE SOUTHWEST CORNER OF SECTION 14, TOWNSHIP 1 NORTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN BEARING BASE FROM SOUTHWEST QUARTER TO WEST QUARTER CORNER OF SECTION 14 = N00°05'05"E AND RANING THENCE S81°24'47"E 991.66 FEET, THENCE S04°34'42"E 337.16 FEET, THENCE N8°02'45"W 896.52 FEET, THENCE S04°41'31"E 801.61 FEET, THENCE N84°42'41"W 369.41 FEET, THENCE N05°36'05"W 1172.07 FEET TO THE POINT OF BEGINNING.
CONTAINS 14.465 ACRES ±.

SURVEYORS CERTIFICATE

I, DON STEPHEN MILLIGAN, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR AND THAT I HOLD CERTIFICATE NO. 2673, AS PRESCRIBED BY THE LAWS OF THE STATE OF UTAH AND THAT I HAVE MADE A SURVEY OF THE ABOVE DESCRIBED PROPERTY.

Don Stephen Milligan
DON STEPHEN MILLIGAN
REGISTERED LAND SURVEYOR
UTAH

01-17-1991
DATE



TYPICAL 6.8 SURV-CAP SET ON 5/8" STEEL REBAR SET AT ALL CORNERS UNLESS OTHERWISE NOTED.

NARRATIVE: REASON FOR SURVEY, TO STAKE AND DESCRIBE THE HAZARDOUS WASTE SITE - REJUVINATION AREA.

<p>GREAT BASIN ENGINEERING & SURVEYING OF BOUNTIFUL PLANNING-CONSULTING & SURVEYING 85 N. 500 W., BOUNTIFUL, UTAH 84010 PL. 833-3418</p>		
<p>REMOTE HAZARDOUS WASTE MANAGEMENT FACILITY CLOSURE SURVEY PLAT AMOCO OIL COMPANY SALT LAKE CITY, UTAH</p>		
<p>DRAWN BY: DSH/SJJ DATE 10/17/91</p>	<p>SCALE 1" = 100'</p>	<p>JOB NUMBER PSS191-3547</p>

APPENDIX C

Post-Closure Monitoring and Inspection Checklists



Form AMR-14
BP CHWMF Post-Closure Inspection Report
Annual Groundwater Level Monitoring
Salt Lake City, Utah

Date: _____ Time: _____

Facility Inspector: _____

Weather Conditions: _____

Response Required: Immediate?: Yes () No () Reporting? Yes () No ()

Approved: _____ Date: _____
 Facility Coordinator

1. Measure water levels in all wells listed in the following table

Well ID	Elevation Top of PVC (ft)	Installed Depth of Well (ft)	Measured Depth to Water (ft)	Total Depth (ft)	Groundwater Elevation (ft)
S-16	4219.45	23.6			
S-21	4213.14	22.6			
S-26	4212.00	22.5			
S-31	4219.45	25.0			
S-32	4219.13	25.0			
S-33	4219.26	25.4			
WQ-1	4214.06	44.6			
WQ-2	4213.97	44.3			
WQ-3	4214.08	44.7			
WQ-4	4214.88	44.9			
WQ-5	4214.89	44.4			
TN-1A	4213.46	26.2			
TN-2A	4212.83	25.7			
TN-3A	4212.67	25.6			
TN-4A	4213.28	25.4			
TN-5A	4212.90	25.9			

Gauge ID	Top of Gauge Elevation (ft)	Measured Distance to Water (ft)	Surface Water Elevation (ft)
SG-2300*			

* SG-2300 is a stream gauge for the Northwest Drain Canal located on the bridge at 2300 North.

2. The monitoring well network is used to evaluate groundwater flow directions. Are there fewer than three monitoring wells downgradient of the facility?

() Yes or No

3. This item is a reporting response. If the question has been answered "Yes", notify the FC immediately.

4. Record any maintenance or repairs performed and the dates.

Form AMR-15
BP CHWMF Post-Closure Inspection Report
Annual Monitoring Well Integrity Tests
Salt Lake City, Utah

Date: _____ Time: _____

Facility Inspector: _____

Weather Conditions: _____

Response Required: Reporting? Yes () No ()

Approved: _____ Date: _____
 Facility Coordinator

A. MONITORING WELL FUNCTION TESTS

Surface Seal Integrity Test

Well ID	Visual Signs of Seal Cracking?	Initial Depth to water (ft)*	Depth to water after 15 min of water applied to seal at surface (ft)*	Difference in measured depths (ft)*
S-16				
S-21				
S-26				
S-31				
S-32				
S-33				
WQ-1				
WQ-2				
WQ-3				
WQ-4				
WQ-5				
TN-1A				
TN-2A				
TN-3A				
TN-4A				
TN-5A				

* Complete these columns only if seal cracking is visually observed.

1. Is the difference in measured depths for any of the wells greater than 1 inch (0.2 ft.)?

Yes () No ()

B. MONITORING WELL RESPONSE TESTS

Well ID	Initial depth to Water (ft)	Depth to water after removing 0.5 gallons of water (ft)	Depth to water after 8 hrs (ft)	Difference between initial and final depth (ft)
S-16				
S-21				
S-26				
S-31				
S-32				
S-33				
WQ-1				
WQ-2				
WQ-3				
WQ-4				
WQ-5				
TN-1A				
TN-2A				
TN-3A				
TN-4A				
TN-5A				

1. Is the difference in measured depths after 8 hrs for any of the wells greater than 4 inches (0.33 ft)?

Yes () No ()

- Report any wells that need surface seal maintenance or redevelopment to FC and schedule the maintenance.
- Record activities and any repairs or maintenance performed as well as the dates they were completed on.

Form AMR-16
BP CHWMF Post-Closure Inspection Report
Annual Monitoring Well Sediment Inspection
Salt Lake City, Utah

Date: _____ Time: _____

Facility Inspector: _____

Response Required: Reporting? Yes () No ()

Approved: _____ Date: _____
 Facility Coordinator

1. Measure water levels in all wells listed in the following table

Well ID	Elevation Top of PVC (ft)	Installed Depth of Well (ft)	Current Measured Depth to Bottom (ft)	Difference Between Installed and Current Depth to Bottom (ft)
S-16	4219.45	23.6		
S-21	4213.14	22.6		
S-26	4212.00	22.5		
S-31	4219.45	25.0		
S-32	4219.13	25.0		
S-33	4219.26	25.4		
WQ-1	4214.06	44.6		
WQ-2	4213.97	44.3		
WQ-3	4214.08	44.7		
WQ-4	4214.88	44.9		
WQ-5	4214.89	44.4		
TN-1A	4213.46	26.2		
TN-2A	4212.83	25.7		
TN-3A	4212.67	25.6		
TN-4A	4213.28	25.4		
TN-5A	4212.90	25.9		

2. Do any of these wells have a measured difference between the installed depth and current depth to bottom of the well of 2 feet or more?

Yes () No ()

3. If more than 2 feet of sediment has accumulated in the monitoring wells, notify the FC immediately and evaluate for maintenance.

Form AMR-22
BP CHWMF Post-Closure Inspection Report
Quarterly Cover and Evaporation Pond Area Inspection
Salt Lake City, Utah

Date: _____ Time: _____

Facility Inspector: _____

Weather Conditions: _____

Response Required: Immediate?: Yes () No () Reporting? Yes () No ()

Approved: _____ Date: _____
Facility Coordinator

<u>COVER</u>	<u>Answer</u> <u>Yes or No</u>
1. Are there any trees or shrubs growing on the cover?	() R*
2. Are there any holes or gullies eroded partially through the cover larger than 10 square feet?	() R*
3. Are there any holes in the cover which expose the waste?	() R*
4. Are there any obvious depressions in the cover surface with settlement of 6 inches or more?	() R*
5. Are there any areas along the perimeter of the cover which show visible signs of seepage?	() R*
6. Are there burrows present large enough to indicate the presence of large burrowing animals?	() R*

* **R** means that this item is a reporting response

Form AMR-31
BP CHWMF Post-Closure Inspection Report
Evaluation of Annual Groundwater Detection Monitoring Results

Date: _____ Time: _____

Facility Inspector: _____

Date of Sampling: _____

Response Required: Immediate?: Yes () No ()

Approved: _____ Date: _____
 Facility Coordinator

1. Examine laboratory analytical report forms.
2. Do the results from any of the sampled compliance point wells (Wells WQ-1 through WQ-5, and S-16) equal or exceed the following Concentration Limits for the indicated parameters?

Yes () No ()

Parameter	Reporting Limit (µg/l)
1,1 Dichloroethane	1
1,1 Dichloroethylene	1
1,1,1 Trichloroethane	1
Chloroform	1
Carbon Tetrachloride	1
Benzene	1
Toluene	1
Ethylbenzene	1
Xylenes, Total	1
Chromium	10

3. If Yes, indicate well number and concentration reported and notify the FC immediately.
4. If Yes, follow the procedures of Section 2.2 of the Post-Closure Care and Monitoring Plan.

Form AMR-41
BP CHWMF Annual Training Certification Form

The following personnel have reviewed the post-closure plan and applicable operations that are scheduled to occur during the period of January 1, _____ to December 31, _____.

Training consisted of verbal review and classroom instructions on the following subjects:

- a) Post-Closure Permit
- b) Post-Closure Care and Monitoring Plan, including:
 - a. Post-Closure Groundwater Detection Monitoring Plan
 - b. Contingency Plan for Post-Closure Care and Monitoring
- c) Potential maintenance operations
- d) Groundwater monitoring requirements
- e) Inspection and reporting requirements
- f) Maintenance requirements
- g) Contingency Plan
- h) Security
- i) Pertinent BP and OSHA Health and Safety Regulations
- j) General requirements of the permit for the CHWMF

Facility Coordinator _____ Date _____

Alternate Facility Coordinator _____ Date _____

Facility Inspector _____ Date _____

Alternate Facility Inspector _____ Date _____

APPENDIX D

Post-Closure Groundwater Detection Monitoring Plan



D

Permittee: BP Products North America, Inc.

R

**APPENDIX D
POST-CLOSURE GROUNDWATER
DETECTION MONITORING PLAN**

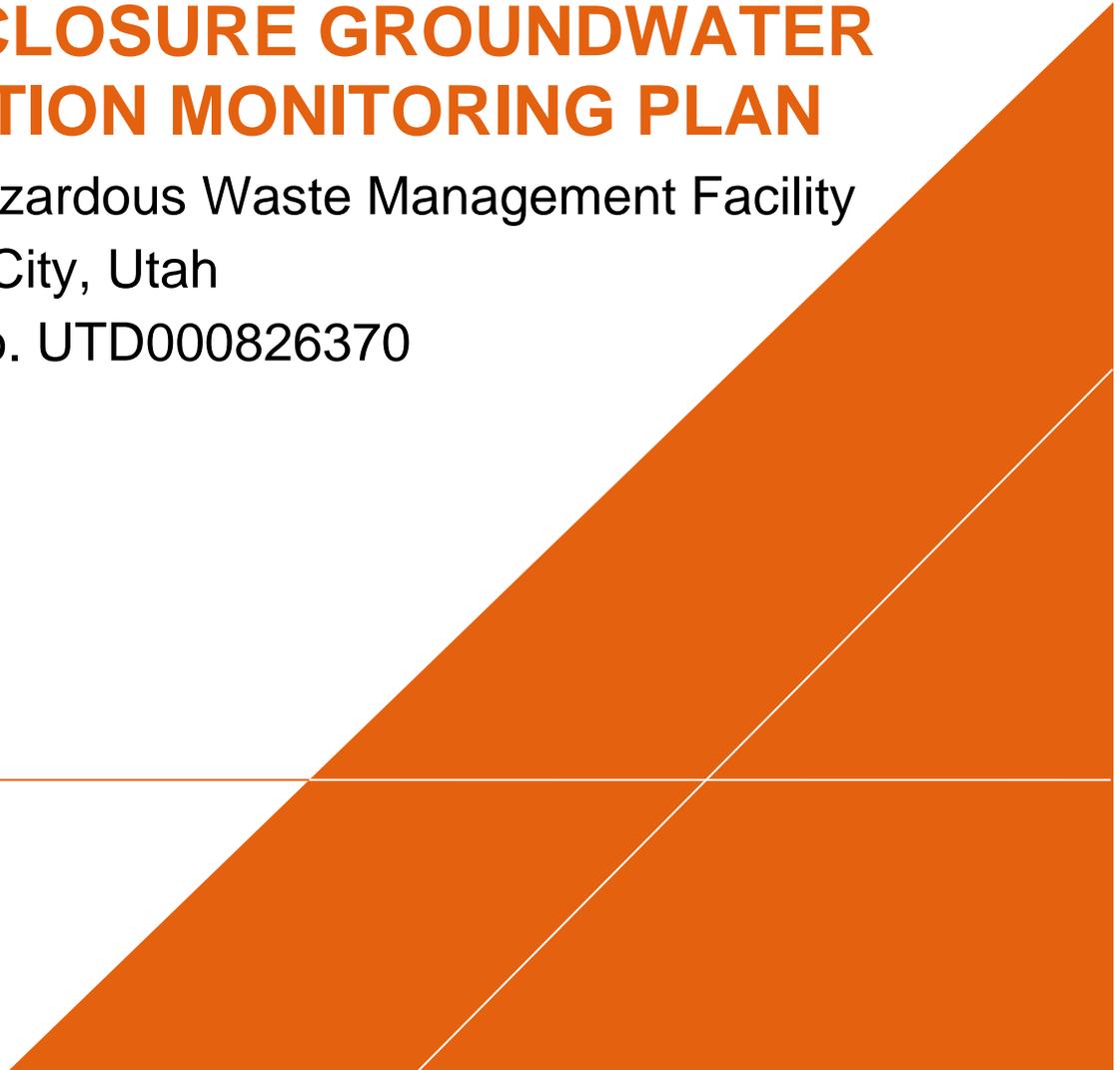
A

Closed Hazardous Waste Management Facility
Salt Lake City, Utah
EPA ID No. UTD000826370

F

T

May 2018



CONTENTS

1 Introduction..... 1

2 Groundwater Monitoring Procedures..... 2

 2.1 Monitoring Locations, Parameters, and Schedule..... 2

 2.2 Field Equipment Function Checks..... 2

 2.3 Groundwater Level Measurement Procedures..... 2

 2.4 Well Purging and Sampling Procedures 3

 2.5 Decontamination of Sampling Equipment Procedures 4

3 Sampling Handling and Chain-of-Custody..... 6

 3.1 Sample Labeling..... 6

 3.2 Sample Packaging and Shipping..... 6

 3.3 Chain-of-Custody..... 6

4 Quality Control/Quality Assurance..... 8

 4.1 Field Forms and Activity Logs 8

 4.2 Blind Duplicates, MS/MSD Samples, Equipment Blanks, and Trip Blanks..... 8

 4.3 Data Quality Objectives..... 9

 4.3.1 Accuracy..... 9

 4.3.2 Precision..... 9

5 Data Management, Evaluation, and Reporting 10

APPENDICES

Field Log Forms

D
R
A
F
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1 INTRODUCTION

This updated Post-Closure Groundwater Detection Monitoring Plan, herein referred to as the Sampling and Analysis Plan (SAP), describes procedures and requirements for the collection and analysis of groundwater samples, evaluation of field and laboratory data, and reporting of groundwater monitoring activities and results for the Closed Hazardous Waste Management Facility (CHWMF) located in Salt Lake City, Utah. This document supports and is to be used in conjunction with the Post-Closure Care and Monitoring Plan.

~~The updates incorporated in this SAP include:~~

- ~~• Replacing the former method of purging three bore volumes using bailers or a centrifugal submersible pump with purging three casing volumes using bailers or a centrifugal submersible pump and utilizing a bailer to sample for volatile organic compounds (VOCs);~~
- ~~• Removing al of wells from the list of monitoring wells requiring water level measurements; and~~
- ~~• Changing e in the monitoring frequency from semi-annual to annual.~~

Groundwater monitoring will be performed annually and the results of will be included in the Annual Report. The Annual Report for each year of operation will be submitted to the Utah Division of Environmental Quality/Division of ~~Solid and Hazardous Waste~~ Management and Radiation Control (UDWMRC) by April 15 of the following year.

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2 GROUNDWATER MONITORING PROCEDURES

This section provides a description of field procedures related to the collection of groundwater samples from monitoring wells at the CHWMF.

2.1 Monitoring Locations, Parameters, and Schedule

Sixteen monitoring wells and one Northwest Drain Canal (NWDC) stream gauge are monitored at the CHWMF. Shallow monitoring wells (TN-A series, S-series, and WQ-series wells) will be used to monitor pressures in the aquifer. One well (S-16) upgradient of the CHWMF, and 10 downgradient wells: TN-1A through TN-5A annually, and 5 wells (WQ-1 through WQ-5) on a five-year basis starting the 5th year of the Post-Closure Permit issuance downgradient of the CHWMF will be sampled annually (typically in ~~the spring~~September) for the following: 1,1-dichloroethane, 1,1-dichloroethylene, chloroform, 1,1,1-trichloroethane, carbon tetrachloride, benzene, toluene, ethylbenzene, total xylenes, and chromium. BP will provide a copy of original laboratory reports with a full list of analytes of EPA Method 8260C.

Site monitoring well construction details, monitoring well station numbers, and rationale for sampling are presented in Table 1 of the Post-Closure Care and Monitoring Plan. A site map and a monitoring well location map are shown on Figures 1 and 2 of the Post-Closure Care and Monitoring Plan, respectively. A summary of sampling parameters and analytical methods is presented in Table 2 of the Post-Closure Care and Monitoring Plan.

2.2 Field Equipment Function Checks

Field equipment is used during sampling activities to measure groundwater elevations, collect samples, and measure field parameters.

In general, calibration and operation of all equipment used for collection of samples from monitoring wells will conform to the respective manufacturer's specifications. Field equipment function checks will be performed in accordance with procedures described in this section. Calibration of pH meters will be performed to pH standards (7 and 10 or 4 and 7 standard units) bracketing the actual field measured value. The specific conductivity meter will be calibrated to one of two standards: 2,000 microsiemens (μS) or 10,000 μS , whichever is closer to the field measured value.

All non-dedicated, reusable sampling and purging equipment will be decontaminated as described in Section 2.5.

2.3 Groundwater Level Measurement Procedures

Procedures for groundwater level measurement in monitoring wells are provided as follows. In accordance with the Post-Closure Permit, all groundwater level measurements in the monitoring wells will be collected within a 24-hour period.

1. Lower the probe of a decontaminated electronic sounding water level meter into the monitoring well until the meter indicates the probe has contacted the groundwater surface.

POST CLOSURE GROUNDWATER DETECTION MONITORING PLAN

2. Measure the depth to water from the survey reference mark (either the steel protective casing, or the polyvinyl chloride [PVC] well casing) to the nearest 0.01 foot. If no mark is present, measure the depth to water to the north side of the appropriate casing.
3. Lower the probe until it contacts the bottom of the well.
4. Measure the total depth of the well to the same reference point on the PVC casing.
5. Record the water level measurement on Form AMR-14 and sampling field log (if well is sampled) and the total well depth measurement on Form AMR-16 and sampling field log (if well is sampled). Forms AMR-14 and AMR-16 are found in Appendix C of the Post-Closure Care and Monitoring Plan.
6. Decontaminate the probe and tape in accordance with the decontamination procedures described in Section 2.5.

2.4 Well Purging and Sampling Procedures

Monitoring well purging will be performed using a Grundfos electric submersible pump (or equivalent) powered by a portable generator. The pump will be decontaminated at each well as described in Section 2.5. All ancillary tubing will be disposable and replaced after each well. Alternatively, purging may be performed using a bailer. Well locations are shown on Figure 2 of the Post-Closure Care and Monitoring Plan. The parameters and analytical methods for groundwater monitoring are listed in Table 2 of the Post-Closure Care and Monitoring Plan. Sequential steps to be completed during each groundwater monitoring event are listed and summarized below:

The well purging process for a monitoring well using the Grundfos pump consists of the following steps:

1. Gently lower the Grundfos submersible pump into the well and position the pump so that it is approximately two feet from the bottom of the well.
2. Using the pump, purge each well until 3 casing volumes have been removed. One casing volume is calculated as 0.16 gallons multiplied by the height of the water column in feet in the 2-inch diameter wells. Purge groundwater from the monitoring well into a bucket to gauge the volume of water recovered. Record the volume of water pumped from each well on the field sampling form. Containerize all purged water onsite and disposed of properly.
3. If a well is pumped dry before three well casing volumes have been evacuated, then record the volume pumped on field sampling form and allow the well to recover (no longer than 24 hours).
4. Collect a water sample for pH, conductivity, and temperature at start of purging and after approximately 1.5 and 3 casing volumes have been removed. Pump water directly into a sample cup and measure temperature, pH, and specific conductance with a meter(s) calibrated according to manufacturer's specifications. Recalibrate the pH meter and repeat the measurement if the pH buffers used for calibration do not bracket the pH of the sample. If the specific conductance of the sample is closer to the solution standard not used for the last calibration event (2,000 μ S or 10,000 μ S), then recalibrate the meter using the other standard and repeat the measurement. Record the data on the field sampling form.
5. After purging is completed, collect chromium water samples using Grundfos system. Bottle descriptions and preservatives for each sampling parameter are presented in Table 2 of the Post-

POST CLOSURE GROUNDWATER DETECTION MONITORING PLAN

Closure Care and Monitoring Plan. Fill the bottle for dissolved chromium analysis first by field filtering the groundwater sample using the Grundfos pump through an in-line filter apparatus and 0.45-micron filter directly into a polyethylene bottle containing nitric acid preservative. Avoid aeration of the sample and completely fill the bottle without overtopping.

6. Collect the samples for volatile organics analysis after the dissolved chromium sample bottles have been filled. Shut the pump off and remove the pump from the well. Use a disposable, bottom dispensing poly-bailer to fill the 40-milliliter (ml) vials for volatile organics analysis, taking care to avoid bubbles and headspace.
7. Collect quality control samples, including trip blanks for volatiles, a blind duplicate, and equipment blanks as indicated in Section 4.
8. Place all groundwater samples for laboratory analysis on ice and store in insulated coolers. Use the preservatives provided by the laboratory as required for proper storage, shipment, and analysis.
9. Record the sample description and required information on the chain-of-custody form.
10. Send the groundwater samples to a State of Utah-certified laboratory for analysis within 24 hours of collection.

2.5 Decontamination of Sampling Equipment Procedures

To prevent cross-contamination between groundwater samples, sampling devices such as electric sounding water level and oil/water interface meters, pH meters, and specific conductance meters will be decontaminated at the sampling site before the first sample is collected and after each sample is taken. Disposable equipment or equipment dedicated to a monitoring well which does not contact objects other than the inside of the monitoring well will not require decontamination.

The electronic sounding water level meter and oil/water interface meters will be decontaminated using the following procedure:

1. Wipe the tape and probe off with a paper towel soaked in non-phosphate detergent.
2. Wipe the tape off with a paper towel soaked with distilled water.
3. Rinse the probe with distilled water.

The following decontamination procedures apply to all other reusable, non-dedicated equipment that potentially contacts groundwater samples:

1. Disassemble all equipment before cleaning.
2. Wash with a non-phosphate detergent and potable water.
3. Rinse with potable water.
4. Triple rinse with distilled water.
5. Clean the Grundfos pump prior to each use. Clean the pump and tubing with distilled water by pumping the distilled water through pump and all tubing until the measured conductivity of the decontaminated water equals less than 50 μS at discharge.

3 SAMPLING HANDLING AND CHAIN-OF-CUSTODY

This section describes sample handling and shipping documentation requirements to ensure the integrity of the samples collected and submitted to the laboratory for analysis, and to provide the laboratory with explicit instructions for analytical services required.

3.1 Sample Labeling

All sample containers will be labeled with the following information using waterproof ink:

- Client or project name
- Sample identification number
- Date and time of collection
- Signature of person taking the sample
- Container type and type of preservation used (chemicals added).

All groundwater sample data collected each day from each well are to be listed on separate field sampling forms. Blind duplicate samples collected will be labeled with a fictitious sample ID number, and time of collection. Duplicate samples collected for preparation of Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples will be labeled with the proper sample identification number, followed by "MS/MSD".

3.2 Sample Packaging and Shipping

The following procedures apply to all groundwater samples packed for transport to the laboratory:

1. Place ice into each shipping container.
2. Pack all glass containers in bubble packing or equivalent to prevent breakage.
3. If the samples are not relinquished by the field team directly to laboratory personnel, then:
 - a. Seal the top of the shipping container with custody seals and packaging tape.
 - b. Attach a shipping address label to the shipping container.
 - c. Relinquish shipping containers to a courier for shipment via express delivery.

Samples may be shipped by any available express courier, including shipment of the samples as airfreight on a commercial airline. All groundwater samples must be shipped within 24 hours of collection to a State of Utah-certified laboratory for analysis.

3.3 Chain-of-Custody

Chain-of-custody is a mechanism employed to ensure that data resulting from laboratory analysis are credible and defensible. Chain-of-custody begins at the time and point of sample collection.

Documentation of sample possession and chain-of-custody is provided using sample labels and chain-of-custody forms.

POST CLOSURE GROUNDWATER DETECTION MONITORING PLAN

The chain-of-custody record will be initiated in the field and will accompany each sample during shipment to the laboratory. The chain-of-custody record allows transfer of custody of a sample or group of samples in the field to any laboratory. Information listed on the chain-of-custody includes:

- Sample Identification
- Project name, location and number
- Sampling dates and times
- Name of sampling technician(s)
- Media being tested for each sample
- Number of containers per sample
- Signature of person relinquishing and receiving custody
- Requested analyses for each sample
- Special requirements/comments for project or analysis.

A separate chain-of-custody form will be filled out for each shipping container. The Field Technician relinquishing the samples will keep one copy of the chain-of-custody forms and send the remaining copies with the samples. The chain-of-custody form will be sealed in a waterproof plastic bag and placed inside the shipping container.

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4 QUALITY CONTROL/QUALITY ASSURANCE

This section describes quality assurance and quality control (QA/QC) procedures for field and laboratory data.

- QA/QC of field data will be accomplished through proper calibration of field equipment and written documentation of field activities, as described in Section 4.1.
- QA/QC of laboratory data will be accomplished through the analysis of blind duplicate samples, MS/MSD samples, equipment blanks (if applicable), and adherence to standard laboratory protocols for the specified analytical method, as described in Section 4.2.

4.1 Field Forms and Activity Logs

Field forms and daily field activity logs will provide the means for recording data collection activities. As such, entries will be described in as much detail as possible so that persons going to the facility could reconstruct a particular situation without reliance on memory.

Entries in the daily field activity logs will contain a variety of information. Every day at the site, the sampling team will record the date, start time, weather, names of all sampling team members and visitors present, the level of personal protection being used, and a general log of the activities performed during the day. Copies of the field forms to be used at the site are provided in Appendix A.

All entries will be made in ink. Any information incorrectly entered will be marked out with a single strike mark and initialed. Copies of all field forms will be forwarded to the project manager.

4.2 Blind Duplicates, MS/MSD Samples, Equipment Blanks, and Trip Blanks

The QC program includes the collection of blind duplicate samples, MS/MSD samples, and equipment blanks, if applicable. One blind duplicate and one MS/MSD sample will be collected during each sampling event. The blind duplicate and MS/MSD samples will be collected from a downgradient groundwater monitoring well. Blind duplicate and MS/MSD samples will be collected using the same procedures described in Section 2.0. Blind duplicate samples will be given a fictitious sample identification and sample collection time that are noted on a copy of field sampling log. MS/MSD samples will be given the same name as the well identification and may or may not require the collection of an extra volume of water, depending on the laboratory.

Equipment blanks will not be collected if sampling is performed using only dedicated or disposable equipment. If sampling is performed using decontaminated, reusable equipment, then one equipment blank will be collected and submitted for analysis during each sampling event. Equipment blanks will be obtained from distilled water that has contacted all appropriate sampling equipment and processed in the same manner as described in Section 2.0. A copy of the field sampling form will be completed for each equipment blank indicating the date and time of collection, so that monitoring locations sampled prior to and after collection of the blank can be identified.

Trip blanks are prepared by the laboratory, shipped to the site with the sample bottles, and will not be opened at the site. One trip blank will accompany each shipment of samples sent to the laboratory.

4.3 Data Quality Objectives

Field and laboratory QA/QC samples will be analyzed to verify that data quality objectives for this SAP are satisfied. The data quality objectives are established based on U.S. Environmental Protection Agency (EPA) protocols. BP will review the analytical data obtained for each sampling event and compare the QA/QC results with the data quality objectives set by EPA.

4.3.1 Accuracy

Accuracy is the degree of agreement between an observed value and an expected reference value. Accuracy of field measurements will be assessed through regular calibration of the instruments at a minimum of before and during each day's activities. Successful calibration will require that instruments report the correct values for the calibration standards.

Accuracy of sampling and analysis activities will be assessed with field duplicates, equipment blanks, and trip blanks and through adherence to all sample handling, preservation, and holding times. Performance of sampling activities in accordance with this SAP will ensure accuracy of field activities.

4.3.2 Precision

Precision is a measure of the degree to which two or more measurements are in agreement. Precision is indicated by obtaining results within a satisfactory range from repeated measurements of the same sample and the same media. Precision will be assessed through replicate measurements for appropriate media at a rate of one duplicate per 20 measurements.

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5 DATA MANAGEMENT, EVALUATION, AND REPORTING

All data collected from the CHWMF will be managed, evaluated, and reported as set forth in the Revised Post-Closure Care and Monitoring Plan and the Post-Closure Permit.

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APPENDIX A

Field Log Forms



DAILY FIELD ACTIVITIES LOG

Date _____ Project No. _____ Field Eng. _____
 Client _____ Project Name. _____ Location _____

Personnel On Site:

Name	Social Security Number	PPE Level
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Weather Conditions _____

Temperature _____ Wind Direction _____ Wind Speed _____

Task(s) to be Conducted _____

PERSONAL PROTECTIVE EQUIPMENT

Indicate personnel initials next to each piece of PPE equipment utilized by that individual:

Suits: _____ Gloves: _____ Boots: _____

Hard Hat: _____ Eye Protection: _____ Hearing Protection: _____

Respirator: _____ If respirator, indicate cartridge type: _____

Other: _____

MONITORING EQUIPMENT

Air/Soil/Water Monitoring Equipment Used (and ID numbers): _____

Engineering Controls Used for Safety: _____

Accidents/Injuries (fill out accident report form): _____

BP CHWMF
ANNUAL WATER QUALITY SAMPLING
FIELD LOG

CLIENT: BP
 LOCATION: CHWMF
 PROJECT NO.: _____
 PERSONNEL: _____

WELL NO.: _____
 DATE: _____
 TIME STARTED: _____
 FINISHED: _____

Measurement Summary:

Datum: _____
 Depth to Water: _____
 Total depth: _____
 Water column length: _____
 Water column volume: _____
 Sample Appearance: _____

Sampling Summary: _____

Sampling Method: _____

Evacuation Method: _____

Time	pH	SC	Temp	Volume Evacuated	Comments
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Total gallons evacuated: _____

Sample bottles:

Identification: _____	Parameter: _____	No.: _____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Instruments:

pH meter: _____	Calibration standards: _____
SC meter: _____	Calibration standard : _____
Water level meter: _____	
Calibration time: _____	

APPENDIX E

Contingency Plan for Post-Closure Care and Monitoring



BP Products of North America, Inc.

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APPENDIX E

CONTINGENCY PLAN FOR POST-CLOSURE CARE AND MONITORING

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Closed Hazardous Waste Management Facility

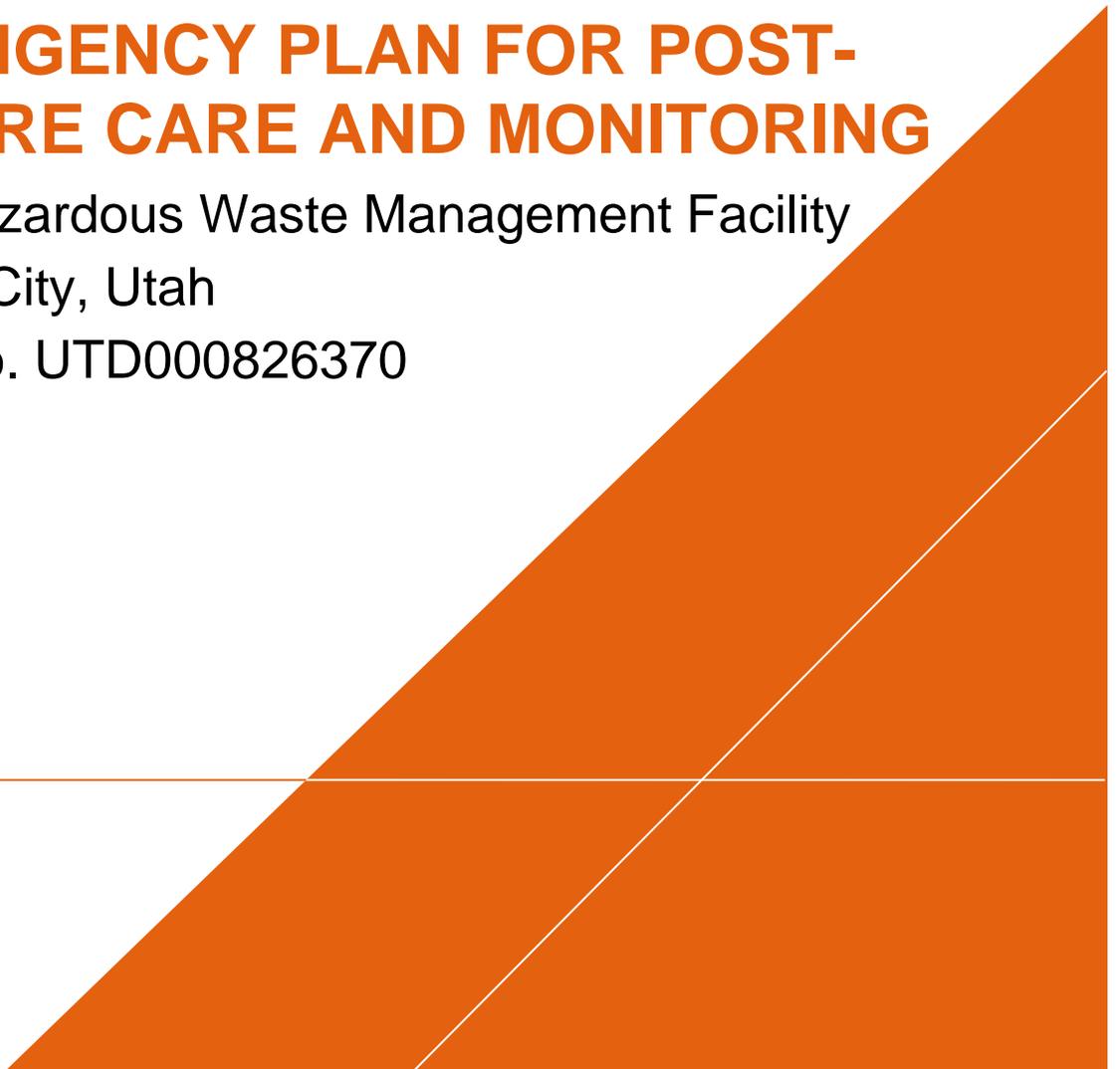
Salt Lake City, Utah

EPA ID No. UTD000826370

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May 2019



CONTENTS

1 Introduction..... 1

2 Immediate Response Situations..... 1

3 Immediate Response Procedures for Quarterly Security Inspection Items 2

4 Immediate Response Procedures for Detection Monitoring 2

5 Responsible Personnel 3

D
R
A
F
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1 INTRODUCTION

This Contingency Plan for Post-Closure Care and Monitoring (Contingency Plan) at the BP Products North America, Inc. Closed Hazardous Waste Management Facility (CHWMF) located in Salt Lake City, Utah, is prepared to anticipate and provide standard procedures for events with potential for sudden and non-sudden release of hazardous waste or hazardous constituents to the environment. The Contingency Plan is designed to provide preventative measures, based on monitoring criteria, to assure containment. This Contingency Plan will be initiated by failure to meet inspection performance criteria that require an "immediate" response as described in the Post-Closure Care and Monitoring Plan. Such a response is assigned in those situations in which prompt action is required to prevent potential exposure to, or release of hazardous waste or hazardous constituents to the environment.

A copy of this Contingency Plan will be maintained at the official CHWMF document repository located at Arcadis U.S., Inc. (Arcadis) Helena, Montana office (46 N Last Chance Gulch, Suite 2A, Helena, Montana 59601). The Contingency Plan will be updated to reflect current response personnel and equipment. It will also reflect any change required because of failure of the plan to be adequate when and if a release of hazardous constituents occurs. Records of all contingency response activities will be filed with the Contingency Plan at the facility office.

This document supports and is to be used in conjunction with the Post-Closure Care and Monitoring Plan.

2 IMMEDIATE RESPONSE SITUATIONS

Listed below are the inspection checklist items that call for an immediate response and, thus, trigger Contingency Plan activities. The items correspond to those on the indicated checklists.

Quarterly Security Inspection (Form AMR-21)	
Checklist Item	Immediate Response
Breaks in Security Fence	Repair
Damaged or Missing Gate Lock	Replace

Annual Detection Monitoring (Form AMR-31)	
Checklist Item	Immediate Response
Statistically significant increase determined in a downgradient well by procedure described in Section 2.2 of the Post-Closure Care and Monitoring Plan	Implement requirements of Section IV.1.1 of the Post-Closure Permit. Implement requirements of Section IV.1.2 if demonstration is to be pursued.

3 IMMEDIATE RESPONSE PROCEDURES FOR QUARTERLY SECURITY INSPECTION ITEMS

Specific immediate response procedures for quarterly security inspection items were listed in Section 2. The following steps will be taken as part of the immediate response actions:

1. The Facility Inspector will notify the Facility Coordinator during the same day that a checklist item requiring immediate response was identified during an inspection.
2. The Facility Coordinator or his designee will inspect the problem area and schedule repair or the appropriate action so that the deficient item is corrected as soon as practicable.
3. The Facility Coordinator will notify the Executive Secretary of the Utah Solid and Hazardous Waste Board regarding any incident requiring immediate response within seven (7) days of discovery. This report will contain:
 - a. A description of the problem
 - b. Corrective action taken or in progress
 - c. An estimate of the volume of hazardous waste or hazardous constituents released and the location of the release, if any
 - d. An assessment of possible hazards to human health or the environment
 - e. Measures taken to ensure that a release does not recur.

4 IMMEDIATE RESPONSE PROCEDURES FOR DETECTION MONITORING

The specific immediate response to an indicator parameter showing a statistically significant increase during semi-annual detection monitoring in a compliance point monitoring well will involve the following steps:

1. Determine Whether Statistical Increase Has Occurred. Follow the procedures in Section 2.2 of the Post-Closure Care and Monitoring Plan to determine whether a statistical increase has occurred.
2. If a Statistically Significant Increase Is Determined. If a groundwater sample is found to have a significant increase in the concentration of an indicator constituent, then the Executive Secretary must be notified within seven (7) days of this determination. BP also must:
 - a. Follow the requirements of Section IV.1.1 of the Post-Closure Permit.
 - b. Follow the requirements of Section IV.1.2 of the Post-Closure Permit if BP wishes to demonstrate that a source other than the regulated unit is the cause of the increase or that the increase is due to an error in sampling, analysis or evaluation. If BP wishes to make this demonstration, it must notify the Executive Secretary that it intends to make the demonstration within seven (7) days of determining the statistically significant increase.

5 RESPONSIBLE PERSONNEL

The personnel responsible for post-closure care and monitoring at the CHWMF are the Facility Coordinator, Alternate Facility Coordinators, Facility Inspector, and Alternate Facility Inspector. Personnel currently assigned to fill these positions are indicated in Table 3 of the Post-Closure Care and Monitoring Plan. When there are changes in these personnel, BP will submit a Class I permit modification to the Utah Department of Environmental Quality-Division of Solid and Hazardous Waste.

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