



**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  
September 2020

## STATE OF UTAH PERMIT

September XX, 2020

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 shall 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 may be appealed pursuant to R305-7 of the Utah Administrative Code and Utah Code Section 19-1-301.5.

This permit is effective on xxdate, 2020 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 L. 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

**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 TREATMENT ..... Module V - Page 1  
D DURATION OF CORRECTIVE ACTION PROGRAM..... Module V - Page 1  
E COST ESTIMATES FOR CORRECTIVE ACTION ..... Module V - Page 1  
F FINANCIAL ASSURANCE FOR CORRECTIVE ACTION ..... Module 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. .



#### Attachment I

Post-Closure Care and Monitoring Plan, BP Closed Hazardous Waste Management Facility (CHWMF), EPA ID No. UTD000826370, 2020.



### DEFINITIONS

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

"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 units which consisted of four hazardous waste disposal surface impoundments and two evaporation pond areas at the BP Closed Hazardous Waste Management Facility (formerly referred to as the Amoco Remote Hazardous Waste Management Facility). The Permittee shall 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 or 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 § 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 Director 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 the 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 the Permittee time to reasonably 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 § 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 unless the Director determines in writing that it is not necessary to extend the post-closure care period beyond the expiration date of this permit to protect human health and the environment.

**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**

Pursuant to R315-264-117(a)(2)(ii), if the Director finds it is necessary to extend the post-closure care period beyond the expiration date of this permit to protect human health and the environment, this permit and all conditions herein shall continue in force until the effective date of a new 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 the Facility slurry wall, waste cover, security fence and locks, warning signs, and groundwater monitoring wells which are installed or used by the Permittee to achieve compliance with the conditions of this permit.

**I. M DUTY TO PROVIDE INFORMATION**

The Permittee shall furnish to the Director, within a reasonable time, any relevant information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

I.M.1. Within seven days of a request, the Permittee shall provide to the Director upon request, electronic

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 § 19-6-109, the Permittee shall allow the Director, or an authorized representative, upon the presentation of appropriate credentials:

- 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 offside location specified in Table 3 of Attachment I, 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. At any time prior to expiration of the retention period, a document retention period shall be extended (i) upon written notification from the Director to the Permittee or (ii) automatically during the course of any unresolved enforcement action regarding the Facility to three (3) years beyond the conclusion of the enforcement action.
- I.O.2 Pursuant to R315-270-30(j) of Utah Admin. Code, 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 The Permittee shall collect and analyze representative samples and measurements of the monitored activity in accordance with the Post Closure Groundwater Detection Monitoring Plan, 2020, Attachment I, Appendix D. The Permittee shall comply with laboratory methods specified in Attachment I or in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846 (prevailing edition, including all finalized Updates) (hereafter referred to as SW-846)*<sup>1</sup>, *Standard Methods of Examination of Water and Wastewater (23rd Edition, 2017, or prevailing edition)*. Other methods may be allowed if approved in writing by the Director prior to use.

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 Permittee's 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 provide 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) and R315-270-42 of Utah Admin. Code.

#### **I. Q REPORTING ANTICIPATED NONCOMPLIANCE**

The Permittee shall provide 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

---

<sup>1</sup> <https://www.epa.gov/hw-sw846>

ownership of the Facility during the post-closure care period, the Permittee shall notify the new owner or operator, in writing, of the requirements of R315-15, 17, 101, 102, 103, and 260 through 320 of Utah Admin. Code, 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 R315-263-30 through 33 in R315-263-30 through 33 of Utah Admin. Code 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 R315-270-11 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, 2<sup>nd</sup> Floor  
Post Office Box 144880  
Salt Lake City, Utah 84114-4880  
Phone: (801) 536-0200

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 the offsite location specified in Table 3 of Attachment I:

- 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, Table 5 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 (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 four closed surface impoundments and the two closed evaporation ponds throughout the post-closure care period, which commenced on July 29, 1991, as specified in this permit and 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 a minimum of another ten (10) years, the duration of this permit, and may be modified by the Director in accordance with R315-264-117(a)(2) of Utah Admin. Code.
- II.B.4 Certification of Completion of Post-Closure Care. Within 60 days after receiving written approval from the Director that the post-closure period has been completed, 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 in working condition 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 in accordance with Condition II.D. and Attachment I.

II.C.3 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. 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 At least seven days prior to an inspection, the Permittee shall notify the Director in writing of the inspection dates.

II.D.2. 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. Damaged security equipment shall be noted in the inspection checklist and repairs shall be completed in accordance with the schedule specified in Section 3.1 of Attachment I.

II.D.3. Records of inspections shall be kept as required by Attachment I.

II.D.4 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.4.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.4.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 outside location specified at Table 3 of Attachment I , 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 outside location specified at Table 3 of Attachment I.
- 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 outside location specified at Table 3 of Attachment I.

## **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. H.2 The Permittee's post-closure cost estimate shall be prepared in accordance with R315-264-140 through 151 of the Utah Admin. Code.
- II.H.3 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.
- II.H.4 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.

II.H.5 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.

**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 four closed impoundments and two close evaporation ponds, 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.
- 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 R315-264-97of Utah Admin. Code:
  - III.C.3.a. Monitoring Well Locations.
    - III.C.3.a.i. The Permittee shall maintain and monitor the groundwater monitoring systems in compliance with Module IV, and Section 2.0 and Appendix D, Post-Closure Groundwater Detection Monitoring Plan, of Attachment I, which consist of the monitoring wells listed in Table 1 of Attachment I.

- III.C.3.a.ii. During the post-closure period, the Permittee shall measure the water level at the monitor wells listed in Table 1 in accordance with Section 2.1 and Appendix D, Post-Closure Groundwater Detection Monitoring Plan, of Attachment I at the Facility.
- III.C.3.a.iii. 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
- III.C.3.b. 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 specified in Attachment I and 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 offside location specified in Table 3 of Attachment I , 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.



## **MODULE IV - GROUNDWATER DETECTION MONITORING**

### **IV. A POST-CLOSURE GROUNDWATER MONITORING**

- IV.A.1 The Permittee shall monitor groundwater in the uppermost aquifer as specified in Section 2, Appendix D, Post-Closure Groundwater Detection Monitoring Plan, and Appendix E of Attachment I in order to satisfy the requirements of R315-264-228, R315-264-110 through 120, and R315-264-90 through 101 of Utah Admin. Code during the post-closure care period as defined in Conditions II.B. 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 R315-101 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 through WQ-5 (WQ-series) for the zone beneath the slurry wall, and GW-1 through GW-5 (GW-series) for an upper zone of the containment system. The Permittee shall maintain groundwater monitoring wells at the locations specified on the map (Figure 2) in Attachment I. The Permittee may add wells as specified in Condition IV.D.7.
- 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 Section 3.4 of 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 The Permittee shall maintain all monitoring wells listed in Table 1 of Attachment I 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 3.4 of Attachment I). The Permittee shall submit to the Director for prior written 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 Director for prior written 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 in writing. 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 specified in condition II.B.3, the Director has extended the post-closure care period for the Closed Hazardous Waste Management Facility for at least ten additional years unless the Director further modifies the extended post-closure period in accordance with R315-264-117(a)(2) of Utah Admin. Code.

#### **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 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 In accordance with R315-264-98(a) of Utah Admin. Code, the Permittee shall collect and analyze groundwater in wells GW-1 through GW-5 and S-16 annually, and WQ-1 through WQ-5 twice in years 2020 and 2024, as described in Permit Condition IV.B.1 and constitutes in Table IV-1.
- IV.C.4 In its annual report, the Permittee shall provide the analytical results of the groundwater samples collected pursuant to condition IV.C.3, including the full suite of EPA Method 8260D analytes. For all EPA Method 8260D analytes and metals detected, the Permittee shall include in the

annual report an assessment of the basis and significance of the analytical concentrations in the detected groundwater. 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	8260D	5
1,1 Dichloroethylene	8260D	5
Chloroform	8260D	5
1,1,1 Trichloroethane	8260D	5
Carbon Tetrachloride	8260D	5
Benzene	8260D	5
Toluene	8260D	5
Ethylbenzene	8260D	5
Xylenes Total	8260D	5
Total Chromium	6010C	100
Total Arsenic	6010C	10
Total Barium	6010C	2,000
Total Cadmium	6010C	5
Total Lead	6010C	15 (Action level)
Total Selenium	6010C	50
Total Iron	6010C	300 (2' MCL)

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 limits for metals are set at the maximum contaminant level (MCL). Total iron has a secondary MCL limit. Total lead only has an action level.

IV.C.6 Based on evaluation of the monitoring data after the 2024 monitoring event, the Permittee may petition for the Director's approval through a Class 2 permit modification to cease the groundwater monitoring at WQ-series wells, and to reduce the monitoring frequency at GW-series wells from annually to every five years in accordance with R315-270-42 of Utah Admin. Code.

**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 prior written 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 prior written approval of the Director and approval of 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, GW-1 through GW-5, 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 shall 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 Appendix D of 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 specified in the approved Post Closure Groundwater Detection Monitoring 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 The Permittee 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 in writing 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, the Permittee shall collect and analyze one blind duplicate during each annual sampling event. The laboratory shall provide method blanks, spikes, and duplicates. If non-dedicated 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 offsite location specified in Table 3 of Attachment I throughout the post-closure care period.

3. The Permittee shall track and control each sample collected using the chain-of-custody procedures specified in the Post Closure Groundwater Detection Monitoring as indicated in Appendix D of Attachment I.

4. In case of loss of sample integrity (i.e., breakage, loss), the Permittee shall resample 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 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 GW-1 through GW-5, 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 R315264-73 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 annual report submitted for the Director's review on or before April 15<sup>th</sup> 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 or total metal indicator parameters specified in Condition IV.C have 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 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 R315264-98(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 R315264-98(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 R315264-98(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 of R315264-98(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 R315264-98(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, the Permittee 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 the Permittee 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 are taken during the term of the permit in accordance with R315-264-92 ,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 shall, within 90 days of the determination, submit an application for a permit modification to make any appropriate changes to the program which will bring its groundwater monitoring plan into compliance 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.

**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, 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.



Committee: BP Products North America, Inc.

D

R

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

A

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

F

T

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

D

R

A

F

T

# 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

D

R

A

F

T

# 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 post-closure permit. 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 (UDWMRC) 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

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

## POST-CLOSURE CARE AND MONITORING PLAN

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. 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. 

### 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.

D

R 

A

F

T

## 2 GROUNDWATER LEVEL AND QUALITY MONITORING

Groundwater level and quality monitoring will be performed on an annual basis, unless the post-closure permit is modified for the groundwater monitoring. In accordance with requirements of the Post-Closure Permit, BP must notify the Director of the Utah Division of Waste Management and Radiation Control (the Director) 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 at the well locations listed in Table 1. 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 (GW-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 aquifer 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, then changes in the monitoring program or a demonstration that the changes are temporary, will be presented to the 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 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 in year 2020 and 2024, and GW-1 through 5 annually) and the upgradient monitoring well (S-16) annually to year 2024. Following the 2024 monitoring event, BP may petition in writing for the Director's approval to cease monitoring at WQ-series well and reducing monitoring from annually to every five years if the data supports this decision.

In the case of a loss of sample integrity (i.e., breakage, loss) during any monitoring and sampling event, resampling must take place within 21 days of notification of the loss with prior notice to the UDWMRC.

## POST-CLOSURE CARE AND MONITORING PLAN

Samples will be analyzed and reported for the full suite of analytes including the nine volatile organic constituents, total arsenic, total barium, total cadmium, total chromium, total iron, total lead, and total selenium as listed in the table below and in Table 2 using USEPA method 8260D, 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 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. Total 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 total chromium is set at 100 micrograms per liter ( $\mu\text{g/l}$ ), consistent with the value in Table 1 - Maximum Concentration of Constituents for Groundwater Protection in accordance with R315-264-94 of Utah Admin. Code.

The concentration limits for the parameters of interest are:

Detection Monitoring Parameter	Concentration Limit ( $\mu\text{g/l}$ )
1,1 Dichloroethane	5
1,1 Dichloroethylene	5
Chloroform	5
1,1,1 Trichloroethane	5
Carbon Tetrachloride	5
Benzene	5
Toluene	5
Ethylbenzene	5
Xylene (total)	5
Total Chromium	100
Total Arsenic	10
Total Barium	2000
Total Cadmium	5
Total Selenium	50
Total Iron	300

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

## POST-CLOSURE CARE AND MONITORING PLAN

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.

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 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 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.

D

R

A

F

T

### 3 INSPECTIONS AND MAINTENANCE

Regularly scheduled routine maintenance activities will be performed either on a semi-annually or an annual basis as specified below. Maintenance requirements identified during the semi-annually inspections will be addressed as specified below. A summary of inspection and maintenance 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	Semi-annually
Cover Inspection	semi-Annually
Groundwater Level Monitoring	Annually
Groundwater Monitoring and Evaluation	Annually
Monitoring Well Integrity	Annually
Sediment Accumulation in Wells	Annually

#### 3.1 Security Inspection

The semi-annually 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 semi-annually 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

## POST-CLOSURE CARE AND MONITORING PLAN

ground squirrels, fox, badger), positive steps will be taken to remove these animals from the CHWMF 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.

## POST-CLOSURE CARE AND MONITORING PLAN

### Responses to Inspection Results

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

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 within 60 days of the inspection). Maintenance repairs and routine maintenance will be documented and reported with the other items included in the annual report to UDWMRC.

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
<b>Annual Groundwater Level Monitoring (Form AMR-14)</b>		
Groundwater flow direction indicates that fewer than three water quality monitoring wells are downgradient	Annual Report	Evaluate cause and recommend action
<b>Annual Monitoring Well Integrity Tests (Form AMR-15)</b>		
Surface seals for monitoring wells are inadequate	Annual Report	Schedule for maintenance
Monitoring well does not respond	Annual Report	Investigate, replace well if necessary
<b>Annual Monitoring Well Sediment Inspections (Form AMR-16)</b>		
Sediment accumulation in excess of limit	Annual Report	Schedule for maintenance
<b>Semi-annually Cover Inspection (Form AMR-21)</b>		
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 UDWMRC 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

## POST-CLOSURE CARE AND MONITORING PLAN

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.

D  
R  
A  
F  
T

## 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

- 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 R315-264-16 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.

D

R

A

F

T

## 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.

D

R

A

F

T

## 6 REPORTING REQUIREMENTS

Two types of reports will be submitted to UDWMRC during the post-closure period. Any inspections which identify a problem requiring an immediate response will culminate with a written report to the UDWMRC, 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 UDWMRC 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.

D

R

A

F

T

## 7 POST-CLOSURE COST ESTIMATE

The costs for operation and maintenance of the CHWMF during 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 UDWMRC 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 UDWMRC 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.

D

R

A

F

T

# TABLES



# FIGURES



# APPENDIX A

## Closure Certification



# 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

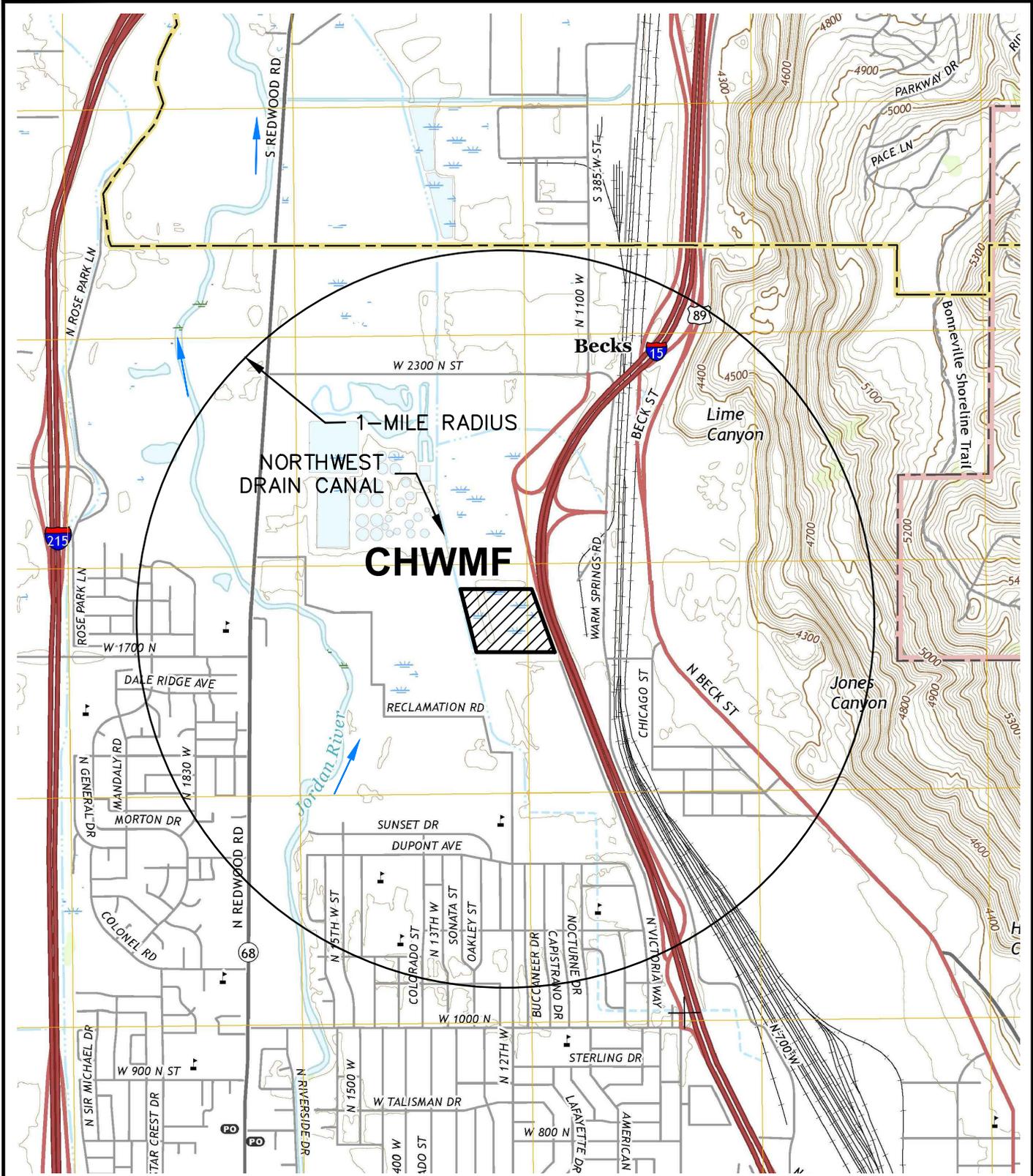


# APPENDIX E

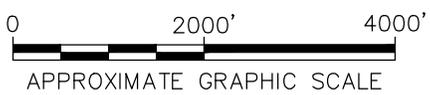
## Contingency Plan for Post-Closure Care and Monitoring







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



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

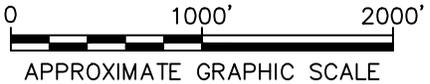
XREFS: E3471XAP SLON.jpg  
IMAGES:



Note: the Figure will be updated after Monitoring wells GW-1 through 5 are installed and surveyed in August - September 2020. GW Wells will be located next to the TN wells or WQ wells, respectively.

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

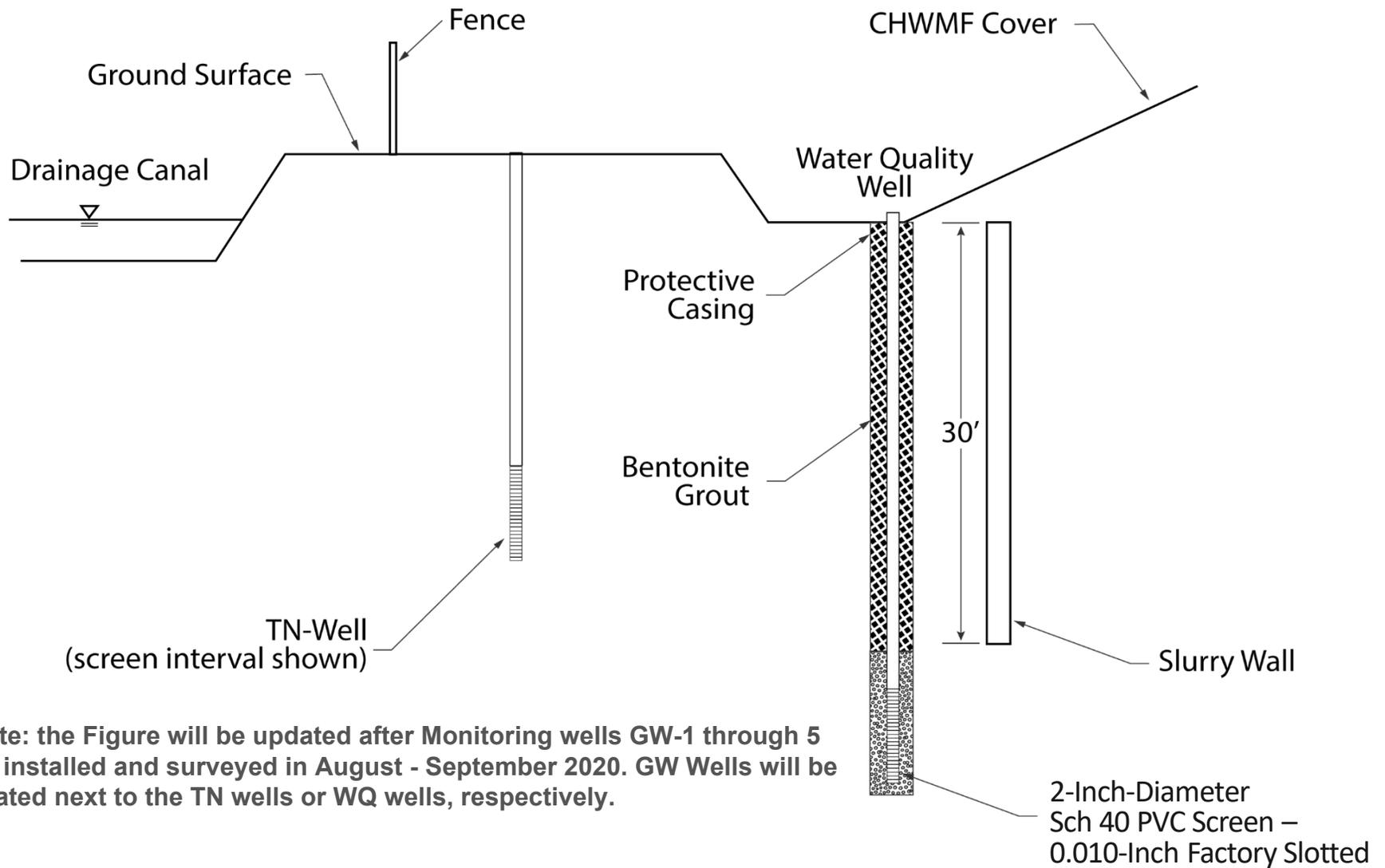
NOTE: PROCESS CODE T04 (INSITU VITRIFICATION) IS WITHIN THE BOUNDARIES OF PROCESS CODE D80.



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



BP PRODUCTS NORTH AMERICA, INC. SALT LAKE CITY, UTAH <b>CHWMP 2018 PERMIT</b>
<b>CHWMP AERIAL PHOTO</b> <b>EPA NO. UTD000826370</b>
FIGURE <span style="font-size: 24pt; font-weight: bold;">2</span>



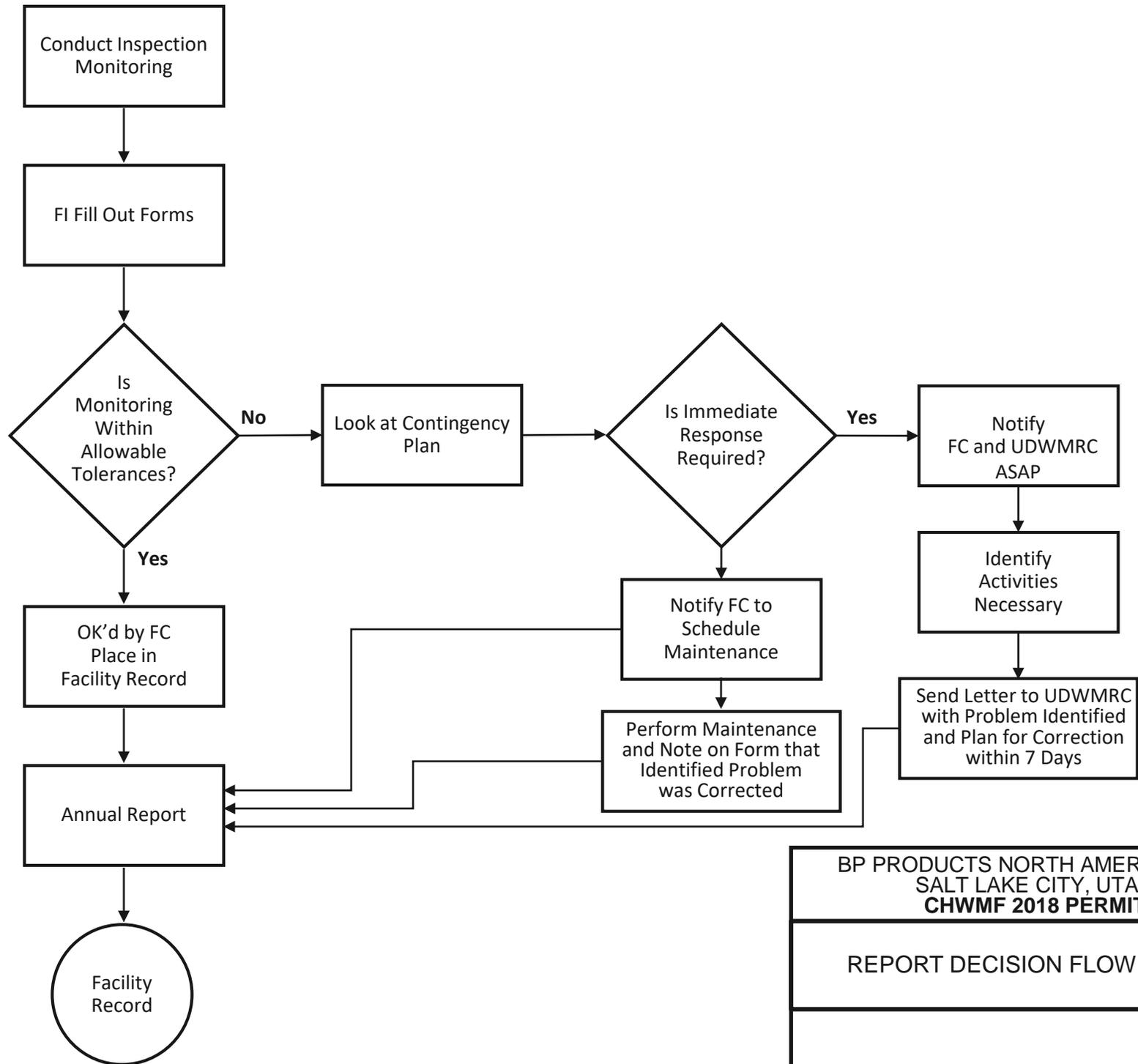
◦Note: the Figure will be updated after Monitoring wells GW-1 through 5 are installed and surveyed in August - September 2020. GW Wells will be located next to the TN wells or WQ wells, respectively.

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**

**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 <sup>1</sup>	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
GW-1	To be installed					Compliance Point Monitoring Well
GW-2	To be installed					Compliance Point Monitoring Well
GW-3	To be installed					Compliance Point Monitoring Well
GW-4	To be installed					Compliance Point Monitoring Well
GW-5	To be installed					Compliance Point Monitoring Well
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	Water level only
TN-2A	4212.26	4212.83	2" PVC	20.4-24.8	25.7	Water level only
TN-3A	4211.91	4212.67	2" PVC	19.9-24.3	25.6	Water level only
TN-4A	4212.64	4213.28	2" PVC	19.8-24.2	25.4	Water level only
TN-5A	4212.38	4212.9	2" PVC	20.3-24.7	25.9	Water level only

**Notes:**

amsl = above mean sea level bgs = below ground surface NM = not measured

NA = not applicable

TOC = top of PVC casing

<sup>1</sup> 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.

BP will revise Table 1 to include five new compliance monitoring wells (GW 1 through 5) after the wells are installed and surveyed.

**Table 2**  
**Summary of Parameters and Analytical Methods**  
**BP Closed Hazardous Waste Management Facility Salt Lake City, Utah**

Analytical Parameters				
Monitoring	Method <sup>1</sup>	Bottle Type	Preservative	Filter
VOCs				
1,1 Dichloroethane	8260D	3-Glass 40 ml vials	HCl	No
1,1 Dichloroethylene	8260D	3-Glass 40 ml vials	HCl	No
Chloroform	8260D	3-Glass 40 ml vials	HCl	No
1,1,1 Trichloroethane	8260D	3-Glass 40 ml vials	HCl	No
Carbon Tetrachloride	8260D	3-Glass 40 ml vials	HCl	No
Benzene	8260C	3-Glass 40 ml vials	HCl	No
Toluene	8260D	3-Glass 40 ml vials	HCl	No
Ethylbenzene	8260D	3-Glass 40 ml vials	HCl	No
Xylene (total)	8260D	3-Glass 40 ml vials	HCl	No
Remaining VOC Compounds	8260D	3-Glass 40 ml vials	HCl	No
Total Metals				
Chromium (Total)	6010C	500 mo Poly	HNO <sub>3</sub>	No
Barium (Total)	6010C	500 mo Poly	HNO <sub>3</sub>	No
Cadmium (Total)	6010C	500 mo Poly	HNO <sub>3</sub>	No
Lead (Total)	6010C	500 mo Poly	HNO <sub>3</sub>	No
Selenium (Total)	6010C	500 mo Poly	HNO <sub>3</sub>	No
Iron (Total)	6010C	500 mo Poly	HNO <sub>3</sub>	No

**Notes:**

Field Measurements - pH, Specific Conductance, Temperature

<sup>1</sup> 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)	Ryan Anderson Anderson Engineering Co 2053 N Hillcrest Rd. Saratoga Springs, UT 84045	801.972.6222	801.349.9677 (cell)
Alternate Facility Coordinator (AFC)	Cynthia Oppenheimer Parsons 2121 N California Blvd, Ste 500 Walnut Creek CA 94596	925-324-4895	925-941-3769
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	John Frankenthal Remediation Management Services Co. A BPPNA Affiliate 150 W Warrenville Rd MC 600 1015F Naperville, IL 60563	331-236-1391	

**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 2020 - 2030)**  
**BP Closed Hazardous Waste Management Facility Salt Lake City, Utah**

Item	2020 Annual Cost	2021 through 2024	2025 through 2030	Total 2020 through 2030
Semi-annually Facility Inspections (quarterly)				
Cover and security inspection - FI, 6-12 hr @ \$86.98/hr x 2 inspections	\$2,087	\$8,348	\$13,774	\$24,209
Equipment and materials - \$124.25 x 4 events	\$497	\$1,988	\$3,280	\$5,765
Ground Water Monitoring (annually)				
Sampling - FI and Assistant, 68 hr @ \$74.55/hr	\$5,070	\$20,280	\$33,462	\$58,812
Evaluation and reporting - FC, 8 hr @ \$124.25/hr	\$994	\$3,976	\$6,560	\$11,530
Analytical costs, equipment and materials - \$6,212.69	\$6,213	\$24,852	\$41,006	\$72,071
Ground Water Levels (annually)				
Ground water level monitoring - FI and Assistant, 16 hr @ \$74.55/hr	\$1,193	\$4,772	\$7,874	\$13,839
Equipment and materials - \$310.63	\$311	\$1,244	\$2,053	\$3,608
Annual Inspection (annually)				
Monitor well integrity tests - FI and Assistant, 40 hr @ \$74.55/hr	\$2,982	\$11,928	\$19,681	\$34,591
Equipment and materials - \$497.02	\$497	\$1,988	\$3,280	\$5,765
Annual Training - 3 staff, 4 hr each @ \$86.98/hr (annually)	\$1,044	\$4,176	\$6,890	\$12,110
Irregular Maintenance (annually)				
Cover soils and vegetation	\$1,864	\$7,456	\$12,302	\$21,622
Surface water and drain maintenance	\$932	\$3,728	\$6,151	\$10,811
Security maintenance	\$932	\$3,728	\$6,151	\$10,811
Replacement of monitoring wells:				
- assume replace 5 wells every 3 years @ \$6,212.69/well over remaining period:	\$31,063	\$31,063	\$62,126	\$124,252
Post Closure Permit Review				
Negotiation and permit amending - FC, 72 hr @ \$124.25/hr	\$8,946	\$0	\$8,946	\$17,892
Reporting, Management and Safety (annually)	\$13,668	\$54,672	\$90,209	\$158,549
Labor - FC, 110 hr @ \$124.25/hr				
Equipment and materials	\$994	\$3,976	\$6,560	\$11,530
<b>Subtotal:</b>	<b>\$79,287</b>	<b>\$188,175</b>	<b>\$330,307</b>	<b>\$597,769</b>
<b>Contingency at 10%:</b>	<b>\$7,929</b>	<b>\$18,818</b>	<b>\$33,031</b>	<b>\$59,777</b>
<b>Total Post-Closure Costs:</b>	<b>\$87,216</b>	<b>\$206,993</b>	<b>\$363,337</b>	<b>\$657,546</b>



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.

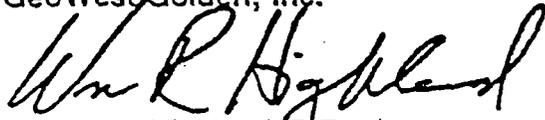
If you or your staff have any questions regarding the closure activities, please contact the undersigned.

**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

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



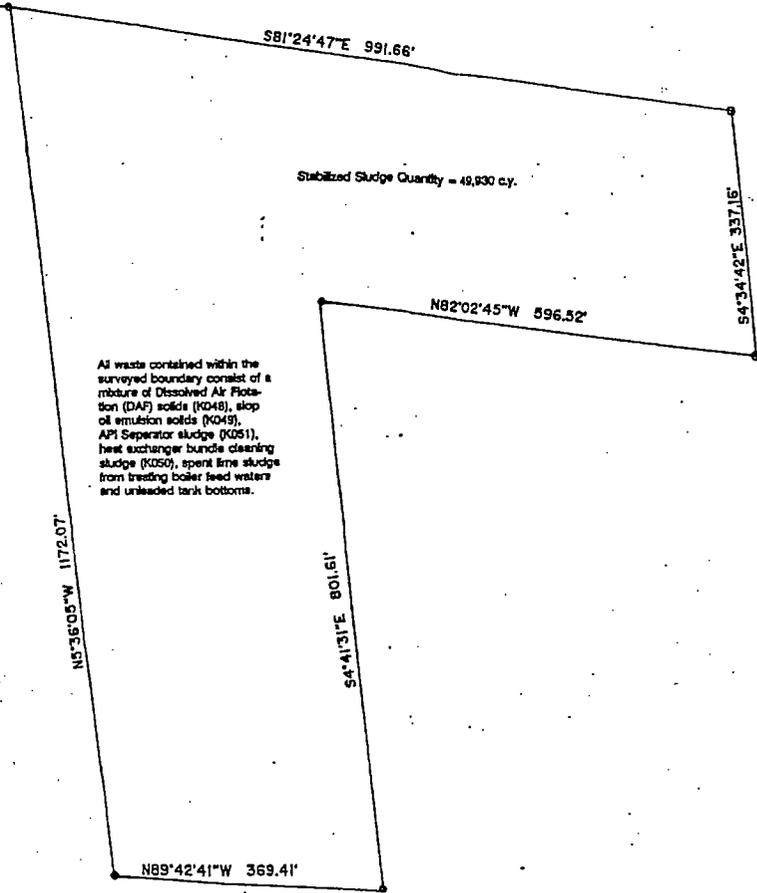
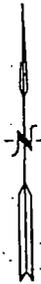
RECEIVED JAN 09 1992

5145051  
22N W 23  
1/10/92  
08-23-100-002

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, R1W, S.L.B.M.  
SW COR. SEC. 14,  
T1N, R1W, S.L.B.M.  
SOUTH  
EAST  
698.66'



Stabilized Sludge Quantity = 48,930 cy.

All waste contained within the surveyed boundary consist of a mixture of Dissolved Air Flocculation (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 RANGING 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  
STATE OF UTAH  
REGISTERED LAND SURVEYOR  
NO. 2673

*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 &amp; SURVEYING OF BOUNTIFUL PLANNING-CONSULTING &amp; SURVEYING 85 N. 500 W., BOUNTIFUL, UTAH 84010 PH. 435-3418</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>

Note: Monitoring Wells GW-1 through 5 will be added after the new five wells are installed and surveyed in 2020.

**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 ( )

2. Report any wells that need surface seal maintenance or redevelopment to FC and schedule the maintenance.
3. 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 \_\_\_\_\_

Permittee: BP Products North America, Inc.

D

R

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

A

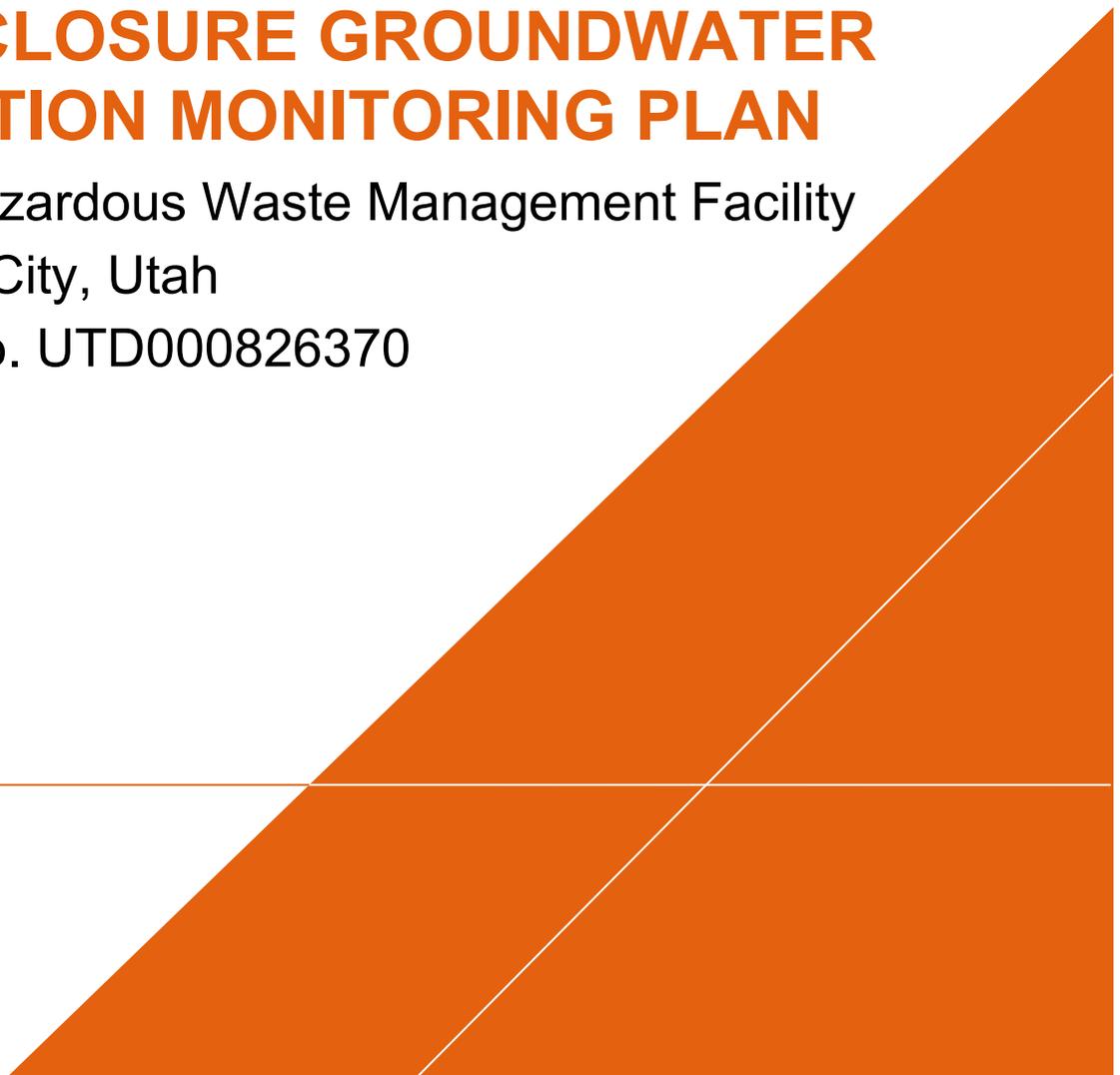
Closed Hazardous Waste Management Facility  
Salt Lake City, Utah  
EPA ID No. UTD000826370

F

T

June 2020

---



## 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 .....	3
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

T

## 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.

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 Waste Management and Radiation Control (UDWMRC) by April 15 of the following year.

D

R

A

F

T

## 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 are currently monitored at the CHWMF. An additional five monitoring wells are planned to be installed during Summer 2020 (GW-series). Shallow monitoring wells (TN-A series, S-series, GW-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: GW-1 through GW-5 annually, and WQ-1 through WQ-5 in years 2020 and 2024 (typically in September) for the following: 1,1-dichloroethane, 1,1-dichloroethylene, chloroform, 1,1,1-trichloroethane, carbon tetrachloride, benzene, toluene, ethylbenzene, total xylenes, and total chromium and other metals. BP will provide a copy of original laboratory reports with a full list of analytes of EPA Method 8260D, or the most current EPA approved method.

BP may petition in-writing for the director's approval to cease monitoring at WQ-series well and to reduce monitoring from annually to every five years after 2024 monitoring events if the data supports this decision.

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. Tables and figures will be updated again in Fall 2020 after installation of five new monitoring wells (GW-series)

### 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 ( $\mu\text{S}$ ) or 10,000  $\mu\text{S}$ , 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.
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

## POST CLOSURE GROUNDWATER DETECTION MONITORING PLAN

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  $\mu$ S or 10,000  $\mu$ 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 water samples for total metals analysis using a bailer or Grundfos system. Bottle descriptions and preservatives for each sampling parameter are presented in Table 2 of the Post-Closure Care and Monitoring Plan. If using Grundfos system, fill the bottle for total metals analysis by pumping the groundwater sample at a low rate using the Grundfos pump 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 total metals 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.

## POST CLOSURE GROUNDWATER DETECTION MONITORING PLAN

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  $\mu$ S at discharge.

D

R

A

F

T

### 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.

## 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.

D

R

A

F

T

## **5 DATA MANAGEMENT, EVALUATION, AND REPORTING**

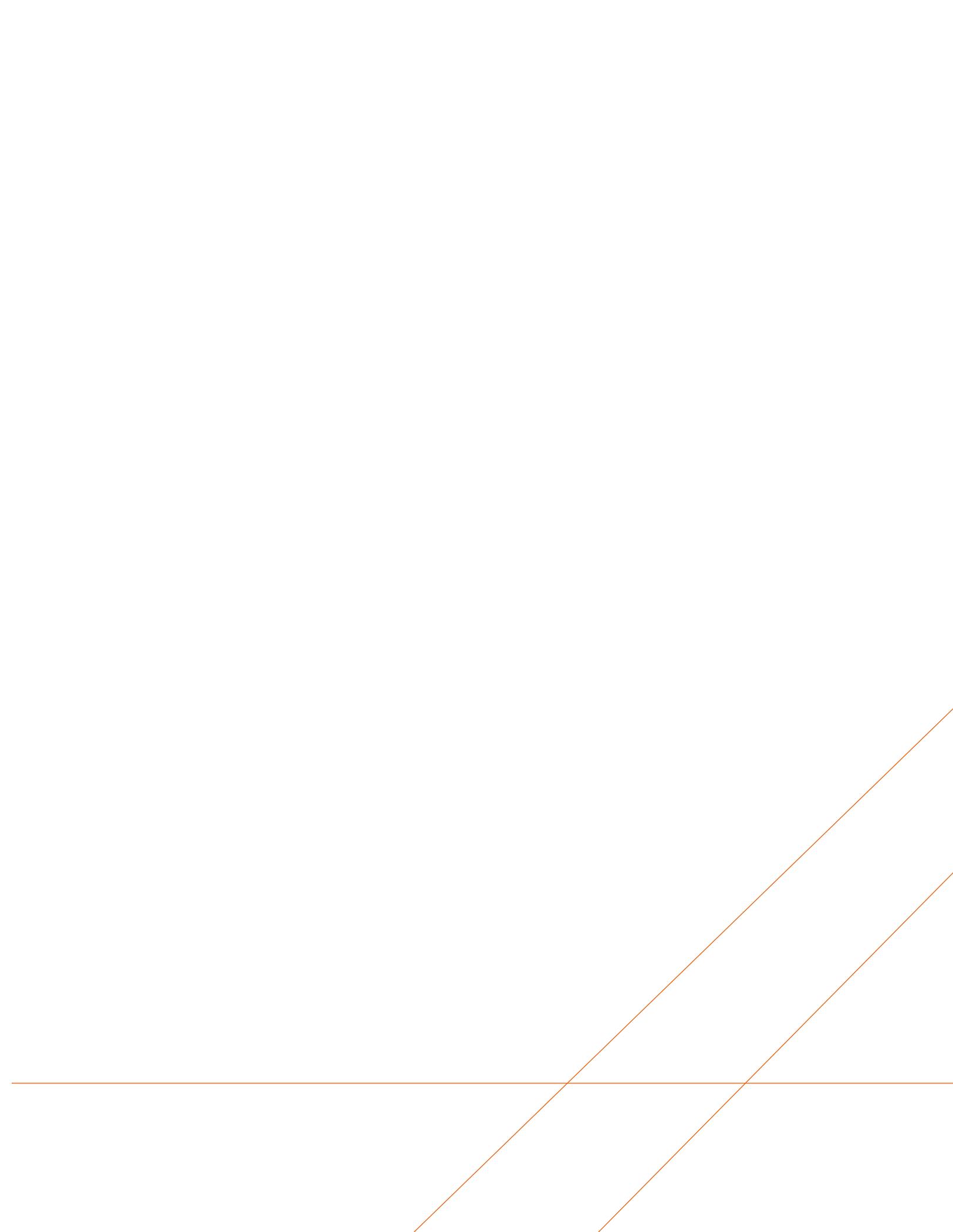
All data collected from the CHWMF will be managed, evaluated, and reported as set forth in the Revised Post-Closure Care and Monitoring Plan and the Post-Closure Permit.

D  
R  
A  
F  
T

# APPENDIX A

## Field Log Forms





BP Products of North America, Inc.

D

R

## **APPENDIX E**

# **CONTINGENCY PLAN FOR POST-CLOSURE CARE AND MONITORING**

A

Closed Hazardous Waste Management Facility

Salt Lake City, Utah

EPA ID No. UTD000826370

F

T

September 2020

---



**CONTENTS**

1 Introduction ..... 1

2 Immediate Response Situations ..... 1

3 Immediate Response Procedures for Semi-annually Security Inspection Items ..... 2

4 Immediate Response Procedures for Detection Monitoring ..... 2

5 Responsible Personnel ..... 3

D  
R  
A  
F  
T

## 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 the Parsons office in Walnut Creek, California (2121 North California Boulevard, Suite 500, Walnut Creek, California 94596). 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.

Semi-annually 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 SEMI-ANNUALLY SECURITY INSPECTION ITEMS**

Specific immediate response procedures for semi-annually 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.

D

R

A

F

T

