Integrated Wastewater Pond System RCRA Permit Renewal Part B Application

Chevron Environmental Management Company
940 Hensley Street
Richmond, California

February 11, 2010

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Certified this 11th day of Feb, 2010 in Richmond, California.

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LIST OF ACRONYMS AND ABBREVIATIONS

cm/sec	centimeters per second
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CEMC	Chevron Environmental Management Company
CUSA	Chevron U.S.A., Inc.
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
HDPE	high density polypropylene
HCS	hydraulic control system
HCT	hydraulic control trench
HDPE	High-Density Polyethylene
JLA	Job Loss Analysis
IWPS	Integrated Wastewater Pond System
MCE	Maximum Credible Earthquake
MTR	minimum technology requirements
NPDES	National Pollutant Discharge Elimination System
PD	plant datum
POTW	Publically Owned Treatment Works
ppm	parts per million
ppmbw	parts per million by weight
ppb	parts per billion
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
TPCA	Toxic Pits Cleanup Act
VOCs	volatile organic compounds
WTU	Water Treatment Unit

1.0 INTRODUCTION

1.1 Facility Location, Ownership and Permit Status [22 CCR 66270.14(b)(1)]

This Part B application is provided for renewal of the *Permit for Operation and Delayed Closure of the Integrated Wastewater Pond System* (the IWPS) located in Richmond, Contra Costa County, California as shown on Figure 1-1. The IWPS is physically located at 835 Castro Street in Richmond, California and operates under EPA Identification Number CAD 043237486. The IWPS is operated by the Chevron Environmental Management Company (CEMC) and owned by Chevron U.S.A. Inc. (CUSA). CUSA obtained title to the IWPS and the 940 Hensley Street facility (located across Castro Street) in 2000.

The IWPS is a 70-acre surface impoundment, comprised of eight subunits, used for the management of nonhazardous stormwater and groundwater. The current IWPS RCRA Permit (No. 99-NC-010) was issued by the Department of Toxic Substances Control (DTSC) on September 16, 1999 and expires September 16, 2009. This is the first Part B application submitted for renewal of the current Permit. This Part B application reflects the current conditions and operations of the IWPS and has been prepared in accordance with the permit application requirements of Title 22, California Code of Regulations (CCR), Article 2, as adapted to reflect the fact that only nonhazardous wastes are discharged into the IWPS. A permit completeness checklist is provided in Appendix A, cross referencing the regulatory requirements with their respective location in this Part B application.

1.2 IWPS Delayed Closure Demonstrations [22 CCR 66264.113(d),(e)]

The 1999 Part B application supporting the issuance of the current Permit No. 99-NC-0101 in 1999 included the delayed closure demonstrations required by 22 CCR 66264.113(d) and (e). The original Part B submittal information demonstrated the following:

- the unit has existing capacity to receive nonhazardous wastes;
- there is a reasonable likelihood that the unit will receive nonhazardous waste within one year of final receipt of hazardous wastes;
- the nonhazardous wastes will not be incompatible with any remaining wastes in the unit;
- closure of the hazardous waste management unit would be incompatible with continued operation of the unit or facility; and
- the owner or operator is operating and will continue to operate in compliance with all applicable permit and regulatory requirements.

This information is provided below in sections 1.2.1 through 1.2.3, updated to reflect current conditions.

1.2.1 Operating Information

The capacity of the IWPS is 111.5 million gallons. This has proven adequate to contain the nonhazardous wastewater streams discharged into the IWPS over the life of the current Permit. The IWPS did receive nonhazardous waste within one year of the final receipt of hazardous waste, and as such the reasonable likelihood of receipt of nonhazardous wastes has been established. The IWPS continues to receive nonhazardous waste as described in this application.

There are no hazardous wastes remaining in the IWPS, and the contaminated media (subsurface soils) left in place have been separated from the IWPS subunits by the placement of synthetic liners. As the liners isolate the IWPS contents from the underlying soils and no hazardous wastes are discharged into the IWPS, there is no potential for hazardous waste managed by the IWPS to be incompatible. All of the nonhazardous waste streams managed in the IWPS are compatible with each other.

The delayed closure of the IWPS remains necessary for the management of nonhazardous stormwater and groundwater. The National Pollutant Discharge Elimination System (NPDES) permit for the facility prohibits direct discharge of contaminated stormwater runoff to surface waters. Therefore, runoff is held onsite and discharged to the City of Richmond Publicly Owned Treatment Works (POTW) under an industrial discharge permit which contains flow restrictions. Because of the large volume of water generated during storms and the limited capacity of the POTW, the discharge of stormwater to the POTW must be restricted or discontinued according to POTW instruction during storm events. Thus, the surge capacity of the IWPS is an essential aspect of the facility operation and closure of the IWPS (which would entail filling and capping of the unit) would be incompatible with continued facility operations. Use of the IWPS will be necessary for the foreseeable future.

Since the Permit was issued in 1999, operation of the IWPS has been in compliance with applicable requirements for permitted surface impoundments. Additionally, the IWPS has been operated in compliance with applicable regulations promulgated by the State Water Resources Control Board. The IWPS also operates pursuant to Order No. 97-049 issued by the Regional Water Quality Control Board (RWQCB) which addresses , among other things, “operation and maintenance, implementation of corrective actions, and ultimate closure” of the IWPS.

1.2.2 Part B Contents

The 1999 Part B submitted in support of the 1999 permit issuance addressed the requirements of 22 CCR 66264.113 (d)(2) pertaining to the receipt of nonhazardous wastes following the final receipt of hazardous wastes:

- an amended waste analysis plan

- monitoring and response program for groundwater,
- human exposure assessment
- closure and post-closure plans
- updated cost estimates and demonstrations of financial assurance for closure and post-closure

All of these items are included in this Part B application for renewal of the Permit, with updates as appropriate to reflect current conditions.

1.2.3 Non-MTR Impoundments

As required by 22 CCR 66264.113(e) for delayed closure, surface impoundments that do not meet the minimum technology requirements (MTRs) (i.e., double liners and leachate collection systems) must remove all hazardous liquids and sludges and submit a contingent corrective measures plan. These requirements have been complied with as follows:

- All hazardous liquids and sludges were removed from the IWPS in 1988 (Bechtel, 1993). The removed sludges were dried and placed in the Consolidation Area which was closed in 1994 in accordance with a DTSC approved Closure Plan. Confirmation of the closure certification was issued by DTSC on January 24, 1995.
- A contingent corrective measures plan has been prepared and is included in this Part B submittal as Section 4.3.

1.3 Exposure Information [22 CCR 66270.10(j)]

Per 22 CCR 66270.10 (j), Part B applications submitted after August 8, 1985 for a facility that "transfers, stores, treats, or disposes of hazardous waste in a surface impoundment" shall include information on the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases from the hazardous waste management unit. Although the IWPS no longer manages hazardous wastes, the exposure information is required to address the potential for exposures to hazardous constituents. This exposure information was provided in the 1999 Part B application supporting the issuance of Permit No. 99-NC-0101 in 1999. Potential exposure conditions have not changed since the prior information was submitted and, as such, the following conclusion remains accurate: *"The potential for human exposure to a release of hazardous constituents from the IWPS is considered insignificant due to the lack of complete exposure pathways, the minimal risk of a release, controlled access to the site, and a lack of offsite public exposure points in close proximity to the IWPS."* The exposure information is provided in Appendix B.

2.0 GENERAL FACILITY DESCRIPTION [22 CCR 66270.14(B)]

2.1 Facility Operations and Permitted Activities

2.1.1 Facility Operations

The IWPS is the regulated unit that is the subject of this renewal application. The IWPS is physically located at 835 Castro Street, but is identified with the former Chevron Chemical Plant Site located at 940 Hensley Street in Richmond, California with EPA Identification Number CAD 043237486. As shown on Figure 2-1, the IWPS receives stormwater runoff from 940 Hensley Street (generally referred to as the "Plant Site") and from adjacent CUSA-owned property located on the west side of Castro Street that formerly housed the fertilizer manufacturing operations of Chevron Chemical Company.

The following operations are ongoing at the Plant Site:

- truck, trailer, equipment, scaffolding and empty tank car storage;
- warehousing;
- CUSA Refinery Maintenance, and Operator Training facilities;
- CUSA's Environmental Lab;
- Lancaster Environmental Lab sample shipping facility; and
- CUSA training and CEMC office complex.

The IWPS is approximately 70 acres, surrounded by approximately 65 acres of bare soil with areas of asphalt and concrete pavement. The only structure remaining in the area of the IWPS is a small maintenance building used for storage of materials for the IWPS. Figure 2-1 identifies the location of the maintenance building and the IWPS.

2.1.2 Permitted Activities

Under delayed closure, a permitted unit may only manage nonhazardous wastes. The IWPS is used to manage only nonhazardous stormwater and groundwater as follows:

- stormwater run-off from the Plant Site,
- stormwater run-off from the 65 acre area around the IWPS,
- extracted groundwater from the IWPS hydraulic control system, and

- effluent from the facility's water treatment unit which treats groundwater from the Plant Site hydraulic interception trench, IWPS hydraulic control system and the IWPS liner under drain system on an as needed basis.

Additional nonhazardous liquid wastes may be managed in the IWPS in the future. Prior to the management of other nonhazardous liquid wastes in the IWPS, the nonhazardous liquid waste streams will be profiled. CEMC will provide DTSC 60 days prior written notification to include the following, as further described in Section 3.2:

1. Description of the nonhazardous liquid waste streams to be managed at the IWPS, including analytical data to confirm: (a) nonhazardous status; (b) volatile organic compounds (VOCs) are below 500 parts per million by weight (ppmbw); and (c) the type and concentration of waste constituents present.
2. Date that the IWPS is to begin receiving the additional nonhazardous liquid waste streams.
3. Confirmation of the IWPS' capacity to receive the additional volume of nonhazardous liquid waste streams.

2.1.3 Solid Waste Management Units [22 CCR 66270.14(d)(1),(2)]

Pursuant to SB 1082, the RWQCB has been designated as the lead agency for purposes of RCRA groundwater monitoring and corrective action. As such, corrective action is being addressed by the RWQCB. The RWQCB has issued a series of orders and the facility is currently operating in compliance with Order No. 97-049, provided as Appendix F. Order No. 97-049 is in effect for ongoing operation and maintenance, implementation of corrective actions, and ultimate closure of the IWPS.

2.2 Facility Setting and Topographic Maps [22 CCR 66270.14(b)(11), 66270.14(b)(18)]

The geographic location of the IWPS is latitude 37 ^{o} 56' 45" north longitude 122 ^{o} 22' 15" west with boundaries and layout as indicated on Figure 2-2 (IWPS Topography, Selected Features and Land Use Map). As required by 22 CCR 66270.14(b)(18), Figure 2-2 shows a distance of 2,000 feet around the IWPS at a scale of 1:100. Figure 2-2 shows the boundaries of the facility and IWPS and identifies the location of the IWPS structures (including influent and effluent piping), buildings, and other facilities, and provides a wind rose that shows predominant annual wind directions. This figure also shows the configuration of the facility in relation to the surrounding area, the surface elevations that document slope and surface drainage patterns around the facility, site fences and gates, adjacent structures, access roads, and the location of monitoring wells.

There are no process or sanitary sewers in the IWPS area. There are also no fire water system lines as no fire hydrants are located in the IWPS area due to the aqueous nature of the stormwater and groundwater managed and the lack of flammable or other ignitable materials in the area.

Surrounding land uses are shown on Figure 2-2, including surface water, drainage channels and major transportation corridors. As show on Figure 2-2, Castro Creek flows adjacent to the south and west sides of the IWPS. Castro Creek flows northwest into San Pablo Bay, but gates have been installed that can be closed to isolate the creek from the bay as shown on Figure 2-2.

The regional groundwater flow direction is northwesterly towards San Pablo Bay as shown on Figure 2-2. However, A-Zone groundwater flow in the immediate vicinity of the IWPS is "inward and upward" as induced by the engineered containment system discussed in the following section.

A search was conducted through the Department of Water Resources (DWR) and no extraction or injection wells were identified within the 2,000-ft radius of the IWPS.

2.3 Geology and Hydrogeology [22 CCR 66270.14(b)(11)(F), (c)(2)]

The geology and hydrogeology information for the IWPS was most recently presented in the *Integrated Waste Water Pond System, Soil Management Unit 1 and Consolidation Area Self Monitoring Program; 2007 Annual Report* (SAIC, 2008). Information from this report has been used as the source of information for this section.

The facility lies near the western edge of the Richmond Basin. The basin is bounded on the west by the Potrero-San Pablo Ridge and on the east by the western scarp of the Berkeley Hills. The subsurface geology in the basin consists of a thick sequence of alluvial fan and estuarine deposits. The IWPS is located on former marshland. The dominant lithology is identified as Bay Mud which is organic rich, low permeability bay deposits. The Younger Bay Mud ranges in thickness from 5 to 25 feet at the site and has a relatively low permeability of approximately 10^{-7} centimeters per second (cm/sec). The Younger Bay Mud is underlain by 2 to 6 feet of stiffer and less permeable material known as Older Bay Mud.

The following three groundwater zones have been defined beneath the IWPS and vicinity: (1) the uppermost or A-Zone, (2) an intermediate or C-Zone, and (3) the lower or B-Zone. The A-Zone is unconfined to semi-confined and is encountered from 2 to 10 feet below ground surface. Groundwater depth in the A-Zone directly below the IWPS is maintained by a liner under drain system to keep the groundwater level below the bottom of the IWPS.

The regional horizontal groundwater flow direction within the A-, C- and B-Zones is northwesterly toward San Pablo Bay as shown on Figure 2-2. The shallow horizontal groundwater flow in the vicinity of the IWPS is inward towards the IWPS as controlled by the engineered IWPS hydraulic control and liner under drain systems described in Sections 4.2.3 and 4.2.2, respectively. The natural vertical groundwater flow direction

in the vicinity of the IWPS is upward from the C-Zone to the A-Zone, and is enhanced by the IWPS hydraulic control and liner under drain systems which lower the A-Zone water levels. The effect of the engineered system on groundwater flow is part of the overall IWPS containment system as described in Section 4.2.3.

The groundwater quality within the A-, C- and B-Zones is markedly dissimilar. In general, the quality of the A-Zone water table ranges from moderately to highly brackish; the C-Zone ranges from slightly to moderately brackish; and the B-Zone ranges from moderately fresh to brackish. The proximity of the site to San Pablo Bay results in a natural degradation of groundwater quality due to increasing salinity from east to west (i.e., towards the bay).

As specified in RWQCB Order No. 97-049, "The shallow groundwater (A- and C-zones) at the site does not qualify for municipal or domestic use because the maximum TDS of groundwater…is significantly higher than the maximum acceptable level of 3,000 mg/L for beneficial use in a public water supply system." Potential beneficial uses for the deeper freshwater B-Zone are identified as limited domestic water supply, limited industrial process and service water supply, and limited agricultural water supply.

2.4 Seismic Standards Applicability [22 CCR 66270.14(b)(11)(A)]

The seismic standard requirements do not apply to the IWPS as it is not a new facility. However, seismic stability evaluations have been performed to ensure the IWPS dike system will not fail due to external or internal forces from a maximum credible earthquake as required by 22 CCR 66264.226(c). This information is addressed in Section 4.2.7.

2.5 100-year Floodplain Standards Applicability [22 CCR 66270.14(b)(11)(B), (C), (D)]

The IWPS is located near the western edge of the Richmond Basin, adjacent to the San Pablo Bay. The IWPS is shown within the 100-year floodplain on the available Federal Emergency Management Agency (FEMA) maps prepared for the area. However, these maps do not reflect the engineered improvements required to construct the IWPS, including the outer roads and dikes, which effectively isolate the IWPS from the 100-year flood plain. Similar improvements were made to the portion of the IWPS area south of Pond 2, which is no longer included in the 100-year flood plain FEMA maps, as shown on Figure 2-3.

The IWPS location is shown on the FEMA maps in "Zone X" and "Zone VE". "Zone X" is defined as "determined to be outside 500-year flood-plain" while "Zone VE" is defined as areas of 100-year "coastal flood[ing] with velocity hazard (wave action); no base flood elevations determined." Figure 2-3 shows the Zone VE (i.e., 100-year flood plain area) in the vicinity of the IWPS.

Since the IWPS is bordered by the 100-year flood plain, the potential effects of floodplain forces on the IWPS have been evaluated as described in Section 4.2.6.

3.0 WASTE CHARACTERISTICS

3.1 Chemical and Physical Analysis [22 CCR 66270.14(b)(2); 66264.13(a)]

The stormwater and groundwater managed by the IWPS are compatible with each other and with the IWPS subunit liners (60-mil HDPE). Because neither the stormwater nor the groundwater managed by the IWPS are hazardous wastes, federal EPA Hazardous Waste Codes and the state of California Hazardous Waste Codes are not applicable.

The stormwater run-off from the Plant Site and the 65 acre area around the IWPS (the former Fertilizer Plant area) have been sampled and analyzed as part of characterization activities, primarily for compliance with the Richmond POTW discharge permit requirements. Arsenic, various VOCs, and pesticides are the most common constituents from the Plant Site; however, concentrations are well below hazardous waste characteristic threshold limits. Other metals such as copper and zinc are also present at concentrations well below hazardous waste characteristic threshold limits.

Arsenic, nickel, zinc, and nitrogen and phosphate based fertilizer components (ammonia, phosphate and nitrate) are the most often detected constituents in the nonhazardous stormwater from the former Fertilizer Plant area; however, concentrations are well below hazardous waste characteristic threshold limits. Other metals such as cadmium and copper may also be present at concentrations well below the hazardous waste characteristic threshold limits.

Contaminated groundwater beneath the IWPS is pumped from the HCS into select lined subunits of the IWPS. Constituents most often detected in this groundwater are arsenic, nickel and other metals, with low levels of organic compounds and pesticides present; however, concentrations are well below hazardous waste characteristic threshold limits.

The Water Treatment Unit (WTU) at the Plant is designed to remove volatile organic compounds and the WTU effluent is nonhazardous. The WTU is used for the potential treatment of both stormwater and groundwater. Currently, the WTU is only receiving and treating extracted groundwater from the Groundwater Interceptor Trench (GIT) at the Plant Site.

Tables 3-1 through 3-4 present a compilation of representative analytical results for the chemical and physical data from each of the nonhazardous stormwater and groundwater sources using data collected within the last 5 years.

3.1.1 Waste Analysis Plan [22 CCR 66270.14(b)(3); 66264.13(b)]

This section provides the waste analysis plan, describing sampling procedures and analytical parameters for the nonhazardous stormwater and groundwater managed by the IWPS. The procedures will be used to ensure that the stormwater and groundwater are properly identified and characterized.

Analytical work is performed by a state-certified independent laboratory. Details of the sampling and chain-of-custody procedures used by CEMC can be found in Appendix C. Appendix C also describes the facility's Quality Assurance/Quality Control (QA/QC) Program. All of these procedures are based on current standards and the procedures will be revised as necessary should those standards change.

3.1.1.1 Selection of Parameters

Table 3-5 summarizes the analytical parameters for the nonhazardous stormwater and groundwater and the rationale for selecting these parameters. The selected analytical parameters are summarized as follows, based on knowledge of past materials handling, and prevalence of the constituent in the samples previously collected and analyzed.

Plant Site: Select metals, select chlorinated pesticides and herbicides, and VOCs.

Former Fertilizer Plant Area (around the IWPS): Select metals, select chlorinated pesticides, VOCs, select fertilizer components (ammonia, phosphate and nitrate).

WTU Effluent: Select metals and VOCs.

HCS Extracted Groundwater: Select metals, select chlorinated pesticides and VOCs.

3.1.1.2 Analytical Methods

The following analytical methods are identified for determining the concentrations of parameters of concern:

Parameters	Analytical Method
Metals	EPA Method SW6010B
VOCs	EPA Method SW8260B
Chlorinated Pesticides	EPA Method SW8081A
Herbicides	EPA Method SW8151A

The specific sample analysis methodology is presented in "Test Methods for the Evaluation of Solid Waste, Physical, and Chemical Methods" (EPA SW-846, third edition, 1986) and respective updates.

3.1.1.3 Sampling Frequency

The sampling frequency for the nonhazardous stormwater and groundwater is identified in Table 3-5. As shown, the stormwater and HCS extracted groundwater will be sampled annually. The WTU effluent will continue to be sampled quarterly to confirm the nonhazardous nature of the water.

The IWPS may manage additional nonhazardous liquid waste streams in the future. If this is the case, sampling will be performed prior to the addition of the nonhazardous liquid waste streams, as described in Section 3.2.

3.1.1.4 Sampling Methods

Details of the sampling and chain-of-custody procedures are found in Appendix C. The procedures are designed to ensure that samples are collected, labeled, preserved, and transported to the laboratory in a manner that maintains sample integrity, and that the samples remain representative.

All samples to be analyzed will be collected in the sample containers listed in Table 3-6. The samples will be preserved as indicated, and shipped to the designated laboratory. Samples will be analyzed within established EPA holding times.

3.1.1.5 Additional Requirements for Ignitable, Reactive or Incompatible Wastes

The nonhazardous stormwater and groundwater managed in the IWPS do not contain significant concentrations of volatile or ignitable constituents. Additionally, the stormwater and groundwater are not reactive or incompatible with each other.

3.2 Additional Requirements for Addition of Nonhazardous Waste Streams

Additional nonhazardous liquid waste streams may be managed in the IWPS in the future as part of the permitted activity. At least 60 days prior to the management of any additional nonhazardous liquid waste streams in the IWPS, DTSC will be provided with written notification based on a profile of the proposed additional wastes (to define their physical and chemical characteristics) and an evaluation of the ability of the IWPS to handle the additional volume. The prior written notification will include the following:

1. Description of the nonhazardous liquid waste stream to be added to the IWPS, including:
    a. Source area(s);
    b. Expected volumes and rates; and
    c. Analytical data to confirm:
        I. nonhazardous status,

II. volatile organic compounds (VOCs) are below 500 ppmbw, and

III. type and concentration of waste constituents present.

2. Date that IWPS is to begin receiving the additional nonhazardous liquid waste stream.
3. Confirmation of the IWPS capacity prior to receiving the additional volume.

Additional nonhazardous liquid waste streams will not be discharged into the IWPS until DTSC concurrence has been received.

4.0 IWPS CONSTRUCTION AND OPERATION [22 CCR 66270.17]

4.1 List of Wastes [22 CCR 66270.17(a)]

As identified in Section 2.1.2, the IWPS receives nonhazardous stormwater and groundwater as follows:

- stormwater run-off from the Plant Site,
- stormwater run-off from the former Fertilizer Plant Area (around the IWPS),
- extracted groundwater from the IWPS hydraulic control system, and
- treated groundwater (effluent) from the facility's WTU.

4.2 IWPS Construction and Operation [22 CCR 66270.17(b)]

The IWPS is one surface impoundment comprised of eight subunits separated from each other by inner dikes. The inner dike heights are lower than the outer dike of the IWPS. A schematic depicting the subunits and IWPS containment and monitoring features is provided in Figure 2-1.

The original subunits comprising the IWPS were constructed in the 1960's and major design upgrades were initiated in 1989 and completed in 1993. The upgrades were performed to improve the integrity of the IWPS, to enhance the unit's ability to manage nonhazardous stormwater, groundwater, and potentially other nonhazardous liquid waste streams, and to further protect human health and the environment. These activities were performed to establish compliance with California's Toxic Pits Cleanup Act (TPCA), and also satisfied the Title 22 requirements relating to continued operation of existing surface impoundments under delayed closure. Collectively, these activities included hazardous liquid and sludge removal, installation of a liner and under drain system and construction of the Hydraulic Control System (HCS) which includes a groundwater extraction trench and containment wall.

The following sections describe the construction and operation of the IWPS.

4.2.1 IWPS Liner [22 CCR 66264.221]

The IWPS is exempt from the 22 CCR 66264.221 double liner requirements per 22 CCR 66264.221(c), as the IWPS was constructed before January 29, 1992, no lateral expansions or replacements have occurred and hazardous liquids and sludges were removed to the extent practical. A 60-mil HDPE liner has been installed in each of the eight subunits, which was laid over geotextile and a granular drainage layer to collect groundwater.

Because the IWPS is not subject to 22 CCR 66264.221(c), it is also exempt from the liner action leakage, monitoring and response requirements of 22 CCR 66264.222 and 66264.223.

4.2.2 Leachate Detection/Collection System (Under Drain System)

Because of the shallow groundwater table, the IWPS does not have a leachate detection/collection system. Instead, groundwater is collected via extraction pumps from sumps installed in the granular drainage system which underlies the 60-mil HDPE liner and geotextile.

4.2.3 Containment Features

The IWPS has both man-made and natural containment features. The features include the low permeability Bay Mud underlying the IWPS and a natural upward hydraulic gradient for vertical containment. Lateral containment is provided by the HCS. The purpose of the HCS is to "create and maintain a groundwater depression along the perimeter of the site that prevents off-site migration of contaminants." as described in the RWQCB Order No. 97-049 (Appendix F).

The HCS that surrounds the IWPS consists of a hydraulic control trench and a containment wall as shown on Figure 2-1. The hydraulic control trench consists of a 2 ft wide emplacement of granular material extending from near the surface to a level within the underlying Bay Mud. Slotted drain pipes installed near the bottom of the trench collect and convey groundwater to sumps with extraction pumps spaced at 500 foot intervals along the trench.

The containment wall surrounding the IWPS consists of ASPEMIX and a bentonite slurry wall. The ASPEMIX wall is comprised of a mixture of asphalt emulsion, sand, cement, and water and surrounds the majority of the IWPS, except for portions of the west and southwest sides where the slurry wall was installed as shown on Figure 2-1. The slurry wall is comprised of a soil-bentonite mixture.

4.2.4 Leakage Monitoring

The IWPS is dry for the majority of the year, generally only holding water during the period of November through April in response to storm events. The data collected through the environmental monitoring program described in Section 5.0 provides information relevant to leakage monitoring. Water levels on the interior and exterior of the containment wall that surrounds the IWPS are monitored in A-zone wells to confirm that the inward hydraulic gradient is maintained. In addition, water levels in the underlying C-Zone wells are monitored and compared to A-zone wells to confirm the presence of the natural upward vertical gradient.

As described in Section 5.0, the A-Zone monitoring wells outside of the containment wall and deeper C-Zone wells are also sampled for analysis of the parameters of concern to verify the absence of releases from the IWPS.

4.2.5 Prevention of Overtopping [22 CCR 66270.17(b)(2), (d); 66264.221(h)]

The IWPS, which has a capacity of 111.5 million gallons, has a minimum freeboard of two feet maintained at all times. The IWPS is dry approximately 6-8 months of the year and the two feet of freeboard for management of storm events has been shown over the last 15 years of operation to be more than adequate to prevent overtopping from wind or wave action. The IWPS water levels are inspected daily and flows to the subunits of the IWPS are redirected or changed as necessary to assure overtopping cannot occur. The largest flow into the IWPS is the nonhazardous stormwater run-off from the Plant Site. All run-off and flow into the IWPS is carefully monitored and controlled by a computer control system that operates the transfer pumps to the IWPS.

4.2.6 Prevention of Washout From the 100-Year Flood Hydrostatic and Hydrodynamic Forces [22 CCR 66270.14(b)(11)(D)]

Engineering analyses of the hydrostatic and hydrodynamic forces from the 100-year flood on the IWPS were performed and included in the prior Part B application provided in support of the 1999 Permit. The analyses indicated that the IWPS is adequately designed to prevent washout. A copy of the prior analysis is provided as Appendix D.

4.2.7 Dike Stability [22 CCR 66270.17(b)(3), 66270.17(e)]

Professional Engineering Certification of dike stability was completed by Bechtel Environmental Inc., along with certification of the design and construction of the IWPS liner, under drain system, hydraulic control trench, and containment wall. The reports certifying dike stability are provided in Appendix E.

4.3 IWPS Contingent Corrective Measures Plan [22 CCR 66264.113(e)]

Corrective measures for the IWPS have been implemented under the direction and oversight of the Regional Water Quality Control Board (RWQCB). Prior work included the removal of hazardous waste and some underlying soils containing hazardous waste between 1989 and 1991. Groundwater containment and monitoring is ongoing in accordance with RWQCB Order No. 97-049.

This section presents the Contingent Corrective Measures Plan that would be implemented in the event of a theoretical “reasonably foreseeable” future release at the IWPS. In light of the multiple systems that are in

place to prevent releases from occurring, the likelihood of ever having to implement this Contingent Corrective Measures Plan is considered very low.

4.3.1 Reasonably Foreseeable Release

The reasonably foreseeable release scenario at the IWPS would be a release of nonhazardous stormwater and groundwater from one or more of the eight subunits, resulting from a spill, minor dike leakage, or major leakage with possible catastrophic failure. A major release would have the potential to impact the nearby surface water body, Castro Creek, which borders the IWPS on the south and west sides. Castro Creek joins Wildcat Creek and the combined creek flow is into Castro Cove, an embayment of San Pablo Bay. The Basin Plan does not have specific beneficial uses identified for Castro Creek (RWQCB, 2007). However, RWQCB Order No. 97-049 identifies potential and existing combined beneficial uses for Castro Creek, Castro Cove and San Pablo Bay to include human consumption (shellfish harvesting), industrial, aquatic life, wildlife and recreation (Appendix F).

4.3.2 Contingent Corrective Measures

A release of nonhazardous stormwater and groundwater from the IWPS due to dike failure can be contained by rerouting water from the affected subunit(s), sandbagging the affected area or constructing isolation dams from sandbags and/or dirt. The contained liquids can be removed by pump and transferred to an unaffected subunit of the IWPS in compliance with applicable laws and regulations. Major leakage which could lead to catastrophic dike failure can be averted by lowering the liquid level in the affected subunit to below the level of the leak. These methods could contain the leak until the failed dike is repaired.

If a release makes its way into Castro Creek, the existing isolation gate can be used to contain the water until the release can be properly characterized and managed in compliance with applicable laws and regulations.

5.0 WATER QUALITY MONITORING [22 CCR 66270.14(C)(6), (7), (8); 66264.90 – 66264.100]

Water quality monitoring is performed in accordance with the RWQCB Order No. 97-049 issued April 16, 1997 provided in Appendix F. There are three types of monitoring being conducted in accordance with the Order as follows.

- Corrective Action Monitoring of the uppermost hydrostratigraphic unit (A-Zone) is conducted to verify the effectiveness of the HCS in controlling offsite lateral migration of contaminated A-Zone groundwater from the IWPS area. This monitoring involves measuring groundwater levels monthly at eleven paired piezometer/sumps surrounding the Site to confirm that an inward hydraulic gradient exists. The monitoring wells and sumps that are associated with this program are identified in Table 5-1. Additionally, the Corrective Action Monitoring program includes quarterly groundwater sample collection and analyses for selected parameters at six A-Zone wells. The wells and analytes included in this monitoring program are compiled in Table 5-2. The locations of the A-Zone monitoring piezometers/sumps and wells are shown on Figure 2-2.
- Detection Monitoring of the deeper C-Zone hydrostratigraphic unit is conducted quarterly to provide an early indication of a release into the C-Zone groundwater which directly underlies the A-Zone. Detection monitoring involves measuring the chemical concentrations of selected parameters in one upgradient and three downgradient C-Zone wells as shown on Figure 2-2. The monitoring wells and groundwater analytes which are included in the program are identified in Table 5-3.
- Surface Water Monitoring includes the quarterly collection and analysis of surface water samples from three locations in Castro Creek adjacent to the IWPS. The locations sampled and analytes included in this program are identified on Table 5-4. The three surface water sampling locations in Castro Creek are shown on Figure 2-2.

As described in RWQCB Order No. 97-049, Water Quality Protection Standard (WQPS) Concentration Limits (CLs) have been developed for the Site constituents of concern and monitoring parameters. For constituents that have never been detected at the Site, the CLs are the Practical Quantitation Limit (PQL) for the laboratory test method for that constituent. For those constituents that were historically detected, the CLs were developed statistically using an intra-well comparison method. A compilation of CLs developed for A- and C-zone monitoring wells is presented as Table 5-5. The quarterly groundwater sample results are compared against the established CLs. A noted exceedence of a CL is verified by two subsequent sampling events, and if the exceedence of the CL is confirmed by the additional sampling, a notification to the RWQCB is required.

Groundwater and surface water sample analytical data are also evaluated annually by plotting analyte concentrations over time to identify increasing or decreasing trends. The results of the trend evaluation and any CL exceedances are reported to the RWQCB and DTSC in the annual groundwater monitoring reports.

As stated in the RWQCB Order No. 97-049, the RWQCB has determined that "The combined IWPS, [Soil Management Unit] SMU1 and [Consolidation Area] CA groundwater monitoring program currently practiced by the discharger and approved by the RWQCB staff in 1992 is consistent with RCRA and Title 22 and 23 of the California Code of Regulations."

6.0 FACILITY PROCEDURES

6.1 Security Description for Surface Impoundments [22 CCR 66270.14(b)(4); 66264.14]

The IWPS is located on private property and is not open to the public. The IWPS is protected by a chain-link fence of at least 6-feet in height, topped with three strands of anti-climb barbed wire at an angle of 45 degrees to the fence (Figure 2-2). Additionally, the southern and western sides of the IWPS are separated from the adjacent CUSA Richmond Refinery by Castro Creek. The perimeter boundaries of the Richmond Refinery are fenced and guarded 24-hours a day, with no public access allowed.

The fence and gates are in good condition, with no rips or breaks. Primary access to the IWPS is through the main gate within the chain-link fence surrounding the IWPS area. The main gate is a rolling chain-link gate with automatic control, which is normally closed and locked, and is maintained by CEMC.

There are several other gates along the perimeter fence providing access to the railroad as well as the IWPS for approved contractors, vehicles, or personnel. All of these gates are kept closed and locked when not in immediate use and are patrolled by Security Guards.

6.1.1 Security Guards

Security guards are contracted to provide security at the IWPS and their primary function is to control the movement of people and vehicles through the main gates at the IWPS area and Plant Site. The guards have written instructions that detail all security measures.

6.1.2 Warning Signs

There are warning signs posted around the perimeter of the IWPS that state "Private Property. No Trespassing." Caution signs, Chevron Safety Policies, and Proposition 65 notifications are also located all along the perimeter fence.

6.2 General Inspection Schedule and Procedures [22 CCR 66270.14(b)(5); 66264.15(b)]

The IWPS is inspected for malfunctions, deterioration, operator errors, and discharges or potential discharges that may result in the release hazardous constituents to the environment or threaten human health. The inspection program was developed and implemented to meet the RCRA facility permitting standards of 22 CCR 66264.15(b).

6.2.1 Inspection Schedule

Inspection of the IWPS is performed in accordance with the following schedule. The sections referenced below provide a description of the respective inspection procedure.

IWPS INSPECTION SCHEDULE

Item	Inspection Frequency	Inspection Procedure (Section)
Water Level	Weekly and after Storms	6.2.2.1
Operability of Pumps	Weekly and after Storms	6.2.2.3
Condition of Dike	Weekly and after Storms /Earthquakes	6.2.2.2
Sump Alarms	Quarterly	6.2.2.3
IWPS Liners	Annually	6.2.2.4

The inspection schedule for the facility security devices, safety and emergency equipment is presented in the following table.

IWPS SECURITY DEVICES, SAFETY AND EMERGENCY EQUIPMENT INSPECTION SCHEDULE

Item	Inspection Frequency	Inspection Procedure(Section)
Facility Fence Condition	Weekly	6.2.3
Facility Gates Closed and Locked	Weekly	6.2.3
Condition of Eyewash Stations and Safety Showers	Monthly	6.2.4
Warning Signs	Monthly	6.2.3

Inspection schedules are kept at the facility. Each schedule identifies specific items or pieces of equipment inspected along with potential problems and frequency of inspection.

Once an inspection has been completed, the inspector fills out the appropriate inspection form. Reports that identify problems are forwarded to the Site Coordinator defined in Section 7.4 who is responsible for taking appropriate response action. Completed forms are retained on site at the environmental office at 940 Hensley St. for at least three years.

6.2.2 IWPS Inspection Procedures

The IWPS is inspected routinely for conditions that could lead to overtopping, dike failure, or other loss of containment. Standard observation stations are shown on Figure 6-1 and sample inspection forms are provided in Appendix G. If a problem is observed during the inspections, the inspector forwards the inspection form to the Site Coordinator defined in Section 7.4, who is responsible for taking the appropriate response action(s).

Inspection procedures are described in the following sections.

6.2.2.1 IWPS Subunit Water Level

The IWPS is inspected weekly and after storms for sudden changes in subunit water levels and to verify that at least 2 feet of freeboard is maintained. A manual level indicator is used to determine subunit water levels and freeboard. The IWPS is operated to maintain at least two feet of freeboard, as measured from the top of the IWPS outer dikes.

6.2.2.2 System Dikes

Due to the presence of the HDPE liners in all subunits of the IWPS, wind erosion and erosion caused by wind driven waves are not potential problems for the interior dikes. However, erosion of the outer surface of the perimeter dikes due to wind and rain water run-off may occur. The potential for erosion is increased by rodents attempting to establish burrows in the dikes. During flood conditions, exterior dike surfaces may be subject to erosion due to wind driven waves. All dike surfaces are inspected visually each week for rodent or storm damage and other signs of deterioration. Best management practices (BMPs) in place for rodent control include encouraging natural predators (i.e., owls, hawks and other raptors), vegetation control to reduce food supply and cover, trapping and use of rodenticide (as a last option) in compliance with federal and state regulations.

The south and west dikes along Castro Creek have survey monuments. After earthquakes with a 5.0 magnitude or higher centered within 6 miles of the IWPS (or where noticeable ground motion is experienced in the vicinity of the IWPS) these dikes are re-surveyed to determine if dike movement has occurred. The other dikes inside and surrounding the IWPS on the east and north sides are visually inspected for dike movement. The dikes are also visually inspected for signs of physical damage or erosion.

6.2.2.3 Pumps and Sumps

The extraction pumps in the hydraulic trench and under liner drain system are checked for operability each week and after storms. Proper operation of all pumps, sumps and high level alarms is confirmed by qualified personnel. High-water-level alarms are inspected quarterly for operability.

6.2.2.4 IWPS Liners

The liners of the IWPS subunits are inspected and maintained annually following cleaning to address holes, seam separation or other damage that could result in leakage through the liner. The annual inspections are performed with sufficient time to allow repairs or liner replacement prior to the start of the next rain season (i.e., prior to October 15).

6.2.3 Security Devices Inspection Procedures and Inspection Form

The perimeter of the property is patrolled by full-time Security Guards who ensures that all gates are locked. Weekly inspections are performed to inspect the fence condition and ensure that the warning signs located on the IWPS perimeter are present and readable. If a problem is observed, the inspector forwards the inspection form to the Site Coordinator defined in Section 7.4, who is responsible for taking the appropriate response action(s).

6.2.4 Safety and Emergency Equipment Inspection Procedures

Fire extinguishers are kept in the maintenance area at the IWPS, other emergency equipment and supplies are available at the nearby Richmond Refinery. This includes fire, spill management equipment and emergency response vehicles. All of the above is inspected by the Richmond Refinery and the Refinery Fire Department personnel in accordance with their respective procedures.

6.3 Preparedness and Prevention [22 CCR 66270.14(b); 66264.30-66264.37]

This Section describes the design and operation of the IWPS with respect to provisions that minimize the possibility of a fire, explosion, or unplanned release of hazardous constituents into the air, soil, or surface water that could threaten human health or the environment.

6.3.1 Communications System

Communication systems include telephone equipment and two-way radios. In the IWPS area, personnel have two-way radios that enable instant communication among all supervisory personnel tuned in to the same channel. These systems are described in the Contingency Plan, Section 7.5.1.

Should an emergency arise where assistance is needed from outside agencies, the Site Coordinator will contact Richmond Refinery Plant Protection at #555 via an office phone and the Richmond Refinery Emergency Coordinator at 510-242-5555. The Emergency Coordinator will then place any necessary calls to outside agencies. If the Site Coordinator is unable to reach an external phone, he/she will radio another supervisor to place the calls to Richmond Refinery Plant Protection and the Emergency Coordinator.

6.3.2 Fire Control and Extinguishing Equipment

To provide rapid response to a small fire, all vehicles used in the IWPS area are supplied with a fire extinguisher. Fire extinguishers are also temporarily located around any work activities which constitute a fire hazard (e.g., welding). Additionally, the Richmond Refinery Fire Department is available full-time to rapidly respond to any fire or emergency, as discussed in Section 6.3.6.

6.3.3 Spill Containment, Control, and Decontamination Equipment

At the IWPS, spills could arise from either minor dike leakage or major dike failure. Minor leakage can be contained by sandbagging the affected area or constructing isolation dams from sandbags and/or dirt. The contained liquids can then be transferred by pump to an unaffected area within the IWPS or to a temporary storage container. Major dike failure would be averted by lowering the liquid level in the affected area to below the level of the leak by pumping to other areas. Castro Creek, which borders the IWPS on the south and west sides, is equipped with a series of isolation gates that would be used to contain leakage which may flow into the creek until it can be pumped out. As noted in the Contingency Plan (Section 7.5.5 and 7.5.6), large pumps and dike repair supplies and equipment are available from the adjoining Richmond Refinery and through standing agreements with outside emergency response contractors.

While there is no hazardous waste in the IWPS, the facility maintains hazardous materials response resources as listed in Section 7.5.5. Such resources are available to the IWPS in the event of an emergency. The Richmond Refinery Fire Department handles emergency response for the IWPS and maintains mobile emergency response units for onsite and offsite emergencies, including spills of hazardous materials.

6.3.4 Testing and Maintenance of Equipment

All emergency equipment at the facility is inspected, tested, and maintained as required by regulations and as presented in Section 6.2.

6.3.5 Required Aisle Space

The roadways at the IWPS vary in width, but they all allow the passage of emergency vehicles and equipment. Additionally, the roads provide for an adequate turning radius and are capable of supporting the imposed loads of fire apparatus and heavy equipment. (See also Section 6.6.2.)

6.3.6 Arrangements with Outside Agencies

Emergency response arrangements are in place with the Richmond Refinery and Refinery Fire Department. Arrangements are also in place with local authorities and the following emergency services: fire, police, and

sheriff's departments; Contra Costa County emergency services; and ambulance service from American Medical Response. Arrangements have also been made with local hospitals and clinics including the Doctor's Hospital and Kaiser Hospital.

The Refinery Fire Department is fully equipped to respond to all emergencies associated with the IWPS as follows:

- The Refinery Fire Department is a member of the Petrochemical Mutual Aid organization, which is comprised of Industrial, Municipal, Government, and other private organizations with a focus on emergency mutual aid assistance and sharing of lessons learned. The organization also includes the regional ambulance and air ambulance companies for this area. The ambulance companies are invited and take part in refinery drills.
- The Refinery Fire Department is a State-certified fire department with state certified firefighter/emergency medical technicians.
- Since 1983, the Refinery Fire Department has coordinated and participated in a continuing fire training program with the Richmond Fire Department.
    - A mutual aid agreement exists in which both fire departments agree to respond to emergencies when requested (in events where all resources for an organization are tied up a response may be delayed).

6.4 Preventive Procedures, Structures, And Equipment Documentation [22 CCR 66270.14(b)(8)]

6.4.1 Prevention of Hazards in Loading and Unloading

Nonhazardous stormwater and groundwater are discharged into and out of the IWPS by fixed or flexible piping. All employees wear appropriate personal protective gear when working around or with the piping.

A minimum of two feet of freeboard is maintained at the IWPS to prevent overtopping. As discussed in Section 6.2.2.1, freeboard is inspected weekly and after storms.

6.4.2 Prevention of Run-off, Run-on and Flooding

The perimeter dike prevents stormwater run-on and stormwater run-off. Collected stormwater is discharged from the IWPS to the Richmond POTW at rates determined by weather conditions, and the POTW discharge permit.

6.4.3 Prevention of Contamination to Water Supplies

There are no water supply wells located within 2000 feet of the IWPS. Groundwater monitoring is performed routinely to ensure that the under liner, containment walls and extraction trench systems are operating correctly.

6.4.4 Equipment Failure and Power Outages

Pumps are used to move water in and out of the IWPS and to extract groundwater from the extraction trench surrounding the IWPS. In the event of equipment failure, repairs and or replacements will be made. In the event of a power outage, generators will be brought online until power is restored. A generator is kept in the maintenance building near the IWPS, and additional generators and pumps are stored at the Richmond Refinery.

6.4.5 Prevention of Undue Exposure of Personnel to Hazardous Waste

The IWPS manages only nonhazardous stormwater and groundwater. As such, there is no danger of personnel exposure to hazardous waste. However, a comprehensive, written safety program applies to all employees.

The wearing of required Personal Protective Equipment (PPE) is a condition of employment, and failure to comply with this work rule may result in disciplinary action. Additionally, pursuant to the behavior-based occupational health and safety system employed by CUSA, specific Job Loss Analysis (JLA) forms outline the necessary safety devices/equipment required for specific job tasks onsite. Prior to the onset of daily activities, the required PPE and safety precautions are reviewed with field personnel to prevent potential exposures. Documentation of safety meetings and JLA forms are maintained by the Site Safety Coordinator.

6.4.6 Prevention of Releases to the Atmosphere

The nonhazardous stormwater and groundwater managed in the IWPS contain very low levels of VOCs and metals, as shown in Tables 3-1 through 3-4, and the predominant source is the stormwater which has the lowest VOC levels. As such, there is no danger of hazardous wastes or hazardous waste constituents being released to the atmosphere.

6.4.7 Prevention Precautions Against Accidental Ignition or Reaction of Ignitable, Reactive, or Incompatible Wastes [22 CCR 66270.14(b)(9)]

There are no ignitable, reactive, or incompatible wastes or waste constituents in the nonhazardous stormwater and groundwater managed in the IWPS.

6.5 Traffic Documentation [22 CCR 66270.14(b)(10)]

6.5.1 Traffic Conditions

The IWPS stores only nonhazardous stormwater and groundwater and it is transferred to and from the IWPS via piping. As a result, there is no waste transportation to or from the IWPS. The only traffic associated with the IWPS is light pick-up traffic for activities related to the operation and maintenance of the IWPS.

6.5.2 Road Surfacing and Load Bearing Capacity

The internal roads at the IWPS are constructed with compacted and graded crushed rock. These roads are designed to support what are commonly called H-20 trucks at low volumes and low speeds. At low speeds and volumes, the roads can handle the load exerted by trucks with a total weight of 40,000 pounds distributed on four wheels, two axles with two wheels each. The H-20 truck has 14 feet between the axles and 6 feet between the wheels on an axle, with weight distributed 20% (8,000 pounds) on the front axle and 80% (32,000 pounds) on the rear axle. Since the internal roads can support an H-20 truck with 32,000 pounds on the rear axle, the internal roads can support, in low volumes and at low speeds, any truck which is normally permitted on California public highways, which allow only about 20,000 pounds per axle.

6.5.3 Traffic Controls

A speed limit sign is posted inside the Main Gate. The speed limit is 10 mph. There is also controlled access to the IWPS area and warning against unauthorized entry onto the IWPS.

6.6 Air Emissions for Surface Impoundments [22 CCR 66270.14(a), 66270.27; 66264.1080-1090]

Pursuant to CCR66264.1082[c] a surface impoundment is exempt from the requirements of CCR66264.1084 through CCR66264.1087 if all the hazardous waste entering the impoundment has an average VOC concentration at the point of origin of less than 500 parts per million by weight (ppmbw). The IWPS is exempt as it does not receive hazardous waste and the nonhazardous stormwater and groundwater entering the IWPS have average VOC concentrations that, at their point of origin, is less than 500 ppmbw. The low levels of VOCs in the nonhazardous stormwater and groundwater managed by the IWPS are provided in Tables 3-1, 3-2, 3-3, and 3-4.

6.6.1 Reporting Requirements [22 CCR 66264.1090]

The nonhazardous stormwater and groundwater entering the IWPS have been managed and monitored by CEMC for many years. CEMC has no reason to believe that the steady-state character of these waste streams will change such that the 500 ppmbw VOC concentration threshold may be exceeded. In the unlikely event, however, that such a circumstance arises, CEMC will carefully follow the reporting requirements of CCR264.1090 as follows:

- Submit a written report to the DTSC as soon as possible or no later than 15 days after becoming aware of the event.
- The report will contain the Facility EPA ID No., facility name and address, a description of the non-compliance event and the suspected cause, the dates of the non-compliance, and the actions taken to correct the non-compliance and prevent recurrence of the non-compliance.
- The report will be signed and dated by the authorized representative of the owner and operator.

7.0 CONTINGENCY PLAN [22 CCR 66270.14(B)(7); 66264.52; 66264.56]

7.1 Introduction and Approval

The objective of the Contingency Plan provided herein is to help facility personnel and outside agencies respond quickly and effectively to situations involving the IWPS that may threaten human life, property or the environment. Due to the nature of the IWPS, the primary thrust of this plan is the protection of the environment. The nonhazardous stormwater and groundwater associated with the IWPS provides no potential for fire, explosion, or the toxic releases normally associated with hazardous waste management units that are subject to RCRA permitting. While some conceivable failure modes could result in gradual releases of nonhazardous stormwater and groundwater to the environment, they would not present conditions immediately dangerous to human life or property.

Situations at the IWPS that could threaten human life or property are generally related to ordinary physical accidents such as falls or vehicle collisions. The potential for such situations to occur is minimized by strict enforcement of CEMC's written Safety Plan and training under CEMC's behavior-based safety program. The Contingency Plan presented here supplements the Safety Plan.

CEMC has substantial emergency response resources in the area, principally the Richmond Refinery and Refinery Fire Department. All of the resources cited in this plan are available to respond to incidents at the facility.

7.1.1 Criteria for Implementation

The plan will be carried out immediately if there is an accident or natural disaster that results in physical damage to the facility, injury to employees or releases of constituents in amounts that threaten human health or the environment.

7.2 Administration

7.2.1 Contingency Plan Location: Facility

The following personnel or areas have copies of the Hazardous Waste Contingency Plan. The Primary Copy is maintained by the Site Coordinator.

- Project Manager,
- Site Coordinator,
- Environmental Library (onsite), and

- Richmond Refinery Fire Department.

The Site Coordinator and Project Manager are identified in Section 7.4.

7.2.2 Contingency Plan Amendment Process

The Contingency Plan will be reviewed and immediately amended, if necessary, whenever:

1. The facility permit is revised in a way that materially affects the procedures in this plan;
2. The plan fails in an emergency;
3. The facility design, construction, operation, maintenance or other circumstances change in such a way as to increase the potential for fires, explosions, or releases of hazardous constituents, or changes the response necessary in an emergency;
4. The list of emergency coordinators changes; or
5. The list of emergency equipment changes.

It is the responsibility of the Project Manager to ensure that the Contingency Plan is kept up-to-date. If the Contingency Plan requires an amendment, replacement pages will be delivered to all holders of the plan and a permit modification may be required for the amendment.

7.3 Arrangements with Outside Agencies

Arrangements have been made with local authorities and emergency services for assistance in the event of an emergency at the facility as summarized in Section 6.3.6. These services include the fire, police, and sheriff‘s departments, the Contra Costa County emergency services, and an ambulance service. Arrangements have also been made with local hospitals and clinics including the Doctor's Hospital and Kaiser Hospital.

7.4 Facility Emergency Coordinator and Key Contacts

The Facility Emergency Coordinator and Manager on call must be notified of all emergencies after contacting Refinery Plant Protection at #555 on an office phone. Key contact information is listed below.

Key facility Contacts		
Name/Title	Cell Phone	Office Phone
Refinery Plant Protection		#555
Emergency Coordinator	510-242-5555	
Non Emergency		510-242-4200

Key facility Contacts		
Name/Title	Cell Phone	Office Phone
Jane Anderson (Project Manager) First Manager On Call	510-334-3046	510-242-8102
Martin Swinderman (Site Coordinator) Alternate Manager On Call	925-640-5733	510-242-8126
Refinery Shift Manager		510-242-4200
State Office of Emergency Services	REFINERY SHIFT COORDINATOR MAKES CALL	

7.5 Emergency Equipment List

7.5.1 Communications Equipment

Communication between site personnel in the field and personnel in the office is typically conducted over a push-to-talk radio system. The radios are powered by rechargeable battery packs which can supply power for more than 8-hours between charges. Radios are kept in their charge stands when not in use, or when personnel are in their offices. All guard, supervisor, and manager positions have been assigned radios. Additional radios are available and provided to field personnel to ensure they can communicate with managers in the office.

Hard line telephones are present in buildings on the facility.

7.5.2 Fire Fighting Equipment

The IWPS has little potential for fire. The IWPS is bordered by bare/vegetative soil, asphalt and concrete with a low to moderate potential for vegetation fires. Fire Protection is provided by the Refinery Fire Department. All vehicles and heavy equipment in normal use at the IWPS area are required to carry a dry chemical fire extinguisher. Fire extinguishers are also available inside all site buildings. The adjacent Refinery Fire Department maintains a supply of hoses, hose nozzles, and adapters.

7.5.3 Personal Protective Equipment

Various items of personal protective equipment (PPE) are required for personnel depending on the task. A JLA is performed prior to each task as described in Section 6.4.5. The JLA will specify the PPE needs above and beyond the minimum required hard hat and safety glasses. The following is a list of PPE items that may be used, depending on the nature of the task.

1. Hard Hats – Issued to all employees and contractor staff at time of employment and replaced as needed.
2. Safety Glasses – Non-Prescription or Prescription Glasses - Issued to all employees and contractor staff at time of employment and replaced as needed.
3. Chemical Goggles – Issued to all employees and contractor staff at time of employment and replaced as needed.
4. Gloves – Latex Rubber Gloves are available to employees and contractor staff for use in routine operations. Neoprene Rubber and/or Nitrile gloves are used whenever exposure to substances or constituents that would damage or penetrate latex gloves might be reasonably expected.
5. Boots – Substantial leather footwear, preferably steel-toed boots are required to be worn by all personnel working on the facility. Neoprene, steel toe, knee high boots are required for work within the IWPS when stormwater and groundwater are present. Appropriate footwear is provided to CEMC employees.
6. Protective Clothing – Workers subject to contact with wastes are provided protective clothing which, depending on the nature of the contaminant and work situation, may include coated Tyvek suits, uncoated Tyvek suits, flame-resistant Nomex suits, latex or nitrile inner gloves, nitrile or butyl outer gloves, booties, harnesses or respirators. Selection of protective clothing is performed in consultation with a Certified Industrial Hygienist.

7.5.4 Gas Monitors and Analyzers

A selection of gas monitors and analyzers for detection of toxic, combustible, or oxygen deficient atmospheres is maintained by the Richmond Refinery Fire Department staff and available for use at the IWPS.

7.5.5 Spill Containment and Control Equipment and Supplies

No hazardous wastes or materials are stored at or in the vicinity of the IWPS and there is no potential for a spill of these products at this location. Only nonhazardous stormwater and groundwater is managed in the IWPS.

Spill containment and control equipment and supplies are not kept at the IWPS. However, a large selection of spill containment and control equipment is staged at the adjacent Richmond Refinery, and is available for emergency use at the facility. Additionally, several emergency response equipment suppliers are present within a few minutes response time to the facility. These suppliers are included in the list of contractors in the following section.

7.5.6 Contractor Equipment

Qualified contractors with emergency response equipment that may be used include, but are not limited to, the following:

- Vacuum and Tank Trucks
  Sturgeon & Sons (510) 455-1099
  Decon Environmental (510) 732-5444
  Rain for Rent (925) 458-0200

- Heavy Equipment

  Dutra Dredging and Construction
  1000 Point San Pedro Road
  San Rafael, CA
  (415) 258-6876

  Equipment available:
  - Drag lines
  - TD9 Dozer with blade
  - Pontoon barges
  - Hydraulic dredges

  Goebel Paving and Construction
  (On refinery)
  Dennis Hauff
  (707)970-1240

  Equipment available:
  - Trucks
  - Back hoes
  - Loaders
  - Miscellaneous equipment

  Bigge Crane Service
  10700 Bigge Ave
  San Leandro, CA
  (510) 638-8100

  Equipment available:
  - Various cranes can be outfitted with drag line or clam shell,
  - truck mounted cranes

- Rental Pumps

Big 4 Rents 2400 San Pablo Dam Road San Pablo, CA 94806 (510) 307-4444	Pumps available: • Diaphragm pumps (mud and trenches) • Diesel, trailer mounted pumps • Electric pumps • Gasoline pumps
Cresco Rental (510) 233-5677	Pumps available: • Diaphragm pumps (mud and trenches) • Diesel, trailer mounted pumps • Electric pumps • Gasoline pumps

7.5.7 Response Vans

Emergency response vehicles are maintained by the Refinery Fire Department and are available to respond to an emergency at the facility.

7.5.8 First Aid Equipment

First Aid kits are located in every building on the facility, and in each of the contractor's vehicles.

7.5.9 Post-Emergency Equipment Management

All equipment used to respond to an emergency will be properly decontaminated when the response action is over. Additionally, all wastes generated through the response and decontamination process will be managed in accordance with applicable laws and regulations.

7.6 Procedure to Evacuate the IWPS Area

This Evacuation Plan is to be implemented if an emergency threatens to impact facility workers. The Site Coordinator or Manager-on-Call, as defined in Section 7.4, will direct any evacuation.

1. *Notification*

   Notify workers in the IWPS by voice or radio, and explain the nature of the situation.

2. *Put on the required personal protective equipment*

   Stay out of the hazardous areas unless wearing proper protective equipment. If unsure about the level of protection required, use the maximum possible.

3. Telephone the manager-on-call (if not already on scene)

Instruct all personnel to assemble in the former fertilizer maintenance building parking lot until the supervisor or manager on call gives further instructions.

Each supervisor, including contractor staff supervisors, must account for all employees under their supervision.

4. Each supervisor to maintain communications with their employees

7.7 Detailed Emergency Procedures

This section presents the detailed emergency procedures to be carried out immediately whenever there is an imminent or actual emergency situation.

7.7.1 General Emergency Instructions for All Personnel

Whenever there is an actual or impending emergency, there are certain key actions which must be taken to protect facility personnel and the environment. The key points to remember in any emergency are:

1. Notify the appropriate people.
2. Call the appropriate emergency response providers (always initially call Refinery Plant Protection #555) and get assistance immediately.
3. Protect the people. Notify persons in the IWPS area.
4. Rescue anyone injured or exposed to the hazard. However, do not enter a dangerous situation thereby putting yourself at risk.
5. Do not take unnecessary chances. Use protective equipment. If you are not sure if the equipment is enough, use the maximum protection.
6. Care for any injured people. Once in a safe location make sure they receive medical attention.
7. Minimize the loss. Control the leak and/or extinguish the fire as soon as possible.
8. Account for all employees.
9. Protect the environment. Contain run-off water used to extinguish fires. Contain spills to ensure material does not reach creek or migrate offsite.
10. Assure governmental agencies are notified.

7.8 Community Notification – Emergency Coordinator

In the unlikely case that an emergency may impact the community, the Manager present or on call must make certain the following notifications have been made by the Refinery Shift Coordinator:

1. Richmond Fire/Police Dispatcher (911),
2. California State Office of Emergency Services at (800) 852-7550,
3. Contra Costa County Health Department (646- 1112) during day shift or the Contra Costa County Office of Emergency Services (228-5000) during other shifts.

These three phone calls must be made by agreement with local government agencies and as required by law. Other calls to additional regulatory agencies may be required depending upon the circumstances of the emergency. The Refinery Shift Coordinator will make these calls and this must be verified by the Manager present or the Manager on call.

Follow up calls should be made to **all** agencies that were originally notified and any agencies that participated. Some agencies may have been notified indirectly, potentially including:

- Contra Costa County Health Services Department (925) 692-2500
- Bay Area Air Quality Management District (415) 771-6000
- California Highway Patrol (925) 646-4980

REMEMBER TO GIVE THE "ALL CLEAR" WHEN THE INCIDENT IS OVER.

7.9 Injury

In the event of an injury call the Refinery Plant Protection emergency phone number #555 and explain what has happened and your location. They will dispatch trained EMT's and call for ambulances. If in the field radio or call Refinery Plant Protection for help, and state the problem and your location, listen for instructions.

7.10 Specific Emergency Procedures

The following contain specific instructions on responses to fires, power failure or earthquakes.

7.10.1 Fire Notification

1. The person discovering the fire should radio the situation to a Supervisor, and contact the Refinery Fire Department as indicated in Step 2, below.

2. Telephone the Refinery Fire Department, Dial 555 on a site phone, or (510) 242-5555 on a cell phone.

   Tell the Fire Department:

   This is the Plant Site at 940 Hensley Street or this is the IWPS at 835 Castro Street.

   Your name and phone number.

   Describe what is burning.

3. Notify the Project Manager or Site Coordinator defined in Section 7.4.
4. Contain contaminated water run-off. Do not let it run-off the facility or into surface waters.

   Hold contaminated water in the IWPS until the Project Manager or Site Coordinator can be contacted for advice on storage and treatment. *In the event of a release to Castro Creek the gate at Xylene Street must be closed.*

5. Account for all employees.

7.10.2 Power Failure

No special procedures are required in the event of a power failure, other than to confirm pump operation when power is restored. If operation of water pumps is needed during the power outage, access the generator kept in the IWPS maintenance building, obtain a generator from the Richmond Refinery or contact a rental facility and request the rental and delivery of an appropriately-sized generator. Only enlist the assistance of a qualified electrician to connect equipment to the generator.

7.10.3 Earthquake

The following are implemented in the event of a 5.0-Magnitude or higher earthquake centered within 6 miles of the IWPS, or when noticeable ground motion is experienced in the vicinity of the IWPS.

1. Inspecting berms for possible damage;
2. Inspecting liners, anchor trenches for possible damage;
3. Inspecting leachate collection piping and appurtenances for possible damage; and
4. Repair actions as needed.

7.11 Incident Resolution

Complete a detailed record of the emergency and submit it to the Manager present or on call. Facility policy requires a root cause analysis if there is an incident of significance, fire, or injury.

This will provide the Project Manager with the information needed to prepare follow up reports, as required by company policy, federal, state, and local regulations.

Any time the Contingency Plan is implemented, the Project Manager must submit a written report on the incident to the DTSC. This report must be submitted within 15 days after the incident, and must include the following information:

1. Name, address and telephone number of the owner/operator;
2. Name, address and telephone number of the facility;
3. Name and quantity of material(s) involved;
4. Extent of injuries, if any;
5. Assessment of actual or potential hazards to human health or the environment, where applicable; and
6. Estimated quantity and disposition of recovered material that resulted from the incident.

7.12 Removal from Service [22 CCR 66270.17(f), 66264.227(b), (c)]

CCR66264.227(a) requires that a surface impoundment be removed from service if the level in the impoundment suddenly drops (and is not caused by the flows into or out of the impoundment) or if a dike leaks. As previously described, the IWPS is comprised of 8 subunits. If there were a sudden drop in water level or a dike leak for any of the 8 subunits, then the following steps would be immediately taken.

1. Shut off the flow or stop the addition of stormwater and groundwater into the affected subunit, by shutting down transfer pumps and closing and sealing block valves.
2. Contain any surface leakage which has occurred with soil and temporary sand bag dikes after stopping the leakage if possible. Block off the gate valves in Castro Creek if dike leakage threatens to reach the creek. Return any captured stormwater and groundwater to a non-affected subunit of the IWPS.
3. Obtain the immediate services of a California Professional Company or Contract Professional Civil Engineer with soil engineering experience and dike construction, static and seismic stability expertise to assure against catastrophic failure.

4. Empty the affected subunit into another non-affected subunit at a rate advised by the California registered Professional Engineer.
5. Inspect the affected subunit and make repairs as directed by the Professional Engineer.
6. Notify DTSC within seven days after detecting the problem.
7. If the unit was removed from service due to actual or imminent failure, the structural integrity of the dikes will be recertified by a California registered Professional Engineer.
8. Obtain DTSC approval before putting the subunit into service after repairs.

8.0 TRAINING

8.1 Personnel Training Program [22 CCR 66270.14(b)(12); 66264.16]

This section documents the training programs in place to ensure personnel safely and appropriately manage the IWPS and related work within the facility boundary.

8.2 Training Program Administration

The training programs are administered by the Site Coordinator defined in Section 7.4, who is trained in hazardous waste procedures. The Site Coordinator is responsible for ensuring that necessary training for IWPS operations/maintenance personnel is conducted and completed. The training programs include CEMC staff and subcontractors who work within the boundary of the IWPS.

8.3 Personnel

Personnel trained to operate the IWPS work under the direction of the Site Coordinator. Job positions and responsibilities at the surface impoundments include:

- Operations/Maintenance Personnel: responsible for water level checks, water extraction and water transfer from subunit to subunit, the repair of pumps and any electrical wiring and miscellaneous equipment in the IWPS.
- Field Sampling Technicians: responsible for monitoring the groundwater around the IWPS.

8.4 Training Program

Training includes initial and refresher sessions and addresses the following topics:

- Contingency Plan Implementation
- Behavior-Based Safety Program
- Emergency Procedures
- Hazardous Waste Management Training

Staff, including subcontractors, whose job duties include work at the IWPS receive training as described in this plan. In addition, the IWPS operation / maintenance personnel receive supplemental training including on-the-job training.

Training must be completed before assuming field duties at the facility. A session is given to IWPS operators /maintenance personnel and focuses on the objectives of the facility, description of the IWPS, equipment and instrumentation, and job duties related to the operation of the facility.

IWPS operators/maintenance personnel receive annual Hazardous Waste Operations (HAZWOPER) refresher training as required by 29 CFR 1910.120. The Project Manager / Coordinator reviews pertinent compliance issues at the facility with the operations/maintenance staff and new regulations or operating procedures are introduced.

A Behavior-Based Safety Program has been in effect since 2003 and is an active, ongoing program designed to remind site workers that safety is of the greatest priority. Staff is encouraged to modify written work practices to incorporate safer actions, and every person working on the facility is empowered to stop any other person on the facility if they believe a task is being performed unsafely. Each employee is required to attend monthly safety meetings, where safety procedures are reviewed. Team leaders hold regular "tailgate" safety meetings with operating/maintenance personnel which emphasize safety issues relating to the particular task to be performed.

8.5 Training Records

Training records are compiled by the Project Manager and Site Coordinator for company employees and by the various Program Managers for subcontractors. These records are maintained both in paper form and electronic files per 22 CCR 66264.16.

9.0 CLOSURE AND POST-CLOSURE PLAN [22 CCR 66270.14(B); 66270.17(G); 66264.112; 66264.113; 66264.114; 66264.118; 66264.228]

The updated Closure and Post-Closure Plan for the IWPS was included in the prior Part B submittal (1999), and was approved by the DTSC at the time it issued the 1999 Permit. The DTSC approved Closure and Post-Closure Plan is comprised of the original 1992 document and the 1999 update, provided as Appendix H.

The following activities have occurred relevant to the Closure and Post-Closure Plan:

- The Consolidation Area was closed in 1994 under DTSC oversight and in accordance with the DTSC approved Closure and Post-Closure Plan.
- CUSA has continued to submit updated closure and post-closure care cost estimates and financial assurance documents to the DTSC as required.

The conceptual closure schedule and current closure and post-closure cost estimates are provided in Tables 9-1, 9-2 and 9-3, respectively. Figure 9-1 provides the Fill and Cap Closure Cell, depicting the closure approach described in the DTSC approved plan provided in Appendix H. Construction details relating to the closure and any necessary modifications to the Closure Plan will be submitted to DTSC, in accordance with applicable Title 22 requirements, when operation of the IWPS in nonhazardous waste service is no longer needed.

A land use covenant will be submitted if closure with unrestricted land use cannot be achieved.

10.0 FINANCIAL INFORMATION [22 CCR 66270.14(B)(17); 66264.140 - 66264.151]

10.1 Liability Insurance

A copy of the Chevron Corporation corporate guarantee for liability coverage is included in Appendix I.

10.2 Financial Assurance

The CEMC corporate guarantee, which documents financial assurance for closure and post-closure of the IWPS, is included in Appendix I.

11.0 REFERENCES

Bechtel, 1993. Evaluation of Stability of Slopes and Settlement Lined Ponds 4A, 4B, 1A, and 1B, Chevron Chemical Company Richmond Plants. April 12, 1993.

EPA, 1986. Test Methods for the Evaluation of Solid Waste, Physical, and Chemical Methods; EPA SW-846, Third Edition, 1986 – with updates

SAIC, 2008. Integrated Waste Water Pond System, Soil Management Unit 1 and Consolidation, Area Self Monitoring Program; 2007 Annual Report. March 1, 2008.

Regional Water Quality Control Board (RWQCB), 2007. San Francisco Bay Region (Region 2) Water Quality Control Plan; Incorporating all Amendments as Approved by the OAL as of January 18, 2007. [http://www.swrcb.ca.gov/sanfranciscobay/basin_planning.shtml.]

TABLES

FIGURES

APPENDIX A

PART B PERMIT COMPLETENESS CHECKLIST

APPENDIX B

EXPOSURE INFORMATION [22CCR66270.10(J)]

APPENDIX C

SAMPLING AND CHAIN OF CUSTODY PROCEDURES & QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

APPENDIX D

DIKE HYDROSTATIC AND HYDRODYNAMIC ANALYSIS [22CCR66270.14(B)(11)(D)(1)]

APPENDIX E

DIKE STABILITY REPORTS/CERTIFICATION [22CCR66270.17(E)]

APPENDIX F

GROUNDWATER MONITORING PROGRAM: RWQCB WDR ORDER 97-049

APPENDIX G

IWPS INSPECTION FORMS

APPENDIX H

DTSC APPROVED 1999 CLOSURE AND POST-CLOSURE PLANS

APPENDIX I

FINANCIAL ASSURANCE FOR CLOSURE AND POST-CLOSURE CARE AND LIABILITY COVERAGE