CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER No. R2-2015-0030

UPDATED WASTE DISCHARGE REQUIREMENTS AND
RESCISSION OF ORDER No. 97-049 for:

FORMER CHEVRON CHEMICAL COMPANY POND SITE
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
940 HENSLEY STREET
RICHMOND, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Regional Water Board or the Board), finds that:

LOCATION AND HISTORY

1. Chevron Chemical Company, hereinafter called the Discharger, owns a facility in Richmond that formerly manufactured and distributed a variety of pesticides and fertilizers. A gasoline additive blending and packaging facility was also operated at the facility. The facility, which closed in 1997, consisted of two separate areas, a chemical processing area (called the Plant Site) at 940 Hensley Street (located on the southeast side of Castro Street), and the site of a former fertilizer manufacturing plant plus a system of ponds (the Integrated Wastewater Pond System, referred to as the IWPS or the ponds) on the northwest side of Castro Street, which is called the Pond Site. Figure 1 shows the location of the Plant Site.

2. Contamination of soil and groundwater at the Plant Site has been regulated under Site Cleanup Requirements Order No. 00-010. The Pond Site is the subject of this Order.

PURPOSE OF ORDER UPDATE

3. This Order updates the Waste Discharge Requirements (WDRs) for the Pond Site. The WDRs require groundwater monitoring to ensure prompt detection in the event of any migration of contaminants from the ponds or waste management units (WMUs) located at the Pond Site. This Order also requires the Discharger to review and optimize the groundwater monitoring program and incorporates elements of the monitoring program for the Plant Site into the monitoring program for the Pond Site.

REGULATORY HISTORY

4. The operation and monitoring of the ponds has been regulated under WDRs Order No. 97-049 and NPDES permit CA005134 (currently contained in Order No. R2-2011-0049). The ponds were previously regulated under WDRs Order No. 81-65, WDRs Order No. 91-149, and Site Cleanup Requirements Order No. 91-183, all of which have been rescinded. The ponds are under federal Resource Conservation and Recovery Act (RCRA) interim status (delayed closure).

SITE DESCRIPTION

5. The Pond Site includes several physical elements that are regulated under these WDRs. These elements include the IWPS and two WMUs where contaminated solid wastes have been buried and managed. These two WMUs are called Soil Management Unit 1 and the Consolidation Area. There are also three filled former fertilizer ponds, which were never under regulation. Figure 2 shows the locations of these regulated units.

INTEGRATED WASTEWATER POND SYSTEM

6. The IWPS occupies the greater portion of the Pond Site and covers approximately 74 acres. The IWPS was constructed in the early 1960s for the evaporation of dilute process wastewater generated by the manufacture of fungicides, equipment wash water from pesticide formulation units, and stormwater runoff from the chemical processing areas. Before the ponds were constructed, the area was a marsh dissected by many natural sloughs and manmade ditches. The ponds were formed by construction of earthen dikes from soil excavated from the marsh.

7. The IWPS has both natural and engineered containment features. Natural features that promote containment include the underlying Bay Mud, which has very low transmissivity, and the presence of a natural upward vertical hydraulic gradient, both of which greatly minimize the potential for downward migration of water from the pond system. Engineered features include a subsurface vertical barrier wall and a hydraulic control trench, which limit lateral migration by creating and maintaining a groundwater depression along the perimeter of the site. The hydraulic control trench is a two-foot wide trench that is keyed into Bay Mud and backfilled with sand. Slotted drain pipes installed near the bottom of the trench collect and convey groundwater to sumps spaced at 500-foot intervals along the trench. Groundwater is extracted from these sumps and is either piped to the onsite groundwater treatment unit or pumped directly into the IWPS (if analysis indicates treatment is not necessary). Treated effluent from the groundwater treatment unit is discharged into the IWPS.

8. Following termination of operations at the Plant Site in 1997, the IWPS has been used primarily for storage of stormwater runoff from the Plant Site in compliance with NPDES permit CA0005134, which generally prohibits direct discharge of stormwater runoff from the Plant Site to adjacent surface waters. The IWPS can accommodate a total volume of 111.5 million gallons of water. Stormwater that accumulates in the ponds either evaporates or is discharged to the local Publicly Owned Treatment Works (POTW) under an industrial waste discharge permit. The volume of groundwater discharged into the IWPS from the perimeter hydraulic control system constitutes a very small portion of the total pond volume.

SOIL MANAGEMENT UNIT 1

9. Soil Management Unit 1 (SMU1) is a closed 3.8-acre Class II landfill that was constructed starting in 1991 with a capacity of 56,000 cubic yards. The area where SMU1 was constructed was previously used as a surface impoundment for process water and stormwater from the fertilizer plant. SMU1 is underlain by a leachate collection and

recovery system and is capped with a multi-layer vegetative cover. SMU1 is completely contained within the IWPS perimeter hydraulic control system.

10. The Discharger used SMU1 for disposal of non-hazardous contaminated soils generated by construction, maintenance, and environmental cleanup activities. Most of the wastes in this landfill are soils generated by construction of the IWPS slurry wall and the hydraulic control trench system. These waste soils contain levels of pesticides, fertilizers, halogenated organic compounds, and heavy metals that did not warrant disposal as hazardous waste. The landfill also contains soils from the Chevron Richmond Refinery that are contaminated with low levels of petroleum hydrocarbons and metals. However, the design of the SMU1 prevents groundwater from coming into contact with the wastes by utilizing a naturally-occurring low permeability clay foundation, the overlying leachate collection system, and the surrounding slurry wall and groundwater extraction trench system.

CONSOLIDATION AREA

11. The Consolidation Area (CA) is a 4.1-acre RCRA solid waste management unit that was closed by the California Department of Toxic Substances Control (DTSC) in 1994. The area that became the CA was previously used as a wastewater containment pond for the Plant Area. The CA does not have a leachate collection system. It is capped with a modified RCRA-compliant multi-layer vegetative cover and is located inside the perimeter hydraulic control trench system.

12. The CA contains approximately 105,000 cubic yards of soils contaminated with heavy metals and pesticides that were removed in 1987-88 from earthen evaporation ponds that pre-dated the IWPS.

HYDROGEOLOGY

13. Three water-bearing zones have been identified within the upper 130 feet below ground surface beneath the Pond Site. These zones have been defined based on stratigraphy, differences in major element chemistry, and differences in piezometric head. The water-bearing zones are called, in order of increasing depth, the A-zone, the C-zone and the B-zone.

    - The A-zone generally occurs at depths shallower than about 20 feet. The water table is usually encountered 2 to 10 feet below ground surface. The developed portion of the Pond Site is underlain by a layer of fill that ranges between 3 and 10 feet in thickness. Because the IWPS is west of the historic 1894 Bay shoreline, the uppermost native soil unit is a soft layer of silty clay with organic matter known as Bay Mud. The Bay Mud pinches out east of Castro Street but gradually thickens to more than 30 feet in a westerly direction under the Pond Site. Water in the A-zone meets one of the exception criteria to Regional Water Board Resolution No. 89-39 (Sources of Drinking Water Policy), which presumes that all surface and ground waters of the State are suitable or potentially suitable for municipal water supply, because total dissolved solids (TDS) exceed 3,000 mg/l, ranging from 7,130 to 40,300 mg/l.

- The C-zone extends between depths of about 10 and 90 feet below grade and consists of an upper and lower alluvial sequence separated by near-shore estuarine deposits. In general, the upper 20 to 30 feet of alluvial soils consist of silty clay with occasional thin, localized sandy lenses. The C-zone also meets an exception to Resolution No. 89-39 because concentrations of TDS range from 11,700 to 56,200 mg/l. Below the C-zone deposits, a 20-foot-thick layer of estuarine clay is present. This clay unit acts as an aquitard between the C-zone and the deeper B-zone.

- The B-zone is encountered at depths ranging from 100 to 130 feet beneath the site. This thin water-bearing zone contains a higher proportion of alluvial sands and gravels compared to surrounding soils. The B-zone is typically 5 to 15 feet thick and is overlain and underlain by alluvial and estuarine clays. The B-zone is the shallowest fresh-water zone below the site. However, the B-zone groundwater quality degrades from east to west due to saltwater intrusion. B-zone water exceeds secondary drinking water standards for TDS (which range from 360 to 2600 mg/l), specific conductance (620 to 3500 μhos/cm), chloride (60 to 960 mg/l), and manganese (0.2 to 3.5 mg/l). The potential for saltwater intrusion from San Pablo Bay seriously limits the use of this water for drinking water or agricultural use.

14. In general, groundwater gradients in the three water-bearing zones slope in a westerly direction towards San Pablo Bay. To the northwest of the site, all three water-bearing zones are hydraulically connected with the Bay. Operation of the hydraulic control trench system results in a groundwater depression in the A-zone at the site boundary. The permeability and transmissivity of all three zones are low, and none of the zones are capable of producing significant quantities of groundwater on a sustained yield basis. Groundwater levels measured in adjacent monitoring wells screened at different depths indicate an upward vertical gradient.

GROUNDWATER CHARACTERISTICS

15. Ambient Groundwater Quality: Analysis of groundwater samples for major cations and anions confirms that water quality varies laterally in all three water-bearing zones, degrading in a northwesterly direction due to saltwater intrusion from San Pablo Bay. As summarized in Finding 13, groundwater quality in the A- and C-zones beneath the site generally exceeds State and federal drinking water standards (Maximum Contaminant Levels or MCLs) for TDS, as well as for specific conductance, chloride, sulfate, and manganese. Nitrate concentrations are also typically elevated in the A-zone. The quality of groundwater in the B-zone is better than in the two shallower zones, but varies from moderately fresh to brackish.

16. Summary of Groundwater Contamination**:** Soils within and around the Pond Site contain elevated levels of heavy metals, pesticides, and fertilizers. Soil contamination is present in the fill materials designated as the A-zone, which overlies Bay Mud. Chemicals that have been detected in soils of the area are ammonia, nitrate, arsenic, lead, chlordane, lindane, DDD, DDE, DDT, trans-1,2-dichloroethene (1,2-DCE), and trichloroethene (TCE).

These same chemicals have also impacted groundwater in the A-zone. Concentrations have dropped over time, as shown in the table below. Other constituents that have been detected in groundwater in concentrations that exceed MCLs include benzene, cadmium, carbon tetrachloride, chromium, 1,2-dichloroethane, lindane, silvex, silver, and tetrachloroethene (PCE).

Groundwater monitoring data for the C-zone gathered from 1986 to 1992 indicate that a few pesticides, herbicides, other organics, and metals were detected in some wells; however, detections of these constituents were sporadic, and exhibited a wide variation over time.

17. Water in the B-zone is naturally less saline than water in the overlying A and C-zones, and also is relatively unimpacted by chemicals associated with the Chevron facility. B-zone wells downgradient of the ponds were monitored for six years (1986 - 1992), and no significant concentrations of chemicals were detected. Any chemical impacts to groundwater in the B-zone would have to be derived from the overlying C-zone. Three factors make this highly unlikely:

- Monitoring conducted over a period of almost 30 years (1986 to present) has shown minimal chemical impacts to the C-zone.
- The B-zone is separated from the C-zone by a 20-foot thick, low-permeability clay aquitard.
- An upward vertical gradient of approximately five feet between the B and C zones exists, further inhibiting downward migration of water from the C-zone to the B-zone.

CONSTITUENTS IN GROUNDWATER AT THE POND SITE

Contaminant	Historical Maximum Concentration	Maximum 2014 Concentration in A-zone Compliance Wells	Maximum 2014 Concentration in C-zone Compliance Wells	Maximum 2014 Concentration in Castro Creek Monitoring Points
Arsenic	2.37 mg/l	0.145 mg/l	ND @ 0.02 mg/l	0.2 mg/l
Lead	3.0 mg/l	0.01 mg/l	0.02 mg/l	0.03 mg/l
Ammonia as N	4,480 mg/l	18.8 mg/l	5 mg/l	2.5 mg/l
Chlordane	12.0 ug/l	ND @ 0.5 ug/l	ND @ 0.5 ug/l	ND @ 0.5 ug/l
TCE	680 ug/l	ND @ 1 ug/l	ND @ 1 ug/l	25 ug/l

MONITORING PROGRAM

18. The Pond Site water quality monitoring program, which covers the IWPS, SMU1, and the CA, is designed to fulfill multiple objectives: it includes groundwater monitoring in the A- and C-zones and surface water monitoring in Castro Creek. The monitoring program includes the following components:

- Corrective Action Monitoring of groundwater in the A-zone is performed to evaluate the effectiveness of the groundwater extraction/barrier wall system in creating a hydraulic barrier to the offsite migration of contaminated water beneath the IWPS.

To verify that the hydraulic control system is creating a depression around the IWPS, water surface elevations are measured in a system of paired piezometers and sumps at 11 locations along the northern and northwestern boundary of the pond system. Corrective Action Monitoring also includes sampling and chemical analysis of groundwater at 6 well locations to evaluate the effectiveness of corrective action on A-zone groundwater quality.

Groundwater monitoring for the A-zone (and C-zone) wells involves an intra-well comparison of concentrations of the monitoring parameters at the point of compliance. The point of compliance is the vertical plane along the northern and northwestern boundary of the pond system. Concentration limits have been established for selected monitoring parameters and constituents of concern (COCs). The concentration limits were established on a well by well basis, either at the limit of quantitation or a statistically determined prediction limit. If measured concentrations exceed the concentration limit, then confirmation sampling is required and corrective action may be triggered.

- Detection Monitoring of C-zone groundwater is performed to provide early indication of a release from any of the three regulated units (IWPS, SMU1, and the CA) into the C-zone. Detection monitoring consists of chemical monitoring of the groundwater in one upgradient and three downgradient C-zone wells.

- Surface Water Monitoring is conducted quarterly at three locations in Castro Creek. The monitoring points were selected on the basis of their position relative to both creek flow directions and nearby A-zone corrective action monitoring wells. One sampling location is located upstream of the IWPS, and two are located downstream opposite A-zone groundwater monitoring wells.

- Standard Visual Observation Monitoring of the site perimeter, SMU1, and the CA areas is performed to detect physical changes to the Pond Site and to look for evidence of potential releases.

19. B-zone monitoring: Monitoring in the B-zone was suspended in 1992 because no significant contamination had been detected when monitored from 1986 until 1992. Provision C.5 of this Order requires a single round of monitoring to be conducted in the B-zone wells to determine if the B-zone remains unimpacted.

CORRECTIVE ACTIONS

20. Numerous corrective actions have been implemented at the Pond Site. The Corrective Action Program included the following elements:

- Constructing low-permeability subsurface vertical barrier walls keyed into Bay Mud and completely encircling the site;
- Installing a hydraulic control trench (groundwater extraction) system inside the barrier walls;
- Removing liquid hazardous wastes from the evaporation ponds;

- Removing and consolidating soils removed from pond bottoms;
- Lining the ponds to minimize surface water infiltration; and
- Reconfiguring the former evaporation ponds into stormwater retention ponds.

The Corrective Action Program elements are briefly described below. The location of the barrier wall and groundwater extraction system and other features of the Corrective Action Program are shown on Figure 2.

21. Barrier Walls: The entire Pond Site is surrounded by subsurface barrier walls and is underlain by a 3- to 20-foot-thick layer of Bay Mud which separates the A-zone from the deeper C-zone. Between 1980 and 1983, a barrier wall made of Aspemix, a mixture of asphalt emulsion, cement, sand, and water, was constructed around all but two small sections of the southern dikes where clay barriers had previously been installed in 1973 and 1974. In 1991, a soil-bentonite slurry barrier wall was installed adjacent to Castro Creek. It extends from the northwest corner of the site to the southeast corner, tying into the existing Aspemix wall at each end. The wall follows Castro Creek and is located as close to the creek as possible, taking geotechnical and construction practicality into account. The wall, a slurry mixture of fine-grained imported soil and bentonite, is nominally 3 feet wide and is keyed into the Bay Mud underlying the site.

22. Hydraulic Control Trench System: The hydraulic control trench system was completed in 1993. It is operated to create and maintain an effective groundwater depression along the perimeter of the site that prevents offsite migration of contaminants. In this system, a trench, keyed into the Bay Mud, surrounds the Pond Site within the barrier wall system. Slotted drain pipes slope into sumps. Groundwater is extracted from the sumps, treated if necessary, and discharged to the POTW. Data show that a consistent inward gradient can be maintained when sump water level elevations are lower than the piezometer/well water level elevations. During the dry season (April through September) the average extraction rate is about 5.7 GPM. During the wet season (October through March) the extraction rate averages 14.7 GPM.

23. Liquid Hazardous Waste and Contaminated Soil Removal/Consolidation: Pond-bottom sediments containing free liquids and approximately 105,000 cubic yards of contaminated soil were removed from the ponds in 1987 and 1988 as part of the Board's Toxic Pits Cleanup Act (TPCA) compliance requirements. The dried, stabilized sediments and soil were placed in the CA. In 1994, the CA was formally closed under the direction of DTSC.

24. Pond Lining: In 1994, a bottom liner and underdrain system was installed in the IWPS ponds so that the ponds could be used for stormwater management. The pond bottoms were first dried and graded, then an underdrain system and liners were installed on the bottoms and sides of the ponds. Each of the ponds has an independent subdrainage network to prevent groundwater from rising above the bottom of the pond. The network consists of a layer of drain rock over a geotextile material placed directly on the pond bottoms. Slotted PVC pipes embedded in the drain rock layer collect groundwater and convey it to manholes. Submersible pumps in the manholes send the groundwater to a common header leading to the groundwater treatment plant. To prevent impounded stormwater from coming into

contact with pond bottom soils, the ponds are lined with 60-mil HDPE liners installed directly over a geotextile material placed on the subdrainage.

FINAL CLOSURE

25. IWPS: The 11 previous RCRA/TPCA ponds were reconfigured into eight stormwater management ponds (i.e., the IWPS) between 1991 and 1993. The IWPS ponds are still utilized for stormwater management. Final closure of the ponds will occur when they are no longer needed for stormwater containment. In 1992, the Discharger applied to DTSC for an amended RCRA Part B permit for continued management of stormwater in the IWPS according to the delay-of-closure rule. While the pond permit was extended to 2020, there is no current deadline or plans to close the IWPS. Before final closure could begin, the Discharger's NPDES permit would have to be revised to allow for direct discharge of stormwater to Castro Creek. The Discharger would then decommission the ponds by backfilling them with clean soil and installing a low permeability cap over them. Another option would be to "clean close" portions of the ponds and converting them to salt water marsh.

26. SMU1: The Final Closure of SMU1 was conducted in two phases. After receiving about 90% of its waste capacity, a temporary cover was placed in October 1994. Final closure was achieved in November 1997. Closure activities consisted of installing a multi-layer vegetative cover that was appropriately graded to provide adequate runoff and to prevent ponding. A gas vent system and leachate collection was also provided. Weekly observations of the condition of SMU1 are performed in accordance with the attached Self-Monitoring Program.

27. Consolidation Area: The CA underwent final closure by the DTSC in 1994, as described in Finding 11. Weekly observations of the CA are performed in accordance with the attached Self-Monitoring Program.

BASIN PLAN

28. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law, and U.S. EPA, where required.

ANTIDEGRADATION POLICY

29. The Code of Federal Regulations, title 40, part 131.12, requires that State water quality standards include an anti-degradation policy consistent with the federal policy. The State Water Board established California's anti-degradation policy through State Water Board Resolution 68-16, which is deemed to incorporate the federal anti-degradation policy where the federal policy applies. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan

implements, and incorporates by reference, both the State and federal anti-degradation policies. This Order is consistent with both the State and federal anti-degradation policies.

BENEFICIAL USES

30. As discussed above, Regional Water Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels. The shallow groundwater (A- and C-zones) at the site does not qualify for municipal or domestic use because the maximum TDS of the groundwater is significantly higher than the maximum acceptable level of 3,000 mg/1 for beneficial use in a public water supply system. Groundwater monitoring beneath the site indicated the B-zone was not impacted by A- and C-zone contaminants. The TDS levels for the B-zone range from 360 to 2600 mg/l. Groundwater underlying or downgradient of the site is not currently used as a potable source of water.

31. The potential beneficial uses of groundwater underlying and adjacent to the site include:

    (i) Limited domestic water supply (B-zone only)
    (ii) Limited industrial process and service water supply (B-zone only)
    (iii) Limited agricultural water supply (B-zone only)
    (iv) Groundwater replenishment to surface waters

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32. Castro Creek is located within 100 feet west and south of the Pond Site. Downstream of the Pond Site, Castro Creek joins Wildcat Creek, and the combined creeks flow into Castro Cove, an embayment of San Pablo Bay. The surface water beneficial uses named in the Basin Plan for these bodies of water are therefore applicable to groundwater discharging from the Pond Site. The existing and potential combined beneficial uses of Castro Creek, Castro Cove, and San Pablo Bay include:

    (i) Industrial service supply
    (ii) Water contact recreation
    (iii) Non-contact water recreation
    (iv) Wildlife habitat
    (v) Ocean commercial and sport fishing
    (vi) Fish migration and spawning
    (vii) Navigation
    (viii) Estuarine habitat
    (ix) Shellfish harvesting
    (x) Preservation of rare and endangered species

CALIFORNIA ENVIRONMENTAL QUALITY ACT

33. This action is an order to enforce the laws and regulations administered by the Regional Water Board. This action is categorically exempt from the provisions of the California Environmental Quality Act pursuant to title 40 of the California Code of Regulations, section 15301 (existing facility).

SAFE DRINKING WATER POLICY

34. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet MCLs to protect human health and ensure that water is safe for domestic use.

NOTICE AND MEETING

35. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to update the WDRs and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

36. The Regional Water Board, at a public meeting, heard and considered all comments pertaining to the update of these WDRs.

IT IS HEREBY ORDERED pursuant to the authority in sections 13263 and 13267 of California Water Code (CWC) and titles 27 and 23 of the California Code of Regulations (CCR) that the Discharger, its agents, successors, and assigns shall meet the applicable provisions of the relevant authorities and shall comply with the following:

A. PROHIBITIONS

1. Migration of pollutants through subsurface transport to waters of the State is prohibited.

2. There shall be no discharge of wastes to surface waters except as permitted under an NPDES permit.

3. The treatment, discharge, or storage of materials that may impact the beneficial uses of groundwater or surface water shall not be allowed to create a condition of pollution or nuisance nor degrade the quality of waters of the State or of the United States.

4. The creation of any new WMU, or relocation of wastes from any WMU, is prohibited without prior Regional Water Board staff written concurrence.

5. The relocation of wastes to or from WMUs shall not create a condition of pollution or nuisance. Wastes shall not be relocated to any location where they can be discharged into waters of the State or of the United States.

6. Excavation within or reconfiguration of any existing WMU is prohibited without prior concurrence of Regional Water Board staff. Minor excavation or reconfiguration activities such as for installation of signs or minor routine maintenance and repair do not require prior Regional Water Board staff concurrence.

7. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes during the life of the site.

8. The discharge of hazardous waste at the site is prohibited. For the purpose of this Order, the term “hazardous waste” is as defined in CCR title 27, section 20164.

9. The discharge of leachate or wastewater that: 1) has the potential to cause corrosion or decay or otherwise reduce or impair the integrity of the containment structures; 2) if mixed or commingled with other wastes in the unit, could produce a violent reaction including heat, pressure, fire, explosion, or the production of toxic by-products; 3) requires a higher level of containment than provided by the unit; 4) is "restricted hazardous waste", or 5) impairs the integrity of the containment structures, is prohibited.

10. Activities associated with subsurface investigations and cleanup that will cause significant adverse migration of pollutants are prohibited.

11. If it is determined that a surface impoundment is leaking or there is a failure which causes a threat to water quality, there shall be no discharges to that surface impoundment, and any residual liquids and sludge shall be removed expeditiously.

12. Wastes shall not be disposed in any location where they may migrate from the disposal site to adjacent geologic materials, waters of the State, or waters of the United States during disposal operations, closure, and the post-closure maintenance period.

13. The Discharger shall not cause the following conditions to exist in waters of the State at any place outside of the site:

    a. Surface Waters

        i. Floating, suspended, or deposited macroscopic particulate matter or foam;
        ii. Bottom deposits or aquatic growth;
        iii. Adversely altered temperature, turbidity, or apparent color beyond natural background levels;
        iv. Visible, floating, suspended or deposited oil or other products of petroleum origin; or
        v. Toxic or other deleterious substances to be present in concentrations or quantities that may cause deleterious effects on aquatic biota, wildlife or waterfowl, or that render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

    b. Groundwater

        i. Further degradation of groundwater quality and/or substantial worsening of existing groundwater impacts; and
        ii. Subsurface migration of pollutants associated with the Discharger's operations to waters of the State is prohibited.

B. SPECIFICATIONS

Reporting Specifications

1. All technical reports submitted pursuant to this Order shall be prepared under the supervision of and signed by a California registered civil engineer, registered geologist, and/or certified engineering geologist.

2. The Discharger shall continue the detection monitoring program for groundwater beneath the Pond Site. The program shall be designed to determine if the program is adequately functioning and demonstrating compliance with the program goals. The Self-Monitoring and Reporting Program (SMP) attached to this Order is intended to constitute the detection monitoring program for the site.

3. At any time, the Discharger may file a written request (including supporting documentation) with the Regional Water Board's Executive Officer, proposing modifications to the attached SMP. If the proposed modifications are acceptable, the Executive Officer may issue a letter of approval that incorporates the proposed revisions into the SMP.

WMU Specifications

4. WMUs shall be protected from any washout or erosion of wastes or covering material and from inundation that could occur during a 100-year flood event. Final cover systems for WMUs shall be graded and maintained to promote lateral runoff and prevent ponding and infiltration of water.

5. The Discharger shall notify the Regional Water Board immediately of any failure that threatens the integrity of any containment and/or control facilities, structures, or devices. Any such failure shall be promptly corrected after approval of the method and schedule by the Executive Officer.

6. The Discharger shall maintain the WMUs so as to prevent a statistically significant increase in water quality parameters at Points of Compliance (POC).

7. The Discharger shall maintain the WMUs to prevent discharges, such that the units do not constitute a pollution source.

8. Pipeline discharges to surface impoundments shall be either equipped with devices, or fail-safe operating procedures, to prevent overfilling. The surface impoundments shall maintain at least two feet of freeboard, except during and immediately after a storm event.

9. The Discharger shall have continuing responsibility for correcting any problems that arise in the future as a result of waste discharge or related operations or site use.

10. The Discharger shall comply with all applicable provisions of CCR title 27 that apply to the closure and post-closure of WMUs and the design and maintenance of surface impoundments, including those that are not specifically referred to in this Order.

11. WMUs shall be closed according to a closure plan prepared according to all applicable requirements of CCR title 27 and approved by the Executive Officer.

12. If the Executive Officer determines the existence of an imminent threat to the beneficial uses of surface or subsurface waters of the State, the Discharger may be required to install additional groundwater monitoring wells and/or undertake corrective action measures, including submittal of a site investigation report.

13. The Discharger shall install, maintain in good working order, and operate efficiently any monitoring system necessary to assure compliance with this Order.

14. If it is determined by the Executive Officer, based on groundwater monitoring information, that water quality at or beyond the POC wells becomes degraded, the Discharger will be required to submit and implement a site specific groundwater corrective action proposal.

15. The Discharger shall operate the WMUs according to a detailed operating, maintenance, and contingency plan that will include at a minimum, procedures for routine inspection of the surface impoundments, discharge into a pond, discharge out of a pond, contingency measures if problems with the containment structures are found, and notification of agencies.

Monitoring Specifications

16. The Discharger shall conduct monitoring activities according to the SMP attached to this Order, and as may be amended by the Executive Office pursuant to this Order, to verify the compliance of the WMU and the ponds with the updated Water Quality Protection Standards as required by Provision C.4.

17. Any additional monitoring wells installed at the site shall be constructed in a manner that maintains the integrity of the drill hole, prevents cross-contamination of saturated zones, and produces representative groundwater samples from discrete zones within the groundwater zone each well is intended to monitor.

18. All borings for monitoring wells shall be continuously cored. The drill holes shall be logged during drilling under the direct supervision of a California professional geologist whose signature appears on the corresponding well log. Logs of monitoring wells shall be filed with the State Department of Water Resources. All information related to well construction shall be submitted to the Regional Water Board upon well completion.

19. The groundwater sampling and analysis program shall ensure that groundwater quality data are representative of the groundwater in the area that is monitored.

20. Soil Contamination - The Discharger shall notify the Board of any soil contamination not previously identified in subsurface investigations that is discovered during any subsurface investigation or excavation work conducted on Chevron property that may potentially adversely impact water quality.

C. PROVISIONS

1. Compliance: The Discharger shall comply immediately, or as prescribed by the time schedule below, with all Prohibitions, Specifications, and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. Violations may result in enforcement actions, including Regional Water Board orders or court orders requiring corrective action or imposing civil monetary liability.

2. Authority: All technical and monitoring reports required by this Order are requested pursuant to CWC section 13267. Failure to submit reports in accordance with schedules established by this Order or failure to submit a report of sufficient technical quality to be acceptable to the Executive Officer may subject the Discharger to enforcement action pursuant to CWC section 13268.

3. Revision of the Groundwater Monitoring Program: The Discharger shall review and optimize the SMP and submit an updated SMP, acceptable to the Executive Officer. The SMP shall include monitoring of the Plant Site as well as the Pond Site. The update shall also include relevant updates to the monitoring objectives, sampling procedures and frequency, analytical methods used, any impacts or changes to the surface water monitoring program. Please note that the RCRA Part B Permit may need to be modified to maintain consistency with the SMP. The Program is to be implemented immediately upon approval.

   COMPLIANCE DATE: December 1, 2015

4. Update Water Quality Protection Standards (WQPS): For all WMUs, the Discharger shall update existing WQPS in accordance with either the Regional Water Board's updated Environmental Screening Levels or with technically-justified site-specific standards, acceptable to the Executive Officer. The WQPS shall consist of the list of COCs, the concentration limits, the Point of Compliance, and all Monitoring Points. This WQPS shall apply during the active life of the WMUs, the closure period, the post-closure maintenance period, and during any compliance period.

   COMPLIANCE DATE: December 1, 2015

5. Update B-Zone Groundwater Monitoring**:** The Discharger shall submit a proposal for a one-time round of monitoring of the B-zone wells to determine if they remain unimpacted by the COCs identified for the A- and C-Zone wells. The proposal is to be implemented immediately upon approval.

   COMPLIANCE DATE: December 1, 2015

6. Long-Term Flood Protection Report: The Discharger shall submit a report, acceptable to the Executive Officer, for long-term flood and/or sea level rise protection at the site. The report shall include a consideration of feasible options for achieving protection from the 100-year flood to account for rising sea levels and increased flood frequency and intensity. The report shall consider the methods developed by the San Francisco Bay Conservation and Development Commission to predict and protect against future flooding. The report shall be updated and submitted every five years throughout the operational life of the site with the most recently available and credible information at the time of the update.

   COMPLIANCE DATE: January 1, 2016, and every 5 years thereafter

7. Report of Waste Discharge: The Discharger shall submit a technical report, acceptable to the Executive Officer, describing any proposed material change in the character, location, or volume of a discharge, or in the event of a proposed change in use or development of a

WMU. The technical report shall describe the project, identify key changes to the design that may impact any portion of the WMU, and specify components of the design necessary to maintain integrity of the WMU and prevent water quality impacts.

COMPLIANCE DATE: 120 days prior to any material change

8. Financial Assurance: The Discharger shall submit to the Board evidence of an irrevocable post-closure fund, acceptable to the Executive Officer, to ensure monitoring, maintenance, and any necessary remediation actions. Every five years, for the duration of the post-closure monitoring period, the Discharger shall submit a report that includes an outline of the financial assurance mechanism and verification that the fund has been created and continues to exist/be maintained. The fund value shall be supported by calculations, to be included with this submittal, providing cost estimates for all post-closure monitoring, maintenance, repair, and replacement of WMU or landfill containment, cover, and monitoring systems.

   Additionally, cost estimates must be provided for corrective action for known releases that may be required for all WMUs at the site. The fund value shall be based on the sum of these estimates. The cost estimates and funding shall be updated to reflect changes to monitoring systems as they occur. The post-closure maintenance period shall extend as long as the wastes within the WMU pose a threat to water quality.

   COMPLIANCE DATE: January 1, 2016, and every five years thereafter

9. Availability: A copy of these WDRs shall be maintained by the Discharger and shall be made available by the Discharger to all employees or contractors performing work (maintenance, monitoring, repair, construction, etc.) at the WMUs (CWC §13263).

10. Revision: This Order is subject to Regional Water Board review and updating, as necessary, to comply with changing State or federal laws, regulations, policies, or guidelines; changes in the Basin Plan; or changes in discharge characteristics. The Board will review this Order periodically and may revise its requirements when necessary.

11. Submittal Revisions: Where the Discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Board, it shall promptly submit such facts or information.

12. Vested Rights: This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Discharger from liability under federal, State or local laws, nor do they create a vested right for the Discharger to continue the waste discharge.

13. Operation and Maintenance: The Discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls

including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

14. Reporting of Hazardous Substance Release: If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it probably will be discharged in or on any waters of the State, the Discharger shall:

    a. Report such discharge to the following:

        i. The Regional Water Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8 a.m. – 5 p.m.); and
        ii. The California Office of Emergency Services (OES) at (800) 852-7550.

    b. A written report shall be filed with the Regional Water Board within five working days. The report shall describe:

        i. The nature of the waste or pollutant.
        ii. The estimated quantity involved.
        iii. The duration of the incident.
        iv. The cause of the release.
        v. The estimated size of the affected area, and nature of the effect.
        vi. The corrective actions taken or planned, and a schedule of those measures.
        vii. The persons/agencies notified.

    This reporting is in addition to reporting to OES that is required pursuant to the Health and Safety Code.

15. Reporting Releases: Except for a discharge that is in compliance with these WDRs, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall immediately notify OES of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted, and immediately notify the Regional Water Board of the discharge as soon as:

    a. That person has knowledge of the discharge;
    b. Notification is possible; and
    c. Notification can be provided without substantially impeding cleanup or other emergency measures.

    This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of CWC section 13271 unless the Discharger is in violation of a prohibition in the Basin Plan.

16. Release Reporting Requirements: In the case of a release defined above the following must be provided to the Board within five days of knowledge of the release:

    a. Site map illustrating location and approximate size of impacted area;
    b. Photographs of the impacted area before and after remediation; and

c. A report detailing the remediation method chosen and its efficacy and illustrating that the release contingency plan was effective, or else proposing modifications to the contingency plan to increase its effectiveness.

17. Endangerment of Health or the Environment: The Discharger shall report any noncompliance that may endanger human health or the environment. Any such information shall be provided orally to the Executive Officer, or an authorized representative, **within 24 hours** from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Discharger becomes aware of the circumstances. The written submission shall contain:

    a. A description of the noncompliance, and its cause;
    b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected;
    c. The anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

    The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following occurrences must be reported to the Executive Officer within 24 hours:

    a. Any bypass from any portion of the treatment facility;
    b. Any discharge of industrial products, or treated or untreated wastewater; and
    c. Any treatment plant upset that causes the discharge limitation(s) of this Order to be exceeded.

18. Entry and Inspection: The Discharger shall allow Regional Water Board staff, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
    d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this order or as otherwise authorized by the CWC, any substances or parameters at any location.

19. Discharges to Navigable Waters: Any person discharging or proposing to discharge to navigable waters from a point source (except for discharge of dredged or fill material subject to section 404 of the federal Clean Water Act) must file an NPDES permit application or notice of intent to enroll under a general NPDES permit with the Board.

20. Change in Discharge: In the event of a material change in the character, location, or volume of a discharge, the Discharger shall file with the Regional Water Board a new Report of Waste Discharge. A material change includes, but is not limited to, the following:

a. Addition of a major industrial waste to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste;
b. Significant change in disposal method (e.g., change from a land disposal to a direct discharge to water) or change in the method of treatment that would significantly alter the characteristics of the waste;
c. Significant change in the disposal area (e.g., moving the discharge to another drainage area or to a different water body) or to a disposal area significantly removed from the original area potentially causing different water quality or nuisance problems; or
d. Increase in flow to a WMU or water body beyond that specified in the WDRs.

21. Monitoring Devices: All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices. Annually, the Discharger shall submit to the Executive Officer a written statement signed by a professional engineer registered in California certifying that all flow measurement devices have been calibrated and will reliably achieve the accuracy required.

    Unless otherwise permitted by the Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the State Department of Public Health. The Executive Officer may allow use of an uncertified laboratory under exceptional circumstances, such as when the closest laboratory to the monitoring location is outside State boundaries and therefore not subject to certification. All analyses shall be required to be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR Part 136) promulgated by U.S. EPA.

22. Treatment: In an enforcement action, it shall not be a defense for the Discharger that it would have been necessary to halt or to reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the Discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced, or is lost.

23. Document Distribution: Copies of correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the Board, and any other interested agencies.

24. General Prohibition: Neither the treatment nor the discharge of waste shall create a pollution, contamination, or nuisance.

25. Earthquake Inspection: The Discharger shall submit a detailed Post Earthquake Inspection Report acceptable to the Executive Officer in the event of any earthquake generating ground shaking of Magnitude 7 or greater at or within 30 miles of the Pond Site. The report shall describe the containment features, groundwater monitoring, and control facilities potentially

impacted by the static and seismic deformations of any WMU or surface impoundment. Damage to any WMU or surface impoundment, which may impact State waters, must be reported immediately to the Executive Officer.

COMPLIANCE DATE: Verbally as soon as the data becomes available and in writing within two weeks of a triggering seismic event. Any damage that may cause impacts to waters of the State must be reported immediately upon discovery to the Spill Hotline at 1-800-852-7550 and by sending an email to Rb2SpillReports@waterboards.ca.gov

26. Maintenance of Records: The Discharger shall retain records of all monitoring information including all calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Executive Officer. Records of monitoring information shall include:

    a. The date, exact place, and time of sampling or measurements;
    b. The individuals who performed the sampling or measurements;
    c. The date(s) analyses were performed;
    d. The individuals who performed the analyses;
    e. The analytical techniques or method used; and
    f . The results of such analyses.

27. This Order supersedes and rescinds Order No. 97-049.

28. This Order is subject to Regional Water Board review and updating, as necessary, to comply with changing State or federal laws, regulations or policies, or guidelines; changes in the Basin Plan; or changes in discharge characteristics.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 10, 2015.

Digitally signed by Bruce H. Wolfe
DN: cn=Bruce H. Wolfe, o=SWRCB, ou=Region 2, email=bwolfe@waterboards.ca.gov, c=US
Date: 2015.06.11 19:30:51 -07'00'

Bruce H. Wolfe
Executive Officer

Attachments:

Self-Monitoring and Reporting Program, Parts A and B

Figure 1 – Chevron Chemical Location Map
Figure 2 – Pond Site Location Map