CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER No. R2-2013-0034

UPDATED WASTE DISCHARGE REQUIREMENTS and
RESCISSION OF ORDER No. 95-234

SHELL OIL PRODUCTS and EQUILON ENTERPRISES LLC
SHELL MARTINEZ REFINERY
3485 PACHECO BLVD
MARTINEZ, CONTRA COSTA COUNTY

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

OWNERSHIP AND LOCATION

1. Shell Oil Products US and Equilon Enterprises LLC, (hereinafter called Shell or the Discharger), owns and operates the Shell Martinez Refinery (hereinafter called the refinery or site) in Contra Costa County, as shown in Figure 1. This refinery occupies approximately 1000 acres on the south side of Carquinez Strait. The refinery was established in 1913 as a petroleum products terminal, and refining operations commenced in 1916. The refinery currently manufactures various hydrocarbon products including gasoline, diesel, jet, and industrial fuels.

PURPOSE OF ORDER UPDATE

2. The Regional Water Board issues Waste Discharge Requirements (WDRs) to refineries to regulate discharges to land pursuant to California Code of Regulations (CCR) Title 27 and section (§) 13263 of the California Water Code (CWC).

   This Order accomplishes the following objectives:

   - Rescinds and supersedes outdated WDRs (Order No. 95-234),
   - Updates the requirements for continued maintenance and monitoring of designated waste management units (WMUs),
   - Updates the corrective action requirements for the WMUs, and
   - Requires that the water quality monitoring program for the WMUs be updated.

REGULATORY HISTORY

3. The Discharger historically discharged industrial wastes from refinery operations into waste impoundments that are designated as WMUs under Title 27. All designated WMUs at the refinery have been closed and are inactive; however, groundwater in the vicinity of the WMUs must be monitored to ensure that wastes are properly contained and not leaking into the environment.

4. The Regional Water Board currently regulates these WMUs, as well as all other refinery-wide spills and leaks of potential contaminants, under WDR Order No. 95-234. Henceforth, the WMUs and any contamination associated with them will be regulated under this Order, whereas the

cleanup of spills and leaks that are not directly associated with the WMUs will be addressed under separate Site Cleanup Requirements (SCRs) to be issued within the next twelve months.

5. Earlier Regional Water Board orders adopted for the refinery included WDR Order No. 88-146 and SCR Order No. 87-070. These orders have been rescinded.

6. The Regional Water Board regulates the discharge of effluent from the Discharger's wastewater treatment plant (WWTP), and the discharges of all stormwater associated with industrial activity from the refinery to Peyton Creek, Peyton Slough, and Carquinez Strait, under a separate NPDES permit (Order No. R2-2012-0052; NPDES No. CA0005789) that was adopted on June 13, 2012.

SITE DESCRIPTION AND HISTORY

Hydrogeologic Setting

7. Geologically, the refinery is located along the east side of the Briones Hills and partially on the southern alluvial plain/tidal flats of Carquinez Strait. The upland areas of the refinery consist of three northwest trending ridges (Crude, Middle, and Vine hills), which are composed of the Martinez, Meganos, and Domengine formations. The Martinez Formation is a light colored, thinly bedded sequence of siltstones and fine-grained sandstones. The Meganos Formation has been described as fissile, dark grey shale, with minor siltstone, and sandy claystone. Numerous fractures and slickensides were noted in unweathered samples. The Domengine Formation has been described as a light-colored, very fine to fine-grained, thickly bedded sandstone, with thin claystone interbeds. All of these formations dip approximately 50 degrees to the southwest. Fractures, joints, and faults have been mapped in these units at the site.

   Younger geologic units at the site include a unit of Older Alluvium that ranges from 30 to 900 feet thick across the site. This unit consists of interbedded clay, silt, and fine to coarse sand with pebbles. The channel deposits within this unit range from a few to tens of feet across. The youngest units at the site consist of Quaternary sediments. Alluvial material, deposited during the Quaternary Period at low stands of the sea, is found at the site, as well as bay mud, sand, peat, and clay, deposited by the present day bay/estuary system.

8. The refinery has been divided into five groundwater basins as shown in Figure 2. These basins have been defined by the site topography and refinery groundwater elevation measurements. The Basins are designated, from west to east, as the Crude Hill Groundwater Basin, the West Valley Groundwater Basin, the Central Valley Groundwater Basin, the Reservoir Lakes Groundwater Basin, and the East Valley Groundwater Basin.

   a. The Crude Hill Groundwater Basin is located in the southwest corner of the site and borders the City of Martinez. Groundwater occurs within the fill and the Domengine Formation in the Crude Hill Area. Groundwater flows to the southwest, towards the City of Martinez, and discharges into the Arroyo del Hambre groundwater basin. The average groundwater flow rate for the basin has been estimated to be 0.74 feet per year (ft/yr), with an estimated basin wide groundwater flux of 3.8 gallons per minute (gpm).

   b. The West Valley Groundwater Basin is located between Middle and Crude hills. The basin includes the Effluent Treatment Area. The basin is composed of fill, bay deposits (sand, mud and peat), Younger Alluvium, Older Alluvium, and the Domengine Formation. The

groundwater in this basin discharges in the lower Clayton/Ygnacio Valley groundwater basin and flows generally to the north, towards the Effluent Treatment Area, and into Carquinez Strait. The average groundwater flow rate for the basin has been estimated to be 1.2 ft/yr, with an estimated basin wide groundwater flux of 2.4 gpm.

c. The Central Valley Groundwater Basin is located east of Middle Hill and west of the Reservoir Lakes Groundwater Basin. Groundwater in this basin discharges into the lower Clayton/Ygnacio Valley groundwater basin and flows to the north, towards the northeastern portion of the Effluent Treatment Area, and into Carquinez Strait. The basin is comprised of fill, bay deposits, Older Alluvium, and the Domengine and Meganos formations. The average groundwater flow rate for the basin has been estimated to be 4.9 ft/yr, with an estimated basin wide groundwater flux of 1.9 gpm.

d. The Reservoir Lakes Groundwater Basin is located in the central part of the refinery. Groundwater in this basin discharges into the lower Clayton/Ygnacio Valley groundwater basin and generally flows to the north, towards and likely into Carquinez Strait. This basin is composed principally of the Meganos Formation with minor occurrences of Domengine Formation along the southwest and Martinez Formation along the northeast edges. Older Alluvium and bay deposits are also found in the northern portion of the basin. The average groundwater flow rate for the basin has been estimated to be 0.26 ft/yr, with an estimated basin wide groundwater flux of 0.065 gpm.

e. The East Valley Groundwater Basin is located along the eastern side of the refinery. This basin is composed of fill, bay deposits, Younger Alluvium, and the Martinez Formation. Groundwater in this basin discharges into the lower Clayton/Ygnacio Valley groundwater basin and generally flows north towards Peyton Slough and Carquinez Strait. The average groundwater flow rate for the basin has been estimated to be 5.3 ft/yr, with an estimated groundwater flux of 3.3 gpm.

Seismicity

9. Earthquakes posing a threat to the refinery could occur along the Hayward, San Andreas and Calaveras faults. In an effort to prepare for such an incident, refinery staff routinely and systematically review all process facilities for potential hazards, including a seismic review of appropriate structures. In accordance with federal, State, and local requirements, the Discharger also maintains an emergency response plan for the refinery.

CORRECTIVE ACTIONS

10. All groundwater basins within the refinery property contain impacted soil and/or groundwater from historic releases. Some of the basins contain WMUs that are regulated under this Order pursuant to the corrective action provisions of Title 27. Various corrective actions have been implemented to address these releases.

11. Shell has implemented corrective actions to intercept contaminated groundwater at various locations and thus to prevent offsite migration to Carquinez Strait. Each groundwater basin has its own perimeter groundwater control system as shown in Figure 3. Perimeter control points

establish and maintain perimeter capture zones that are intended to prevent the offsite migration of potentially contaminated groundwater.

Six extraction trench systems, 4500 feet of barrier wall, and over 78 groundwater extraction wells have been installed. Groundwater extracted from these systems is routed to the refinery's WWTP and discharged in accordance with NPDES permit requirements.

12. Corrective actions occurring at locations comprised of only impacted soil and/or groundwater from historic releases and not associated with WMUs will be addressed in separate SCRs.

WASTE MANAGEMENT UNITS

The refinery contains several unlined WMUs that are subject to Title 27 requirements. A description of these units is provided below:

13. The WWTP is comprised of five active unlined Class II ponds (Pond 6, Pond 7, Pond 8, Pond 5C, and Pond 5D). The WWTP is used to treat process oily waste, surface water runoff, and other liquid waste streams that originate at the refinery. Discharge from these ponds to Carquinez Strait is covered under the NPDES permit. Potential leakages from the ponds to groundwater are covered under this Order.

14. The refinery contains 17 inactive unlined Class II WMUs that have active groundwater monitoring: Unit K, Unit I, Unit H, Unit B, Unit PS, Unit L, Unit YY, Unit N, Unit O, Unit W, Unit X, Unit Y, Unit Z', Unit AA, Unit DD, Unit FP, and Unit JT. Two other WMUs (Unit M and the former Unit Q) are not currently monitored. An additional unit identified as the PG&E Sludge Terraces currently undergoes quarterly groundwater monitoring. Each of these WMUs is monitored under this Order because all contain contaminated materials and have the potential to leak contaminants to the environment.

    Each WMU is described below, and the location of each WMU is shown in Figure 4:

    a. Unit K is a former oily-water sump area located on the east side of Crude Hill. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

    b. Unit I was used as a collection area for tank and process drainage and for the disposal of acid, tetraethyl lead, asphalt, oil and tar sludge. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

    c. Unit H was used for the weathering of oily wastes. Unit H may also have received acid and lead sludge. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

    d. Unit B was used as a containment area for tank leaks, tank overflows, and disposal of acid sludge, tarry sludge, and asphalt. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

    e. Unit PS contains a black tarry substance that varies in thickness from two feet to 18 feet. This waste material contains petroleum hydrocarbons, metals, and various organic compounds.

f. Unit L was used for the disposal of asphalt pitch from the vacuum re-run area. The waste material is tarry, oily pitch, or a fill material impregnated with heavy oil or tar. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

g. Unit M was used for the disposal of coke from 1923 to 1930. There are two separate parts of the unit, designated Mn (north) and Ms (south). The unit's waste contains petroleum hydrocarbons and metals.

h. Unit YY consists of four individual waste areas, each of which is located adjacent to an aboveground tank. The unit received sludge from tanks 8, 9, 10, and 12 through the 1950s. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

i. Unit N was used as an oily water sump that received oily water emulsion tank drainings and surface water runoff between 1921 and 1966. The Discharger reports that sludge or solids were not disposed in the unit. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

j. Unit O was used for the disposal of construction debris, refuse, Tergol clay (used to filter the lube oil additive Tergol), coke fragments, and fill impregnated with oily and tarry waste. Unit O was also used for drying sludge. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

k. Unit W was used from 1938 through the 1950's to burn refuse, tetraethyl lead sludge, acid sludge, and unspecified laboratory containers. Waste ash was disposed in the unit. The unit's waste contains metals and various organic compounds.

l. Unit X was used for the disposal of effluent pond sludge, acid sludge, and tetraethyl lead sludge that was contained at Unit H. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

m. Unit Y was used from 1950 to 1970 for the disposal of tetraethyl lead sludge, oily caustic sludge, caustic soda, and refuse. The unit may also contain acid sludge. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

n. Unit Z' was used for the disposal of oily sludge, Tergol clay, refuse, filter cake, and calcium sulfonate clays. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

o. Unit AA was used to decant water from catalyst slurry used in catalytic cracking. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

p. Unit DD was used to dispose of oily sludge, Tergol clay, excavated fill, and construction debris. The unit's waste consists of black slag, pitch, oily tar-like material, Tergol clay and filter paper. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

q. The waste found in Unit FP consists of black tarry oil, oily cinder-like waste, coke, slag, and Tergol clay. The unit's waste contains petroleum hydrocarbons, metals, and various organic compounds.

r. The waste found in Unit JT consists of Perma 16, fibrous filter cake, filter paper, oily silt, oil-soaked straw, coke, slag, and Tergol clay. The unit’s waste contains petroleum hydrocarbons, metals, and various organic compounds.

s. PG&E Sludge Terraces - Pacific Gas and Electric Company (PG&E) leased property from the Discharger to build a facility for drying water treatment and boiler blow-down sludges. Sampling and analysis of the wastes indicated generally low levels of metals in the waste. Soluble levels of copper present in the PG&E Sludge Terraces (2.5 to 14.4 parts per million (ppm)) have the potential to impact water quality.

STORMWATER SURFACE IMPOUNDMENTS

15. In addition to the WMUs described above, the refinery contains five surface impoundments that are used to manage stormwater, which is either directly discharged to surface water or discharged to the WWTP. These surface impoundments are described below and their locations are shown in Figure 5:

a. Upper Lake Slobodnik is located in the central part of the refinery. This unlined pond contains stormwater runoff from process areas and tank farms in the central area of the refinery. The water is normally routed to Lower Lake Slobodnik, but it can also be routed to the WWTP. The pond was enlarged in 1994 and currently consists of a northern and southern pond. The pond is also used for secondary containment for aboveground petroleum storage tanks.

b. Lower Lake Slobodnik is located directly downstream (north) from Upper Lake Slobodnik and east of Unit O. This lined pond receives stormwater runoff from the area directly surrounding the pond and from different parts of the refinery. Water from this pond is discharged directly to waters of the State after meeting NPDES discharge limits**.**

During the corrective action at Unit O, contaminated material was removed from the bottom of Lower Lake Slobodnik and placed in Unit O. After the excavation of the contaminated pond material was completed, a Claymax liner and 18 inches of clean, imported fill was placed on the bottom of Lower Lake Slobodnik.

c. The Flare Area Storm Water Holding Pond is located in the southeast portion of the refinery. This unlined pond receives stormwater from the eastern portion of the refinery. Water from the pond is discharged directly to waters of the State after meeting NPDES discharge limits.

During the construction of a storage pad above Unit FP, contaminated material was excavated from a portion of the bottom of the Flare Area Storm Water Holding Pond and placed in Unit FP. After the excavation of the contaminated material was completed, clean fill and a clean fill/Bentonite mixture were used to fill the excavation.

d. The Vine Hill Storm Water Holding Ponds consist of two contiguous ponds that are located southeast of the Flare Area Pond. These unlined ponds are located adjacent to and partially

overlie Unit DD. The ponds receive stormwater from the eastern portion of the refinery. Water from the ponds is directly discharged to waters of the State after meeting NPDES discharge limits.

e. The Volatiles Pond is located in the southeastern portion of the refinery. Water from the pond is discharged directly to waters of the State after meeting NPDES discharge limits. The pond is located south of Unit JT.

ABOVEGROUND PETROLEUM STORAGE TANKS

16. The Discharger operates approximately 180 aboveground petroleum storage tanks (ASTs) at the refinery, with a total storage capacity of approximately 400 million gallons. The tanks are required to comply with the requirements of the Aboveground Petroleum Storage Act and with the Code of Federal Regulations (CFR) Title 40, part 112. The Discharger has installed and operates leak detection systems on regulated ASTs that have the potential to impact groundwater or surface waters.

17. All ASTs are also required to have secondary spill containment for the capture of sudden releases. The secondary containment is designed to prevent spills at petroleum facilities to the maximum extent practicable and mitigate a spill if it occurs. The refinery utilizes several different types of soil berms, spill collection basins, and channels located in the tank fields for containment and diversion of petroleum hydrocarbon releases.

MONITORING PROGRAMS

18. Shell's current groundwater monitoring program (also referred to as a self-monitoring program or SMP) requires water elevation measurements and chemical monitoring for inorganic and organic monitoring parameters (MPs) and chemicals of concern (COCs) (both terms are further defined in Specification B.1) along a point of compliance (POC). The MPs and COCs include metals, semi-volatile organic compounds, and volatile organic compounds. The POC is generally coincident with each groundwater basin's perimeter groundwater control system, where present.

19. The goal of Shell's current monitoring program is to maintain and demonstrate effective perimeter groundwater capture in the West Valley, East Valley, Central Valley, and Reservoir Lakes groundwater basins. As part of this demonstration, Shell developed a hydraulic capture groundwater computer model and runs this model yearly with site groundwater data to demonstrate perimeter hydraulic groundwater capture and to identify improvement opportunities.

20. In accordance with Provision C.6, Shell is required to submit a revised SMP that provides groundwater monitoring locations, MPs, COCs, frequency, and Maximum Allowable Concentration Limits (MACLs). Provision C.7 allows additional future SMP updates with the approval of the Regional Water Board's Executive Officer.

BASIN PLAN

21. 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 the U.S. EPA, where required.

ANTIDEGRADATION POLICY

22. CFR 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 AND SOURCES OF DRINKING WATER

23. This Order is consistent with State Water Board Resolution No. 88-63 (Sources of Drinking Water Policy), which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Regional Water Board Resolution No. 89-039 incorporated State Water Board Resolution No. 88-63 into the Basin Plan.

24. Most of the flat portion of the site bounded by Carquinez Strait to the north and Highway 680 along the east overlies the Ygnacio Valley groundwater sub-basin (Sub-basin 2-6 in the Basin Plan). This water is not presently used for water supply. The Basin Plan identifies potential beneficial uses for groundwater in the Ygnacio Valley sub-basin, including industrial process supply, industrial water supply, agricultural water supply, and municipal and domestic supply. There is no historical, existing, or planned use of groundwater as a source of drinking water in either of the aquifer zones beneath this part of the refinery due to elevated total dissolved solids (TDS) levels. Due to the proximity of Carquinez Strait, shallow groundwater beneath portions of this sub-basin near Carquinez Strait and Peyton Marsh contains TDS concentrations significantly higher than 3000 mg/l (5000 μS/cm electrical conductivity), meeting an exception to Regional Water Board Resolution No. 89-39.

25. Groundwater in the Crude Hill Basin on the southwest margin of the site occurs primarily in fractured bedrock. Hydraulic conductivity of this bedrock is low, and it is unlikely that a single well could produce an average sustained yield of 200 gallons per day for drinking water supply purposes, thus meeting an exception to State Water Board Resolution No. 88-63. There is no historical, existing or planned use of unconfined groundwater as a source of drinking water in this part of the refinery.

26. The existing and potential beneficial uses of surface water in Carquinez Strait are:

    a. Commercial and sport fishing
    b. Estuarine habitat
    c. Fish migration
    d. Preservation of rare and endangered species
    e. Fish spawning

f. Wildlife habitat
g. Water contact recreation
h. Non-contact water recreation
i. Industrial service supply
j. Navigation.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

27. Adoption of this Order is exempt from the California Environmental Quality Act (CEQA). Under CEQA Guidelines §15301, this Order governs an existing site with no anticipated expansion of use or additional discharges beyond those contemplated in the previous order. This Order requires continued site monitoring and maintenance and will not result in any additional actions that may have an effect on the environment beyond the existing conditions.

ENDANGERED SPECIES ACT

28. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §§2050-2097) or the Federal Endangered Species Act (16 U.S.C. §§1531-1544). The Discharger shall be responsible for meeting all requirements of the applicable act(s). A discharge that is in violation of either act is not a discharge that is authorized nor in compliance with the terms and conditions of this Order. The Discharger shall obtain permits as necessary and comply with permit conditions and all other applicable federal, State, county and local laws and regulations.

NOTICE AND MEETING

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

30. The Regional Water Board, at a public meeting, heard and considered all comments pertaining to this update of the site's WDRs.

IT IS HEREBY ORDERED pursuant to the authority in CWC §13263 and §13267, Title 27, Division 2, Subdivision 1 of the CCR that the Discharger shall meet the applicable provisions contained in CCR Title 27, Chapter 15, and shall comply with the following:

A. PROHIBITIONS

1. Migration of pollutants through subsurface transport to waters of the State outside of the Groundwater Protection System (GWPS) is prohibited.

2. There shall be no discharge of wastes to surface waters except as permitted under the 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 as defined in CWC §13050(l) and (m), 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 as defined in CWC §13050(l) and (m). Any relocated waste shall not be placed in or allowed to contact ponded water from any source whatsoever. 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 landscaping, or for minor routine maintenance and repair, do not require prior Regional Water Board staff concurrence.

7. Waste shall not be exposed at the surface of any WMU.

8. Disking of WMU covers is prohibited without prior Regional Water Board staff written concurrence. Alternate methods of controlling vegetative growth that do not affect the integrity of the WMU cover are preferred.

9. The discharge of hazardous waste at the refinery is prohibited. For the purpose of this Order, the term “hazardous waste” is as defined in Title 27 §20164.

10. The discharge of leachate or wastewater (including from surface impoundments, process waters, and runoff from the refinery’s operation areas) shall not: 1) have the potential to cause corrosion or decay, or otherwise reduce or impair the integrity of containment structures; 2) if mixed or commingled with other wastes in the unit, have potential to produce a violent reaction (including heat, pressure, fire, explosion), or the production of toxic by-products; 3) require a higher level of containment than provided by the unit; 4) be "restricted hazardous wastes", or 5) impair the integrity of the containment structures (Title 27 §20200(2)(b)).

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

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

13. Wastes shall not migrate from the disposal site to adjacent geologic materials, waters of the State, or of the United States during disposal operations, closure, and the post-closure maintenance period.

14. The Discharger shall not cause the following conditions to exist in waters of the State:

    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 renders 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

1. **Water Quality Protection Standard**

Title 27 §20390 requires the Regional Water Board to establish a Water Quality Protection Standard (WQPS) in a WDR order for each WMU covered by that order. The WQPS for the refinery shall include the following:

a. Constituents of Concern (COC): Title 27 §20395 defines COCs as "all waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit." COCs for the refinery include the monitoring parameters identified in the SMP.

b. Monitoring Parameters (MP): MPs, a subset of the COCs, are typically the most mobile and commonly detected COCs in groundwater at a site and are measured on a more frequent basis than the entire list of COCs. The MPs for the refinery shall include, at a minimum, all constituents identified as such in the SMP or any future amendments thereof. The Discharger may propose modification to the MPs as additional data become available concerning site-specific source characteristics and natural background water quality. However, modifications shall only be made upon written concurrence from the Executive Officer.

c. Maximum Allowable Concentration Limits (MACLs): MACLs are to be established for each COC in development of the SMP. Concentration limits for all COCs detected at the specified

monitoring wells are typically established using the background data set pursuant to Title 27 §20400. However, use of existing or even historical data to develop background values is inappropriate due to the number of releases over the many years of refinery operations, as it may be technologically and/or economically infeasible to cleanup all petroleum refining-related constituents in the groundwater to background concentrations (non-detect for synthetic organics). The MACLs are to be developed to protect the beneficial uses of shallow groundwater outside the refinery property lines. The applicable beneficial uses with the most stringent water quality objectives are related to shallow groundwater discharge to surface waters of Carquinez Strait and include uses involving the health of aquatic organism receptors and humans who consume aquatic organisms from these waters.

d. Point of Compliance (POC): Title 27 §20405 defines the POC as the "vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit." Based on the areal extent of groundwater impacts and the large number of WMUs involved, the appropriate POCs for the refinery are defined by the groundwater basin boundary hydraulic control capture systems that maintain a hydraulic capture zone to protect sensitive ecological receptors in the Bay and wetlands adjacent to the refinery. The perimeter POCs for each of these groundwater basins are shown in Figure 5.

e. Monitoring Points: Title 27 §20164 defines monitoring points as “a well, device, or location specified in the waste discharge requirements at which monitoring is conducted and at which the water quality protection standard under §20390 applies.” Monitoring points for compliance with the refinery-wide corrective action and detection monitoring program are to be identified in the SMP. These monitoring points generally consist of shallow groundwater monitoring wells located downgradient of the extraction well capture zone. Because refinery operations predate collection of groundwater chemistry data, background water quality monitoring locations do not exist at this site. Therefore, intra-well statistical comparisons will be used for evaluating trends in concentrations of COCs detected in groundwater monitoring wells, if needed. Concentrations of petroleum hydrocarbon-related COCs reported above MACLs are expected to exhibit decreasing trends over time as the refinery groundwater capture systems continue to operate and natural biodegradation processes take place.

2. The 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.

3. 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.

4. The Discharger shall maintain the WMUs so as to prevent a measurably significant increase in water quality parameters at POCs as provided in Title 27 §20420 and defined in §20164.

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

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

7. The Discharger shall comply with all applicable provisions of Title 27 that apply to the post-closure monitoring and maintenance of WMUs.

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

Control Systems Maintenance

9. The Discharger shall annually demonstrate and report pursuant to the SMP that all installed groundwater remedial systems including, but not limited to, groundwater containment, treatment, and/or extraction systems are functioning as intended and designed.

10. Containment, collection, drainage, and monitoring systems at the refinery shall be maintained as long as contaminated waste, soil, or water is present and poses a threat to water quality.

11. The Discharger shall maintain groundwater or remediation devices or design features installed in accordance with this Order such that they continue to operate as intended without interruption, with the exception of periodic maintenance.

12. If the Executive Officer determines the existence of an imminent threat to the beneficial uses of surface or subsurface waters of the State or waters of the United States, 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 any additional groundwater and leachate monitoring devices required to fulfill the terms of any future SMP issued by the Executive Officer.

14. The Discharger shall install, maintain in good working order, and operate efficiently any facility, alarm, groundwater extraction system, or hydraulic/contaminant migration control system necessary to assure compliance with this Order.

15. If it is determined by the Executive Officer, based on groundwater monitoring information, that water quality is impaired immediately outside the boundary of the GWPS, the Discharger will be required to submit and implement a site-specific groundwater corrective action proposal.

Monitoring Well Specifications

16. The Discharger shall conduct monitoring activities according to the SMP and as may be amended by the Executive Officer, to verify the effectiveness of groundwater remediation and containment systems and WMU closure systems.

17. All monitoring wells 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 and 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 used to construct the wells shall be submitted to the Regional Water Board upon completion of the wells.

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. 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 certifying that all flow measurement devices have been calibrated and will reliably achieve the accuracy required.

21. Laboratory Requirements: 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 the Analysis of Pollutants" (40 CFR Part 136) promulgated by U.S. EPA.

Surface Impoundment Specifications

22. If it is determined by the Executive Officer that any surface impoundment is degrading beneficial uses, the Discharger shall notify the Regional Water Board and propose corrective action as required under Title 27.

23. Water that accumulates within the AST berms located on top of nnits B, PS, H, W, and Z' shall be drained of ponded water within 48 hours. Units B, PS, and H are discharged to the WWTP and units W and Z’ are discharged to either the WWTP or to the stormwater surface impoundments. The Regional Water Board shall be notified within 24 hours if the ponded water cannot be drained within the 48-hour period. The wetland pond that has been created on a portion of Unit X is exempt from the ponding requirements of this specification. The emergency interim storage of stormwater/wastewater at units B and PS is necessary to prevent flooding and bypassing of the WWTP and is exempt from the ponding requirements of this specification.

Soil Contamination

24. The Discharger shall notify the Regional Water Board of any soil contamination, not previously identified in subsurface investigations, discovered during any subsurface investigation or excavation work conducted on refinery property, which 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 §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 an enforcement action pursuant to CWC §13268.

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

4. Detection Monitoring: The Discharger shall implement a Detection Monitoring Program (DMP) pursuant to Title 27 §20420, when required by the Regional Water Board such as after the completion of a Corrective Action Program. The SMP is intended to constitute the DMP for the refinery.

5. Corrective Action Monitoring: The Discharger shall develop a Corrective Action Monitoring Program for the West Valley, Central Valley, East Valley, and Reservoir Lakes groundwater basins, pursuant to Title 27 §20430. The program shall be designed to determine if the corrective action measures are functioning and demonstrate compliance with the corrective action program goals. The SMP is intended to include the Corrective Action Monitoring Program for the refinery.

6. Self-Monitoring Program: The Discharger shall submit a revised SMP (Part A and Part B). The SMP is intended to constitute a DMP pursuant to Title 27 §20420 and is designed to identify significant water quality impacts from the specified WMU and demonstrate compliance with the WQPS established pursuant to Title 27 §20390 for the WMU. The SMP may also contain elements of the Corrective Action Monitoring Program. The SMP may be amended as necessary at the discretion of the Executive Officer. The Discharger shall continue to follow the existing SMP developed under previous order until the Executive Officer approves a revised SMP that is equally protective of beneficial uses of groundwater and receiving surface waters.

   COMPLIANCE DATE: 60 days after the adoption of this Order

7. The Discharger shall submit a plan to address the storage, reuse, and/or dispose of non-hazardous contaminated soil. This plan shall be submitted for approval by the Executive Officer.

   COMPLIANCE DATE: 30 days after the adoption of this Order

8. 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 for waste management units vulnerable to sea level rise. 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 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: June 30, 2014, and every 5 years thereafter

9. At any time, the Discharger may file a written request (including supporting documentation) with the Regional Water Board's Executive Officer proposing modifications to an existing SMP. If the proposed modifications are acceptable and equally protective of human health and the environment, the Executive Officer may issue a letter of approval that incorporates the proposed revisions into the SMP.

10. Technical reports/plans submitted by the Discharger in compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted to the Regional Water Board on the schedule specified herein. These reports/plans shall consist of a letter report that includes the following:

    a. Identification of any obstacles that may threaten compliance with the schedule;

    b. In the event of non-compliance with any Prohibition, Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order; and

    c. In the SMP reports, an evaluation of the current groundwater monitoring system and a proposal for modifications as appropriate.

    All application reports or information to be submitted to the Executive Officer shall be signed and certified by a principal executive officer or the level of vice-president or an appropriate delegate.

11. All reports submitted pursuant to this Order must be in accordance with the State Water Board adopted regulations requiring electronic report and data submittal to the State's Geotracker database (CCR §§3890-3895). Email notification should be provided to Regional Water Board staff whenever a file is uploaded to Geotracker. In addition, the Discharger shall submit hard copies of reports to the Regional Water Board staff.

    The Discharger is responsible for submitting the following via Geotracker:

    a. All chemical analytical results for soil, water, and vapor samples;

    b. The latitude and longitude of any sampling point for which data is reported, accurate to within 1 meter and referenced to a minimum of two reference points from the California Spatial Reference System, if available, unless specified in the SMP;

    c. The surveyed elevation relative to a geodetic datum of any permanent sampling point;

    d. The elevation of groundwater in any permanent monitoring well relative to the surveyed elevations;

    e. A site map or maps showing the location of all sampling points;

f. The depth of the sampling point or depth and length of screened interval for any permanent monitoring well;

g. PDF copies of boring logs; and

h. PDF copies of all reports, work plan and other documents (the document, in its entirety [signature pages, text, figures, tables, etc.] must be saved to a single PDF file) including the signed transmittal letter and professional certification by a California Professional Civil Engineer or a Professional Geologist.

12. Upon request, monitoring results shall also be provided electronically in Microsoft Excel® to allow for ease of review of site data, and to facilitate data computations and/or plotting that Regional Water Board staff may undertake during the review process. Data tables submitted in electronic spreadsheet format will not be included in the case of file review and should therefore be submitted on CD and included with the hard copy of the report. Electronic tables shall include the following information:

    a. Well designations;

    b. Well location coordinates (latitude and longitude);

    c. Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, screen interval elevation, and a characterization of geology of subsurface the well is located in);

    d. Groundwater depths and elevations (water levels);

    e. Current analytical results by constituent of concern (including detection limits for each constituent);

    f. Historical analytical results (including the past five years unless otherwise requested); and

    g. Measurement dates.

    Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order related to surface impoundments and WMUs, submitted by the Discharger, shall also be provided to the Contra Costa County Hazardous Materials Program**.**

13. Contaminated Soil Management Plan: The Discharger shall continue to implement its Contaminated Soil Management Plan for managing non-hazardous contaminated soil discovered on refinery property during subsurface investigation or excavation work. This plan shall include descriptions of soil sampling, storage, and handling protocols and criteria for reusing non-hazardous contaminated soil within the refinery impacted soils.

14. 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 or landfill (CWC §13260(c)). The technical report shall describe the project, identify key changes to the design that may impact any portion of the WMU or landfill, and specify components of the design necessary to maintain integrity of the WMU or landfill cover and prevent water quality impacts.

    COMPLIANCE DATE: 120 days prior to any material change

15. Financial Assurance: The Discharger shall submit to the Regional Water 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. 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 or reasonably foreseeable 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: Submitted by March 31, 2016, and then every five years thereafter

16. Availability: A copy of this Order 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 WMUs or groundwater containment systems (CWC §13263).

17. Change in Ownership: In the event of any change in control or ownership of the refinery presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Regional Water Board upon a final change in ownership. To assume operation of this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of this Order within 30 days of the change of ownership. The request must contain the requesting entity's full legal name, mailing address, electronic address, and telephone number of the persons responsible for contact with the Regional Water Board. Failure to submit the request shall be considered a discharge without requirements, a violation of the CWC (CWC §13263, §13267 and §13268).

    COMPLIANCE DATE: 30 days after a change in refinery control or ownership

18. 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 Regional Water Board will review this Order periodically and may revise its requirements when necessary (CWC §13263).

19. 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 Regional Water Board, it shall promptly submit such facts or information (CWC §13260 and §13267).

20. 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 discharge (CWC §13263(g)).

21. Severability: Provisions of this Order are severable. If any provisions of this Order are found invalid, the remainder of this Order shall not be affected.

22. 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.

23. Reporting of Hazardous Substance Release: If any hazardous substance is discharged in or on any waters of the State or waters of the United States, or discharged or deposited where it probably will be discharged in or on any waters of the State or waters of the United States, 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 Emergency Management Agency (CAL EMA) 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; and

        vii. The persons/agencies notified.

24. Reporting Releases: Except for a discharge that is in compliance with this Order, 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 waters of the United States, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State or waters of the United States, shall immediately notify CAL EMA of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan 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 § 13271 unless the Discharger is in violation of a prohibition in the Basin Plan (CWC § 13271 (a)).

In the case of a release as defined above, the following must be provided to the Regional Water Board within five days of knowledge of the release:

i. Site map illustrating location and approximate size of impacted area;
ii. Photographs of the impacted area before and after remediation; and
iii. 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.

25. 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 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.

26. Entry and Inspection: The Discharger shall allow the Regional Water Board, 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 (CWC §13267).

27. 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 §404 of the Clean Water Act and discharge subject to a general NPDES permit) must file an NPDES permit application with the Regional Water Board (40 CFR §122.21).

28. 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 (CWC §13260). A material change includes, but is not limited to, the following:

    a. Addition of a major industrial waste discharge 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 which would significantly alter the characteristics of the waste;

    c. Significant change in the disposal area (e.g., moving the discharge to another drainage area, to a different water body, or to a disposal area significantly removed from the original area) potentially causing different water quality or nuisance problems;

    d. Increase in flow beyond that specified in the WDRs; or

    e. Increase in area or depth to be used for solid waste disposal beyond that specified in the WDRs (CCR Title 23 §2210).

29. 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 (CWC §13263(f)).

30. General Prohibition: Neither the treatment nor the discharge of waste shall create a pollution, contamination or nuisance, as defined by CWC §13050, CWC §13263, and Cal. Health & Safety Code §5411.

31. 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 Richter Magnitude 7 or greater at or within 30 miles of the refinery. The report shall describe the containment features, groundwater monitoring, and control facilities potentially impacted by the static and seismic deformations of any WMU or groundwater containment system. Damage to any WMU or groundwater containment system, which may impact waters of the State or waters of the United States, 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 negative 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

32. 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.

33. This Order supersedes and rescinds Order No. 95-234.

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

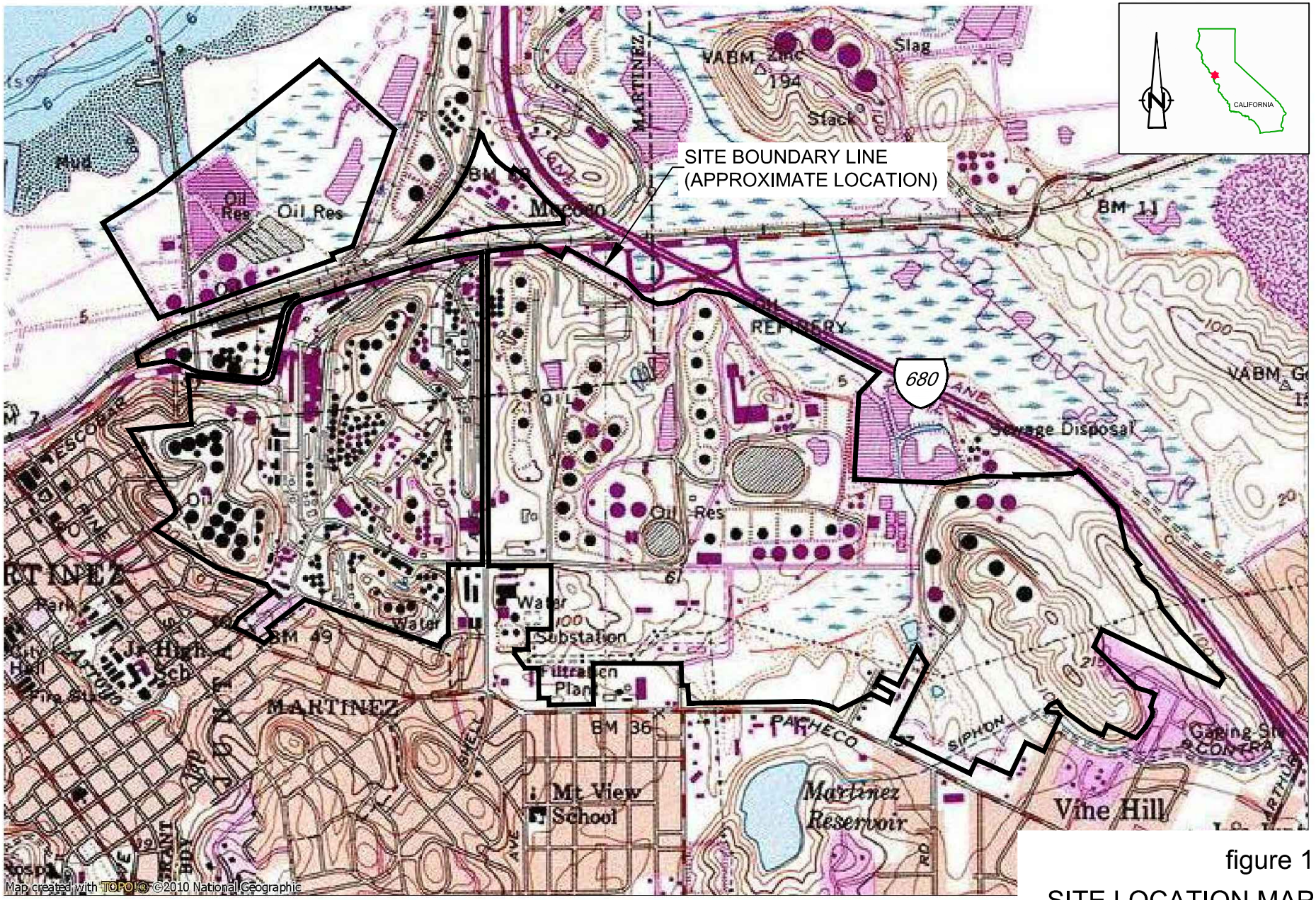
I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 9, 2013.

Digitally signed by Bruce H. Wolfe
Date: 2013.10.10 19:26:02 -07'00'

Bruce H. Wolfe
Executive Officer

Attachments:

Figure 1 - Location Map
Figure 2 - Groundwater Basins
Figure 3 - Points of Compliance Map
Figure 4 - Waste Management Unit Location Map
Figure 5 - Stormwater Surface Impoundment Map



0.0 0.1 0.2 0.3 0.4 0.5 miles

0.0 0.5 km

figure 1

SITE LOCATION MAP
SHELL MARTINEZ REFINERY
Martinez, CA

060197-2013(PRES002)GN-SO005 JUL 30/2013

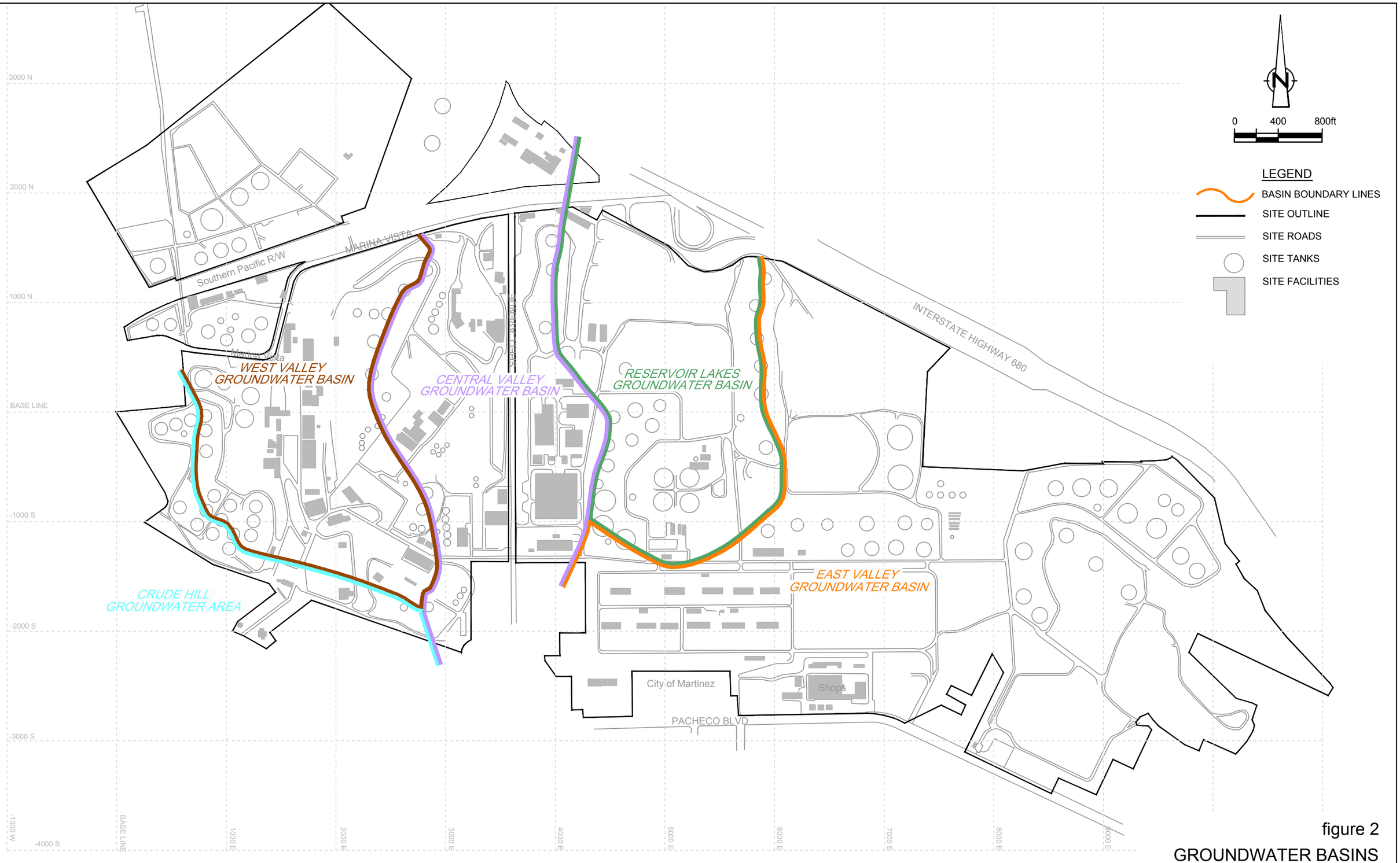


figure 2

GROUNDWATER BASINS
SHELL MARTINEZ REFINERY
Martinez, California

SOURCE: BASE MAP FROM WESTHOLLOW TECHNOLOGY CENTER
GROUNDWATER CONTOUR MAP FOURTH QUARTER 2010.

060197-2013(PRES002)GN-SO001 AUG 6/2013

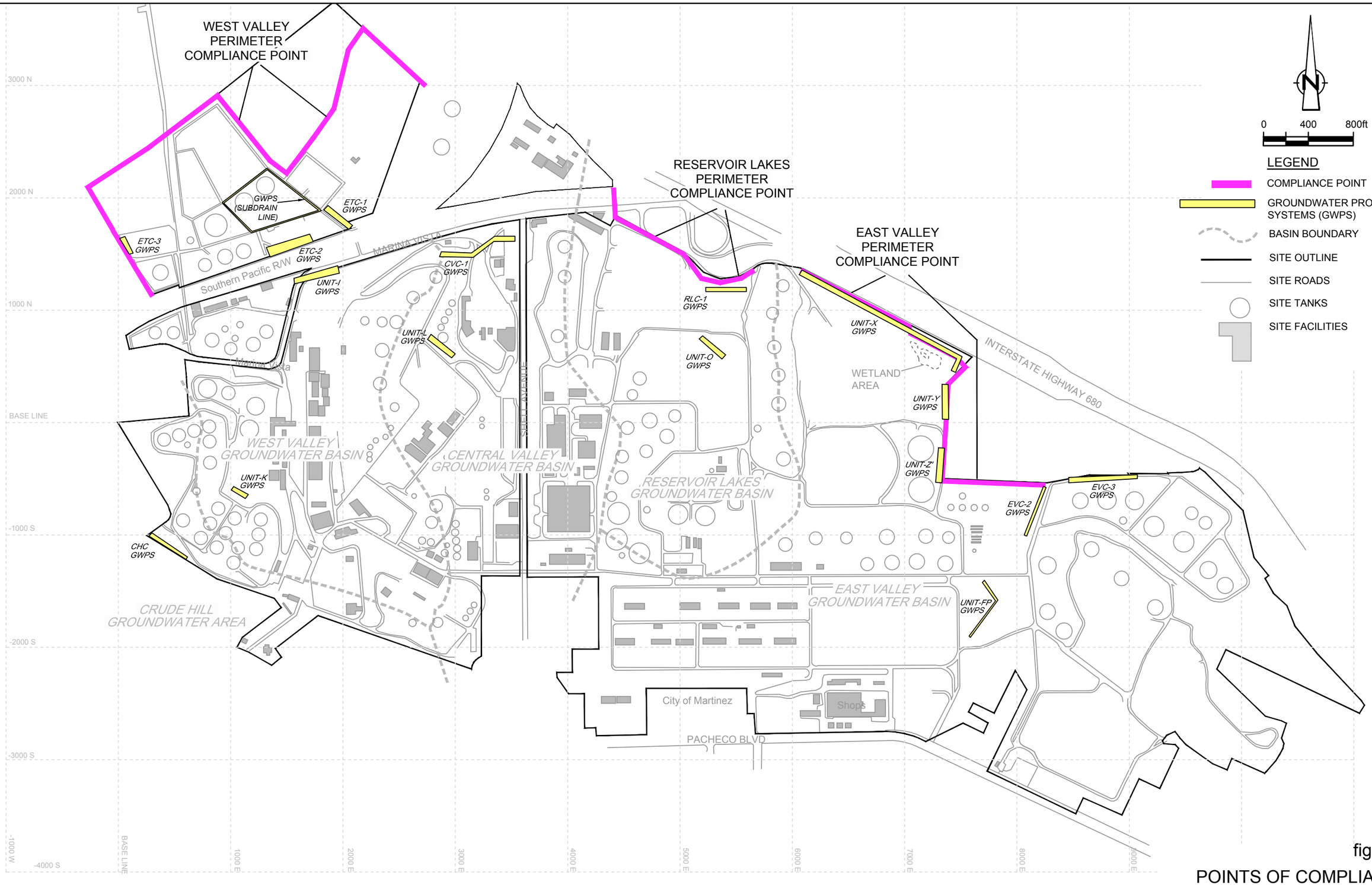


figure 3

POINTS OF COMPLIANCE
SHELL MARTINEZ REFINERY
Martinez, California

SOURCE: BASE MAP FROM WESTHOLLOW TECHNOLOGY CENTER GROUNDWATER CONTOUR MAP FOURTH QUARTER 2010.

060197-2013(PRES002)GN-SO004 AUG 7/2013

figure 4

WASTE MANAGEMENT UNIT
AND WASTE WATER TREATMENT POND LOCATION MAP
SHELL MARTINEZ REFINERY
Martinez, California

SOURCE: BASE MAP FROM WESTHOLLOW TECHNOLOGY CENTER
GROUNDWATER CONTOUR MAP FOURTH QUARTER 2010.

060197-2013(PRES002)GN-SO002 AUG 7/2013

figure 5

STORMWATER SURFACE IMPOUNDMENT MAP
SHELL MARTINEZ REFINERY
Martinez, California

SOURCE: BASE MAP FROM WESTHOLLOW TECHNOLOGY CENTER GROUNDWATER CONTOUR MAP FOURTH QUARTER 2010.

060197-2013(PRES002)GN-SO003 AUG 6/2013