CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER No. R2-2013-0033

UPDATED WASTE DISCHARGE REQUIREMENTS and
RESCISSION OF ORDER No. 94-070

VALERO REFINING COMPANY - CALIFORNIA
VALERO BENICIA REFINERY
3400 EAST SECOND STREET
BENICIA, SOLANO COUNTY

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

OWNERSHIP AND LOCATION

1. Valero Refining Company - California (hereinafter called Valero or the Discharger), a subsidiary of Valero Energy Corporation, owns and operates the Valero Benicia Refinery (hereinafter called the refinery or site). The refinery occupies approximately 900 acres on the north side of Carquinez Strait in Solano County, as shown in Figure 1. The City of Benicia lies to the southwest of the refinery, to the east are industrial and commercial land uses, and to the north and west is open space and residential development. Until May 15, 2000, this refinery, which began operating in 1969, was known as the Exxon Benicia Refinery.

PURPOSE OF ORDER UPDATE

2. The 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:

   - Rescinds and supersedes outdated WDRs,
   - Updates refinery ownership information,
   - Updates the requirements for continued maintenance and monitoring of designated waste management units (WMUs) (also referred to as ponds or surface impoundments), and
   - Updates the water quality monitoring program for the WMUs.

REGULATORY HISTORY

3. Industrial wastes from the refinery historically were discharged into wastewater impoundments that are designated as WMUs pursuant to Title 27. The Water Board has adopted WDRs to regulate such discharges associated with designated WMUs. In addition, the Water Board has adopted Site Cleanup Requirements (SCRs) to require cleanup of spills and leaks that are not associated with the designated WMUs.

   The Water Board has regulated the refinery under four different orders (two WDRs and two SCRs):

a) Order No. 91-094 was WDRs that required a comprehensive investigation of soil and groundwater in 12 areas of the site to assess the impact of refinery operations on subsurface conditions. The order also required quarterly groundwater monitoring at the site.
b) Order No. 94-070 added to the requirements of Order No. 91-094 and required documentation and actions related to closure or monitoring of the WMUs, including establishment of water quality protections standards, the closure and monitoring of the Burma Road Stockpile and Gate 5 Stockpile, subsurface investigation of the Final Pond at the wastewater treatment plant (WWTP), and continued groundwater monitoring at the WWTP.
c) Order No. 94-144 is SCRs that also added to the requirements of Order No. 91-094 and specified cleanup requirements for investigation and cleanup of spills, leaks, and contamination of soil and groundwater at the Fuels Terminal.
d) Order No. 97-077 rescinded Order No. 91-094 and required additional investigation of areas with known releases or contamination present as well as evaluation of remedial actions for the site. Order No. 97-077 also required a revised groundwater monitoring program.

4. This Order rescinds and supersedes Order No. 94-070 except for enforcement purposes. The provisions and specifications required by Order No. 94-070 have been satisfactorily completed. This Order does not update or modify any of the requirements in Order Nos. 94-144 or 97-077.

5. The Water Board has also adopted two federal permits under the National Pollutant Discharge Elimination System (NPDES). Order No. R2-2009-0079 (NPDES No. CA0005550) was adopted on November 18, 2009. This permit regulates industrial activity discharges of effluent from the Discharger's wastewater treatment system, all stormwater runoff from process areas, extracted groundwater from onsite remediation processes, and monitoring well purge water to Suisun Bay and Carquinez Strait. The Water Board adopted Order No. R2-2012-0096 (NPDES No. CA0038849) on December 12, 2012, for municipal and industrial wastewater discharges. This permit implements wasteload allocations and requirements of the total maximum daily loads (TMDLs) for mercury and polychlorinated biphenyls.

SITE DESCRIPTION AND HISTORY

6. The refinery produces petroleum hydrocarbon products, by-products, and intermediates, and is classified as a cracking refinery as defined by the U.S. Environmental Protection Agency (U.S. EPA) in Code of Federal Regulations (CFR) Title 40 §419.20. The refinery processes up to 165,000 barrels of oil per day.

7. The refinery has been divided into four geographic sectors comprised of 10 different areas (see Figure 2). The sectors are identified as follows:

   - the Main Refinery (Areas 3-5, 7-9, and 11)
   - the Crude Oil Storage Area (COSA, Area 6),
   - the WWTP ponds (Area 1)
   - the Fuels Terminal (Area 2)

   The WWTP ponds are used either continuously or intermittently to store stormwater and treated wastewater prior to discharge. The Fuels Terminal receives refined petroleum products (mostly gasoline and diesel) from the nearby day tank storage field at the refinery. Products are shipped from the Fuels Terminal to other bulk terminals and service stations via pipelines and tanker trucks.

All sectors have impacted soil and/or groundwater from historic releases, and corrective action steps have been implemented. Areas 10 (Burma Road Stockpile), 12 (Gate 5 Stockpile), and 13 (Old Dock Pipeline) are closed under a Water Board staff "No Further Action" letter dated January 21, 2010.

Geologic Setting

8. The COSA was constructed by cutting and filling the pre-existing hillside to the south of the main refinery. The ground surface elevation ranges from 87.5 to 187.3 feet above mean sea level (msl) and is underlain by sedimentary rocks consisting of thinly interbedded mudstone, sandstone, and shale of the Panoche Formation. Colluvial soils overlie the bedrock and are approximately 5 to 10 feet thick. Artificial fill overlies naturally-occurring geologic units in more than half of the COSA. The fill, which ranges in thickness from inches to more than 50 feet, was derived from areas where the bedrock was excavated from the surfaces and reused as engineered fill.

9. The WWTP is located southeast of the Main Refinery and was originally marshland reclaimed by placement of fill materials in the 1960s. Native material below the fill consists of silty clay with sand, gravel, and peat, which ranges in thickness from 25 feet to 85 feet below ground surface (bgs). The surface topography is relatively flat, with elevations ranging from 0 to 9 feet above msl.

Seismicity

10. The Green Valley Fault is located approximately one mile east of the site and is zoned as an active fault along which displacement has occurred in the last 200 years. The fault has an approximate predicted maximum credible earthquake of 7.0 on the Richter magnitude scale. Based on computer models generated for the WWTP and COSA stormwater retention and emergency firewater ponds, slope deformation and lateral displacement can be expected in the event of a 7.0 magnitude earthquake.

Hydrogeology and Hydrology

11. The primary water-bearing units at the COSA include the artificial fill, colluvium, and underlying bedrock units. In the bedrock, groundwater occurs in a thin layer approximately 2 to 5 feet thick and locally in fractures. Groundwater elevations have ranged from approximately 63.6 feet above msl to 187.3 feet above msl. The groundwater flow is generally to the northwest and west.

12. Two water-bearing zones have been identified beneath the WWTP. The shallow water-bearing zone is unconfined and is encountered between approximately 1 and 5 feet bgs. The deeper water-bearing zone is found between 75 and 100 feet bgs and appears to be hydraulically connected to Carquinez Strait. Shallow groundwater flow directions vary seasonally depending on the water level in adjacent Sulphur Springs Creek, the water level in the wetlands to the east, and water levels in the retention ponds. A tidal influence test found water level fluctuations in the WWTP were less than 0.25 feet and unlikely to have a meaningful effect on groundwater flow.

13. Two creeks run through the refinery: Sulphur Springs Creek near the eastern boundary of the Main Refinery area and the western boundary of the WWTP and intermittent Beaver Creek near the western and southern boundary of the Main Refinery area.

Waste Management Units

14. The COSA and WWTP sectors contain WMUs that are regulated under the Title 27 §20420 detection monitoring program.

15. The COSA (Figure 3) contains eight crude oil storage tanks, a crude oil pumping pad, pipelines, and four WMU ponds that were originally named Lake Lee and Lake Spalding. Lake Lee was subdivided into three smaller ponds in 1997. These three unlined ponds store stormwater (prior to WWTP treatment) and treated effluent (if it is not certain that the NPDES effluent standards have been met). After further analysis of treated effluent, the contents of the three ponds are either discharged into Carquinez Strait or pumped back to the WWTP for recirculation. The fourth and northernmost pond (previously Lake Spalding) is lined and is used to store emergency fire water.

16. The WWTP (Figure 4) treats wastewater from the refinery, which includes chemical process water, oily and non-oily process wastewater, stormwater, and extracted groundwater. The WWTP consists of four unlined ponds surrounded by an earthen perimeter dike, a biological/oxidation unit, a primary separation unit, a selenium treatment unit, and the wastewater laboratory. The four WMUs are identified as follows:

    - Retention Pond
    - Equalization Pond
    - Final Pond
    - 20-Year Pond

    In 1994, a new dike was installed to divide the original Final Pond into two ponds: the new 20-Year Pond to back up the Retention Pond for extra storm capacity, and a smaller Final Pond.

    During heavy rain events, industrial stormwater and process water may be diverted to the Retention, Equalization, and 20-Year ponds as needed. The Final Pond is currently used for surge capacity and storage of final effluent from the WWTP prior to pumping to Carquinez Strait.

Historical Releases and Remedial Actions

17. Documented discharges and corrective actions at the COSA are as follows:

    - Placement of a 5 cubic yard stockpile of tank-bottom sludge in the southeast corner of Lake Lund (located west of Lake Lee) in 1972. The sludge was determined to contain trace amounts of lead and was capped in place shortly afterwards;
    - Placement of 10,000 cubic yards of biosludge from the Retention and Final ponds on the ground surface in Lake Lund in 1974;
    - A 500-barrel release of crude oil into the Tank 1704 firewall was subsequently removed in 1989; and
    - A 6,750-barrel release of crude oil into the Tank 1702 firewall in 2003 was remediated by the excavation of approximately 470 tons of soil.

    Primary constituents detected in groundwater at the COSA are diesel-range total petroleum hydrocarbons (TPHd); gasoline-range TPH (TPHg); benzene, toluene, ethylbenzene, and xylenes (BTEX); and methyl-tert butyl ether (MTBE). Water quality protection standards (WQPS) established for the COSA have not been exceeded in any point of compliance (POC) wells since 2005.

18. Previous uses of the WWTP ponds are listed as follows:

    - The Retention and Equalization ponds were used to store stormwater and untreated oily and process wastewater; and
    - The Final Pond (prior to creation of the 20-Year Pond) was used for equalization of treated wastewater prior to discharge to Carquinez Strait.

    Historically, sludge from the biological/oxidation unit was stored immediately to the northwest of the unit. The sludge contained elevated concentrations of petroleum hydrocarbons that leached into groundwater at this location. The approved remedial action was installation of additional monitoring wells in this area and leak detection monitoring.

    Contamination was also found in dredged sludge, pond sediments, soil samples collected from beneath the ponds, and in pond water. Elevated concentrations of metals, petroleum hydrocarbons, and volatile organic compounds (VOCs) were detected in pond media prior to improvements and modifications made to the WWTP in 1991.

    To monitor potential pond impacts on groundwater and surface water after improvements were made, an enhanced detection monitoring program was instituted, and WQPS were established. The enhanced leak detection plan and WQPS were approved by the Water Board in 2002. Since the enhanced leak detection monitoring program was instituted, only TPH-d has been consistently detected, and concentrations have been below the WQPS.

19. Order No. 94-070 specified that classification of the WWTP and COSA ponds (per CCR Title 23, Division 3, Chapter 15 Requirements) was not required if further investigation showed no impact to soil or groundwater. It was determined that the COSA ponds are exempt from classification since historic monitoring has not shown groundwater contamination from pond contents. The WWTP ponds were approved for leak detection monitoring after the Discharger demonstrated that prescriptive standards required by CCR Title 23 for unlined ponds was unreasonably and unnecessarily burdensome.

20. Corrective actions and/or detection monitoring have been performed in sectors not associated with the WWTP (Area 1) and COSA (Area 6) WMUs. These areas include the Fuels Terminal (Area 2) and Main Refinery (Areas 3-5, 7-9, and 11). Corrective actions in these areas were required by the site's two separate SCR orders.

Groundwater Monitoring Program

21. Groundwater monitoring has been conducted at the site since 1992. A single groundwater monitoring program (GMP) has been developed to cover the entire site. The GMP incorporates the combined sampling and analysis requirements of the WDRs and SCRs as well as additional requirements made by the Water Board in 2002 in response to the Remedial Action Plan approved in 2001. The GMP presents a systematic approach for long-term groundwater monitoring at the refinery and addresses surface water and sediment sampling as well. The GMP is updated on a regular basis and submitted for Water Board concurrence, most recently in 2010. The 2010-approved GMP is not amended by this Order, remains in effect, and is attached to this Order (Self-Monitoring and Reporting Program).

22. Ongoing groundwater monitoring at the refinery, including leak detection monitoring for the WWTP and the COSA, as well as sediment sampling at the WWTP, are regulated under this Order. Monitoring activities associated with the Main Refinery and Fuels Terminal is addressed in the site's separate SCR orders.

BASIN PLAN

23. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the 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 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

24. 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

25. The refinery is not located in a designated groundwater basin. Groundwater production in this area is marginal for livestock or municipal water supply due to the low yield (less than 200 gallons per day), making it unlikely that a single well could produce an average sustained yield of 200 gallons per day for drinking water supply purposes (State Water Board Resolution No. 88-63 exemption criterion 1(c) and Water Board Resolution No. 89-39). Also, the high specific (electrical) conductivity of the shallow groundwater in the vicinity of the WWTP indicates that total dissolved solids (TDS) concentrations are greater than 5000 milligrams per liter (mg/L). Resolution No. 89-39 set 3000 mg/L as a maximum TDS concentration for a municipal or domestic water supply in its Sources of Drinking Water Policy. There is no historical, existing, or planned use of groundwater as a source of drinking water at the refinery, though shallow groundwater in the COSA may be potentially suitable for such use.

    There is the potential, however, for deep groundwater beneath the WWTP to discharge into Carquinez Strait. Therefore, the surface water beneficial uses named in the Basin Plan for these bodies of water are applicable to groundwater in POC monitoring wells near the wetland interface with the Strait.

26. The potential beneficial uses of deep groundwater underlying the WWTP and shallow groundwater beneath the COSA are:

    a. Industrial process and service supply
    b. Agricultural water supply
    c. Municipal and domestic supply

27. The existing and potential beneficial uses of surface water in Suisun Bay, Carquinez Strait, Beaver Creek, and Sulphur Spring Creek are:

    a. Ocean, commercial, and sport fishing
    b. Shellfish harvesting
    c. Estuarine habitat
    d. Fish migration
    e. Preservation of rare and endangered species
    f. Fish spawning
    g. Wildlife habitat
    h. Water contact recreation
    i. Non-contact water recreation
    j. Industrial service supply
    k. Industrial process supply
    l. Navigation
    m. Freshwater replenishment

CALIFORNIA ENVIRONMENTAL QUALITY ACT

28. Adoption of this Order is exempt from the California Environmental Quality Act (CEQA). Under CEQA Guidelines §15061(b)(3), CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. This Order requires the Discharger to continue site monitoring and maintenance activities, and these will not result in any additional actions that may have an effect on the environment beyond the existing baseline conditions.

NOTICE AND MEETING

29. The Water Board has notified the Discharger and interested 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 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 is prohibited.

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

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 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). 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 Water Board staff. Minor excavation or reconfiguration activities such as for installation of signs or minor routine maintenance and repair do not require prior 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 Title 27 §20164.

9. The discharge of leachate or wastewater (including from surface impoundments, process waters, and runoff from the refinery’s operation areas) that: 1) have 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) require a higher level of containment than provided by the unit; 4) are "restricted hazardous wastes", or 5) impair the integrity of the containment structures, are prohibited per Title 27 §20200(2)(b).

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 position where they may 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, per Title 27 §20310(a).

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

    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 Valero'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 WWTP, pursuant to Title 27 §20430. 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 refinery.

3. At any time, the Discharger may file a written request (including supporting documentation) with the 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 at the COSA and WWTP 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 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 POCs as provided in Title 27 §20420.

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 or WWTP upset.

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 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 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 these WDRs.

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 Officer, to verify the compliance of WMU ponds with updated WQPS (See Provision C.6).

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 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.

Soil Contamination

20. The Discharger shall notify the Water Board of any soil contamination not previously identified in subsurface investigations that is discovered during any subsurface investigation or excavation work conducted on refinery 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 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 enforcement action pursuant to CWC §13268.

3. Self-Monitoring and Reporting Program**:** The Discharger shall comply with the SMP attached to this Order (Part A and Part B). Part B of the SMP references the approved GMP, which is intended to constitute a detection monitoring plan 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 be amended as necessary at the discretion of the Executive Officer.

   COMPLIANCE DATE: Immediately

4. Revision of the Groundwater Monitoring Program: The Discharger shall submit an updated GMP, acceptable to the Executive Officer, based on any planned construction or earthwork at the refinery that may result in the abandonment, destruction, or relocation of any groundwater monitoring well that is part of the GMP program. 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.

   COMPLIANCE DATE: 90 Days After Work is Complete

5. Evaluation of WWTP Sediment Sampling: The Discharger shall submit a technical report, acceptable to the Executive Officer, evaluating sediment sampling procedures for the WWTP ponds, and either establish cleanup goals for pond sediment, or provide technical justification for why sampling is no longer needed based on analytical data, downgradient groundwater monitoring well data, and protection of nearby Sulphur Springs Creek.

COMPLIANCE DATE: January 15, 2014

6. Update Water Quality Protection Standards: For all WMUs at the COSA and WWTP, The Discharger shall update existing WQPS in accordance with either the 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 constituents of concern (under Title 27 §20395), the concentration limits (under §20400), and the Point of Compliance and all Monitoring Points (under §20405). This WQPS shall apply during the active life of the WMUs, the closure period, the post-closure maintenance period, and during any compliance period (under §20410).

   COMPLIANCE DATE: March 15, 2014

7. 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 WWTP. 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

8. 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 (CWC §13260(c)). 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

9. Financial Assurance: The Discharger shall submit to the 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 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 change 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: March 31, 2014 and every five years thereafter

10. 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).

11. Change in Ownership: In the event of any change in control or ownership of the site 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 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 Water Board. Failure to submit the request shall be considered a discharge without requirements, a violation of CWC §13263 and §13267.

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

12. Revision: This Order is subject to 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 Water Board will review this Order periodically and may revise its requirements when necessary (CWC §13263).

13. Submittal Revisions: Where a 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 Water Board, it shall promptly submit such facts or information (CWC §13260 and §13267).

14. 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 (CWC §13263(g)).

15. 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 (CWC §13263(f)).

16. 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 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 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 CAL EMA that is required pursuant to the Health and Safety Code.

17. 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 CAL EMA of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with §8574.7) of Chapter 7 of Division 1 of Title 2 of the Government Code, and immediately notify the 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)).

18. Release Reporting Requirements: In the case of a release defined above the following must be provided to the Water 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.

19. 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.

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 (CWC §13263 and §13267). 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 (CWC §13263 and §13267).

21. Entry and Inspection: The Discharger shall allow the 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).

22. 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 Water Board (40 CFR §122.21).

23. Change in Discharge: In the event of a material change in the character, location, or volume of a discharge, the Discharger shall file with this 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; or
d. Increase in flow to a WMU or water body beyond that specified in the WDRs.

24. 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 (CCR Title 23 §2230).

25. 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)).

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

27. 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.

28. 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 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 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

29. 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.

30. This Order supersedes and rescinds Order No. 94-070.

31. 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: 2013.10.22 16:31:39 -07'00'

Bruce H. Wolfe
Executive Officer

Attachments:

Self-Monitoring and Reporting Program, Part A and B
Figure 1 - Location Map
Figure 2 - Monitoring and Sampling Locations
Figure 3 - Crude Oil Storage Area
Figure 4 - Wastewater Treatment Plant

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING AND REPORTING PROGRAM for:

VALERO REFINING COMPANY - CALIFORNIA
VALERO BENICIA REFINERY
3400 EAST SECOND STREET
BENICIA, SOLANO COUNTY

ORDER NO. R2-2013-0033

PART A: GENERAL MONITORING REQUIREMENTS

This combined self-monitoring and reporting program (SMP) specifies monitoring and reporting programs necessary to fulfill obligations under both the refinery's waste discharge requirements (WDRs) and site cleanup requirements (SCRs), including:

a) General monitoring requirements for waste management units (WMUs) under the WDRs and SCRs (Part A);
b) Self-monitoring report content and format (Part A);
c) Self-monitoring report submittal frequency and schedule (Part B); and
d) Monitoring locations, parameters, analytes and frequency for programs under the WDRs and SCRs (Part B).

A. AUTHORITY AND PURPOSE

For discharges of waste to land, water quality monitoring is required pursuant to the California Code of Regulations (CCR), Division 2, Title 27, Subdivision 1, chapter 3, subchapter 3, sections (§) 20380 through 20435. The principal purposes of an SMP include: 1) to document compliance with WDRs and prohibitions established by the Water Board, 2) to facilitate self-policing by the discharger in the prevention and abatement of pollution arising from the waste discharge, 3) to develop or assist in the development of effluent standards of performance and toxicity standards, and 4) to assist the discharger in complying with the requirements of title 27. Additionally, under California Water Code (CWC) §13304, Valero is required to implement corrective actions and monitor the effectiveness of the implemented corrective actions under this SMP.

B. MONITORING REQUIREMENTS

Monitoring refers to the observation, inspection, measurement, and/or sampling of environmental media and WMUs. The monitoring program designed to evaluate the potential release of wastes from WMUs is included in the WDRs. Monitoring programs designed to evaluate the effectiveness of corrective actions implemented under CWC §13304 are also described in the SMP. The following defines the types of monitoring that may be required.

Monitoring of Environmental Media

The Water Board may require monitoring of groundwater, surface water, vadose zone, stormwater, and any other environmental media that may pose a threat to water quality or provide an indication of a water quality threat at the refinery.

Sample collection, storage, and analyses shall be performed according to the most recent version of U.S. EPA-approved methods or in accordance with the 2010 Groundwater Monitoring Plan or subsequent revisions approved by Water Board staff. Analytical testing of environmental media required by this SMP shall be performed by a State-approved laboratory for the required analyses. The director of the laboratory whose name appears on the certification shall be responsible for supervising all analytical work in his/her laboratory and shall have signing authority for all laboratory data reports or may designate signing of all such data included in reports submitted to the Water Board.

All monitoring instruments and devices used to conduct monitoring in accordance with this SMP shall be maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once every year.

Receiving waters refer to any surface water which actually or potentially receives surface or groundwater that pass over, through, or under waste materials or impacted soils. In this case, the groundwater beneath and adjacent to the WMU areas and Sulphur Springs Creek are receiving waters.

Standard Observations

Standard observations refer to observations within the limits of each WMU, at their perimeter, and of the receiving waters beyond their limits. Standard observations include:

1. Waste Management Units:
   a. Evidence of pond water overflow;
   b. Evidence of odors, including their presence or absence, characterization, source, and distance of travel from source; and
   c. Evidence of oily sheen on pond water surface.

2. Perimeter of Waste Management Units:
   a. Evidence of liquid leaving or entering the WMU, estimated size of affected area and flow rate (show affected area on map);
   b. Evidence of odors, including their presence or absence, characterization, source, and distance of travel from source; and
   c. Evidence of pond perimeter dike erosion.

3. Receiving Waters:
   a. Floating and suspended materials of waste origin, including their presence or absence, source, and size of affected area;
   b. Discoloration and turbidity: description of color, source, and size of affected area;
   c. Evidence of odors, presence or absence, characterization, source, and distance of travel form source;
   d. Evidence of beneficial use, such as presence of water associated with wildlife;
   e. Estimated flow rate; and
   f. Weather conditions, such as estimated wind direction and velocity, total precipitation.

Facilities Inspections

Facilities inspections refer to the inspection of all containment and control structures and devices associated with the environmental monitoring of the refinery. Containment and control facilities include the WMUs as part of the WWTP and COSA.

Quality Assurance/Quality Control (QA/QC) Sample Monitoring

Valero shall collect duplicate, field blank, equipment blank (if appropriate) and trip blank samples for each monitoring event at the frequency specified in the approved GMP.

C. REPORTING REQUIREMENTS

Reporting responsibilities of waste dischargers under WDRs and SCRs are specified in CWC §13225(a), §13267(b), §13383, and §13387(b) and this Water Board's Resolution No.73-16 and Title 27. At a minimum, each self-monitoring report (SMR) shall include the following information, unless the information is already contained in Geotracker or in a GMP approved by Water Board staff:

1. Transmittal Letter: A cover letter transmitting the essential points of the monitoring report shall be included with each monitoring report. The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall also certify the completion of all monitoring requirements. The letter shall be signed by the Discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

2. Graphic Presentation: The following maps, figures, and graphs (if applicable) shall be included in each SMR to visually present data collected pursuant to this SMP:
   a. Plan-view maps showing all monitoring and sampling locations, WMUs, surface water bodies, and site/property boundaries;
   b. Groundwater level/piezometric surface contour maps for the shallow groundwater-bearing zone of interest showing inferred groundwater gradients and flow directions under/around each WMU, based upon the past and present water level elevations and pertinent visual observations; and
   c. Maps, figures, photographs, cross-sections, graphs, and charts necessary to visually demonstrate the appropriateness and effectiveness of sampling, monitoring, characterization, investigation, or remediation activities relative to the goals of this SMP.

3. Tabular Presentation: The following data (if applicable) shall be presented in tabular form and included in each SMR to show a chronological history and allow quick and easy reference:
   a. Well designation;
   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, and screen interval elevation);
   d. Groundwater depths;
   e. Groundwater elevations;
   f. Current analytical results (including analytical method and detection limits for each constituent); and
   h. Measurement dates.

4. Compliance Evaluation Summary and Discussion:

   a. A summary and certification of completion of all environmental media monitoring, standard observations, and facilities inspections;
   b. The quantity and types of contaminants captured by the groundwater extraction systems and hydrocarbon recovery program, and how impacted groundwater was disposed of during the reporting period, if applicable;
   c. The signature of the laboratory director or his/her designee in laboratory data deliverables indicating that he/she has supervised all analytical work in his/her laboratory; and
   d. A discussion of the field and laboratory results that includes the following information:

      (1) Data interpretations of trends compared to water quality protection standards;
      (2) Newly implemented or planned investigations and remedial measures;
      (3) Data anomalies;
      (4) Variations from protocols;
      (5) Condition of wells; and
      (6) Effectiveness of control facilities.

D. ANNUAL REPORTING

The Discharger shall submit an annual self-monitoring report to the Water Board covering the previous calendar year. The annual report must summarize all monitoring, investigation, and remedial activities that have occurred in the previous year. The annual report shall include the following information for each monitoring event during the year required pursuant to this SMP, in addition to the transmittal letter and appendices described above in Section C:

Provide a discussion of the field and laboratory results that includes the following information:

a. Data Interpretations;
b. Newly implemented or planned investigations and remedial measures;
c. Data anomalies;
d. Variations from protocols; and
e. Conditions of wells.

E. CONTINGENGY REPORTING

1. The Discharger shall report any seepage from the surface of any WMU or discharge prohibited in the WDRs or SCRs immediately after it is discovered to the Water Board by calling the Spill Hotline at 1-800-852-7550 and by sending an email to Rb2SpillReports@waterboards.ca.gov. The Discharger shall submit a written report with the Water Board within five days of discovery of any discharge. The written report shall contain, at a minimum, the following information:

   a. a map showing the location(s) of discharge;
   b. approximate flow rate;
   c. a description of the nature of the discharge; and
   d. corrective measures underway or proposed.

2. The Discharger shall submit an email notification to the Water Board within seven working days of determining that a statistically significant difference occurred in the sample result compared against the historical dataset and above an approved WQPS in a point of compliance

(POC) monitoring well. The procedures on when to conduct a statistical analysis are documented in the GMP.

a. The Discharger shall immediately re-sample at the compliance point where the exceedance was observed, evaluate the result against the historical dataset and re-analyze if results are not consistent with historical trends.

b. If re-sampling and analysis confirm the exceedance through statistical analysis, the Discharger shall document this in the text of the next Annual Report and notify the Water Board in writing within 21 days of receiving results. In this letter, the Discharger shall evaluate whether any re-sampling or additional corrective measures need to be implemented.

F. ELECTRONIC REPORTING

1. **Geotracker Requirements**
The State Water Board has adopted regulations requiring electronic report and data submittal to Geotracker. The text of the regulations can be found at the following URL:
http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/index.shtml

Parties responsible for cleanup of pollution at sites overseen by the Water Board are required to submit over the internet, the following information electronically to Geotracker:

a. Groundwater analytical data;
b. Surveyed locations of monitoring wells;
c. Boring logs describing monitoring well construction; and
d. Portable data format (PDF) copies of all reports (the document in its entirety [signature pages, text, figures, tables, etc.] must be saved as a single PDF file).

Note that the Discharger is still responsible for submitting one hard copy of all reports pursuant to this Order. The Water Board may require direct submittal of electronic reports and correspondence in addition to the State Water Board's Geotracker requirements.

2. **Data Tables**
Upon request, monitoring results shall also be provided electronically in Microsoft Excel or similar spreadsheet format to provide an easy to review chronological summary of site data, and to facilitate data computations and/or plotting that Water Board staff may undertake during the review process. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review and should therefore be submitted on CD or diskette and included with the print 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, and screen interval elevation);
d. Groundwater depths and elevations (water levels);
e. Separate-phase product thicknesses and elevations;

f. Current analytical results by constituent of concern (including detection limits for each constituent);
g. Historical analytical results (including the past four sampling events); and
h. Measurement dates.

G. MAINTENANCE OF WRITTEN RECORDS

1. **Recordkeeping**
   The following records not included in the groundwater monitoring report shall be also maintained:

   a. Method and time of water level measurements;
   b. Purging methods and results including the type of pump used, pump placement in the well, pumping rate, equipment and methods used to monitor field pH, temperature, and electrical conductivity, calibration of the field equipment, pH temperature, and turbidity measurements, and method of disposing of the water; and
   c. Sampling procedures, field, equipment, and travel blanks, number and description of duplicate samples, type of sample containers and preservatives used, the date and time of sampling, the name of the person actually taking the samples, and any other relevant observations.

2. The Discharger shall maintain information required pursuant to this SMP for a minimum of five years. The five-year period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Water Board.

PART B: MONITORING AND OBSERVATION SCHEDULE

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS

The following activities shall be performed in accordance with the approved 2010 Groundwater Monitoring Plan (GMP) and any updated version that should be approved by the Executive Officer hereafter.

A. GROUNDWATER AND FACILITIES MONITORING

For Facilities Monitoring, make observations quarterly and report semi-annually:

Semi-Annual Report:	**Due August 31 of each year**
Annual Report:	**Due March 1 of each year**

2. INTERCEPTOR TRENCH PERFORMANCE MONITORING

The Discharger shall measure the water level in each trench corrective action monitoring well and in a sufficient number of wells or piezometers both upgradient and downgradient of the trenches to demonstrate continuous maintenance of a hydraulic depression (inward hydraulic gradient). To demonstrate the effectiveness of the trenches, the Discharger shall include the following for each refinery sector in the SMRs:

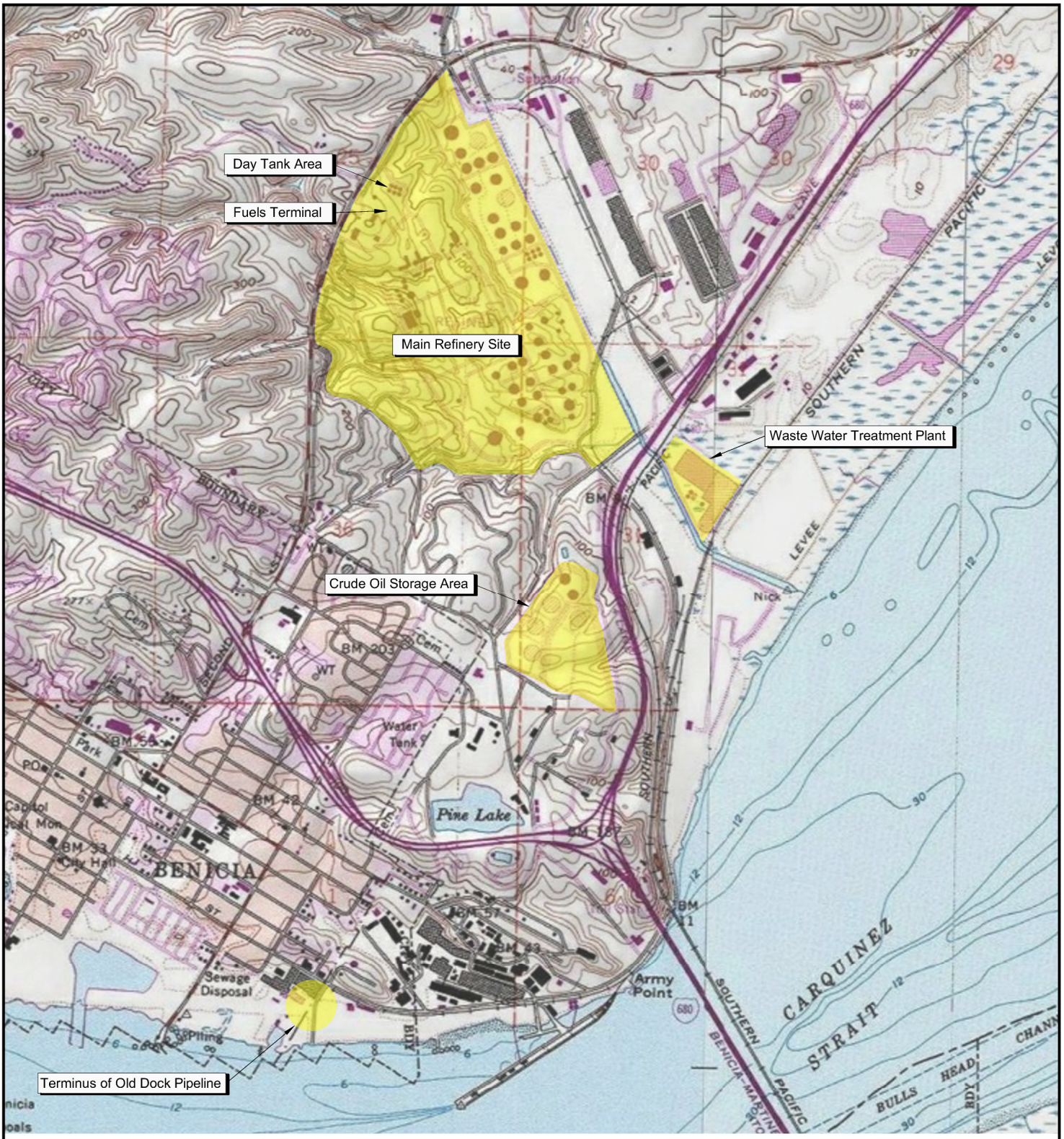
a. contour maps of 1st and 3rd quarter trench groundwater elevation data;
b. hydrographs showing water level data (measured at least once per month) at each operating extraction sump or recovery well;
c. a narrative summary of the trench performance during the reporting period; and
d. an estimate of the volume of groundwater extracted during the reporting period.

3. FREE-PHASE LIQUID HYDROCARBON (FPLH) RECOVERY SUMMARY

The Discharger shall include a map in each SMR that shows the locations of all wells within the refinery that contain separate phase hydrocarbons (SPH). The measured thickness of the SPH in each well should be indicated on the map next to the well. Recovery of SPH will be performed in accordance with the procedures described in the GMP. In addition, the SMR shall include a description of SPH recovery method used, recovery volume data for the reporting period and cumulative recovery data for each active recovery well or system.

4. CHEMICAL CONSTITUENT MONITORING

Refinery-Wide Groundwater Monitoring Program: All monitoring activities, including analytical and QA/QC procedures will be conducted in accordance with the GMP.



1 1/2 0 1

SCALE IN MILE

1000 0 1000 2000 3000 4000 5000 6000 7000

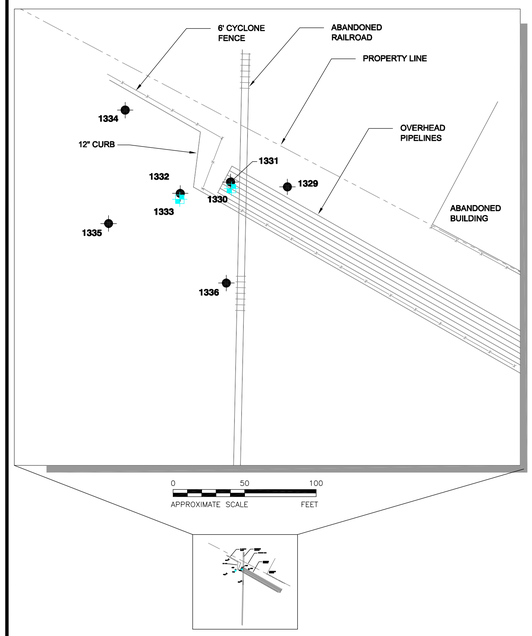
SCALE IN FEET

N

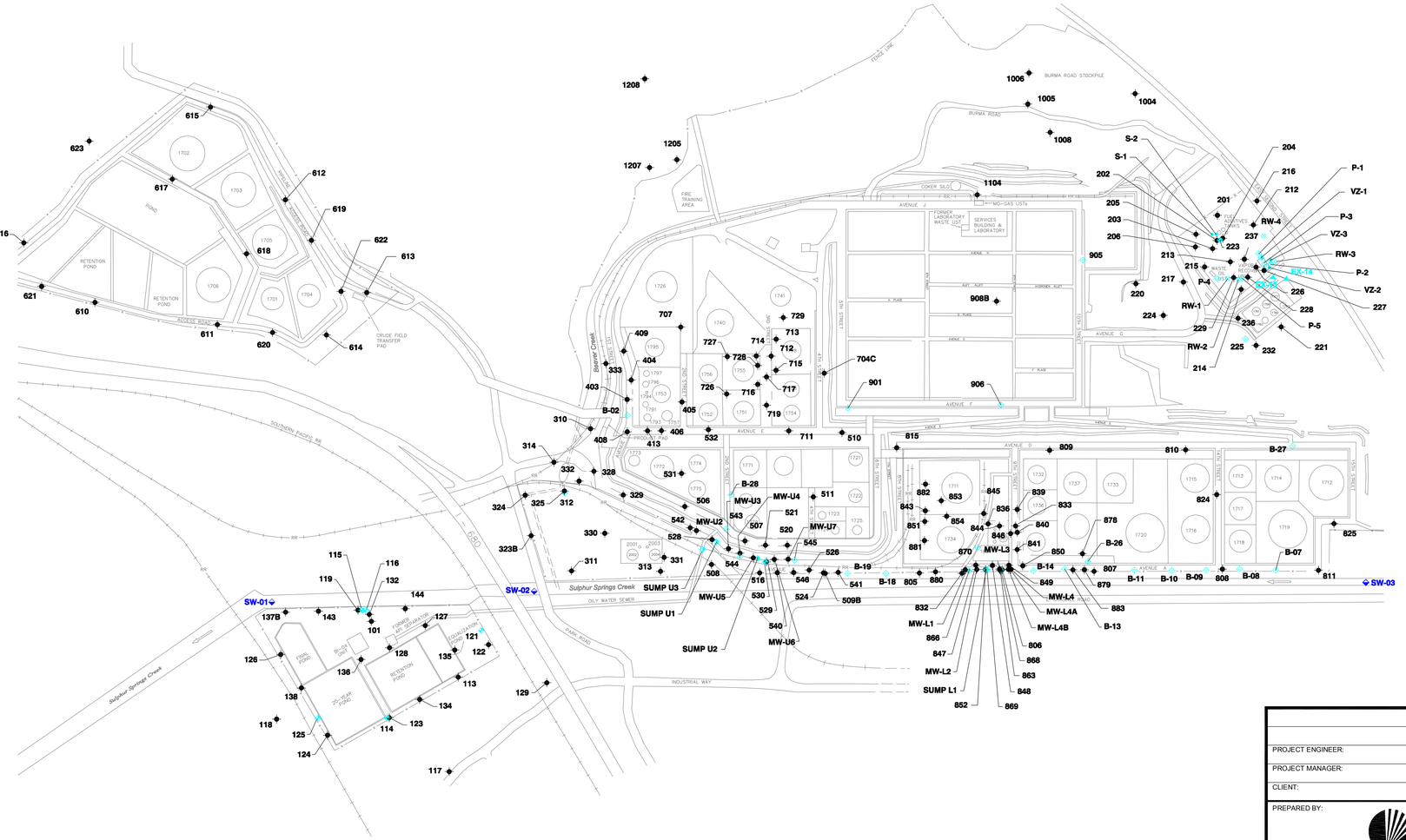
REFERNCE

TITLE: USA Topographic Map
AUTHOR: ESRI
CREDITS: Copyright: © 2013 National Geographic Society, i-cubed
ArcGIS for AutoCAD 2011; Obtained August 1, 2013

Stantec 15575 LOS GATOS BOULEVARD, BUILDING C LOS GATOS, CALIFORNIA PHONE: 408.356.6124/356.6138 (FAX)	FOR: VALERO BENICIA REFINERY BENICIA CALIFORNIA		SITE LOCATION MAP		FIGURE: 1
	JOB NUMBER: 185702613.400.0002	DRAWN BY: RRR	CHECKED BY: TC/AM/GH	APPROVED BY: GH/TC	DATE: 08/01/13



OLD DOCK PIPELINE LOCATION



LEGEND

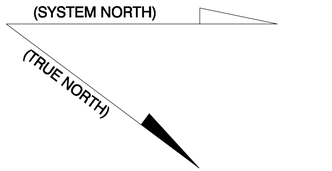
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- EXTRACTION WELL
- DOUBLE-CASED MONITORING WELL
- VAPOR EXTRACTION WELL
- SUMP
- RECOVERY WELL
- PIEZOMETER
- SURFACE WATER SAMPLING PROGRAM SAMPLING POINT
- 615 WELL NAME (TOP)

NOTES:

1. SAMPLING OCCURRED BETWEEN JANUARY 9 AND JANUARY 11, 2006
2. THE REFINERY COORDINATE SYSTEM IS BASED ON AN ASSUMED ORIENTATION. THE REFINERY NORTH IS APPROXIMATELY 35 DEGREES WEST OF TRUE NORTH.
3. ELEVATION RELATIVE TO USGS BENCHMARK (BRASS DISK SET ON TOP OF NE PIER OF RR BRIDGE 50 FEET EAST OF CL BAYSHORE ROAD) WITH AN ELEVATION OF 8.671 FEET ABOVE MEAN SEA LEVEL.

REFERENCES:

1. C.F. BRAUN ROUGH GRADE PLANS (2922-133-CD 1 THROUGH 28). STREET AND TANK LOCATIONS ARE BASED ON INTERPRETATION OF AERIAL PHOTOS.
2. HARDING ESE; PLATE 2; VALERO BENICIA REFINERY TPH-g CONCENTRATIONS; THIRD QUARTER 2002 JOB NO. 51933013, DATED 09/02



0 400 800 1200 1600

SCALE IN FEET

	DATE
PROJECT ENGINEER:	
PROJECT MANAGER:	
CLIENT:	

PREPARED BY:

SECOR
2301 LEGHORN STREET
MOUNTAIN VIEW, CALIFORNIA

PREPARED FOR:

VALERO BENICIA REFINERY

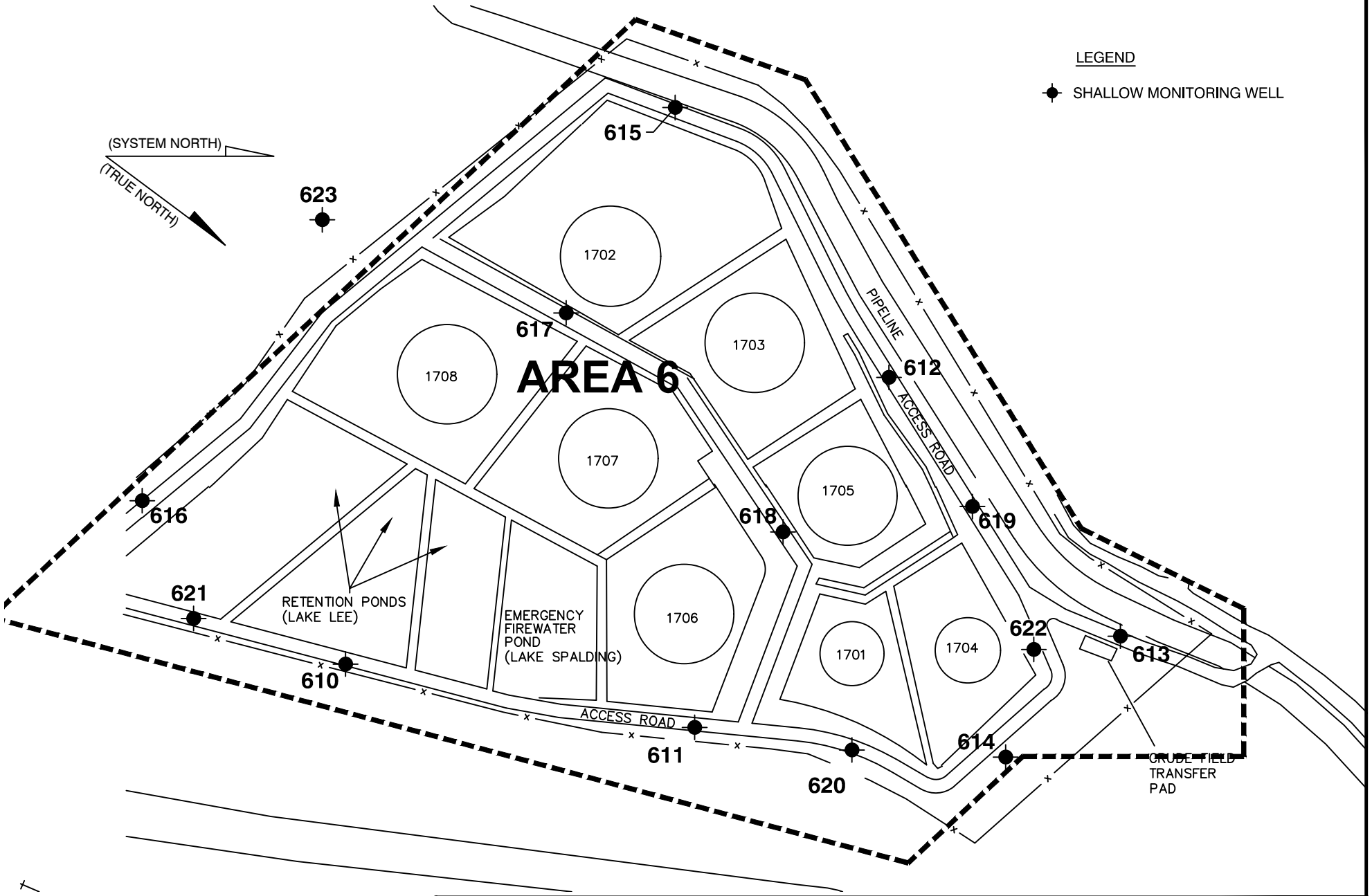
BENICIA
CALIFORNIA

Monitoring and Sampling Locations

DESIGNED BY:	DRAWN BY:	CHECKED BY:
AF/FG	KAM-dp	AF/GH
DATE: 12/8/06	CAD FILE:	
PROJECT No.: 06OT.04347.04.0002	DRAWING SCALE: AS SHOWN	

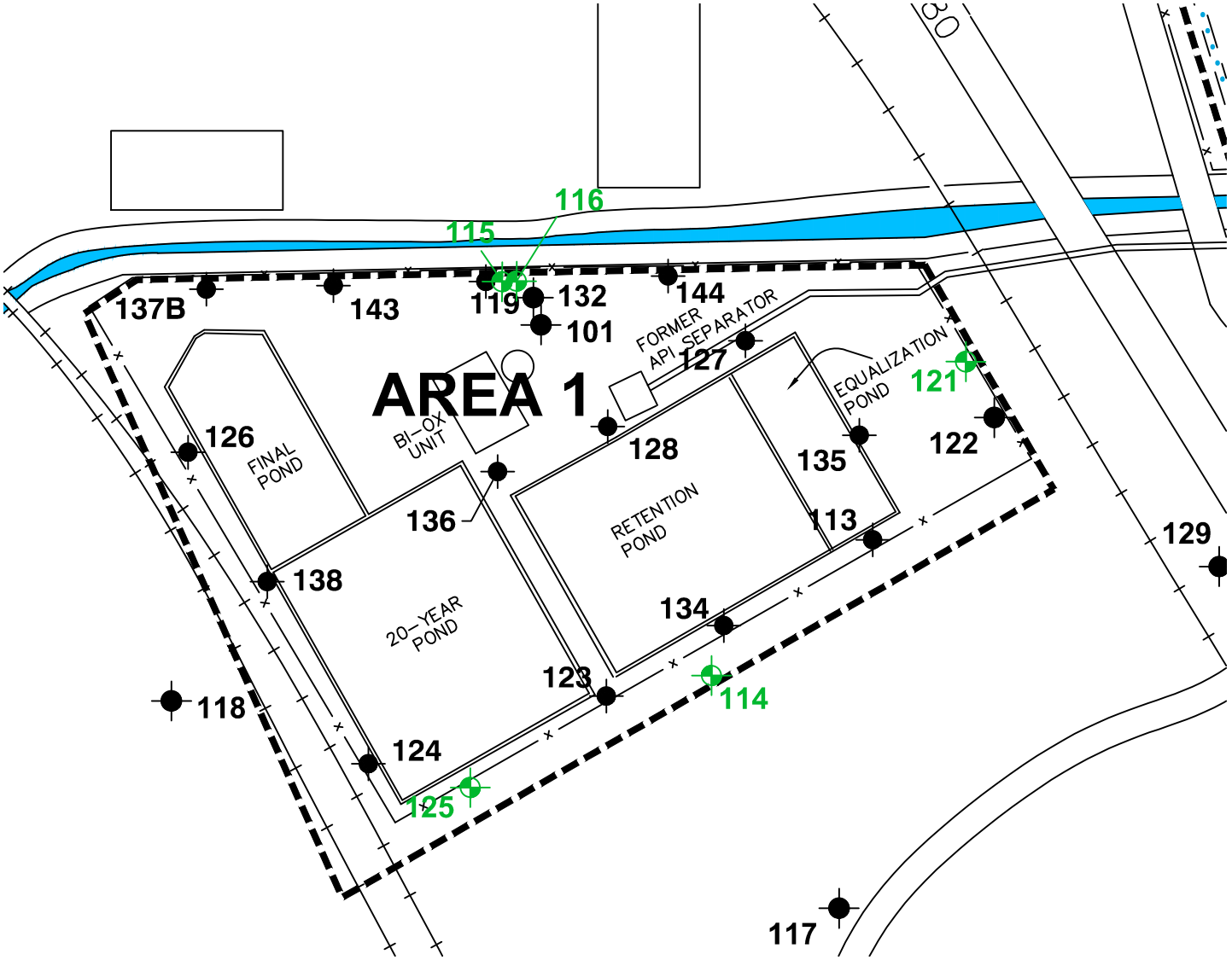
Figure 2

2006 208 12141639 g:\Clients\SECOR\Valero\Nov06\Figure 02-1.dwg



Stantec
15575 LOS GATOS BOULEVARD BLD-C
LOS GATOS, CALIFORNIA
PHONE (408) 356-6124/356-6138 (FAX)

PREPARED FOR:				FIGURE:
VALERO BENICIA REFINERY BENICIA CALIFORNIA		AREA 6 **CRUDE OIL STORAGE AREA** **SITE PLAN WITH WELL LOCATIONS**		**3**
JOB NUMBER: 185702613	DRAWN BY: MDR	CHECKED BY: GH	APPROVED BY: TC	DATE: 2/10/13



LEGEND

SHALLOW MONITORING WELL

DOUBLE-CASED MONITORING WELL

(SYSTEM NORTH)

(TRUE NORTH)

0 300 600

SCALE FEET

Stantec
15575 LOS GATOS BOULEVARD BLD-C
LOS GATOS, CALIFORNIA
PHONE (408) 356-6124/356-6138 (FAX)

PREPARED FOR:
VALERO BENICIA REFINERY
BENICIA
CALIFORNIA

AREA 1
WASTEWATER TREATMENT PLANT SITE PLAN WITH WELL LOCATIONS

FIGURE: **4**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185702613	MDR	GH	TC	2/10/13