CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TENTATIVE ORDER NO. R2-2014-00XX

SITE CLEANUP REQUIREMENTS (SCRs)

FOR

SHELL OIL PRODUCTS US
SHELL MARTINEZ REFINERY

3485 PACHECO BOULEVARD
MARTINEZ, CONTRA COSTA COUNTY

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

OWNERSHIP AND SITE 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.

PURPOSE OF ORDER

2. Pursuant to California Water Code (CWC) section 13304, this Order requires the Discharger to perform site investigations and to continue monitoring corrective action measures implemented at specified areas of the refinery. This Order accomplishes the following objectives:

    - Establishes Site Cleanup Requirements (SCRs) for portions of the site (spills/releases from tanks, pipelines, or process areas) that are not covered under Waste Discharge Requirements (WDRs) (i.e., releases that are not associated with designated waste management units (WMUs)).
    - Requires the Discharger to ensure that its remediation systems and respective monitoring programs are operated, evaluated, and modified as necessary to ensure (1) that offsite migration of contaminants does not occur; and (2) cleanup of source areas consistent with this Order.

REGULATORY HISTORY

3. On October 9, 2013, the Water Board adopted Updated WDR Order No. R2-2013-0034, which specified requirements for the Discharger's continued maintenance and monitoring of designated WMUs. That Order rescinded and superseded WDR Order No. 95-234, which had

previously covered the refinery's WMUs as well as groundwater contaminant source areas not associated with the refinery's WMUs.

4. Earlier Regional Water Board orders adopted for the refinery included WDR Order No. 88-146 and SCR Order No. 87-070. These orders were rescinded in 1995.

5. 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

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 Title 40, Code of Federal Regulations, section 419.20. The refinery, which began operating in 1916, is permitted to process 163,000 barrels of oil per day. The refinery currently manufactures various hydrocarbon products including gasoline, diesel, jet, and industrial fuels.

Geology

8. 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 Hill), 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.

Hydrogeology

9. The refinery is located in Arroyo del Hambre regional groundwater basin as shown in figure 2A. The refinery is further divided into five groundwater basins as shown in figure 2B. 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 discharges to the southwest, towards the City of Martinez, and dischargers 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

10. 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.

HISTORICAL SPILLS, RELEASES, AND CLEANUP ACTIONS

11. All groundwater basins within the refinery contain soil and/or groundwater that have been impacted by historical releases, and a variety of corrective action steps have been implemented to address these releases. Releases associated with WMUs that are in the Title 27 Detection Monitoring Program are regulated under WDR Order No. R2-2013-0034 and are not covered by this Order.

    This Order addresses releases and corrective actions that are not directly associated with WMUs. These include releases at the following areas as shown in figure 3:

    - Crude Hill area (see also figure 5);
    - East Valley Control 3 (EVC-3) area (see also figure 6);
    - East Valley Control 2 (EVC-2) area (see also figure 6);
    - Reservoir Lakes (RLC-1) area (see also figure 7); and
    - QA Lab Sump (see also figure 8).

Corrective Actions for Groundwater

12. Shell has implemented corrective actions to intercept contaminated groundwater at various locations and thus to prevent offsite migration to Carquinez Strait. In some places, this contamination consists of separate-phase petroleum hydrocarbons (SPH). Each of the five groundwater basins has its own corrective action area groundwater protection system as shown in figure 4.

    Two extraction trench systems (Vine Hill Trench and RLC-1 Trench) and over 33 groundwater extraction wells have been installed for areas covered by this order. Groundwater extracted from these systems is routed to the refinery's WWTP for treatment and discharged in accordance with NPDES permit requirements.

13. Crude Hill: During initial refinery groundwater investigations in the 1980s, certain monitoring wells in the Crude Hill area (figure 5) were found to have detectable levels of jet fuel. Further work suggested that the likely source was bottom leakage from Tank 4, which was subsequently repaired and tested. As a result, a groundwater extraction system was installed to collect

contaminated groundwater and to prevent further migration. Initially, the recovery system was comprised of three separate eductor systems. However, these systems were prone to mineral scaling and corrosion and were replaced with six wells equipped with pneumatic down-well pumps. These wells are screened to approximately 125 to 130 feet deep. Water extracted by this system is routed to the refinery's WWTP for treatment and disposal.

14. EVC-3: Initial refinery groundwater investigations in the 1990s showed that wells in the Vine Hill area north of tanks 610, 1133, and 1134 contained detectable levels of dissolved hydrocarbons. The likely source was determined to be up-gradient petroleum storage tanks which were subsequently repaired and tested. As a result, a groundwater extraction system was installed to collect contaminated groundwater and to prevent further migration. Currently this system consists of 21 individual extraction wells. Water extracted from these wells is pumped to the WWTP for treatment and disposal.

    In 2008, additional SPH contamination was found in the Vine Hill area and traced to Tank 1134 (figure 6). This tank was subsequently repaired and tested and additional recovery systems were installed. Five shallow SPH recovery wells were installed in late 2008 at 1.3 to 2.5 feet below grade. These wells were removed in 2013 and replaced with a French drain system to provide enhanced SPH recovery. Water extracted by this system is routed to the refinery's WWTP for treatment and disposal.

15. EVC-2: Initial refinery groundwater investigations in the 1990s showed that wells in the Vine Hill area just west of T-Head Road contained detectable levels of dissolved hydrocarbons (figure 6). The likely source of this contamination was determined to be up-gradient tankage that contained the gasoline component alkylate which was subsequently repaired and tested. As a result, a groundwater extraction system was installed to collect contaminated groundwater and to prevent further migration. Currently this system consists of three 36-inch culverts oriented vertically with a double diaphragm pump. The system also contains three other wells with pumps operated with level-control systems. Water extracted by this system is routed to the WWTP for treatment and disposal.

16. RLC-1: During initial refinery groundwater investigations in the 1990s wells in the Reservoir Lakes groundwater basin were found to have detectable levels of dissolved hydrocarbon contamination. No specific source was found and it has been attributed to historical operations in the area. Sampling results at monitoring well 279 which is just upgradient of the RLC-1 trench have been non-detect for BTEX and TPH-G for over 10 years based on data reported under Shell's previous Order 95-234 confirming the conclusion of the historic contamination. An interceptor trench was installed to collect contaminated groundwater and to prevent further migration. This system is a French drain approximately 130 feet long and 15 feet below ground surface (figure 7). The French drain is evacuated with one pump. Water from this system is routed to the WWTP for treatment and disposal.

17. QA Lab Sump: The main Quality Assurance (QA) Laboratory is located on the eastern side of Crude Hill (Figure 8). In late 2008, groundwater and oil seepage began to appear from the corner of the QA Lab's basement floor and wall in an area between an unused elevator shaft and the northwest corner of the basement. An investigation for a source was conducted but no

specific current source was determined and, therefore, it was attributed to historic contamination. This investigation reviewed and found no SPH in any of the available upgradient wells. In addition, the investigation reviewed potential upgradient sources including piping, tanks, and Unit K and no potential present day source was identified. To collect this material, the elevator shaft was modified to function as a groundwater recovery well. Material extracted by this system is routed to the refinery's WWTP for treatment and disposal.

MONITORING PROGRAMS

18. Shell monitors and reports groundwater elevations, flow direction and gradient, SPH thicknesses and recovery, maximum allowable concentration limits (MACLs) compliance, data quality assurance and quality control, and inspection and maintenance activities as part of its SMP. There are 27 groundwater monitoring wells in areas covered by this SCR that are gauged either semi-annually or annually, with sampling and analysis of 18 representative wells. Monitoring and sampling locations are shown in figure 9.

19. In accordance with the SMP, Shell Martinez shall perform a statistical evaluation and trend analysis of groundwater analytical results obtained from points of compliance to assess the effectiveness of the corrective and remedial actions at the refinery.

20. Water quality monitoring required by this SCR Order consists of the Self-Monitoring and Reporting Program (SMP) approved in accordance with WDR Order No. R2-2013-0034.

BASIN PLAN

21. 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), the Office of Administrative Law, and the U.S. EPA, where required.

BENEFICIAL USES AND SOURCES OF DRINKING WATER

22. Antidegradation Policy: The State Water Board established California's antidegradation policy through State Water Board Resolution No. 68-16, which requires that existing water quality be maintained unless degradation is justified based on specific findings. State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to the Discharger and requires attainment of background levels of water quality or the highest level of water quality that is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background shall be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives.

23. State Water Board Resolution No. 88-63: The Basin Plan provides that all groundwater in the Region is considered suitable, or potentially suitable, for municipal or domestic water supply and that, in making any exceptions, the Water Board will consider the criteria referenced in State Water Board Resolution No. 88-63, "Sources of Drinking Water", where:
    i) The total dissolved solids exceed 3,000 mg/l (5,000 µS/cm, electrical conductivity), and it is not reasonably expected by the Water Board that the groundwater could supply a public water system, or
    ii) There is contamination, either by natural processes or human activity (unrelated to the specific pollution incident), that cannot reasonably be treated for domestic use using best management practices or best economically achievable treatment practices, or
    iii) The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day (gpd).

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.

    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.

25. 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

CLEANUP AUTHORITY

26. Basis for 13267 and 13304 Order: California Water Code section 13304 authorizes the Regional Water Board to issue orders requiring a Discharger to cleanup and abate waste where the Discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance. As discussed above, the Discharger has caused or permitted waste to be discharged or deposited, causing contamination of groundwater. Contamination of groundwater creates and threatens to create conditions of pollution and nuisance. Water Code section 13267 authorizes that Regional Water Board to require a person who has discharged, discharges or is suspected of having discharged or discharging, to furnish technical or monitoring program reports. The burden of the reports required by this Order bears a reasonable relationship to the need for the report and the benefits to be obtained (to characterize the extent of contamination, the associated risks to human health and the environment, and document success of remediation efforts).

27. State Water Board Resolution No. 92-49: State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under California Water Code Section 13304," establishes policies and procedures to be used by the Water Board when:
    - Determining when a person is required to investigate, cleanup, or abate a discharge;
    - Concurring with a discharger's selection of cost-effective investigation and remedial measures;
    - Overseeing implementation of investigation and remedial measures; and
    - Determining schedules for investigation and remedial measures.

    This Order implements and is consistent with Resolution No. 92-49.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

28. This Order requires continued monitoring, groundwater extraction, and preparation of work plans and reports that do not have the potential for significant impacts on the environment. As such, the general rule that the California Environmental Quality Act (CEQA) only applies to projects that have the potential for causing a significant effect on the environment (the "common sense" exemption) applies, and no environmental document needs to be prepared in connection with the adoption of this Order [Cal. Code Regs., title 14, §15061(b)(3)]. When a specific cleanup proposal is submitted to the Executive Officer for approval, such proposal must and will be evaluated under CEQA prior to approval.

NOTICE AND MEETING

29. The Water Board has notified the Discharger and interested agencies and persons of its intent to issue this Order 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 issuance of SCRs.

IT IS HEREBY ORDERED, pursuant to CWC section 13304 and 13267, that the Discharger (or its agents, successors, or assignees) shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous substances in a manner that will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
2. Migration of pollutants through subsurface transport to waters of the State beyond the groundwater extraction trenches is prohibited**.**
3. There shall be no discharge of wastes or hazardous substances to surface waters except as permitted under the refinery's current NPDES permits.
4. Activities associated with the subsurface investigation and cleanup that will cause significant adverse migration of wastes or hazardous substances are prohibited.
5. The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in CWC section 13050(m).
6. The Discharger shall not cause the following conditions to exist in waters of the State at any place beyond the influence of the groundwater extraction trenches or other approved treatment systems:
    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 which 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 from beyond the existing perimeter control groundwater extraction/containment systems at Shell's operations.

B. TASKS

ALL REQUIRED SUBMITTALS MUST BE ACCEPTABLE TO THE EXECUTIVE OFFICER (SEE PROVISION C.1 - *COMPLIANCE*)

Groundwater Extraction and Hydraulic Containment

1. Shell shall continue to extract water from the groundwater interceptor trenches and extraction systems at a rate which eliminates the contamination or reverses the migration of contaminants toward Carquinez Strait, Arroyo del Hambre and Clayton/Ygnacio Valley groundwater basins and Peyton Slough.

   COMPLIANCE DATE: Ongoing

2. **Crude Hill Area:** Shell shall submit a report describing the components and operation of the Crude Hill Remediation System. The report shall include an evaluation of the effectiveness of the remediation system in maintaining hydraulic capture of petroleum hydrocarbons. Shell shall propose additional measures if the system does not demonstrate effective capture.

   COMPLIANCE DATE: September 30, 2014

3. **EVC-3:** Shell shall continue to perform recovery activities in the EVC-3 area to provide enhanced SPH recovery. The system shall be updated as necessary to optimize performance. Shell shall propose additional measures if the system does not demonstrate effective capture.

   COMPLIANCE DATE: Ongoing

4. **EVC-2:** Shell shall continue to operate groundwater extraction system to collect contaminated groundwater and to prevent further migration. The system shall be updated as necessary to optimize performance. Shell shall propose additional measures if the system does not demonstrate effective capture.

   COMPLIANCE DATE: Ongoing

5. **RLC-1**: Shell shall continue to operate the French drain system to collect contaminated groundwater and to prevent further migration. The system shall be updated as necessary to optimize performance. Shell shall propose additional measures if the system does not demonstrate effective capture.

   COMPLIANCE DATE: Ongoing

6. **QA Lab Sump**: Shell shall continue to operate the QA Lab Sump to collect contaminated groundwater and to prevent further migration. The system shall be updated as necessary to optimize performance. Shell shall propose additional measures if the system does not demonstrate effective capture.

COMPLIANCE DATE: Ongoing

7. If the Executive Officer determines, on the basis of groundwater monitoring information, that water quality downgradient of any of the extraction systems is impaired, or continues to degrade, Shell will be required to submit additional proposals for corrective actions to address the issue.

   COMPLIANCE DATE: To be determined, as needed for future corrective actions**.**

Spill Reporting and Documentation of Cleanup

8. The Discharger shall notify the Water Board of any reportable quantity (42 gallons or more) of petroleum that is either spilled or leaked to any unlined ground surface (any surface not protected by a barrier which is impermeable to petroleum products or other constituents which may cause adverse water quality impacts). Verbal notification shall be provided within one working day of discovery of the spill and shall be followed by a written description to include the nature, location and volume of the spill, and the total area and/or soil volume affected. In addition, the written report shall include a map that identifies the location of the spill and photographic documentation of the spill area before and after cleanup.

   COMPLIANCE DATE: Verbal notification within 1 working day after discovery followed by written notification within fourteen working days after discovery. (The Discharger shall also report releases consistent with the requirements of Provision C.11.a. i & ii).

Update Groundwater SMP

9. The Discharger shall review the SMP required by Order No. R2-2013-0034 (Attachment A & B) and submit a proposal for any necessary updates to incorporate new groundwater monitoring wells, extraction systems, and/or sampling parameters/frequency. The SMP shall include the corrective action areas perimeter control points to establish and maintain perimeter capture zones that are intended to prevent the offsite migration of potentially contaminated groundwater.

   All sampling protocols and reporting requirements shall be consistent with those described in Attachment A. As part of the update, all historical monitoring well data (from at least the most recent five-year period) shall be evaluated, a determination made about adequacy of the number of point of compliance wells, and compliance timelines added for any future corrective action that may be needed.

   COMPLIANCE DATE: November 30, 2014

Update Maximum Allowable Concentration Limits (MACLs)

10. The Discharger shall submit a proposal to update existing MACLs in accordance with either federal or state regulations or guidelines, or with technically-justified site-specific standards, acceptable to the Executive Officer. The MACLs shall consist of the list of constituents of concern, the concentration limits, and the Points of Compliance and all Monitoring Points.

COMPLIANCE DATE: **November 30, 2014**

C. PROVISIONS

1. Compliance: The Discharger shall comply immediately, or as prescribed by the time schedule contained herein, with all Prohibitions, Tasks, and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. The Discharger must also comply with all conditions of these Site Cleanup Requirements. Violations may result in enforcement actions, including Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of this Order by the Water Board.

2. Authority to Request Technical Reports: 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. All technical reports submitted pursuant to this Order shall be prepared under the supervision of and signed by a California registered civil engineer or a California professional geologist.

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

5. Modifications to Remedial Action Plan: The Discharger shall notify and get approval from the Executive Officer at least 60 days prior to implementing any proposed major modifications to any approved Remedial Action Plan, Implementation Schedule, or remediation system. The notification shall include the rationale for any proposed modification.

6. Delayed Compliance: If the Discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the tasks, the Discharger shall promptly notify the Executive Officer of the delay and reason for the delay, and the Water Board may consider revisions to this Order.

7. Operation and Maintenance (O&M): 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.

8. 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 necessary to comply with the tasks set forth in this Order.

9. Change in Ownership: In the event of any change in control or ownership of the facility 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. Notification of the new owner or operator does not transfer Shell's responsibility for compliance with this Order.

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

10. Stormwater: The Discharger shall comply with the provisions of the refinery's current NPDES permits for the management, monitoring, and discharge of stormwater and wastewater effluent.

11. 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) 622-2369 during regular office hours (Monday through Friday, 8 a.m. – 5 p.m.); and to
       ii. The California Office of Emergency Services 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 for completion of those measures.
       vii. The persons/agencies notified.

    This reporting is in addition to any reporting to the California Office of Emergency Services that is required pursuant to the Health and Safety Code.

12. Contractor/Consultant Qualifications: All technical documents shall be signed by any stamped with the seal of a California professional geologist, or a California registered civil engineer.

13. Lab Qualifications: All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Water Board using approved U.S. EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Water Board review. This provision does not apply to analyses that can only reasonably be performed onsite (e.g., temperature).

14. Document Distribution: Copies of all correspondence, technical reports, and other documents submitted in compliance with this Order shall be provided to the Water Board.

15. Submittal Revisions: Where the Discharger becomes aware of a material error in fact or omission in any report previously submitted to the Water Board, it shall promptly submit such facts or information.

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

17. 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 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, unless otherwise agreed upon. The Water Board may require direct submittal of electronic reports and correspondence in addition to the State Water Board's GeoTracker requirements.

18. 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.

19. 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 QA/QC data:
    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.

20. Cost Recovery: The Discharger (as applicable) shall be liable, pursuant to CWC section 13304 and Health and Safety Code section 25270.9 to the Water Board for all reasonable costs actually incurred by the Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Water Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the Discharger (as applicable) over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program**.**

21. Periodic SCR Order Review: The Water Board will review this Order periodically and may revise it when necessary. The Discharger (as applicable) may request revisions and upon review the Executive Officer may recommend that the Water Board revise these requirements.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 11, 2014.

_____
Bruce H. Wolfe
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

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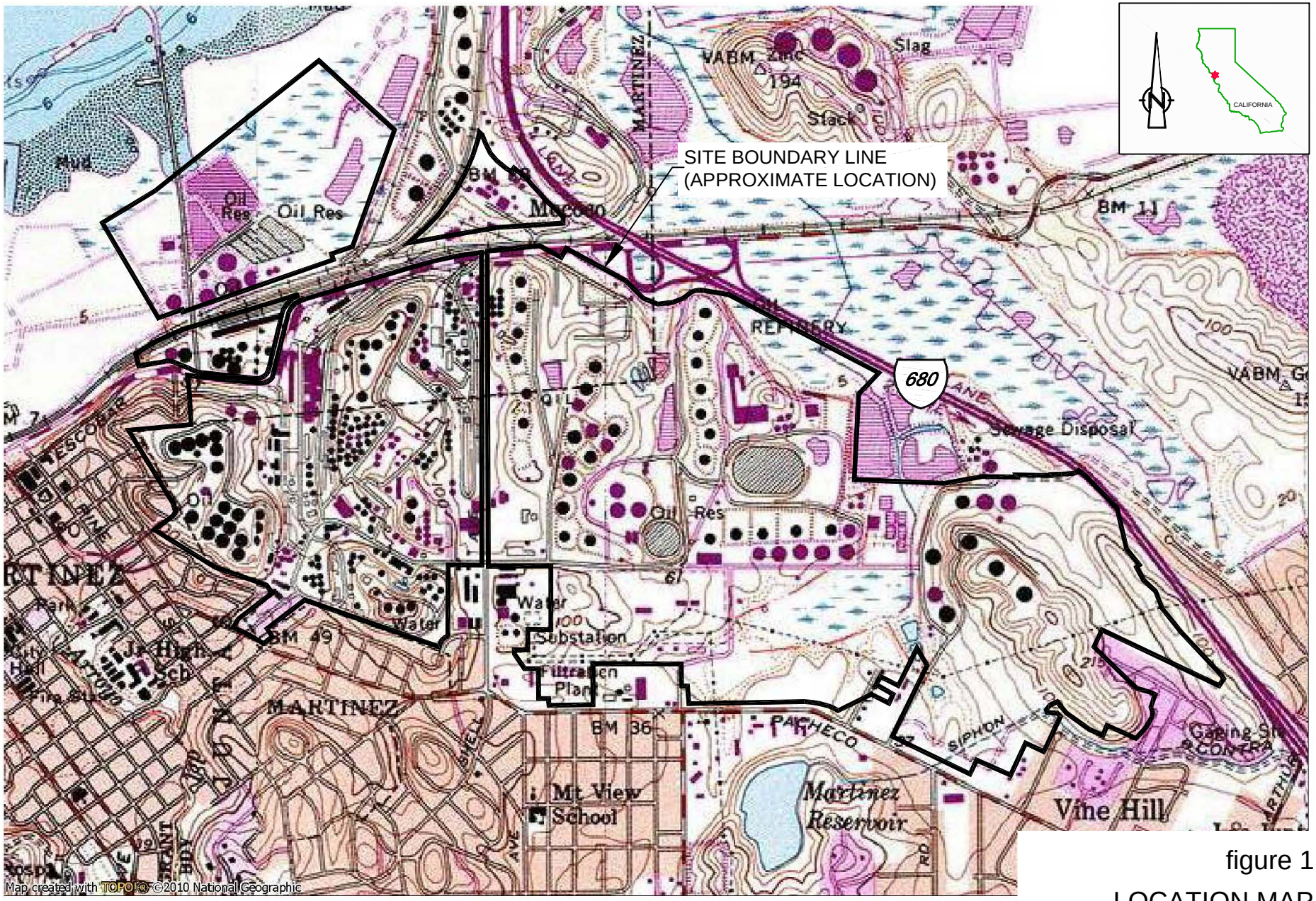
Figures:
Figure 1 - Location Map
Figure 2A – Groundwater Basins: Regional Groundwater Basins
Figure 2B – Groundwater Basins
Figure 3 – Corrective Action Areas
Figure 4 – Corrective Action Area Groundwater Protection System
Figure 5 – Crude Hill Area

Figure 6 – EVC-2 and EVC-3 Area
Figure 7 - RLC-1 Area
Figure 8 – QA Lab Sump Area
Figure 9 – Groundwater Monitoring and Sampling Locations

Attachment: Self-Monitoring and Reporting Program, Order No. R2-2013-0034



0.0 0.1 0.2 0.3 0.4 0.5 miles
0.0 0.5 km

figure 1

LOCATION MAP
SHELL MARTINEZ REFINERY
Martinez, CA

060197-2014(PRES002)GN-SO001 MAR 24/2014

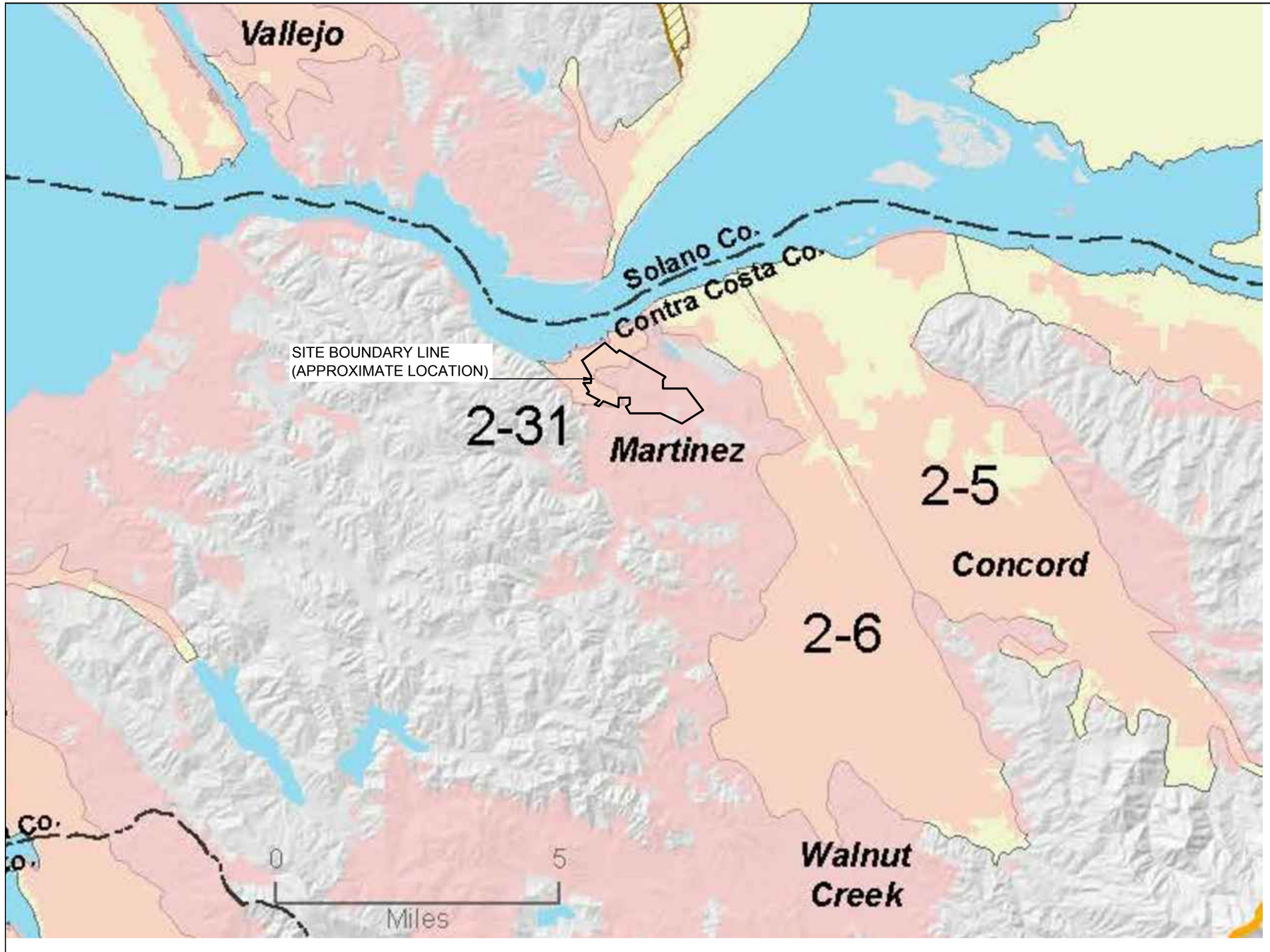


figure 2A

REGIONAL GROUNDWATER BASINS
SHELL MARTINEZ REFINERY
Martinez, California

SOURCE: REGIONAL GROUNDWATER BASINS: NAPA/SOLANO FIGURE 2-10B.

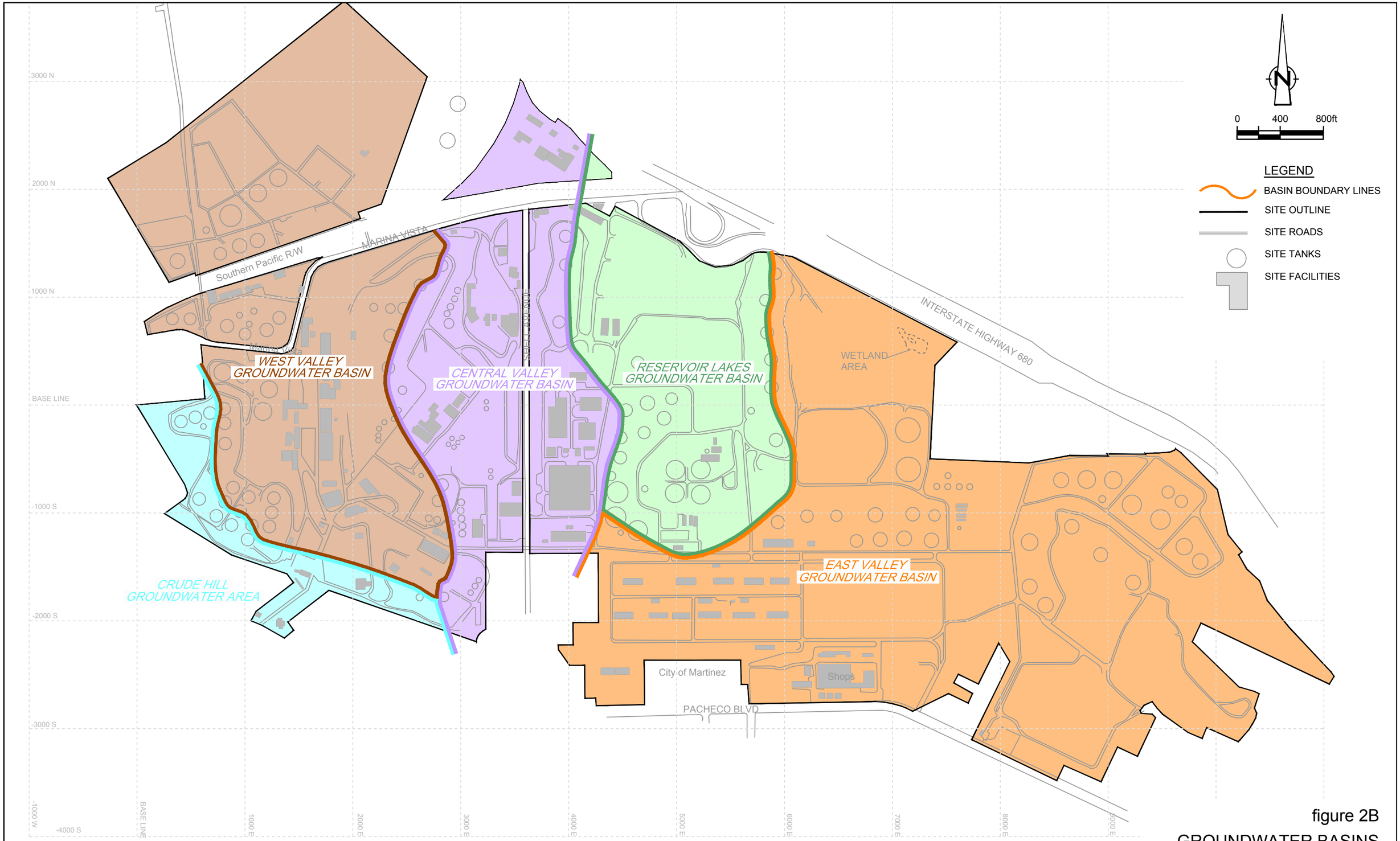


figure 2B

GROUNDWATER BASINS
SHELL MARTINEZ REFINERY
Martinez, California

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

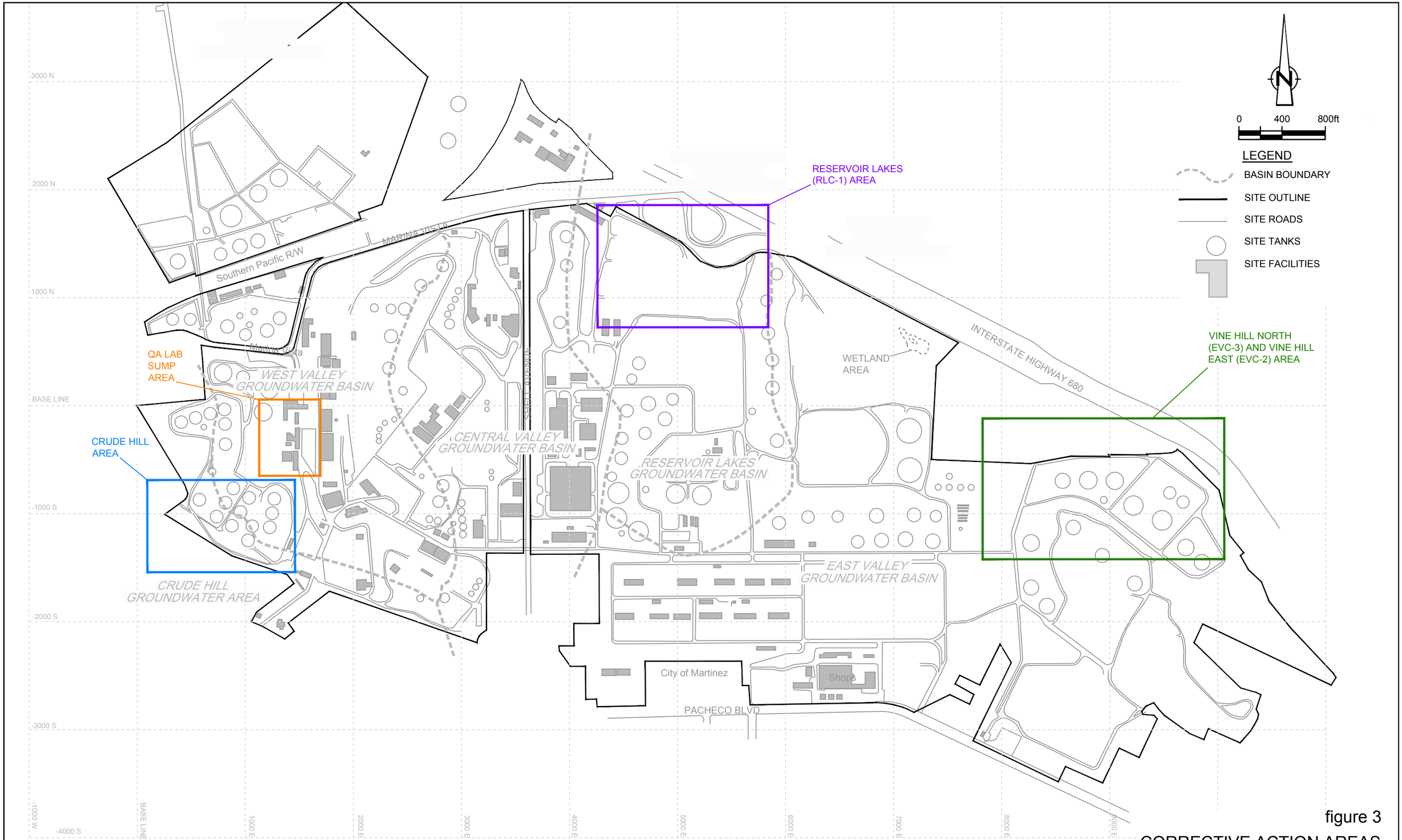


figure 3

CORRECTIVE ACTION AREAS
SHELL MARTINEZ REFINERY
Martinez, California

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

060197-2014(PRES002)GN-SO003 APR 2/2014

figure 4

CORRECTIVE ACTION AREAS GROUNDWATER PROTECTION SYSTEM
SHELL MARTINEZ REFINERY
Martinez, California

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

figure 5

CRUDE HILL AREA
SHELL MARTINEZ REFINERY
Martinez, California

060197-2014(PRES002)GN-SO005 APR 2/2014

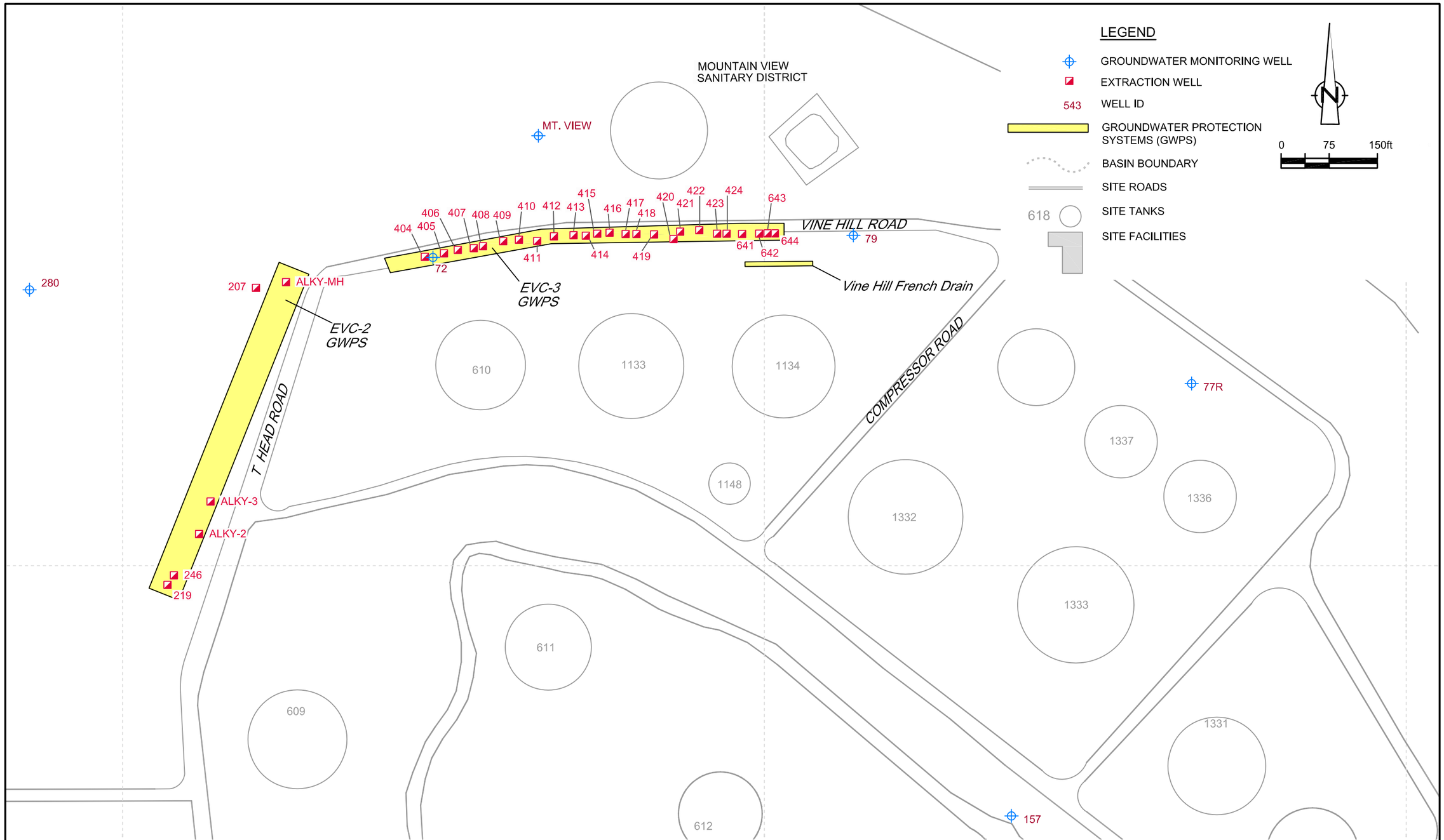


figure 6

EVC-2 AND EVC-3 AREA
SHELL MARTINEZ REFINERY
Martinez, California

060197-2014(PRES002)GN-SO006 APR 11/2014

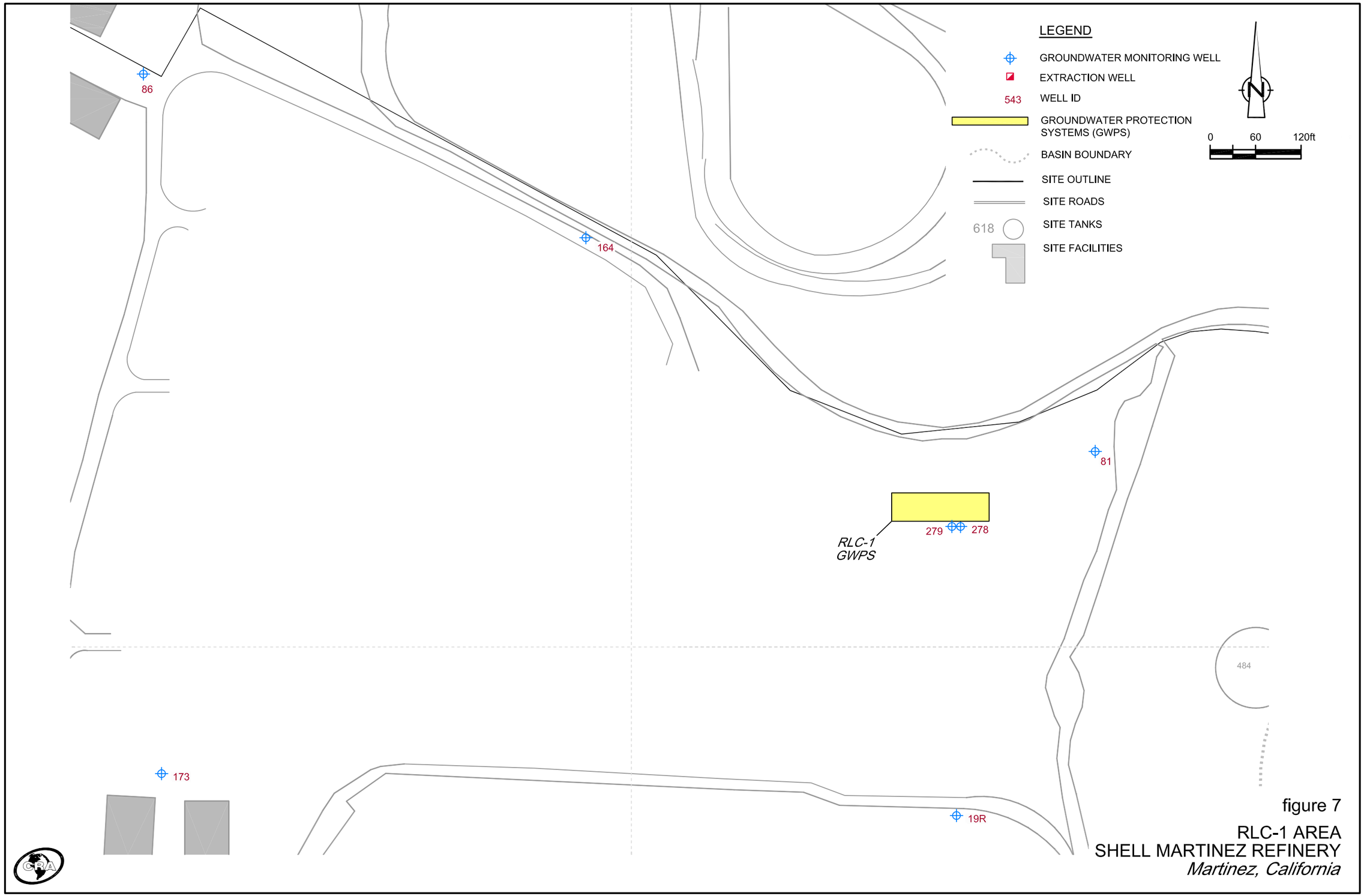


figure 7

RLC-1 AREA
SHELL MARTINEZ REFINERY
Martinez, California

060197-2014(PRES002)GN-SO007 APR 2/2014

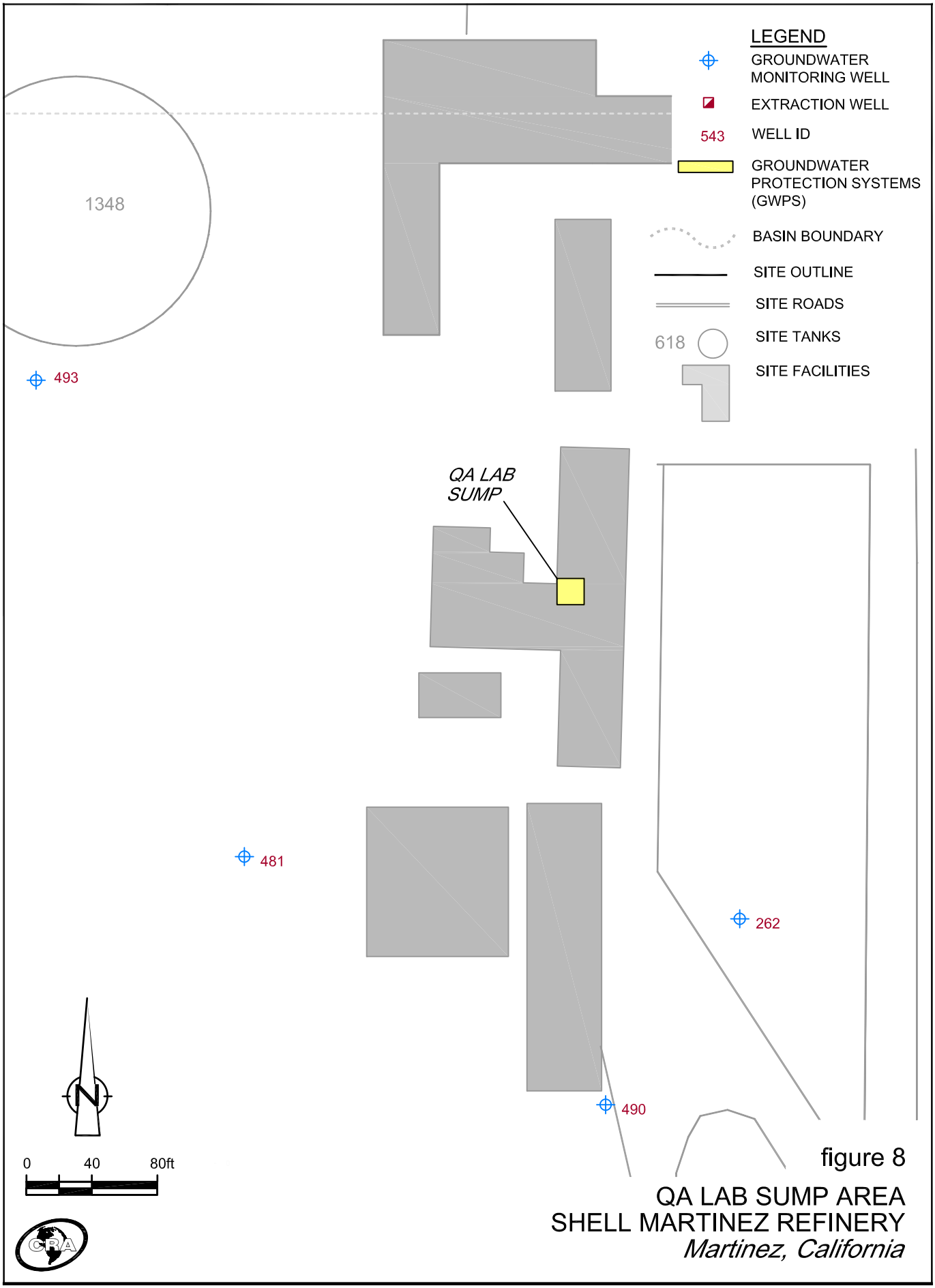


figure 8

QA LAB SUMP AREA
SHELL MARTINEZ REFINERY
Martinez, California

060197-2014(PRES002)GN-SO009 APR 2/2014

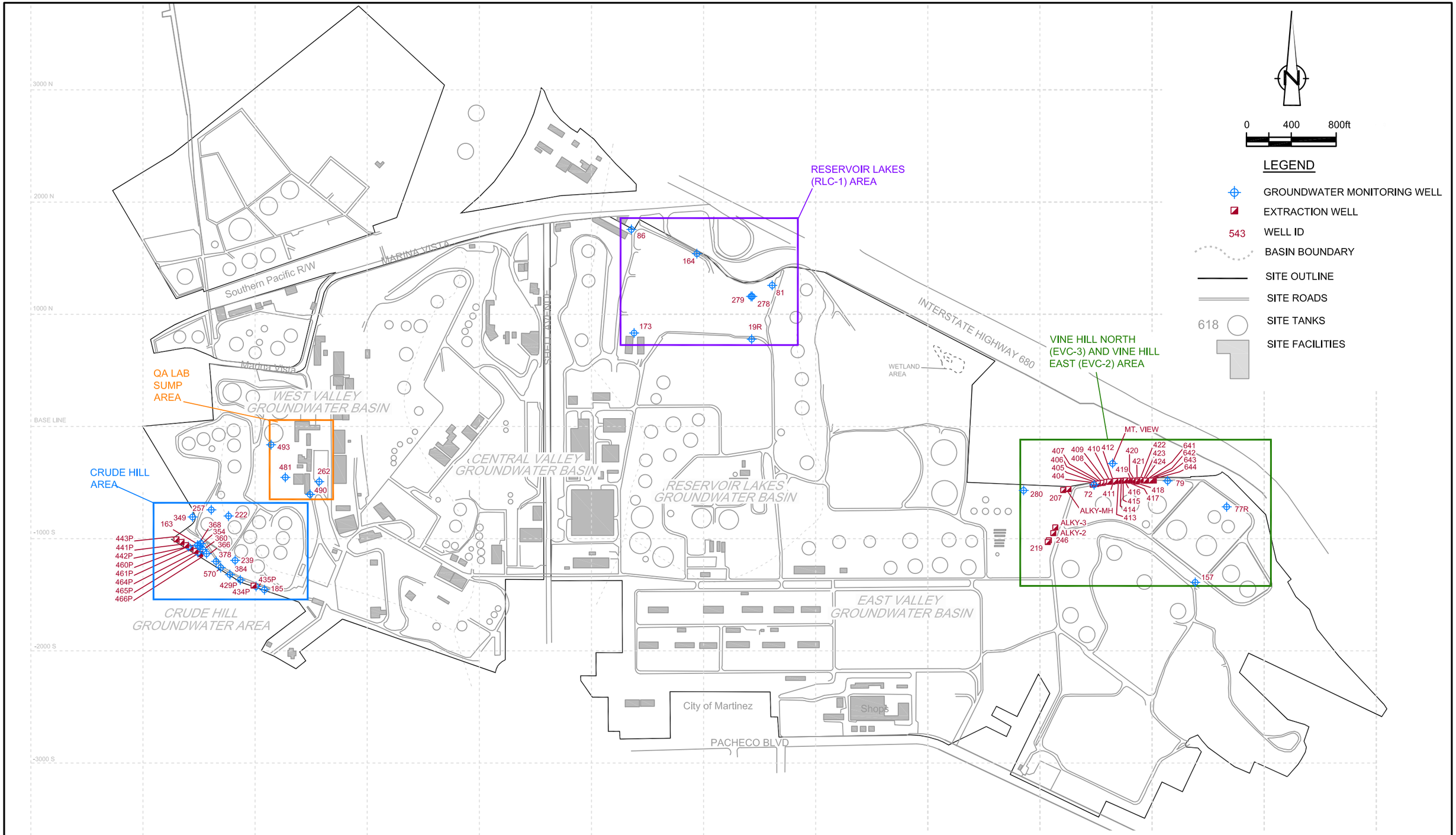


figure 9

GROUNDWATER MONITORING AND SAMPLING LOCATIONS
SHELL MARTINEZ REFINERY
Martinez, California