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11 **TESORO REFINING & MARKETING COMPANY LLC**  
**TESORO SOCAL PIPELINE COMPANY LLC**

12 **STATE OF CALIFORNIA**  
13 **WATER RESOURCES CONTROL BOARD**

14  
15 In the Matter of Los Angeles Regional Water  
Quality Control Board 13304 Work Plan Approval  
16 Denying Portions of Work Plan Re – Former  
BP/ARCO Pipelines, Golden Avenue Between  
17 Baker Street and West Wardlow Road, Long Beach,  
California; The Petition of

SWRCB FILE NO. \_\_\_\_\_

**VERIFIED PETITION FOR REVIEW AND  
REQUEST FOR HEARING; REQUEST  
FOR STAY AND SUPPORTING  
DECLARATION**

18  
19 TESORO REFINING & MARKETING  
COMPANY LLC and TESORO SOCAL  
20 PIPELINE COMPANY,

21 Petitioners

22  
23 **INTRODUCTION**

24 Pursuant to California Water Code section 13304 and California Code of Regulations  
25 (“CCR”) Title 23, sections 2050 *et seq.*, Tesoro Refining & Marketing Company LLC and Tesoro  
26 SoCal Pipeline Company LLC (“Petitioners”)<sup>1</sup> respectfully petition the State Water Resources

27  
28 <sup>1</sup> On August 8, 2012, Tesoro Refining & Marketing Company LLC (“TRMC”) and BP West Coast Products

1 Control Board (“State Board”) for review of certain denials in an Approval of Master Work Plan and  
2 Human Health Risk Assessment under Water Code section 13304 (the “Denial”) dated January 30,  
3 2015 and issued to Petitioner Tesoro Logistic Operations LLC by the Executive Officer of the Los  
4 Angeles Regional Water Quality Control Board (“Regional Board” or “Board”). The Work Plan at  
5 issue in the Denial is the December 22, 2014 Work Plan for Assessment and Delineation of Wastes  
6 and Human Health Risk Assessment Work Plan submitted by Tesoro Logistics Operations LLC  
7 (“Work Plan”).

8 A copy of the Denial is attached hereto as Exhibit 1. Comments to the Denial are attached as  
9 Exhibit 2. The Denial pertains to Clean-up and Abatement Order No. R-2013-0064 (“Order”),  
10 which is attached as Exhibit 3. The Denial is related to two prior petitions for review, State Water  
11 Resources Control Board Case Nos. SWRCB/OOC File A-2215 and A-2335.

12 The Denial involves Golden Avenue between Baker Street and West Wardlow Road, Long  
13 Beach, California (“Site”). The Order upon which the Denial is based alleges that Petitioners’  
14 pipelines are a “gasoline source” responsible for a discharge of “wastes, including volatile organic  
15 compounds (“VOCs”), particularly benzene and 1,2-dichloroethane (“1,2-DCA”), light non-aqueous  
16 phase liquids (“LNAPL”), and other waste constituents of concern to the environment.” Exh. 3,  
17 Order at ¶¶1(b), 7(f). The Site overlaps a benzene and oil waste clean-up site, No. SL2044M1596,  
18 under the control of Oil Operators Inc. (“OOI”) (“OOI Site”). OOI operated a former wastewater  
19 and oil recovery plant where it processed millions of gallons per day of benzene-containing waste,  
20 wastewater, refinery waste, and tank bottoms from approximately 1926 to 1998 at 712 Baker Street.  
21 Eighteen other pipelines are within or near the Site, including wastewater pipelines owned by OOI  
22 with a documented history of releases. The Order does not name OOI or other pipeline operators.  
23 Diagrams of the Site and some nearby structures are attached as Exhibit 3 to Petition No. A2335.

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26 LLC, Atlantic Richfield Company, and ARCO Terminal Services Corporation (collectively “BP”) entered into a  
27 Purchase and Sale Agreement (the “PSA”) whereby TRMC agreed to purchase certain assets from BP and agreed to  
28 undertake certain responsibilities for environmental investigation and remediation. Effective June 1, 2013, TRMC and  
Tesoro SoCal Pipelines LLC assumed investigation and remediation responsibilities of the above-named entities at the  
Site. Tesoro SoCal Pipeline Company LLC is the owner of Lines 32 and 34. TRMC owns Line 252.

1 The Denial at issue in this petition rejects portions of Petitioner’s Work Plan related to (i)  
2 certain constituents of potential concern (“COPCs”) in a human health risk assessment (“HHRA”);  
3 (ii) the number of groundwater sampling points along OOI’s eastern boundary, the location of multi-  
4 depth vapor probes, the depth of vapor sampling at the Site; and (iii) the implementation schedule  
5 for the Site Investigation Report and HHRA. Petitioners seek review of the Denial because (a) the  
6 additional required evaluation of certain COPCs contradicts the California State Water Resources  
7 Control Board’s Low Threat Closure Policy (“LTC Policy”); (b) the requirements pertaining to  
8 additional groundwater sampling points, the location of multi-depth vapor probes, and the depth of  
9 vapor sampling continue to shift to Petitioners obligations that Water Code 13304 imposes on other  
10 parties; (c) the Denial’s implementation schedule eliminates the time Petitioners estimated as  
11 necessary in the Work Plan; (d) the Denial is vague and ambiguous, including in its definition of the  
12 Site; and (e) the Denial is unreasonable and should be stayed because it is one in a series of Board  
13 actions causing harm to Petitioners. Petitioners should have no duties stemming from the Order  
14 (because they should not be named in the first place); however, to the extent any duties apply, they  
15 should be tailored reasonably, as proposed in the Work Plan.

16 The Denial is further unreasonable because it relies on the Order, which lacks substantial  
17 evidence as explained in Petition No. A2335. The Order alleges that Petitioners’ Pipelines 32, 34,  
18 and 252 (“Lines 32, 34, and 252”) are a gasoline source at the Site; however, the lines are not a  
19 likely gasoline source because Lines 32 and 34 did not carry gasoline and Line 252 only carried  
20 gasoline prior to 1953. Any pre-1953 gasoline release is outside the scope of Water Code section  
21 13304<sup>2</sup> and would have likely degraded within the past 60 years (particularly in the absence of  
22 gasoline free product trapped in lower permeability soil layers along Golden Avenue, which has not  
23 been identified in extensive prior investigations).<sup>3</sup> Even if Lines 32, 34, and 252 were gasoline lines

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25 <sup>2</sup> Section 13304 applies only to post-1970 releases or effects; therefore, a pre-1953 release is outside the scope  
26 of the statute where, as here, there is no credible evidence of the effects of such a historical release. *In re Atchison,  
Topeka & Santa Fe Railway Co.* (Order No. WQ 74-13, August 15, 1974), 1974 Cal. ENV LEXIS 2 at \*8.

27 <sup>3</sup> McHugh, Thomas E., et al., Prepublication Draft, “American Petroleum Institute Technical Bulletin #25:  
28 Remediation Progress at California LUFT Sites: Insights from the GeoTracker Database.” Further, the California Low  
Threat Closure Policy (St. Water Res. Control Board Res. No. 2012-0016) provides that “petroleum fuels naturally

1 after 1953, which they were not, there is no evidence that they leaked and caused benzene, 1,2-DCA  
2 and LNAPL at the Site. Indeed, forensic analysis of hydrocarbon vapor from Area of Concern A  
3 found no evidence of gasoline or refined product. Not only is subsurface vapor not sourced from  
4 gasoline, it instead matches precisely with the vapor on the OOI Site adjacent to Golden Avenue and  
5 the northern portion of the OOI Site north of Baker Street. See Petition A2335 at 5-6, 13, 20-24.

6 These facts show a lack of substantial evidence to support Petitioners being named in the first  
7 place as responsible parties in the Order. If Petitioners continue to be required to comply with the  
8 Order, the requirements from the Regional Board should be tailored reasonably, as proposed in the  
9 Work Plan. Substantial evidence does not support the additional requirements in the Denial.

10 **1. NAME AND ADDRESS OF PETITIONERS**

11 Petitioners may be contacted through their counsel of record: Viviana L. Heger, Tropio &  
12 Morlan, 21700 Oxnard Street, Los Angeles, California 91367 and Deborah P. Felt, Tesoro Refining  
13 and Marketing Company, LLC, 2350 E. 223rd Street, 416D, Carson, California 90810.

14 **2. THE ACTION OR INACTION FOR WHICH PETITIONERS SEEK REVIEW**

15 This petition for review concerns the issuance of the Regional Board's Denial, entitled  
16 "Approval of Master Work Plan and Human Health Risk Assessment Work Plan Under Cleanup and  
17 Abatement Order No. R4-2013-0064 Pursuant to California Water Code Section 13304," dated  
18 January 30, 2015. The Denial defines the Site involved broadly as "Golden Avenue, between Baker  
19 Street and West Wardlow Road, Long Beach, California (SCP Case No. 0093A and Site ID No.  
20 2040420)." The Site is the eastern boundary of the OOI Site, which has been undergoing  
21 environmental investigations and activities since about the 1980s. OOI has left gaps in its  
22 assessment of the OOI Site; therefore, the Denial essentially continues to shift to Petitioners the  
23 burden to fill in the gaps in the work related to the eastern boundary of the OOI Site.

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26 attenuate in the environment through adsorption, dispersion, dilution, volatilization, and biological degradation. This  
27 natural attenuation slows and limits the migration of dissolved petroleum plumes in groundwater." See Brycon, "Report  
28 on Additional Site Characterization, Oil Operators, Inc., 712 Baker Street, Long Beach, Cal., SCP Case No., 0093,  
SCPID No. 2044M00," prepared for Oil Operators, Inc. (September 30, 2011, Newport Beach, Cal.).

1 Petitioners should have no duties stemming from the Order, but to the extent any duties  
2 apply, they should be limited to the scope of the Work Plan. The Denial contains several  
3 objectionable components. The Denial states:

- 4
- 5 “1. In addition to the proposed groundwater sampling points, at least seven (7) additional  
6 Hydropunch™ groundwater grab samples shall be collected. Three evenly spaced  
7 additional grab samples shall be collected to the east of Golden Avenue, in order to  
8 assess the extent of the groundwater contaminant plume to the east. One grab sample  
9 should be collected at TSO-8, which is the vicinity of historical groundwater monitoring  
10 wells with detections of 1-2-Dichloroethane and benzene (JB&A-1 and JB&A-2). One  
11 grab sample should be collected at TSO-17, and an additional 2 grab samples should be  
12 collected to the east and west of TSO-17, in order to determine the source of the LNAPL  
13 found in Brycon-MW1 (Revised Figure 5).  
14 ...  
15 2. In addition to the proposed soil vapor sampling points, at least two (2) additional  
16 permanent multi-depth soil vapor probes shall be installed along Countryside Lane, in  
17 order to provide sufficient data for completion of the HHRA (Revised Figure 5).  
18 3. All soil vapor sampling points should be sampled at depths of 5, 10, 15 feet bgs, and  
19 then at 10 foot intervals thereafter, until the deepest soil vapor probe is within 5 to 10  
20 feet of groundwater. This is necessary for evaluating whether off-gassing from  
21 groundwater is the source of the soil vapor contaminant plumes...  
22 ...  
23 7. The California State Water Resources Control Board’s Low-Threat Underground  
24 Storage Tank Case Closure Policy shall not be used to eliminate COPCs [constituents of  
25 potential concern] for the HHRA [human health risk assessment].  
26 ...  
27 12. By **July 6, 2015**, submit a Site Investigation Report (Report) and SCM documenting the  
28 results of the investigation, sample collection procedures, field observations, laboratory  
data, and conclusions and recommendations. . .  
13. By **August 3, 2015**, submit a Human Health Assessment Report to the Regional Board.”  
*See Exh. 1 at 4-5.*

22 All of these additional obligations and restrictions involve the assessment of the eastern  
23 border of the OOI Site, where the Board improperly is requiring Petitioners – rather than OOI – to  
24 define the “extent of the groundwater contaminant plume to the east” and “off-gassing from  
25 groundwater.” To shift this work to Petitioners, the Denial purports to point to an alleged “top-down  
26 release” from the pipelines because benzene soil vapor at CESV33 has a concentration peak of 390  
27 micrograms per liter (µg/l) at 20 feet below ground surface (bgs) and then a drop to 18 µg/l at 32 feet  
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1 bgs. Far from a “top-down” release, a peak concentration at 20 bgs indicates a deeper source of  
2 contamination and bottom-up movement of vapors. As Petitioners have shared with the Board, soil  
3 vapor benzene concentration increases with depth at most locations at the Site. In particular,  
4 benzene concentrations at CESV33 increase at 20 feet bgs. This indicates a deeper source of  
5 contamination, not a shallow pipeline source. *See* Petition No. A2335 at 21, Exh. 5, Dec. 4, 2012  
6 letter, at 10-11. Benzene is present in shallow soil vapor samples collected from VES-A, near  
7 CESV33, but analytical data show that gasoline is not the source of the benzene.<sup>4</sup> And again, not  
8 only is subsurface vapor not sourced from gasoline, it instead matches precisely with the vapor on  
9 the OOI Site adjacent to Golden Avenue and the northern portion of the OOI Site north of Baker  
10 Street. *Id.*

11 Imposing these additional restrictions and obligations on Petitioners is unreasonable where,  
12 as here, the Regional Board has repeatedly acknowledged the “unknown” extent of impacts along  
13 the eastern border of the OOI Site, stating:

- 14 • The “Regional Board agrees that there is a lack of data defining an eastern boundary  
15 for impacts, particularly in soil and groundwater (as opposed to soil gas)[.]”
- 16 • The “extent of ground water impacts within Golden Avenue and north of it remains  
17 unknown[.]”
- 18 • “The extent of impacts along Golden Avenue has not been defined laterally or  
19 vertically. The investigation of impacts has not been fully completed.”
- 20 • The Site is “largely undefined[;]” (*see* Exh. 3 at Response to Comment Nos. 1.6,  
21 1.11, 1.18, 1.22.)

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26 <sup>4</sup> Specifically, the sample collected from VES-A contains predominantly cyclic hydrocarbons, not branched  
27 hydrocarbons, which suggests that the composition of the soil vapor is of an unrefined nature. The VES-A sample  
28 chromatograms lack the triplet of ethylbenzene and xylenes peaks present in gasoline. In addition, iso-octane was not  
present in this sample. Therefore, the VES-A soil vapor is not sourced from gasoline. *Id.*

1 Clearly, the Site, which is the eastern border of the OOI Site, is not delineated and the Board  
2 has been aware of this for some time. In or around 2011, OOI collected samples along the eastern  
3 edge of the OOI Site, presumably under Regional Board oversight; however, the OOI vapor  
4 sampling must have been inadequate. Why else would the Denial request that Petitioners locate  
5 borings in Countryside Lane and carry out additional investigation that OOI never apparently  
6 completed? The Board correctly seeks delineation of the plume; however, the Denial improperly  
7 requires Petitioners – rather than OOI – to conduct that delineation. And, the Denial also requires  
8 Petitioners to conduct more work than Petitioners believe is necessary. Petitioners should have no  
9 duties stemming from the Order (because they should not be named in the first place); however, to  
10 the extent any duties apply, they should be tailored reasonably, as proposed in the Work Plan.

11 **3. THE DATE REGIONAL BOARD ACTED OR FAILED TO ACT**

12 The date of the Regional Board’s action that is subject to review is January 30, 2015, when  
13 the Denial was signed by the Executive Officer of the Regional Board. The Denial was received at  
14 9:50 a.m. on February 2, 2015 via e-mail transmission.

15 **4. STATEMENT OF REASONS THE ACTION IS INAPPROPRIATE AND IMPROPER**

16 The issuance of the Denial was beyond the authority of the Regional Board, inappropriate,  
17 improper, or not supported by the record, for the following reasons:

18 a) The Denial is unreasonable in that it seeks to impose burdensome and  
19 unreasonable obligations, including, without limitation, assessments, remediation, and continued  
20 investigation and studies, which are not authorized under the Water Code. Obligations related to a  
21 clean-up and abatement order may be imposed upon a person “who has caused or permitted, causes  
22 or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or  
23 probably will be, discharged into the waters of the state and creates, or threatens to create, a  
24 condition of pollution or nuisance.” Cal. Water Code § 13304. There is no evidence that Petitioners  
25 have discharged waste at the Site. Water Code section 13304 does not authorize the Board to  
26 impose any obligations on Petitioners and particularly not any obligations to investigate and  
27 delineate the plume along the eastern border of the OOI Site. There is no substantial evidence of a  
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1 gasoline release from Lines 32, 34 or 252 at the Site or that if such a release occurred, it is the source  
2 of benzene and other pollutants at the eastern border of the OOI Site. If Petitioners continue to be  
3 required to carry out the requirements in the Order and the additional requirements in the Denial, the  
4 requirements should be limited to the Work Plan proposals.

5           b)       The obligations under the Denial are further unreasonable because they are  
6 not supported by, or are inconsistent with, substantial evidence in the record. Forensics analysis  
7 shows a precise match between soil vapor the Board believes originated from Petitioners' pipelines  
8 and soil vapor at the OOI Site, thus demonstrating a source at the OOI Site. *See* Petition No. 2335 at  
9 5-6, 13, 20-24. Accordingly, available evidence does not support the requirements specified in the  
10 Denial. Investigations of Petitioners and Petitioners' predecessors have found nothing showing any  
11 impact from Lines 32, 34, and 252 at the Site. *See* Exhs. 2, 4, and 5 of Petition No. A2335. The  
12 Regional Board continues to act improperly by failing to rely on credible, sufficient evidence to  
13 justify requiring Petitioners to perform the work requested in the Denial. Petitioners are not  
14 dischargers or threatened dischargers subject to the requirements of Water Code section 13304.  
15 Accordingly, Petitioners should not be required to undertake any work specified in the Denial, but  
16 particularly not the portions of the Denial that are objectionable.

17           c)       The burden, including costs, of the directives set forth in the Denial, including  
18 without limitation, additional data, information and reports, do not bear a reasonable relationship to  
19 the need for said data, information and/or reports, or the benefits to be obtained therefrom, and,  
20 therefore, are contrary to California Water Code section 13304. Many of the items that the Regional  
21 Board seeks have been, will be, or should be completed in conjunction with on-going investigations  
22 by OOI. The subsurface areas beneath the Site have been, will be, or should be sampled by OOI,  
23 and the additional costs associated with the requirements in the Denial, as well as costs for further  
24 sampling, should be borne by OOI because it is currently undertaking remediation and assessment  
25 activities. Thus, the burden, costs, and directives set forth in the Denial are largely, if not entirely,  
26 duplicative of directives for the OOI Site.

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1           d)     The Denial is vague and ambiguous, including without limitation, its failure to  
2 provide legally sufficient grounds for requiring Petitioners to engage in additional investigation  
3 activities, and complete and submit additional data, information and/or reports. The Denial is vague  
4 and ambiguous in the manner that it defines the Site. The Site overlaps with the eastern edge of the  
5 OOI Site and, as a result, shifts to Petitioners various assessment and remediation activities to fill in  
6 gaps OOI's investigation has left behind. Thus, the Denial is broad and unnecessarily burdensome  
7 to the extent it is interpreted to require Petitioners to do anything more than proposed in the Work  
8 Plan.

9           **5. PETITIONERS ARE AGGRIEVED**

10           Petitioners are aggrieved for the reasons set forth in section 4, above. Petitioners continue to  
11 be subject to substantial regulatory requirements pursuant to the Denial despite that it is contrary to  
12 law and it relates to releases of wastes, which others, rather than Petitioners, experienced. The  
13 Regional Board is imposing upon Petitioners tasks that the likely discharger, OOI, did not carry out  
14 adequately and did not fulfill to the degree the Regional Board currently expects of Petitioners, even  
15 though an OOI Site remedial action remains open. For example, the Denial requests borings in  
16 Countryside Lane, where OOI collected samples in the past; however, the OOI vapor sampling did  
17 not meet the Board's current demands of the Petitioners, and the Board has not required additional  
18 investigation by OOI to fill in data gaps. OOI's detection limit for benzene in its past shallow  
19 samples exceeded the California Human Health Screening Levels ("CHHSLs"). Also, OOI did not  
20 extend its borings to the groundwater table in the area of CESV33. And, OOI did not collect  
21 groundwater samples east of Golden Avenue. Now, the Denial specifically shifts all of these  
22 obligations on Petitioners without any substantial evidence that Petitioners' pipelines are a source of  
23 contaminants at the Site.

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1 With regard to human health risk assessment, Water Code section 13304.2(d) provides that  
2 risk assessment obligations can only apply to “an order issued by the state board or a regional board .  
3 . . pursuant to Section 13304[.]” The Regional Board has never ordered OOI pursuant to Water  
4 Code section 13304; therefore, Petitioners are aggrieved because all risk assessment duties are  
5 placed on them solely despite known impacts and plumes on the OOI Site.

6 **6. PETITIONERS’ REQUEST TO THE STATE BOARD**

7 Petitioners request that the objectionable portions of the Denial be vacated and the applicable  
8 objectionable deadlines extended 60 days. Petitioners should have no duties stemming from the  
9 Order (because they should not be named in the first place); however, to the extent any duties apply,  
10 they should be tailored reasonably, as proposed in the Work Plan. Petitioners respectfully request  
11 the Board to issue a stay in this matter and Petition No. A2335 so that the status quo may be restored  
12 until such time as the State Board has the opportunity to rule on this matter.

13 **7. STATEMENT OF POINTS & AUTHORITIES**

14 Petitioners’ statement of points and authorities is attached. Petitioner reserves the right to  
15 supplement its points and authorities prior to hearing on this matter.

16 **8. STATEMENT OF TRANSMITTAL OF PETITION TO THE REGIONAL BOARD**

17 A true and correct copy of this petition for review was transmitted to Samuel Unger,  
18 Executive Officer of the Los Angeles Regional Board, on March 2, 2015.

19 **9. SUBSTANTIVE ISSUES RAISED BEFORE THE REGIONAL BOARD**

20 Petitioners have not yet been afforded a meaningful opportunity to be heard on the  
21 substantive issues set forth in the Order and the Denial. Petitioners diligently continue to respond to  
22 requests from the Regional Board, but efforts to resolve disputed issues with Regional Board staff  
23 have failed. Petitioners, therefore, may be without an adequate remedy unless the State Board grants  
24 this petition for review and a hearing with respect to the issues presented here and those in Petition  
25 Nos. A2215 and A2335.

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1                    **10. REQUEST FOR HEARING**

2                    In connection with any hearing in this matter, Petitioners reserve the right to present  
3 additional evidence, points and authorities, or testimony to the State Board and will submit to the  
4 State Board, if appropriate, statements regarding evidence pursuant to Code of California  
5 Regulations, Title 23, section 2050(b).

6  
7                    DATED: March 2, 2015

VIVIANA L. HEGER  
TROPPIO & MORLAN

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9                    DEBORAH P. FELT  
TESORO REFINING & MARKETING COMPANY LLC

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11                    \_\_\_\_\_  
Viviana L. Heger

12                    Attorneys for Petitioners  
TESORO REFINING & MARKETING COMPANY LLC  
13                    TESORO SOCIAL PIPELINE COMPANY LLC

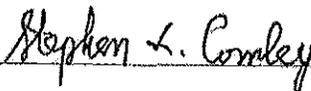
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VERIFICATION AND SUPPORTING DECLARATION

I, Stephen D. Comley, am employed by Tesoro Logistics Company LLC (“TLO”) and am primarily responsible for overseeing the Petitioners’ response to certain denials in an Approval of Master Work Plan and Human Health Risk Assessment under Water Code section 13304 (the “Denial”) dated January 30, 2015 and issued to Petitioner Tesoro Logistic Operations LLC related to property at Golden Avenue between Baker Street and West Wardlow Road in Long Beach, California (“Site”). I have read the foregoing Verified Petition for Review and Exhibits 1 through 3 and believe that the statements therein are true and correct. If called as a witness to testify with respect to the matters stated therein, I could and would competently do so under oath.

Should the Tesoro Petitioners be subject to the Denial’s requirements during the pendency of this Petition, Petitioners would suffer substantial harm because the Order requires extensive environmental investigation and remediation, the costs of which continue to be substantial. While Petitioners will suffer substantial harm without issuance of a stay, neither the public interest nor any interested parties will suffer harm in the event the stay is issued because the responsible party, would remain subject to the clean-up requirements at the OOI Site. Additionally, there is substantial doubt about the validity of the underlying Order (both on the facts and the law); the Order fails to cite evidence establishing that Petitioners have discharged or is suspected of discharging waste; and, all the relevant evidence cited in the Order points to another party or parties.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this verification and supporting declaration were executed in Long Beach, California on March 2, 2015.

  
\_\_\_\_\_  
Stephen D. Comley

1 **MEMORANDUM OF POINTS AND AUTHORITIES**

2 **I. INTRODUCTION AND SUMMARY**

3 For the reasons stated in the Verified Petition, the Regional Board lacks substantial evidence  
4 to deny portions of Petitioners’ Work Plan and impose additional requirements in the Denial, entitled  
5 “Approval of Master Work Plan and Human Health Risk Assessment under Water Code section  
6 13304 dated January 30, 2015. The Denial relates to the Order’s allegation that a gasoline source  
7 resulted in the discharge of benzene, 1,2-DCA, and LNAPL. The Denial directs Petitioners to (i)  
8 include certain COPCs in the HHRA; (ii) expand groundwater sampling, multi-depth vapor probes,  
9 and the depth of vapor sampling; and (iii) accelerate the implementation schedule for the Site  
10 Investigation Report and HHRA. These demands are unreasonable because they shift entirely to  
11 Petitioners a duty that belongs to OOI. This work is required without providing substantial evidence  
12 that Petitioners’ pipelines – Lines 32, 34, and 252 – are a likely source of gasoline. Petitioners  
13 should have no duties stemming from the Order (because they should not be named in the first  
14 place); however, to the extent any duties apply, they should be tailored reasonably, as proposed in  
15 the Work Plan.

16 Petitioners request that the Denial be stayed pending the State Board's review of this petition  
17 and, to the extent possible, Petition No. A2335. Unless substantial evidence implicates Lines 32, 34,  
18 or 252 as a source, Petitioners should not be required to do more than what was proposed in the  
19 Work Plan. Further, for these reasons set forth in prior Petition Nos. A2215 and A2335, Petitioners  
20 continue to request that the Order be vacated as to Petitioners or, alternatively, be modified in the  
21 manner specified in Petition No. A2335.

22 **II. BACKGROUND**

23 The Verified Petition provides relevant background.

24 **III. ARGUMENT**

25 **A. Denial of HHRA Scope Directly Contradicts Policy**

26 The Denial is improper because it contradicts state policy. The California Low Threat  
27 Closure Policy (St. Water Res. Control Board Res. No. 2012-0016) (“LTC Policy”) provides that  
28

1 “petroleum fuels naturally attenuate in the environment through adsorption, dispersion, dilution,  
2 volatilization, and biological degradation. This natural attenuation slows and limits the migration of  
3 dissolved petroleum plumes in groundwater.” Further, LTC Policy allows for application of the  
4 screening process to non-underground storage tank (“UST”) petroleum release sites, as the LTC  
5 Policy is based upon well-documented cases of petroleum degradation regardless of the release  
6 mechanism. The LTC Policy specifically applies the criteria for UST closure to non-UST cases that  
7 have attributes similar to those described in the LTC Policy.

8 To comply with the Denial, Petitioners are forced to conduct the HHRA on all COPCs that  
9 exceed California Human Health Screening Levels (“CHSSLs”), even though the LTC Policy: (1)  
10 defines soil vapor COPCs from petroleum release sites as benzene, ethylbenzene, and naphthalene  
11 only, and (2) provides soil vapor criteria below which the releases “pose a low threat to human  
12 health, safety, or the environment,” if the site-specific conditions characteristics of the LTC Policy  
13 are met. The LTC Policy is applicable to the alleged gasoline release from Petitioners’ pipeline if  
14 site-specific conditions are met. If the requirements are met, Petitioners should be allowed to identify  
15 Site COPCs as benzene, ethylbenzene, and naphthalene only and apply the media-specific criteria to  
16 the Site data. Petitioners request that the State Board direct the Board to rescind this portion of the  
17 Denial that is contrary to the LTC Policy and approve Petitioners’ Work Plan.

18 Petitioners’ Work Plan proposed to use CHHSLs and LTC Policy to eliminate COPCs.  
19 Specifically, the Work Plan stated the following:

20 **4.2.2.2 Soil Vapor**

21 Soil vapor screening levels will be equal to the California Human Health Screening  
22 Levels (CHHSLs) (CalEPA, 2010 and 2011). CHHSLs are based on a target potential  
23 ELCR of  $1 \times 10^{-6}$  and a target HQ of 1. CHHSLs for the residential and  
24 commercial/industrial scenarios will be used as appropriate. Chemicals detected in  
25 soil vapor at concentrations greater than the associated screening level will be  
identified as COPCs for further evaluation of the vapor intrusion pathway, as  
discussed in Section 4.3.1.3.

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1 The California State Water Resources Control Board's (CA SWRCB) Low-Threat  
2 Underground Storage Tank Case Closure Policy –“low-threat closure” (CA SWRCB,  
3 2012 and SWRCB, Res No. 2012-0016) will also be considered as part of the COPC  
4 selection process. The policy provides that “petroleum fuels naturally attenuate in the  
5 environment through adsorption, dispersion, dilution, volatilization, and biological  
6 degradation.” While this policy does not specifically address other petroleum release  
7 scenarios such as pipelines or aboveground tanks, if a particular site with a different  
8 petroleum release scenario exhibits attributes similar to those which this policy  
9 addresses, the criteria for closure evaluation of these non-UST sites should be similar  
10 to those in this policy.” Therefore COPCs may be eliminated from further evaluation  
11 of the vapor intrusion and other pathways if Site conditions meet the requirements for  
12 low-threat closure in accordance with this policy.

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Petitioners request that the State Board direct the Regional Board to approve Petitioners’  
Work Plan request that incorporates the LTC Policy.

**B. The Denial Rejects Portions of Work Plan and Imposes Unreasonable  
Additional Obligations**

The Denial rejects portions of Petitioner’s Work Plan related to (i) the requirements  
pertaining to the number of groundwater sampling points along OOI’s eastern boundary, the location  
of multi-depth vapor probes, the depth of vapor sampling at the Site; and (ii) the implementation  
schedule for the Site Investigation Report and HHRA. These demands are unreasonable. The  
additional groundwater sampling points, the location of multi-depth vapor probes, and the depth of  
vapor sampling continue to shift to Petitioners obligations that once were OOI’s and that Water  
Code 13304 continues to impose on OOI and perhaps other parties. The Denial’s implementation  
schedule eliminates the time Petitioners estimated as necessary in the Work Plan. These demands  
lack a reasonable basis because, as explained in Petition Nos. A2215 and A2335, Petitioners are not  
dischargers or threatened dischargers, and there is substantial evidence in the record of other  
dischargers primarily responsible. Accordingly, Petitioners should have no duties stemming from  
the Order (because they should not be named in the first place); however, to the extent any duties  
apply, they should be tailored reasonably, as proposed in the Work Plan.

Instead of being reasonable, the Denial proposes “at least seven (7) additional . . .  
groundwater grab samples” – a significant increase in required groundwater sampling, given that the  
Work Plan committed to the collection of five groundwater samples, with an additional 15 potential

1 groundwater sample points. Petitioners found a way to satisfy five of seven sample requests, but  
2 oppose two. In particular, two of the sample points are objectionable because they are near other  
3 sample locations and are more distant from the area of concern identified by the Regional Board than  
4 boring locations proposed in the Work Plan. Petitioners request that the two additional groundwater  
5 grab samples proposed by the Regional Board be withdrawn because they are virtually duplicative of  
6 existing sample points.

7 The Denial also requires multi-depth vapor probes along Countryside Lane, which is located  
8 east of the OOI Site. OOI investigated this area in or around 2011 using less rigorous standards, and  
9 Petitioners should not be tasked with more rigorous standards than OOI. Among other things, the  
10 method of laboratory analysis of soil vapor samples collected by OOI's prior investigations resulted  
11 in sample detection limits that exceeded the benzene residential CHHSL and, therefore, could not be  
12 used to eliminate the potential for benzene risk in the neighborhood to the east of the OOI site.<sup>5</sup>  
13 Though the OOI Site remedial action remains open, the Board has not required additional  
14 investigation by OOI to the same rigorous standards expected of Petitioners. It is grossly  
15 inconsistent to treat similarly situated parties in such a drastically different manner.

16 Further, the Denial requires that "[a]ll soil vapor sampling points should be sampled at  
17 depths of 5, 10, 15 feet bgs, and then at 10 foot intervals thereafter, until the deepest soil vapor probe  
18 is within 5 to 10 feet of groundwater." This is not reasonable. If refusal is encountered at a location  
19 designated for collection of a groundwater sample, it may not be possible to advance vapor probes to  
20 these depths. To comply with the Denial, Petitioners would then be forced to drill additional  
21 boreholes until groundwater is encountered (to establish that the requirement for sampling to "within  
22 5 to 10 feet of groundwater" is met), which is not reasonable where, as here, the work is designed to  
23 delineate the "extent of the groundwater contaminant plume to the east" and "off-gassing from  
24

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25 <sup>5</sup> It is important to note, however, that the CHHSLs – particularly residential CHHSLs – are conservative  
26 screening levels; a benzene detection limit above the CHHSL does not necessarily indicate a potential risk. Unlike  
27 Petitioners, OOI was never required to use residential CHHSLs in assessment the neighboring community. Indeed, the  
28 detection limits presented in OOI's 2011 Work Plan are commercial, not residential. That plan was approved by the  
Board, which now has imposed more rigorous requirements on Petitioners.

1 groundwater.” See Exh. 1 at 4-5. Improperly, the Denial shifts to Petitioners a duty to delineate  
2 OOI’s plume imposing more rigorous requirements -- OOI’s prior investigations did not extend  
3 borings to the groundwater table in the area of CESV33. And, OOI did not collect groundwater  
4 samples east of Golden Avenue. Now, the Regional Board expects Petitioners to complete these  
5 tasks and extend vapor probes in this area to a considerably greater degree than OOI completed in  
6 the past.

7 In support of these considerable demands only on Petitioners, the Regional Board purports to  
8 point to a “top-down release” from Petitioners pipelines because benzene soil vapor at CESV33 has  
9 a concentration peak of 390 µg/l at 20 feet bgs and then a drop to 18 µg/l at 32 feet bgs. Far from a  
10 “top-down” release a peak concentration at 20 bgs indicates a deeper contamination source and  
11 bottom-up movement of vapors. As Petitioners have shared with the Board, soil vapor benzene  
12 concentration increases with depth at most locations at the Site. In particular, benzene  
13 concentrations at CESV33 increase at 20 feet bgs. This does not indicate a shallow source like  
14 Petitioners’ pipelines.

15 To make matters worse, the Denial accelerates the Work Plan implementation schedule and  
16 deprives Petitioners of the time estimates they developed for the Site. To require Petitioners to  
17 undertake the additional work on an accelerated schedule, as specified in the Denial, shifts entirely  
18 and exclusively to Petitioners the sole obligation to delineate impacts along the eastern edge of the  
19 OOI Site. This is improper. “[A] responsible party should not be left to clean up constituents  
20 attributable to a different release for which that party is not responsible.” *In The Matter of the*  
21 *Petition of Mehdi Mohammadian* (Order No. WQO 2002 - 0021, June 2002), 2002 Cal. ENV  
22 LEXIS 36 at \*17 (remanding a multi-party order where evidence indicating two parties’ releases  
23 were not contributing to current site conditions). Here, it is clear that Petitioners are being solely  
24 tasked with first assessing and then cleaning up constituents attributable to a different release(s)  
25 (potentially from the OOI Site or other pipelines beneath Golden Avenue and Baker Street), for  
26 which information indicates Petitioners are not responsible.

27 //

1 As explained in Petition No. A2335, a likely source of wastes at the Site is the OOI Site.  
2 OOI is not named in the Order, and the Denial ignores OOI's impacts despite OOI's documented  
3 history of using, mishandling, and discharging "waste" as defined in the Order, as documented by  
4 permit violations, notices of violation, illegal dumping, and poor site controls.<sup>6</sup> The OOI Site's  
5 remediation efforts history is too lengthy and complicated to recount here. One incident of note,  
6 however, is OOI's resolution of a pending criminal action, in which it entered into a consent decree  
7 in 2002 to remediate one or more storage basins that had caused a condition of nuisance to the  
8 neighboring community.<sup>7</sup>

9 Here, there is no dispute that OOI has operated at the OOI Site for more than 60 years  
10 processing hazardous substances and wastes, including benzene. There is no dispute that OOI had  
11 documented releases, illegal dumping, and regulatory violations and nuisance complaints associated  
12 with its operation of the Site.<sup>8</sup> There is no dispute that hazardous chemicals, including benzene, at  
13 the OOI Site have been found in significant amounts in groundwater under the OOI Site. Indeed, the  
14 OOI wastewater lines are located along the eastern boundary of OOI where groundwater impacts  
15 exist. Thus, there should be no dispute that such chemicals were discharged by OOI to groundwater  
16 underlying the OOI Site, which overlaps the Site in the Order. Along with benzene, 1,2-DCA exists  
17 in groundwater and in deeper soil and soil vapor at the OOI Site at locations CESV10, CESV15,  
18 CESV19, CESV30 and CESV33. See Petition No. A2335, Exh. 5, Dec. 4, 2012 letter, at 10.  
19 Petitioners should not be tasked by the Denial to undertake work that should fall upon OOI.

20 //

21 \_\_\_\_\_  
22 <sup>6</sup> See Petition No. A2335.

23 <sup>7</sup> *People v. Oil Operators Inc.*, Case No. 01LM01702 Consent Decree (Long Beach Municipal Court, August  
28, 2002).

24 <sup>8</sup> See Verified Petition No. A2335. Among other things, between 1990 and 1996, the OOI wastewater lines  
25 entering OOI property at either end of Golden Avenue ruptured off site due to corrosion at least three times, causing  
26 releases of hot brine water, crude, wastewater, and sludge into the environment. One release in 1996 occurred at the  
27 corner of Golden Avenue and Baker Street. The other two documented releases were farther from the Site and may not  
28 have directly contributed impacts; however, they further demonstrate that OOI had a corroded wastewater line (i.e., the  
influent line carrying brine, refinery waste, etc., to the OOI Site), which may have ruptured or leaked at other places that  
suffered corrosion. Analytical data from the 1990 release detected 2,010 ppb benzene in the brine water.

1 With regard to human health risk assessment, the Denial significantly ignores whether OOI  
2 should carry risk assessment duties associated with its property. Water Code section 13304.2(d)  
3 provides that risk assessment obligations can only apply to “an order issued by the state board or a  
4 regional board . . . pursuant to Section 13304[.]” The Regional Board has never named OOI in the  
5 Order or any order issued pursuant to Water Code section 13304; therefore, Petitioners are burdened  
6 with all risk assessment duties despite known impacts and plumes from the OOI Site.

7 The additional obligations upon Petitioners in the Denial are improper and unreasonable.  
8 The Denial is not based on substantial evidence and not supported by applicable legal standards.  
9 Petitioners “should not be left to clean up constituents attributable to a different release[,]” *In The*  
10 *Matter of the Petition of Mehdi Mohammadian, supra*. At a minimum, OOI should be added to the  
11 Order to allow a mechanism for OOI to share in risk assessment duties pursuant to Water Code  
12 section 13304.2(d).

13 **C. Order is Vague and Ambiguous and Should Be Amended**

14 The Denial is vague and ambiguous. It defines the Site as “Golden Avenue between Baker  
15 Street and West Wardlow Road;” however, this fails to account for the overlap between the Site and  
16 the eastern edge of the OOI Site investigation. *See* Exh. 3, Order, at 1. If the Denial is not vacated as  
17 to Petitioners, it should be amended to address these ambiguities.

18 **D. The Order is Unreasonable and A Stay Should be Issued**

19 The Denial is unreasonable in that the Regional Board has failed to provide Petitioners with a  
20 meaningful opportunity to address or refute the Denial’s directives with existing information and  
21 data. Petitioners and their predecessors have undertaken a diligent factual and technical evaluation  
22 that demonstrates Lines 32, 34, and 252 are not gasoline sources for benzene, 1,2-DCA and LNAPL  
23 at the Site.

24 To allow the Regional Board to continue to enforce the Order through the Denial in this  
25 fashion continues to deny Petitioners procedural due process and results in substantial harm.  
26 Petitioners face unjustified and inappropriate regulatory requirements, costs, and potential civil  
27 liability for failure to comply with the Order.

1 Petitioners request that the Board stay enforcement of the objectionable portions of the  
2 Denial until the merits of this Petition and Petition Nos. A2215 and A2335 may be reviewed. A stay  
3 should be issued where, as here, a Petitioner establishes (1) substantial harm to the Petitioners or to  
4 the public interest if a stay is not granted; (2) a lack of substantial harm to other interested persons  
5 and to the public interest if a stay is granted; and (3) substantial questions of law and fact regarding  
6 the disputed action. (Cal. Code Regs. tit. 23 § 2053.)

7 Should Petitioners be subject to the Denial's requirement during the pendency of this  
8 Petition, Petitioners would suffer substantial harm because the Denial requires extensive  
9 environmental investigation and remediation, the costs of which continue to be substantial. While  
10 Petitioners will suffer substantial harm without issuance of a stay, neither the public interest nor any  
11 interested parties will suffer harm in the event the stay is issued because the responsible party, would  
12 remain subject to the clean-up requirements at the OOI Site. Additionally, there is substantial doubt  
13 about the validity of the Order (both on the facts and the law) upon which the Denial is based. The  
14 Order fails to cite evidence establishing that Petitioners have discharged or is suspected of  
15 discharging waste; and, all the relevant evidence cited in the Order points to another party.

16 For all the foregoing reasons, Petitioners request that the State Board grant the relief  
17 requested in this petition.

18  
19 DATED: March 2, 2015

VIVIANA L. HEGER  
**TROPIO & MORLAN**  
DEBORAH P. FELT  
**TESORO REFINING & MARKETING COMPANY LLC**

21  
22   
23 Viviana L. Heger

24 Attorneys for Petitioners  
**TESORO REFINING & MARKETING COMPANY LLC**  
**TESORO SOCIAL PIPELINE COMPANY LLC**

# EXHIBIT 1



EDMUND G. BROWN JR.  
GOVERNOR

MATTHEW RODRIGUEZ  
SECRETARY FOR  
ENVIRONMENTAL PROTECTION

## Los Angeles Regional Water Quality Control Board

January 30, 2015

Mr. Darrell Fah  
Tesoro Logistic Operations LLC  
400 Oceangate, Suite 600  
Long Beach, CA 90802

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
7012 3460 0002 9486 4855

**SUBJECT: APPROVAL OF MASTER WORK PLAN AND HUMAN HEALTH RISK ASSESSMENT WORK PLAN UNDER CLEANUP AND ABATEMENT ORDER NO. R4-2013-0064 PURSUANT TO CALIFORNIA WATER CODE SECTION 13304**

**SITE/CASE: FORMER BP/ARCO PIPELINES, GOLDEN AVENUE, BETWEEN BAKER STREET AND WEST WARDLOW ROAD, LONG BEACH, CALIFORNIA (SCP NO. 0093A AND SITE ID NO. 2040420)**

Dear Mr. Fah:

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) is the public agency with primary responsibility for the protection of ground and surface water quality for all beneficial uses within major portions of Los Angeles County and Ventura County, including the above-referenced Site. To accomplish this goal, the Regional Board directed BP Pipelines (North America), Inc., Atlantic Richfield Company, and ARCO Terminal Services Corporation (ATSC) (collectively "BP") to investigate and remediate contaminants released from the Site under Cleanup and Abatement Order (CAO) No. R4-2013-0064. The Regional Board understands that, through a series of agreements, Tesoro Logistics Operation LLC (TLO) has been assigned investigation and remediation responsibilities at the Site on behalf of BP.

We have received the following technical report (Work Plan) for the Site, submitted by TLO, for our review:

- *Tesoro Logistics Operations LLC Master Work Plan for Assessment and Delineation of Wastes and Human Health Risk Assessment Work Plan for Golden Avenue Site, between Baker Street and West Wardlow Road, Long Beach, California (Work Plan), dated December 22, 2014, prepared by AECOM.*

The Workplan was submitted in response to Items 3 and 4 in the requirements of Cleanup and Abatement Order No. R4-2013-0064 originally dated September 18, 2014. Item 3 requires submittal of a Master Work Plan that describes 1) proposed general assessment techniques, 2) initial sampling locations, and 3) a proposed schedule for completing the proposed work. Additional work plans may be required if assessment efforts result in multiple iterations of work being necessary to complete full

CHARLES STINGER, CHAIR | SAMUEL UNGER, EXECUTIVE OFFICER

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delineation. Item 4 requires submittal of a Human Health Risk Assessment (HHRA) Work Plan that shall propose 1) the collection of sufficient data for completion of a HHRA, 2) methods for preparing the HHRA, and 3) a schedule for both data collection and HHRA preparation.

### **WORK PLAN SUMMARY**

The Site Assessment Master Work Plan proposes the following scope of work:

1. Site assessment sample locations will be selected to verify existing data, determine the extent of impacts identified by others, fill data gaps to the extent feasible, investigate potential historical sources and migration pathways, and assess exposure pathways.
2. Initial sampling locations and methodologies for site assessment are proposed as follows:
  - a. Soil samples will be collected at thirteen (13) sampling locations indicated on Figure 5 (blue and green points). Soil samples will be collected at approximate 5-foot intervals to 45 feet below ground surface (bgs), unless groundwater or refusal is encountered prior to that depth. Discretionary samples at other depth intervals may be collected based on field observations. Up to seven additional locations may be sampled if previously sampled nearby locations indicate that further delineation of the area may aid the preparation of a Site Conceptual Model (SCM) for the Site;
  - b. Six (6) permanent multi-depth soil vapor probes will be installed at six of the proposed soil boring locations along Golden Avenue (TSO-1 through TSO-5 and TSO-9). Additionally, seven (7) multi-depth soil vapor probes will be constructed at the remaining planned boring locations. Soil vapor will be sampled at depths of 5, 10, 15, 25, and 35 feet bgs. Up to seven additional locations may be sampled using post-run tubing if preliminary field data indicate additional screening of vapors will be beneficial in developing a SCM;
  - c. Five (5) Hydropunch™ groundwater samples will be collected at four proposed boring locations on Golden Avenue (TSO-1 through TSO-4) and also at TSO-9, near vapor extraction well VES-A. Up to fifteen additional groundwater grab samples may be sampled at the remaining boring locations;
  - d. Soil samples will be analyzed for: 1) volatile organic compounds (VOCs) using the Environmental Protection Agency (EPA) Method 8260B; 2) Total Petroleum Hydrocarbons as gasoline range organics (TPH-g), Total Petroleum Hydrocarbons as diesel range organics (TPH-d), and Total Petroleum Hydrocarbons as oil range organics (TPH-o) using California Leaking Underground Fuel Tank (CA LUFT)/EPA Method 8260 and EPA Method 8015B; and 3) total lead and organic lead using EPA Method 6010B and Method Hazardous Materials Laboratory-939M (HML-939M), respectively;
  - e. Soil vapor samples will be analyzed for: 1) VOCs using EPA Method 8260SV (modified EPA 8260B) and/or EPA Method TO-15; 2) volatile Total Petroleum Hydrocarbons using EPA Method 8260SV; and 3) fixed gases using American Society for Testing and Materials (ASTM) Method D1946 and methane using EPA Method 8015M;

- f. Groundwater samples will be analyzed for: 1) VOCs using EPA Method 8260B; 2) TPH-g, TPH-d, and TPH-o using CA LUFT/EPA Method 8260 and EPA Method 8015B; and 3) total lead and organic lead using EPA Method 6010B and Method HML-939M, respectively;
  - g. A site-specific health and safety plan will be developed for field activities;
  - h. Required notifications and permits will be provided to and obtained from the City of Long Beach and South Coast Air Quality Management District (SCAQMD) prior to the commencement of investigation activities; and
  - i. Equipment used during the hand auger boring, drive rods and sampler, soil and groundwater sampling activities, and installation of the soil vapor probes will be decontaminated between uses. Solid and liquid waste derived during the investigation will be contained in sealed 55-gallon drums; the waste will be transported to Tesoro-approved treatment and/or disposal facilities.
3. Implementation of the proposed field activities will begin within 60 days upon receipt of approval of the Work Plan. A report describing the results of the investigation will be submitted within 120 days of receipt of final laboratory reports. The report will include the activities and results of the investigation and a SCM.

The Human Health Risk Assessment Work Plan proposes the following scope of work:

1. Soil samples from 0 to 15 feet bgs and soil vapor samples collected during activities proposed under the Site Assessment Master Work Plan will be evaluated in the HHRA. Groundwater at the Site is anticipated to be encountered at approximately 45 feet bgs. Thus, groundwater data collected during proposed activities will be used as a secondary source of data for assessment of vapor intrusion.
2. The HHRA will consist of the following four steps:
  - a. Data evaluation  
Constituents of potential concern (COPCs) will be selected based on current U.S. EPA Regional Screening Levels for soil, the California Human Health Screening Levels (CHHSLs) for soil vapors, and the U.S. EPA Vapor Intrusion Screening Levels (VISLs) for groundwater. The California State Water Resources Control Board's Low-Threat Underground Storage Tank Case Closure Policy may be used to eliminate COPCs from further evaluation as well.
  - b. Exposure assessment  
Potential receptors of and exposure pathways to the COPCs at the Site will be identified. Exposure point concentrations (EPCs) for soil and outdoor air will be estimated according to U.S. EPA guidance (2002b, 2002a). EPCs for indoor air will be estimated based on soil vapor concentrations using the U.S. EPA Johnson and Ettinger Model spreadsheets adjusted for California Environmental Protection Agency (CalEPA) recommended inputs (U.S. EPA, 2004b). Exposure doses for oral, dermal, and Inhalation exposure will be calculated following U.S. EPA guidance (1989, 2004a, 2009).

c. Toxicity assessment

Toxicity information will be obtained from the CalEPA OEHHA's Toxicity Criteria Database (CalEPA, 2014). Where CalEPA recommended toxicity values are not available, U.S. EPA's recommended hierarchy of sources of toxicity values (U.S. EPA, 2003) will be followed.

d. Risk characterization

Results of the exposure assessments (exposure doses) and toxicity assessments (toxicity values) will be combined to characterize the potential risk/hazard to human health. Risks from different exposure pathways will be summed to estimate the total Site excess lifetime cancer risk for each potential receptor. These estimates will be compared to U.S. EPA's target cancer risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ . Medium-specific hazard indices for each potential receptor within an exposure area will be calculated by summing hazard quotients for each COPC, and then summing hazard indices across exposure pathways in each environmental medium. Total hazard index estimates will be compared to U.S. EPA's target non-carcinogenic hazard index of 1.

3. Implementation of the proposed field activities will begin within 60 days upon receipt of approval of the Work Plan. A report describing the results of the investigation will be submitted within 120 days of receipt of final laboratory reports.

#### **WORK PLAN APPROVAL**

The Regional Board hereby approves the Work Plan, with the following comments and additions:

1. In addition to the proposed groundwater sampling points, at least seven (7) additional Hydropunch™ groundwater grab samples shall be collected. Three evenly spaced additional grab samples shall be collected to the east of Golden Avenue, in order to assess the extent of the groundwater contaminant plume to the east. One grab sample should be collected at TSO-8, which is in the vicinity of historical groundwater monitoring wells with detections of 1,2-Dichloroethane and benzene (JB&A-1 and JB&A-2). One grab sample should be collected at TSO-17, and an additional 2 grab samples should be collected to the east and west of TSO-17, in order to determine the source of the LNAPL found in Brycon-MW1 (Revised Figure 5).
2. In addition to the proposed soil vapor sampling points, at least two (2) additional permanent multi-depth soil vapor probes shall be installed along Countryside Lane, in order to provide sufficient data for completion of the HHRA (Revised Figure 5).
3. All soil vapor sampling points should be sampled at depths of 5, 10, 15 feet bgs, and then at 10 foot intervals thereafter, until the deepest soil vapor probe is within 5 to 10 feet of groundwater. This is necessary for evaluating whether off-gassing from groundwater is the source of the soil vapor contaminant plumes. For example, at CESV33, benzene soil vapor concentrations peak at 390 µg/L at 20 feet bgs, and then drop off sharply to 18 µg/L at 32 feet bgs, indicating a top-down release. However, a data gap exists from 32 feet bgs to groundwater, which is at approximately 50 feet bgs (Revised Figure 6). Therefore sampling soil vapor to within 5 to 10 feet of groundwater will help to characterize the release scenario of the soil vapor plumes.

4. Additional sampling may be required in order to completely delineate the extent of petroleum hydrocarbons and other constituents of concern in soil, soil vapor, and groundwater discharged at or from the Site.
5. Any off-site disposal of waste should be to a legal point of disposal and in accordance with the provisions of Division 7.5 of the California Water Code. A legal point of disposal is one for which the Regional Board have established requirements and is in compliance therewith.
6. The soil vapor Investigation should follow the *Advisory – Active Soil Gas Investigations* dated April 2012 (Advisory) and developed jointly by the Department of Toxic Substances Control (DTSC), the California Regional Water Quality Control Board, Los Angeles Region, and the San Francisco Regional Water Quality Control Board. Guidelines concerning sampling during barometric pressure fluctuations have been described in the Advisory.
7. The California State Water Resources Control Board's Low-Threat Underground Storage Tank Case Closure Policy shall not be used to eliminate COPCs for the HHRA.
8. The Regional Board shall be notified a minimum of seven (7) days before the start of field activities.
9. Any changes to the approved scope of work or schedule should be coordinated with the Regional Board prior to performing any changes.
10. A detailed schedule for Implementation of the Master Work Plan and the HHRA Work Plan shall be submitted to the Regional Board **within 30 days upon receipt of permits**.
11. By **March 30, 2015**, submit to the Regional Board a revised draft fact sheet in a common editable electronic format. The revised draft fact sheet should be written and formatted in accordance with the attached template provided. The Regional Board will review and, if necessary, edit the fact sheet prior to its public distribution.
12. By **July 6, 2015**, submit a Site Investigation Report (Report) and SCM documenting the results of the investigation, sample collection procedures, field observations, laboratory data, and conclusions and recommendations. Additionally, soil, soil vapor, and groundwater plume Iso-concentration maps, and soil and soil vapor cross-sections shall be included in the Report.
13. By **August 3, 2015**, submit a Human Health Risk Assessment Report to the Regional Board.
14. All submitted reports shall be uploaded to the Geotracker website to comply with the Regional Board's requirements for the submittal of technical reports. Paper submittals are not necessary.

As presented in State Water Resources Control Board Resolution 92-49, professionals should be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. Moreover, the final reports submitted to this Regional Board should be reviewed, signed and stamped by a California registered geologist, or a California registered civil engineer with at least five years hydrogeologic experience. Furthermore, the California Business and Professions Code Sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be

performed by or under the direction of registered professionals. Therefore, all future work should be performed by or under the direction of a registered geologist or registered civil engineer. A statement is requested in the final reports that the registered professional in charge actually supervised or personally conducted all the work associated with the work plan and final reports.

Items 1 through 14 (above) constitute an amendment to Items 3 and 4 in the requirements of Cleanup and Abatement Order No. R4-2013-0064 originally dated September 18, 2014, and Item 2 of the *Approval of Interim Remedial Action Plan* dated October 14, 2014. All other aspects of Order No. R4-2013-0064 originally dated September 18, 2014, and amendments thereto, remain in full force and effect. Pursuant to section 13350 of the California Water Code, failure to comply with the requirements of Order No. R4-2013-0064 by the specified due date, including dates in this amendment, may result in civil liability administratively imposed by the Regional Board in an amount up to five thousand dollars (\$5,000) for each day of failure to comply.

If you have any questions, please contact Rebecca Orr at (213) 576-6811 or [Rebecca.orr@waterboards.ca.gov](mailto:Rebecca.orr@waterboards.ca.gov)

Sincerely,



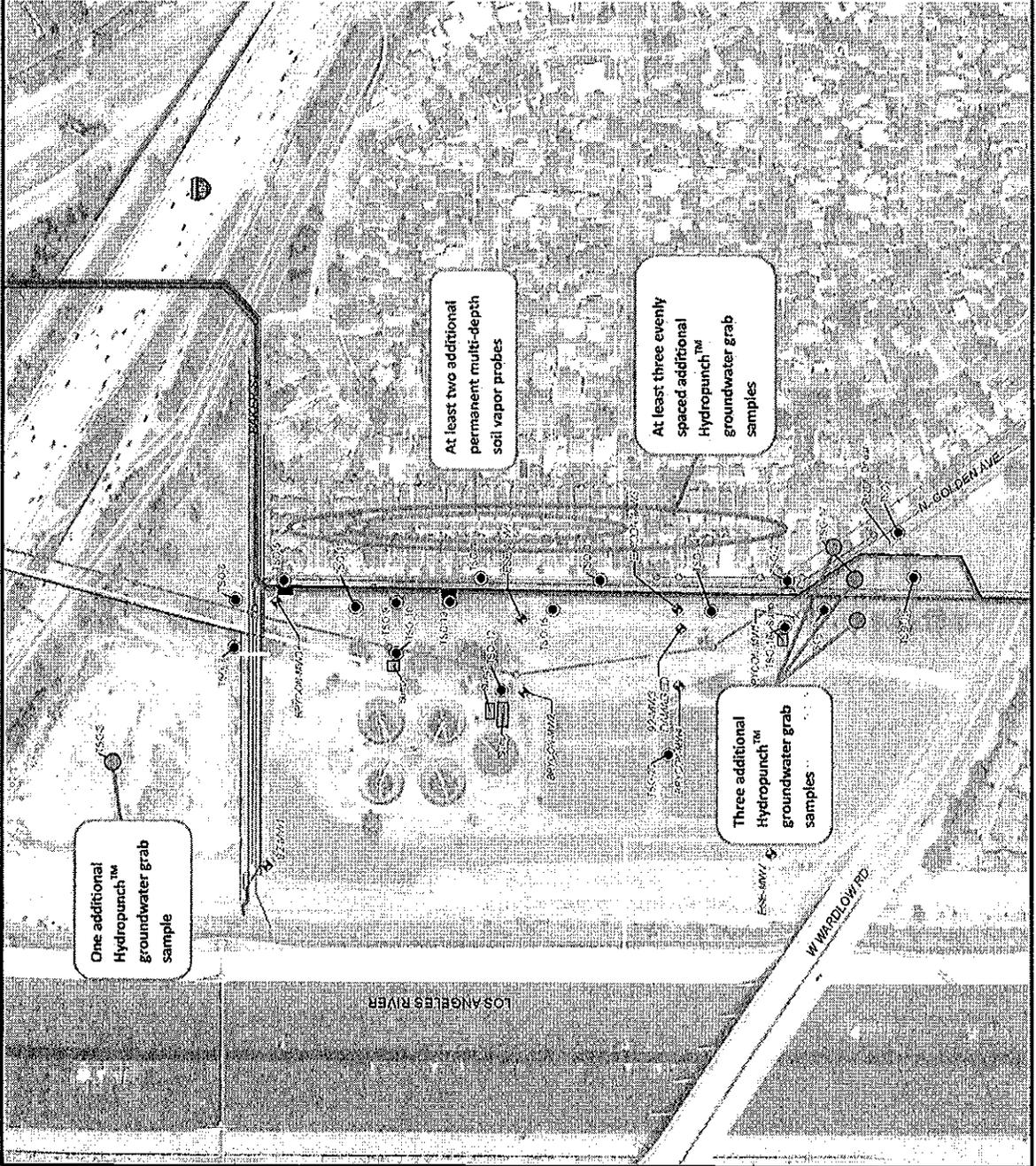
Samuel Unger, P.E.  
Executive Officer

Enclosures: *Figure 5, Revised Figure 5, Revised Figure 6, Fact Sheet Template*

Electronic Copies: (via e-mail)

Mr. Charles I. Buckley, California Environmental Geologists & Engineers, Inc.  
Mr. Stephen Comley, Tesoro Refining and Marketing Company LLC  
Mr. Ngiabi Gicuhi, Plains West Coast Terminals, LLC  
Ms. Joan Greenwood, Wrigley Area Neighborhood Alliance  
Councilmember Roberto Uranga, City of Long Beach  
Mr. Nelson Kerr, City of Long Beach, Health and Human Services Department  
Mr. Kevin Laney, Oil Operators, Inc.  
Mr. George B. Paspalof, Brycon LLC  
Ms. Carmen Piro, City of Long Beach, Health and Human Services Department  
Ms. Gabriele Windgasse, California Department of Public Health  
Mr. Chris Windsor, BP Pipelines (North America), Inc.; Atlantic Richfield Company; and ARCO Terminal Services Corporation





**LEGEND**

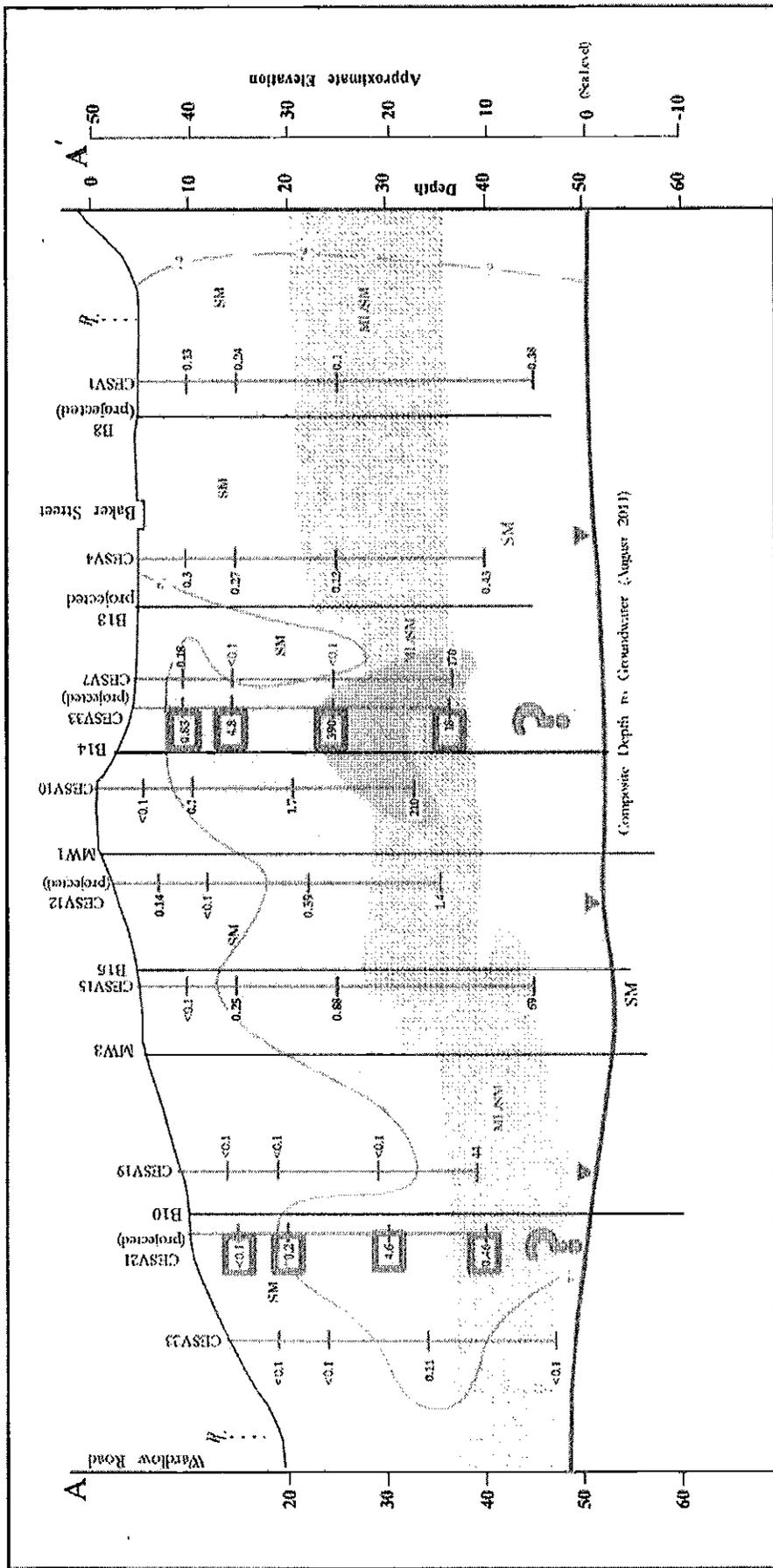
- ◆ GEOWATER MONITORING WELL LOCATION
- GEOWATER MONITORING WELL LOCATION SAMPLED FOR NAP
- PROPOSED LOCATION OF SOIL AND SOIL VAPOR PROFILES, SOIL AND GROUNDWATER GRAB SAMPLING
- PROPOSED LOCATION OF SOIL AND SOIL VAPOR PROFILES, SOIL AND GROUNDWATER GRAB SAMPLING
- OPTIONAL LOCATIONS FOR SOIL VAPOR SAMPLES, SOIL AND GROUNDWATER GRAB SAMPLING
- LOCATION OF REPRESENTATIVE MAINTENANCE ON TESSORO LINE 22 AT 4577 AND 2557 SOUTH OF BAKER STREET
- 12 INCH TESSORO (USPL) 22 PIPELINE
- 12 INCH TESSORO (USPL) 22 PIPELINE (ABANDONED)
- 6 INCH TESSORO (USPL) 24 PIPELINE
- 6 INCH TESSORO (USPL) 24 PIPELINE (ABANDONED)
- 6 INCH TESSORO (USPL) 252 PIPELINE (ABANDONED)
- 6 INCH PLAINS PIPELINE
- 6 INCH PLAINS PIPELINE (ABANDONED)
- 4 INCH GENERAL EXPLORATION PIPELINE (ABANDONED)
- 9 INCH BETTY PIPELINE
- 6 INCH BETTY PIPELINE (ABANDONED)
- 6 INCH GOLDEN EAGLE PIPELINE
- 6 INCH GOLDEN EAGLE PIPELINE (ABANDONED)
- APPROXIMATE STORM PIPING
- 10 INCH UNION OIL PIPELINE (ABANDONED)
- 30 INCH WATER PIPELINE
- WATER PIPELINE (ABANDONED)
- 12 INCH COI WASTE WATER PIPELINE
- 24 INCH COI WASTE WATER PIPELINE
- 24 INCH COI STORM PIPELINE
- MANHOLE
- 30 INCH VCP 1A COUNTY SEWER LINE (APPROXIMATE)
- 6 TO 8 INCH VCP SEWER LINE
- SWAMP

**ABBREVIATIONS**

- FT FEET
- IN INCH
- USPL UNSATURATED SAND PIPELINE
- VCP VITRIFIED CLAY PIPE

**NOTES**

1. SITES INCREASED TESTING THAT CRIMSON PIPELINE OWNS ONE ACTIVE CRUDE AND ONE INACTIVE CRUDE PIPELINES THAT RUN BENEATH BAKER STREET NEAR THE NORTHEAST CORNER OF THE GOLDEN EAGLE PROPERTY. THESE LINES ARE BEING REMOVED AND REPLACED WITH NEW PIPELINE INFORMATION SOURCES: CITY OF LONG BEACH AND APC RECORDS
2. SAMPLE LOCATIONS 1 THROUGH 12 ARE PHASE I, AND 13 THROUGH 18 ARE PHASE II (PROVISIONAL).



**SECTION A-A**  
(vertical exaggeration 16x)

**REVISED FIGURE 6 - SECTION A-A Benzene**

		Client	Oil Operators, Inc.
		Project No.	EP610-3029
		Location	712 Baker Street, Long Beach
		Drawn by	CFR
		Issue Date	September 2011
		Checked by	CFB

Horizontal Scale - 1 inch = 100 feet  
Vertical Scale - 1 inch = 5 feet

0 5 10 feet

**LEGEND**

- Vapor probe location showing concentration of benzene in vapor, µg/l
- Area of benzene concentration > 0.1 ug/l
- Area of benzene concentration > 100 ug/l



State of California  
 Los Angeles Regional Water Quality Control Board

**FACT SHEET**  
**Environmental Investigation of the**  
**Residential Area of the**  
**Former Douglas Aircraft Company Plant**  
**Santa Monica, California**

November 2014

**Si necesita información en Español, por favor llame a Susana Lagudis, Regional Board Public Participation at 213-576-6694**

**Introduction and Site Overview**

This fact sheet has been prepared to provide information on the environmental investigation being conducted in a portion of the former Douglas Aircraft Company Plant (site). The site is located between 25<sup>th</sup> Street, Ocean Park Boulevard, Centinela Avenue and the City of Santa Monica Airport in Santa Monica, California (please see Figure 1). The work described in this fact sheet focuses on the residential area in the eastern portion of the site (Yellow area on Figure 1). The investigation activities are being conducted by The Boeing Company (“Boeing”), under the direction of the Los Angeles Regional Water Quality Control Board (“Regional Board”).

The 10-acre residential area includes approximately 50 single-family homes. From 1928 to 1975, this portion of the Douglas Plant was occupied by four structures and two vehicle parking lots. In the late 1970s, the plant was demolished, and the northeastern portion was developed into a residential area.

Beginning in 2008, the Regional Board directed and supervised several phases of soil investigations in the residential area. The results of the investigations were evaluated to determine the potential health risks that certain chemicals in soil might pose to residents. These evaluations determined that the chemicals in soil and soil vapor do not pose a significant health risk to residents.

**Environmental Investigation Findings**

Between 2008 and 2012, as part of the overall site environmental program, several soil investigations were performed within the residential area and samples of soil and soil vapor (the air found between soil particles underground) were collected from beneath public streets at depths between 5 and 15 feet. The investigations were

performed in phases; the first phase included collection of soil vapor samples to evaluate the potential for chemical vapor intrusion into homes and subsequent phases of the soil investigation included sampling the soil for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and metals. Sufficient data were collected during the investigations to perform a comprehensive evaluation of the potential health risks that the chemicals in soil might pose to residents, which is summarized below.

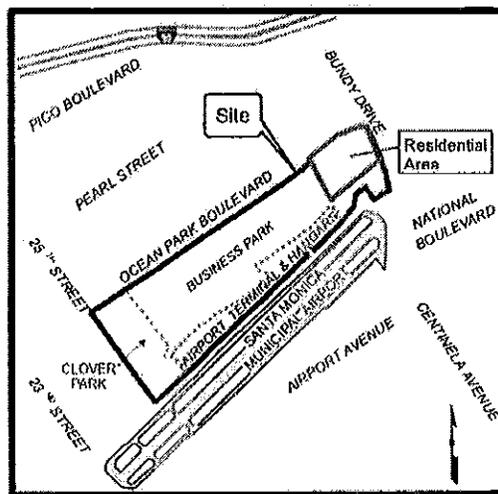


Figure 1.

The sampling results found VOCs, PCBs, and metals in the soil. VOCs are chemicals found in petroleum fuels and cleaning solvents, which were used in the manufacturing of aerospace products. PCBs were widely used in the aerospace industry, and metals were used in certain operations formerly performed at the site.

VOCs were not detected in any of the soil samples collected within 6 feet below the ground surface. Trichloroethene, a VOC that was formerly used to clean metal parts and is listed by the State of California as a probable human carcinogen, was found in soil collected from depths greater than 15 feet below the surface. PCBs and metals were found in low concentrations in soil at depths up to 10 feet. The VOCs found in soil vapor were at very low concentrations that do not pose a risk of vapor intrusion into homes.

In February 2014, the results of all of the soil investigations were used to conduct a cumulative human health risk assessment ("assessment"), which evaluated the potential health risks that chemicals in soil may pose to residents. The assessment was reviewed by the California Office of Environmental Health Hazard Assessment (OEHHA). The results of the assessment indicate that the chemicals in soil and soil vapor do not pose a significant health risk to the residents.

#### **Next Steps**

Based on the data and information collected for this site, the Regional Board intends to close the investigation case related to the residential portion of the site and is providing this fact sheet to explain the basis for the closure consideration. In the near future, Owner Notification letters will be sent out to residents providing them the opportunity to comment on this project and considerations of case closure for this portion of the site.

#### **Information Repositories and Contacts**

The Regional Board invites you to learn more about this site. Work plans and sampling results for the environmental investigation are available for public review. For your convenience, core documents can be found in the Santa Monica Library, Fairview Branch.

#### **Santa Monica Public Library, Fairview Branch**

2101 Ocean Park Boulevard

(310) 450-0443

Mon. – Thurs. 12 – 9 pm, Saturday 10 am – 5:30 pm

Friday and Sunday closed

The administrative file for the project is available at the Water Board's office:

#### **Los Angeles Regional Water Quality Control Board**

320 West 4<sup>th</sup> Street, Suite #200

Los Angeles, CA 90013

By appointment, please call (213) 576-6636 or email at

[RB4-PublicRecords@waterboards.ca.gov](mailto:RB4-PublicRecords@waterboards.ca.gov).

Documents prepared as part of the environmental investigation can also be viewed and retrieved at the Water Board's website here (click on the tab labeled "Site Maps / Documents":

[http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=SLT4307472](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SLT4307472)

If you have questions about this site, please contact:

#### **Ana Townsend, Project Manager**

Los Angeles Regional Water Quality Control Board

(213) 576-6738 or [ana.townsend@waterboards.ca.gov](mailto:ana.townsend@waterboards.ca.gov)

#### **Susana Lagudis**

Los Angeles Regional Water Quality Control Board

Public Participation

(213) 576-6694 or [susana.lagudis@waterboards.ca.gov](mailto:susana.lagudis@waterboards.ca.gov)

**Additionally, you can call Boeing's toll free community information line at (800) 640-4451 or contact:**

#### **Kamara Sams**

The Boeing Company

(818) 207 2496 or [kamara.sams@boeing.com](mailto:kamara.sams@boeing.com).

# EXHIBIT 2



Tesoro Logistic Operations LLC  
400 Oceangate, Suite 600  
Long Beach, CA 90802  
562-495-6876 Office

February 25, 2015

*Via E-mail*

Messrs. Samuel Unger and Greg Bishop  
Ms. Rebecca Orr  
Los Angeles Regional Water Quality Control Board  
320 W. 4th Street, Ste. 200  
Los Angeles, CA 90013

**Site:** Golden Avenue between Baker Street and Wardlow Road in Long Beach, California  
SCP Case No. 0093A, Site ID No. 2040420

**Re:** Response to LARWQCB Comments to Tesoro's Master Work Plan dated December 22,  
2014

Dear Messrs. Unger and Bishop and Ms. Orr:

Tesoro Logistics Operations LLC (Tesoro) has received the Los Angeles Regional Water Quality Control Board approval letter dated January 30, 2015 (Attachment A), regarding Tesoro's Master Work Plan for Assessment and Delineation of Wastes and Human Health Risk Assessment Work Plan for Golden Avenue Site, between Baker Street and West Wardlow Road, Long Beach, California (Work Plan), dated December 22, 2014. In review of the approval letter, the LARWQCB provided comments and additions to the Work Plan. Tesoro's responses to these comments/additions are as follows:<sup>1</sup>

1. **Comment:** In addition to the proposed groundwater sampling points, at least seven (7) additional Hydropunch™ groundwater grab samples shall be collected. Three evenly spaced additional grab samples shall be collected to the east of Golden Avenue, in order to assess the extent of the groundwater contaminant plume to the east. One grab sample should be collected at TSO-8, which is the vicinity of historical groundwater monitoring wells with detections of 1-2-Dichloroethane and benzene (JB&A-1 and JB&A-2). One grab sample should be collected at TSO-17, and an additional 2 grab samples should be collected to the east and west of TSO-17, in order to determine the source of the LNAPL found in Brycon-MW1 (Revised Figure 5).

**Response:** In response to the Comment 1 request, Tesoro agrees to the following:

- Three additional groundwater grab samples at proposed locations TSO-21, TSO-22, and TSO-23 (see revised Figure 5 in Attachment B) will be collected along Countryside Lane, pending permits from the City of Long Beach.

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<sup>1</sup> Each numbered comment correspondences to the same numbered item in the LARWQCB work plan approval section in its January 30, 2015 letter.

- Groundwater grab samples will also be collected at TSO-8 north of Baker Street and at TSO-17 near the bend in Golden Avenue.
  - A groundwater grab sample will be collected at TSO-18 on the west side of the abandoned pipelines along Golden Avenue as requested. Points TSO-1 and TSO-2 are located to the east of TSO-17 along Golden Avenue and appear to satisfy the LARWQCB request for a monitoring point east of TSO-17. Please note that point TSO-18 is located between well Brycon-MW1 and TSO-17 and should aid in determining the source of LNAPL found in Brycon-MW1. Therefore, Tesoro requests that the two additional groundwater grab samples proposed by the LARWQCB be withdrawn.
2. **Comment:** In addition to the proposed soil vapor sampling points, at least two (2) additional permanent multi-depth soil vapor probes shall be installed along Countryside Lane, in order to provide sufficient data for completion of the HHRA (Revised Figure 5).  
**Response:** Three (3) additional permanent multi-level soil vapor probes will be installed along Countryside Lane. The proposed additional soil vapor probe locations are shown on the attached map.
  3. **Comment:** All soil vapor sampling points should be sampled at depths of 5, 10, 15 feet bgs, and then at 10 foot intervals thereafter, until the deepest soil vapor probe is within 5 to 10 feet of groundwater. This is necessary for evaluating whether off-gassing from groundwater is the source of the soil vapor contaminant plumes...  
**Response:** The deepest soil vapor probes will be installed within 5 to 10 feet of groundwater, unless refusal is encountered earlier. If refusal is encountered at a location designated for collection of a groundwater sample, offset locations will then be drilled until a grab groundwater sample is collected.
  4. **Comment:** Additional sampling may be required in order to completely delineate the extent of petroleum hydrocarbons and other constituents of concern in soil, soil vapor, and groundwater discharged at or from the Site.  
**Response:** Tesoro may conduct additional sampling if it is determined necessary to further delineate the extent of constituents of concern in soil, soil vapor, and groundwater, and if the constituents are attributed to a Tesoro-owned pipeline release. Tesoro requests the requirement for additional sampling, if any, be considered following evaluation of the data collected during the upcoming investigation and that technical discussion of these results with Tesoro be conducted prior to any additional requirements.
  5. **Comment:** Any off-site disposal of waste should be to a legal point of disposal and in accordance with the provisions of Division 7.5 of the California Water Code. A legal point of disposal is one for which the Regional Board have established requirements and is in compliance therewith.  
**Response:** Off-site disposal of waste will be at a legal point of disposal and at a Tesoro approved disposal facility.
  6. **Comment:** The soil vapor investigation should follow the *Advisory – Active Soil Gas Investigations* dated April 2012 (Advisory) and developed jointly by the Department of Toxic Substances Control (DTSC), the California Regional Water Quality Control Board, Los Angeles Region, and the San Francisco Regional Water Quality Control Board.

Guidelines concerning sampling during barometric pressure fluctuations have been described in the advisory.

**Response:** Tesoro will follow sampling guidelines described in the April 2012 DTSC Soil Gas Advisory.

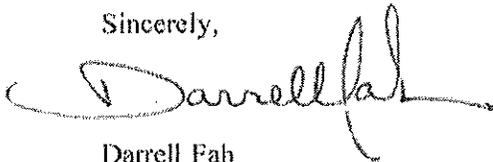
7. **Comment:** The California State Water Resources Control Board's Low-Threat Underground Storage Tank Case Closure Policy shall not be used to eliminate COPCs for the HHRA.  
**Response:** The California State Water Resources Control Board's Low Threat Closure Policy (the Policy) allows for application of the screening process to non-UST sites, as the Policy is based upon well-documented science and experience. The Policy specifically states that the criteria for closure evaluation of non-UST with attributes similar to those described in the Policy are applicable. To comply with the requirement, the HHRA will be prepared to include all COPCs that exceed California Human Health Screening Levels (CHSSLs), even though the Policy suggests that a COPC can be eliminated from the HHRA if the site-specific conditions satisfy the characteristics and criteria for which vapor intrusion risks have been found to be negligible. Tesoro reserves the right to seek further review on this point.
8. **Comment:** The Regional Board shall be notified a minimum of seven (7) days before the start of field activities.  
**Response:** Tesoro agrees.
9. **Comment:** Any changes to the approved scope of work or schedule should be coordinated with the Regional Board prior to performing any changes.  
**Response:** Tesoro agrees.
10. **Comment:** A detailed schedule for implementation of the Master Work Plan and the HHRA Work Plan shall be submitted to the Regional Board within 30 days upon receipt of permits.  
**Response:** Tesoro agrees.
11. **Comment:** By March 30, 2015, submit to the Regional Board a revised draft fact sheet in a common editable electronic format. The revised draft fact sheet should be written and formatted in accordance with the attached template provided. The Regional Board will review and, if necessary, edit the fact sheet prior to its public distribution.  
**Response:** Tesoro agrees
12. **Comment:** By July 6, 2015, submit a Site Investigation Report (Report) and SCM documenting the results of the investigation, sample collection procedures, field observations, laboratory data, and conclusions and recommendations. Additionally, soil, soil vapor, and groundwater plume isoconcentration maps, and soil and soil vapor cross-sections shall be included in the Report.  
**Response:** Tesoro will submit a Site Investigation Report and SCM to the Regional Board by July 6, 2015, unless circumstances arise that cause unexpected delays. Any delay(s) in the schedule for implementation will be documented, and the Board will be notified promptly and a revised date will be provided to the Regional Board.

13. **Comment:** By August 3, 2015, submit a Human Health Risk Assessment Report to the Regional Board.

**Response:** Tesoro will submit a Human Health Risk Assessment Report to the Regional Board by August 3, 2015, unless circumstances arise that cause unexpected delays. Any delay(s) in the schedule for implementation will be documented and the Board will be notified promptly and a revised date will be provided to the Regional Board.

We look forward to discussing the above with you at your earliest convenience. Please let us know if you have any questions by contacting Darrell Fah at (714) 473-9672 or Madeline Worsnopp at AECOM at (562) 213-4163.

Sincerely,

A handwritten signature in black ink that reads "Darrell Fah". The signature is fluid and cursive, with a long horizontal stroke at the end.

Darrell Fah  
Retail Environmental Remediation Administrator

Attachment: Attachment A  
Attachment B (Revised Figure 5)

cc. Jennifer Fordyce, SWRCB



# Attachment A



EDMUND G. BROWN JR.  
GOVERNOR

MATTHEW RODRIGUEZ  
SECRETARY FOR  
ENVIRONMENTAL PROTECTION

## Los Angeles Regional Water Quality Control Board

January 30, 2015

Mr. Darrell Fah  
Tesoro Logistic Operations LLC  
400 Oceangate, Suite 600  
Long Beach, CA 90802

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
7012 3460 0002 9486 4855

**SUBJECT: APPROVAL OF MASTER WORK PLAN AND HUMAN HEALTH RISK ASSESSMENT WORK PLAN UNDER CLEANUP AND ABATEMENT ORDER NO. R4-2013-0064 PURSUANT TO CALIFORNIA WATER CODE SECTION 13304**

**SITE/CASE: FORMER BP/ARCO PIPELINES, GOLDEN AVENUE, BETWEEN BAKER STREET AND WEST WARDLOW ROAD, LONG BEACH, CALIFORNIA (SCP NO. 0093A AND SITE ID NO. 2040420)**

Dear Mr. Fah:

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) is the public agency with primary responsibility for the protection of ground and surface water quality for all beneficial uses within major portions of Los Angeles County and Ventura County, including the above-referenced Site. To accomplish this goal, the Regional Board directed BP Pipelines (North America), Inc., Atlantic Richfield Company, and ARCO Terminal Services Corporation (ATSC) (collectively "BP") to investigate and remediate contaminants released from the Site under Cleanup and Abatement Order (CAO) No. R4-2013-0064. The Regional Board understands that, through a series of agreements, Tesoro Logistics Operation LLC (TLO) has been assigned investigation and remediation responsibilities at the Site on behalf of BP.

We have received the following technical report (Work Plan) for the Site, submitted by TLO, for our review:

- *Tesoro Logistics Operations LLC Master Work Plan for Assessment and Delineation of Wastes and Human Health Risk Assessment Work Plan for Golden Avenue Site, between Baker Street and West Wardlow Road, Long Beach, California (Work Plan), dated December 22, 2014, prepared by AECOM.*

The Workplan was submitted in response to Items 3 and 4 in the requirements of Cleanup and Abatement Order No. R4-2013-0064 originally dated September 18, 2014. Item 3 requires submittal of a Master Work Plan that describes 1) proposed general assessment techniques, 2) initial sampling locations, and 3) a proposed schedule for completing the proposed work. Additional work plans may be required if assessment efforts result in multiple iterations of work being necessary to complete full

CHARLES STRINGER, CHAIR | SAMUEL UNGER, EXECUTIVE OFFICER

320 West 41st St., Suite 200, Los Angeles, CA 90013 | [www.waterboards.ca.gov/losangeles](http://www.waterboards.ca.gov/losangeles)

delineation. Item 4 requires submittal of a Human Health Risk Assessment (HHRA) Work Plan that shall propose 1) the collection of sufficient data for completion of a HHRA, 2) methods for preparing the HHRA, and 3) a schedule for both data collection and HHRA preparation.

#### **WORK PLAN SUMMARY**

The Site Assessment Master Work Plan proposes the following scope of work:

1. Site assessment sample locations will be selected to verify existing data, determine the extent of impacts identified by others, fill data gaps to the extent feasible, investigate potential historical sources and migration pathways, and assess exposure pathways.
2. Initial sampling locations and methodologies for site assessment are proposed as follows:
  - a. Soil samples will be collected at thirteen (13) sampling locations indicated on Figure 5 (blue and green points). Soil samples will be collected at approximate 5-foot intervals to 45 feet below ground surface (bgs), unless groundwater or refusal is encountered prior to that depth. Discretionary samples at other depth intervals may be collected based on field observations. Up to seven additional locations may be sampled if previously sampled nearby locations indicate that further delineation of the area may aid the preparation of a Site Conceptual Model (SCM) for the Site;
  - b. Six (6) permanent multi-depth soil vapor probes will be installed at six of the proposed soil boring locations along Golden Avenue (TSO-1 through TSO-5 and TSO-9). Additionally, seven (7) multi-depth soil vapor probes will be constructed at the remaining planned boring locations. Soil vapor will be sampled at depths of 5, 10, 15, 25, and 35 feet bgs. Up to seven additional locations may be sampled using post-run tubing if preliminary field data indicate additional screening of vapors will be beneficial in developing a SCM;
  - c. Five (5) Hydropunch™ groundwater samples will be collected at four proposed boring locations on Golden Avenue (TSO-1 through TSO-4) and also at TSO-9, near vapor extraction well VES-A. Up to fifteen additional groundwater grab samples may be sampled at the remaining boring locations;
  - d. Soil samples will be analyzed for: 1) volatile organic compounds (VOCs) using the Environmental Protection Agency (EPA) Method 8260B; 2) Total Petroleum Hydrocarbons as gasoline range organics (TPH-g), Total Petroleum Hydrocarbons as diesel range organics (TPH-d), and Total Petroleum Hydrocarbons as oil range organics (TPH-o) using California Leaking Underground Fuel Tank (CA LUFT)/EPA Method 8260 and EPA Method 8015B; and 3) total lead and organic lead using EPA Method 6010B and Method Hazardous Materials Laboratory-939M (HML-939M), respectively;
  - e. Soil vapor samples will be analyzed for: 1) VOCs using EPA Method 8260SV (modified EPA 8260B) and/or EPA Method TO-15; 2) volatile Total Petroleum Hydrocarbons using EPA Method 8260SV; and 3) fixed gases using American Society for Testing and Materials (ASTM) Method D1946 and methane using EPA Method 8015M;

- f. Groundwater samples will be analyzed for: 1) VOCs using EPA Method 8260B; 2) TPH-g, TPH-d, and TPH-o using CA LUFT/EPA Method 8260 and EPA Method 8015B; and 3) total lead and organic lead using EPA Method 6010B and Method HML-939M, respectively;
  - g. A site-specific health and safety plan will be developed for field activities;
  - h. Required notifications and permits will be provided to and obtained from the City of Long Beach and South Coast Air Quality Management District (SCAQMD) prior to the commencement of investigation activities; and
  - i. Equipment used during the hand auger boring, drive rods and sampler, soil and groundwater sampling activities, and installation of the soil vapor probes will be decontaminated between uses. Solid and liquid waste derived during the investigation will be contained in sealed 55-gallon drums; the waste will be transported to Tesoro-approved treatment and/or disposal facilities.
3. Implementation of the proposed field activities will begin within 60 days upon receipt of approval of the Work Plan. A report describing the results of the investigation will be submitted within 120 days of receipt of final laboratory reports. The report will include the activities and results of the investigation and a SCM.

The Human Health Risk Assessment Work Plan proposes the following scope of work:

1. Soil samples from 0 to 15 feet bgs and soil vapor samples collected during activities proposed under the Site Assessment Master Work Plan will be evaluated in the HHRA. Groundwater at the Site is anticipated to be encountered at approximately 45 feet bgs. Thus, groundwater data collected during proposed activities will be used as a secondary source of data for assessment of vapor intrusion.
2. The HHRA will consist of the following four steps:
  - a. Data evaluation  
Constituents of potential concern (COPCs) will be selected based on current U.S. EPA Regional Screening Levels for soil, the California Human Health Screening Levels (CHHSLs) for soil vapors, and the U.S. EPA Vapor Intrusion Screening Levels (VISLs) for groundwater. The California State Water Resources Control Board's Low-Threat Underground Storage Tank Case Closure Policy may be used to eliminate COPCs from further evaluation as well.
  - b. Exposure assessment  
Potential receptors of and exposure pathways to the COPCs at the Site will be identified. Exposure point concentrations (EPCs) for soil and outdoor air will be estimated according to U.S. EPA guidance (2002b, 2002a). EPCs for indoor air will be estimated based on soil vapor concentrations using the U.S. EPA Johnson and Ettinger Model spreadsheets adjusted for California Environmental Protection Agency (CalEPA) recommended inputs (U.S. EPA, 2004b). Exposure doses for oral, dermal, and inhalation exposure will be calculated following U.S. EPA guidance (1989, 2004a, 2009).

c. Toxicity assessment

Toxicity information will be obtained from the CalEPA OEHHA's Toxicity Criteria Database (CalEPA, 2014). Where CalEPA recommended toxicity values are not available, U.S. EPA's recommended hierarchy of sources of toxicity values (U.S. EPA, 2003) will be followed.

d. Risk characterization

Results of the exposure assessments (exposure doses) and toxicity assessments (toxicity values) will be combined to characterize the potential risk/hazard to human health. Risks from different exposure pathways will be summed to estimate the total Site excess lifetime cancer risk for each potential receptor. These estimates will be compared to U.S. EPA's target cancer risk range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ . Medium-specific hazard indices for each potential receptor within an exposure area will be calculated by summing hazard quotients for each COPC, and then summing hazard indices across exposure pathways in each environmental medium. Total hazard index estimates will be compared to U.S. EPA's target non-carcinogenic hazard index of 1.

3. Implementation of the proposed field activities will begin within 60 days upon receipt of approval of the Work Plan. A report describing the results of the investigation will be submitted within 120 days of receipt of final laboratory reports.

#### WORK PLAN APPROVAL

The Regional Board hereby approves the Work Plan, with the following comments and additions:

1. In addition to the proposed groundwater sampling points, at least seven (7) additional Hydropunch<sup>TM</sup> groundwater grab samples shall be collected. Three evenly spaced additional grab samples shall be collected to the east of Golden Avenue, in order to assess the extent of the groundwater contaminant plume to the east. One grab sample should be collected at TSO-8, which is in the vicinity of historical groundwater monitoring wells with detections of 1,2-Dichloroethane and benzene (JB&A-1 and JB&A-2). One grab sample should be collected at TSO-17, and an additional 2 grab samples should be collected to the east and west of TSO-17, in order to determine the source of the LNAPL found in Brycon-MW1 (Revised Figure 5).
2. In addition to the proposed soil vapor sampling points, at least two (2) additional permanent multi-depth soil vapor probes shall be installed along Countryside Lane, in order to provide sufficient data for completion of the HHRA (Revised Figure 5).
3. All soil vapor sampling points should be sampled at depths of 5, 10, 15 feet bgs, and then at 10 foot intervals thereafter, until the deepest soil vapor probe is within 5 to 10 feet of groundwater. This is necessary for evaluating whether off-gassing from groundwater is the source of the soil vapor contaminant plumes. For example, at CESV33, benzene soil vapor concentrations peak at 390  $\mu\text{g}/\text{L}$  at 20 feet bgs, and then drop off sharply to 18  $\mu\text{g}/\text{L}$  at 32 feet bgs, indicating a top-down release. However, a data gap exists from 32 feet bgs to groundwater, which is at approximately 50 feet bgs (Revised Figure 6). Therefore sampling soil vapor to within 5 to 10 feet of groundwater will help to characterize the release scenario of the soil vapor plumes.

4. Additional sampling may be required in order to completely delineate the extent of petroleum hydrocarbons and other constituents of concern in soil, soil vapor, and groundwater discharged at or from the Site.
5. Any off-site disposal of waste should be to a legal point of disposal and in accordance with the provisions of Division 7.5 of the California Water Code. A legal point of disposal is one for which the Regional Board have established requirements and is in compliance therewith.
6. The soil vapor investigation should follow the *Advisory – Active Soil Gas Investigations* dated April 2012 (Advisory) and developed jointly by the Department of Toxic Substances Control (DTSC), the California Regional Water Quality Control Board, Los Angeles Region, and the San Francisco Regional Water Quality Control Board. Guidelines concerning sampling during barometric pressure fluctuations have been described in the Advisory.
7. The California State Water Resources Control Board's Low-Threat Underground Storage Tank Case Closure Policy shall not be used to eliminate COPCs for the HHRA.
8. The Regional Board shall be notified a minimum of seven (7) days before the start of field activities.
9. Any changes to the approved scope of work or schedule should be coordinated with the Regional Board prior to performing any changes.
10. A detailed schedule for implementation of the Master Work Plan and the HHRA Work Plan shall be submitted to the Regional Board **within 30 days upon receipt of permits**.
11. By **March 30, 2015**, submit to the Regional Board a revised draft fact sheet in a common editable electronic format. The revised draft fact sheet should be written and formatted in accordance with the attached template provided. The Regional Board will review and, if necessary, edit the fact sheet prior to its public distribution.
12. By **July 6, 2015**, submit a Site Investigation Report (Report) and SCM documenting the results of the investigation, sample collection procedures, field observations, laboratory data, and conclusions and recommendations. Additionally, soil, soil vapor, and groundwater plume iso-concentration maps, and soil and soil vapor cross-sections shall be included in the Report.
13. By **August 3, 2015**, submit a Human Health Risk Assessment Report to the Regional Board.
14. All submitted reports shall be uploaded to the Geotracker website to comply with the Regional Board's requirements for the submittal of technical reports. Paper submittals are not necessary.

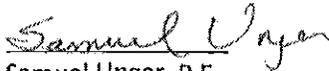
As presented in State Water Resources Control Board Resolution 92-49, professionals should be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. Moreover, the final reports submitted to this Regional Board should be reviewed, signed and stamped by a California registered geologist, or a California registered civil engineer with at least five years hydrogeologic experience. Furthermore, the California Business and Professions Code Sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be

performed by or under the direction of registered professionals. Therefore, all future work should be performed by or under the direction of a registered geologist or registered civil engineer. A statement is requested in the final reports that the registered professional in charge actually supervised or personally conducted all the work associated with the work plan and final reports.

Items 1 through 14 (above) constitute an amendment to Items 3 and 4 in the requirements of Cleanup and Abatement Order No. R4-2013-0064 originally dated September 18, 2014, and Item 2 of the *Approval of Interim Remedial Action Plan* dated October 14, 2014. All other aspects of Order No. R4-2013-0064 originally dated September 18, 2014, and amendments thereto, remain in full force and effect. Pursuant to section 13350 of the California Water Code, failure to comply with the requirements of Order No. R4-2013-0064 by the specified due date, including dates in this amendment, may result in civil liability administratively imposed by the Regional Board in an amount up to five thousand dollars (\$5,000) for each day of failure to comply.

If you have any questions, please contact Rebecca Orr at (213) 576-6811 or [Rebecca.orr@waterboards.ca.gov](mailto:Rebecca.orr@waterboards.ca.gov)

Sincerely,

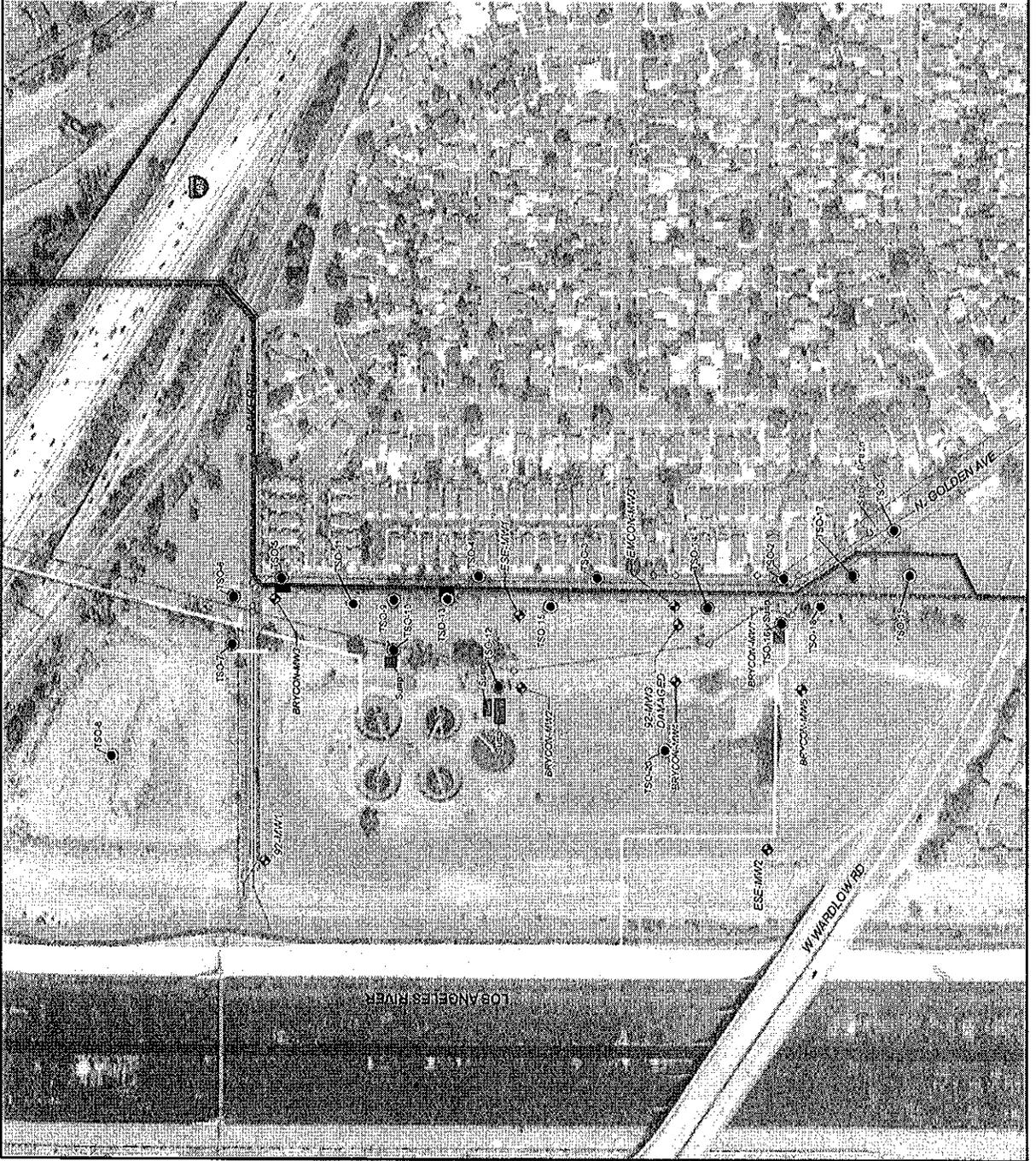


Samuel Unger, P.E.  
Executive Officer

Enclosures: *Figure 5, Revised Figure 5, Revised Figure 6, Fact Sheet Template*

Electronic Copies: (via e-mail)

Mr. Charles I. Buckley, California Environmental Geologists & Engineers, Inc.  
Mr. Stephen Comley, Tesoro Refining and Marketing Company LLC  
Mr. Ngiabl Gicuhí, Plains West Coast Terminals, LLC  
Ms. Joan Greenwood, Wrigley Area Neighborhood Alliance  
Councilmember Roberto Uranga, City of Long Beach  
Mr. Nelson Kerr, City of Long Beach, Health and Human Services Department  
Mr. Kevin Laney, Oil Operators, Inc.  
Mr. George B. Paspalof, Brycon LLC  
Ms. Carmen Piro, City of Long Beach, Health and Human Services Department  
Ms. Gabriele Windgasse, California Department of Public Health  
Mr. Chris Windsor, BP Pipelines (North America), Inc.; Atlantic Richfield Company; and ARCO Terminal Services Corporation



**LEGEND**

- GROUNDWATER MONITORING WELL LOCATION
- PROPOSED MONITORING WELL LOCATION SAMPLED FOR NAPL
- PROPOSED LOCATION OF SOIL AND SOIL VAPOR PROFILE, SOIL AND GROUNDWATER GRAB SAMPLING
- PROPOSED LOCATION OF SOIL AND SOIL VAPOR PROFILE, SOIL AND OPTIONAL GROUNDWATER GRAB SAMPLING
- OPTIONAL LOCATIONS FOR SOIL, SOIL VAPOR SAMPLES, SOIL AND OPTIONAL GROUNDWATER GRAB SAMPLING
- LOCATION OF PREVENTATIVE MAINTENANCE ON TESORO LINE 33 AT 45FT AND 375FT SOUTH OF BAKER STREET
- 12-INCH TESORO (USPL) 32 PIPELINE (ABANDONED)
- 12-INCH TESORO (USPL) 34 PIPELINE (ABANDONED)
- 8-INCH TESORO (USPL) 34 PIPELINE (ABANDONED)
- 6-INCH TESORO (USPL) 252 PIPELINE (ABANDONED)
- 6-INCH PLAINS PIPELINE
- 6-INCH PLAINS PIPELINE (ABANDONED)
- 4-INCH GENERAL EXPLORATION PIPELINE (ABANDONED)
- 8-INCH GETTY PIPELINE
- 8-INCH GETTY PIPELINE (ABANDONED)
- 8-INCH GOLDEN EAGLE PIPELINE
- 8-INCH GOLDEN EAGLE PIPELINE (ABANDONED)
- APPROXIMATE STORM PIPING
- 12-INCH UNION OIL PIPELINE
- 6-INCH UNION OIL PIPELINE (ABANDONED)
- 30-INCH WATER PIPELINE
- WATER PIPELINE (ABANDONED)
- 12-INCH OOI WASTEWATER PIPELINE
- 24-INCH OOI WASTEWATER PIPELINE
- 24-INCH OOI 'STORM' PIPELINE
- MANHOLE
- 33-INCH VCP L.A. COUNTY SEWER LINE (APPROXIMATE)
- 6 TO 8-INCH VCP SEWER LINE
- SUMP

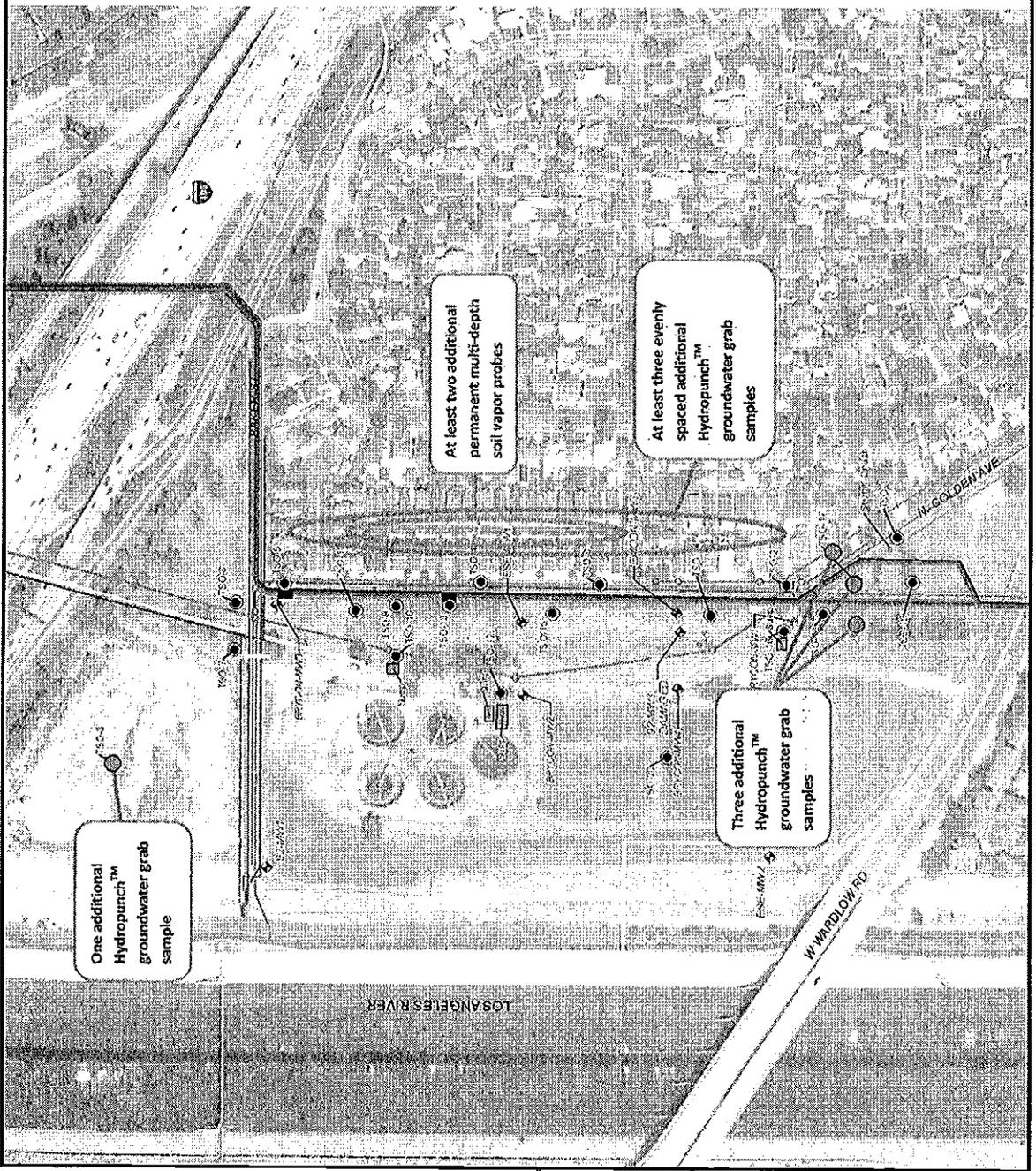
**ABBREVIATIONS**

FT REGIONAL WATER QUALITY CONTROL BOARD  
 USPL TESORO U.S. PIPELINES & LOGISTICS  
 VCP VITRIFIED CLAY PIPE

**NOTES**

- RVOCB INFORMED TESORO THAT CHIMSON PIPELINE OWNS ONE ACTIVE CRUDE AND ONE PIPELINE NEAR THE NORTHWEST CORNER OF BAKER STREET NEAR THE NORTHEAST CORNER OF THE OGI SOUTHERN PROPERTY. THESE LINES ARE NOT DEPICTED ON THIS DRAWING.
- PIPELINE INFORMATION SOURCES: CITY OF LONG BEACH AND ARC RECORDS.
- PIPELINES SHOWN THROUGH PHASE I (PROVISIONAL) AND 13 THROUGH 15 ARE PHASE II (PROVISIONAL).





**LEGEND**

- GROUNDWATER MONITORING WELL LOCATION
- SOIL VAPOR MONITORING WELL LOCATION
- SAMPLED FOR MAP
- PROPOSED LOCATION OF SOIL AND SOIL VAPOR PROFILES, SOIL AND GROUNDWATER GRAB SAMPLING PROFILE, SOIL AND SOIL VAPOR PROFILE, SOIL AND GROUNDWATER GRAB SAMPLING PROFILE, SOIL AND GROUNDWATER GRAB SAMPLING PROFILE
- OPTIONAL LOCATIONS FOR SOIL SOIL VAPOR PROFILES, SOIL AND GROUNDWATER GRAB SAMPLING PROFILE, SOIL AND GROUNDWATER GRAB SAMPLING PROFILE
- LOCATION OF PREVENTATIVE MAINTENANCE ON TESORO LINE 32 AT 457' AND TEST SLOTS OF BAKER STREET
- 12-INCH TESORO (USPL) 32 PIPELINE
- 12-INCH TESORO (USPL) 32 PIPELINE (ABANDONED)
- 8-INCH TESORO (USPL) 34 PIPELINE
- 8-INCH TESORO (USPL) 34 PIPELINE (ABANDONED)
- 8-INCH TESORO (USPL) 32 PIPELINE (ABANDONED)
- 6-INCH PLAINS PIPELINE
- 6-INCH PLAINS PIPELINE (ABANDONED)
- 4-INCH GENERAL EXPLORATION PIPELINE (ABANDONED)
- 8-INCH GETTY PIPELINE
- 8-INCH GOLDEN EAGLE PIPELINE
- 8-INCH GOLDEN EAGLE PIPELINE (ABANDONED)
- APPROXIMATE STORM PIPING
- 10-INCH UNION OIL PIPELINE
- 6-INCH UNION OIL PIPELINE (ABANDONED)
- 30-INCH WATER PIPELINE
- WATER PIPELINE (ABANDONED)
- 12-INCH CO2 WASTEWATER PIPELINE
- 24-INCH CO2 WASTEWATER PIPELINE
- 24-INCH CO2 STORM PIPELINE
- MANHOLE
- 30-INCH VCP - L.A. COUNTY SEWER LINE (APPROXIMATE)
- 6 TO 8-INCH VCP SEWER LINE
- STUMP

**ABBREVIATIONS**

- FT FEET
- RMPR REGIONAL WATER QUALITY CONTROL BOARD
- USPL UNION PIPELINE
- VCP VITRIFIED CLAY PIPE

**NOTES**

- PROCESSED INFORMATION IS SUBJECT TO THE USPL THAT OPERATES THESE ACTIVE CRUDE AND GAS PIPELINE OWNERS (USPL) AND THE INACTIVE CRUDE PIPELINES THAT RUN BENEATH BAKER STREET NEAR THE NORTHEAST CORNER OF THE SOUTH WILLOW PROPERTY. THESE LINES ARE NOT TO BE CONSIDERED AS A SOURCE OF CONTAMINATION. FOR MORE INFORMATION, CONTACT THE PIPELINE INFORMATION SOURCES: CITY OF LONG BEACH AND APC RECORDS.
- SAMPLE LOCATIONS 1 THROUGH 12 ARE PHASE I.
- AND 13 THROUGH 18 ARE PHASE II (PROVISIONAL).





State of California  
Los Angeles Regional Water Quality Control Board

**FACT SHEET**  
**Environmental Investigation of the Residential Area of the Former Douglas Aircraft Company Plant Santa Monica, California**

November 2014

Si necesita información en Español, por favor llame a Susana Lagudis, Regional Board Public Participation at 213-576-6694

**Introduction and Site Overview**

This fact sheet has been prepared to provide information on the environmental investigation being conducted in a portion of the former Douglas Aircraft Company Plant (site). The site is located between 25<sup>th</sup> Street, Ocean Park Boulevard, Centinela Avenue and the City of Santa Monica Airport in Santa Monica, California (please see Figure 1). The work described in this fact sheet focuses on the residential area in the eastern portion of the site (Yellow area on Figure 1). The investigation activities are being conducted by The Boeing Company (“Boeing”), under the direction of the Los Angeles Regional Water Quality Control Board (“Regional Board”).

The 10-acre residential area includes approximately 50 single-family homes. From 1928 to 1975, this portion of the Douglas Plant was occupied by four structures and two vehicle parking lots. In the late 1970s, the plant was demolished, and the northeastern portion was developed into a residential area.

Beginning in 2008, the Regional Board directed and supervised several phases of soil investigations in the residential area. The results of the investigations were evaluated to determine the potential health risks that certain chemicals in soil might pose to residents. These evaluations determined that the chemicals in soil and soil vapor do not pose a significant health risk to residents.

**Environmental Investigation Findings**

Between 2008 and 2012, as part of the overall site environmental program, several soil investigations were performed within the residential area and samples of soil and soil vapor (the air found between soil particles underground) were collected from beneath public streets at depths between 5 and 15 feet. The investigations were

performed in phases; the first phase included collection of soil vapor samples to evaluate the potential for chemical vapor intrusion into homes and subsequent phases of the soil investigation included sampling the soil for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and metals. Sufficient data were collected during the investigations to perform a comprehensive evaluation of the potential health risks that the chemicals in soil might pose to residents, which is summarized below.

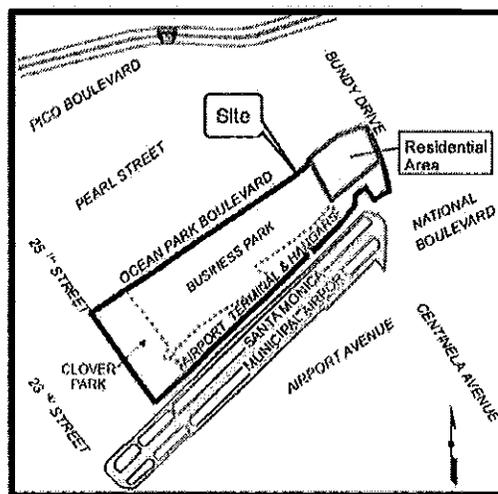


Figure 1.

The sampling results found VOCs, PCBs, and metals in the soil. VOCs are chemicals found in petroleum fuels and cleaning solvents, which were used in the manufacturing of aerospace products. PCBs were widely used in the aerospace industry, and metals were used in certain operations formerly performed at the site.

VOCs were not detected in any of the soil samples collected within 6 feet below the ground surface. Trichloroethene, a VOC that was formerly used to clean metal parts and is listed by the State of California as a probable human carcinogen, was found in soil collected from depths greater than 15 feet below the surface. PCBs and metals were found in low concentrations in soil at depths up to 10 feet. The VOCs found in soil vapor were at very low concentrations that do not pose a risk of vapor intrusion into homes.

In February 2014, the results of all of the soil investigations were used to conduct a cumulative human health risk assessment (“assessment”), which evaluated the potential health risks that chemicals in soil may pose to residents. The assessment was reviewed by the California Office of Environmental Health Hazard Assessment (OEHHA). The results of the assessment indicate that the chemicals in soil and soil vapor do not pose a significant health risk to the residents.

#### **Next Steps**

Based on the data and information collected for this site, the Regional Board intends to close the investigation case related to the residential portion of the site and is providing this fact sheet to explain the basis for the closure consideration. In the near future, Owner Notification letters will be sent out to residents providing them the opportunity to comment on this project and considerations of case closure for this portion of the site.

#### **Information Repositories and Contacts**

The Regional Board invites you to learn more about this site. Work plans and sampling results for the environmental investigation are available for public review. For your convenience, core documents can be found in the Santa Monica Library, Fairview Branch.

**Santa Monica Public Library, Fairview Branch**  
2101 Ocean Park Boulevard  
(310) 450-0443  
Mon. – Thurs. 12 – 9 pm, Saturday 10 am – 5:30 pm  
Friday and Sunday closed

The administrative file for the project is available at the Water Board’s office:

**Los Angeles Regional Water Quality Control Board**  
320 West 4<sup>th</sup> Street, Suite #200  
Los Angeles, CA 90013  
By appointment, please call (213) 576-6636 or email at [RB4-PublicRecords@waterboards.ca.gov](mailto:RB4-PublicRecords@waterboards.ca.gov).

Documents prepared as part of the environmental investigation can also be viewed and retrieved at the Water Board’s website here (click on the tab labeled “Site Maps / Documents”:

[http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=SLT4307472](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SLT4307472)

If you have questions about this site, please contact:

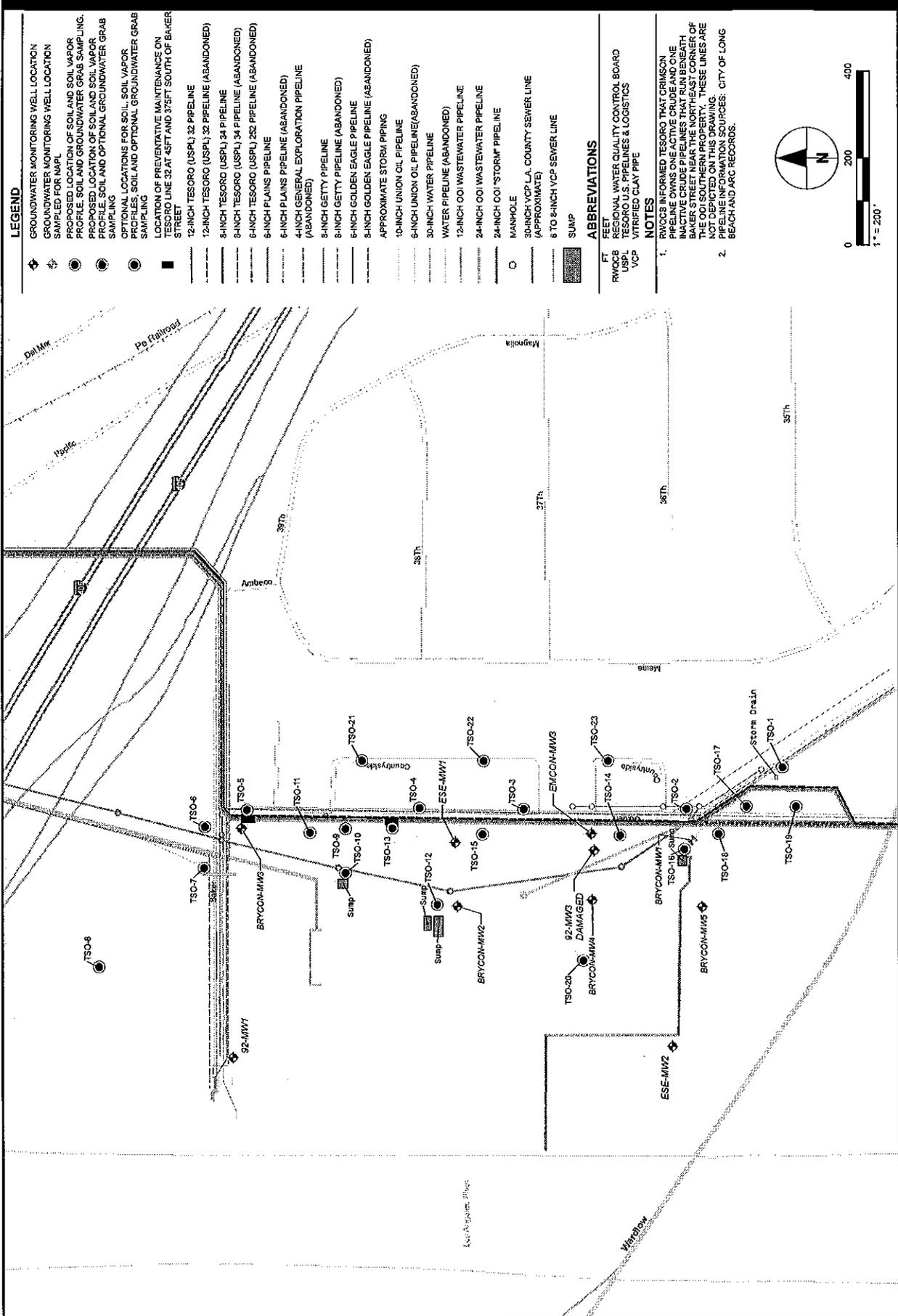
**Ana Townsend, Project Manager**  
Los Angeles Regional Water Quality Control Board  
(213) 576-6738 or [ana.townsend@waterboards.ca.gov](mailto:ana.townsend@waterboards.ca.gov)

**Susana Lagudis**  
Los Angeles Regional Water Quality Control Board  
Public Participation  
(213) 576-6694 or [susana.lagudis@waterboards.ca.gov](mailto:susana.lagudis@waterboards.ca.gov)

**Additionally, you can call Boeing’s toll free community information line at (800) 640-4451 or contact:**

**Kamara Sams**  
The Boeing Company  
(818) 207 2496 or [kamara.sams@boeing.com](mailto:kamara.sams@boeing.com).

Attachment B



**LEGEND**

- GROUNDWATER MONITORING WELL LOCATION
- GROUNDWATER MONITORING WELL LOCATION SAMPLED FOR MAP
- PROPOSED LOCATION OF SOIL AND SOIL VAPOR PROFILE, SOIL AND GROUNDWATER GRAB SAMPLING
- PROPOSED LOCATION OF SOIL AND SOIL VAPOR PROFILE, SOIL AND OPTIONAL GROUNDWATER GRAB SAMPLING
- OPTIONAL LOCATIONS FOR SOIL, SOIL VAPOR PROFILES, SOIL AND OPTIONAL GROUNDWATER GRAB SAMPLING
- LOCATION OF PREVENTATIVE MAINTENANCE ON TESORO LINE 32 AT 45FT AND 375FT SOUTH OF BAKER STREET
- 12-INCH TESORO (USPL) 32 PIPELINE
- 12-INCH TESORO (USPL) 32 PIPELINE (ABANDONED)
- 8-INCH TESORO (USPL) 34 PIPELINE
- 8-INCH TESORO (USPL) 34 PIPELINE (ABANDONED)
- 8-INCH TESORO (USPL) 252 PIPELINE (ABANDONED)
- 8-INCH PLAINS PIPELINE
- 8-INCH PLAINS PIPELINE (ABANDONED)
- 4-INCH GENERAL EXPLORATION PIPELINE (ABANDONED)
- 8-INCH GETTY PIPELINE
- 8-INCH GETTY PIPELINE (ABANDONED)
- 8-INCH GOLDEN EAGLE PIPELINE
- 8-INCH GOLDEN EAGLE PIPELINE (ABANDONED)
- APPROXIMATE STORM PIPING
- 10-INCH UNION OIL PIPELINE
- 8-INCH UNION OIL PIPELINE (ABANDONED)
- 30-INCH WATER PIPELINE
- WATER PIPELINE (ABANDONED)
- 12-INCH OOI WASTEWATER PIPELINE
- 24-INCH OOI "STORM" PIPELINE
- MANHOLE
- 30-INCH VCP LA COUNTY SEWER LINE (APPROXIMATE)
- 6 TO 8-INCH VCP SEWER LINE
- SUMP

**ABBREVIATIONS**

FT REGIONAL WATER QUALITY CONTROL BOARD  
 USPL UNIFORM SCHEDULES & LOGISTICS  
 VCP VITRIFIED CLAY PIPE

**NOTES**

- RWQCB INFORMED TESORO THAT CRINSON LINE HAS INACTIVE CRIBS PIPELINES THAT RUN BAKERS BAKER STREET NEAR THE NORTH-EAST CORNER OF THE OOI SOUTHERN PROPERTY. THESE LINES ARE NOT DEPICTED ON THIS DRAWING.
- PIPELINE INFORMATION SOURCES: CITY OF LONG BEACH AND ARC RECORDS.

0 200 400  
 1" = 200'

# EXHIBIT 3



**Los Angeles Regional Water Quality Control Board**

September 18, 2014

Mr. Chris Windsor  
BP Pipelines (North America), Inc.;  
Atlantic Richfield Company; and  
ARCO Terminal Services Corporation  
4 Centerpointe Drive  
La Palma, CA 90623-1066

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
7008 1830 0004 3359 1732**

**SUBJECT: CLEANUP AND ABATEMENT ORDER NO. R4-2013-0064  
PURSUANT TO CALIFORNIA WATER CODE SECTION 13304**

**SITE/CASE: FORMER BP/ARCO PIPELINES, GOLDEN AVENUE, BETWEEN BAKER STREET AND WEST  
WARDLOW ROAD, LONG BEACH, CALIFORNIA (SCP NO. 0093A AND SITE ID NO.  
2040420)**

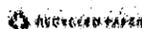
Dear Mr. Windsor:

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) is the public agency with primary responsibility for the protection of ground and surface water quality for all beneficial uses within major portions of Los Angeles County and Ventura County, including the above-referenced site (Site). The Regional Board recently performed an evaluation of environmental site conditions and identified areas requiring additional delineation and remediation. In accordance with our responsibilities for the protection of water quality and beneficial uses, enclosed is Cleanup and Abatement Order (CAO) No. R4-2013-0064, directing BP Pipelines (North America), Inc., Atlantic Richfield Company, and ARCO Terminal Services Corporation to investigate, monitor, cleanup, and abate the effects of wastes discharged to the soil and groundwater from pipelines in the vicinity of Golden Avenue, between Baker Street and West Wardlow Road, in Long Beach, California. This CAO is prepared pursuant to sections 13267 and 13304 of the California Water Code.

A draft of this CAO ("Tentative CAO") was released for public review and comment on April 26, 2013. Where appropriate, the attached CAO No. R4-2013-0064 contains changes based upon comments received. Responses to comments received are provided in the enclosed table, *Response to Comments - Draft Cleanup and Abatement Order No. R4-2013-0064*.

CHARLES STRINDER, chair | SAMUEL UNDER, executive officer

320 West 4th St., Suite 250, Los Angeles, CA 90013 | [www.waterboards.ca.gov/laingdies](http://www.waterboards.ca.gov/laingdies)



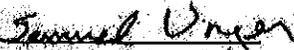
Mr. Chris Windsor  
BP Pipelines (North America), Inc.;  
Atlantic Richfield Company; and  
ARCO Terminal Services Corporation

- 2 -

September 18, 2014

Should you have any questions, please contact Mr. Greg Bishop at (213) 576-6727 or  
Greg.Bishop@waterboards.ca.gov.

Sincerely,

  
Samuel Unger, P.E.  
Executive Officer

Enclosure: CAO No. R4-2013-0064  
*Response to Comments - Draft Cleanup and Abatement Order No. R4-2013-0064*

cc: (via e-mail)  
Mr. Charles I. Buckley, California Environmental Geologists & Engineers, Inc.  
Mr. Stephen Comley, BP Pipelines (North America) Inc.  
Mr. Darrel Fah, Tesoro Refining and Marketing Company LLC  
Mr. Ngiabi Gicuh, Plains West Coast Terminals, LLC  
Ms. Joan Greenwood, Wrigley Area Neighborhood Alliance  
Councilmember Roberto Uranga, City of Long Beach  
Mr. Nelson Kerr, City of Long Beach, Health and Human Services Department  
Mr. Kevin Laney, Oil Operators, Inc.  
Mr. George B. Paspalof, Brycon LLC  
Ms. Carmen Piro, City of Long Beach, Health and Human Services Department  
Ms. Gabriele Windgasse, California Department of Public Health

Response to Comments – Draft Cleanup and Abatement Order No. R4-2013-0064

Comment No.	Commenter
1	BP Pipelines (North America) Inc (BP) dated May 28, 2013

This table describes all significant comments received from interested persons with regard to the above-referenced tentative order. Each comment has a corresponding response and, if applicable, action taken.

Comment/Comment No.	Comment Summary	Response
BP/L1	BP/ARCO Pipelines (BP) has been working cooperatively with Water Board staff for over a year to identify the source of groundwater pollution adjacent to the Oil Operators, Inc. site. We were frankly surprised to receive the tentative Cleanup and Abatement Order concluding that we are solely responsible for this pollution.	Information in the Regional Board's files indicates that BP, Atlantic Richfield Company (ARCO), and ARCO Terminal Services Corporation are collectively responsible for the waste discharged at the Site. This is due to their current and/or former ownership or their present and/or past operations of pipelines that transported refined products at the Site that resulted in the discharge of wastes. The Regional Board has ruled out other possible sources of the wastes at the Site.
BP/L2	As you know, we disagree with the Board's determination. These reasons were communicated to the Board in our December 4, 2012 letter and have been covered in numerous communications with Water Board staff. There are a number of reasons why including: 1. We have no record of gasoline pipeline leaks from any of the three pipelines that BP operates under Golden Avenue. 2. Only one of our three pipelines carried gasoline and that was 60 years ago. 3. Our pipelines are located approximately five feet below ground surface and yet there is no evidence of shallow soil pollution. 4. Benzene has been detected in groundwater under the Oil Operators, Inc.'s site. 5. "Fingerprinting" of the hydrocarbons do not show a consistent pattern as would be expected from a pipeline leak. 6. We are concerned that much of the underlying data that staff is relying on has been collected and reported by OGI's consultant, Boycon, LLP which has consistently misrepresented, intentionally or non-intentionally, the condition of the Oil Operators, Inc. site and off property data. 7. The nature of the contaminants and their location points more	Regional Board staff responded to BP's December 4, 2012, letter on April 24, 2013. In that response, Regional Board staff indicated that it had reviewed the information presented by BP and generally disagreed with the assertions and technical evidence in that letter. Regional Board staff also referred to its prior letter dated November 6, 2012, where by staff indicated that it had determined that the source of the detected contamination at the site is pipelines owned and/or operated by BP and ARCO. As previously indicated, the Regional Board has ruled out other possible sources of the wastes at the site, including the operations of the Oil Operators, Inc. (OGI) site. To date, BP has not provided the Regional Board with evidence that the pipelines are not the source of the wastes at the site or that other entities are the source.  Just because BP has no record of gasoline pipeline leaks from any of the three pipelines that BP operated under Golden Avenue does not mean that a release did not occur. A release can occur even if there is no record of it.  Information in the Regional Board's files, including pipeline inventory

Response to Comments – Draft Cleanup and Abatement Order No. R4-2013-0064

logically to the operations of the Off Operators, Inc. site.

records, indicates that at least two pipelines carried gasoline. Lines 34 and 252 transported dark refined products and other refined products, including gasoline. Line 32 transported crude oil and dark refined products. The Regional Board acknowledges that BP records indicate that Line 252 only transported gasoline until 1953.

The Regional Board is not aware of any soil assessment data in Golden Avenue. Instead, soil gas data exists from locations within and near Golden Avenue. At least two soil gas probe locations (CESV21 and especially CESV33) show patterns where peak benzene concentrations were detected from depths of approximately 27 to 30 feet above mean sea level with significantly lower benzene concentrations detected below these elevations toward the water table. The Regional Board interprets this pattern to be indicative of a nearby (not necessarily directly "overhead") release source, a conclusion that BP's consultant Dr. Blayne Hartman concurred with (with regard to location CESV33) during a December 2012 meeting between the Regional Board and BP.

The Regional Board is aware that benzene has been detected below OOI's site. While the OOI site may have benzene sources of their own, the distribution of benzene in their wells suggests a release source along Golden Avenue, consistent with the locations of Lines 32, 34, and 252.

"Fingerprinting" would be expected to show a consistent pattern associated with a pipeline leak only if all of the following were true: (1) the pipeline carried only one product type that never varied in composition while the leak occurred; (2) only one pipeline experienced a release; and (3) degradation did not occur. Since (1) pipeline contents, especially in refined product lines, commonly change; (2) the possibility of multiple pipeline releases (with multiple product types) has not been ruled out; and (3) degradation of product is likely to have occurred, the Regional Board does not consider deviation in "fingerprinting" results to support ruling out the probability of one or more pipeline releases from Lines 32, 34, and/or 252.

Response to Comments – Draft Cleanup and Abatement Order No. R4-2013-0064

		<p>Lastly, while BP takes issue with information collected and reported by OOI's consultant, BP provides no evidence that such information has been, in fact, misrepresented, either intentionally or non-intentionally, except as identified in Comment 1.23. The Regional Board is entitled to rely on information in its files unless that information has been determined not to be credible. Mere allegation that information is not credible will not suffice.</p>
BP/1.3	<p>The Oil Operator's, Inc. Site came to be under Water Board oversight as a result of a Consent Decree settlement of a criminal complaint brought by the City of Long Beach, Department of Health and Human Services. There is ample documentation to show that the site accepted a variety of petroleum waste. The site has been closed since 1989 and as such it was not authorized to accept additional waste. Yet nearby community residents noticed and reported to authorities, several vacuum trucks discharging waste as late as 2000.</p>	<p>The Regional Board is currently overseeing assessment and remediation activities at the OOI site. However, the Regional Board has thoroughly investigated, and ruled out, the OOI site as a possible source of the wastes discharged at the site (generally along Lines 32, 34, and 252 and areas affected by releases originating from these lines) that is the subject of the CAG.</p>
BP/1.4	<p>We have repeatedly stated that if we believe we are the cause of the groundwater contamination we will step up and take responsibility. We renew that pledge. If sampling reveals that, contrary to our current information, BP is responsible or partially responsible, we will begin cleanup immediately. We have detailed comments on the tentative Cleanup and Abatement Order and they are included as Attachment 1 to this letter. If the Order is issued, we plan to appeal it to the State Water Board. However, we will submit a revised sampling plan to staff whether or not the Board issues the Order.</p>	<p>The Regional Board appreciates BP's offer to submit a revised sampling plan. Please see specific responses below to BP's detailed comments in Attachment 1.</p>
BP/1.5	<p>Finally, we ask that the Board reconsiders issuing a Cleanup and Abatement Order to BP until the accuracy of the Oil Operator's Inc. data can be verified. As pointed out in our May 24th letter to Mr. Phasik Guha-Niyogi, the April 15th report submitted by Byron, LLP stated that approximately 4,000 pounds of benzene was collected by the soil vapor extraction system- the actual amount is closer to two pounds. When existing data are reviewed and additional data are collected we believe the Board will have a more robust picture of the site from which to make a decision.</p>	<p>See responses to Comments 1.2, 1.6, and 1.23. A delay in issuing the CAG is not warranted. The Regional Board has sufficient information at this time indicating that pipelines owned and/or operated by BP, ARCO, and ARGO Terminal Services Corporation are collectively responsible for the waste discharged at the site. However, the Regional Board will evaluate new information as it is produced.</p>
BP/1.6	<p>BP has taken numerous steps to work cooperatively with the</p>	<p>Communications from OOI have not interfered with the Regional</p>

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	<p>LARWQCB but communications from Oil Operators, Inc. (OOI) have interfered.</p> <ul style="list-style-type: none"> <li>In September and October 2012, however, OOI shared data with the LARWQCB and apparently led the Board to believe that BP pipelines were impacting the eastern boundary of the OOI site (particularly the southeast corner (SEC) of the OOI site). The OOI data BP has reviewed are not entirely accurate. Among other things, the data reported iso-concentration maps for benzene as one continuous source extending to this SEC and into residential neighborhoods farther east. To date, the existing groundwater data do not support the depictions. Significant topographic variation is not accurately depicted on 2010 and 2011 OOI and California Environmental drawings.</li> </ul>	<p>Board's willingness to work cooperatively with BP. In this case, the Regional Board considered all information submitted to it by BP, as well as OOI, in investigating the discharge of wastes at the site.</p> <p>The Regional Board did not rely solely on OOI figures and interpretations in making its determinations. Among other things, the Regional Board constructed its own plume maps for groundwater.</p> <p>The Regional Board agrees that there is a lack of data defining an eastern boundary for impacts, particularly in soil and groundwater (as opposed to soil gas). After BP/ARCG/ATSC completes the investigative work under the CAO, we expect to have a more robust depiction of conditions.</p>
<p>BP/L7</p>	<p>Overall, the detailed facts, statements, and evaluations presented in the BP December 4, 2012 letter, which presented detailed summaries and evaluation of data available at that time, appear to have been disregarded by the LARWQCB.</p> <p>The Tentative CAO does not acknowledge receipt of BP's letter dated December 4, 2012, nor the meeting between BP and the LARWQCB on December 5, 2012.</p>	<p>The Regional Board did not disregard BP's December 4, 2012 letter. To the contrary, Regional Board staff fully considered the letter prior to preparing the Tentative CAO.</p> <p>On April 24, 2013, Regional Board staff acknowledged receipt of BP's letter dated December 4, 2012. In that response, Regional Board staff indicated that it had reviewed the information presented by BP and generally disagreed with the assertions and technical evidence in that letter.</p> <p>Regional Board staff also acknowledges meeting with BP and their representatives on December 5, 2012, prior to issuance of the Tentative CAO. During that meeting, Regional Board staff verbally responded to many of BP's statements and evaluations.</p> <p>Regional Board staff's position did not change upon review of the December 4, 2012, letter or the technical and legal arguments presented during the December 5, 2012, meeting.</p>

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		<p>Finding 10 of the CAO has been modified to reflect acknowledgement of BP's December 4, 2012, letter and the meeting on December 5, 2012.</p> <p>On April 24, 2013, Regional Board staff responded to BP's December 4, 2012 letter. In that response, Regional Board staff indicated that it had reviewed the information presented by BP and generally disagreed with the assertions and technical evidence in that letter. In addition, Regional Board staff provided advanced notice to BP that it was currently completing a tentative CAO that would be issued to BP and ARCO and that the tentative CAO would be subject to a 30-day public review and comment period.</p>
<p>BP / 1.8</p>	<p>Based on discussions at this meeting and articulated in follow-up correspondence, the LARWQCB indicated BP should wait for the Board to respond to additional data before proposing further work requested in the 13267 Order. Therefore, BP was awaiting a written response from LARWQCB to this letter and meeting. The issuance of the tentative CAO is inconsistent with BP's understanding from the Board that it should hold off further response to the 13267 order until further notice from the Board.</p>	<p>Finding 2 of the CAO was modified to indicate that OOI accepted refinery wastes at its site, based on the information present in the US Geological Survey, 1953, Department of the Interior, "Native and Contaminated Ground Waters in the Long Beach-Santa Ana Area, California" U.S. Geological Survey, Water-Supply Paper 1136, Washington, D.C., p. 71-75.</p> <p>In evaluating the source of the discharge of wastes at the site, the Regional Board considered OOI's past operations at its site. Based on this evaluation, the Regional Board has ruled out other possible sources of the wastes at the site that is the subject of the CAO, including the operations of the OOI site.</p> <p>Review of groundwater monitoring data generated by OOI over the past ten years has shown that benzene impacts to groundwater consistently exist along the eastern boundary of the OOI property, with the maximum benzene concentrations aligned with the BP/ARCO pipelines beneath Golden Avenue. Furthermore, the "Focused Soil Data Summary" presented in Figures 3a, 3b, and 3c of BP's letter dated December 4, 2012, did not indicate significant benzene impacts in soil samples from any of the soil borings, other than at HA-5 located at the southwestern portion of the OOI site, where benzene was detected at concentrations of 1,400 µg/kg and 1,200 µg/kg, at depths of 5 feet and 10 feet, respectively, in 1991. This area was away from</p>
<p>BP / 1.9</p>	<p><u>Finding 2</u></p> <p>"Adjacent to the west of Golden Avenue and the pipelines is the vacant Oil Operator's Inc. (OOI) site, which was formerly used to treat production brines, containing water and crude oil, recovered during oil production since 1926." This statement appears to ignore documentation related to OOI operations that indicates that OOI accepted and handled refinery waste at the site, e.g.:</p> <ul style="list-style-type: none"> <li>• Waste fluids from member wells and refineries are piped to the sumps where any residual petroleum is separated and recovered.</li> <li>• October 27, 2000 (following shut-down of the OOI treatment plant in 1998) – Bob's Vacuum Service is recorded dumping waste at the site by a local resident, the driver "admitted" dumping and said the oil companies have permission to dump there. The resident further indicated that at the Long Beach Police Department determined that the driver's paperwork was in order" and the driver's company has had a long standing contract and that dumping was going on ALL THIS TIME.</li> <li>• 1984 OOI investigation findings by the City of Long Beach Department of Health.</li> <li>• "OOI violated Section 25189.5 of the California Health and Safety Code in that they knowingly and</li> </ul>	<p>Finding 2 of the CAO was modified to indicate that OOI accepted refinery wastes at its site, based on the information present in the US Geological Survey, 1953, Department of the Interior, "Native and Contaminated Ground Waters in the Long Beach-Santa Ana Area, California" U.S. Geological Survey, Water-Supply Paper 1136, Washington, D.C., p. 71-75.</p> <p>In evaluating the source of the discharge of wastes at the site, the Regional Board considered OOI's past operations at its site. Based on this evaluation, the Regional Board has ruled out other possible sources of the wastes at the site that is the subject of the CAO, including the operations of the OOI site.</p> <p>Review of groundwater monitoring data generated by OOI over the past ten years has shown that benzene impacts to groundwater consistently exist along the eastern boundary of the OOI property, with the maximum benzene concentrations aligned with the BP/ARCO pipelines beneath Golden Avenue. Furthermore, the "Focused Soil Data Summary" presented in Figures 3a, 3b, and 3c of BP's letter dated December 4, 2012, did not indicate significant benzene impacts in soil samples from any of the soil borings, other than at HA-5 located at the southwestern portion of the OOI site, where benzene was detected at concentrations of 1,400 µg/kg and 1,200 µg/kg, at depths of 5 feet and 10 feet, respectively, in 1991. This area was away from</p>

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	<p>intentionally disposed of hazardous waste, to wit: Oil waste, lead, and PCB at a point not authorized by this department.”</p> <ul style="list-style-type: none"> <li>• “OOI violated Section 25191 (d) (2) of the California Health and Safety Code in that they stored and treated the same hazardous wastes to wit: oil waste, lead, and PCB for a period greater than 96 hours without the required permits... Oil Operators allowed hazardous wastes to be stored for a period of up to one year without the required permits... Furthermore they mix numerous waste streams at the facility without the required permits.”</li> </ul>	<p>the Golden Avenue pipeline corridor, and, therefore, it is unlikely to contribute to groundwater impacts beneath the eastern boundary of the OOI property adjacent to Lines 32, 34, and 252.</p> <p>Based upon the information presented in the CAO, the Regional Board has determined that Lines 32, 34, and 252 are the source of the waste discharged at the site.</p>
<p>BP / 1.10</p>	<p><u>Finding 6</u></p> <p>The LARWQCB has provided little information to BP regarding the operations at the OOI property. Publicly available files recently obtained by BP at the Long Beach Health Department indicate the following (in addition to OOI operations information previously provided by BP to the LARWQCB):</p> <ul style="list-style-type: none"> <li>• Sludge from sumps on the OOI operations was spread onto the northern OOI site. The excessive odors from this activity resulted in resident complaints. Measurements of ambient air by the Health Department recorded up to 50 ppm volatile organic compounds (VOCs) in the neighborhood. Removal of sludge from the sump located near Breyon MW1 was reportedly spread on the northern OOI site (i.e., north of 1-405).</li> </ul> <p>BP requests that the LARWQCB fully investigate the history, uses, and contributions of OOI operations to Site impacts and provide all available information to BP for use in preparation of a Conceptual Site Model and associated source identification required in the tentative CAO.</p>	<p>The Regional Board has already investigated the history, uses, and potential contributions of OOI operations to site impacts. As previously indicated, based on this investigation, the Regional Board has ruled out other possible sources of the wastes at the site that is the subject of the CAO, including the operations of the OOI site.</p> <p>The Regional Board is not required to provide information to BP regarding the operations at the OOI site. If BP seeks such information, it is incumbent on BP to request that information from the Regional Board. Such information is available for review by the public during regular business hours. In addition, any person may request Regional Board records by submitting a request pursuant to the California Public Records Act. The public is encouraged to contact the Regional Board and make requests for file reviews for any of our sites for which records are available. Hence, BP, or any other interested person, could have contacted the Regional Board at any time and requested access to the files concerning OOI's operations. Had BP done so, the Regional Board would have assisted BP in obtaining access to our records related to the OOI site. Thereafter, it would be BP's responsibility to review the Regional Board's records and use that information in its preparation of a Conceptual Site Model and associated source identification required in the CAO.</p> <p>The sludge and excessive odors noted by BP were a nuisance issue.</p>

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<p>BP / 1.13</p>	<p><u>Finding 7d</u></p> <p>Significant potential sources of benzene and other contaminants exist in the vicinity of 712 Baker Street other than the BP pipelines.</p> <ul style="list-style-type: none"> <li>• Seven pipelines owned by others have been identified along Golden Avenue and Baker Street. The LARWQCB has not provided information related to the uses, history of operation, release and repair history, etc. for these lines. Also, many other lines that could provide conduits for plume migration traverse the OOI site from the area north of Baker Street along Golden Avenue.</li> <li>• The LARWQCB has not considered the potential contribution of lines beneath Baker Street, indicating that the lines are "away from the primary area of concern along Golden Avenue." OOI reports present data showing detectable concentrations of dissolved phase petroleum hydrocarbon compounds in water samples from the well MW-3, which is part of the OOI site, as described in the tentative CAO. Well MW-3 is located approximately 50 feet from Baker Street.</li> <li>• In addition, substantial evidence from the California Environmental soil vapor study and other historical and forensics analysis demonstrates that deep impacts along Golden Avenue extend north of Baker Street and that the greatest surface impacts at the site are found in the vicinity of Baker Street. Methane data throughout OOI indicate contaminants likely originated on OOI property, with the highest concentrations north of Baker Street.</li> </ul>	<p>They are unrelated to the dissolved phase benzene impacts observed along the pipeline corridor beneath Golden Avenue and the eastern perimeter of the OOI site.</p>
		<p>The Regional Board has investigated the uses, history of operation, and release and repair history for other pipelines in the vicinity of 712 Baker Street. Regional Board staff reviewed records from the State Fire Marshal's office and the City of Long Beach, Department of Public Works, to determine if there were any other pipelines along Baker Street and Golden Avenue and, if so, whether there were any documented releases from those pipelines. Regional Board staff also reviewed the records identified within Exhibit B of the CAO. While non-BP pipelines have operated and currently operate in the area, the only pipelines identified as carrying refined products are Lines 23, 34, and 252. Regional Board staff found no release records after completion of its file reviews; however, the lack of a release record does not mean releases did not occur. Finding 7d in the CAO addresses other pipelines in the subject area.</p> <p>The Regional Board has also considered the potential contribution of lines beneath Baker Street. Well MW-3 is 50 feet from Lines 32, 34, and 252, which convey or have conveyed refined products. MW-3 is also 50 feet from Golden Avenue beneath which these lines are present. The extent of impacts along Golden Avenue has not been defined laterally or vertically. The investigation of impacts has not been fully completed. If shallow impacts adjacent to Lines 32, 34, and 252 are demonstrated to be connected to deeper impacts, and those deeper impacts are determined to be from other sources, then the Regional Board will consider taking additional actions.</p> <p>The Regional Board is aware of the soil vapor study and groundwater impacts. The CAO is requiring assessment of impacts aligned with Lines 32, 34, and 252. If assessment of these impacts indicates that the impacts on the OOI property north of Baker Street are from a different source than Lines 32, 34, and/or 252, then the Regional Board will consider taking additional actions. As for the hydrocarbon impacts in groundwater on the OOI property north of Baker Street, the</p>

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<p>BP / 1.12</p>	<p><u>Finding 7.e.i</u> Soil vapor concentrations increase with depth, including with AOCA which suggests a deeper, separate source for the hydrocarbon impacts beneath the pipelines, and not a current shallow source such as the pipelines.</p>	<p>Regional Board suspects they originated from Lines 32, 34, and/or 252 in Golden Avenue because: (1) they have a similar composition as adjacent to Golden Avenue; and (2) the Regional Board is unaware of any soil data that indicates hydrocarbon impacts on the OOI property north of Baker Street have a trace to groundwater.</p>
<p>BP / 1.13</p>	<p><u>Finding 7.e.ii</u> AOCA is not located near two recent pipeline repair locations. The northerly asphalt patch is located approximately 250 feet north of 3742 Countyside Lane. Furthermore, the asphalt patches are not indicative of a pipeline release, and as previously documented, no "repairs" were made to ARCO lines. The patches are a result of preventative maintenance due to testing anomalies. In addition, field log records show no evidence of leaks during the excavations for maintenance.</p>	<p>The Regional Board is not suggesting there is a current shallow release source. Section A-A, Figure 6 in Brycon's report entitled "Report on Additional Site Characterization," dated September 30, 2011, shows that soil vapor concentrations increase to certain depths at some locations, and then decrease below those depths, as in CESV21 and CESV33. At these locations, the Regional Board interprets this pattern to likely represent an older near-surface release for which the center of mass has migrated down.</p> <p>Item 7.e.ii containing a reference to the asphalt patch locations and "repairs" associated with preventative maintenance has been removed from the CAO.</p>
<p>BP / 1.14</p>	<p><u>Finding 7.f.i.1</u> BP did not make the stated claim that subsurface samples lacked iso-octane and therefore did not originate from gasoline, as iterated in BP's December 4, 2012, letter. BP's previous statements regarding the lack of iso-octane were in reference to the soil vapor sample from VES-A, not the LNAPL sample collected from well Brycon-MW-1 (in Area AOC B).</p>	<p>The Regional Board notes that BP's comment in its December 4, 2012, letter regarding the absence of iso-octane indicators referenced a soil vapor sample. The Regional Board realizes that one sample was from soil vapor and the other from LNAPL and that they were collected from two different release areas of concern along Lines 32, 34, and 252. Nonetheless, the presence of LNAPL containing iso-octane adjacent to gasoline and/or refined product Lines 32, 34, and 252 – in any medium or location – suggests a gasoline release occurred from one or more of these lines in or near Golden Avenue. Finding 7.f.i.1 has been revised in the CAO.</p>
<p>BP / 1.15</p>	<p><u>Finding 7.f.ii</u></p>	<p>Finding 7.f.ii of the Tentative CAO has been deleted from the final</p>

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	<p>The statement that the INAPI lacked evidence of heavier hydrocarbons overstates Zymax's conclusions. Chemical fingerprint data do not show a consistent forensic signature, which would be expected if the only source of contaminants was a pipeline release. In addition, Zymax did not analyze the heavier carbon range, and, therefore, does not have the data to draw this conclusion. Analyses were limited to C3-C10 and oxygenates. Per Zymax, "There is not evidence of any heavier petroleum products in the sample. This could be confirmed by analysis in the C3-C14 carbon range."</p> <p><u>Finding 7.1.16</u></p>	<p>CAO.</p>
<p>BP / 1.16</p>	<p>It appears that the LARWOCB is using benzene as an indicator chemical for gasoline-sourced contamination. However, it is documented in several reports, including those footnoted below, that OGI influent and effluent contained benzene.</p> <p><u>Finding 7.1.17</u></p>	<p>The Regional Board acknowledges that benzene likely existed within the crude oil production waste water processed by OGI, adjacent to lines 32, 34, and 252. However, in its investigation, the Regional Board also used other indicators, such as 1,2-DCA and iso-octane.</p>
<p>BP / 1.17</p>	<p>The leaded gasoline scavenger, 1,2-Dichloroethane (1,2-DCA), has not been detected in any sample locations except those on the OGI property. 1,2-DCA was not detected in any soil vapor or soil samples above 30 feet below ground surface (bgs). Higher concentrations of 1,2-DCA in groundwater were detected on the northern portion of the OGI property (i.e. north of Baker Street) away from the ARCO pipelines.</p> <p><u>Finding 7.1.18</u></p>	<p>The highest 1,2-DCA groundwater detections were found within former wells 92-MW-4 and 92-MW-3, at maximum concentrations of 730 and 1,050 µg/l 1,2-DCA, respectively. These wells are on the OGI property, close to and down gradient of lines 32, 34, and 252. The maximum 1,2-DCA concentrations detected on the northern portion of the OGI property (north of Baker Street) was 315 µg/l 1,2-DCA. Furthermore, there is no evidence of a 1,2-DCA track to groundwater in soil samples collected from the northern portion of the OGI property. The distribution of 1,2-DCA suggests that its source is from one or more releases in Golden Avenue and that 1,2-DCA migrated down gradient toward the northwest.</p>
<p>BP / 1.18</p>	<p>Benzene has been detected in groundwater on the OGI property, with concentrations increasing significantly along its eastern boundary after a shift in groundwater flow direction toward the southeast in 2005. This could suggest a source on the OGI property, not a source beneath Golden Avenue. In addition, iso-concentration maps of benzene and other compounds produced by Brycon are far-</p> <p><u>Finding 7.1.19</u></p>	<p>The distribution of maximum benzene concentrations in groundwater has been generally consistent, adjacent to the pipeline corridor, along Golden Avenue, regardless of the groundwater flow direction. Benzene exists in gasoline, which BP and ARCO transported in one or more Golden Avenue pipelines. Other indicators, such as 1,2-DCA and iso-octane, indicate a gasoline release in the vicinity of the Golden Avenue pipelines. When viewing groundwater data independent of contour maps provided to the Regional Board, the Board came to the</p>

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reaching and misleading (see for example Figure 5 of the October 15, 2012, Brycon quarterly groundwater monitoring letter).

In the Brycon 2006 October Groundwater Monitoring Report, Brycon noted "The concentration of benzene increased in ESE-MW1 relative to the April 2006 sampling event (from 1,800 µg/L to 2,600 µg/L). This is a fairly significant increase. In April 2005, the benzene level in this well was 1,400 µg/L and in October 2005, it was only 15 µg/L. The first large increase observed during recent monitoring events was in April 2005, which represents the first reported time that the change in gradient and flow direction from northwesterly to northeasterly was observed. The benzene levels measured in ESE-MW-1 appear to be related to water flow direction and elevation in this well, several other VOCs also increased in concentration during the recent (October 2006) monitoring event. These included 1,2-DCA, ethylbenzene, toluene and xylenes. In Brycon-MW-3, the VOCs did not change very significantly, however, more VOCs were detected in April 2006."

Also, in their 2006 report conclusions, Brycon noted the following: "this northeasterly flow direction may be responsible for the noticeable increase in benzene levels detected in Well ESE-MW1 in three out of the four monitoring events conducted since April 2005. The increase in benzene levels observed in Well ESE-MW1 seems to be related to the change in groundwater flow direction in which ESE-MW-1 now has a downgradient component relative to Basin 1. Although soil and sludge in Basin 1 was blended to facilitate bioremediation in recent years, seepage and partitioning of substances present in Basin 1 sludges may have occurred over numerous years in the past, impacting nearby shallow groundwater."

Further, the data provided to BP by the LARWQCB via reports uploaded to GeoTracker are insufficient to allow depictions of chemical iso-concentration lines east of the OOI property. The three wells along the eastern side of the OOI property are each situated

conclusion that the impacts along the eastern edge of the OOI property, adjacent to Golden Avenue, appear to originate within Golden Avenue.

The Regional Board interprets the 2005 to 2006 benzene concentration increases in ESE-MW1 to have been a result of benzene impacts moving downgradient in a northwesterly direction from Golden Avenue onto the OOI property. When the direction of groundwater flow shifted to being northeasterly, back toward Golden Avenue, these impacts were detected in ESE-MW1 location.

The Regional Board is not aware of any groundwater data that supports Basin 1 as a source for benzene detected in ESE-MW1. In fact, groundwater data in the Regional Board's files counter it. For example, September 2013 groundwater monitoring data from Brycon MW-2 contained 189 µg/L benzene. This well is located close to the northeast corner of Basin 1. Well ESE-MW1 contained 614 µg/L benzene during the September 2013 groundwater monitoring event. This well is located away from Basin 1, closer to Golden Avenue. If the increases of benzene in well ESE-MW1 in the 2005 to 2006 time frame had been from a Basin 1 source, the Regional Board would expect the benzene concentrations in Brycon MW-2 to be higher than or at least comparable to the benzene concentrations in ESE-MW1.

The Regional Board acknowledges that the extent of groundwater impacts within Golden Avenue and north of it remains unknown. Regional Board staff's interpretation of the groundwater data support the conclusion that benzene and other gasoline impacts appear to have originated in Golden Avenue, coincident with the location of Lines 32, 34, and 252.

The Regional Board also acknowledges that the potential for gasoline sources at the OOI property exists. A primary basis for naming BP, ARCO, and ARCO Terminal Services Corporation on the CAO is the distribution of impacts along the eastern edge of the OOI property, which is adjacent to Lines 32, 34, and 252 in Golden Avenue. If

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	<p>approximately 500 feet apart, and there are no wells to the east that would allow the depiction of the contouring shown. Prior Brycon maps, which included more data, show distinct areas of contamination rather than a single continuous plume. Additionally, gasoline-range hydrocarbons have been detected on OGI's former northerly-most parcel (i.e. a current driving range located north of 1405) in sump sludge 30 feet bgs, further indicating the potential contribution of gasoline compounds by OGI operations.</p>	<p>additional assessment indicates that the impacts aligned with Lines 32, 34, and 252 in Golden Avenue actually did originate from an OGI source or are commingled with impacts from an OGI source, the Regional Board will consider taking additional actions.</p>
<p>BP / 1.19</p>	<p><u>Finding 9a.</u>                  CHHSLs for vapor screening are applied in the top 5 feet – the 390 µg/l benzene vapor result was detected at a depth of 20 feet bgs. This is an incorrect and misleading application of the state standards and the Cal EPA January 2005 guidance.</p>	<p>Finding 9a. was modified in the CAO. The 390 µg/L benzene in soil vapor reference assumed to mean the 20-foot soil gas sample from CESV33. Note that the 5-foot soil vapor sample from CESV33 contained 0.83 µg/L benzene, which still exceeds both the residential and commercial CHHSLs for benzene, warranting concern and additional action.</p>
<p>BP / 1.20</p>	<p>No reference was made to the December 4, 2012 letter or the December 5, 2012 meeting and BP's anticipated response from the LARWQCB to discussions held during that meeting.</p> <ul style="list-style-type: none"> <li>The LARWQCB states that "To date, the Regional Board has not received a revised work plan from BP." BP had not refused to submit a revised work plan, but understood that the LARWQCB would respond to the technical and legal bases presented at the December 5, 2012, meeting.</li> </ul>	<p>See responses to Comments 1.7 and 1.8.</p>
<p>BP / 1.21</p>	<p><u>Finding 21</u>                  are or will pose a potential human health threat to occupants of the nearby Wrigley Heights residents through direct contact exposure to contaminated soil and/or groundwater. Groundwater is located 30 to 50 feet bgs. Direct contact by residents is not currently a viable risk pathway. In addition, there have been no shallow soil impacts identified above 10 feet bgs in investigations by others along Golden Avenue. There is no currently defined risk due to direct contact with impacted soil along Golden Avenue.</p> <p><u>Required Actions 3, Page 6.</u></p>	<p>At this time, a potential human health threat exists. The CAO requires an investigation so the petroleum impacts at and near Golden Avenue will be delineated. A Human Health Risk Assessment (HHRA) needs to be performed using current data to confirm whether there are any risks of concern at this point to the residents of the neighborhood. The HHRA should consider all possible pathways for exposure.</p> <p>Finding 21 in the CAO has been slightly modified in response to the comment.</p>
<p>BP / 1.22</p>	<p><u>Required Actions 3, Page 6.</u></p>	<p>The "Site" refers to impacts from Lines 32, 34, and/or 252, wherever those impacts may be determined to be present. This includes areas</p>

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	<p>“Completely delineate the extent of ... in soil, soil vapor, ... discharged at or from the Site.” BP requests “the Site” be changed to “ARCO pipelines”. ARCO has no liability for impacts by others, such as OOI and other pipelines in the Site.</p>	<p>where the waste was discharged, including areas where the waste has migrated. Until the extent of impacts from Lines 32, 34, and 252 are delineated, the Regional Board acknowledges that the extent of “the Site” remains largely undefined. If the Regional Board determines that impacts from sources other than Lines 32, 34, and 252 are commingled with impacts from these lines, the Regional Board will consider taking additional actions, such as amending the CAO with additional parties or issuing a separate order to other parties.</p>
<p>BP / 1.23</p>	<p><u>Exhibit D: Time Schedule</u></p> <ul style="list-style-type: none"> <li>BP requests a sequence revision: A human health risk assessment will be conducted following implementation of the Master Work Plan and evaluation of the data associated with the investigation required in the tentative CAO.</li> <li>BP requests an additional sequence revision: A conceptual site model will be prepared following implementation of the Master Work Plan and evaluation of the data associated with the investigation required in the tentative CAO.</li> <li>Groundwater monitoring – Monitoring wells to be sampled per this requirement will be identified in the Work Plan. ARCO will not be responsible for reporting of data collected by others (e.g., reporting on the monitoring period for January through June 2013 or thereafter depending upon the timing of issuance of the final CAO).</li> <li>IRAP – due to the egregious errors in Brycon’s 2013 vapor extraction system monitoring report recently uploaded to GeoTracker, BP considers the basis for the system and its operation to be suspect. The errors overstate the benzene recovery, by a factor of at least several thousands. This is</li> </ul>	<p>The Regional Board concurs with the request for a sequence revision. Exhibit D to the CAO has been modified to require a work plan for a HIRA concurrent with the Master Work Plan. The due date for the submittal of the completed HIRA will be made when the work plan is approved by the Regional Board.</p> <p>The Regional Board concurs with the additional request for a sequence revision. Exhibit D has been modified to require preparation of the site conceptual model after implementation of the Master Work Plan. The Regional Board expects that a simple Site Conceptual Model will be incorporated into the Master Work Plan to put the Master Work Plan into context. A more detailed Site Conceptual Model can be submitted following implementation of the Master Work Plan.</p> <p>Comment noted. The Regional Board will determine which wells will be required for groundwater monitoring following the Board’s review of the Master Work Plan, which should contain a section on proposed groundwater monitoring. Item 6 of Exhibit D has been modified to reflect this.</p> <p>Brycon corrected the error and uploaded the <i>Quarterly Monitoring Report, Soil Vapor Extraction</i>, dated April 15, 2013, to GeoTracker on June 3, 2013. Despite the error in mass recovery calculations, the soil vapor extraction (SVE) system was installed and is operated to mitigate soil vapor concentrations exceeding CHSL values in the vicinity of</p>

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	<p>part of a pattern of errors in Brycon reports, as indicated to the LARWQCB during discussions and meetings in 2012. Vadose zone data along Golden Avenue support the low levels of benzene recovered by the OOI vapor extraction system. Following implementation of the Master Work Plan and evaluation of the data associated with the investigation required in the tentative CAO, BP will prepare a RAP if the data and human health risk assessment confirm that one is necessary.</p> <ul style="list-style-type: none"> <li>The schedule timeline is unrealistic. A Master Work Plan will be submitted to the LARWQCB by BP within six weeks of the issuance of the Final CAO.</li> </ul>	<p>residences. The Regional Board notes that the valve for VES Well A is not fully opened; it was opened only 25% as of May 2014) in order to keep influent concentrations below South Coast Air Quality Management District permit requirements. Since VES Well A has demonstrated higher vapor concentrations between the two active VES wells, it would be expected that more extraction from VES Well A would yield higher influent concentrations and extraction rates. Until assessment is completed and a human health risk assessment is performed that supports turning the soil vapor extraction system off, the Regional Board will require its continued operation.</p>
<p>BP / 1.24</p>	<p>The tentative CAO lacks a sufficient evidentiary basis that conforms to Water Code standards and recent case law. For the reasons set forth below, we urge the Board to rescind the Order and allow BP to conclude its response to the 13267 Order. Alternatively, we urge the Board to delay issuance of the order until BP obtains a State Board decision on the June 8, 2012 Petition.</p> <ul style="list-style-type: none"> <li>The tentative CAO repeats the evidentiary and legal flaws associated with the May 11, 2012, 13267 Order. Water Code Section 13267 authorized the Regional Board to issue the 13267 Order to those who have discharged, or are suspected of having discharged, wastes. There was and continues to be a lack of evidence of that any BP line discharged gasoline in the vicinity of the Site. There is strong evidence showing BP has not caused or contributed to a release. BP has cooperated with every request and order from the LARWQCB thus far but would be forced again to petition the state board for review of any clean-up abatement order in this matter.</li> <li>A cleanup and abatement order may be issued only to a person who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or</li> </ul>	<p>The Regional Board does not object to a six week period for submission of a Master Work Plan from the date that the final CAO is issued. Exhibit D has been modified to provide additional time.</p> <p>The Regional Board disagrees with BP's comment that the CAO lacks a sufficient evidentiary basis that conforms to Water Code standards and case law. The Regional Board has sufficient evidence indicating that BP, ARCO, and ARCO Terminal Services Corporation are collectively responsible for the waste discharged at the site. This is due to their current and/or former ownership or their present and/or past operations of pipelines that transported refined products at the Site that resulted in the discharge of wastes. As previously indicated, the Regional Board has investigated and ruled out other possible sources of the wastes at the site, including the OOI site. Strong evidence indicates that a release(s) from lines 32, 34, and/or 252 caused the discharge resulting in impacts. Further, the CAO conforms to the Water Code, case law, and State Water Resources Control Board (State Water Board) precedential orders and policies.</p> <p>As described in the findings of the CAO, BP, ARCO, and ARCO Terminal Services Corporation are subject to an order pursuant to Water Code section 13304 because they have caused or permitted waste, including volatile organic compounds (VOCs), to be discharged or deposited where the wastes are, or probably will be, discharged to waters of the state and has created, and continues to create, a condition of pollution or nuisance. BP misquotes and mischaracterizes <i>Redevelopment</i></p>

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deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create a condition of pollution of nuisance." (Water Code & 13304.) Section 13304 liability attaches only where a party "took affirmative steps directed towards the improper discharge of waste or has either directly spilled or released the contaminants into the environment or affirmatively and knowingly caused or permitted the contamination to migrate." *Redevelopment Agency of the City of Stockton v. BSNF Railway Co.*, 543 F.3d 668, 674-674, 578 (9<sup>th</sup> Cir. 2011) (applying the law of nuisance to Water Code 13304). Here, there is no evidence that a BP line in the vicinity of the Site "caused or permitted, causes or permits or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited."

- Based on the foregoing, the LARWQCB lacks a basis to name BP in a clean-up and abatement order.
- Further, Resolution 92-49 requires that the LARWQCB use the most cost-effective methods for detecting contamination or pollution and ensuring clean up. The draft CAO is not a cost-effective means for many of the same reasons described in the June 8, 2012 Petition. It imposes unreasonable costs on BP where the evidence supports that parties other than BP should bear those costs.
- In light of the foregoing, we urge the Board to rescind tentative CAO. Alternatively, we urge the Board to delay issuance of the order until BP obtains a State Board decision on the June 8, 2012 Petition.

*Agency of the City of Stockton*. As an initial matter, the court in that case considered whether the appellant railroad companies were liable for contamination of property under the common law of nuisance or under the California Polanco Redevelopment Act. While the court looked, in part, to Water Code section 13304 in making that determination, that case did not concern issuance of a CAO as is the case here. Further, the quote cited by BP (which is from another case concerning the Polanco Redevelopment Act) is incomplete. The actual quote from the *Redevelopment Agency of the City of Stockton* case states that "[t]hose who took affirmative steps directed toward the improper discharge of [hazardous] wastes, may be liable under [section 13304]." *Id.*, 643 F.3d 678 (emphasis added). The court therefore did not determine that only those who took affirmative steps can be held liable. Even so, the facts of this matter are distinguishable from that case. Here, the Regional Board has determined that pipelines owned and/or operated by BP, ARCO, and ARCO Terminal Services Corporation released waste into the environment. Moreover, under precedential orders, the State Water Board has interpreted the term "discharge" to include not only an active, initial release, but also a passive migration of waste. The discharge continues as long as the pollutants remain in the soil and groundwater at the site. (See, e.g., State Water Board Order WQ-86-2 [*Zoecon Corporation*] finding that, because there was an actual movement of waste from soil to water on the site, a continuing discharge existed for which the current owner could be held responsible). Therefore, BP, ARCO, and ARCO Terminal Services Corporation are appropriately named as responsible parties in the CAO.

The CAO is consistent with State Water Board Resolution No. 92-49. The Regional Board disagrees with BP that the CAO "imposes unreasonable costs on BP where the evidence supports that parties other than BP should bear those costs." As previously indicated, the Regional Board has determined, based on evidence in its records, that BP, ARCO, and ARCO Terminal Services Corporation are the appropriate parties to assess and cleanup the wastes. In accordance

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with Resolution No. 92-49, the CAO provides a phased approach to site investigation and remediation, which may reduce overall costs. In addition, the parties to the CAO have the opportunity to select and propose cost-effective methods for detecting discharges and methods for cleaning up the wastes or abating the effects of the waste. Pursuant to Resolution No. 92-49, the Regional Board shall "concur with any investigative and cleanup and abatement proposal which the discharger demonstrates and the Regional Water Board finds to have a substantial likelihood to achieve compliance, within a reasonable time frame, with cleanup goals and objectives that implement the applicable Water Quality Control Plans and Policies adopted by the State Water Board and Regional Water Boards, and which implement permanent cleanup and abatement solutions which do not require ongoing maintenance, wherever feasible."

The Regional Board further disagrees that a delay in issuing the CAO is warranted. As indicated above, the Regional Board has sufficient information at this time indicating that pipelines owned and/or operated by BP, ARCO, and ARCO Terminal Services Corporation are collectively responsible for the waste discharged at the site. In addition, contrary to BP's assertion, BP has not "cooperated with every request and order from the [Regional Board] thus far." To date, the Regional Board has not received a revised workplan from BP pursuant to the May 11, 2012, Water Code section 13267 order. This is despite the fact that, on April 24, 2013, Regional Board staff notified BP that it was currently completing a tentative CAO that would be issued to BP and ARCO. BP has therefore had over one year since that notification to "conclude its response to the 13267 Order," which it has chosen not to do. Nevertheless, even though BP never concluded its response to the Water Code section 13267 order, additional site assessment and delineation of the extent of the wastes at the site is required by the CAO. Furthermore, on June 8, 2012, BP submitted a petition to the State Water Board challenging the Water Code section 13267 order. At that time, BP requested that the petition be held in abeyance to allow time to work with the Regional Board. To date, the petition remains in abeyance at BP's request, meaning that the State Water Board is not

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		<p>actively working on the petition. Had BP tried to obtain a State Water Board decision prior to issuance of the CAG, it should have requested that the petition be taken out of abeyance.</p>
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STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION

CLEANUP AND ABATEMENT ORDER NO. R4-2013-0064  
REQUIRING

BP PIPELINES (NORTH AMERICA), INC., ATLANTIC RICHFIELD COMPANY,  
AND ARCO TERMINAL SERVICES CORPORATION

TO INVESTIGATE, MONITOR, CLEANUP, AND ABATE THE EFFECTS OF  
WASTE DISCHARGED TO WATERS OF THE STATE  
(PURSUANT TO CALIFORNIA WATER CODE SECTIONS 13304 AND 13267)

AT  
GOLDEN AVENUE  
BETWEEN BAKER STREET AND WEST WARDLOW ROAD  
LONG BEACH, CALIFORNIA 91750  
(SCP CASE NO. 0093A AND SITE ID NO. 2040420)

This Cleanup and Abatement Order No. R4-2013-0064 (Order) is issued to BP Pipelines (North America), Inc., Atlantic Richfield Company, and ARCO Terminal Services Corporation based on provisions of California Water Code sections 13304 and 13267, which authorizes the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) to issue a Cleanup and Abatement Order and require the submittal of technical and monitoring reports.

The Regional Board finds that:

**BACKGROUND**

1. Dischargers: BP Pipelines (North America), Inc. (BP), Atlantic Richfield Company (ARCO), and ARCO Terminal Services Corporation (ATSC) (hereinafter, collectively referred to as "Dischargers") are Responsible Parties (RPs) due to their or their subsidiaries:
  - (a) present and/or past ownership of pipelines located generally within Golden Avenue between Baker Street and Wardlow Road in Long Beach, California (hereinafter referred to as "the Site"), and/or
  - (b) present and/or past operations of the pipelines at the Site that resulted in the discharge of wastes, including volatile organic compounds (VOCs), particularly benzene and 1,2-dichloroethane (1,2-DCA), light non-aqueous phase liquids (LNAPL), and other waste constituents of concern to the environment.

As detailed in this Order, the Dischargers have caused or permitted waste to be discharged or deposited where it is, or probably will be discharged into the waters of the State which creates, or threatens to create, a condition of pollution or nuisance.

2. **Location:** The pipelines at the Site are located generally within Golden Avenue between Baker Street and Wardlow Road in Long Beach, California. Exhibit A, Figure 1, Site Location Map, attached hereto and incorporated herein by reference, depicts the location of the Site. Additionally, Exhibit A, Figure 2, Site Map, also attached hereto and incorporated herein by reference, depicts the Site and the surrounding area. A residential neighborhood, known as Wrigley Heights Community, is located east of Golden Avenue and the pipelines. Adjacent to the west of Golden Avenue and the pipelines is the vacant Oil Operator's Inc. (OOI) site, which was formerly used to treat production brines, containing water and crude oil, recovered during oil production since 1926. OOI also accepted refinery wastes. The southern portion of the pipeline run, north of Wardlow Road, includes Wrigley Heights Dog Park. The area north of Baker Street includes a portion of the former OOI site and the newly-constructed Baker Street Park.
3. **Groundwater Basin:** The Site lies within the West Coast Basin of the Los Angeles Coastal Plain Groundwater Basin. The alluvial sediments within the Central Basin are an important source of groundwater. As set forth in the *Water Quality Control Plan for the Los Angeles Region* (Basin Plan), which was adopted on June 13, 1994, the Regional Board has designated beneficial uses for groundwater, including municipal (MUN), industrial (IND), process (PROC), and agricultural supply (AGR) uses in the Central Basin, and has established water quality objectives for the protection of these beneficial uses.

#### SITE HISTORY

4. **Site Description and Activities:** The Site is a public street owned by the City of Long Beach. The Site includes pipelines (Line 32, Line 34, and Line 252) owned and/or operated by the Dischargers generally within Golden Avenue between Baker Street and Wardlow Road in Long Beach. According to pipeline inventory records provided by the Dischargers, Lines 32 and 34 have been operational since 1922 and 1927, respectively. ATSC has owned Lines 32 and 34 since 1988. Lines 32 and 34 are both currently active. Line 252 has been inactive since 1995.

#### *Pipeline Ownership Timeline*

The historical pipeline ownership is summarized in the tables and text below. This information was obtained from pipeline inventory records provided by the Dischargers and from Regional Board discussions with personnel representing the Dischargers.

**Table 1 - Ownership History for Line 32**

Pipeline Owner	Years of Ownership
Union Oil	1922 - 1929
Pan American Petroleum	1929 - 1937
Richfield	1937 - 1966
ARCO	1966 - 1988
ATSC	1988 - May 31, 2013
Tesoro <sup>1</sup>	June 1, 2013 - Present

**Table 2 - Ownership History for Line 34**

Pipeline Owner	Years of Ownership
Richfield	1927 - 1966
ARCO	1966 - 1988
ATSC	1988 - May 31, 2013
Tesoro	June 1, 2013 - Present

**Table 3 - Ownership History for Line 252**

Pipeline Owner	Years of Ownership
ARCO	1945 or prior to May 31, 2013
Tesoro	June 1, 2013 - Present

5. **Chemical Usage:** Based on information provided by the Dischargers and other available records, Lines 32, 34, and 252 collectively transported crude oil, dark refined products, other refined products including gasoline and diesel fuel, wastewater, and oily water. More detailed information on which pipeline transported specific materials and the sources of this information is presented in Exhibit B, attached hereto and incorporated herein by reference.

**EVIDENCE OF WASTE DISCHARGES AND BASIS FOR SECTION 13304 ORDER**

6. **Waste Discharges:** Environmental investigations have been conducted at the adjacent OOI site since the early 1980s. The OOI site is situated west of Golden Avenue, adjacent to Lines 32, 34, and

<sup>1</sup> In a letter dated July 24, 2013, Tesoro Refining & Marketing Company LLC (Tesoro) notified the Regional Board that: "responsibility for the [Golden Avenue, Long Beach, California] asset has been transferred from [ATSC] to Tesoro [], effective June 1, 2013. This transfer is consistent with terms of the property sale by which Tesoro assumed responsibility for further assessment and remediation activities associated with the subject asset, including all permits, performance bonds, agency oversight fees, etc." The Regional Board understands this means that, as of June 1, 2013, Tesoro is the current owner of Lines 32, 34, and 252. The Regional Board is not including Tesoro as a responsible party in this Order at this time because the active releases from Lines 32, 34, and 252 that resulted in the discharge of waste to waters of the state occurred prior to June 1, 2013. Based on current information, the Regional Board does not believe any active discharges from these pipelines continued on or after June 1, 2013.

252. These investigations involved soil vapor surveys, soil borings for soil sampling, and groundwater monitoring well installations for groundwater sampling. The results of those investigations indicate that there were waste discharges to the soil and groundwater at the Site. Elevated concentrations of benzene and other hydrocarbons are present in soil vapor beneath the pipelines and nearby areas, including beneath Golden Avenue and portions of the residential neighborhood on the east side of Golden Avenue, known as the Wrigley Heights Community. In addition, groundwater is impacted with LNAPL benzene, 1,2-DCA, iso-octane, and other hydrocarbons. Upon review of available subsurface data, the Regional Board has determined that the source(s) of the hydrocarbon vapors (primarily benzene) and impacts to groundwater (primarily benzene and 1,2-DCA) that have been detected under the pipelines in Golden Avenue, Wrigley Heights residences, and the OOI site are the pipelines owned and/or operated by the Dischargers.

**7. Reasons Why the Dischargers are Responsible Parties for the Waste Discharges:**

- a. ATSC owned Line 32. BP operated Line 32 generally within Golden Avenue for transport of crude oil and refined dark product.
- b. ATSC owned Line 34. BP operated Line 34 generally within Golden Avenue for transport of diesel and other refined products, including gasoline.
  - i. A 1945 (original drawing date) ARCO pipeline map identifies segments of Line 34 beneath Golden Avenue as having been replaced. The reason for the pipeline replacement is unknown.
- c. ARCO owned Line 252. BP operated Line 252 generally within Golden Avenue for the transport of gasoline and waste water.
  - i. A 1945 (original drawing date) ARCO pipeline map identifies segments of Line 252 pipe where the installation of a 4-inch pipe inside an existing 6-inch pipe occurred along Baker Street and replacement beneath Golden Avenue. The reasons for the pipeline replacements are unknown.
- d. While other companies' pipelines have operated and currently operate in the area of the Site, the only pipelines identified as carrying refined products are those pipelines owned and/or operated by the Dischargers. Most of the other pipelines are located in Baker Street, away from the primary area of concern along Golden Avenue.
- e. OOI soil vapor data under Golden Avenue indicates a track to shallow soil for benzene near Lines 32, 34, and 252, which the Regional Board has identified as Area of Concern (AOC) "A."
  - i. AOC A is located along the stretch of Lines 32, 34, and 252 in Golden Avenue, approximately across the street from (west of) 3743 Countryside Lane.
- f. A LNAPL product sample collected from Bryan-MW1 (identified as AOC B), near the pipelines toward the southern portion of the OOI property, had indicators of a gasoline source.

- i. The sample contained 2,2,4-trimethylpentane and other trimethylpentanes (Iso-octane), which are components of gasoline.
    - 1) BP previously asserted to the Regional Board that subsurface soil gas samples lacked Iso-octane. Subsequent data from the LNAPL sample collected from Brycon-MW1 indicates that Iso-octane is present, which indicates that there is at least one gasoline source.
  - ii. The sample contained high concentrations of the n-alkanes, heptane, octane, nonane, and decane. Historic leaded gasolines with high naphtha contents contained elevated n-alkane concentrations. The presence of high n-alkane concentrations suggests that this product may represent an old leaded gasoline.
  - iii. The only known source(s) of gasoline in the area of the Site are the pipelines owned and/or operated by the Dischargers.
- g. 1,2-DCA is a lead scavenger that was historically added to leaded gasoline to prevent buildup of lead oxide deposits within internal combustion engines. 1,2-DCA has been detected along the pipelines at the Site in Golden Avenue.
- i. The only known source(s) of gasoline in the area are the pipelines owned and/or operated by the Dischargers.
  - ii. Benzene impacts to groundwater exist, with the maximum benzene concentrations aligned with the pipelines in Golden Avenue that are owned and/or operated by the Dischargers. Benzene exists in gasoline, which the Dischargers transported in their Lines 34 and 252, and possibly in Line 32.

Based upon the distribution of maximum benzene concentrations below the pipelines owned and/or operated by the Dischargers; a similar distribution of 1,2-DCA from a gasoline source along the pipelines; the presence of Iso-octane and n-alkanes in LNAPL indicating a gasoline source adjacent to the pipelines; and a lack of evidence pointing to heavier-end hydrocarbons indicative of a crude oil source (in Brycon-MW1), substantial evidence indicates that BP, ARCO, and ATSC are dischargers and, therefore, Responsible Parties for the waste discharges.

8. **Source Elimination and Remediation Status:** No soil or groundwater cleanup has been implemented at the Site by the Dischargers.

OOI has operated a soil vapor extraction (SVE) system to mitigate resident and Regional Board concerns about soil vapor intrusion to nearby residential structures. When it became clear to the Regional Board that the impacts the SVE system is intended to mitigate resulted from discharges from pipelines owned and/or operated by the Dischargers, and not the OOI site, the Regional Board requested that BP take over responsibility for the interim remedial action and operate the existing SVE system. BP declined, claiming that: (1) the release is not BP's responsibility, (2) BP will not operate a SVE system owned by another company, and (3) full assessment should be performed before any remediation takes place.

9. **Summary of Findings from Site Investigations:** Regional Board staff has reviewed and evaluated technical reports and records pertaining to the Site history and the discharge, detection, and distribution of wastes at the Site and the Site vicinity. Elevated levels of benzene, 1,2-DCA, Iso-octane, and other hydrocarbons have been detected in the soil vapor and groundwater beneath the Site.
- a. Benzene has been detected at up to 390 µg/L in soil vapor at 20 feet in soil vapor probe CESV33. The 5-foot soil vapor sample from CESV33 contained 0.83 µg/L, which exceeds the residential California Human Health Screening Level (CHHSL) of 0.0362 µg/L. Benzene has been detected in groundwater up to 2,600 µg/L, exceeding the California Maximum Contaminant Level (MCL) of 1 µg/L.
  - b. 1,2-DCA has been detected in groundwater up to 2,600 µg/L, exceeding the California MCL of 0.5 µg/L.
  - c. LNAPL has been detected during groundwater sampling in the vicinity of the Discharger's pipelines.

The Board's findings based on the review of the reports and records available, which have been explained in Finding 7, confirm that the Dischargers are responsible for the discharge of waste beneath Lines 32, 34, and 252 and nearby areas, including beneath Golden Avenue, beneath the former OOI property adjacent to Golden Avenue, and portions of the residential neighborhood on the east side of Golden Avenue, known as the Wrigley Heights Community.

10. **Regulatory Status:** On January 13, 2012, the Regional Board issued BP and ARCO Investigative Order No. R4-2012-0009, which required submittal of a technical report on pipeline inventory pursuant to California Water Code section 13267. BP submitted a pipeline inventory on March 8, 2012. BP later submitted addendums to its pipeline inventory on September 12, 2012, and November 15, 2012.

On May 11, 2012, the Regional Board issued BP and ARCO Investigative Order No. R4-2012-0085, which required submittal of a work plan for soil and soil vapor investigations pursuant to California Water Code section 13267. In response, BP submitted an investigation work plan (Work Plan #1) on July 11, 2012. The Regional Board determined that Work Plan #1 was deficient, which was explained to BP during a meeting on August 9, 2012 and subsequent telephone conversations. In response to Regional Board feedback that Work Plan #1 was deficient, and as a follow-up to the meeting held on August 9, 2012, BP submitted a revised investigation work plan (Work Plan #2) on September 12, 2012. The Regional Board also determined that Work Plan #2 was deficient. Conference calls were held between the Regional Board and BP on October 18, 2012, November 1, 2012, and November 7, 2012, to discuss the deficiencies in the work plans. Also discussed during these calls was the need for BP to submit a revised work plan to address the Regional Board's requirements. In addition, during the November 7, 2012, conference call between the Regional Board and BP, BP stated that it would submit a revised work plan to the Regional Board by November 15, 2012. On November 20, 2012, the Regional Board provided BP with a written response to Work Plan #1 and Work Plan #2 explaining the deficiencies of each work plan.

BP did not submit a revised work plan. Instead, BP presented the Regional Board with correspondence dated December 4, 2012, and met with Regional Board staff on December 5, 2012, to present BP's view of legal and technical issues. During the meeting on December 5, 2012, Regional Board staff verbally responded to many of BP's statements and evaluations. On April 24, 2013, Regional Board staff responded to BP's December 4, 2012, letter indicating that it had reviewed the information presented by BP and generally disagreed with the assertions and technical evidence in that letter. In addition, in its letter, Regional Board staff provided notice to BP that it was currently completing a tentative cleanup and abatement order that would be issued to BP and ARCO.

On April 26, 2013, Regional Board staff provided the Dischargers and Interested persons notice and opportunity to comment on Tentative Cleanup and Abatement Order No. R4-2013-0064. BP submitted written comments on May 28, 2013. The Regional Board has considered and responded to those written comments.

To date, the Regional Board has not received a revised work plan from BP.

11. **Impairment of Drinking Water Wells:** The Regional Board has the authority to require the Dischargers and other dischargers to pay for or provide uninterrupted replacement water service to each affected public water supplier or private well owner in accordance with California Water Code section 13304.
12. **Sources of Information:** The sources for the evidence summarized above include but are not limited to: reports and other documentation in Regional Board files, telephone calls and e-mail communication with responsible parties, their attorneys and consultants, and Site visits.

#### AUTHORITY - LEGAL REQUIREMENTS

13. Section 13304, subdivision (a), of the Water Code provides that:

*"Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirements or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board cleanup the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts. Upon failure of any person to comply with the cleanup and abatement order, the Attorney General, at the request of the regional board, shall petition the superior court for that county for the issuance of an injunction requiring the person to comply with the order. In the suit, the court shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant."*

14. Section 13304, subdivision (c)(1), of the California Water Code provides that:

*"... the person or persons who discharged the waste, discharges the waste, or threatened to cause or permit the discharge of the waste within the meaning of subdivision (a), are liable to that*

*government agency to the extent of the reasonable costs actually incurred in cleaning up the waste, abating the effects of the waste, supervising cleanup or abatement activities, or taking other remedial actions. . . ."*

15. Section 13267, subdivision (b)(1), of the California Water Code provides that:

*"In conducting an investigation, . . . the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or, discharging, or who proposes to discharge waste within its region . . . shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."*

16. The State Water Resources Control Board (hereafter State Water Board) has adopted Resolution No. 92-49, the *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*. This Policy sets forth the policies and procedures to be used during an investigation and cleanup of a polluted site and requires that cleanup levels be consistent with State Water Board Resolution 68-16, the *Statement of Policy With Respect to Maintaining High Quality of Waters in California*. Resolution 92-49 and the Basin Plan establish the cleanup levels to be achieved. Resolution 92-49 requires the waste to be cleaned up to background, or if that is not reasonable, to an alternative level that is the most stringent level that is economically and technologically feasible in accordance with Title 23, California Code of Regulations (CCR), section 2550.4. Any alternative cleanup level to background must: (1) be consistent with the maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial use of such water; and (3) not result in water quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Water Board.

17. The Regional Board adopted the Basin Plan, which identifies beneficial uses and establishes water quality objectives to protect those uses. The Site overlies groundwater within the West Coast Basin of the Los Angeles Coastal Groundwater Basin. The beneficial uses of the groundwater beneath the Site include municipal (MUN), industrial (IND), process (PROC), and agricultural supply (AGR) uses in the Central Basin. Water quality objectives (WQOs) that apply to the groundwater at the Site include the California MCLs. The concentrations of benzene in the groundwater beneath the Site exceed the WQOs for the waste. The exceedance of applicable water quality objectives in the Basin Plan constitutes pollution, as defined in California Water Code section 13050, subdivision (1)(1). The wastes detected in groundwater, soil matrix, and soil vapor at the Site threaten to cause pollution, including contamination, and nuisance.

18. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring dischargers to clean up the groundwater to meet drinking water standards (e.g., MCLs designed to protect human health and ensure that water is safe for domestic use).

### DISCHARGER LIABILITY

19. VOCs, including benzene and 1,2-dichloroethane, and other waste constituents discharged at the Site constitute "waste" as defined in California Water Code section 13050, subdivision (d).
20. As described in Findings of this Order, the Dischargers are subject to an order pursuant to California Water Code section 13304 because the Dischargers have caused or permitted waste, including VOCs, to be discharged or deposited where the wastes are, or probably will be, discharged to waters of the state and has created, and continues to threaten to create, a condition of pollution or nuisance. The condition of pollution is a priority violation and issuance or adoption of a cleanup and abatement order pursuant to California Water Code section 13304 is appropriate and consistent with policies of the Regional Board and State Board.
21. Due to the activities described in this Order, the Dischargers have caused or permitted waste, including VOCs, particularly benzene, to be discharged or deposited where the wastes pose, or may pose, a human health threat to occupants of the nearby Wrigley Heights residents through direct contact exposure to contaminated soil and/or groundwater or through vapor intrusion into indoor air. The Dischargers, as the current or former owners and/or operators of Lines 32, 34, and 252, are responsible for complying with this Order.
22. This Order requires investigation and cleanup of the Site in compliance with the California Water Code, the applicable Basin Plan, State Water Board Resolution 92-49, and other applicable plans, policies, and regulations.
23. Substantial evidence indicates that the Dischargers caused or permitted waste to be discharged into waters of the state and are therefore appropriately named as RPs in this Order. The Regional Board will continue to investigate whether additional potentially responsible parties (PRPs) caused or permitted the discharge of waste at the Site and whether these or other persons should be named as additional responsible parties to this Order. The Regional Board may amend this Order or issue a separate order or orders in the future as a result of this investigation and as more information becomes available. Although investigation concerning additional PRPs is ongoing, the Regional Board desires to issue this Order as waiting will only delay remediation of the Site.
24. Pursuant to California Water Code section 13267, this Order requires the Dischargers to submit technical or monitoring reports in accordance with a groundwater monitoring program. The Dischargers are required to submit the reports because, as described in the Findings in this Order, existing data and information indicate that waste was discharged at the Site from pipelines that are owned and/or operated by the Dischargers. The groundwater monitoring program required by this Order is necessary to assure compliance with section 13304 of the California Water Code and State Water Board Resolution 92-49, including to adequately cleanup the Site to protect beneficial uses of waters of the state, to protect against nuisance, and to protect human health and the environment.
25. Issuance of this Order is being taken for the protection of the environment and as such is exempt from provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 et seq.) in accordance with California Code of Regulations, title 14, sections 15061, subdivision (b)(3), 15306, 15307, 15308, and 15321. This Order generally requires the Dischargers to submit plans for approval prior to implementation of cleanup activities at the Site. Mere

submittal of plans is exempt from CEQA as submittal will not cause a direct or indirect physical change in the environment and/or is an activity that cannot possibly have a significant effect on the environment. CEQA review at this time would be premature and speculative, as there is simply not enough information concerning the Dischargers' proposed remedial activities and possible associated environmental impacts. If the Regional Board determines that implementation of any plan required by this Order will have a significant effect on the environment, the Regional Board will conduct the necessary and appropriate environmental review prior to Executive Officer's approval of the applicable plan.

26. Pursuant to section 13304 of the California Water Code, the Regional Board may seek reimbursement for all reasonable costs to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action.

28. Any person aggrieved by this action of the Regional Board may petition the State Water Board to review the action in accordance with California Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)  
or will be provided upon request.

#### REQUIRED ACTIONS

**THEREFORE, IT IS HEREBY ORDERED**, pursuant to sections 13304 and 13267 of the California Water Code, that the Dischargers shall investigate, monitor, cleanup the waste, and abate the effects of the waste forthwith discharged, or discharging, at or from the Site. "Forthwith" means as soon as reasonably possible, but in any event no later than the compliance dates specified in Exhibit D. More specifically, the Dischargers shall:

1. **Complete Interim Remedial Action Plan:** Prepare and submit an Interim Remedial Action Plan (IRAP) to mitigate accumulated benzene vapors in soil beneath the Wrigley Heights residential neighborhood. The IRAP shall include proposed techniques to accomplish uninterrupted<sup>2</sup> soil vapor intrusion mitigation. The IRAP shall include a proposed schedule both for implementation of the IRAP and for periodic reporting on IRAP progress. It shall also include a plan for compliance with the public participation requirements of California Water Code section 13307.5.

Upon approval of the IRAP by the Regional Board Executive Officer, the Dischargers shall implement the IRAP and report progress in accordance with the approved IRAP schedule.

2. **Develop and Update a Site Conceptual Model:** Prepare and submit a revised 3-dimensional illustration constituting a Site Conceptual Model (SCM). The SCM shall include a written

<sup>2</sup> OOI is currently performing soil vapor extraction to achieve soil vapor intrusion mitigation to Wrigley Heights residents. It is the Regional Board's intent that the Dischargers accomplish the interim remedial action task without interrupting OOI's soil vapor extraction activities.

presentation with graphic illustrations of the release scenario(s) and the distribution of wastes from the Site and vicinity. The SCM shall be constructed based upon actual data collected from the Site and any other relevant nearby sites that add to the accuracy of the SCM.

a. SCMs shall be submitted using existing data. At minimum, a SCM shall include information about:

- I. The Site-specific hydrogeology and hydrostratigraphy with verified field data;
- II. The current groundwater monitoring network with screened intervals;
- III. The location of all water supply wells within one mile of the Site as well as other receptors that may be affected by the discharge and migration of waste constituents to the subsurface environment; and
- IV. The lateral and vertical extent of each chemical of concern in groundwater.

The SCM shall be updated periodically as new information becomes available. Updates to the SCM shall be included in all future technical reports submitted.

3. **Complete Site Assessment and Delineation of Extent of Wastes:** Completely delineate the extent of petroleum hydrocarbons and other constituents of concern (primarily LNAPL, benzene, and 1,2-DCA) in soil, soil vapor, and groundwater discharged at or from the Site.

a. A Master Work Plan shall be prepared and submitted to the Regional Board Executive Officer to provide for full assessment.

I. The Initial Work Plan shall be a Master Work Plan that describes proposed general assessment techniques and initial sampling locations.

1. Subsequent work plans, if necessary, may propose additional sampling locations, referencing the methodologies within the Master Work Plan. This structure is intended to streamline work plan preparation and review efforts.

2. The Master Work Plan and any subsequent work plans shall include a proposed schedule for completing proposed work.

3. Proposed initial sampling locations shall be provided with the Master Work Plan.

II. Delineation shall include adequate lateral (including off-Site) delineation and vertical delineation of waste constituents such that a complete 3-dimensional SCM can be generated for impacts to the Site.

b. Additional work plans may be required if delineation efforts result in multiple iterations of work being necessary to complete full delineation.

c. Upon approval by the Regional Board Executive Officer, the Dischargers shall implement the

Master Work Plan and report results in accordance with the approved work plan schedule.

4. **Prepare a Human Health Risk Assessment:** Prepare a quantitative, site-specific human health risk assessment (HHRA) to evaluate existing and future potential risks to human health from all wastes detected in the soil matrix, soil vapor, and groundwater at the Site through all potential exposure pathways, applying existing regulatory human health screening levels and/or acceptable risk assessment models.

Existing soil vapor data collected during various site assessments conducted at the Site are not usable for the human health risk assessment because of temporal variation of the concentrations of waste constituents in the soil vapor phase. Therefore, the Dischargers shall submit a work plan for the collection of sufficient data to enable completion of an HHRA. This HHRA work plan shall include proposed methods for preparing the HHRA and a proposed schedule both for data collection and HHRA preparation.

Upon approval by the Regional Board Executive Officer, the Dischargers shall implement the HHRA Work Plan and report results in accordance with the approved work plan schedule.

5. **Conduct Remedial Action:** Initiate a phased cleanup and abatement program for the cleanup of any remaining wastes in soil, soil vapor, and groundwater, and the abatement of threats to beneficial uses of water and removal of sources of waste as highest priority. Specifically, the Dischargers shall:
- a. Develop and submit a comprehensive Remedial Action Plan (RAP) for cleanup of waste in soil matrix, soil vapor, and groundwater at and originating from the Site, and abatement of the effects of the wastes released to the environment, and submit it for Regional Board review and approval. The RAP shall include, at a minimum:
    - i. A description and evaluation of the effectiveness of proposed and alternative remediation options.
    - ii. A description of any pilot projects intended to be implemented.
    - iii. A program for preventing the spread of existing waste constituents in groundwater.
    - iv. A program to initiate remediation of off-site impact of petroleum constituents (including LNAPL, benzene, and 1,2-DCA), if applicable.
    - v. Proposed cleanup goals with a protocol and schedule to reach them. The following information shall be considered when establishing preliminary cleanup goals:
      1. Preliminary cleanup goals for soil and groundwater shall be in compliance with State Water Board Resolution 92-49 ("*Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*"). Section III.G of Resolution 92-49 requires cleanup to background, unless that is not reasonable. Alternative cleanup levels to background must comply with section 2550.4 of Title 23 of the California Code of Regulations, and be consistent with maximum benefit to the people of the state, protect beneficial uses, and result in compliance with the Basin

Plan. Alternative cleanup levels for groundwater shall not exceed water quality objectives in the Basin Plan, including California's MCLs and Notification Levels for drinking water as established by the State Department of Public Health. Alternative cleanup levels for soil and soil vapor shall not exceed levels that will result in groundwater exceeding water quality objectives in the Basin Plan, including California's MCLs and Notification Levels for drinking water as established by the State Department of Public Health.

2. Soil cleanup levels set forth in the Regional Board's Interim Site Assessment and Cleanup Guidebook, May 1996.
  3. Human health protection levels set forth in the current United States Environmental Protection Agency (USEPA) Region IX's Regional Screening Levels (RSLs).
  4. Protection from vapor intrusion and protection of indoor air quality based on the California Environmental Protection Agency's January 2005 (or later version) Use of Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties. Soil vapor sampling requirements are stated in the Department of Toxic Substances Control (DTSC) and Regional Board April 2012 *Advisory - Active Soil Gas Investigations*, and the DTSC October 2011 *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*.
  5. Groundwater cleanup goals shall not exceed applicable water quality objectives or criteria necessary to protect the beneficial uses, including the Regional Board's Basin Plan water quality objectives (e.g., California's MCLs), Notification Levels for drinking water as established by the State Department of Public Health, State Water Board Ocean Plan water quality objectives, and the California Toxic Rule water quality criteria, at a point of compliance approved by the Regional Board.
- vi. A plan for compliance with the public participation requirements of California Water Code section 13307.5.
- b. Prepare and submit quarterly remediation progress reports to this Regional Board. The remediation progress reports shall document all performance data associated with the remediation systems implemented. Following one year of remediation activities, a request may be submitted to the Regional Board to reduce the reporting frequency to a semi-annual schedule.
    1. Reports shall meet the requirements set forth in Exhibit C, the Monitoring and Reporting Program, attached hereto and incorporated herein by reference.
  - c. Upon approval by the Regional Board Executive Officer, the Dischargers shall implement the RAP and report results in accordance with the approved work plan schedule.
  - d. Revisions to the RAP or additional RAPs may be required by the Regional Board if the implemented measure does not achieve all Site cleanup goals.

- The Regional Board will establish due dates for the RAP and remediation progress reports after sufficient assessment has been performed to enable a RAP to be prepared.
6. **Conduct Groundwater Monitoring:** Pursuant to section 1367 of the California Water Code, the Dischargers shall initiate a groundwater monitoring program as set forth in Exhibit C, the Monitoring and Reporting Program.
  7. **Time Schedule:** The Dischargers shall submit all required work plans and reports and complete work within the time schedule in any approved work plan or RAP and the time schedule listed in Exhibit D, attached hereto and incorporated herein by reference. Exhibit D may be revised by the Executive Officer without revising the substantive requirements of this Order.
  8. The Regional Board's authorized representative(s) shall be allowed:
    - a. Entry upon premises where a regulated facility or activity is located, conducted, or where records are stored, under the conditions of this Order;
    - b. Access to copy any records that are maintained under the conditions of this Order;
    - c. Access to inspect any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
    - d. The right to photograph, sample, and monitor the Site for the purpose of ensuring compliance with this Order, or as otherwise authorized by the California Water Code.
  9. **Contractor/Consultant Qualification:** As required by sections 6735, 7835, and 7835.1 of the California Business and Professions Code, all reports shall be prepared by, or under the supervision of, a California-registered professional engineer or geologist and signed by the registered professional. All technical reports submitted by the Dischargers shall include a statement signed by the authorized representative certifying under penalty of law that the representative has examined and is familiar with the report and that to his knowledge, the report is true, complete, and accurate. All technical documents shall be signed by and stamped with the seal of the above-mentioned qualified professionals that reflects a license expiration date.
  10. The Dischargers shall submit a 30-day advance notice to the Regional Board of any planned changes in name, ownership, or control of the Site and shall provide a 30-day advance notice of any planned physical changes to the Site that may affect compliance with this Order. In the event of a change in ownership or operator, the Dischargers also shall provide a 30-day advance notice, by letter, to the succeeding owner/operator of the existence of this Order, and shall submit a copy of this advance notice to the Regional Board.
  11. Abandonment of any groundwater well(s) at the Site must be approved by and reported to the Regional Board at least 30 days in advance. Any groundwater wells removed must be replaced within a reasonable time, at a location approved by the Regional Board. With written justification, the Regional Board may approve the abandonment of groundwater wells without replacement. When a well is removed, all work shall be completed in accordance with California Department of Water Resources Bulletin 74-90, "California Well Standards," Monitoring Well Standards Chapter, Part III, Sections 16-19.

12. In the event compliance cannot be achieved within the terms of this Order, the Discharger has the opportunity to request, in writing, an extension of the time specified. The extension request shall include an explanation why the specified date could not or will not be met and justification for the requested period of extension. Any extension request shall be submitted as soon as the situation is recognized and no later than the compliance date. Extension requests not approved in writing with reference to this Order are denied.
13. Reference herein to determinations and considerations to be made by the Regional Board regarding the terms of the Order shall be made by the Executive Officer or his/her designee. Decisions and directives made by the Executive Officer in regards to this Order shall be as if made by the Regional Board.
14. The Regional Board, through its Executive Officer or other delegate, may revise this Order as additional information becomes available. Upon request by the Discharger, and for good cause shown, the Executive Officer may defer, delete or extend the date of compliance for any action required of the Discharger under this Order. The authority of the Regional Board, as contained in the California Water Code, to order investigation and cleanup, in addition to that described herein, is in no way limited by this Order.
15. This Order is not intended to permit or allow the Dischargers to cease any work required by any other Order issued by this Regional Board, nor shall it be used as a reason to stop or redirect any investigation or cleanup or remediation programs ordered by this Regional Board or any other agency. Furthermore, this Order does not exempt the Dischargers from compliance with any other laws, regulations, or ordinances which may be applicable, nor does it legalize these waste treatment and disposal facilities, and it leaves unaffected any further restrictions on those facilities which may be contained in other statutes or required by other agencies. Continue any remediation or monitoring activities until such time as the Executive Officer determines that sufficient cleanup has been accomplished and this Order has been rescinded.
16. Consistent with California Water Code sections 13304 and 13365, the Dischargers shall reimburse the Regional Board for reasonable costs associated with oversight of the investigation and cleanup of the waste at or originating from the Site. The Dischargers shall provide the Regional Board with the name or names and contact information for the person(s) to be provided billing statements from the State Water Board.
17. A Public Participation Plan shall be prepared and/or updated when directed by the Executive Officer, as necessary, to reflect the degree of public interest in the investigation and cleanup process.
18. The State Water Board adopted regulations requiring the electronic submittals of information over the Internet using the State Water Board GeoTracker data management system. The Dischargers are required not only to submit the reports required in this Order, but also to comply by uploading all reports and correspondence prepared to date and additional required data formats to the GeoTracker system if they have not already been uploaded. Information about GeoTracker submittals, including links to text of the governing regulations, can be found on the Internet at the following link:  
[http://www.waterboards.ca.gov/water\\_issues/programs/ust/electronic\\_submittal](http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal)

19. The Regional Board, under the authority given by California Water Code section 13267(b)(1), requires inclusion of a perjury statement in all reports submitted by the Dischargers under this Order. The perjury statement shall be signed by a senior authorized representative (not by a consultant). The perjury statement shall be in the following format:

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

20. Failure to comply with the terms or conditions of this Order may result in imposition of civil liabilities, imposed either administratively by the Regional Board or judicially by the Superior Court, in accordance with sections 13268, 13308, and/or 13350 of the California Water Code, and/or referral to the Attorney General of the State of California.
21. None of the obligations imposed by this Order on the Dischargers are intended to constitute a debt, damage claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations are imposed pursuant to the police powers of the State of California intended to protect the public health, safety, welfare, and environment.
22. As of the date of this Regional Board action, Investigative Order No. R4-2012-0085 issued to BP and ARCO on May 11, 2012, is superseded by this Cleanup and Abatement Order No. R4-2013-0064. Superseding Order No. R4-2012-0085 is not intended to limit Regional Board enforcement actions associated with Order No. R4-2012-0085.

Ordered by: Samuel Unger  
Samuel Unger, P.E.  
Executive Officer

Date: 9-18-2014

**Exhibit A**

**Figure 1: Site Location Map**

**Figure 2: Site Map**





**Exhibit B**  
**SUMMARY OF PIPELINE CONTENTS**  
**WITHIN GOLDEN AVENUE**

Line 32 12-inch Diameter	Line 34 8-inch Diameter	Line 252 6-inch Diameter	Source
Crude Oil (Line 32F)	"Refined Products (Gasoline, Oil Gas...)" (Line 34 A,C,E)		State Fire Marshall (CalFire) dataset provided to Regional Board on May 1, 2012
"Crude and Refined Dark Products"	"Diesel and Refined Products"	"Oily Water" "June 1953 used for WW / prior service was gasoline"	BP Letter to Regional Board dated March 8, 2012
Not for gasoline Empty Liquid (Line 32E)	"Diesel and Refined Products" Non-HVL Product		BP Letter to Regional Board dated July 11, 2012 NPMS - November 20, 2012 www.npms.phmsa.dot.gov
"Refined Products Lines" (ARCO R-110) Oil	"Refined Products Lines" (ARCO R-110) "Gas." for Gasoline		Western Oil & Gas Association, Long Beach-Minimington Harbor Area, Oil Handling Facility Map, updated 1/75 City of Long Beach Map FIG23 revised December 22, 1975
	Gasoline until 1953 Wastewater from 1953 until sometime prior to 1977		BP Letter to Regional Board dated December 4, 2012

Note: Plains Line 52 (crude oil), also in Golden Avenue, was formerly BP Line 6.

<sup>1</sup> National Pipeline Mapping System (NPMS) reports that their Line 34 data for the Site area represents BP's reporting from 2010 to 2012. It does not represent pipeline contents prior to 2010.  
<sup>2</sup> ARCO Line R-110 is listed as having 4-inch, 6-inch, 8-inch, and 12-inch diameter "Refined Products Lines". The 12-inch diameter line is later noted to represent BP Line 32. The 8-inch diameter line is interpreted to represent BP Line 34. The 6-inch and 4-inch lines are both interpreted to represent BP Line 252. The BP Line 252 interpretation is based in part on BP's December 4, 2012 letter to the Regional Board which states that a 1945 ARCO pipeline map identifies segments of Line 252 pipe where the installation of a 4-inch pipe inside an existing 6-inch pipe occurred along Baker Street and replacement beneath Golden Avenue with "no reasons for the pipeline replacements" provided.  
<sup>3</sup> City of Long Beach Map FIG23 does not specifically reference BP Line 32, instead it references a 12-inch diameter "Oil" pipeline owned by ARCO located at the same location within Golden Avenue where BP Line 32 exists.  
<sup>4</sup> City of Long Beach Map FIG23 does not specifically reference BP Line 34, instead it references an 8-inch diameter "gas." pipeline owned by ARCO located at the same location within Golden Avenue where BP Line 34 exists.  
<sup>5</sup> City of Long Beach Map FIG23 indicates a third ARCO line, a 6-inch diameter "gas." pipeline adjacent to BP Lines 32 and 34.

## Exhibit C

### MONITORING AND REPORTING PROGRAM

This Monitoring and Reporting Program is part of Cleanup and Abatement Order (CAO) No. R4-2013-0064. Failure to comply with this Monitoring and Reporting Program constitutes noncompliance with this Order and the California Water Code, which can result in the imposition of civil monetary liability. All sampling and analyses shall be by USEPA-approved methods or by other methods approved by the Regional Board for this Order. The test methods chosen for detection of the constituents of concern shall be subject to review and concurrence by the Regional Board.

Laboratory analytical reports to be included in technical reports shall contain a complete list of chemical constituents that are tested for and reported on by the testing laboratory. In addition, the reports shall include both the method detection limit and the practical quantification limit for the testing methods. All samples shall be analyzed within the allowable holding time for the method being used. All quality assurance/quality control (QA/QC) samples must be run on the same dates when samples were actually analyzed. Proper chain of custody procedures must be followed and a copy of the completed chain of custody form(s) shall be submitted within reports. All analyses must be performed by a State Water Resources Control Board (SWRCB) Division of Drinking Water (formerly California Department of Public Health) accredited laboratory, unless otherwise approved by the Regional Board.

The Regional Board's *Quality Assurance Project Plan, September 2008*, can be used as a reference and guidance for project activities involving sample collection, handling, analysis and data reporting. The guidance is available on the Regional Board's web site at:

[http://www.waterboards.ca.gov/rwqcb4/water\\_issues/programs/remediation/Board\\_SGV-SFVCleanupProgram\\_Sept2008\\_QAPP.pdf](http://www.waterboards.ca.gov/rwqcb4/water_issues/programs/remediation/Board_SGV-SFVCleanupProgram_Sept2008_QAPP.pdf)

### GROUNDWATER MONITORING

To facilitate a groundwater monitoring program, the Dischargers shall submit a work plan for performing groundwater sampling from groundwater monitoring wells. The work plan shall propose groundwater sampling techniques, wells to be used for groundwater monitoring, laboratory analytical techniques, and formats for groundwater monitoring reports.

It shall include a provision to include any future groundwater monitoring wells in the groundwater monitoring program. The work plan shall include proposed figures to be included in future groundwater monitoring reports.

Upon approval by the Regional Board Executive Officer, implement the work plan and report results in accordance with the Time Schedule.

## REMEDIATION SYSTEMS

Reporting requirements shall be proposed within the required RAP. Reporting requirements will be evaluated by the Regional Board once the remediation methods are known.

## MONITORING UPDATES

Specifications in this Monitoring and Reporting Program are subject to periodic revisions. Monitoring requirements may be modified or revised by the Regional Board Executive Officer based on review of monitoring data submitted pursuant to this Order. Monitoring frequencies may be adjusted or parameters and locations removed or added by the Executive Officer if site conditions indicate that the changes are necessary.

## REPORTING REQUIREMENTS

1. The Dischargers shall report all monitoring data and information as specified herein and as may be approved in response to work plans submitted by the Dischargers.
2. The Regional Board Executive Officer may revise these monitoring reporting requirements or make more specific monitoring reporting requirements from time-to-time, particularly after reviewing work plans for groundwater monitoring or remedial actions.

Reports that do not comply with the Regional Board's content or reporting requirements may be rejected by the Regional Board and the Dischargers shall be deemed to be in noncompliance with the Monitoring and Reporting Program.

**Exhibit D: Time Schedule**

DIRECTIVE		DUE DATE
1.	<b>Complete Interim Remedial Action Plan</b>	
	Prepare and submit an Interim Remedial Action Plan (IRAP) to mitigate accumulated benzene vapors in soil beneath the Wrigley Heights residential neighborhood.	September 30, 2014
	Prepare and submit an Interim Remedial Action Report after the approval of the IRAP and its implementation.	As directed by the Executive Officer
2.	<b>Develop and Update a Site Conceptual Model</b>	
	Prepare and submit a revised 3-dimensional illustration constituting a Site Conceptual Model (SCM).  The SCM shall be updated periodically as new information becomes available. Updates to the SCM shall be included in all future technical reports submitted.	June 30, 2015
3.	<b>Complete Site Assessment and Delineation of Extent of Wastes</b>	
	3a. Prepare and submit a Master Work Plan for complete assessment and delineation of the extent of all waste constituents in the soil matrix, soil vapor, and groundwater discharged at or from the Site.	November 20, 2014
	3c. Prepare and submit a site assessment report after the approval of the Master Work Plan and its implementation.	As directed by the Executive Officer
4.	<b>Prepare a Human Health Risk Assessment (HHRA)</b>	
	Prepare and submit a work plan to collect sufficient data to enable completion of an HHRA, including proposed techniques for preparing an HHRA.	November 20, 2014

DIRECTIVE		DUE DATE
5.	<b>Conduct Remedial Action</b>	
5a.	<p>Develop and submit a comprehensive Remedial Action Plan (RAP) for cleanup of waste in soil matrix, soil vapor, and groundwater at and originating from the Site, and abatement of the effects of the wastes released to the environment.</p> <p>Additional RAPs may be needed if the implemented remedial measure cannot completely achieve site cleanup goals.</p>	<p>As directed by the Executive Officer</p> <p>As directed by the Executive Officer</p>
5b.	Prepare and submit quarterly remediation progress reports for the remediation system implemented.	Quarterly remediation progress reports are due on the last day of each month following the quarter after Executive Officer approval of the RAP.
6.	<b>Conduct Groundwater Monitoring</b>	
	Include a proposal for performing groundwater monitoring as part of the Master Work Plan required in Item 3a.	November 20, 2014
	<p>Conduct groundwater monitoring according to the following schedule.</p> <p><u>Monitoring Period</u></p> <p>January to June July to December</p>	<p>The next groundwater monitoring report is due on July 31, 2015.</p> <p><u>Report Due Date</u></p> <p>July 31 January 31</p>