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Secretary for
Environmental
Protection

California Regional Water Quality Control Board Los Angeles Region

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July 9, 2004

Ms. Shari London
ConocoPhillips Company
P. O. Box 25376
Santa Ana, CA 92799-5376

Dear Ms. London:

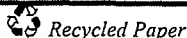
WASTE DISCHARGE REQUIREMENTS FOR CONOCOPHILLIPS COMPANY, 76 STATION NO. 6965, 3014 STUDEBAKER ROAD, LONG BEACH, CALIFORNIA (FILE NO. 9008080170, CUFID # 13344, CI-8773)

The Regional Board letter of May 13, 2004, transmitted a tentative Waste Discharge Requirements (WDR) Order and a Monitoring and Reporting Program (MRP) for 76 Station No. 6965. A revised tentative MRP was circulated with the Regional Board's letter dated June 17, 2004.

Pursuant to Division 7 of the California Water Code, this Regional Board at a public meeting held on July 1, 2004, reviewed the tentative WDR Order and revised tentative MRP, considered all factors in the case, and adopted WDR Order No. R4-2004-0110 and MRP No. CI-8773 (copies enclosed) relative to this discharge. Standard Provisions, which are a part of the WDR, are also enclosed. For recipients on the mailing list, a copy of the Standard Provisions will be furnished upon request.

You are required to implement the new Monitoring and Reporting Program No. CI-8773 on the effective date of WDR Order No. R4-2004-0110. Your first monitoring report under these Requirements is due to this Regional Board by October 15, 2004. All monitoring reports should be sent to the Regional Board, Attn: Information Technology Unit, and referenced to our Compliance File No. CI-8773.

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.


Shari London
ConocoPhillips Company
76 Station 6965

2

July 9, 2004

If you have any questions or need additional information, please call Dr. Kwang-il Lee at (213) 620-2269 or Mr. Gary Schultz at (213) 620-2264.

Sincerely,



Paula Rasmussen, Section Chief
Enforcement and Groundwater Permitting

Enclosures:

1. Board WDRs Order No. R4-2004-0110
2. MRP No. CI-8773
3. Standard Provisions applicable to Waste Discharge Requirements (addressee only)

cc: Robert Sams, State Water Resources Control Board (SWRCB), Office of Chief Counsel
Michael Lauffer, SWRCB, Office of Chief Counsel
Vera Melnyk-Vecchio, State of California, DHS, Drinking Water Field Operations Branch
Mary Meyer, California Department of Fish & Game
Hari Patel, SWRCB, Underground Storage Tank Cleanup Fund
Yvonne Shanks, SWRCB, Underground Storage Tank Cleanup Fund
Dr. Bruce Mowry, Water Replenishment District of Southern California
Jeff Benedict, City of Long Beach, Department of Health and Human Services
Will Glenn, Miller Brooks Environmental

California Environmental Protection Agency

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Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

ORDER NO. R4-2004-0110

**WASTE DISCHARGE REQUIREMENTS
FOR
CONOCOPHILLIPS COMPANY
76 STATION NO. 6965
(OZONE INJECTION FOR GROUNDWATER CLEANUP)
(FILE NO. 908080170, CUFID # 13344)**

The California Regional Water Quality Control Board, Los Angeles Region, (hereafter Regional Board) finds that:

PURPOSE OF ORDER

1. The ConocoPhillips Company (hereafter Discharger) owns the 76 Station No. 6965 (Station) located at 3014 N. Studebaker Road, Long Beach, California (site) (Figure 1). On April 8, 2003, the Discharger filed with the Regional Board a Report of Waste Discharge for the injection of gaseous ozone/air mixture (ozone sparging) to remediate the petroleum hydrocarbon contaminated groundwater in the shallow aquifer at the site.

FACILITY DESCRIPTION

2. The Station is an active retail motor vehicle fuel service station consisting of two underground storage tanks (USTs) containing gasoline, one UST containing diesel, three dispenser islands, associated product distribution piping, and a station building. The in-place USTs are located in the same general locations as four 12,000 gallon USTs removed from the site in 1994. The area surrounding the Station includes a mixture of commercial and residential uses.

ASSESSMENT HISTORY

3. In a report prepared on behalf of the Discharger by SECOR International, Inc., dated November 15, 2001, the following assessment history information was reported.
4. In June 1994, four 12,000-gallon USTs, dispensers, and associated product piping were removed from the site. The USTs were reported as formerly containing gasoline and diesel. Soil samples were collected from the site. Total petroleum hydrocarbons as gasoline (TPH_G) concentrations in soil samples collected from the limits of the excavation ranged from 1.1 to 1,000 milligrams per kilogram (mg/kg), total petroleum hydrocarbons as diesel (TPH_D) concentrations ranged from below laboratory detection limits to 760 mg/kg, and benzene concentrations ranged from below laboratory detection limits to 4.4 mg/kg. All excavated material was transported offsite for disposal (Bechtel Environmental, Inc., 1994).

5. In September 1995, Tait Environmental Management (TEM) conducted additional assessment activities at the site. A total of ten soil borings were advanced around the perimeter of the dispenser islands and USTs to depths ranging from 20 to 35 feet below grade (fbg). Detectable concentrations of TPH_G and benzene were reported in soil samples collected from the vicinity of the USTs and northern dispenser island. TPH_D was not detected in any soil samples analyzed. Three of the soil borings were completed as nested monitoring wells screened within the vadose and saturated zones. The nested monitoring wells were screened from 3 to 18 fbg and from 25 to 35 fbg. Additionally, one soil boring (B-5) was completed as a vadose monitoring well screened from 3 to 17 fbg. Groundwater beneath the site was encountered during drilling at approximately 26 fbg, however the piezometric pressure elevated the static water level in the monitoring wells to approximately 17 fbg. Dissolved concentrations of TPH_G and benzene were detected as high as 5,200 micrograms per liter (ug/L) and 1,600 ug/L, respectively, in monitoring well B-1. TPH_D was not detected in groundwater (TEM, 1995).
6. No phase-separated hydrocarbon was observed in any of the groundwater monitoring wells. Dissolved benzene concentrations in groundwater samples ranged from below laboratory detection limits to 930 ug/L, dissolved MTBE concentrations ranged from below laboratory detection limits to 1,100 ug/L and dissolved TPH_G concentrations ranged from below laboratory detection limits to 6,600 ug/L (SECOR, 2001).

REMEDIATION ACTIVITIES

7. Initial cleanup activities began at the site in June 1994 when four 12,000 gallon USTs were removed. Approximately 700 tons of petroleum hydrocarbon contaminated soil were also removed from the site. Soil and assessment activities continued into May 2001, when the Regional Board approved the initial Interim Remedial Action Plan (IRAP) which proposed pilot testing for soil vapor extraction.
8. In November 2001, the Discharger submitted a revised IRAP proposing the use of high-vacuum dual phase extraction technologies (HVDPE) to improve remediation. Regional Board staff approved the revised IRAP in correspondence dated January 18, 2002. In July, 2002, the Discharger submitted a second revised IRAP which proposed HVDPE to remediate soil contamination and ozone sparging to remediate groundwater contamination. The Regional Board approved the July 2002 IRAP in correspondence dated November 15, 2002. In correspondence dated November 6, 2003, the Regional Board acknowledged the Discharger's request to change soil and groundwater remediation methodology from HVDPE to soil vapor extraction (SVE). The Discharger expects to initiate the operation of the SVE system by May 2005.

SITE GEOLOGY

9. The site is located approximately one-half mile west of the San Gabriel River and approximately 4 miles north of the Pacific Ocean. The site is located within the Dominguez Gap area of the Coastal Plain.
10. Based on previous investigations conducted at the site, the site is generally underlain by silts and silty sands to approximately 15 fbg, clayey-silt to silty-clay from approximately 15 to 25 fbg, and silty-sands to sands from approximately 25 to 35 fbg, the maximum depth explored (SECOR, April, 2002).

SITE HYDROGEOLOGY

11. The site is situated in the City of Long Beach at the southern boundary of the Central Basin of the Los Angeles Coastal Plain. The Central Basin has been divided into the Los Angeles Forebay, the Montebello Forebay, the La Brea subarea, and the Central Basin Pressure Area. The site is located within the Central Basin Pressure Area where groundwater used for municipal supply is under confined conditions. The Central Basin Pressure Area also has locally occurring perched or semi-perched water-bearing zones (Miller Brooks Environmental, Inc., July 2002). The groundwater cleanup operations proposed are for the plume in the local shallow groundwater zone.
12. Two production wells have been identified within one-half mile of the site. The nearest production wells, Wise 1A and Annex 201, are located about 500 feet southeast and 1,500 feet southwest of the site, respectively. These wells are reportedly owned and operated by the City of Long Beach Water Department and are used for drinking water production. Well Wise 1A is screened in water bearing zones located approximately 272-400 fbg and 403-1,078 fbg. Well Annex 201 is screened in multiple water bearing zones located from 507 fbg to 838 fbg (SECOR, April, 2002). Neither of the production wells are perforated in the shallow groundwater zone beneath the site.
13. Based on depth-to-groundwater measurements recorded on October 9, 2001, (SECOR, 2001), depth-to-groundwater ranged from approximately 16.40 to 18.30 fbg and groundwater is interpreted to be flowing toward the south-southeast with an approximate gradient of 0.0012 (feet/foot). Groundwater elevations have fluctuated between historic low and high elevations of approximately 4 and 10 feet above mean sea level, respectively (Miller Brooks Environmental, Inc., July 2002).

DESCRIPTION OF OZONE SPARGING SYSTEM

14. On July 15, 2002, Miller Brooks Environmental, Inc., on behalf of the Discharger, submitted an Updated Site Conceptual Model to the Regional Board proposing ozone sparging (injection of ozone to groundwater) by the use of a C-Sparge™

system (System) to remediate the dissolved-phase petroleum hydrocarbon plume beneath the site. The Regional Board approved the proposal in correspondence dated November 15, 2002.

15. The System consists of a control panel (which houses an ozone generator and a small compressor), the underground conveyance piping, and the sparge wells. The ozone generator consists of a corona discharge tube which ionizes di-atomic oxygen into ozone. The System can generate 3 to 6 standard cubic feet per minute (SCFM) of an ozone/air mixture at a maximum pressure of approximately 60 pounds per square inch (psi). The concentration of ozone in the system's output flow is adjustable from 100 to 300 parts per million by volume (ppmv) based on the concentration of oxygen input. The encapsulated ozone microbubbles sparged below the water table by the System are only 10 to 50 micrometers (μm) in diameter.
16. Four sparge point locations are proposed at this time for the operation of the System (Figure G01). There will be dual nested sparge well-points for each location. The shallow sparge well-point will be perforated along a depth of 23 feet to 25 fbg. The deeper sparge well-point will be perforated along a depth of 33 feet to 35 fbg.
17. Sparging will be performed on a cycled basis with each well cycled on for 5 to 15 minutes. Per manufacturer specifications, the System will inject approximately five grams per hour of ozone at a flow rate of 3 to 6 SCFM. The concentration of ozone injected into the subsurface during system operations will be approximately 0.59 milligrams per liter (mg/L)
18. During sparging, no other known constituents will be discharged to the subsurface during system operations.
19. Ozone will chemically react with hydrocarbons in the immediate vicinity of each injection point to form intermediate by-products of various smaller chain hydrocarbons and oxygenates. The following table shows the laboratory-isolated breakdown by-products that could be produced during the ozone oxidation process with the hydrocarbons:

Constituent	Breakdown Products
TPH	acetate, butyrate, formate, propionate
BTEX	Carboxylic acids
MTBE	TBA (tertiary butyl alcohol), TBF (tertiary butyl formate), formate, oxygen, hydrogen peroxide
ETBE	TBA, TBF, acetate, oxygen, hydrogen peroxide
TBA	Formaldehyde, acetate, carbon dioxide, water

Finally, the residual oxygen formed from the initial ozone reduction reaction encourages bioremediation which consumes the listed by-products and converts them to carbon dioxide and water, thereby completing the remediation process.

20. Ozone is toxic to life forms at high concentrations and can be corrosive to underground structures and piping conveyance systems. Therefore, these concerns must be addressed for any proposed ozone sparging system to insure that the operation will preclude fugitive emissions that could represent a health risk or a corrosion risk.

The System is designed to match the ozone supplied with the demand requirements of the contaminant. Furthermore, ozone has an expected half-life of only 20 minutes and reacts quickly with contaminants. Consequently, ozone would be expended quickly and would not be expected to migrate significantly downgradient or into the vadose zone.

21. Ozone sparging results in a low-exothermic reaction that involves no explosive risk. It has been reported that the process has been successfully and safely used in remediation efforts in over 32 states and in 22 counties in the state of California.
22. In locations where groundwater has excessive levels of tri-valent chromium or brominated hydrocarbons, an evaluation should be made to insure that toxic levels of hexavalent chromium or bromides/bromate compounds are not created. In this site, there are no known problems with tri-valent chromium or brominated hydrocarbons.
23. The permeabilities associated with the soils in the groundwater zones proposed for ozone sparging are estimated to be 10^{-6} centimeters per second or greater. This represents an optimal range for the success of the ozone perfusion process.
24. Prior to initiating the C-Sparge™ technology, groundwater samples will be collected from monitoring wells B-2, MW-10, MW-11, MW-13, and MW-14 for baseline measurements of depth to groundwater, TPH_G, benzene, toluene, ethylbenzene, xylenes, MTBE, TBA, tertiary amyl methyl ether (TAME), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), ethanol, dissolved oxygen, and dissolved ferrous iron. These measurements/samples will also be collected bi-weekly during the first month of system operation. Data collected during the first month of system operation will be used to evaluate the C-Sparge™ effectiveness at this site.

APPLICABLE LAWS, PLANS, POLICIES AND REGULATIONS

25. On June 13, 1994, the Regional Board adopted a revised *Water Quality Control Plan for Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) which was amended on January 27, 1997 by Regional Board Resolution No. 97-02. The Basin Plan (i) designates beneficial uses for surface waters and groundwater, (ii) sets narrative and numerical objectives that must be attained or

maintained to protect the designated beneficial uses and conform to the State anti-degradation policy (*Statement of Policy with Respect to Maintaining High Quality Waters in California*, State Water Resources Control Board (State Board) Resolution No. 68-16, October 28, 1968), and (iii) describes implementation programs to protect all waters in the Region. In addition, the Basin Plan incorporates by reference applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. The Regional Board prepared the 1994 update of the Basin Plan to be consistent with previously adopted State and Regional Board plans and policies. This Order implements the plans, policies and provisions of the Regional Board's Basin Plan.

26. The Basin Plan designates beneficial uses and water quality objectives for groundwater within the Central Groundwater Basin which underlies the Station as follows:

Existing: municipal and domestic supply; industrial service supply; industrial process supply; and agricultural supply.
27. The requirements contained in this Order are based on the *Basin Plan*, and, as they are met, will be in conformance with the goals of the aforementioned water quality control plans and will protect and maintain existing beneficial uses of the groundwater.
28. The permitted discharge is consistent with the anti-degradation provisions of State Board Resolution No. 68-16 (Anti-degradation Policy). The discharge may result in some localized temporary exceedance of background concentrations of dissolved oxygen, dissolved ferrous iron, total dissolved solids, sulfate, chloride, and boron. However, any parameter change resulting from the discharge:
 - a. will be consistent with maximum benefit to the people of the State,
 - b. will not unreasonably affect present and anticipated beneficial uses of such waters, and
 - c. will not result in water quality less than that prescribed in the Water Quality Control Plan for the Central Groundwater Basin.
29. This Regional Board has assumed lead-agency role for this project under the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 et seq.) and has conducted an Initial Study in accordance with section 15063 of the "State CEQA Guidelines" at California Code of Regulations, title 14, section 15000 et seq. Based upon the Initial Study, the Regional Board staff prepared a Mitigated Negative Declaration that the project, as mitigated, will not have a significant adverse effect on the environment. The Regional Board is adopting the Mitigated Negative Declaration concurrently with its adoption of this Order.
30. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for this discharge and has provided them with an opportunity to submit their written views and recommendations. The Regional Board, in a public meeting, heard

and considered all comments pertaining to the discharge and to the tentative requirements.

IT IS HEREBY ORDERED that the Discharger, ConocoPhillips Company, in order to meet the provisions contained in Division 7 of the California Water Code and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Injection Specifications

1. The sparging discharge (injection) of ozone into the groundwater shall be performed only in accordance with the C-Sparge™ system operations described in the July 15, 2002, Updated Report prepared by Miller Brooks Environmental, Inc., on behalf of the Discharger and which is incorporated herein by reference.
2. The Discharger shall provide hydraulic controls, if required by the Regional Board Executive Officer (Executive Officer), that provide full and complete containment of any released materials or by-products of chemical processes for the duration of the C-Sparge™ system operations.
3. During the C-Sparge™ system operations, the discharge volume of ozone shall be approximately five grams per hour of ozone at a flow rate of 3 to 6 cubic foot per minute (cfm). In the event that additional ozone discharge is needed or additional injection locations are needed, written approval by the Executive Officer shall be obtained before such discharge is carried out.

B. Discharge Injection Prohibitions

1. The Discharger shall not allow excessive by-products of the chemical reduction process to migrate beyond the plume.
2. The Discharger shall not cause the groundwater outside of the remediation area plume to exceed the background concentrations of total dissolved solids, sulfate, chloride, and boron as established prior to the start of the C-Sparge™ system operations.
3. The discharge of ozone or any by-products into any surface water or surface water drainage course is prohibited.
4. The Discharger shall not cause the groundwater to contain taste, color, or odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses outside the treatment area.
5. The Discharger shall not cause the groundwater to contain concentrations of chemical constituents, including ozone and its by-products, in amounts that may adversely affect municipal, domestic, industrial or agricultural uses.

C. Provisions

1. This Order includes the attached Monitoring and Reporting Program No. CI-8773 which is incorporated herein by reference. If there is any conflict between provisions stated in the Monitoring and Reporting Program No. CI-8773 and the Standard Provisions, those provisions stated in the Monitoring and Reporting Program prevail.
2. A copy of this Order shall be maintained at an on-site office and be available at all times to operating personnel.
3. In the event of any change in name, ownership, or control of this site, the Discharger shall notify the Regional Board in writing and shall notify any succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Regional Board.
4. The Discharger shall file with the Regional Board technical reports on self-monitoring work performed according to the detailed specifications contained in Monitoring and Reporting Program No. CI-8773 as directed by the Executive Officer. The results of any monitoring done more frequently than required at the site and/or times specified in the Monitoring and Reporting Program shall also be reported to the Regional Board.
5. In accordance with section 13260(c) of the California Water Code, the Discharger shall file a report of any material change or proposed change in the character, location, or volume of the discharge.
6. Discharge to any point other than specifically described in this Order, or as approved by the Executive Officer, is prohibited and constitutes a violation thereof.
7. This Order includes the attached *Standard Provisions Applicable to Waste Discharge Requirements* which are incorporated herein by reference. If there is any conflict between provisions stated herein and the *Standard Provisions Applicable to Waste Discharge Requirements*, the provisions stated herein will prevail.
8. The Discharger shall notify Regional Board staff by telephone within 24 hours, followed by written notification within one week, in the event it is unable to comply with any of the conditions of this Order due to:
 - a) Breakdown of equipment;
 - b) Accident caused by human error or negligence, or other causes such as acts of nature; and
 - c) Site construction or development operations.

9. The Regional Board considers the Discharger to have continuing responsibility for correcting any problem that may arise in the future as a result of this discharge.
10. The Discharger shall submit quarterly Summary Reports detailing the results of the C-Sparge™ system operations. The report should include an evaluation of the effectiveness of using ozone to remediate petroleum hydrocarbons-impacted groundwater at the site, the impact of any by-products on the receiving groundwater quality, and any other effects the in-situ treatment may have caused.
11. All work must be performed by or under the direction of a California registered civil engineer, registered geologist, or certified engineering geologist, as provided in sections 6762, 7850, and 7842, respectively, of the California Business and Professions Code. A statement is required in all technical submittals that the registered professional in direct responsible charge actually supervised or personally conducted all the work associated with the project.
12. The application of ozone to groundwater may result in unintended adverse impacts to groundwater quality. Any potential adverse water quality impacts that may result shall be localized and short-term duration, and shall not impact any existing or prospective uses of groundwater. Groundwater quality shall be monitored before addition of ozone, during treatment, and after treatment is completed to verify no long-term adverse impact to water quality.
13. The Discharger shall cleanup and abate the effects of injecting ozone, including extraction of any by-products which adversely affect beneficial uses, and shall provide an alternate water supply source for municipal, domestic or other water use wells that become contaminated in exceedance of water quality objectives as a result of using ozone.
14. These requirements do not exempt the Discharger from compliance with any other laws, regulations, or ordinances which may be applicable. They do not legalize the waste treatment facility, and they leave unaffected any further restraints on the site that may be contained in other statutes and/or required by other agencies.
15. This Order does not relieve the Discharger from responsibility to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency.
16. The Discharger shall furnish, within a reasonable time, any information the Regional Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The

Discharger shall also furnish to the Regional Board, upon request, copies of records required to be kept by this Order.

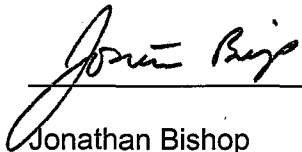
17. After notice and opportunity for a hearing, this Order may be terminated or modified for cause including, but not limited to:
 - a) Violation of any term or condition contained in this Order;
 - b) Obtaining this Order by misrepresentation, or failure to disclose all relevant facts;
 - c) A change in any condition that requires either a temporary or permanent reduction or elimination of authorized discharge.
18. In accordance with California Water Code section 13263(g), these requirements shall not create a vested right to continue to discharge and are subject to rescission or modification. All discharges of waste into the waters of the State are privileges, not rights.
19. The Discharger shall allow the Regional Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:
 - (a) Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
 - (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
 - (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - (d) Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order, or as otherwise authorized by the California Water Code, any substances or parameters at any location. [CWC section 13267]

D. Expiration Date:

This Order expires on June 4, 2009.

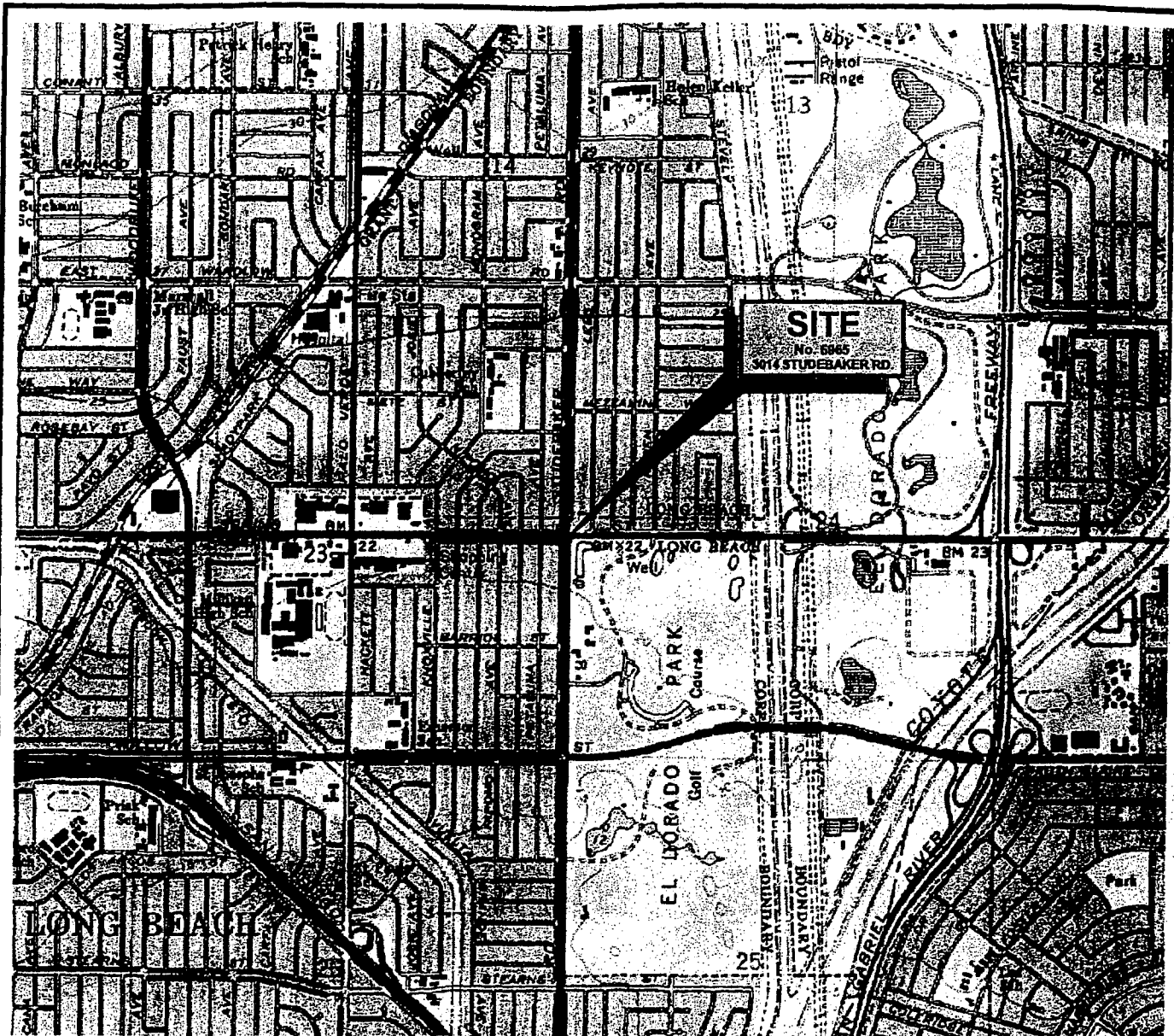
The Discharger must file a Report of Waste Discharge in accordance with sections 13260 and 13264 of the California Water Code not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

I, Jonathan Bishop, Interim Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on July 1, 2004.



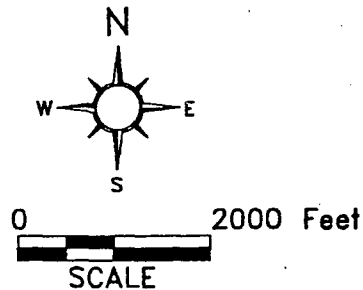
Jonathan Bishop
Interim Executive Officer

/GS



FROM: U.S. GEOLOGICAL SURVEY, 1981
 QUADRANGLE: LONG BEACH
 COUNTY: LOS ANGELES
 SERIES: 7.5-MINUTE QUAD

NOTE: ALL BOUNDARIES AND LOCATIONS ARE APPROXIMATE



2124 MAIN STREET, SUITE 200
 HUNTINGTON BEACH, CA. 92648
 (714) 960-4088

PROJECT NO. 01-495-6965

DRAWN BY:
 PEL
 DATE:
 01/22/01
 REVISED BY:
 AIL
 REVISED:
 01/16/03
 APPROVED BY:
 DES
 DATE:
 01/16/03

SITE LOCATION MAP

76 STATION 6965
 3014 STUDEBAKER ROAD
 LONG BEACH, CA.

FIGURE

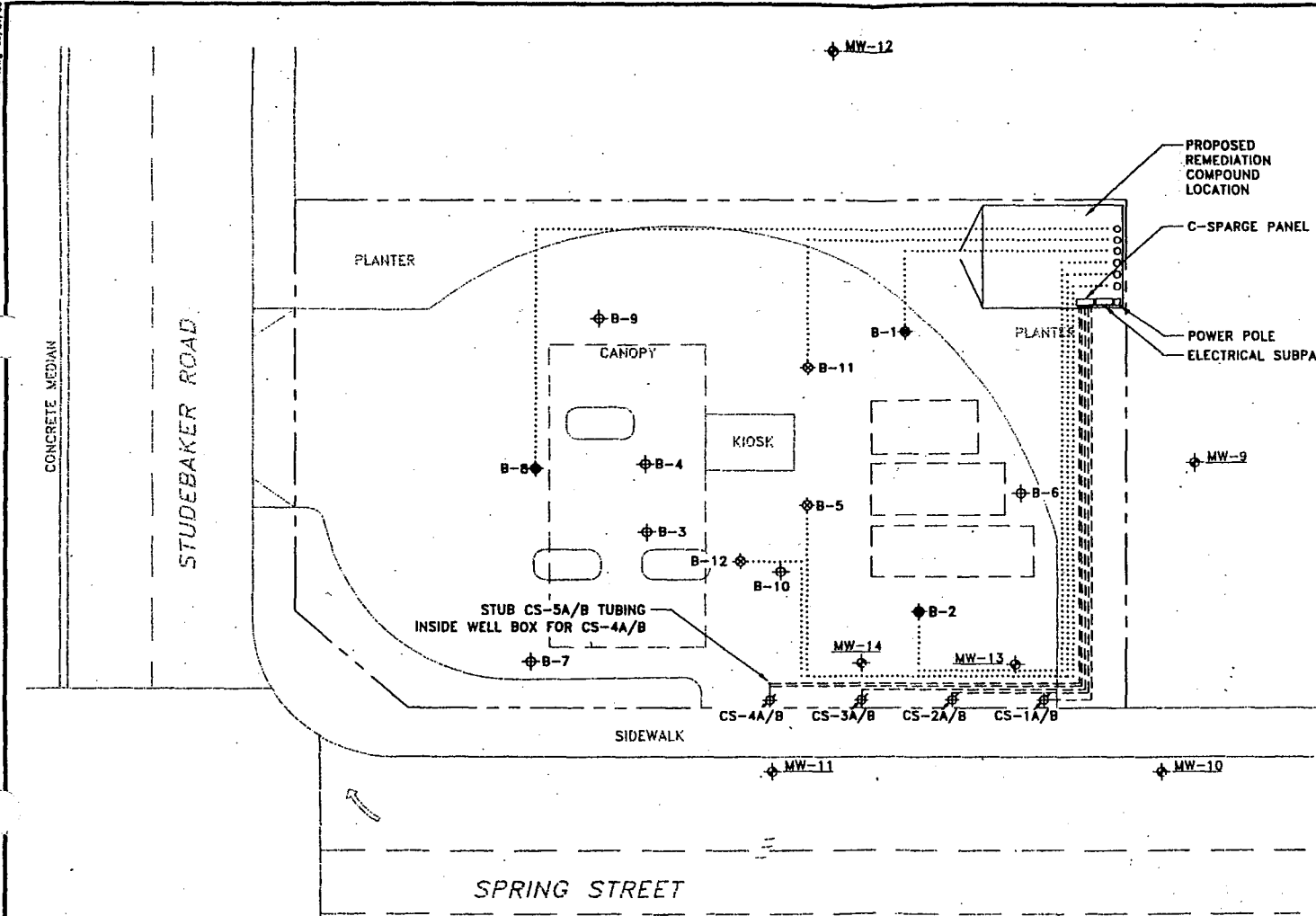
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FILE: K:\DWGS\C-P\L.B.(3014 STUDEBAKER RD.)\VICINITY MAP
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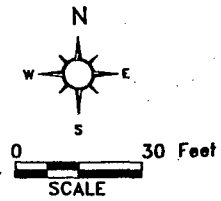
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LEGEND

- MW-10 ◊ GROUNDWATER MONITORING WELL
- CS-4A/B # C-SPARGE POINT LOCATION
- B-8 ◊ NESTED VAPOR EXTRACTION AND GROUNDWATER MONITORING WELL
- B-5 ◊ VAPOR EXTRACTION WELL
- B3 ◊ SOIL BORING
- DISPENSER ISLAND
- ▭ UNDERGROUND STORAGE TANK
- - - C-SPARGE PIPING
- ⋯ SVE PIPING



SPRING STREET



<p>MILLER BROOKS <i>Environmental, Inc.</i></p>	DRAWN BY: AIL	<p>SITE PLAN SHOWING PROPOSED REMEDATION SYSTEM AND PIPING LAYOUT</p>	<p>FIGURE 001</p>
	DATE: 03/28/04		
<p>2124 MAIN STREET, SUITE 200 HUNTINGTON BEACH, CA. 92648 (714) 960-4088</p>	REVISED BY: AIL	<p>76 STATION 6965 3014 STUDEBAKER ROAD LONG BEACH, CA.</p>	
	REVISED: 03/28/04		
<p>PROJECT NO. 01-459-6965-09</p>	APPROVED BY: JDS		
	DATE: 03/28/04		
FILE: K:\DWG\TOSCO\ NO. 0965 (3014 STUDEBAKER RD)\WIP\SITE PLAN		DATE PLOTTED: 03/28/04	

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

**MONITORING AND REPORTING PROGRAM NO. CI-8773
FOR
CONOCOPHILLIPS COMPANY
76 STATION NO. 6965
(OZONE INJECTION FOR GROUNDWATER CLEANUP)
(FILE NO. 908080170, CUFID # 13344)**

I. REPORTING REQUIREMENTS

- A. The ConocoPhillips Company (hereinafter Discharger) shall implement this monitoring program on the effective date (July 1, 2004) of Regional Board Order No. R4-2004-0110. The first monitoring report under this program, for July – September 2004, shall be received at the Regional Board by October 15, 2004. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due</u>
January – March	April 15
April – June	July 15
July – September	October 15
October – December	January 15

- B. If there is no discharge or injection during any reporting period, the report shall so state. Monitoring reports must be addressed to the Regional Board, Attention: Information Technology Unit.
- C. By March 1st of each year, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall explain the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements (WDRs).
- D. Laboratory analyses – all chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services Environmental Laboratory Accreditation Program (ELAP). A copy of the laboratory certification shall be provided each time a new and/or renewal certification is obtained from ELAP.
- E. The method limits (MLs) employed for effluent analyses shall be lower than the permit limits established for a given parameter, unless the Discharger can

demonstrate that a particular ML is not attainable and obtains approval for a higher ML from the Regional Board Executive Officer (Executive Officer). The Discharger shall submit a list of the analytical methods employed for each test and the associated laboratory quality assurance/quality control (QA/QC) procedures upon request by the Regional Board.

- F. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136. All QA/QC samples must be run on the same dates when samples were actually analyzed. The Discharger shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff.
- G. Each monitoring report must affirm in writing that "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services, and in accordance with current United States Environmental Protection Agency (USEPA) guideline procedures or as specified in this Monitoring Program." Proper chain of custody procedures must be followed and a copy of the completed chain of custody form shall be submitted with the report.
- H. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with WDRs. This section shall be located at the front of the report and shall clearly list all non-compliance with WDRs, as well as all excursions of effluent limitations.
- I. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- J. If the Discharger performs analyses on any effluent more frequently than required by this Order using approved analytical methods, the results of those analyses shall be included in the report. Those results shall also be reflected in the calculation of the average values used in demonstrating compliance with average effluent limitations.
- K. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with the requirements and, where applicable, shall include results of receiving water observations.

II. OZONE INJECTION MONITORING REQUIREMENTS

The quarterly reports shall contain the following information regarding injection activities:

1. Location map showing injection points used for the ozone.
2. Written and tabular summary defining the quantity of ozone injected per month to the groundwater and a summary describing the days on which the injection system was operating. Ozone injection for each injection point shall be monitored for the duration of the remediation in accordance with the following monitoring program:

Total ozone delivered per injection point	grams/day	--	<ul style="list-style-type: none"> • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
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III. GROUNDWATER MONITORING PROGRAM

The Discharger shall sample from upgradient monitoring well B-2, source area monitoring wells MW-10 and MW-11, and downgradient monitoring wells MW-13 and MW-14 to provide background water quality information prior to, during, and after the ozone injection. Groundwater from the wells noted above shall be monitored for the duration of the remediation in accordance with the following discharge monitoring program:

CONSTITUENT	UNITS*	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total petroleum hydrocarbons as gasoline (TPH _G)	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Benzene, Toluene, Ethylbenzene, Xylenes	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter

Methyl tertiary butyl ether (MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl ether (TAME), Di-isopropyl ether (DIPE), Ethyl tertiary butyl ether (ETBE)	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Ethanol	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Dissolved Oxygen	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Dissolved ferrous iron	µg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Total dissolved solids Chloride Sulfate	mg/L	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
pH	pH units	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter
Temperature	⁰ F/ ⁰ C	Grab	<ul style="list-style-type: none"> • 1 week before injection • Bi-weekly for the first month following injection • Monthly for the next 3 months • Quarterly thereafter

Groundwater Elevation	Feet, mean sea level and below ground surface	In situ	<ul style="list-style-type: none">• 1 week before injection• Bi-weekly for the first month following injection• Monthly for the next 3 months• Quarterly thereafter
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* $\mu\text{g/l}$ - micrograms per liter

* mg/l - milligrams per liter

All groundwater monitoring reports must include, at a minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification, and laboratory identification;
- c. Quarterly observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

IV. MONITORING FREQUENCIES

Specifications in this monitoring program are subject to periodic revisions. Monitoring requirements may be modified or revised by the Executive Officer based on review of monitoring data submitted pursuant to this Order. Monitoring frequencies may be adjusted to a less frequent basis or parameters and locations removed by the Executive Officer if the Discharger makes a request and the request is supported by statistical trends of monitoring data submitted.

V. CERTIFICATION STATEMENT

Each report shall contain the following declaration:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared 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 a fine and imprisonment.

Executed on the ____ day of _____ at _____.

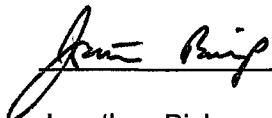
(Signature)

(Title)"

VI. PUBLIC DOCUMENTS

These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by:



Jonathan Bishop
Interim Executive Officer

Date: July 1, 2004

/GS