

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

CLEANUP and ABATEMENT ORDER NO. 97-33

for

PLAVAN PETROLEUM INC.,
321 SOUTH QUINCE STREET,
ESCONDIDO, CALIFORNIA

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

1. The Plavan Petroleum Inc. bulk plant distribution facility located at 321 South Quince Street in Escondido, California, has been in continuous operation since 1917. Past and present owners/operators of the facility include; Chevron Company from 1917 to 1981, Wilfred R. Lewis, Inc from 1981 to 1986, and Plavan Petroleum, Inc. from 1986 to present (Chevron, Lewis, and Plavan are hereinafter referred to as discharger).
2. Petroleum hydrocarbon fuel products stored at the bulk distribution facility have been discharged to both the soil and groundwater. Pollutant constituents in groundwater include; benzene (15 to 1,100 micrograms per liter {ug/l}) and MTBE (770 to 40,000 ug/l). Additionally, free product on the groundwater table has been documented to range in thickness from "sheen" to greater than two feet.
3. Pursuant to State Water Resources Control Board- Resolution No. 92-49, Section II.A.1.a., the discharger has submitted an on-site assessment report confirming the discharge of pollutants to soil and ground water, the identity of the dischargers, the affected waters of the State and beneficial uses, and the nature and extent of contamination at the facility.
4. The discharger has submitted an incomplete off-site soil and water assessment report. The extent of the discharge off-site is not delineated in sufficient detail to provide the basis for decisions regarding future cleanup and abatement actions as required pursuant to Resolution No. 92-49, Section II.A.1.b.
5. The Plavan Petroleum facility is located in the Escondido Hydrologic Subarea (904.62) of the Carlsbad Hydrologic Unit, and overlies groundwater designated suitable as a source for municipal and domestic supply (drinking water). Groundwater in the vicinity of the site is described as a "sensitive aquifer" per the Interim Guidance on Required Cleanup at Low Risk Fuel Contaminated Sites (*Regional Board Supplemental Instructions to State Water Board December 8, 1995, Interim Guidance on required Cleanup at Low-risk Fuel Contaminated Sites {Replaces February 29, 1996 version}, April 1, 1996*).
6. The Basin Plan established the following beneficial uses of water in the Escondido Hydrologic Subarea:

Surface water

a. Municipal and Domestic Supply

Ground water

a. Municipal and Domestic Supply

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- b. Agricultural Supply
 - c. (Potential) Industrial Service Supply
 - d. Water Contact Recreation
 - e. Non-Contact Water Recreation
 - f. Warm Water Habitat
 - g. Cold Water Habitat
 - h. Wildlife Habitat
7. The discharge of petroleum hydrocarbon products threatens to create a condition of pollution and/or nuisance by exceeding water quality objectives set forth in the **Water Quality Control Plan Report, San Diego Basin (9) {Basin Plan}**, adopted by this Regional Board on September 8, 1994, and subsequently approved by the State Water Resources Control Board (State Board) on December 13, 1994.

Applicable/Relevant and Appropriate Regulations

8. The California Water Code (CWC) Section 13304 requires that any person who has discharged or discharges waste into waters of the State in violation of any waste discharge requirement 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 may be required to clean up the discharge and abate the effects thereof. CWC Section 13304 authorizes Regional Boards to require complete cleanup of all waste discharged and restoration of affected water to background conditions (i.e., the water quality that existed before the discharge).
9. Pursuant to CWC Section 13304, the Regional Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Regional Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.
10. Where the discharge of waste has resulted in discharges subject to CWC Section 13304, the following regulations and policies shall be considered when establishing cleanup levels:
- a) California Code of Regulations (CCR) Title 23, Division 3, Chapter 15, **Discharges of Waste to Land**, applies to this discharge and requires that cleanup and abatement actions intended to contain wastes at the place of release are to implement the applicable provisions of that chapter, to the extent feasible (23 CCR Section 2511(d)). Article 5 of the California Code of Regulations prescribes a methodology for establishing cleanup standards and undertaking corrective actions where a discharge has taken place that is subject to CWC Section 13304.
 - b) State Water Resources Control Board (State Board) Resolution No. 68-16, **Statement of Policy with Respect to Maintaining High Quality of Waters in**

California, applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Non-background cleanup levels must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceeding applicable water quality objectives.

- c) State Board Resolution No. 92-49 (as amended), **Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304**, applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

CEQA

- 11. This action is an Order to enforce the laws and regulations administered by the Regional Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.

Notification

- 12. The Regional Board has notified the discharger and all interested agencies and persons of its intent under CWC Section 13304 to issue a Cleanup and Abatement Order for the discharge, and has provided them with an opportunity to submit their written comments.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, the dischargers shall comply with the following Directives:

A. DIRECTIVES

- 1. Immediately take all necessary measures to cleanup and abate the effects of the waste (discharge), including but not limited to, immobilizing and recovering all free product from the affected groundwater zone, and immobilizing the dissolved product in the soil and ground water to prevent off-site migration of either free or dissolved product.
- 2. Remove free product to the maximum extent practicable in a manner that minimizes the spread of contamination off-site by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site.
- 3. Submit the following technical reports to the Executive Officer of this Regional Board office:
 - a) Within thirty (30) days after the effective date of this Order, demonstration through documentation that the cause of the discharge has been eliminated.
 - b) Within one hundred and fifty (150) days after the effective date of this Order, a

detailed investigation/survey report of both man-made and naturally occurring subsurface conduits in the vicinity of the site that may act as preferential pathways for migration of petroleum hydrocarbons off site.

- c) Within one hundred and eighty (180) days after the effective date of this Order, a report delineating the extent of methyl-tert-butyl-ether (MTBE) off-site to where a concentration of no greater than 50 ug/l is detected in groundwater.

PROPOSAL/SELECTION OF CLEANUP AND ABATEMENT ACTION

4. Prepare and submit a Corrective Action Plan (CAP) to the Executive Officer for review and approval. The CAP shall include a **Feasibility Study**, to be submitted within one hundred and eighty (180) days of the effective date of this Order, containing the following:

a) **Groundwater**

1. An evaluation of the effectiveness, feasibility and cost of at least two alternative methods for cleanup of groundwater to attain **background water quality levels**, at and around the facility, for the following Constituents of Concern (COC):

Constituents

<p>13267 let the specify cost to analyze for.</p> <p>TPH →</p> <p>high lead → 8310 not air → 3210</p> <p>Volatile Fuel Hydrocarbons</p> <p>Benzene —</p> <p>Ethylbenzene —</p> <p>Methyl tert-butyl ether ✓</p> <p>320 → Naphthalene</p> <p>Phenanthrene</p> <p>Phenol</p> <p>Organic Lead No</p> <p>305 → Acetone</p> <p>N-Nitrosodiphenylamine</p>	<p>Total Petroleum Hydrocarbons</p> <p>Toluene —</p> <p>Total Xylenes (m- + p- + o-xylenes) —</p> <p>2-methyl naphthalene</p> <p>2-methyl-phenol</p> <p>Fluorene</p> <p>Total Lead No</p> <p>Acenaphthene</p> <p>Di (n-octyl) phthalate</p> <p>1,2- dichloroethane</p>
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2. An evaluation of the effectiveness, feasibility and cost of at least two alternative methods for cleanup of groundwater to attain **Maximum Contaminant Levels (MCL)** for drinking water, at and around the facility, for the following constituents of concerns:

<u>Constituents</u>	<u>Primary MCL {Drinking water} (ug/l)</u>	
Benzene	1	ug/l
Toluene	150	ug/l
Ethylbenzene	700	ug/l
Total Xylenes	1,750	ug/l
Total Lead	50	ug/l
1,2- dichloroethane	0.5	ug/l

b) **Soil**

1. An evaluation of the effectiveness, feasibility and cost of at least two alternative methods for cleanup of soil to attain **background contaminant levels**, at and around the facility, for the following Constituents of Concern (COC):

Constituents

Volatile Fuel Hydrocarbons	Total Petroleum Hydrocarbons
Benzene	Toluene
Ethylbenzene	Total Xylenes (<i>m- + p- + o-xylenes</i>)
Methyl <i>tert</i> -butyl ether	2-methyl naphthalene
Naphthalene	2-methyl-phenol
Phenanthrene	Fluorene
Phenol	Total Lead
Organic Lead	Acenaphthene
Acetone	Di (n-octyl) phthalate
N-Nitrosodiphenylamine	1,2- dichloroethane

5. A comprehensive description of the activities associated with each recommended cleanup and abatement alternative method.
6. A proposed time schedule, including interim milestone dates, for completion of each recommended alternative method.
7. A proposed alternative cleanup level for at least two alternative cleanup methods and a commitment to implement the recommended alternative.
8. The CAP shall include proposed method(s) and time schedules for monitoring and reporting the progress of remediation at the site (WQMP). This Order will then be amended by the Executive Officer to identify the final ground water and soil cleanup levels to be attained at the site.

IMPLEMENTATION OF CLEANUP AND ABATEMENT ACTION

9. The discharger shall implement the CAP sixty (**60**) days *after* submittal, unless modified, suspended, or revoked as directed by the Executive Officer. Before implementing the corrective action plan, the discharger shall notify the Executive Officer by registered mail of their intention to begin cleanup in accordance with the approved CAP, and comply with any conditions set by the Executive Officer, including the mitigation of adverse consequences from cleanup activities.

WATER QUALITY MONITORING

10. The discharger shall submit a detailed Water Quality Monitoring Plan (WQMP) which is capable of confirming the short and long term effectiveness of the CAP. The dischargers shall submit a **work plan** within one hundred and eighty (**180**) days of the

effective date of this Order describing the work that will be undertaken to develop the WQMP. The Executive Officer may require modifications to the WQMP, including corrective action requirements, water quality monitoring analysis, number of monitoring wells, and/or the frequency of water quality monitoring and reporting, as necessary.

VERIFICATION SAMPLING AND MONITORING

11. The dischargers shall submit a **work plan** for a proposed Verification Monitoring Program (VMP) for review and approval by the Executive Officer within **24 months** of full implementation of the CAP. The work plan shall describe proposed actions for implementing a VMP and include a proposed schedule for their completion. The dischargers shall modify the work plan as directed by the Executive Officer. Implementation of the work plan shall begin no later than sixty (**60**) calendar days after submittal, unless the dischargers are directed otherwise by the Executive Officer. Before beginning the activities described in the work plan the dischargers shall:
 - a) Notify the Executive Officer in writing by registered mail of the intent to initiate the proposed actions included in the VMP work plan submitted; and
 - b) Comply with any conditions set by the Executive Officer, including mitigation of adverse consequences from cleanup activities
12. The discharger shall verify attainment of the cleanup levels prescribed by Directive No. 8 of this Order and the completion of corrective action at the site through soil sampling and ground water monitoring. Verification shall be conducted at intervals and location for constituents agreed to by the Executive Officer. The discharger shall perform sampling and monitoring which is necessary to verify: a) the effectiveness of the selected remedial alternative(s) identified in the CAP and/or, b) other interim remedial action(s) implemented at the site.
13. The results from the VMP and an evaluation of the results documenting the completion of site cleanup shall be submitted to the Executive Officer by **June 15, 2002**. An alternative deadline may be proposed to the Executive Officer in the event that long-term monitoring is required at the site.
14. Upon completion of the VMP the Executive Officer will inform the discharger in writing that, based on the available information no further corrective action is required at that time, and rescind this Cleanup and Abatement Order. This written notice will constitute Regional Board concurrence on the completed corrective action.

B. NOTIFICATIONS

1. The dischargers shall notify the Executive Officer by telephone or facsimile within 24-hours of any conditions created by the discharge of wastes to land or water resources as a result of corrective actions taken at this site. The initial notification must be followed by a detailed written description of the discharge, an explanation of the

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conditions which lead to the discharge of wastes and the emergency remedial actions taken to mitigate the effects of the discharge. The written notification shall be sent to the Executive Officer by registered mail.

2. Neither the treatment or discharge of wastes shall create a condition of pollution, contamination, or nuisance as defined in Section 13050, Division 7 of the California Water Code.
3. This Order is not transferable to any person or party except after notice to the Executive Officer. The Regional Board may require modification or revocation and reissuance of this Order to, change the name of the discharger and incorporate such other requirements as may be necessary under the California Water Code. The discharger shall submit notice of any proposed transfer of this Order's responsibility and coverage to a new discharger.
4. This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from liability under federal, state, or local laws, nor create a vested right for the owner and operator to continue the regulated activity.
5. The discharge of any wastes or waste constituents, which are generated as a result of corrective action at this site, is prohibited unless the discharge is permitted under the National Pollutant Discharge Elimination System (NPDES) or by issuance of Waste Discharge Requirements by the Regional Water Quality Control Board under Section 13260 of the California Water Code.
6. A copy of this Order shall be maintained at the facility and local offices of the discharger and shall be available to operating personnel at all times.
7. In developing the cleanup alternatives discussed in Directives 4. a) & b) the discharger shall consider the following cleanup and abatement methods or combination thereof, to the extent that they may be applicable to the discharge or threat thereof:
 - a) Source removal and/or isolation;
 - b) In-place treatment of water or soil:
 1. Bioremediation
 2. Aeration
 3. Fixation
 - c) Excavation or extraction of soil, waste, or gas for on-site or off-site treatment by the following techniques:
 1. Bioremediation
 2. Thermal destruction
 3. Aeration
 4. Sorption

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5. Precipitation, flocculation, and sedimentation
6. Filtration
7. Fixation
8. Evaporation

- d) Excavation or extraction of soil, water, or gas for appropriate recycling, re-use, or disposal.
8. The discharger shall properly manage, treat and/or dispose of contaminated soils and ground water in accordance with applicable federal, state and local regulations.
9. The discharger shall remove and/or treat all contaminated soils to a level which will not cause site related contaminants to leach into the groundwater at concentrations which exceed the water quality objectives set forth in the Basin Plan.

C. PROVISIONS

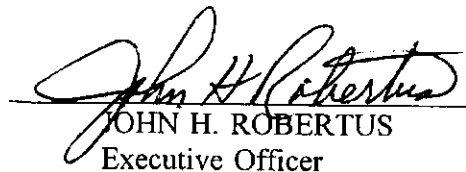
1. **NO NUISANCE:** The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in CWC Section 13050 (m).
2. **Good Operation and Maintenance (O&M):** The discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.
3. **Cost Recovery pursuant to California Water Code Section 13304:** The discharger shall be liable for all reasonable costs actually incurred by the Regional Board to investigate unauthorized dischargers of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. Disputes raised by the discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.
4. **Access to Site and Records:** In accordance with CWC Section 13267(c), the discharger shall permit the Regional Board or its authorized representative;
 - a) Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b) Access to copy any records required to be kept under the requirements of this Order.
 - c) Inspection of any monitoring or remediation facilities installed in response to this Order.
 - d) Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

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5. **Monitoring and Reporting Program:** The discharger shall comply with the Monitoring and Reporting Program No. 97-17 as attached to this Order and as may be amended by the Executive Officer.
6. **Contractor/Consultant Qualifications:** All hydrogeologic documents (plans, specifications, and reports) shall be signed by and stamped with the seal of a California Registered Geologist, a Specialist Geologist, California Certified Engineering Geologist, or a California Registered Civil Engineer with appropriate hydrologic experience.
7. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Regional Board using approved US Environmental Protection Agency methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Regional Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).
8. **Changed Owner or Operator:** This Order is not transferable to any person except after notice to the Regional Board of any proposed transfer of the property and/or responsibility to a new discharger. The Regional Board may require modification, revocation, or reissuance of this Order to change the name of the discharger and to incorporate such other requirements as may be necessary under the California Water Code.
- ~~9.~~ **Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in, or on, any waters of the State, or discharged or deposited where it is, or likely will be, discharged in, or on, any waters of the State, the discharger shall report such discharge to the Regional Board by calling (619) 467-2952 during regular office hours (Monday through Friday, 0800 to 1700). A written report shall be filed with the Regional Board within five working days describing; the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified. This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.
10. If the discharger demonstrates that a source other than the waste management unit caused the presence of waste constituents in groundwater or that the waste constituents are an artifact caused by an error in sampling, analysis, or statistical evaluation, or by natural variation in groundwater, surface water, or the unsaturated zone, the Regional Board shall rescind the Cleanup and Abatement Order. In making a demonstration under this subsection, the discharger shall:
 - a) notify the Regional Board by certified mail that the discharger intends to make a demonstration pursuant to this subsection;

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- b) submit a report to the Regional Board that demonstrates that a source other than the facility caused the presence of waste constituents in groundwater or that the waste constituents resulted from error in sampling, analysis, or evaluation, or from natural variation in groundwater, surface water, or the unsaturated zone;
 - c) submit to the Regional Board a report to institute a detection monitoring program for the facility. This report shall propose all appropriate changes to the monitoring program; and
11. **Periodic Review:** The Regional Board will review this Order periodically and may revise it when necessary. The discharger may request revisions and upon review the Executive Officer may recommend that the Regional Board revise these requirements.
12. **Notifications/Reporting requirements:** Failure to comply with the requirements of this Order may subject you to enforcement action, including but not limited to: imposition of administrative civil liability under CWC Sections 13267 and/or 13350, or referral to the attorney general for injunctive relief or civil or criminal liability.


JOHN H. ROBERTUS
Executive Officer

Date issued: June 23, 1997

MJA:DFHj

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**MONITORING and REPORTING PROGRAM for
CLEANUP and ABATEMENT ORDER NO. 97-33
PLAVAN PETROLEUM INC.,
321 SOUTH QUINCE STREET,
ESCONDIDO, CALIFORNIA**

A. MONITORING PROVISIONS

1. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Executive Officer. Specific methods of analysis must be identified. If methods other than U. S. EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Executive Officer prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.
2. If the discharger monitors any pollutants more frequently than required by this Order, using the most recent version of Standard U. S. EPA Methods, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharger's monitoring report. The increased frequency of monitoring shall also be reported.
3. Sample collection, storage, and analysis shall be performed according to the most recent version of Standard U.S. EPA Methods, and in accordance with an approved Water Quality Monitoring Program (WQMP).
4. All monitoring instruments and equipment which are used by the discharger to fulfill the prescribed WQMP shall be properly calibrated and maintained as necessary to ensure their continued accuracy.
5. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and copies of all reports required by this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Executive Officer.

B. GROUNDWATER QUALITY MONITORING

The discharger shall implement a Water Quality Monitoring Plan (WQMP), as part of the Corrective Action Plan (CAP), and address and/or conforms to the following criteria at the Plavan Petroleum Inc. facility:

Monitoring Wells/Borings

1. New ground water monitoring wells shall be designed and certified as adequate by a

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registered geologist, specialist geologist, or registered civil engineer, from the State of California.

2. All monitoring wells/borings drilled to satisfy the Corrective Action Plan (CAP) shall be logged during drilling under the direct supervision of a registered geologist. Rock shall be described in the geologic log in a manner appropriate for the investigation. Where possible, the depth and thickness of saturated zones shall be included in the geologic log. The drilling logs shall be submitted to the Executive Officer upon completion of drilling. Copies of appropriate drillers logs shall be submitted to the Department of Water Resources Regional Executive Officer as required under California Water Code Section 13751.
3. Soil shall be described in the geologic log according to the Unified Soil Classification System as presented in Geotechnical Branch Training Manuals Nos. 4, 5, and 6, published by the United States Bureau of Reclamation in January of 1986 (available from Bureau of Reclamation, Engineering and Research Center, Attention: Code D-7923, P.O. Box 25007, Denver, Colorado 80225).
4. As part of the WQMP, a sufficient number of background monitoring points shall be installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer that has not been affected by the discharge.
5. The WQMP shall include a sufficient number of monitoring points installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer. The samples shall represent the quality of ground water passing the point of compliance (down gradient) in the uppermost aquifer. Samples shall provide data needed to evaluate changes in water quality and the effectiveness of the CAP.
6. The background monitoring points may include locations that are not hydraulically upgradient from the site if the discharger demonstrates, to the satisfaction of the Executive Officer, that sampling at other monitoring points will provide data representative of the background ground water quality or are more representative than those provided by the upgradient monitoring points.
7. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative ground water samples.
8. For each monitoring well, the annular space (i.e., the space between the bore hole and well casing) above and below the sampling interval shall be appropriately sealed to prevent entry of contaminants from the ground surface, entry of contaminants from the unsaturated zone, cross contamination between portions of the zone of saturation, and contamination of samples.
9. All monitoring wells/borings shall be constructed in a manner that maintains the integrity of the monitoring location and prevents cross-contamination. The wells shall be constructed and maintained in accordance with local permitting requirements. All

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well logs shall be reported to the appropriate State (Department of Water Resources) and local (San Diego Department of Environmental Health) agencies. In case of a conflict between the well construction or maintenance requirements, the discharger shall adopt the most stringent of the requirements as its well construction standard.

10. All monitoring wells shall be adequately developed to enable a collection of representative ground water samples.

Water Quality Sampling and Analysis

11. The discharger shall conduct quarterly water quality sampling, as part of the WQMP, for constituents listed in Directive A.4.a)1. of this Order. [The list may be modified by the Executive Officer to more accurately reflect water quality concerns at the site.]
12. The WQMP shall include a detailed description of the following procedures and techniques:
 - a) Sample collection (e.g. purging techniques, sampling equipment, and decontamination of sampling equipment);
 - b) sample preservation and shipment;
 - c) analytical procedures; and
 - d) chain of custody control.
13. The WQMP shall include appropriate sampling and analytical methods that accurately measure the concentration of each constituent of concern and the concentration or value of each monitoring parameter.
14. Ground water sampling shall be scheduled to include the times of expected highest and lowest elevation of the potentiometric surface. The sampling method shall assure to the greatest extent possible that independent samples are obtained. In addition to any pre-sampling purge prescribed in the WQMP, ground water monitoring wells shall be purged immediately after sampling is completed in order to remove all residual water that was in the well bore during the sampling event so as to assure the independence of samples from successive sampling events. The volume of water to be withdrawn from the well bore for the post sampling purge shall be determined by the same method used to determine adequate pre-sampling purging.
15. After purging, a representative water sample *should* be collected when the water level reaches 80% of the static water level. If 80% recovery of the initial water level exceeds two hours, a sample *should* be collected as soon as the water level is sufficient to recover a representative sample.
16. Alternative ground water sampling methods may be proposed by the discharger by providing a clear and concise written rationale and proposal for consideration by the

Executive Officer.

Statistical Analysis/Graphics

17. Graphs of all analytical data, from all monitoring points shall be submitted with the quarterly WQMP progress report. Graphs shall be at a scale appropriate to show trends or variations in water quality. All graphs for a given constituent shall be plotted on the same scale to facilitate visual comparison of monitoring data. Each graph shall represent data from one monitoring point or background monitoring point and one constituent of concern, unless the dischargers receive written approval from the Executive Officer to use an alternate procedure that more effectively illustrates trends or variations in the data.
18. The WQMP shall include a proposed statistical procedure to be used for evaluating water quality monitoring data. The specifications for the statistical method shall include a detailed description of the criteria to be used for determining statistically significant evidence of the effectiveness of the CAP.
19. For each constituent of concern listed in Directive No. A.4.a)1. specified in this Order, the discharger shall use appropriate statistical and/or graphical techniques to evaluate trends in concentrations from the ground water samples. An evaluation of trends in contaminant concentrations from ground water samples shall be conducted by the discharger on an annual schedule. The results of this analysis shall be reported to the Executive Officer as an appendix to the annual WQMP progress report for each calendar year. Monitoring reports shall be signed by the preparer of the report and an appropriately registered professional (registered geologist or registered civil engineer) under Sections 6735, 7835 and 7835.1 of the California Business and Professions Code.

C. REPORTING WATER QUALITY MONITORING PROGRAM RESULTS

The results of water quality sampling shall be submitted to the Executive Officer of this Regional Board in accordance with Section C.6. of this Monitoring and Reporting Program. Quarterly and Annual water quality monitoring plan "progress reports" shall evaluate the effectiveness of the CAP. All progress reports shall be submitted no later than one month following the end of their respective Reporting Period. The reports shall be comprised of at least the following, in addition to the specific contents listed for each respective report type:

Transmittal Letter

1. A letter of transmittal (Executive Summary) shall accompany the Quarterly and Annual WQMP progress reports which discuss essential points of that monitoring period. Such a letter shall discuss any significant findings, instances of noncompliance, and/or violation(s) of requirements found during the monitoring period and the actions taken or planned for correcting the violation(s). If the discharger has previously submitted a detailed time schedule for correcting violation(s), a reference to

the correspondence transmitting such schedule will suffice. If no violations have occurred in the last monitoring period, it shall be stated in the Executive Summary. The Executive Summary shall be signed by a duly authorized representative of the discharger.

Quarterly Report

2. The quarterly WQMP progress report(s) shall include the following minimum information:
 - a) Ground water well monitoring information including:
 1. The date, identity of sample, monitoring point from which it was taken, and time of sampling or measurement;
 2. The individual(s) who performed the sampling or measurements;
 3. Date and time that analyses were started and completed, and the name of the personnel performing each analysis;
 4. The analytical techniques or method used, including method of preserving the sample and the identity and volumes of reagents used;
 5. Calculation of results;
 6. Results of analyses, the Method Detection Limit for each parameter, and;
 7. Laboratory quality assurance results (e.g. percent recovery, response factor).
 - b) A site map with well locations and identification, corresponding top of well casing elevation, depths to the top of well screens, total depth of each well, depth to ground water, ground water elevation, ground water flow rate/direction and field parameters (temperature, electrical conductivity, turbidity and pH), depth to free product, thickness of free product, volume of free product collected during that time, total free product recovered, the cumulative free product recovered at the individual well, the method used to collect free product, the date of removal, and a narrative description of the method(s) used to make the required measurements.
 - c) For each well tabulate all data, record the name of the person(s) responsible for conducting the field work, description of field procedures, copy of the field sheet, and ultimate location/method of disposal of free product and any waste waters associated with recovery at the site.
 - d) Provide ground water elevation contour maps for the site with the ground water flow direction and calculated hydrologic gradient(s) clearly indicated on the figure(s).
 - e) Site map showing former/current above ground petroleum storage tanks and product piping, former/current *underground* storage tank systems and product piping and buildings located on site and adjacent to the property lines of the

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site. The map shall include the most recent concentrations of constituents of concern listed in Directive No. A.4.a)1.

- f) A detailed description of sample collection protocol (e.g., well purging, sample collection equipment, sample preservation and shipment procedures and decontamination procedures). Provide a narrative description of how the wastes generated from the site are managed. Provide documentation (e.g., manifests/receipts) of proper disposal of contaminated well purge water and/or soil cuttings removed from the site.
 - g) TPH analyses shall include the full range of petroleum hydrocarbons from C₆ to C₂₄ in each analysis. Ground water samples need not be collected for analysis from wells which contain measurable levels of free petroleum products.
 - f) Provide copies of laboratory data sheets, laboratory QA/QC information and chain-of-custody documents for the most recent round of ground water samples collected for each report.
 - g) Provide a narrative description of the current site conditions and a brief summary of known site hydrogeologic conditions.
 - h) Provide technical interpretations of the ground water data, conclusions and recommendations for future action with each report.
 - i) Provide a tabulation of historical ground water analytical data collected from the site.
3. The first quarterly ground water monitoring report is due by **October 30, 1997**. The reporting of ground water monitoring results is to be implemented according to the schedule listed in Section C.6. unless modified in writing by the Executive Officer. The WQMP progress reports shall be signed by an duly authorized representative of the discharger.

Annual Report

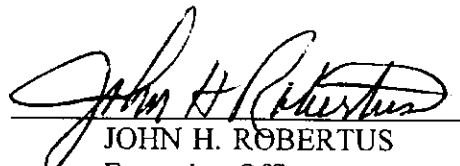
4. The discharger shall submit an annual WQMP progress report to the Executive Officer covering the previous monitoring year. The annual Reporting Period ends December 31, and is due by January 31. The annual report shall include the following minimum information:
- a) Graphical Presentation of Analytical Data - For each monitoring point, submit in graphical format the laboratory analytical data for all samples taken since implementation of the CAP. Each graph shall plot the concentration of the constituent of concern over time for a given monitoring point, at a scale appropriate to show trends or variations in water quality.

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- b) Compliance Record Discussion - A comprehensive discussion of the compliance record, result of any corrective actions taken or planned which may be needed to bring the discharger into full compliance with this Cleanup and Abatement Order.
 - c) Summary of Changes - A written summary of the monitoring results and monitoring system(s), indicating any changes made or observed since the previous annual report.
5. The discharger shall submit the WQMP progress reports to the Executive Officer in accordance with the following schedule:

REPORT	REPORT PERIOD	DUE DATE
Quarterly	January, February, March	April 30
	April, May, June	July 30
	July, August, September	October 30
	October, November, December	January 30
Annual	January - December	January 30

6 with schedule included


JOHN H. ROBERTUS
Executive Officer

Date issued: June 23, 1997
MJA:DFHj