

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
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W 13.5a

October 29, 1998

To: Coastal Commissioners and Other Interested Parties

From: Peter Douglas, Executive Director
Susan Hansch, Deputy Director
Alison Dettmer, Manager, Energy and Ocean Resources Unit

Subject: Appeal No. A3-98-91: Unocal Guadalupe Oil Field Remediation Project

Item No. 13.5a Wednesday November 4, 1998

Background

On September 30, 1998, staff forwarded two items to the Commission for review (1) the complete set of San Luis Obispo County's permit conditions for the Unocal Guadalupe Oil Field Remediation Project; and (2) Settlement Agreement No. CV 75194. On October 13, 1998, (Item 27a) staff informed the Commission that the County's permit did not fully address LCP and Coastal Act policies and that an appeal is warranted. Chairman Areias and Vice-Chair Wan appealed the Guadalupe Project and appeal forms were filed on October 19, 1998.

Proposed Approach to Handle Guadalupe Appeal

At the October meeting staff proposed to the Commission that we work with Unocal and San Luis Obispo County to resolve the appeal issues as we did in the Avila case. This involves the Commission staff developing draft changes to the County's conditions for consideration by the Commission, the County, Unocal, and the public. If changes can be agreed upon (as was done in the Avila case) the San Luis Obispo County Planning Commission would consider the revised conditions and potentially adopt a revised permit. If a revised permit is adopted by the Planning Commission it would be appealable to the County Board of Supervisors. The County's final revised action would be appealable to Coastal Commission. Once all these steps occur, if the Commission is confident that all the Coastal Act and LCP deficiencies have been addressed, the original October 19, 1998 appeal could be withdrawn and the County's revised permit would be in effect.

The advantage of this approach is that County's permit would fully address the LCP and the Coastal Act and the permit (for the area covered by the LCP) would be implemented at the local level with the Commission staff's active involvement.

Portion of the Project within Commission's Original Permit Jurisdiction

Unocal has submitted a preliminary coastal permit application to the Coastal Commission to cover:

1. four emergency permits granted by the Executive Director since 1994;
2. required cleanup of 2½ sites within the Commission's original permit jurisdiction (entire 5X site, entire A2A site, and half of A5A site); and
3. request to retain the road improvements installed without a permit and subject to a pending violation.

The application is currently incomplete and hasn't been filed.

It would be preferable for the Commission to review the appeal and the permit application together. However, because the RWQCB Clean-up and Abatement Order requires Unocal to begin cleanup of areas within the appeal area by December 31, 1998, staff decided to concentrate our efforts on the appeal now. We expect to schedule the Commission's coastal permit for February 1999. Commission action in February 1999 on those plumes located within its direct permit jurisdiction will **not** slow down implementation of CAO No. 98-38; cleanup of those plumes located within the Commission's permit jurisdiction is not scheduled to begin until Fall 1999.

Status of Commission Staff Proposed Changes to County Conditions

The September 22, 1998, San Luis Obispo County Board of Supervisors approval of the Unocal Guadalupe Permit included 252 conditions in 3 separate components. The Commission staff is diligently working on a comprehensive package of proposed changes, but we have not completed this large task. Our goal now is to hand deliver a draft package to Commissioners, Unocal, the County, and the public at the November meeting. This means that no one will have adequate time for review to make decisions at the November meeting. The draft condition package will show the changes the staff recommends and should allow for at least some limited public input, a preliminary Commission discussion and direction to staff at the November meeting.

Action Options for the Commission on Guadalupe Appeal

1. Open substantial issue hearing on November 4th. Hear public testimony on appeal and Commission discussion on preliminary draft condition changes. Continue substantial issue hearing discussion open until December with direction to staff to further revise County's conditions.

2. Open substantial issue hearing on November 4th and immediately continue the hearing open to the December meeting with no discussion.
3. Find substantial issue and schedule future de novo hearing.

The staff recommends that the Commission follow option 1.

Materials Transmitted in this Package

The following materials are attached:

1. Executive Summary of Staff Report on Substantial Issue for the Guadalupe Appeal and fold-out site map (Please save map).
2. Central Coast Regional Water Quality Control Board Clean-up or Abatement Order No. 98-38 (CAO 98-38).
3. San Luis Obispo Telegram-Tribune October 22, 1998 article regarding recent lawsuit regarding settlement agreement.

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Date Filed:October 19, 1998
 49th Day:December 7, 1998
 Staff:AJD/JD/SMH/LCE/EFD-SF
 First Staff Report:October 29, 1998
 Hearing Date:November 4, 1998
 Item No.W 13.5a
 Commission Action ...
 Commission Vote:

STAFF REPORT: APPEAL^{*}
SUBSTANTIAL ISSUE

Local Government: **San Luis Obispo County**

Decision: Unocal Guadalupe Remediation and Abandonment Project (Phase I:
 Consists of six stages starting in 1998 and ending in 2003) D890558D

Appeal No.: **A3-98-91**

Project Applicant: **Unocal Corporation**

Location: The Guadalupe Oil Field site is located on the central coast of California approximately 15 miles south of the city of San Luis Obispo. It covers approximately 2,700 acres within the Nipomo Dunes system. Most of the lease is within San Luis Obispo County, though a small portion extends into Santa Barbara County along the southern boundary. The City of Guadalupe is located approximately three miles east of the site, Nipomo is approximately five miles to the northeast, and Santa Maria is approximately ten miles to the east. The site is bounded by the Pacific Ocean on the western side and the Santa Maria River and estuary/lagoon system on the southern side. The Guadalupe Field includes valuable dune habitat, wetlands, fresh water marshes and ponds, rare, threatened and endangered plants and animals, sandy beach, and the Santa Maria River. (See Exhibit I — Site Map.)

Project Description: **Phase I:** Field-wide remediation of contaminated soil and groundwater using a variety of proposed technologies (installation of temporary sheetpile walls, dual-pump phase recovery, excavation, biosparging, groundwater extraction, land farm bioremediation).

^{*} This October 29, 1998, Staff Report includes *only* the Executive Summary and site map.

Project is based on the Regional Water Quality Control Board Cleanup or Abatement Order No. 98-38 (CAO-98-38) with July 1998 and October 1998 amendments.

Staff Note 1: To date, 90 diluent plumes have been identified within the Guadalupe Field. The Phase I project covers the 17 plumes identified by the Regional Water Quality Control Board (RWQCB) to be the greatest threat to surface waters. The entire Guadalupe Field is in the coastal zone. The majority of the field is covered by San Luis Obispo County's certified LCP. The Commission's original permit jurisdiction covers 2½ of the Phase I plumes. Unocal's project schedule calls for beginning work on these 2½ plumes in the Fall of 1999. The coastal permit application will be considered by the Commission in early 1999 and should therefore, not interfere with the schedule. The RWQCB is requiring continuing site characterization for the remaining 73 plumes and approximately 150 sumps and "will consider subsequent orders to cover subsequent phases of remediation." (CAO No. 98-38 No. 27).

Staff Note 2: There has been some confusion about what is before the Commission on this appeal. It is important to make clear that Settlement Agreement NOCV75194 and claims under anti-pollution laws of the State are not before the Commission. The Commission was not and is not a party to that settlement and is not being asked to express any opinion on the merits of that settlement. The settlement is simply not part of the Commission's deliberations on this appeal and in no way constrains the Commission's jurisdiction.

Appellants: Coastal Commissioners Areias and Wan

EXECUTIVE SUMMARY

STAFF RECOMMENDATION

The staff believes that the appeal of Coastal Commissioners Areias and Wan regarding the Unocal Guadalupe Remediation and Abandonment Project Coastal Development Permit D890558D for remediation and restoration of the Guadalupe Oil Field raises SUBSTANTIAL ISSUE under the County of San Luis Obispo's certified local coastal program. The staff recommends that the Commission open the substantial issue hearing at the November meeting and continue the hearing open. The purpose of deferring a decision on substantial issue is to give the staff the time to work co-operatively with Unocal and San Luis Obispo County to develop a

proposed package of modified conditions to address Coastal Act and LCP issues. The Commission will then hear public testimony on the revised conditions (probably in December 1998) and consider what course of action to take.

HOW PROJECT QUALIFIES AS APPEALABLE UNDER THE COASTAL ACT

This appeal was filed under Coastal Act Section 30603(a)(1,2,5), which allows appeals for development (i) located between the sea and the first public road paralleling the sea or within 300 feet of the inland extent of any beach or of the mean high tideline of the sea where there is no beach, whichever is the greater distance, or (ii) located within 100 feet of any wetland, estuary, or stream, or (iii) which constitutes a major public works project or a major energy facility.

ISSUE BEFORE THE COASTAL COMMISSION AT ITS NOVEMBER 4, 1998, "NO SUBSTANTIAL ISSUE"/"SUBSTANTIAL ISSUE HEARING"

The issue before the Coastal Commission at this stage is defined by the Coastal Act as follows: Does a substantial issue exist as to conformity of the proposed development with the applicable certified local coastal program? The Commission's appeal regulations state that "Unless the Commission finds that the appeal raises no significant question as to conformity with the certified local coastal program ... the Commission shall consider the application de novo ..."
(Title 14, California Code of Regulations, Section 13115)

The staff recommends that the Commission open the substantial issue hearing and continue the hearing open until the December 1998 meeting. The staff recommends that the Commission hear initial public testimony on the Guadalupe appeal at the November meeting.

CLEANUP OR ABATEMENT ORDER NO. 98-38

On April 3, 1998, the Central Coastal Regional Water Quality Control Board (RWQCB) issued a Cleanup or Abatement Order (CAO 98-38) requiring Unocal to remediate and abandon the Guadalupe Oil Field using various technologies. The order was amended on July 13, 1998 and another amendment relating to the order of site clean-up is expected by November 1, 1998. The RWQCB decided to take a phased approach to remediation and abandonment, proceeding with cleanup of the 17 most critical plumes (those known to be introducing contamination to surface waters) while still continuing with investigations into the total extent of the contamination. Two and one-half of these plumes are located in the Commission's original permit jurisdiction and will be covered by a later coastal permit application. The CAO requires Unocal to begin the remediation project no later than December 31, 1998.

UNIQUENESS OF THE GUADALUPE/NIPOMO DUNES AREA

The Guadalupe Oil Field is located within the Nipomo Dunes complex, which extends from the Pismo Beach area in southern San Luis Obispo County to Mussel Rock in northern Santa Barbara County. The ecological significance of this dune-wetland system has been well established and documented in a wide range of reports and planning documents. In a review prepared for the Nature Conservancy, the Nipomo Dunes System was characterized as the largest, most scenic and most ecologically diverse of the coastal dune-wetland complexes in California.

In support of its designation as a National Natural Landmark, the Department of the Interior described the area's significance as follows:

The Nipomo Dunes-Point Sal Coastal Area contains the largest, relatively undisturbed coastal dune tract in California. Five major plant communities are well represented and the flora exhibits the highest rate of endemism of any dune area in western North America. Dune succession is exceptionally well displayed. No comparable area on the Pacific Coast possesses a similar series of freshwater lagoons and lakes so well preserved, with minimal cultural intrusions and harboring such great species diversity. The area serves as habitat for both rare and endangered plants and animals besides being one of the most scenically attractive areas in southern California.

The area supports many federally-listed, state-listed and proposed threatened or endangered species. These include (but are certainly not limited to) the La Graciosa thistle, beach spectacle-pod, California brown pelican, western snowy plover, American peregrine falcon, tidewater goby, steelhead, California red-legged frog, the southwestern willow flycatcher and Least Bell's vireo. The dune, wetland, estuarine and riparian habitats within the project area provide critical habitat, food, resting, breeding and nursery habitat for many of these species. Coastal and offshore marine waters provide both seasonal and year-round habitat and resources for countless marine invertebrates, fish, birds and mammals, and support commercially and recreationally important fisheries. The area as a whole, in addition to supporting past fishing and oil development activities, has also been a popular recreation destination. There is public access at Oso Flaco Lake Natural Area two miles to the north, and at Rancho Guadalupe County Park just south of the Guadalupe Oil Field.

HISTORY OF OIL PRODUCTION AT GUADALUPE

The Guadalupe Oil Field site is part of the Unocal LeRoy Lease which covers approximately 2,700 acres within the Nipomo Dunes system. Most of the lease is within San Luis Obispo County, though a small portion extends into Santa Barbara County along the southern boundary.

The site is bounded on two sides by surface waters, the Pacific Ocean on the western side and the Santa Maria River and estuary/lagoon system on the southern side.

Oil exploration and production began on the Guadalupe site with the Sand Dune Oil Company in 1947. The field was purchased in 1948 by the Continental Oil Company, which completed the first commercial well. Continental oil completed five additional wells and shut down the field in 1949. Thornbury acquired the field and returned it to production in 1950, and expanded operations. Unocal acquired the lease to the Guadalupe oil field in 1950 and operated it until 1990, using "diluent" (a kerosene-like additive used to thin oil) to assist in the pipeline transportation of the heavy crude oil pumped from the field. During the time that diluent was used at the site, numerous leaks developed in the tanks and pipelines used to distribute it around the field. Over time, these leaks have led to serious contamination of the ground water below the site.

Diluent has accumulated in plumes at the water table in the dune sand aquifer (about 10-30' down, depending on location). The thickness of separate-phase diluent varies from thin visible sheens to as much as 6 feet in places. Locations with the greatest known thickness of separate phase diluent are the Diluent Tanks area, the 5X area, the Compressor Plant, and Tank Battery 9. The separate-phase diluent can act as a long-term source of contamination to the underlying ground water. As the ground water passes through these areas, some of the diluent dissolves into the water and moves downstream with the ground water flow, generally from east to west. This has resulted in ground water contamination beneath much of the site, with a flux towards the ocean and the Santa Maria River.

There are also at least 150 "sumps." These sumps are concentrated areas of contamination consisting of drilling muds, heavy metals, and a variety of petroleum products.

SYNOPSIS OF EVENTS REGARDING CONTAMINATION AT THE GUADALUPE OIL FIELD

- February 1990. Diluent, a kerosene-type of product used to thin crude oil, is spotted on the beach. Unocal shuts down production throughout the field and notifies regulatory agencies. Use of diluent is subsequently suspended in future pumping activities.
- July 1992/June 1993. OSPR performs two warranted searches on Unocal offices.
- March 1994. Unocal pleads no contest to three criminal charges, including failing to report diluent leaks, and agrees to a \$1.5 million cash settlement. The state attorney general sues Unocal for unspecified damages.

- 1994 – 1998: The Executive Director of the Coastal Commission issues four emergency permits to excavate and address the most severe, emergency actions to minimize discharge of oil into surface waters.
- July 1996. Unocal agrees to pay for an environmental impact report of its plan to clean up fouled the Guadalupe Oil Field. San Luis Obispo County oversees the preparation of the EIR.
- March 1998. Final Environmental Impact Report (FEIR) for Guadalupe Oil Field Remediation and Abandonment is certified by San Luis Obispo County.
- April 1998. The California Regional Water Quality Control Board (RWQCB) on April 3, 1998, issues Cleanup or Abatement Order (CAO) No. 98-38 (amended July 13, 1998), for the Unocal Guadalupe Oil Field. The RWQCB decides to take a phased approach to remediation and abandonment, proceeding with cleanup of the 17 most critical plumes (those known to be introducing contamination to surface waters) while still continuing with investigations into the total extent of the contamination.
- July 1998. The state Attorney General announces a \$43.8 million settlement with Unocal for oil pollution contamination that occurred at Unocal's Guadalupe oil field over the past 40 years. The Settlement Agreement includes the Department of Fish and Game (DFG), the Coastal Conservancy, and the Central Coast Regional Water Quality Control Board (RWQCB). The Settlement Agreement covers damages for spill impacts, not mitigation for damages caused or to be caused by the clean-up. The Settlement Agreement *does not* constrain the Coastal Commission's regulatory authority in any way. (*Note: Full text of Settlement Agreement was sent to Commission for October 1998 meeting.*)
- September 22, 1998. The San Luis Obispo County Board of Supervisors approves a comprehensive coastal development permit for the Unocal Guadalupe Oil Field Remediation Project with 252 conditions.
- October 19, 1998. Commissioners Areias and Wan appeal the County's coastal permit as not fully addressing the policies of the certified LCP and the Coastal Act.

EXTENT OF CONTAMINATION

Site characterization studies to date show that almost 60 percent of the 2,700 acre field could be contaminated, with estimates of the amount of diluent leaked over 40 years ranging between 8.5 million and 20 million gallons.

The contamination at the site consists of both separate-phase (or "free product") and dissolved-phase diluent (i.e., that which is dissolved in the ground water). Much of the diluent spilled to the shallow dune aquifer remains as separate-phase that "floats" on top of the water. Also, some of

the diluent remains bound to the soil between the ground surface and the water table. Total petroleum hydrocarbon (TPH) concentrations in soils range up to about 170,000 parts per million (ppm), and dissolved-phase concentrations are generally less than 30 ppm.

Ninety diluent plumes within the Guadalupe Oil Field have been identified to date. Of these, 17 are known to be discharging into surface waters; their remediation garners top priority, making them Phase I of the overall project.

CLEANUP ACTIONS TO DATE

A number of remedial activities have taken place at the Guadalupe Oil Field under emergency Coastal Development Permits issued by the County of San Luis Obispo ("County") or the California Coastal Commission ("Commission"). Follow-up permits for the emergency remedial actions are to be included in regular Coastal Development Permits to be issued by the County or the Commission for their respective jurisdictions.

COUNTY		COASTAL COMMISSION
SLO P890275E	Installation of Bentonite Wall	CCC E-94-12 5X Beach Excavation Project
SLO P890275E (MODIFICATION 1)	Installation of PVC Barrier	CCC E-95-18-G Leroy 2 Sump Removal
SLO P890275E (MODIFICATION 2)	Installation of Fish & Game Wells	CCC E-97-03-G Sheetpile Wall
SLO 980275E (MODIFICATION 3)	Installation of Pilot Recovery System	CCC E-98-09-G A2A Excavation
SLO P890275E (MODIFICATION 4)	5X Excavation Support Facilities	
SLO P890275E (MODIFICATION 5)	5X Excavation Support Facilities	
SLO P890275E (MODIFICATION 6)	Installation of Monitoring Wells	
SLO P890275E (MODIFICATION 7)	Installation of Biosparging Wells	
SLO P970369E	7X Excavation	

SAN LUIS OBISPO COUNTY'S APPROVAL OF UNOCAL'S PROPOSED PROJECT

The County of San Luis Obispo issued Coastal Development Permit/Development Plan D890558D (September 22, 1998), with a total of 252 Conditions of Approval.

Exhibit E — Past Remedial and Characterization Projects
27 Conditions of Approval

Exhibit F — Phase I Remediation Projects
175 Conditions of Approval

Exhibit G — Oil Field Abandonment
50 Conditions of Approval

The County's permit covers Phase I of the remediation activities (cleanup of 17 plumes), the project to be conducted in six stages from 1998 – 2003.

Stage 1 — Involves excavation of sites C12, B12, L11, TB1 north, middle and south and installation of biosparge and product recovery systems.

Stage 2 — Includes excavation of sites 5X (west and east) and A2A north.

Stage 3 — Includes excavation of site M2 and partial excavation of site M4. When excavation is completed, a biosparge system will be installed at site M4.

Stage 4 — Includes excavation of sites A5A and C8 (north and south). Following the excavation of sites C8, horizontal biosparge wells will be installed.

Stage 5 — Includes excavation of site B2-3 and, if needed, site N12.

Stage 6 — Includes excavation of sites C7 south and B6.

San Luis Obispo County has coastal development permit jurisdiction for 14½ of the Phase I sites; the Coastal Commission has original permit jurisdiction for 2½ Phase I sites (the entire 5X site, the entire A2A site, and half of the A5A site).

SUMMARY OF THE GROUNDS FOR APPEAL

The following discussion provides highlights of why the appeal raises a substantial issue.

- I. **Conformity with the San Luis Obispo County certified local coastal program (LCP) and Coastal Act public access, recreation policies, habitat preservation.**

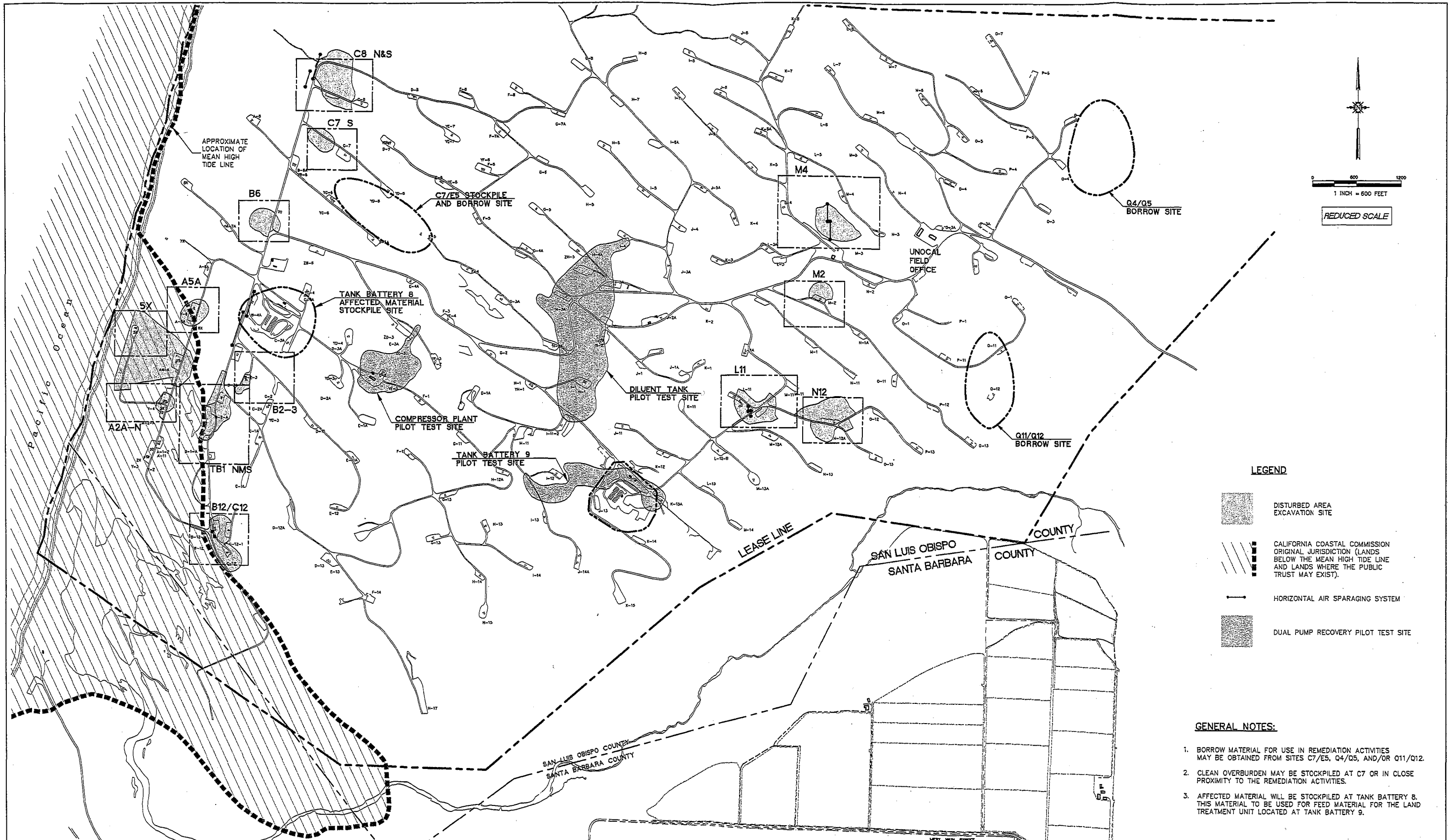
LCP policy sections 23.04.420 establish criteria for the requirement of public access that are not met by the conditions of this permit. The County adopted conditions of approval for the Unocal Guadalupe Project aimed at mitigating impact to public access and recreation. For example, County Conditions 171 and 172 require Unocal to extend existing offers of dedication for lateral public access and conservation easements originally required in-part by a 1980 Coastal Commission permit (CDP409-24) "to at least 25 years after the issuance of a closure letter for the site by the RWQCB." It has already been almost 19 years since the OTDs were originally required and these OTDs have not been accepted by a public agency or private non-profit group because of the ongoing oil contamination. To be fully consistent with the public access components of the certified LCP and the Coastal Act Unocal must be required to include an indemnification with the OTDs so that they can be expeditiously accepted.

II. Conformity with the San Luis Obispo County certified LCP policy regarding habitat protection.





The County's conditions of approval include numerous requirements for habitat protection and restoration. These conditions are in many cases vague and inconsistent and lack performance standards to ensure that environmentally sensitive habitats are protected and/or restored. The conditions as now written do not provide the clarity and specificity required to conform to the sensitive resource area and environmentally sensitive habitat policies (23.07.160 and 23.07.170) policies of the certified LCP and the Coastal Act.

III. Other Coastal Resources Policies of the certified LCP and the Coastal Act.

The San Luis Obispo County certified LCP includes broad coastal resource policies that follow the Coastal Act. The Unocal permit includes conditions designed to address the extensive impacts that will occur as a result of this oil field remediation project. A number of the County's conditions lack the specificity, clarity, schedules, and performance standard necessary to ensure compliance with the LCP policies and the Coastal Act.



LEGEND

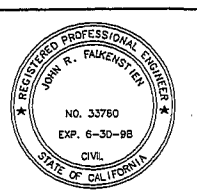
-  DISTURBED AREA EXCAVATION SITE
-  CALIFORNIA COASTAL COMMISSION ORIGINAL JURISDICTION (LANDS BELOW THE MEAN HIGH TIDE LINE AND LANDS WHERE THE PUBLIC TRUST MAY EXIST).
-  HORIZONTAL AIR SPARGING SYSTEM
-  DUAL PUMP RECOVERY PILOT TEST SITE

GENERAL NOTES:

1. BORROW MATERIAL FOR USE IN REMEDIATION ACTIVITIES MAY BE OBTAINED FROM SITES C7/E5, Q4/Q5, AND/OR Q11/Q12.
2. CLEAN OVERBURDEN MAY BE STOCKPILED AT C7 OR IN CLOSE PROXIMITY TO THE REMEDIATION ACTIVITIES.
3. AFFECTED MATERIAL WILL BE STOCKPILED AT TANK BATTERY 8. THIS MATERIAL TO BE USED FOR FEED MATERIAL FOR THE LAND TREATMENT UNIT LOCATED AT TANK BATTERY 9.

NUMBER	SL.	REFERENCE DRAWINGS

NOTES:



Cannon ASSOCIATES
ENGINEERS
PLANNERS
SURVEYORS
354 Pacific Street
San Luis Obispo, CA 93401
(805) 544-7427

REV. NO	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D	APPROVED FOR CONSTRUCTION
A	5/1/98	ISSUED FOR UNOCAL COMMENT		JPH	TZ		A. F. E. DATE SIGNED

APPROVED FOR CONSTRUCTION	DATE	SIGNED

EXCAVATION/STOCKPILE/BORROW SITE LOCATIONS
COASTAL COMMISSION ORIGINAL JURISDICTION LINE
FORMER GUADALUPE OIL FIELD

UNOCAL Corporation
Los Angeles, California

DRAWING NUMBER
EXHIBIT - 1

SHEETS 1 SHEET 1
CADD FILE: CC-2 DATE: BY: REV.

California Regional Water Quality Control Board Central Coast Region

Internet Address: <http://www.swrcb.ca.gov>
81 Higuera Street, Suite 200, San Luis Obispo, California 93401-5427
Phone (805) 549-3147 • FAX (805) 543-0397

July 13, 1998

Mr. Paul T. West, General Manager
California Operating Services
Union Oil Company of California
3201 Airpark Drive, #104
Santa Maria, CA 93455

Dear Mr. West:

SLIC: UNOCAL GUADALUPE OIL FIELD; TRANSMITTAL OF CLEANUP OR ABATEMENT ORDER NO. 98-38

This letter transmits Cleanup or Abatement Order No. 98-38, as amended July 13, 1998. The Order is self-explanatory and effective immediately.

If you have any questions, please call Harvey Packard at (805) 542-4639.

Sincerely,



Roger W. Briggs
Executive Officer

Attachment: Order No. 98-38

cc: Guadalupe Correspondence List

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RECEIVED

JUL 17 1998

CALIFORNIA
COASTAL COMMISSION

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5427**

CLEANUP OR ABATEMENT ORDER NO. 98-38

Concerning

**Union Oil Company of California
.. at
Guadalupe Oil Field
San Luis Obispo County**

Amended July 13, 1998

The California Regional Water Quality Control Board, Central Coast Region (hereafter "Board"), finds:

1. Union Oil Company of California, a California corporation (dba UNOCAL), has discharged petroleum to waters of the state at the Guadalupe Oil Field (hereafter "Field"). The Field covers over 2,300 acres within the Nipomo Dunes system in southern San Luis Obispo County and northern Santa Barbara County, about three miles west of the City of Guadalupe.
2. Discharge of petroleum and its chemical constituents into waters of the state is a violation of a prohibition contained in the Water Quality Control Plan, Central Coast Basin (hereafter "Basin Plan"), and creates, or threatens to create, a condition of pollution or nuisance.
3. Eugene R. Leroy Trust and Andre Leroy Trust own the property located at the far southwestern corner of San Luis Obispo County, assessor's parcel numbers 92-051-02, 92-041-001, 003, 004, 005 and 006, which they lease to UNOCAL pursuant to a written lease. UNOCAL operated the Field from 1951 to 1994. In addition to oil wells and pipelines, site infrastructure included tank batteries, surface impoundments, steam generators, weigh meter stations, a gas-compressor plant, roads, and electric power distribution equipment. UNOCAL's oil-producing operations ceased in 1994, and the Field is being prepared for abandonment.
4. Crude oil produced at the Field was extremely viscous, behaving like molasses in ambient conditions. UNOCAL used several methods to enhance oil recovery, including diluent mixing. Diluent is a refined petroleum product, similar in chemical composition to a mixture of diesel and kerosene. UNOCAL also used a minor amount of light crude oil trucked from nearby oil fields as a diluent. Diluent, other petroleum products and Field-related materials when improperly discharged or released resulted in pollution.
5. UNOCAL constructed and operated a diluent-distribution system, comprising storage tanks, pumps, and pipelines, throughout the Field. During Field operation, leaks developed in diluent pipes, pumps, and tanks, and spills occurred on the ground surface at many locations. Estimates of diluent amounts discharged or released to the environment (soil and water) range to over 8.5 million gallons.
6. Diluent released at the ground surface or in the near subsurface migrates quickly through the Field's sandy soils until reaching the water table. Where sufficient quantity was released, pools of floating diluent were formed on ground water.

7. The depth to ground water varies across the Field, depending on the height of the dunes. The first water-bearing unit, known as the dune sand aquifer, consists of medium sands and is approximately 10-feet thick. The dune sand aquifer is underlain by the confining unit, which consists of interbedded clays, silts, and sands and is approximately 100-feet thick. Underlying the confining unit is the principal aquifer, a major water supply source, consisting of coarse sand and gravel.
8. Surface-water bodies on or bordering the Field include the Santa Maria River, the Santa Maria River Estuary, the Pacific Ocean, dune slack pools, and fresh-water marsh ponds A, B, and C. Attachment A identifies various surface-water bodies in and around the Field.
9. UNGCAL and state agencies are assessing soil and ground water conditions and have found more than 90 locations where diluent is found in soil at the ground water table. Of these more than 90 locations, at least four are very large plumes, each containing more than a million gallons of diluent, where diluent accumulates in monitoring wells at thicknesses of up to five feet. Diluent plumes dissolved in ground water extend from each location where diluent has accumulated at the water table. Diluent in ground water has been measured at concentrations up to 30 mg/L at locations across the Field. Diluent in soil samples has been measured at concentrations up to 170,000 mg/kg.
10. Pursuant to the Basin Plan, beneficial uses of ground water beneath the Field include municipal and domestic supply, agricultural supply, and industrial service supply. Beneficial uses of the Santa Maria River include municipal and domestic supply; agricultural supply; industrial service supply; ground water recharge; water contact recreation; non-contact water recreation; wildlife habitat; cold fresh water habitat; warm fresh water habitat; migration of aquatic organisms; rare, threatened or endangered species; fresh water replenishment; and commercial and sport fishing. Beneficial uses of the Santa Maria River Estuary include ground water recharge; water contact recreation; non-contact water recreation; wildlife habitat; warm fresh water habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; preservation of biological habitats of special significance; rare, threatened or endangered species; estuarine habitat; fresh water replenishment; commercial and sport fishing; and shellfish harvesting. Beneficial uses of the dune slack ponds and fresh-water marsh ponds include ground water recharge; water contact recreation; non-contact water recreation; wildlife habitat; warm fresh water habitat; spawning, reproduction, and/or early development; rare, threatened or endangered species; and commercial and sport fishing.
11. Pursuant to the Basin Plan, ground waters shall not contain taste or odor producing substances in concentrations that adversely affect beneficial uses.
12. Pursuant to the Basin Plan, inland surface waters, enclosed bays, and estuaries shall be maintained free of toxic substances in concentrations that are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life.
13. Pursuant to the California Ocean Plan, beneficial uses of the ocean waters of the state include industrial water supply; water contact recreation; non-contact water recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of Areas of Special Biological Significance; rare and endangered species; marine habitat; fish migration; fish spawning; and shellfish harvesting.
14. Pursuant to Water Code Section 13304 and State Water Resources Control Board ("State Board") Resolution No. 92-49, cleanup is required when pollutants are discharged and affect waters of the state.

15. Dissolved diluent can be transported in ground water and discharged to surface water. Diluent has been detected in surface-water bodies, including marsh ponds A, B, and C, the Santa Maria River, the Pacific Ocean, and the L11, M11, and P1 dune-slack pools, at concentrations up to 1.5 mg/L. Attachment B locates numerous areas impacted by Field releases, including all areas to be addressed in Phase I cleanup.
16. In addition to petroleum pollution at the Field, there are present or may be present other non-diluent contaminants, including, but not limited to, metals, polycyclic aromatic hydrocarbons, volatile organic compounds, and semi-volatile organic compounds, resulting from UNOCAL's activities. Areas of the Field that will be disturbed by excavation or other activities require characterization with respect to these non-diluent contaminants before disturbance.
17. UNOCAL acknowledges its responsibility for Field-related pollutant discharges, is investigating the Field to determine pollution location and extent, has proposed a Field remediation project, and has agreed to the project described in this Order.
18. For the purposes of this Order, biosparging is defined as a process where air is introduced using blowers to the subsurface below the water table to promote the growth of aerobic microorganisms that will degrade dissolved diluent. Biosparging can be accomplished continuously or in a pulsed fashion through vertical or horizontal wells.
19. For the purposes of this Order, remediation by natural attenuation is defined as the natural physical, chemical, and biological processes that have a combined effect to reduce pollution concentration and mass. Remediation by natural attenuation is evaluated using measurements of pollution concentrations and other chemicals that indicate the amount and rate of any attenuation that is occurring.
20. For the purposes of this Order, active free-product removal by dual-pump extraction is defined as the process involving installing vertical extraction wells and pumping ground water with a submersible pump. A ground-water pump is placed at the bottom of the well. An oil-skimming pump is placed at the top of the liquid in the well. Dual-pump recovery provides both migration control and removal of free-phase diluent.
21. The proposed Order requires excavation of several areas with separate-phase diluent contamination. Soils excavated from these areas will be treated to remove petroleum before being used as backfill at other areas. Two methods will be used for soil treatment: thermal desorption and landfarming. Thermal desorption involves removing the petroleum from the soil by application of heat in a thermal desorption unit, powered by natural gas. Landfarming refers to a process where petroleum is removed from the soil by biological action. Contaminated soil will be placed in a treatment area, water and nutrients will be added, and the soil will be tilled to introduce oxygen. Landfarming will be conducted at Tank Battery 9.
22. The Field is a unique site. It is very large, over 2,300 acres, and as part of the Nipomo Dunes ecosystem contains many valuable biological resources. There are millions of gallons of dissolved-phase, separate-phase and free-phase diluent in underlying ground water and soils. Diluent and other pollutants have affected both ground water and surface water. The Final Environment Impact Report (defined in Finding No. 32) confirms that even if the most aggressive cleanup approach were implemented at the site (excavation of all separate-phase diluent plumes) water quality objectives in the shallow dune sand aquifer would not be achieved for many decades.
23. Because the Field is a unique site, the Board will accept a phased approach to regulating site cleanup. The fundamental goals of this phased approach are to protect surface waters (including the Santa Maria River and

Estuary, Pacific Ocean, ponds and wetlands), protect the principal aquifer from future degradation, and reverse the current trend of continuing pollution of the shallow dune sand aquifer.

24. This Order establishes requirements for remediation work during Phase I. The fundamental goals of Phase I are to: 1) get cleanup started right away; 2) focus first on eliminating discharges of diluent to surface water (river, ocean, wetlands); 3) control dissolved-phase plumes that are known to be affecting or are an imminent threat to surface water; 4) perform field-scale pilot tests to identify effective cleanup methods; 5) continue monitoring of pollution migration to the principal aquifer and surface waters, migration of free-phase diluent, cleanup effectiveness, resource impacts of cleanup work, and to gather other relevant information; and, 6) base future decisions on field experience.
25. Monitoring is a continuous process of periodic sampling throughout the Field. Monitoring is essential for both site characterization and remediation evaluation. Monitoring is needed over the long-term to assess water quality and other environmental impacts. It is also the means for detecting unexpected changes and new information that might require additional unanticipated cleanup action.
26. Site characterization is important to determine the degree of threat to surface water and regional water supply that is posed by the releases of diluent and other chemicals. Although a great deal of the dune sand aquifer investigation has been completed, more investigation is required to identify any impacts to the principal aquifer. Furthermore, assessment of discharges and threats to surface water is not complete. Site characterization work must be completed to identify the sources of diluent discharges to surface and ground water, and to assess non-diluent contamination. Site characterization information is needed to help select and design remediation methods.
27. The Board will consider subsequent orders to cover subsequent phases of remediation. Adoption of cleanup levels and requirements for the remediation of the rest of the Field are being deferred for reasons including the following: 1) site characterization and assessment are not complete (possible diluent impacts to the principal aquifer and the sources of diluent discharges to surface water are examples of phenomena still being investigated); 2) information from pilot testing to be conducted in Phase I is not yet available; 3) information regarding impacts of the cleanup process on natural resources can be best determined after field work is underway and is not yet available; and, 4) effectiveness of cleanup work to be implemented in Phase I can be best determined after the work is done. As the Board continues to learn more about the Field, and as experience and knowledge are gained through pilot testing and implementation of this first cleanup phase, the Board will have a better understanding of what will work best for site cleanup. Future decisions regarding remediation methods, cleanup levels and site locations not covered by Phase I work will be made as work proceeds and as knowledge and understanding increase.
28. At locations included in Phase I where the cleanup actions required by this Order do not meet the goals of Phase I, the Board may adopt subsequent orders to require additional cleanup. Subsequent orders may require additional cleanup as knowledge and understanding of the Field and contamination assessment increase.
29. The Board anticipates that UNOCAL will perform pilot studies to assist in evaluation of remediation methods. This Order sets forth a process for selecting and evaluating pilot studies. However, it does not approve or require implementation of any specific pilot studies.
30. Because timely complete permit applications are important for commencement of remediation work by Fall 1998, this Order requires UNOCAL to submit a comprehensive permit application plan.

31. High rainfall levels and releases from Twitchell Reservoir during early 1998, resulted in discharges of petroleum products and possibly other wastes from Field sumps to the river and ocean. Future wet-weather conditions could result in additional discharge of Field pollutants. In February and March 1998, UNOCAL implemented an emergency response to limit additional discharges. Part of this emergency response was the excavation of plume A2A South. This Order contains requirements for UNOCAL to identify all oil-field sumps and other waste management units and to remove sumps and other waste management units in a specified area where they pose a high risk of discharge to surface water, and to take responsibility to prevent similar discharges in the future.
32. The County of San Luis Obispo has prepared a Final Environmental Impact Report (FEIR) that evaluates UNOCAL's proposed Field remediation project along with various alternatives. The County, as lead agency, certified the FEIR on March 26, 1998. The Board, as a responsible agency, adopted Resolution No. 98-04 that contains findings of changes in the project to mitigate significant environmental impacts of Phase I remediation work and a mitigation monitoring plan. These findings are limited to the portion of the project approved by the Board and to mitigation measures that are within the Board's jurisdiction.

IT IS HEREBY ORDERED, pursuant to sections 13267 and 13304 of the California Water Code, that UNOCAL, its agents or assigns, shall remove free product and clean up degraded soil and ground water underlying the Guadalupe Oil Field, as follows:

I. Phase I - Soil and Ground Water Cleanup

A. Excavation

1. The following excavation work shall commence by the date specified and shall continue without interruption until the Executive Officer determines that the excavation work has complied with the excavation standards specified in Ordering Paragraph I.A.2., below:
 - a) Plume areas B12 (partial), C12, L11 (partial), TBI N, TBI M, TBI S: UNOCAL shall commence excavation of separate-phase diluent by fourth quarter 1998, and shall complete excavation in fourth quarter 1999.
 - b) Plume areas 5X and A2A N: UNOCAL shall commence excavation of separate-phase diluent by fourth quarter 1999, and shall complete excavation in fourth quarter 2000.
 - c) Plume areas M2 and M4 (partial): UNOCAL shall commence excavation of separate-phase diluent by second quarter 2000, and shall complete excavation in fourth quarter 2000.
 - d) Plume areas A5A and C8: UNOCAL shall commence excavation of separate-phase diluent by fourth quarter 2000, and shall complete excavation in first quarter 2001.
 - e) Plume areas B2-3 and N12: UNOCAL shall commence excavation of separate-phase diluent by second quarter 2001, and shall complete excavation in third quarter 2001.
 - f) Plume areas C7 S and B6: UNOCAL shall commence excavation of separate-phase diluent by fourth quarter 2001, and shall complete excavation in second quarter 2002.

- g) Plume Area C2: If it is determined that excavation is required after TB1 excavations are complete, UNOCAL shall commence excavation of separate-phase diluent at C2 by fourth quarter 2001, and shall complete excavation in second quarter 2002.

Note: Temporary interruption may be approved by the Executive Officer in advance or pursuant to the requirements for authorizing unavoidable delays as described in Ordering Paragraph IX., below.

2. Excavation of a specific plume will be considered complete when the following criteria have been met and backfilling is complete:
- a) The mean concentration of soil samples collected at the bottom of the excavation shall not exceed 700 mg/kg total petroleum hydrocarbons. Concentrations of no more than 5% of samples collected at the bottom of the excavation shall exceed 1,000 mg/kg total petroleum hydrocarbons.
 - b) Sheet pile shall be installed at least 15 feet outside the 1,000-mg/kg TPH contour as interpreted using data collected from soil borings. In exception to this criterion, sheet pile for plumes C12, C8N, B6, M2 and TB1S shall be installed approximately five to ten feet outside the 1,000 mg/kg TPH contour on one side of each plume. The exact limits of sheet pile placement under the exception for C12, C8N, B6, M2 and TB1S shall be approved by the Executive Officer based on field information.
 - c) Samples of the excavation bottom shall be collected at 25-foot centers, or as directed in the field by Board staff.
 - d) If concentrations in more than 5% of samples collected at the bottom of the excavation exceed 1,000 mg/kg total petroleum hydrocarbons after UNOCAL has removed as much degraded soil as reasonably practicable, the Executive Officer, with the advice of other interested agencies, will decide if further excavation or other cleanup actions must be conducted, or if the excavation may be backfilled. The Executive Officer will decide within a reasonable time taking into account, among other things, project efficiencies.
 - e) All Field-related sump material encountered in diluent-plume excavations shall be removed and properly disposed.
 - f) Compounds designed to enhance biological degradation of remaining hydrocarbons, including nutrients and other appropriate additives, shall be added to excavations before backfilling. The amounts and types of such compounds to be added shall be determined on a general site-wide basis by UNOCAL and approved by Board staff before October 1, 1998.
 - g) UNOCAL shall conduct post-excavation ground-water monitoring. Monitoring wells destroyed due to the excavation shall be replaced if the Executive Officer determines they are needed to establish a sufficient monitoring network.
 - h) The intent of these criteria is to require excavations that will successfully stop discharges of diluent to surface water within a short time frame with as little impact as possible to adjacent areas and resources. These criteria are not final cleanup levels. After excavation, the Board may require evidence that natural degradation of remaining hydrocarbons is occurring, especially in instances

where hydrocarbons at concentrations exceeding 700 mg/kg TPH were left in place. No further excavation shall be required in any area that has been excavated in compliance with these excavation standards except in those areas where only partial excavation has been required (e.g., L11, M4, B12).

3. UNOCAL shall meet the following milestones with respect to excavation at the 5X plume:
 - a) By June 1, 1998, UNOCAL shall submit a plan to complete characterization of the vertical and lateral extent of degradation. The plan shall also propose sampling for non-diluent compounds to comply with paragraph I.A.5, below.
 - b) By August 1, 1998, UNOCAL shall submit an interim report detailing prospective sources of sand backfill and sheetpile, and the status of Unocal's efforts to procure the sand and sheetpile necessary to begin excavation in fourth quarter 1999.
 - c) By October 1, 1998, UNOCAL shall commence assessment work in accordance with the assessment plan, as approved or modified by the Executive Officer.
 - d) By December 31, 1998, UNOCAL shall submit a report of the results of the assessment.
 - e) By April 1, 1999, UNOCAL shall submit a draft excavation engineering plan. In addition to any other elements necessary to implement the project, this plan shall include a sand budget and stockpiling plan, a permitting plan, a treatment plan including air-pollution considerations, and a sheet pile plan.
4. UNOCAL shall submit to the Board an excavation engineering plan at least 45 days prior to commencing excavation at any location.
5. Before commencing excavation or other soil disturbance at any location, UNOCAL shall submit a plan to the Board to characterize the overburden, affected soils, and ground water for the presence of non-diluent contaminants, including, but not limited to, Title 22 metals, polycyclic aromatic hydrocarbons, volatile organic compounds, and semi-volatile organic compounds, at that location. The Executive Officer, with assistance of other agencies as required, shall review and approve the plan before it is implemented. The plan shall be implemented to the satisfaction of the Executive Officer before any soil disturbance occurs.

B. Biosparging

1. Biosparging systems shall be installed and in operation at the following sites by March 31, 1999, or as soon after that date as excavation activities allow: TB8, B12, L11.
2. A biosparging system shall be installed and in operation at plume area M4 by December 31, 2000, or as soon after that date as excavation activities allow.
3. A biosparging system shall be installed and in operation at plume area D8 by March 31, 2001, or as soon after that date as excavation activities allow.
4. Biosparging shall continue without interruption until authorized to cease by the Executive Officer. Temporary interruption may be authorized in advance by the

Executive Officer or pursuant to the requirements for authorizing unavoidable delays (see Ordering Paragraph IX., below).

5. By September 1, 1998, UNOCAL shall submit a proposed biosparging monitoring plan for consideration by the Executive Officer. Monitoring shall be implemented as directed by the Executive Officer.

C. Remediation by Natural Attenuation

1. UNOCAL shall monitor and evaluate natural attenuation of diluent at C2A, F14, M11, M13A, and TB9 S. Monitoring data shall be reported in regular monitoring reports, as required by Ordering Paragraph IV., below.
2. By September 1, 1998, UNOCAL shall submit a natural attenuation monitoring plan for consideration by the Executive Officer. Monitoring shall be implemented as directed by the Executive Officer.

D. Active Free-Product Recovery

1. Compressor Plant: UNOCAL shall install and begin operation of at least five dual-pump product-recovery wells at the leading edge of the free-phase plume by March 31, 1999.
2. Diluent Tanks: UNOCAL shall install and begin operation of at least eight dual-pump product-recovery wells at the center of the free-phase plume by March 31, 1999.
3. TB 9: UNOCAL shall install and begin operation of at least five dual-pump product-recovery wells at the leading edge of the free-phase plume by March 31, 1999.
4. Active free-product recovery shall continue without interruption until authorized by the Executive Officer. Temporary interruption may be authorized in advance by the Executive Officer or pursuant to the requirements for authorizing unavoidable delays (see Ordering Paragraph VIII., below).
5. By July 1, 1998, UNOCAL shall submit an active free-product recovery monitoring plan for consideration by the Executive Officer. Monitoring shall be implemented as directed by the Executive Officer.

E. Passive Free-Product Recovery

1. By July 1, 1998, UNOCAL shall begin recovery of free product by passive skimming, bailing, or another method from existing monitoring wells that contain at least one-eighth of an inch of product. Such recovery shall occur at the following locations, at a minimum: compressor plant, diluent tanks, E6, F5, G4A, H13, H5, I5, J5A W, J8, K5, M1, M3, N1A, N4, N7, and TB 9.
2. Passive free-product recovery shall continue without interruption until authorized by the Executive Officer or until the thickness of floating product in the well is less than one-eighth of an inch. While conducting tests of product-recovery technologies, UNOCAL may interrupt recovery at specific wells if static conditions at those wells are required to determine the effectiveness of the technology being tested. Other temporary interruptions may be authorized in advance by the Executive Officer or pursuant to the requirements for authorizing unavoidable delays (see Ordering Paragraph IX. below).

3. By June 1, 1998, UNOCAL shall submit a passive free-product recovery implementation and monitoring plan for consideration by the Executive Officer. Recovery and monitoring shall be implemented as directed by the Executive Officer.

F. Other Cleanup Activities

1. Plume Area A8: UNOCAL shall adequately characterize separate and dissolved-phase plumes to the satisfaction of the Executive Officer by October 1, 1998. If this characterization shows there is no discharge of diluent to surface water, UNOCAL shall implement remediation by natural attenuation. Otherwise, UNOCAL shall implement active control of dissolved diluent by a method acceptable to the Executive Officer by March 1, 1999.
2. Plume Areas B5A N, C7 N, C7 SE, P13: UNOCAL shall adequately characterize separate-phase plumes by March 1, 1999, and submit cleanup plans to the Board by October 1, 1999.
3. Plume Area O13: Unocal shall adequately characterize separate-phase and dissolved diluent to the satisfaction of the Executive Officer by December 15, 1998, and submit a cleanup plan to the Board by March 1, 1999.
4. Plume Area B11: UNOCAL shall adequately characterize the separate-phase diluent plume to the satisfaction of the Executive Officer by March 1, 1999. If characterization indicates a threat to surface water, either excavation or biosparging shall be implemented. Associated cleanup shall begin by October 1, 2000, and shall continue without interruption until authorized by the Executive Officer. Temporary interruption may be authorized in advance by the Executive Officer or pursuant to the requirements for authorizing unavoidable delays (see Ordering Paragraph IX., below).
5. The results of characterization activities, including recommended actions, shall be reported to the Executive Officer by UNOCAL no later than the dates identified in F.1, F.2, and F.3, above.

II. Sumps and Other Waste Management Units

- A. UNOCAL shall submit to the Executive Officer by August 1, 1998, a report regarding all sumps and other waste management units (including but not limited to trenches, ditches or other areas where petroleum products or other oil-field waste were disposed or placed during oil-development and production operations) located on the site between the ocean and the "B" road, south of well-pad A8, and north of the river channel. This area is shown on the map attached to this Order as Attachment C. The report must clearly locate each sump and waste management unit and determine the type, area and depth of waste placement. The report must propose action that will remove threats of discharge to surface water from these sumps and waste management units. UNOCAL shall remove or remediate any sumps or waste management units as directed by the Executive Officer. Removal and remediation work in accordance with a plan approved by the Executive Officer shall commence no later than Fall 1998.
- B. The plan submitted shall include a proposal to monitor and report waste removal activities (waste type, volume, handling, treatment and disposal). Quarterly monitoring reports shall be submitted to the Executive Officer according to Ordering Paragraph IV below.

III. Permit Application

- A. UNOCAL shall submit a comprehensive permit application plan to the Board by May 1, 1998. This plan shall list all local, state and federal permits that UNOCAL must or may have to acquire to begin implementing remediation work within the times required by this Order. The plan shall list the date by which UNOCAL will apply for each permit. UNOCAL shall apply for permits in accordance with this plan.
- B. UNOCAL shall timely apply for all permits as necessary to complete, and so as not to delay, actions directed by this Order to be commenced in Fall 1998.
- C. UNOCAL shall make good-faith efforts to obtain any other permits required to commence the actions required in this Order by the dates specified in this Order.

IV. Monitoring and Reporting

- A. Quarterly, UNOCAL shall submit to the Board reports of completed cleanup activities and routine monitoring, including implementation of mitigation measures specified in Resolution No. 98-04. The reports shall detail the actions taken, sampling results, amounts of petroleum removed, the disposition of materials removed, and recommendations for additional actions based on data collected during the reporting period. Reports shall be submitted by the first day of the second month following the end of the quarter (i.e., 1st Quarter Report [Jan-Mar] is due by May 1; 2nd Quarter Report [Apr-Jun] is due by August 1; 3rd Quarter Report [Jul-Sep] is due November 1; and, 4th Quarter Report [Oct-Dec] is due by February 1).
- B. UNOCAL shall comply with Levine Fricke Recon's February 20, 1998, "Water Monitoring Plan," as amended and approved by the Executive Officer, including the associated quarterly monitoring. The plan is hereby incorporated by reference.
- C. UNOCAL shall submit Phase I soil and ground-water monitoring data and reports as required by Ordering Paragraphs I., II., and III., above.
- D. The Executive Officer may request reasonable changes to the Water Monitoring Plan, based on review of collected data, new site-characterization information or a change in Field conditions. The current mediation process may be used (if it exists) to guide monitoring changes.

V. Soil Management Plan

- A. UNOCAL has proposed to treat petroleum-affected soil using thermal desorption and landfarming at Tank Battery 9. Unless exempt from regulation under Title 23 California Code of Regulations Chapter 15 or Title 27 California Code of Regulations Division 2, UNOCAL shall apply for waste discharge requirements or a waiver of waste discharge requirements for landfarming and thermal desorption activities.
- B. Landfarming and thermal desorption activities shall conform with appropriate waste discharge requirements issued by the Board and any monitoring directed by the Executive Officer.

VI. Waste Disposal

- A. Wastes removed from the Field, including soil, petroleum, and water, shall be disposed of in accordance with all applicable laws and regulations.

VII. Pilot Studies

- A. The goal of the pilot studies is to identify ways to remove separate-phase diluent without excavation.
- B. To facilitate the implementation of the pilot-test program, a panel of three experts (one chosen by UNOCAL, one by the Executive Officer, with those two picking a third) will be selected within 90 days of court approval of the settlement agreement. Concur, Inc., will act as facilitator for the panel discussions. If Concur does not accept this role, UNOCAL and the Executive Officer will select another facilitator that they both agree to.
- C. No more than three methods will be pilot tested in this first round in addition to the bioremediation and dual-phase pumping pilot tests UNOCAL is already doing or has agreed to do as part of the remediation process. As the first step in identifying the three remedial methods to be pilot tested, the panel will review UNOCAL's alternatives studies, (e.g., the Remedial Action Plan and the Feasibility Study), the FEIR (including UNOCAL's comments thereon), and available literature to identify methods of separate-phase diluent removal that are preferable to excavation on any basis. Within six months of the selection of the third member of the panel or as otherwise agreed by Unocal and the Executive Officer, the panel will rank each of the methods based upon effectiveness, cost, and short-term and long-term environmental impact and make a recommendation as to the three methods to be pilot tested. The Board and UNOCAL agree that steam/hot-water injection will be included among the methods to be considered by the panel.
- D. The Executive Officer will consider the panel's recommendations and tentatively select method(s) to be pilot tested. The Executive Officer will notify UNOCAL in writing of his tentative decision. If UNOCAL disagrees with the tentative selection, UNOCAL may invoke dispute resolution. Representatives of UNOCAL and the Board will meet and attempt to reach agreement, with the assistance of the facilitator identified in Ordering Paragraph VII.B., above. If there is no agreement within six months after the panel makes its recommendation or as otherwise agreed by the parties, the Executive Officer or Board will make the final decision regarding which pilot tests will be carried out. UNOCAL reserves whatever rights it has to appeal the Executive Officer's decision.
- E. UNOCAL, in consultation with Board staff, the panel of experts and the proponent of the method, will design the pilot study. The pilot study design must be acceptable to the Executive Officer.
- F. To the extent feasible, the proponent of the method will implement the pilot study and submit a report to UNOCAL, the panel of experts, and the Board, reporting the results of the pilot test. The panel of experts, with input from the Board and UNOCAL, will review the report and provide its recommendation regarding further actions based on the pilot study results within six month after receiving the pilot test report. The information obtained from the pilot studies and

the panel's recommendation will be part of the record to be considered by the Board in accordance with State Board Resolution No. 92-49 (and subsequent amendments thereto) in making any decisions regarding Phase I remediation or subsequent remediation. UNOCAL reserves whatever rights it has to appeal a Board decision based in whole or in part on the results of the pilot studies.

- G. Further California Environmental Quality Act studies will not be required for any Board action regarding a pilot study unless required by California Environmental Quality Act Guidelines Section 15162. The Board may make appropriate findings as required by California Environmental Quality Act Guidelines Section 15091.
- H. UNOCAL has agreed to at least one more round of pilot studies at the end of the first five-year pilot-test period. The number of methods to be tested in the second round of pilot studies will be limited to a reasonable number. The panel described in subsection B., above, shall be available to facilitate the performance of this second round of pilot tests in the same manner as described in subsections C. through F., above. The Board's dispute resolution and appeal process described in subsections C. through F., above, will also be applicable to the second round of pilot testing. Nothing in this agreement is intended to limit the ability of the Board to require additional rounds of pilot testing after the second round of pilot testing. UNOCAL specifically reserves whatever rights it has to appeal a decision of the Board to require more pilot tests beyond the initial round of pilot tests.

VIII. Implementation of Mitigation Measures pursuant to California Environmental Quality Act

- A. UNOCAL shall incorporate into the work required by this Order the following mitigation measures, identified in the FEIR and set forth in Resolution No. 98-04:
 - 1. Marine Water Quality: MWQ-1, MWQ-2, MWQ-3 as modified, and MWQ-4 as modified.
 - 2. Marine Biology: MB-1 and MB-2.
 - 3. Water Quality: W-1 as modified, W-2 as modified, W-3 as modified, and W-4 through W-37, inclusive.
 - 4. Onshore Biological Resources: V3(a).
- B. UNOCAL shall implement additional mitigation measures identified in permits issued by other agencies, as necessary to complete, and so as not to delay, Phase I cleanup directed by this Order.

- IX. Executive Officer approval is not needed for an interruption of work for five working days or less. Interruption of work for more than five working days may be authorized by the Executive Officer for a cause beyond the reasonable control of UNOCAL. Notification shall be in writing, including an explanation for the interruption, the reason the interruption is beyond the reasonable control of UNOCAL, and the approximate interruption timing. UNOCAL must notify the Executive Officer at least five days prior to anticipated work interruption or as soon as possible if five days notice is not practicable. If the Executive Officer disagrees with UNOCAL's request, he shall notify UNOCAL orally within one week of receipt of the written request. If UNOCAL requests, the Executive Officer will provide a written explanation of reasons for rejecting the delay within one week after UNOCAL asks for the written explanation. If the Executive Officer fails to respond to the request within the time permitted,

the request for a delay up to 30 days is deemed approved. Any delay in excess of 30 days cannot be approved without the explicit agreement of the Executive Officer.

- X. Compliance with any of the deadlines set forth in this Order shall be excused to the extent that such non-compliance arises from a cause beyond the reasonable control of UNOCAL, including, but not limited to, denial of access by land owners, weather or natural disasters, or unanticipated increases in the scope of excavation which prohibit timely completion of the required work. To request relief from a compliance deadline based on causes beyond its reasonable control, UNOCAL shall file a written notification with the Executive Officer as soon as practicable upon discovery of the cause and no later than 30 days after the discovery of the cause or 90 days before the deadline, whichever is earlier, explaining the reason for the non-compliance and why the reason was beyond UNOCAL's reasonable control and requesting an extension of the deadline to a date that can reasonably be achieved. If the Executive Officer disagrees with UNOCAL's request for an extension of the deadline, he shall notify UNOCAL orally within one week of receipt of the written notification. If UNOCAL requests, the Executive Officer will provide a written explanation of reasons for rejecting the requested new deadline within one week after UNOCAL asks for the written explanation. If the Executive Officer fails to respond to the request within the time permitted, the request for an extension of the deadline up to 30 days is deemed approved. Any delay in excess of 30 days cannot be approved without the explicit agreement of the Executive Officer.
- XI. The intent of this Order is to require Phase I remedial actions that prevent discharges of diluent to surface water. If the actions required by this Order fail to meet that goal to the satisfaction of the Executive Officer, the Board may require additional corrective action as part of Phase I of the remediation project. Until all petroleum pollution and associated waste materials have been properly removed, treated, and disposed to the Board's satisfaction, UNOCAL remains responsible for any release to the environment and responsible for protection of resources and species impacted or threatened by Field-related materials. This Order does not limit the Board's discretion to require what it deems appropriate for future cleanup.

All technical and monitoring reports required in conjunction with this Order are required pursuant to Sections 13267 and 13304 of the California Water Code. Technical reports and plans shall be signed and stamped by an appropriately qualified engineer or geologist licensed in the State of California.

FAILURE TO COMPLY WITH THE PROVISIONS OF THIS ORDER MAY SUBJECT YOU TO FURTHER ENFORCEMENT ACTION, INCLUDING, BUT NOT LIMITED TO, ASSESSMENT OF CIVIL LIABILITY UNDER SECTIONS 13268 AND 13350 OF THE WATER CODE AND REFERRAL TO THE DISTRICT ATTORNEY OR ATTORNEY GENERAL FOR INJUNCTIVE RELIEF AND CIVIL OR CRIMINAL LIABILITY.


Executive Officer

7-13-98

Date

Lease Boundary

Unocal Field Office

PIR

Mid

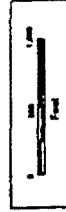
Santa Maria River

San Luis Obispo County

Santa Barbara County



Curve Bank



Arthur D Little
Date: May 1988

Attachment A Surface Water

PACIFIC
OCEAN

Pond C

Pond B

Pond A

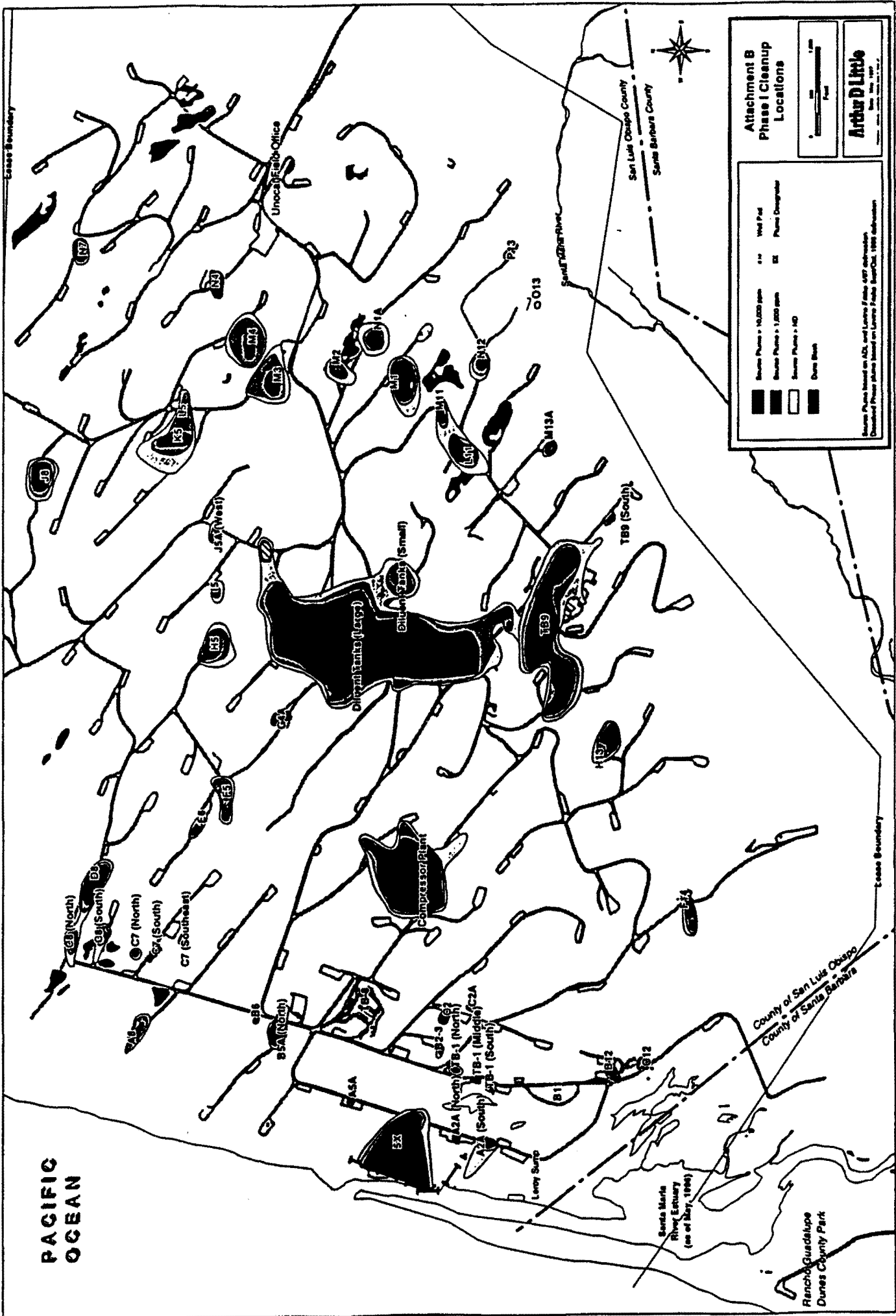
Ledy Surto

Santa Maria
River Estuary
(as of May, 1988)

County of San Luis Obispo
County of Santa Barbara

Lease Boundary

Rancho Guadalupe
Dunes County Park



**Attachment B
Phase I Cleanup
Locations**

█	Severe Phase - 10,000 ppm	◆	West Pad
█	Severe Phase - 1,000 ppm	□	Phase Designator
█	Severe Phase - 100	█	Dune Beach

Severe Phase based on AQL and Lower of two 407 determinations.
 Cleanup Phase values based on Lower of two SurfChl, 1000 determinations.

Arthur D Little
 San Luis Obispo, CA

PACIFIC OCEAN

County of San Luis Obispo
 County of Santa Barbara

Santa Maria
 River Estuary
 (as of May, 1996)

Rancho Guadalupe
 Dunes County Park

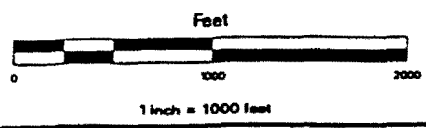
Pacific Ocean

5X-Beach

Santa Maria River

EXPLANATION:

- Lease Line
- County Line
- Shoreline
- Roadway and Well Pads
- Potential Sump Location Based on Aerial Photograph Review
- Approximate Extent of Surface Water
- ⊗ Sump Investigation Area



Unocal - Guadalupe

Sump Investigation Area

Levine • Fricke • Recon
Project No. 5646

Attachment C



Group sues Lungren over Guadalupe deal

SACRAMENTO

By David Sneed
Telegram-Tribune

A coastal conservation group sued state Attorney General Dan Lungren on Wednesday for allegedly violating the public trust by failing to aggressively prosecute Unocal Corp for its huge oil leak at the Guadalupe oil field.

At a press conference in Sacramento, the Surfers Environmental Alliance (SEA) accused Lungren of being too lenient with Unocal and failing to disclose all information about the spill and its environmental damages.

Unocal leaked between 8.5 million and 20 million gallons of a petroleum thinning agent called diluent at the 2,700-acre site, making it one of the largest land-based oil spills in the history of the nation. In July, Lungren announced a settlement in which Unocal agreed to pay \$43.8 million in fines and damages.

When the settlement was announced, the state agencies involved hailed it as the largest envi-

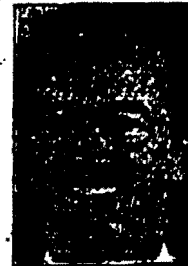
ronmental settlement in the state of California. The money went to state water quality and fish and wildlife agencies that will use it for a variety of restoration projects.

"This is a great settlement for California," said Staci Turner, a spokeswoman for Lungren.

But the Surfers Environmental Alliance and other environmental groups are far from satisfied.

They described it as a "paltry token to the public" compared to the \$425 million Exxon had to pay for its 1989 crude oil spill off the coast of Alaska.

"It's less damaging to Unocal than a parking ticket would be for a San Luis Obispo resident," said Todd Cardiff, of the San Luis Bay Chapter of the Surfrider Foundation.



Dan Lungren, attorney general

Please see LUNGREN, A-8

LUNGREN from Page One

"We think the attorney general has given Unocal a corporate sweetheart deal which is consistent with his pro-oil development stance," said Ward Smith, SEA chairman. "We don't think he should get away with it."

The suit asks the court to nullify the settlement and force Lungren to release all documents related to the case. In 1994, the attorney general and SEA sued Unocal, and the environmental group has repeatedly tried to get Lungren's office to share its information.

"If he is representing the people, we are entitled to know what he based his decision on," said John Cohn, a Century City attorney who

is handling the lawsuit.

Turner said the lawsuit is suspiciously timed to generate bad press for Lungren right before the November general election. Lungren, a Republican, is in a tight race for governor with Democrat Gray Davis.

"This is coming so late in the game," she said. "The settlement was filed three months ago."

Turner also defended the decision to withhold information. Unocal could use the information to get out of cleaning up parts of the oil field, she said.

"We are not trying to keep it from the public," Turner said. "We are trying to keep Unocal from using it against us."

Environmentalists are hoping that the California Coastal Commission will come to their aid. Recently, the commission voted to hold a full hearing in November on the settlement.

"The Coastal Commission has the authority to deny the proposed cleanup, restoration and mitigation plan as vague, ambiguous and against the public interest," said Mark Massara, an attorney with the Sierra Club's coastal program.

Once that appeal is settled, Unocal will begin the first phase of cleanup at the oil field. It will clean up 17 small plumes of contamination that pose a direct threat to fresh and ocean water.

October 22, 1998
SAN LUIS OBISPO TELEGRAM TRIBUNE

