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TO: Coastal Commissioners and Interested Parties

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SUBJECT: **Unocal Avila Beach Background and Remediation Status Report**

Staff Note:

Because of the number of new Commissioners and the complexity and importance of the Avila Beach remediation project, the Commission staff is providing a more detailed project history and background in this status report, and will follow up with a slide presentation at the May Commission meeting. Hereafter, staff will provide a short written update on the status of the remediation and the specific planning process each month.

1.0 Introduction

The purpose of this memorandum is to describe the following points:

- the history of the Unocal Avila Beach oil spill;
- past Coastal Commission involvement, including the coastal development permits issued to date by either the Executive Director or the Coastal Commission for spill characterization, containment or remediation;
- current ongoing Avila Beach oil spill remediation activities; and
- future Avila Beach oil spill remediation activities and coastal development permitting requirements.

Since 1992, the Coastal Commission staff has been actively involved in oil spill assessment and remediation operations at Avila Beach. To date, the Commission's Executive Director has issued to Unocal two emergency permits and two administrative permits, and the Commission

has approved five coastal development permits ("CDPs") for the characterization, containment or cleanup of the large subsurface petroleum hydrocarbon plumes underlying the community of Avila Beach (See Exhibit 6, "Avila Beach CCC Permit Record"). Unocal is currently excavating the main plume under the town and beach.

2.0 Background

2.1 Project Location

The community of Avila Beach is located on the coastline of San Luis Bay between the cities of Morro Bay and Pismo Beach, approximately eight miles west of State Highway 101. The town is bordered to the south by the Pacific Ocean, to the east by the Unocal Avila Tank Farm facility and the coastal bluffs at Fossil Point, and to the north and west by the San Luis Creek and Estuary. Further west lie the Unocal Pier and Port San Luis. (See Exhibit 1, "Avila Beach Location" Map)

2.2 Coastal Commission Permit Jurisdiction

The area of the Coastal Commission's retained, or original, permit jurisdiction is the union of the extent of public trust lands and the extent of tidelands and submerged lands.¹

For all permits issued up until June 8, 1998, the Commission claimed retained permit jurisdiction for the western portion of the Avila Beach community, just west of San Miguel Street. The eastern portion fell within the County of San Luis Obispo's permit jurisdiction under its certified Local Coastal Program ("LCP"), but remained within the Commission's appeal jurisdiction.

On June 8, 1998, the Coastal Commission adopted the revised map of post-LCP certification jurisdiction for the Pismo Beach quadrangle (map 107). The revised map incorporates changes to all properties affected by the State Lands Commission's 1970 Boundary Line Agreement No. 119. Per this revision, the public trust boundary is changed such that the western portion of the community falls under San Luis Obispo County's jurisdiction, although the Commission retains appeal jurisdiction.

Exhibit 2, "CCC Jurisdiction Map," shows the revised areas where the Commission retains permit authority pursuant to Public Resources Code (PRC) §30519(b) and §30613, and where appeals of local government CDP approvals are allowed pursuant to PRC §30603(a)(1) and (2) within the Avila Beach area of San Luis Obispo County.

Because the revised boundary was immediately effective upon its adoption, it governs the permits issued for the overall remediation at Avila.

¹ The extent of tidelands and submerged lands is based on the "mean high tide line." Because this is an ambulatory line, maps depicting the Commission's retained and appeal jurisdiction cannot precisely show this boundary.

2.3 History of Oil Handling Operations

Petroleum hydrocarbon storage and transfer activities were conducted in the Avila Beach area from the early 1900's until 1997. Gasoline, diesel, gas oil (a semi-refined product similar to diesel) and crude oil were pumped between Unocal's bluff top tank farm and the Unocal Pier through a network of underground pipelines that run beneath Front Street and Avila Beach Drive. Unocal discontinued the tank farm and terminal operations in 1997.

3.0 Project History, including Coastal Commission Involvement

3.1 Discovery of Contamination

In 1989, petroleum hydrocarbon contamination in soil and groundwater was discovered during a routine geotechnical survey for a commercial building permit. Since then, Unocal has conducted assessments under the direction of the Central Coast Regional Water Quality Control Board ("RWQCB") to evaluate the contaminants' extent and composition.

The contamination was first thought to comprise two distinct plumes, a smaller plume (the "west plume") at the west end of the beach adjacent to San Luis Creek, and a larger plume (the "main plume") under the developed portion of the town. Subsequent subsurface investigations have further defined the extent of the contamination, revealing the plumes are actually connected. A more current extent of the known gasoline-, diesel-, and crude oil-grade hydrocarbons underlying the town (particularly along and in the vicinity of Front Street), beach areas, and intertidal areas is shown in Exhibit 3, Avila Beach "Plume Areas" Map. The hydrocarbons are contained both above and below groundwater, and within the soil. Contamination has been identified at depths ranging from 0.5 ft. at the far west end of the beach to 59 ft. near San Rafael Street.

The contamination is reportedly caused by leaks from Unocal's pipelines from the early part of this century to the mid 1970's. The lines carried regular, super and unleaded gasoline; diesel; no. 4 fuel oil; crude oil; and ship ballast material. According to Unocal, the suspect pipelines have since been repaired or removed from service.

3.2 Soil Vapor Extraction System

On March 16, 1992, the RWQCB determined that the contamination posed "an imminent threat to groundwater quality and a potential threat to people or property due to explosion and fire." In response, the Commission's executive director issued Emergency Permit No. E-92-3-G to Unocal on March 27, 1992, to install and operate six soil vapor extraction ("SVE") wells and convert nine former groundwater monitoring wells to SVE wells. The project includes 15 wells within the Commission's retained permit jurisdiction, which are part of a larger vapor extraction system that extends into San Luis Obispo County's jurisdiction. The Commission issued a

follow-up regular permit, CDP No. E-93-15, in September, 1993, and an amendment (No. E-93-15-A) authorizing the addition of five additional SVE wells to the existing system in May, 1994.²

3.3 RWQCB Requires Cleanup Plan and Sets Groundwater Cleanup Standards

In September, 1994, the RWQCB issued Cleanup or Abatement Order ("CAO") No. 94-85 which required Unocal to:

- Submit a workplan to evaluate potential environmental and health risks associated with the petroleum contaminated soils, and a report documenting the results of said assessments;
- Clean soils and ground water to the following levels: Soil at 100 parts per million total petroleum hydrocarbons ("ppm TPH") and groundwater at 1 ppm TPH;
- Submit a ground water cleanup plan, and implement said plan until prescribed cleanup levels are attained;
- Submit a soil cleanup plan with implementation time table; and
- Submit quarterly monitoring reports to the RWQCB's executive officer to verify progress toward prescribed cleanup levels.

Unocal began site characterization and prepared a Remedial Action Plan ("RAP") that served as the cleanup proposal that started the California Environmental Quality Act ("CEQA") review process. In March, 1995, the RWQCB reconsidered the cleanup levels, leaving the groundwater cleanup level in place, but suspending the soil cleanup level until the RWQCB could comply with provisions of the CEQA. The RWQCB determined that for the purpose of CEQA review the preferred soil cleanup level would be 100 ppm TPH.

3.4 West End Excavation

On October 13, 1995, the County of San Luis Obispo Division of Environmental Health issued a letter to Unocal stating "an imminent threat to public health exists because of the probable erosion of remaining sand coverage (approximately 2.5 feet) over the western hydrocarbon plume adjacent to the bridge." On October 19, 1995, the RWQCB issued CAO No. 95-89 which required Unocal to proceed immediately with soil and groundwater remediation activities at the west end of Avila Beach.

In response, the Commission's executive director issued Emergency Permit No. E-95-16-G to Unocal on November 13, 1995, to excavate the portion of petroleum hydrocarbons adjacent to San Luis Obispo Creek that posed an "imminent threat" of release if exposed by winter weather conditions. Unocal removed approximately 2,300 cubic yards of overburden, and recovered

² Unocal estimates that as of June, 1998, the SVE system has removed nearly 25,000 pounds (4,000 gallons gasoline equivalent) of hydrocarbons through vapor extraction and 518,000 pounds (67,000 gallons diesel/crude equivalent) of hydrocarbons through biodegradation.

approximately 5,200 cubic yards of contaminated soil and free product. Unocal completed excavation activities in January, 1996.

The northeastern sheet pile wall (which was used to shore the excavation) and a high-density polyethylene ("HDPE") curtain (placed in the excavation against the wall) were left in place as a barrier to soil and groundwater contamination located hydraulically upgradient of the excavation, to block the flow of upgradient contamination from returning to the west plume area.

The follow-up regular permit was to address remediation of the contamination remaining under the sandy beach area. Therefore, application for such permit was deferred pending completion of the EIR/S and further delineation and characterization of the plumes. Unocal's proposal for overall remediation served as the follow-up permit for the west end excavation. Pursuant to the Commission's adoption of the revised jurisdiction map on June 8, 1998, San Luis Obispo County processed the follow-up permit for the west end excavation.

On March 13, 1996, the Coastal Commission issued CDP No. E-96-04 to Unocal to install three temporary monitoring wells to evaluate the effectiveness of the sheet pile wall/HDPE curtain barrier. The wells were placed per a January 30, 1996 order by the RWQCB.

3.5 Start of Preparation of an Environmental Impact Report ("EIR") / Site Assessment and Spill Characterization

The RWQCB and the County of San Luis Obispo have acted as co-lead agencies under the CEQA to prepare an EIR that would provide a comprehensive description of the underground petroleum hydrocarbon contamination, suggest various alternatives for the overall cleanup, evaluate the proposed project and select alternatives, and recommend a final course of action.

Unocal funded an independent site assessment as the initial component of the EIR that included review of existing data, identification of data gaps, and field investigation to close those gaps. To implement the site assessment workplan, which included installing ten groundwater monitoring wells, the Coastal Commission granted to Unocal CDP No. E-96-15 on May 7, 1996.

On February 20, 1997, the Commission's executive director issued Administrative Permit No. E-97-02 to Unocal to install and operate temporary monitoring well/piezometer clusters on beach areas to gather the data necessary to evaluate the potential for discharge of hydrocarbon-contaminated groundwater to the intertidal zone. The executive director authorized two minor amendments to this permit, which were reported at the Commission's May and July, 1997, meetings.

On July 24, 1997, the Commission's executive director issued Administrative Permit No. E-97-12 to Unocal to collect soil and groundwater samples on sandy beach and intertidal areas as part of an overall effort to characterize fully the extent of contaminated soil and groundwater and to assess the possibility that the contamination could be released into surface waters. In particular, this permit allowed Unocal to address data gaps identified by the RWQCB.

The Commission's executive director also issued two waivers, E-97-13-W and E-97-14-W, to the County of San Luis Obispo Health Agency to conduct sampling activities as part of the Avila Beach Health Study. Issued August 8 and September 3, 1997, the waivers allowed the Agency to collect soil gas samples, and drill and sample soil borings on sandy beach areas.

3.6 Discovery of Contamination in the Intertidal Zone

Unocal discovered additional hydrocarbon contamination in the intertidal zone in December, 1996, which remains submerged except during the periods of extremely low tide. Although the seaward extent of this intertidal plume has not yet been determined, it extends seaward along the pier to at least a distance of 400 feet south of Front Street with TPH concentrations as high as 63,000 ppm. The southernmost sample, located at an elevation of -2.7 mean sea level and depth of approximately 5 to 6 feet, showed a concentration of 42,000 ppm TPH.

3.7 Sand Augmentation

A special condition of Emergency Permit No. E-95-16-G requires Unocal to ensure that at least four feet of sand cover exists over the hydrocarbon plume on beach areas to prevent it from "daylighting." Unocal's April, 1996, survey showed less than four feet of sand cover on the east side of the beach, triggering Unocal to evaluate various sand augmentation alternatives. In addition, the RWQCB issued CAO No. 96-42 on August 27, 1996, which directed Unocal to implement an interim plan to reduce the risk of releasing petroleum hydrocarbons to the marine environment during the winter of 1996-97.

The Port San Luis Harbor District conducts semiannual dredging as part of normal operations. Dredging activities at the harbor are authorized under existing permits. Unocal proposed to coordinate with the harbor district to dredge sand from the boat launching area for use as the sand augmentation source. Unocal also considered proposals that contained alternative sand augmentation sources. To this end, the Coastal Commission granted CDP No. E-96-22 to Unocal, authorizing up to five sand augmentations from alternative sand sources during the winter season.

In October, 1996, Unocal placed harbor dredge sand over the plume, thus satisfying both the special condition of Emergency Permit No. E-95-16-G and CAO No. 96-42.

On August 22, 1997, the Commission's executive director issued to Unocal Immaterial Amendment No. E-96-22-A1 to authorize sand import and beach augmentation activities through an additional storm season.

3.8 Completion of an Environmental Impact Report and Statement ("EIR/S"); Identification of the "Least Environmentally Damaging Practicable Alternative"

The Draft EIR was circulated for public review on May 14, 1997. During the public comment period, the U.S. Army Corps of Engineers ("ACOE") determined that an EIS would be necessary

under the National Environmental Policy Act ("NEPA"). The Draft EIR was therefore amended to include analysis required by NEPA, and a Draft EIR/S was circulated for public review on November 14, 1997. The final EIR was certified by the County of San Luis Obispo Planning Commission on February 26, 1998, and the final EIR/S was certified by the RWQCB on April 3, 1998.

Unocal's proposed project included solidifying³ beach areas around the pier, biosparging⁴ west beach areas, biosparging and vapor recovery under Front Street and areas north, and excavating limited beach areas on the east side. The EIR/S concludes, however, the least environmentally damaging practicable alternative is phased excavation of all areas except the intertidal. This alternative was found to have the fewest impacts on the environment because it avoids or minimizes significant long-term impacts to water quality, public safety, recreation, socioeconomics, marine water quality, and biological resources. In addition, excavation of the beach area plumes was found to be relatively cost-effective when compared to solidification.

The final EIR/S also concludes that it is premature to identify a preferred alternative for the intertidal zone due to the uncertainty of the plume's extent and potential effects on marine biological resources.

3.9 Cleanup or Abatement Order No. 98-37

At its April 3, 1998, meeting, the RWQCB directed its Executive Officer to sign and issue CAO No. 98-37. This order (1) establishes soil cleanup levels, (2) adopts performance goals, and (3) requires that much of the contamination be remediated by excavation. The order requires Unocal to commence and complete remediation by December 1, 1998, and December 1, 2000, respectively.

Hydrocarbon Mass Balance and Impacts to Ground and Surface Waters

The order summarizes that the following approximate quantities of petroleum hydrocarbons reside in soil beneath Avila Beach: 420,000 gallons reside beneath the beach, Front Street and areas north, and within the intertidal plume and several outer plumes (e.g., San Antonio, San Juan Avenue, etc.). Petroleum products are intermixed in the subsurface into three hydrocarbon ranges--6% gasoline, 80% diesel, and 14% crude oil--the mass quantities of which are

³ Solidification is a process by which the sediment and hydrocarbons are mixed with concrete to form a solid structure that will stabilize the hydrocarbons and reduce their interaction with the surrounding environment.

⁴ Biosparging is a process by which air is introduced to the subsurface below the contamination, through vertical or horizontal wells, to promote the growth of aerobic microorganisms which could degrade dissolved-phase and separate-phase hydrocarbons. As the injected air sweeps upward through the affected soil and groundwater, volatile compounds may convert from a liquid to a vapor phase, vent to the surface, and be captured in a vapor recovery system. In addition, nutrients can be added through the biosparging wells to increase biological activity in the plume area and thus the efficiency of the remediation.

Remediation experts from the U.S. Environmental Protection Agency noted at a recent Avila Beach site visit that biosparging is a "polishing" cleanup method that would not be very effective in remediating the high concentrations of crude and diesel contamination found under Front Street and the town.

approximately distributed geographically as follows: 28% Front Street, 26% north of Front Street, 7% intertidal, 39% beach, and 0.3% outer plumes.

The order states that substantial evidence indicates hydrocarbons in soil, both in the saturated and unsaturated zone, are providing a continuous source of water quality degradation to ground and surface waters.

Establishment of Soil Cleanup Levels

The order establishes a soil cleanup level of 100 ppm TPH, which will achieve the groundwater cleanup level that was previously established at 1 ppm TPH.⁵

Remediation

Remediation will be completed by excavating Avila Beach (east and west of the pier and under Front Street), properties north of Front Street, and the San Antonio Street Plume. The order requires remediation of the East Front Street Plume by natural bioremediation and requires Unocal to monitor the bioremediation progress. (See Exhibit 4, "Current Hydrocarbon Soil Plume Map")

Deferred Areas

The order does not address remediating the Avila Terminal Facility (Unocal's tank farm facility), the intertidal zone plume, the San Luis Creek plume, the west of San Luis Obispo Creek pipeline plume, the former loading station plume, and any other soil contamination that is discovered through future site characterization efforts. (See Exhibit 4, "Current Hydrocarbon Soil Plume Map") Establishing cleanup levels for these areas has been deferred until the completion of additional studies and further site characterization, and may be addressed in a future CAO.

Excavation Standards

Although excavation will not immediately achieve the 100 ppm TPH soil cleanup level mandated in the order, excavation will remove such a high percentage of the mass of petroleum waste that natural bioremediation is expected to achieve the cleanup level in a relatively short period of time.

Additional Site Assessment

The order also requires Unocal to undertake additional site assessment work, such as at the intertidal plume, as determined necessary and approved by the RWQCB's Executive Officer to fully characterize the horizontal and vertical extent of hydrocarbon contamination.

3.10 Settlement Agreement and Judgment

In 1998, a settlement agreement and judgment were entered into by the California Department of Fish and Game ("CDFG"), the RWQCB, the County, Communities for a Better Environment

⁵ CAO No. 94-85, ratified by the RWQCB on March 10, 1995, established a 1 ppm TPH cleanup level for groundwater.

("CBE"), Avila Alliance, Environmental Law Foundation ("ELF"), and Unocal. This agreement became public on June 25, 1998.

In signing the agreement, Unocal agreed to remediate the town and beach areas by excavation rather than pursue its original proposal to combine solidification, biosparging, vapor recovery, and excavation.

The settlement agreement also establishes three provisions through which Unocal will mitigate adverse impacts to public access and recreation:

1. Section 5.3(a)(2) of the settlement agreement provides that of \$6,000,000 placed into the Avila Beach Restoration Trust, \$3,500,000 shall be used as follows:
\$3,500,000 shall be used for restoration projects relating to lost use and enjoyment of natural resources, public beaches, and other public facilities in the Avila area impacted by the oil release. DFG shall make the final determination as to which projects will receive funding, based on input and proposals from the County, the Community Services District, CBE, Avila Alliance, ELF, Port San Luis Harbor District, and other interested Parties.
2. Section 5.4 of the settlement agreement provides for Unocal to transfer ownership of three parcels for the purpose of creating community parks. Unocal shall also expend up to \$500,000 to design and construct the parks to specifications agreed upon by the County and Unocal.
3. Section 5.5 of the settlement agreement provides that Unocal shall expend up to \$3,500,000 to complete the design and implementation of the "Front Street Enhancement Project," the conceptual plan for which was approved by the Coastal Commission in 1997 via Minor Amendment No. 3-96 to the local coastal program.

The settlement agreement further provides in Section 5.3(a)(1) that \$2,500,000 be used for studies concerning impacts to biological resources in the marine environment and restoration projects relating to injuries to biological resources impacted by the oil release at Avila Beach.

3.11 Appeal No. A-3-SLO-98-072

San Luis Obispo County Planning Commission Action

On June 25, 1998, the San Luis Obispo County Planning Commission adopted the resolution approving Unocal's coastal development permit application/development plan (File No. D940227D) to clean-up petroleum hydrocarbon contamination in Avila Beach via excavation, remove abandoned pipelines, move or demolish buildings and facilities to facilitate cleanup, continue site characterization activities, and authorize previous clean-up and protective activities approved by coastal emergency permits.

Pursuant to Unocal's project description of June 2, 1998, the Planning Commission considered excavation of the beach and town in two phases, west side then east side, which would have allowed a portion of the beach to remain accessible during excavation to the extent "reasonable and safe."

The Planning Commission also authorized implementation of the Front Street Enhancement Plan as a part of site restoration. The plan provides for street facilities and improvements (e.g., crosswalks, handicapped facilities, parking, drainage, loading spaces, lighting, and trees), restrooms, a beach observation deck and performance area, and beach access. The Coastal Commission approved the Front Street Enhancement Plan in concept in 1997 via Minor Amendment No. 3-96 to the LCP.

Coastal development permit/development plan D940227D does not include reconstruction of buildings except for the seawall, the public restrooms on the east side of Front Street that are proposed as part of the Front Street Enhancement Plan, the pier, and existing structures on the pier (the Yacht Club building will have been only temporarily relocated).

Appeal by Coastal Commissioners Wan and Reilly

As part of its package of measures to mitigate impacts to (a) public access and recreation, and (b) low-cost visitor-serving uses and facilities, San Luis Obispo County required Unocal in Condition No. 73 of its June 25, 1998 action, to execute the settlement agreement.

On July 16, 1998, Coastal Commissioners Wan and Reilly filed an appeal of the Planning Commission's decision. The appellants contended that the development as described in Unocal's coastal development permit application/development plan (File No. D940227D) and as approved on June 25, 1998, by the San Luis Obispo County Planning Commission did not conform to the County's certified LCP policies concerning public access, recreation, and low-cost visitor serving facilities, and Coastal Act policies concerning public access for the following reasons:

1. Nonconformity with certified LCP policies concerning public access and recreation and Coastal Act policies concerning public access.

The appellants contended that although said agreement provides that Unocal expend \$3.5 million for restoration projects relating to lost use and enjoyment of natural resources, public beaches, and other public facilities in the Avila area, it does not provide the level of specificity necessary to enable a determination to be made that impacts will actually be mitigated in a timely manner, and thus that the proposed project conforms with certified LCP public access and recreation policies or Coastal Act public access policies, for the following reasons:

- Specific acquisition or access measures or projects are not identified;
- Criteria that will be used to select measures or projects are not included;

- Project commencement or completion dates, or criteria on when projects will be implemented, are not addressed; and
- No assurance that appropriate measures or projects will be funded, will be adequate, or will be implemented in a timely fashion is made.

Second, on July 1, 1998, after the County Planning Commission approved coastal development permit/development plan D940227D, Unocal changed its project implementation plan to conduct the work in three phases.

The appellants thus further contended that a change proposed by Unocal to the project description concerning project timing and beach closure reinforced the appellants' allegation that the mitigation contained in the County's approval did not conform to said policies, especially considering that Unocal proposed the change after the County Planning Commission had rendered its decision.

2. Nonconformity with certified LCP policies concerning low-cost visitor-serving facilities.

The County Planning Commission adopted findings that with implementation of mitigation measures addressing socioeconomic impacts that are provided in the conditions of approval the proposed project is consistent with Urban Area Standard No. 5 in the San Luis Bay Local Coastal Plan, which addresses low-cost visitor-serving facilities.

The appellants' contended that the County's conditions of approval including the settlement agreement did not provide the level of specificity necessary to enable a determination to be made that mitigating measures for the loss of low-cost visitor serving facilities are commensurate with the impacts, and thus that the proposed project conforms to Urban Area Standard No. 5 in the LCP.

Withdrawal of Appeal

On September 16, 1998, Commissioners Wan and Reilly withdrew their appeal based on the following factors:

- On August 27, 1998, the San Luis Obispo County Planning Commission adopted revised conditions of approval to Unocal's coastal development permit/development plan (No. D940227D) as agreed on by the Coastal Commission, the County and Unocal to address the certified LCP and Coastal Act issues raised in the appeal, and said action was not appealed to the Board of Supervisors; and
- On September 16, 1998, the Coastal Commission entered into a Memorandum of Understanding ("MOU") with the CDFG's Office of Spill Prevention and Response ("OSPR") that specifies how and when the public access, recreation and marine biological settlement agreement mitigation monies will be spent. Specifically, the MOU contains

- Criteria for the CDFG/OSPR to use in selecting public access and recreation enhancement projects under the terms of the settlement agreement that will be reasonably certain to mitigate the impacts of Unocal's remediation project on coastal public access and recreation. Specifically, the projects must be (a) of benefit to the Avila Beach area and (b) provide substantial improvements for public beach use, coastal access and/or public visitor-serving facilities;
- An agreement that CDFG/OSPR will consult closely with the Coastal Commission and its staff in selecting projects to be funded in accordance with the criteria specified in the MOU; and
- An agreement that by December 1, 2000, CDFG/OSPR shall have granted approval of all projects to be funded, and that said projects shall include an expeditious implementation schedule and in no case shall be completed later than December 1, 2002, unless extended by written agreement between the parties.

As voted on at its August 12, 1998, hearing, the Commission concurred with the appeal withdrawal contingent upon the above factors.

3.12 Excavation of Beach Areas

On September 8, 1998, the Coastal Commission granted CDP No. E-98-13 to Unocal to excavate the portion of the beach within the Commission's area of retained jurisdiction.⁶

Specifically, Unocal is authorized to temporarily remove a portion of the Avila Municipal Pier; temporarily install sheet pile wall on the beach; remove by excavation approximately 37,000 cubic yards of petroleum hydrocarbon contaminated silt and sand; and replace the contaminated material with clean imported sand. Work on the beach is scheduled to commence in early May, 1999. Unocal has satisfied all prior-to-issuance conditions of its coastal permit; thus CDP No. E-98-13 was actually issued on March 2, 1999.

4.0 Ongoing Remediation Activities

4.1 Three-Cell Approach

Unocal is conducting cleanup work in three phases (Exhibit 5, "Sheet Pile Wall/Cell Locations" Map shows the approximate boundaries of the three cells), each of which is or will be further divided into sub-cells:

- Cell 1 - Northwest Town: Bounded to the west by Avila Beach Drive, to north by an approximate diagonal between San Juan and San Miguel Streets, to the east by San Miguel

⁶ Regulatory authority to issue coastal development permits for development on the beach is split between the Coastal Commission's retained permit jurisdiction and the County of San Luis Obispo's direct permit jurisdiction pursuant to its certified Local Coastal Program.

Street, and to the south by a sheet pile bulkhead immediately inshore of the seawall. Unocal plans to conduct work in this cell between October, 1998, and May, 1999.

- Cell 2 – Beach: Bounded to the west by Avila Beach Drive, to the north by a sheet pile bulkhead immediately inshore of the seawall, to the east by San Luis Street, and to the south by a sheet pile bulkhead following the 100 ppm TPH contour at the seaward limit of the plume. Unocal plans to conduct work in this cell between April and October, 1999.
- Cell 3 - Northeast Town: Bounded to the west by San Miguel Street, to the north by First Street, to the east by San Luis Street, and to the south by a sheet pile bulkhead along Front Street. Unocal plans to conduct work in this cell between October, 1999, and May, 2000.

Unocal intends to complete all project activities before the 2000 summer tourist season even though the RWQCB's CAO No. 98-37 gives Unocal until December 1, 2000.

4.2 Remediation Progress Thus Far

In October, 1998, Unocal began cleanup activities at the tank farm site by grading and constructing a tent/canopy within which to stockpile the "clean" and "contaminated" soil. Unocal also began relocating the utilities in all three cells.

Excavation of the San Antonio Street plume was scheduled to begin in late October, 1998, but has been postponed until the end of the project due to the Health and Safety Plan's not having been final at that time.

In November, 1998, Unocal began demolishing buildings in Cell 1, the west town cell. Between six and eight structures have been torn down along Front Street between San Juan and San Miguel Streets (the actual number depends on how one counts; some structures were hooked together).

In December, 1998, Unocal started driving sheet pile in the town's west end, and has completed driving sheet pile in the first sub-cell (Cell 1A). In March, 1999, Unocal began excavating Cell 1A. Unocal is also conducting a rigorous archaeological survey in the entire western cell (Cells 1A and 1B), monitored by Chumash monitors.

Unocal has almost completed excavating Cell 1A, and has begun excavating overburden and driving sheet pile in Cell 1B. Unocal plans to begin work on Cell 2, the beach cell, in late April, 1999. Work on Cells 1B and Cell 2 will be conducted concurrently.

4.3 Problems / Issues

Although the cleanup project is proceeding fairly smoothly, some problems have occurred. First, Unocal discovered that much of the "clean" overburden from Cell 1A was contaminated with petroleum hydrocarbons. It is suspected the contamination comes from fill that was used many

years ago in the western portion of town to convert wetland areas for railroad and construction activities. Unocal has since removed this contaminated overburden and will replace it with clean imported sand.

Second, Unocal was temporarily out of compliance with its truck decontamination procedures (and thus out of compliance with permit conditions, and State and County health and safety regulations). Basically, contaminated soil was not being properly cleaned off trucks (particularly on their undersides and tires) when leaving the excavation and stockpile areas. Contaminated soil was then being tracked Front Street, and washed onto the beach and into the ocean by recent rains.

Because Unocal's contractor, Jacobs Engineering, did not correct the problem in a timely manner, the onsite monitor recommended that the project be shut down, and the Avila Fire Department issued a notice of violation. The RWQCB and the Air Pollution Control District ("APCD") considered similar action. The issue has since been resolved, however. Jacobs Engineering has proposed and implemented a decontamination system that considerably reduces the amount of soil tracked onto Front Street, and also limits truck tire contact with contaminated soil. The onsite monitor will continue to closely monitor truck decontamination procedures; the monitor's April 19, 1999, status report notes that decontamination problems have "improved markedly."

Third, there is significant concern amongst the agencies, consultants, and members of the public about the procedures Unocal's contractor is using to determine the appropriate time to backfill the excavation, and prevent recontamination of the backfill area. There is also concern that current excavation and dredging procedures are not adequately removing the contamination. Commission staff is working with the County and the RWQCB to remedy these procedures to ensure cleanup to the standards of the RWQCB's cleanup order. Staff is especially concerned about these issues because they arose when Unocal conducted the west end excavation in December, 1994. As of April 20, 1999, Unocal had made significant progress in addressing these issues to the RWQCB's satisfaction.

Finally, on Saturday, April 3, high winds—in excess of 60 mph—caused considerable damage to the canopy, covers and liners that protect the contaminated soil stockpiled at the tank farm. Fencing around Cell 1 and along the truck haul route was also damaged. The onsite monitor reported, however, that although dust was blowing at the site, no contaminated material was released because it was too wet and heavy to be blown by winds. Damage to most of the stockpile covers, fencing, and canopy was extensive and may take several days to repair.

4.4 Effects on the Community

Unocal has a relocation program in place for residents who are affected by the cleanup activities. Noise, for example, can be especially disturbing (particularly when driving the sheet pile), even though it has not exceeded any health thresholds.

There have been some complaints with the relocation program (e.g., vouchers were issued to hotels that were overbooked). To best remedy these complaints, the County is preparing a survey to gather the community's input on the program. Additionally, Unocal has upgraded its program to offer permanent relocation for the full 12-18 months of cleanup.

5.0 Ongoing Specific Planning Process

An Avila Beach Specific Plan is being developed to address reconstruction of the town. The community is heavily involved in the specific planning process, and has through a series of meetings been discussing various development issues (e.g., circulation, street scapes, building heights, land uses). Coastal Commission staff from the Central Coast office is also involved in this process, generating an awareness of the relationship between the specific planning process and Coastal Act requirements.

The consultant hired to facilitate the process (Design, Community and Environment) prepared a workbook on alternatives, through which participants express opinions and preferences regarding the various issues related to the redevelopment. Based on the responses received, and public input at numerous community meetings, the consultant recently prepared a preferred alternative, which is expected to be the basis of the Specific Plan. Following the upcoming environmental and local review of the Specific Plan, it will be submitted to the Coastal Commission for incorporation into the San Luis Obispo County certified Local Coastal Program. Coastal issues that will be addressed through this process include:

- Protecting and enhancing public access and recreation opportunities (e.g., parking, traffic and circulation);
- Maintaining the unique character of Avila Beach that makes it a popular recreational destination (e.g., development design, provision of lower cost visitor and recreational facilities); and
- Ensuring that shoreline redevelopment is sited and designed to avoid storm-wave and erosion hazards, and minimize impacts on natural and scenic resources.

6.0 Future Avila Beach oil spill remediation activities and coastal development permitting requirements

6.1 Specific Planning Process

As noted above, the next step in the specific planning process is to incorporate the preferred alternative within a Draft Specific Plan that will then be presented to the community, undergo environmental review pursuant to the California Environmental Quality Act, and be submitted for County and Coastal Commission review and approval. The staff estimates that Commission review of this plan will take place in the late summer/early fall of 1999.

6.2 Front Street Enhancement Plan

The Coastal Commission approved the Front Street Enhancement Plan in concept in 1997 via Minor Amendment No. 3-96 to the LCP. Implementation of the specific structures and activities will, however, require separate permits from the County (and will be in areas of the Commission's appeal jurisdiction).

Unocal plans implementation in two phases. Phase I includes raising the pier, pile, and Yacht Club building elevations two feet; constructing a new observation deck east of the pier, constructing a new Port San Luis Harbor District lifeguard office, restroom and shower facilities on the west side of the pier; and constructing a new bulk head beneath the lifeguard office, restroom and shower facilities. Phase II will include constructing a performance area and improvements proposed north of the seawall. Unocal has submitted its application for Phase I to the County.

6.3 Disbursement of Settlement Monies

The Commission staff is working with the OSPR to disburse settlement monies per the MOU. The staff will bring recommendations and proposals before the Commission for comment. Per the MOU, the OSPR shall have granted approval of all projects to be funded by December 1, 2000.

6.4 Deferred Areas

CAO 98-37 does not address remediating the Avila terminal facility (Unocal's tank farm facility), the intertidal zone plume, the San Luis Creek plume, the west of San Luis Obispo Creek pipeline plume, the former loading station plume, and any other soil contamination that is discovered through future site characterization efforts. (See Exhibit 4, "Current Hydrocarbon Soil Plume Map")

The Commission may become involved in the assessment and remediation of these deferred areas in the future. For example, any remediation of the intertidal zone plume will require a CDP from the Commission. The CDFG is currently taking the lead in determining next steps for the intertidal plume.

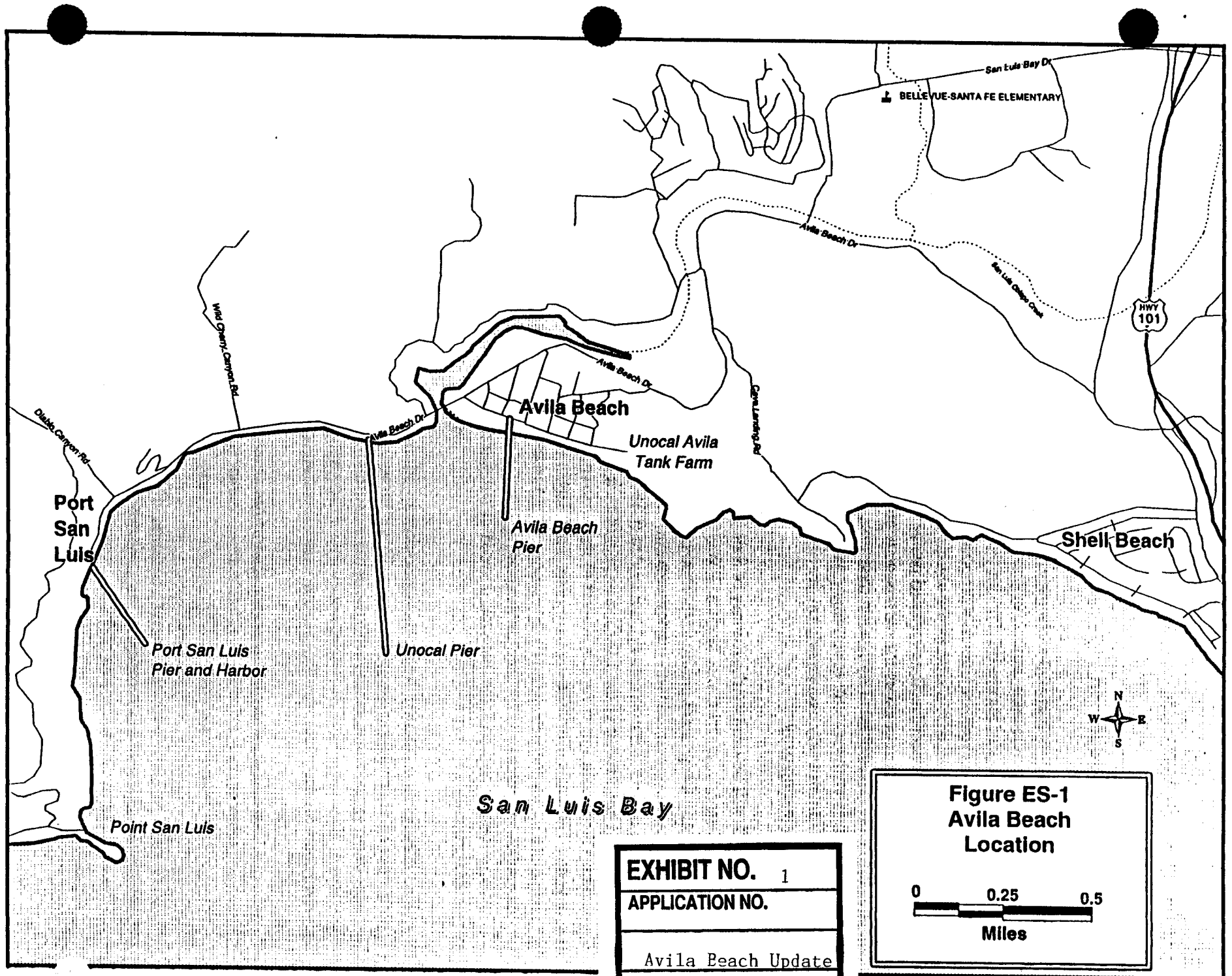


EXHIBIT NO. 1

APPLICATION NO.

Avila Beach Update

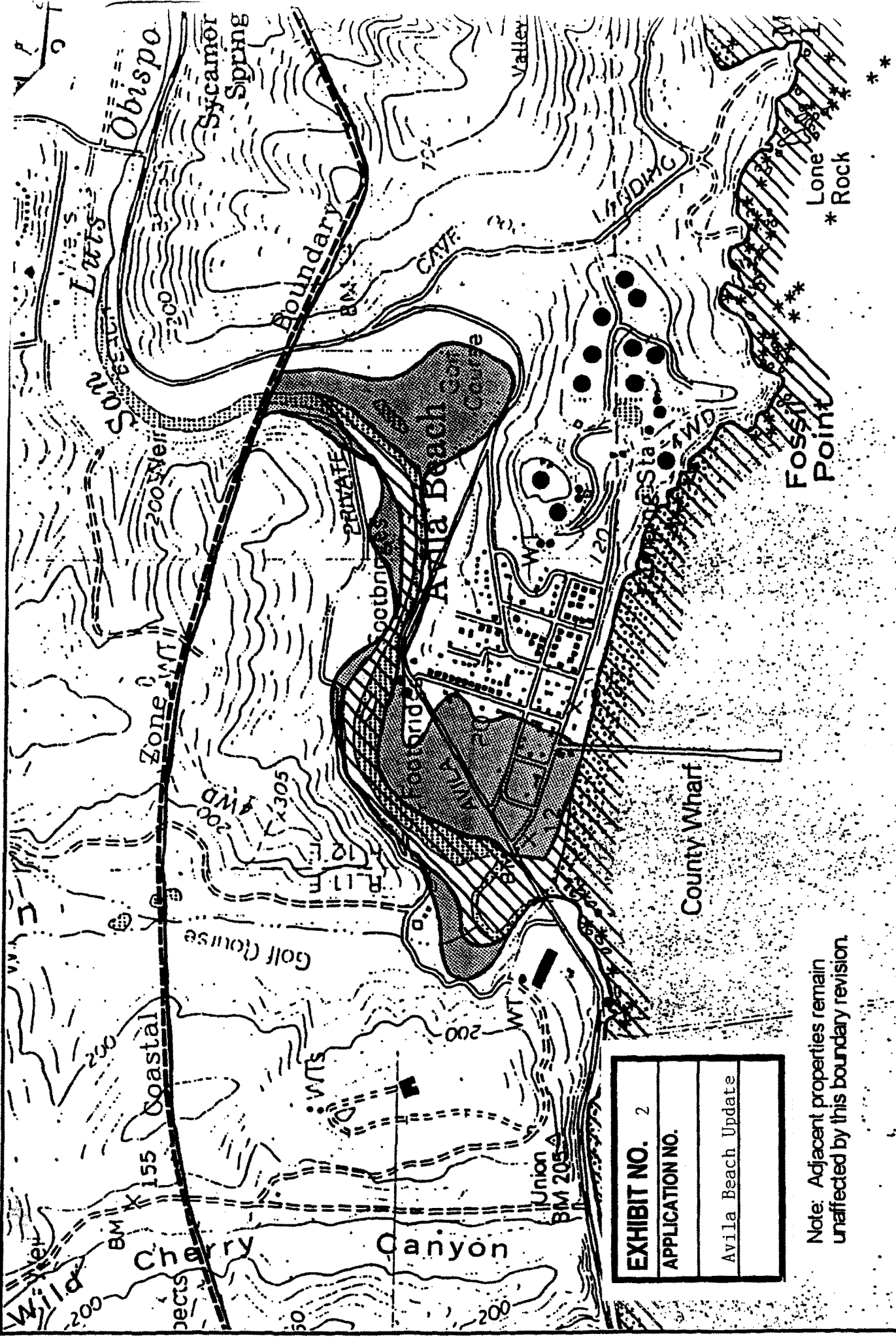


EXHIBIT NO.	2
APPLICATION NO.	
Avila Beach Update	

Note: Adjacent properties remain unaffected by this boundary revision.

Map Revision 2-98 San Luis Obispo Creek Avila Beach

Area remaining in
 Commission's permit jurisdiction

Area to be changed from
 Commission's permit jurisdiction
 to Commission's appeal jurisdiction



Base Map Source: Pismo Beach U.S.G.S. 7.5 quadrangle (#107)

EXHIBIT

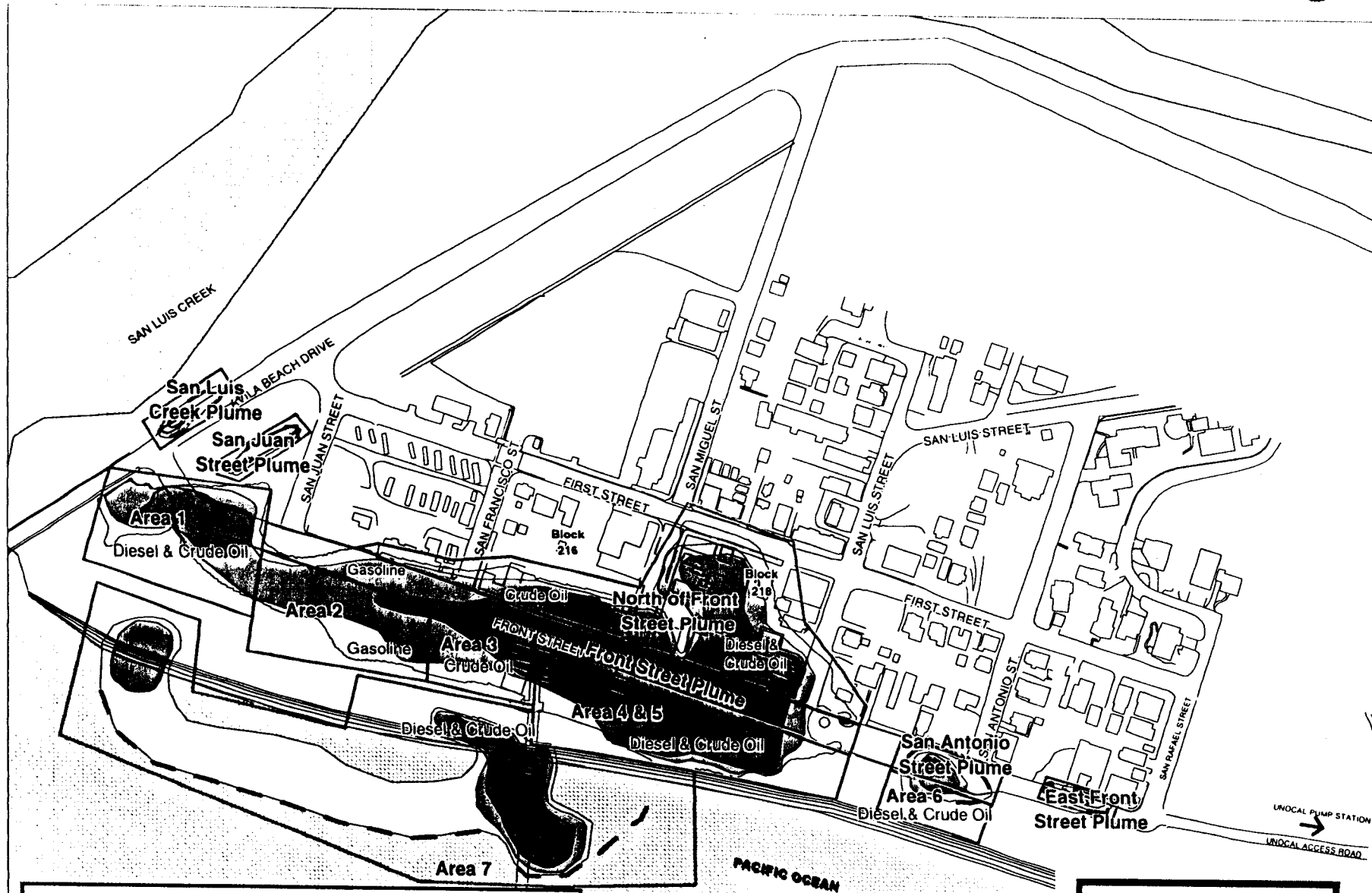
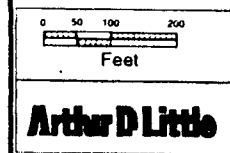


Figure ES-2 Plume Areas



Key	
	Soil TPH > 100 ppm
	Dashed Where Uncertain
	Soil TPH > 1,000 ppm
	Soil TPH > 10,000 ppm



EXHIBIT NO. 3

APPLICATION NO.

Avila Beach Update

Current Hydrocarbon Soil Plume Map

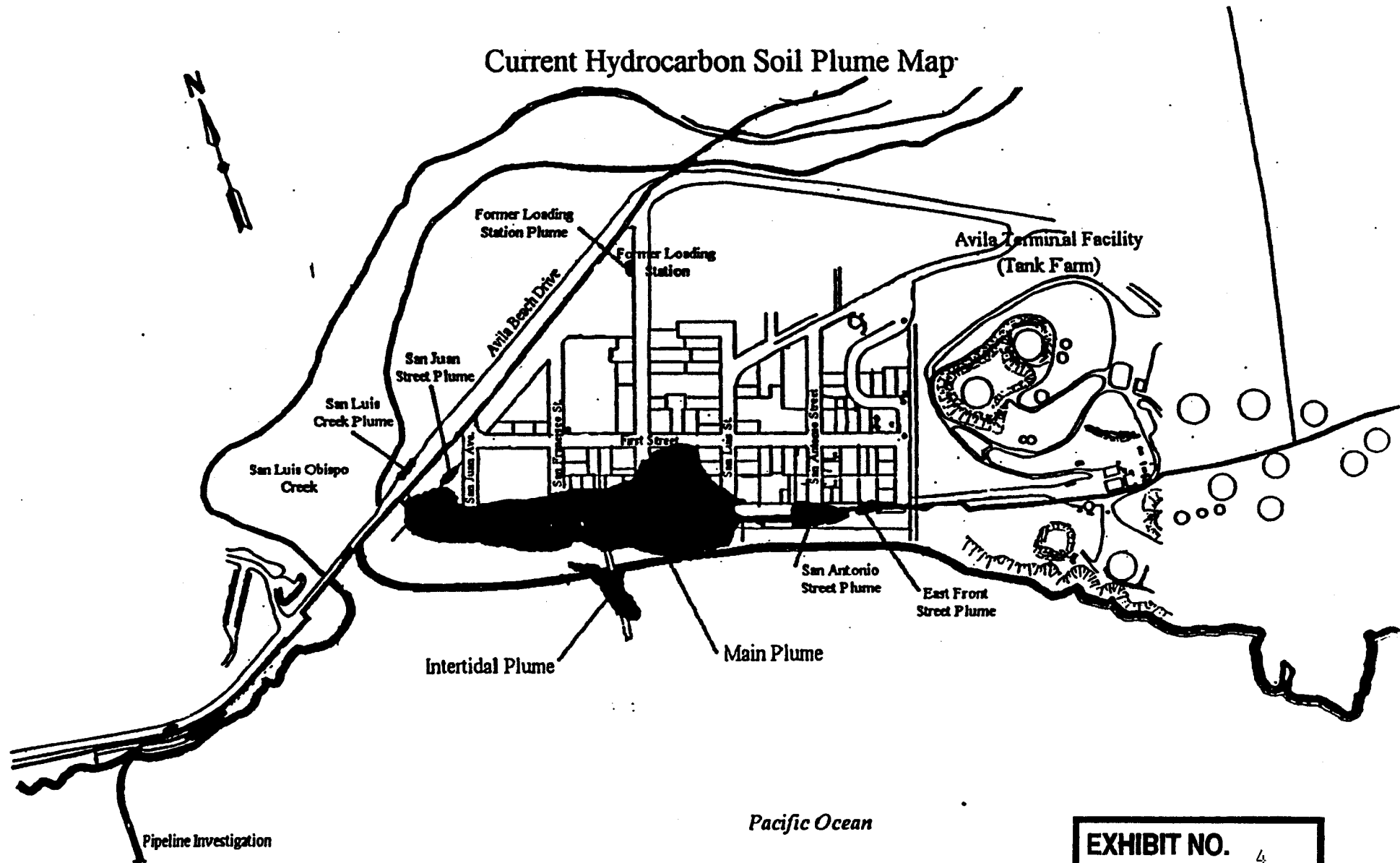
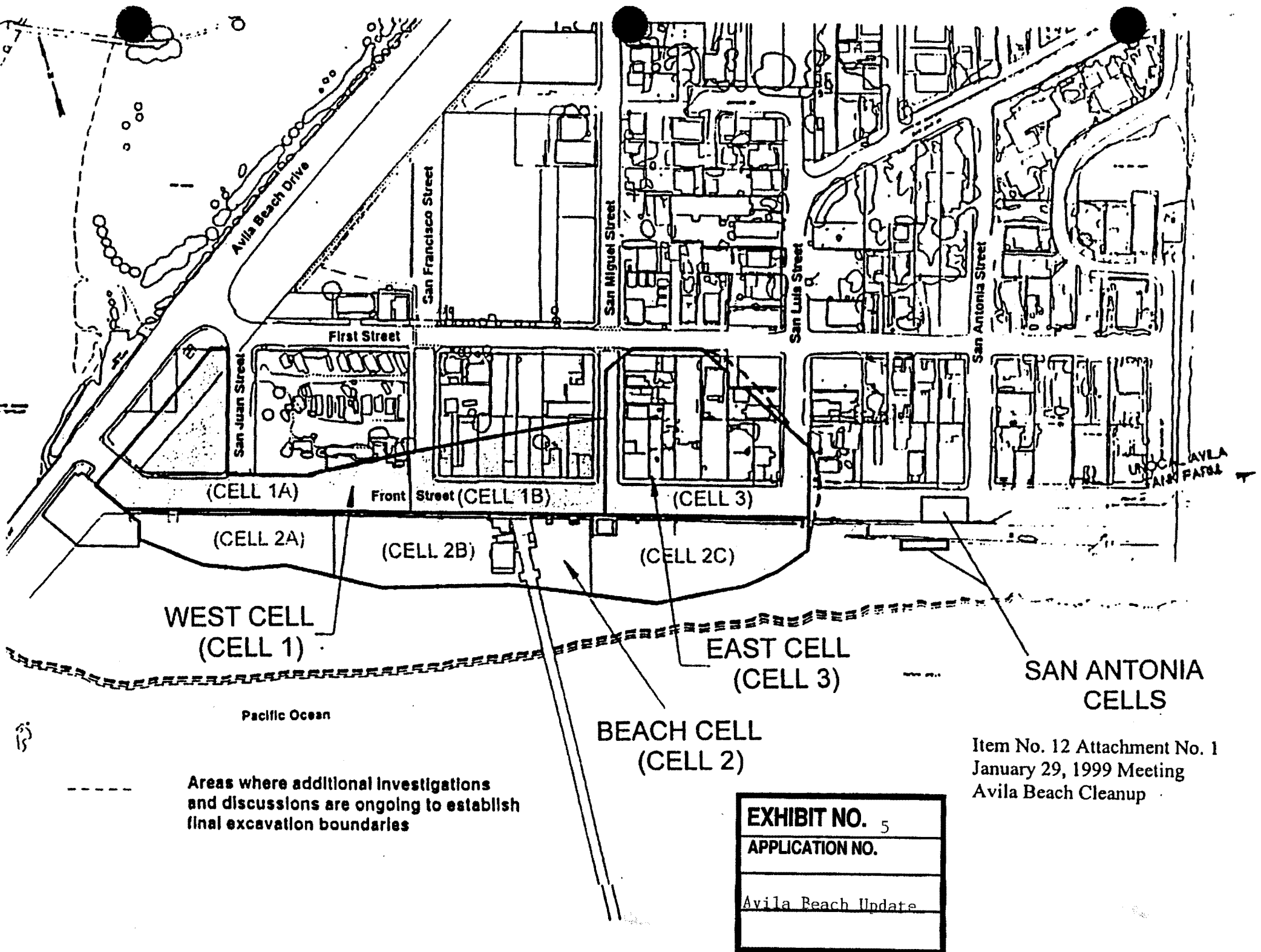


EXHIBIT NO.	4
APPLICATION NO.	
Avila Beach Update	



Coastal Development Permits or Waivers issued by the California Coastal Commission or its Executive Director
for activities at Avila Beach, San Luis Obispo County, as of April 1999.

Permit Number	Date Issued	Description	Trigger
E-92-3-G	March 1992	Emergency permit issued to Unocal for six vapor extraction wells.	
E-93-15	September 1993	Regular permit issued to Unocal as follow-up to E-92-3-G.	Follow-up to emergency permit
E-95-16-G	November 1995	Emergency permit issued to Unocal to excavate the west end of the beach. (Follow-up regular permit still outstanding; west end excavation activities will be incorporated into entire clean-up workplan)	Per Cleanup or Abatement Order (CAO) No. 95-89
E-96-4	March 1996	Regular permit issued to Unocal for three temporary groundwater monitoring wells.	Per 1/30/96 work order
E-96-15	May 1996	Regular permit issued to Fugro-West for ten temporary groundwater monitoring wells.	Initiated by SLO County and the RWQCB
E-96-22	November 1996	Regular permit issued to Unocal to import sand and augment the east end of the beach to prevent "daylighting." (for the 1996-1997 storm season).	Per E-95-16-G condition
E-97-02	Issued and Reported March 1997	Administrative permit issued to Unocal for eight temporary groundwater monitoring wells/piezometer clusters and three stilling pipes.	Per CAO 96-56
E-97-02-A1	Issued April 1997; Reported May 1997	Amendment issued to Unocal for changes in well/piezometer cluster locations, completion of piezometer installations, additional monitoring in the intertidal zone per CDFG orders, wellhead beautification, and change in monitoring report schedule.	Noncompliance with E-97-02 conditions; to conduct additional work

EXHIBIT NO. 6
APPLICATION NO.
Avila Beach Update

Coastal Development Permits or Waivers issued by the California Coastal Commission or its Executive Director
for activities at Avila Beach, San Luis Obispo County, as of April 1999.

Page 2

Permit Number	Date Issued	Description	Trigger
E-97-02-A2	Issued June 1997; Reported July 1997	Amendment issued to Unocal to extend work period necessary to install piezometers in temporary groundwater monitoring well/piezometer clusters.	Failure to complete work within initially-specified time window
E-97-12	Issued July 1997, Reported August 1997	Administrative permit issued to Unocal for periodic collection of (1) soil samples using a geoprobe rig or hollow-stem auger drilling rig, (2) groundwater samples using a geoprobe rig, and (3) groundwater samples from existing temporary monitoring wells.	To further characterize and assess the subsurface contamination
E-97-13-W	August 1997	Waiver issued to San Luis Obispo Health Agency to collect and analyze approximately 20 soil gas samples on beach areas as part of an ongoing health study.	Ongoing health study
E-96-22-A1	September 1997	Immaterial amendment issued to Unocal to authorize sand import and beach augmentation activities through the 1997-1998 storm season.	Per E-95-16-G condition
E-97-14-W	September 1997	Waiver issued to San Luis Obispo Health Agency drill and sample approximately 11 soil borings on beach areas as part of an ongoing health study	Ongoing health study
E-97-15-W	October 1997	Waiver issued to Unocal for temporary placement of five storage tanks on a parking lot, and temporary installation of auxiliary piping, in order to conduct pump/aquifer tests.	Per CAO No. 96-56
E-98-13	September 1998	Regular permit issued to Unocal to excavate approximately 37,000 cubic yards of petroleum hydrocarbon-contaminated silt and sand from beach areas, and replace with imported sand.	Per CAO No. 98-37

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

**RECORD PACKET COPY****W12b**

April 22, 1999

TO: Coastal Commissioners and Interested Parties

FROM: Susan M. Hansch, Deputy Director
Alison J. Dettmer, Manager, Energy & Ocean Resources Unit
Ellen Faurot-Daniels, Environmental Specialist, Energy & Ocean Resources Unit

SUBJECT: **Guadalupe Oil Field Cleanup and Restoration Status Report – May 1999**

Staff Note:

For last month's Coastal Commission meeting, Commission staff prepared a brief written history of the large oil spill at the site of the former Guadalupe oil field. Since 1992, the Coastal Commission has been actively involved in oil spill assessment and remediation efforts at Guadalupe. Cleanup of diluent-contaminated soil and groundwater, and the abandonment of the oil field's facilities, is now underway. Therefore, each month Commission staff will prepare for the Coastal Commission and other interested parties a short written status report on ongoing cleanup and abandonment activities at Guadalupe. For this month's status report we have also provided a history of the Coastal Commission's permitting efforts at the site to date.

This Status Report includes:

- *A discussion of sites within the Guadalupe Oil Field that fall within the original Coastal Commission permit jurisdiction;*
- *Past and future Coastal Commission permit actions at the Guadalupe Oil Field;*
- *Cleanup activities at the Guadalupe Oil Field, 14 April – 22 April;*
- *Interim protective measures proposed for the M4 area.*

1.0 Cleanup Begins

Unocal has completed much (although not all) of the site characterization necessary to quantify the extent of soil and groundwater petroleum-hydrocarbon contamination at the Guadalupe oil

field. To date, Unocal has identified 90 diluent plumes and 150 sump¹ areas. Each plume and sump is unique in terms of site, extent of contamination, type of habitat and wildlife impacts of concern, and proposed cleanup and restoration measures. While field-wide site characterization continues, cleanup and abandonment of sites already characterized has begun. The Regional Water Quality Control Board (RWQCB), in Cleanup or Abatement Order (CAO) 98-38, issued as amended November 6, 1998, directs Unocal to remediate first the 17 of the 90 plumes that are known to be or could be impacting surface waters, such as the Santa Maria River, wetland pond areas and the Pacific Ocean. The RWQCB refers to the cleanup of these 17 plumes as Phase 1. Phase 1 is divided into six stages. Of the 17 plumes, San Luis Obispo County has coastal development permit jurisdiction for 14 ½ of the Phase I sites and the Coastal Commission has original permit jurisdiction for 2 ½ Phase I sites (the entire 5X site, the entire A2A site, and half of the A5A site) (Exhibit 1).

Phase I activities are scheduled to take place from 1998 – 2003. The six stages are as follows:

Stage 1

- i. Excavation of separate-phase diluent plume M4 (partial), L11 (partial) to start by fourth quarter 1998 and be completed by the end of the fourth quarter 1999.
- ii. Biosparge wells to be installed and operational at M4, L11 and TB8 by March 31, 1999 or as soon after that date as excavation activities allow.
- iii. Land Treatment Unit at TB9.

Stage 2

- i. Excavation of separate-phase diluent at plume areas 5X and A2A North to start by fourth quarter 1999 and be completed by the end of the fourth quarter 2000.
- ii. Excavation of sumps in areas 5X, LeRoy 3, LeRoy 6, A2A, A1/2X and 8X to start by the fourth quarter 1999 and be completed by the end of the fourth quarter 2000.

Stage 3

- i. Excavation of separate-phase diluent at plumes M2, B12, C12 and TB1 to start by second quarter 2000 and be completed by the end of the fourth quarter 2000.
- ii. Excavation of sumps B12, C12, B2/B2A, TB1, B1A, B11, D14 and A13X to start by second quarter 2000 and be completed by the end of the fourth quarter 2000.

Stage 4

- i. Excavation of separate-phase diluent at plume areas A5A and C8 to start by fourth quarter 2000 and be completed by the end of the first quarter 2001.
- ii. Biosparge wells at C8/D8 to be installed and operational by March 31, 2001 or as soon after that date as excavation activities allow.

¹ A sump is a depression on the field that was used to catch and retain various types of waste products derived during previous oil drilling and extraction operations.

- iii. Excavation of sump A5 to start by fourth quarter 2000 and be completed by the end of the first quarter 2001.

Stage 5

- i. Excavation of separate-phase diluent at plume areas B2-3 and N12 to start by second quarter 2001 and be completed by the end of the third quarter 2001.
- ii. Excavation of sump B3/B3A to start by second quarter 2001 and be completed by third quarter 2001.

Stage 6

- i. Excavation of separate-phase diluent at plume areas C7(S) and B6 to start by fourth quarter 2001 and be completed by the end of second quarter 2002.

In December 1998, various plumes on the site were sampled and analyzed for the presence of non-diluent compounds. Polychlorinated biphenyls (PCBs) were discovered at low levels at the 5X, M4 and L11 sites, all of which were scheduled to be remediated in the first three stages of the project. Additional, compound-specific analyses have now been completed for the 5X site and will soon be completed for L11. Until the presence and concentration of PCBs and other compounds are determined with certainty, excavation of contaminated soil cannot proceed. Therefore, the CAO cleanup schedule has slipped. M4, for example, is now scheduled to be excavated during Stage 3 in the year 2000.

2.0 Past Coastal Commission Permit Actions

5X Plume

Since 1992 and prior to the RWQCB's issuance of CAO No. 98-38, a number of remedial activities have taken place at the Guadalupe oil field under emergency permits issued either by the County or the Coastal Commission.

The 5X site has been of particular concern to the Commission. In addition to being in the Commission's permit jurisdiction, 5X is one of the largest contaminated plume areas in the Guadalupe oil field, and is bordered by both the Santa Maria River and the Pacific Ocean. Diluent is known to have escaped and entered surface waters. Because of the size of the plume and its location, excavation, disposal and restoration of the site will pose unique problems.

In April 1994, the U.S. Coast Guard concluded that diluent from 5X was entering marine waters from the 5X well area and directed Unocal to secure all marine releases. Unocal proposed to excavate part of the 5X plume and install a wall barrier to prevent any future diluent releases to the marine environment.

In August 1994, the Commission's executive director issued to Unocal emergency permit E-94-12 to excavate an area 250 feet by 800 feet of diluent-contaminated soils and install a high density polyethylene (HDPE) wall (1000 feet long and 22 feet deep) on the beach to prevent further migration of diluent to the ocean. About 136,000 cubic yards of contaminated sand was

returned to the excavated pit and the beach was restored to its natural winter profile. Unocal recovered about 3,000 gallons of diluent during skimming operations from the groundwater lake in the excavation pit. Extraction wells were installed east of the wall to remove diluent that has mounded upgradient of the HDPE wall. Unocal also installed monitoring wells seaward of the HDPE wall to gauge the HDPE wall's effectiveness.

Sheetpile Protection Wall

In August 1995, the Santa Maria River migrated to within 40 feet of the HDPE wall. Due to the threat to the HDPE wall and the potential release of diluent to marine waters, the Commission's executive director issued to Unocal emergency permit E-95-13-G to install a temporary 370-foot long sheetpile wall on the beach to protect the HDPE wall. The wall was installed in December 1995. In June 1996, the RWQCB informed Unocal that recent survey results showed continued erosion of the beach at the north end of the sheetpile wall due to the continued northward migration of the river that could result in failure of the HDPE wall. The RWQCB directed Unocal to prepare a plan to extend the sheetpile wall. In October 1996, the Office of Spill Prevention and Response (OSPR) issued to Unocal a "Declaration of Imminent Threat" of a discharge to marine waters of diluent from the 5X plume due to the proximity of the river to the HDPE wall. In October 1996, the Commission's executive director issued to Unocal emergency permit E-96-2-G to extend the sheetpile wall 900 linear feet to the north and 400 linear feet to the southeast. In January 1997, the scour depth in the front of the southwest corner of the sheetpile wall greatly exceeded the wall's design specifications. The Commission's executive director approved emergency permit E-97-3-G to install steel H beam walers along 220 feet of the southwest corner of the sheetpile wall to reinforce its stability. Commission staff consolidated emergency permits E-95-15-G and E-96-2-G with E-97-3-G so that there is now only one emergency permit (E-97-3-G) for the sheetpile wall.

Excavation of A2A Plume

In the winter of 1997-98, strong storms and heavy runoff from the Santa Maria River caused extensive erosion along the north bank of the river mouth (100 feet of river bank eroded in just one night). To prevent the potential release of diluent from the nearby A2A plume and sumps, the Commission's executive director issued to Unocal emergency permit E-98-09-G to partially excavate the A2A plume and sumps.

3.0 County Of San Luis Obispo Coastal Development Permit / Development Plan D890558D and Coastal Commission Appeal

After the RWQCB issued to Unocal CAO 98-38 to start the cleanup of 17 of the 90 known plumes at this site, San Luis Obispo County approved CDP/DP D890558D in September 1998 for the remediation of the 14 ½ plumes that are within its permitting jurisdiction. On October 19, 1998, Coastal Commissioners Areias and Wan appealed the County's approval based on issues of conformity with LCP and Coastal Act policies regarding public access, environmentally sensitive habitats, geologic hazards, shoreline processes, and other coastal resource policies of

the LCP and Coastal Act. On November 4, 1998, the Commission opened the substantial issue hearing and continued the hearing open until December 1998. Commission staff worked closely and cooperatively with Unocal and San Luis Obispo County and the Regional Water Quality Control Board to develop a package of recommended conditions/revisions to address Coastal Act and LCP issues raised by the appellants. The Commission reviewed the revised package of County permit conditions at its December 1998 meeting. The County subsequently approved the revised package at its December 10, 1998 meeting. After the County approved the revised set of permit conditions, Commissioners Wan and Areias withdrew their appeals. The County's permit contains 252 conditions of approval. The County's permit conditions specify numerous responsibilities for Commission staff in review of steps in the clean-up and restoration process, ensuring ongoing Commission oversight and involvement.

4.0 Future Coastal Commission Permitting

Unocal's permit application for the 21/2 plumes within the Coastal Commission's original permit jurisdiction, including excavation of the 5X plume, is still incomplete, pending receipt of the test results for PCBs and other non-diluent compounds. The results of the tests could cause Unocal to amend its project description if different handling or contaminated soil disposal methods are necessary. For example, if wastes are deemed too toxic to be treated on site and reused, there will be significant changes in the number of truck trips to certified off-site waste disposal facilities, and handling of stockpiles, sources of backfill materials and excavation schedules will require substantial revision.

5.0 Interim Protective Measures At Site M4

As stated earlier in this report, excavation of the M4 plume has been deferred until Stage 3 due to the need to evaluate further the presence of PCBs at the site. In the meantime, during the spring of 1998, as a result of a very wet winter the preceding year, hydrocarbon-affected groundwater surfaced at the M4 site. Unocal took precautions to isolate the area from wildlife by installing fencing and bird netting, and began pumping the surfaced groundwater from the site, hoping that it would recede as the pumping activities progressed into the drier summer season. Pumping of the diluent-affected surface waters ceased at M4 when PCBs were found to contaminate it.

As of March 1999, exposed diluent pools at M4 have grown to the point where fencing and netting no longer offer adequate protection to wildlife that may enter the area. Since excavation of the contaminated material cannot proceed until the presence and concentration of PCBs and other compounds are determined with certainty, the Department of Fish and Game has directed Unocal to take more aggressive interim action at M4 to protect wildlife.

As an interim action, Unocal proposes to cover the exposed pools of product with "lightly affected" material from soil stockpiles at Tank Battery 9². Lightly affected material is defined as soil that has an average petroleum contamination of no more than 2000 ppm³ Total Petroleum Hydrocarbons (TPH). The soil placed in the affected area at M4 will soon become saturated with product continuing to move up with the groundwater level. Approximately 6,000-8,000 cubic yards of affected material will be needed to cover the exposed pools and keep the free product below the new ground surface. A "soil binder" will be added to the surface of the entire filled area for erosion control. (Please see Unocal's proposed Work Plan as Attachment 2 of the report). Staff of the California Department of Fish and Game, the U.S. Fish and Wildlife Service and the RWQCB support Unocal's interim M4 wildlife protection project.

Unocal's proposed interim M4 project is not covered by the County's 1998 CDP/DP 890558D. The County has determined that Unocal's proposed interim project is in substantial conformance with CDP/DP 890558D and issued a Substantial Conformity Determination letter on April 19, 1999 (please refer to Attachment 1).

The County's Substantial Conformity Determination decision is appealable to the Planning Commission within 14 days of issuance of the County's staff's approval. That appeal period runs until May 3, 1999. The County's final decision is also appealable to the Coastal Commission. That appeal period will run for 10-working days after receipt of the County's Notice of Final Action.

Construction activities associated with the M4 interim project will be conducted in compliance with the conditions of approval of County permit D890558D. No new impacts to the site's resources will occur due to this interim project, and the ultimate remediation of the M4 site as required by the RWQCB's CAO and authorized by the County permit will not be affected. County permit conditions requiring independent monitoring of authorized activities will be implemented. These interim measures address the risk to wildlife presented by the exposed contaminated waters and soils of the M4 area, are congruent with actions to be taken at the site in the future, and do not relieve Unocal of its obligation to fully remediate and restore the site as ordered in CAO No. 98-38 and as strictly conditioned by CDP/DP 890558D. There are no changes to Unocal's work plan, or other conditions in addition to the County's existing conditions, that the Coastal Commission staff believes are needed.

The Commission staff thus recommends that the Commission not appeal the County's Substantial Conformity Determination decision.

² The use of lightly affected material is subject to final approval by the U.S. Army Corps of Engineers as part of Nationwide Permit 38.

³ The RWQCB's CAO 98-38 has established 700 ppm TPH as a clean-up standard for soils.



SAN LUIS OBISPO COUNTY DEPARTMENT OF PLANNING AND BUILDING

ALEX HINDS
DIRECTOR

BRYCE TINGLE
ASSISTANT DIRECTOR

ELLEN CARROLL
ENVIRONMENTAL COORDINATOR

BARNEY MCCAY
CHIEF BUILDING OFFICIAL

April 19, 1999

Gonzalo Garcia
Unocal Corp.
3201 Airpark Drive, Suite 104
Santa Maria, CA 93455

SUBJECT: M-4 WORK PLAN (GUADALUPE OIL FIELD)

Dear Mr. Garcia:

This office has received the draft work plan for the M-4 Protective Measures Project¹ and staff has inspected the site with Coastal Commission and Dept of Fish and Game staff. Additionally, the agencies have discussed the proposed project at length including the need for multi-agency permitting and the proposed project description. This Department has determined, based on the facts stated below, that the proposed project is in **substantial conformance** with the provision of the certified Final EIR and the provisions of the Coastal Development Permit issued by the County on December 10, 1998.

M-4 Site

The proposed M-4 project is an interim measure to protect wildlife at the M-4 site until the plume is removed through excavation. The diluent plume at this site has risen to ground surface due to rising groundwater levels creating several pools of pure petroleum hydrocarbon product. Unocal has fenced and netted the exposed product pools but as the ground water continually rises, the fencing and netting has had to be rapidly expanded to encircle the growing exposed area. As of March 1999, the pools have grown to the point where fencing and netting no longer offer adequate protection to wildlife that may enter the area. The plume consists of approximately 78,000 cubic yards of affected material with no clean overburden due to the surfacing product plume. The construction footprint of the future M-4 excavation project is approximately 6 acres.

In December 1998, various plumes on the site were sampled and analyzed for the presence of non-diluent compounds. Polychlorinated biphenyl (PCBs) were discovered at low levels at the 5X, M-4 and L-11 sites all of which were programmed to be remediated in the first three stages

¹ The Work Plan is attached to this letter. The complete plan, including analytical results of stockpile sampling, is on file with the Department.

of the project. Additional, compound specific analyses have now been completed for the 5X site and will soon be completed for L-11. Until the presence and concentration of PCBs and other compounds are determined with certainty, excavation of contaminated soil cannot proceed. Compound specific (e.g. PCBs) analyses of the M-4 site will commence after the 5X and L-11 analyses are completed. In the meantime, the Dept. of Fish and Game has directed to Unocal to take more aggressive interim action at M-4.

The M-4 plume is programmed to be excavated as part of Stage 3 remediation activities commencing in the year 2000. The Regional Water Quality Control Board has required the 5X plume located on the beach and adjacent to the meandering bed of the Santa Maria River to be remediated in Stage 2 (Fall 1999 - Spring 2000) due to the threat this plume represents to marine and riverine waters.

The M-4 site is part of a dune slack and contains several areas of federal and state designated wetlands. These wetlands are no longer functional due to the rising pure product and the saturated soil. The total area of disturbance of federal wetlands is 0.75 acres. Wetland disturbance includes direct filling of the non-functional wetlands. Wetland disturbance may adversely affect a listed species such as the California Red-legged frog. However, this species has not been observed at the site to date and will probably not use the site until remediation activities are complete and the area returns to a functional wetland habitat.

Project Description

The project is described in detail in the Work Plan for Implementation of Protective Measures at the M-4 Area prepared by Cannon & Associates and dated April 15, 1999 (attached). In this work plan, Unocal proposes to cover the exposed pools of product with "lightly affected" material from soil stockpiles at Tank Battery 9². Lightly affected material is defined as soil that has an average petroleum contamination of no more than 2000 ppm.³ The soil placed in the affected area will immediately be saturated with product. Approximately 6,000 - 8,000 cubic yards of affected material will be needed to cover the exposed pools and keep the free product below the new ground surface.

Pre-Construction Activities: The construction boundaries will be surveyed and staked and construction fencing installed to minimize entry of construction vehicles into areas outside of the project footprint. Unocal monitors (approved by the County and the Coastal Commission)⁴ will conduct biological and botanical surveys for the project site. Emphasis will be placed on

² The use of lightly affected material is subject to final approval by the Corps of Engineers as part of the Nationwide Permit 38.

³ RWQCB's Clean Up or Abatement Order (CAO) has established 700 ppm TPH as a clean up standard for soils.

⁴ A list of approved monitors has already been established.

California Red-legged frogs and sensitive plant species. All surveys will be conducted in accordance with the Wildlife Monitoring Plan and the Protocol for Resource Protection During Off-road Assessment Activities.⁵

Site Preparation: The first site activity to be completed is improvement to an existing road leading to the site that will allow for safe access of construction vehicles. Traffic will also be routed around an unaffected wetland area that has recently been inundated. Approximately 600 cubic yards of cut and fill are required for this road improvement with a disturbed area of approximately 1.5 acres. The improved road will also be used for the future excavation project. The existing wildlife exclusion devices will be removed including the barbed wire, fencing, silt netting and bird netting.

Construction Activities: Pipelines within the site will be removed in accordance with the decommissioning protocol⁶ prior to placement of the fill material. A sand berm will be constructed using lightly affected material from Tank Battery 9 stockpiles around the perimeter of the construction site. The berm is intended to prevent residual water and product from splashing out of the construction area and onto adjacent ground. The lightly affected material intended for use is approximately 6,570 cubic yards of screened material from the A2A excavation currently located in Stockpile 4A at Tank Battery 9. If additional material is required, the sand currently located in Stockpile 3 (approximately 1,870 cubic yards) at Tank Battery 9 will be used.

Lightly affected material will be transported from the stockpiles at TB9 (or C6-7) to the M-4 site. The area of exposed groundwater/product will be filled with this material until a 2-3 foot cover above the water level is achieved and there is no evidence of soil staining and surfaced groundwater. After the cover material has been placed, the outer berm area will be groomed to an approximate 5:1 slope and a soil binder will be applied to the surface of the entire filled area (including uplands) for erosion control and to prevent VOC emissions. If clean fill is used, the need for the soil binder will be re-evaluated.

It is anticipated that a french drain or other type of drainage system will be installed within the inundated area prior to or concurrent with backfill operations. The drainage system will be installed as a contingency measure to allow the removal of groundwater should it continue to surface or cause erosion problems after backfilling is complete.

Approximately 6,000 cubic yards of material will be needed for the desired cover. However, due to changing conditions, as much as 8,000 cubic yards could be needed for this activity. Unocal approximates the amount of fill material and wetland disturbance:

⁵ These plans have already been approved by the County and Coastal Commission for general use on the site.

⁶ The decommissioning protocol was previously approved by the County and Coastal Commission for site wide decommissioning activities.

	Fill (cubic yards)	Disturbed Area (acres)
Federal wetlands	4,000	0.75
State wetlands ⁷	1,000	0.25
Uplands	1,000	0.50
TOTALS	6,000 - 8,000	1.5 - 2.0

During fill activities, groundwater will be pumped or vacuumed from the site and temporarily stored in a Baker tank. The water will be disposed of or re-injected into the deep well injection system currently in use at the site. If the attempts to dewater the area are not successful, alternate methods will be implemented, such as skimming, to keep hydrocarbons from leaving the bermed area.

Post-Construction Activities: All the equipment used during the project will be removed from the site. Construction wastes will be properly disposed of and all flagging and survey stakes will be removed. The construction fencing will remain in place to keep wildlife out. The construction equipment will be decontaminated at the Tank Battery 8 area prior to leaving the Field. The site will be inspected weekly and after rain events to ensure that there is no evidence of surfacing groundwater and that the soil binder is still intact.

Applicant Proposed Measures

Unocal proposes the following measures to minimize impacts of this interim project:

1. Unocal shall mark environmentally sensitive areas on project plans and on the site and shall avoid these areas during all elements of project implementation.
2. Training session shall be conducted addressing sensitive resources for project personnel.
3. Engineering controls shall be implemented to minimize the area of disturbance such as minimizing cut and fill on road access, installation of low permeability surface on fill material (soil binder), use of berm around perimeter of pond, dewatering during fill activities and installation of drains.
4. Avoid or minimize take of listed species in the wetland areas using qualified and approved biological monitors
5. Implement the measures of the Programmatic Endangered Species Act Consultation on Issuance of Permits Under Section 404 of the Clean Water Act. or another authorizations.
6. Minimize traffic in areas off existing roads and defined work areas. Where off road travel is necessary, conduct surveys using approved biological monitors to determine least environmentally damaging routes.
7. Heavy equipment that must enter wetlands will be placed on mats or will have rubber

⁷ Quantities shown are those in addition to federal wetlands. Since state wetlands also include federal wetland areas, the approximate totals in State wetlands include 5,000 cubic yards of fill and 1.0 acres of disturbance.

tires to minimize wetland impacts.

In addition to these applicant proposed measures, the measures outlined in the certified Final EIR dated March 1998 and the requirements of Coastal Development Permit D890558D are still in full force and effect for this project.

Substantial Conformance Determination

Pursuant to the requirements of the County's Coastal Zone Land Use Ordinance section 23.02.038, Unocal may proceed with this interim M-4 project as outlined in the work plan dated April 16, 1999 without review and approval of another Coastal Development Permit and additional CEQA review. This determination is based on the following findings of fact:

1. The Phase I remediation project was subject to CEQA review in a certified Final EIR prepared by the County and dated March 1998. The certified Final EIR evaluated complete excavation and restoration of, among other areas, the M-4 plume site.
2. The M-4 area as described in the certified Final EIR dated March 1998, has been saturated to ground level by rising groundwater. The M-4 plume is programmed to be remediated in Stage 3 of the approved Phase I remediation project approved by the Regional Water Quality Control Board and the County.
3. Excavation of the M-4 site would result in complete disturbance of the site, removal of affected soil, installation of biosparge systems and restoration of the site in post-excavation activities.
4. The proposed project is an interim measure that is implemented to protect wildlife at the site. Wildlife protection measures have been required by the Dept. of Fish and Game.
5. The proposed M-4 interim project will result in a smaller area of disturbance than the activities approved as part of the CDP for this site.
6. Construction activities associated with the interim project will be conducted in compliance with the conditions of approval of CDP D890558D.
7. No new impacts to the site's resources will occur due to this project and the ultimate remediation of the M-4 site as required by the Regional Board's CAO and authorized by CDP D890558D will not be affected by the interim project.
8. CDP D890558D conditions requiring independent monitoring of authorized activities will be implemented for the proposed interim M4 project. Monitoring will be conducted under the existing County contract with A.D. Little and Science Applications International Corporation (SAIC).
9. The proposed project is also subject to review and approval of the U.S. Army Corps of Engineers; the California Dept. of Fish and Game; and the U.S. Fish and Wildlife Service.

Please feel free to contact me at (805) 781-5702 if you have any questions regarding this matter. Please be advised that this decision is appealable to the Planning Commission within 14 days of the date of this letter. At the close of this 14 day appeal period, this decision is appealable to the

California Coastal Commission within ten working days of the start of the appeal period.

Sincerely,



James Caruso
Project Manager

cc: California Coastal Commission
Regional Water Quality Board
Dept. of Fish and Game
U.S. Army Corps of Engineers

attachments

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UNOCAL - FORMER GUADALUPE OIL FIELD

WORK PLAN

Implementation of Protective Measures at the M4 Area

Revised April 15, 1999

1.0 INTRODUCTION

The M4 site is located in the easterly portion of the former Guadalupe Oil Field. During the spring of 1998, as a result of a very wet winter the preceding year, hydrocarbon-affected groundwater surfaced at the M4 site. Unocal took immediate precautions to isolate the area from wildlife by installing construction fencing and bird netting. They also began pumping the surfaced groundwater from the site, hoping that it would recede as the pumping activities progressed into the drier summer season.

The surfaced groundwater has continued to recharge shortly after each pumping event and the inundation area has increased. Only a small amount of hydrocarbons were recovered during these operations. However, the quantities indicate that the condition is not abating and the site continues to pose a potential threat to wildlife resources. Efforts to preclude wildlife from the area have included the installation of barbed wire fencing, silt fence, construction fence, and bird netting.

The M4 site was scheduled for excavation as part of the Stage 1 remediation and decommissioning project at the former Guadalupe Oil Field. Due to the presence of PCB compounds found at the M4 excavation site, excavation activities have been delayed until Unocal and the agencies agree upon an appropriate resolution. Excavation is now tentatively scheduled for Stage 3, in the year 2000. The M4 plume consists of approximately 77,815 cubic yards of affected material within a construction footprint of approximately 6 acres. There is no clean overburden above the affected material due to the surfacing hydrocarbon-affected groundwater.

In addition, the site is located within a dune slack and contains several wetlands. The wetlands within and adjacent to the future excavation area were delineated by LFR Levine-Fricke and are included in the Wetland Delineation Report for the Proposed Remediation and Abandonment Activities at the Guadalupe Oil Field by LFR Levine-Fricke dated June 30, 1998. The report shows five wetlands in the general vicinity of the future excavation (M4W1, M4W2, M4W3, M4W4, and M4W5). Two of these wetlands (M4W2 and M4W3) will be removed and restored during the future excavation project. These are the same two wetlands with areas where hydrocarbon-affected groundwater is surfacing.

Work Plan
For Implementation of Protective Measures at the M4 Area

Unocal plans to implement a program of sorbent pad and/or skimmer use to remove the hydrocarbons present on the water surface until approvals are obtained for remedial measures.

To address the potential for wildlife exposure to affected material at the M4 site, Unocal proposes the following work plan to temporarily cover the affected area with sand to preclude wildlife exposure.

1.1 Project Description

The major actions to implement protective measures are outlined below.

1.1.1 Pre-Construction Activities

The construction boundaries will be surveyed and staked. Construction fencing will be placed to minimize entry of construction vehicles into areas outside of the project footprint.

Unocal will conduct biological and botanical surveys for the project site as appropriate. Emphasis will be placed upon California Red-legged frogs and sensitive plants. All surveys will be conducted in accordance with the Wildlife Monitoring Plan and the Protocol for Resource Protection During Off-road Assessment Activities.

1.1.2 Site Preparation

To prepare the site for construction activities, the access road to the site will be improved to ensure safe access by construction equipment to and from the site and to route traffic around a wetland area that has recently been inundated.

It is anticipated that about 600 cubic yards of cut and fill will be required for the road, with a disturbed area of approximately 1.5 acres. This road will be utilized for the future excavation project.

In addition, the existing wildlife exclusion devices will be removed (barbed wire fencing, silt fencing, and bird netting).

1.1.3 Construction Activities

Pipelines within the grading area may be removed in accordance with the decommissioning protocol prior to the material placement.

A sand berm using lightly affected material from Tank Battery 9 stockpiles will be constructed around the perimeter of the construction area. The berm is intended to inhibit residual water from splashing out of the construction area onto the adjacent ground.

Work Plan
For Implementation of Protective Measures at the M4 Area

The lightly affected material intended for use is approximately 6,570 cubic yards of screened material from the A2A excavation currently located in Stockpile 4A at Tank Battery 9 (see attached Summary of Analytical Results). If additional material is required, the sand currently located in Stockpile 3 (approximately 1,870 cubic yards) at Tank Battery 9 will be utilized.

If the Army Corps does not allow the use of lightly contaminated material as fill material within the Federalized areas, the material from the stockpile at C6/7 will be used. This stockpile contains screened material from various excavation projects.

The area of exposed groundwater will be filled with lightly affected material until a 2 to 3 foot sand cover is achieved and there is no evidence of soil staining and surfaced groundwater. After the cover material has been placed, the outer berm area will be groomed to an approximate 5:1 slope and a soil binder will be applied to the surface of the entire filled area (including uplands) for erosion control and to prevent VOC emissions. (If clean fill is used, the need for soil binder will be re-evaluated.)

Unocal anticipates the installation of a french drain or other type of drainage system within the inundated area(s) prior to or concurrent with the backfill operation. The drainage system will be installed as a contingency measure to allow the removal of groundwater should it continue to surface or cause erosion problems after backfilling is complete.

It is estimated that 6,000 cubic yards of material will be needed for the desired cover. However, due to changing conditions, as much as 8,000 cubic yards could be needed for this activity. An approximate summary of the fill material and disturbed area is:

	Fill (cubic yards)	Disturbed Area (acres)
Federal Wetlands	4,000	0.75
*State Wetlands	1,000	0.25
Uplands	1,000	0.50
Total (range)	6,000-8,000	1.50-2.00

* Quantities shown are those in addition to the work in Federal Wetlands. Since State Wetlands also include Federal Wetland areas, the approximate totals in State Wetlands include 5,000 cubic yards of fill and 1.0 acre of disturbance.

During filling activities, groundwater will be pumped or vacuumed from the site and temporarily stored in a Baker tank. The water will be disposed of or re-injected into the deep well injection system currently in use at the site. If the attempts to dewater the area are not successful, alternate methods will be implemented, such as skimming, to keep hydrocarbons from leaving the bermed area.

1.1.4 Post-Construction Activities

All of the equipment used during the project will be removed from the site. Construction wastes will be properly disposed of, and all flagging and survey stakes will be removed. The construction fencing will remain in place to keep wildlife out. The construction equipment will be decontaminated at the TB8 area prior to leaving the Site.

The site will be inspected weekly and after rain events to ensure that there is no evidence of surfacing groundwater and that the soil binder is still intact.

SUMMARY OF ANALYTICAL RESULTS

M4 Site

Unocal is currently proposing to use "lightly affected material" to temporarily cover the M4 site. There are two sources of material at TB9 (Stockpile 4A and Stockpile 3) which could be used as fill material. Stockpile 4A is the first choice. Stockpile 3 would be used if supplemental material is required.

If the Army Corps disallows the use of the affected material, Unocal proposes the use of Stockpile C6 as fill material. Stockpile C6 is the last choice since this material has been designated for use as backfill for other excavation sites.

Backfill Volumes

The approximate amount of material in each stockpile is summarized in Table 1 below.

Table 1

Priority of Use	Stockpile	Cu. Yards of Material Available
1	4A	6,570
2	3	1,870
3	C6	20,880

Analytical Methods

Total Petroleum Hydrocarbons (TPH)

This is the standard method used to determine hydrocarbon concentration in soils (both leachable and non-leachable) and water. Recent studies at the pilot LTU have shown that polar biogenic material or biodegradation products may be interfering with TPH analysis, giving artificially high TPH results.

TPH on Deionized Water (DI) Extraction

This method determines the amount of leachable organics in soil. The test simulates the effect rainwater would have in leaching organics from soil. Polar biogenic material and biodegradation products may result in an artificially high TPH results.

TPH on DI Extraction after Silica Gel

Non-petroleum organics can be removed by using silica gel prior to analysis for TPH, following EPA Method 3630. The silica gel is highly polar and attracts polar molecules, thus removing the molecules from the sample.

The Regional Water Quality Control Board (RWQCB) (San Francisco Region) issued a memorandum on the "Use of Silica Gel Cleanup for Extractable TPH Analysis." This memorandum explains the silica gel cleanup method and interferences associated with TPH analyses. A copy of this memorandum is included as Attachment A.

Based on the memorandum and subsequent data collected at the pilot LTU, Unocal will use the silica gel method and associated analytical results where available, to determine the TPH concentration level of the fill material.

Analytical Results

Stockpile 4A

Samples were collected from Stockpile 4A and submitted for TPH, TPH on DI (deionized water) extraction, and TPH on DI extraction after silica gel. TPH concentrations ranged from 1,800 to 2,000 mg/kg in the first set of samples showing total TPH. The DI extract results ranged from 3.7 to 4.8 mg/l (3,700 to 4,800 µg/l). In comparison, after applying the silica gel method to the DI extract (to remove non-petroleum organics), TPH ranged from Not Detected to 0.2 mg/l (200 µg/l). The silica gel results show the amount of leachable material that is strictly from hydrocarbons after removing polar hydrocarbons and biogenic material.

Baseline characterization was done on this material for the pilot LTU prior to placing this material in the current stockpile. PNA analyses were done by GC/MS-SIM and BTEX was done by Method 8260. No PNA or BTEX were detected in any of these samples. Copies of these data were not included with this summary but can be provided if needed.

PCB analyses were also conducted on the samples collected at stockpile 4A. There were no PCBs detected in any of these samples.

Sample results for stockpile 4A are included in Attachment B.

Stockpile 3

TPH concentrations for samples collected at Stockpile 3 ranged from 46 to 5,000 mg/kg (wet basis) and 50 to 5,480 mg/kg (dry basis). The DI extraction and silica methods were not performed on the samples at Stockpile 3.

Baseline characterization was done prior to screening and during screening for this material before it was placed on the current stockpiles. Copies of these reports are included in Attachment C.

PCB analyses were also conducted on the samples collected at Stockpile 3. There were no PCBs detected in any of the samples.

Sample results for Stockpile 3 are included in Attachment C.

Stockpile C6

TPH concentrations for samples collected at Stockpile C6 were not detected above the practical quantitation limit (PQL) in three of the four samples. One of the four samples had a result of 77 mg/kg. The DI extraction and silica methods were not performed on the samples at Stockpile C6.

Volatile, Semi-Volatile, and metal analyses were also done on this material. Copies of these results are included in Attachment D.

PCB analyses were also conducted on the samples collected at Stockpile C6. There were no PCBs detected in any of the samples.

Sample results for stockpile C6 are included in Attachment D.

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