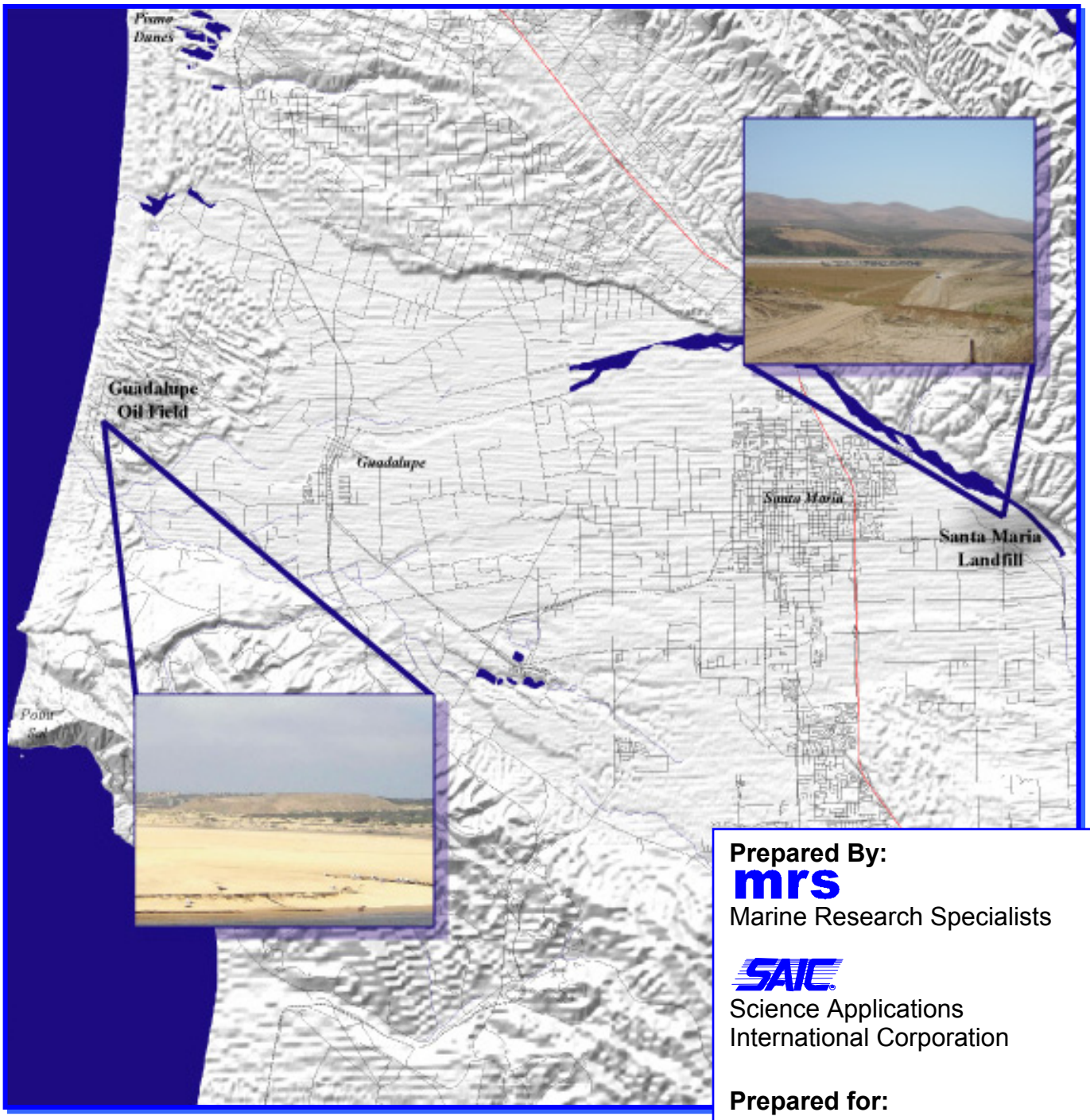
Final Supplemental Environmental Impact Report

Guadalupe Restoration Project



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Guadalupe Oil Field Remediation and Abandonment Project

Supplemental Environmental Impact Report

Final

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Prepared for:

San Luis Obispo County
Department of Planning and Building
San Luis Obispo, California

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1.0 Introduction and Background

This Final Supplemental Environmental Impact Report (SEIR) is a supplement to the 1998 Guadalupe Oil Field Remediation and Abandonment Environmental Impact Report (Original EIR), prepared for San Luis Obispo (SLO) County. This SEIR has been prepared to address the environmental impacts associated with Unocal's proposal to transport up to 860,000 cubic yards (cy) of Non-Hazardous Impacted Soils (NHIS) from the Guadalupe Oil Field (Guadalupe Field) to the City of Santa Maria Landfill (Landfill). The material would be used at the Landfill as cover for closing landfill cells.

The purpose of this SEIR is to identify the proposed project's significant effects on the environment, to indicate the manner in which such significant effects can be mitigated or avoided, and to identify alternatives to the proposed project which avoid or reduce these impacts. The SEIR is an informational document for use by SLO County, other Responsible Agencies, and the general public in their consideration and evaluation of the environmental consequences associated with implementation of the proposed project.

The SEIR has been prepared in compliance with the criteria, standards, and procedures of the California Environmental Quality Act (CEQA) of 1970 and CEQA Guidelines, as amended. A Public Draft SEIR was issued on January 31, 2005, for a 50-day public comment period. The Final SEIR contains marks on the left side of the page to show were additions have been made to the document in response to the comments.

The remainder of this section of the SEIR provides (1) some background on the Guadalupe Oil Field Remediation and Abandonment Project (Guadalupe Restoration Project), (2) a brief summary of the proposed project, (3) a description of the project objectives, (4) a discussion on agency use of this document, (5) an overview of Unocal's requested SLO County Coastal Development Permit/Development Plan (CDP/DP) D890558D permit conditions modifications, and (6) a summary of the contents of the SEIR.

1.1 Background

The Guadalupe Field occupies over 2,700 acres of the larger Nipomo Dunes Complex and is located on the Central California Coast in San Luis Obispo and Santa Barbara Counties, as shown in Figure 1-1. Figure 1-2 shows the study area for the project.

The principal land use at the Guadalupe Field, from 1946 to March 1994, was the production of oil and natural gas. In the 1950s, a petroleum hydrocarbon referred to as diluent was introduced at the Guadalupe Field to assist in the production of the heavy crude oil. Diluent use ceased in 1990. Over the years, diluent was inadvertently released from the pipelines and storage tanks, and diluent sources are now present in soils and diluent plumes are present in ground water at the Guadalupe Field. Assessment activities to characterize and delineate the underground hydrocarbons and pilot studies to test the effectiveness of various remediation methods have been conducted at the Guadalupe Field.

Figure 1-1 Proposed Project Location

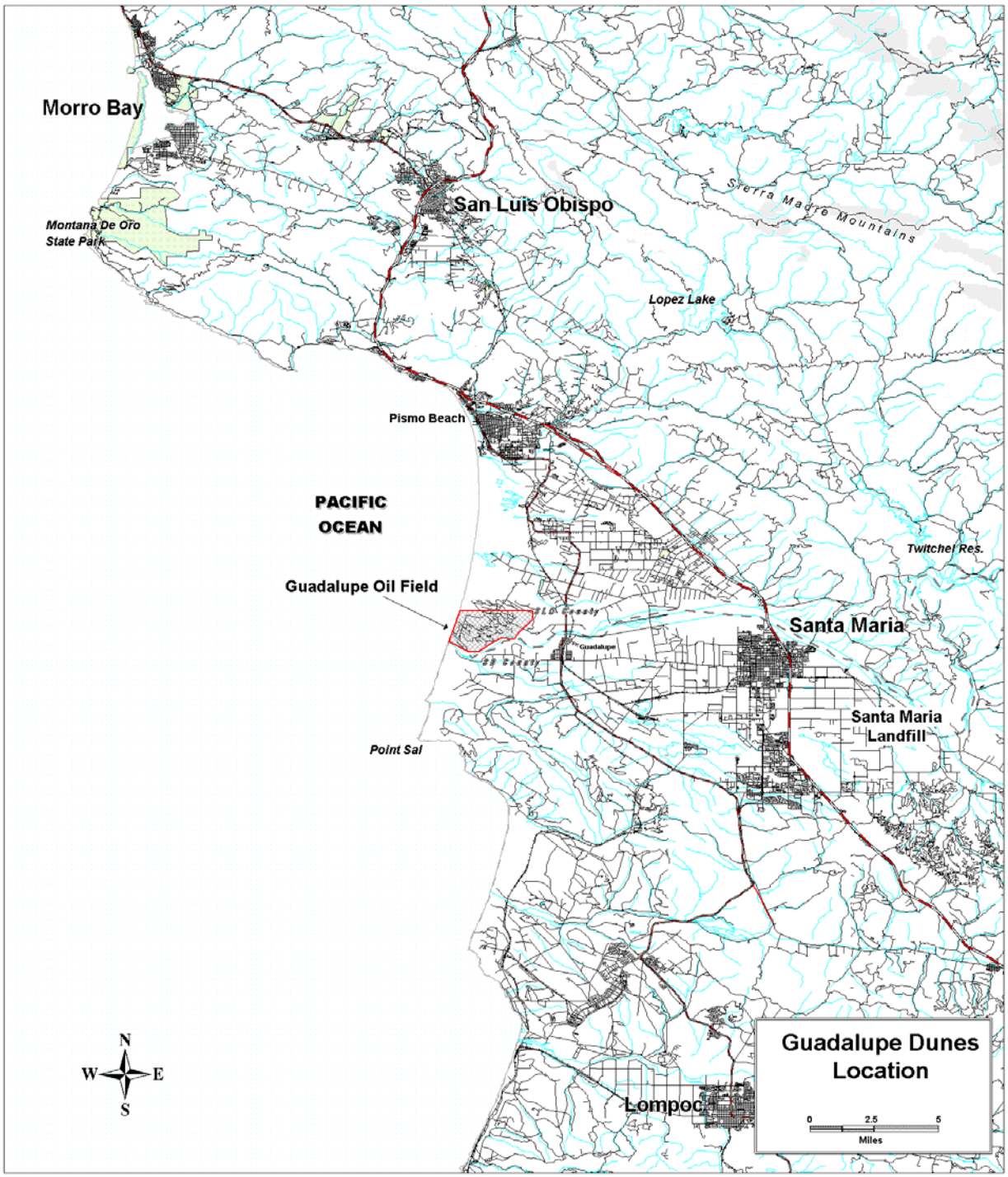
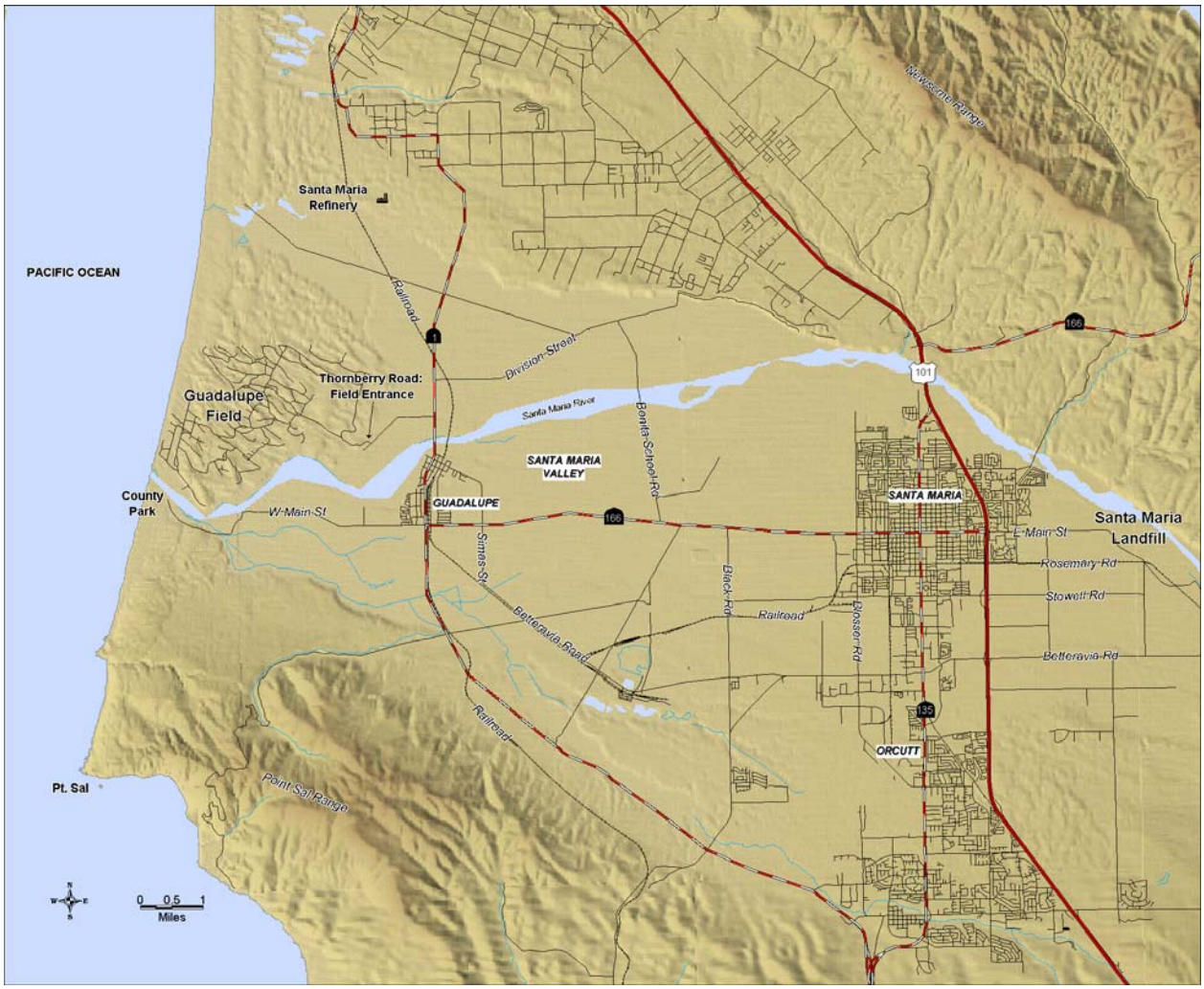


Figure 1-2 Proposed Project Study Area



In December 1998, SLO County certified the Original EIR (ADL 1998) that evaluated the impacts and determined mitigation measures for remedial actions, including excavation of diluent sources and treatment methods for the excavated material.

Several treatment methods were evaluated in the Original EIR, including the use of a Thermal Desorption Unit (TDU) and a Land Treatment Unit (LTU).

The Regional Water Quality Control Board (RWQCB) issued Cleanup and Abatement Order (CAO) 98-38, mandating remediation actions such as the excavation of specified sources and sumps. SLO County issued CDP/DP D890558D, which covered remediation and abandonment activities at the Guadalupe Field. This CDP/DP authorized Unocal to conduct remediation and site characterization activities at the Guadalupe oil field consistent with the RWQCB CAO 98-38 adopted by the RWQCB on April 3, 1998 and as amended on July 13, 1998 and November 6, 1998 (CDP/DP D890558D Condition F.1).

Since certification of the Original EIR, Unocal has had to make a number of minor modifications to the Restoration Project with the concurrence of the County Onsite Environmental Coordinator (OEC), SLO County, and the resource agencies as a result of increased information about various restoration sites. This is not unexpected given the complex nature of the Restoration Project. In fact, SLO County recognized this fact in developing the permit conditions for CDP/DP D890558D. Condition F.34 of SLO CDP/DP D890558D requires that Unocal conduct additional assessments at each of the CAO excavation sites and prepare final drawings prior to excavation. These final excavation drawings must be submitted to SLO County for review and approval. If the final areas to be excavated are larger than the initial excavation drawings, then SLO County, pursuant to Condition F.20 of CDP/DP D890558D, must determine if the changes are substantial enough to require additional environmental review and coastal land use permitting.

In order to comply with CDP/DP D890558D Condition F.34 and F.20 SLO County has been preparing substantial conformity reviews for all of the excavations at the Guadalupe site based upon the final excavation drawings developed by Unocal to determine if additional environmental review and permitting is required. The County has also been using these conditions to require substantial conformity reviews for other project elements where there have been minor modifications, such as the steam pilot test program, use of Q4 sand for backfill, etc. To date, many substantial conformity reviews and a number of CEQA addendums have been prepared to address minor modifications that Unocal has requested to the Guadalupe Restoration Project. During the preparation of this SEIR, Unocal submitted revised excavation plans for a number of CAO sites. A substantial conformity review has been prepared for these sites and is included in Appendix G.

A substantial conformity review evaluates the minor project modifications to determine if the impacts and mitigation measures associated with the minor project modifications are adequately addressed in the existing environmental review documents and permit. If it is found that the minor modifications are adequately addressed in the existing environmental review documents and permit, then the modification is considered to be in substantial conformity, and no further environmental review or permitting is required. However, if new or substantially greater impacts would be caused by the minor modification, then it would not be in substantial conformity, and additional environmental review, and possibly permitting, is required.

To date, the County has determined that various project modifications, such as sump excavations and modified plume configurations, were in substantial conformance with the original project. However, for this proposed change in the method of treatment/disposal of the NHIS, SLO County determined that an SEIR would be required since disposal of the NHIS at the Landfill was not evaluated in the Original EIR, and not covered in CDP/DP D890558D.

In the Original EIR Unocal's proposed project was that the excavated material would be treated in LTU and then reused as backfill in subsequent excavation. The permits that were issued for the project were based upon the use of the LTU for treating the excavated material. Unocal conducted LTU pilot studies and began to process permit applications for the construction and operation of a LTU. In 2000, Unocal submitted an application to the RWQCB for Report of Waste Discharge Requirements (ROWD) and a Project Description to the County for a substantial conformity review. The processing of these LTU applications/reviews generated numerous agency questions, highlighting the need for additional information.

Screening-level bioassays of leachate from LTU-treated material indicated that there may be some level of intermediary toxicity that could be transferred to water in contact with the treated soil. Because the reuse of treated material as backfill for excavations would involve placement in saturated conditions adjacent to wetland areas, Unocal elected to pursue other treatment/disposal methods rather than undertake the additional studies that would be needed to determine the source and longevity of the potential toxicity from treated soil in saturated conditions.

The excavation of plumes and sumps at the Guadalupe Field pursuant to emergency orders and CAO 98-38 has been ongoing. As an interim measure while the LTU was undergoing development and permitting, plumes and sumps were excavated, the material stockpiled onsite, and sand from the Q12 and Q4 active dunes was used for backfill.

Without a permitted treatment/disposal method for the material excavated to date, the feasibility of reusing LTU-treated material for backfill uncertain, and the numerous factors (e.g., treatment standards, feasibility, agency concerns) that are still unknown for the potential treatment/disposal methods, Unocal and the agencies collectively agreed that the excavations should be suspended until a treatment/disposal method could be determined, permitted, and implemented.

Unocal undertook a number of studies that evaluated a range of treatment/disposal options. Based upon these studies, Unocal identified its preferred treatment/disposal option as being transport of the NHIS to the Landfill for use in their NHIS Program.

Unocal and the agencies also decided that the most expedient path to an acceptable treatment/disposal method would be to conduct environmental reviews for several feasible treatment and disposal methods as part of this SEIR. This SEIR evaluates the proposed project, trucking the material to the City of Santa Maria Landfill, and evaluates other selected disposal alternatives to a permit level of detail.

In accordance with California Code of Regulations (CCR) Title 27, which contains provisions to use NHIS to construct foundation layers for landfill closure, the RWQCB issued Revised Waste Discharge Requirements (WDR) Order No. 01-041 on May 18, 2001 to the Santa Maria Landfill. WDR 01-041 provides guidelines for the acceptance of NHIS from the restoration and cleanup of oil-producing sites. These plans were addressed in a Joint Technical Document (JTD) prepared by CH_2MHill and evaluated in the CEQA addendum to the 1993 Landfill EIR (SCH 92031045) and in subsequent EIRs (SML February and May, 2004).

According to the JTD and the SEIR, accepting impacted soils is consistent with the Landfill's intent to implement an expedited closure process at the landfill by using the NHIS: (1) to achieve design grades and serve as the foundation layer of the final cover system for the existing active portion of the landfill, and (2) for daily and intermediate cover material in the lined expansion areas of the landfill. The EIR Addendum identified no significant impacts associated with the use of NHIS.

It is important to note that the Landfill currently has a need for enough soils to close their remaining active cells. This need is estimated to be close to 5 million cy, well in excess of the amount located at the Guadalupe Field. Currently, the Landfill has been accepting NHIS from other sump locations in the Santa Maria Valley. However, these sources are winding down and the Landfill needs to locate other sources of materials for closure. The sources of material for

closure will need to be found and materials transported to the Landfill regardless of the disposal decisions associated with this document.

The Landfill began accepting NHIS in early 2003. As discussed in the JTD, specific screening of the impacted soils is performed by the Landfill to determine its conformance to the RWQCB's acceptance criteria for each source of material entering the site. Only NHIS meeting the acceptance criteria are accepted for disposal in the landfill. Testing conducted as part of the Landfill EIR indicated that the Guadalupe material would qualify as NHIS. Analytical tests from well over 1,000 samples of material from the Guadalupe Field were compared against the Landfill's specifications for NHIS, and all of the samples met the specifications. As such, in evaluating the impacts of the proposed trucking project, all materials at the Field were assumed to meet the Landfill's specifications for NHIS. As part of the proposed project, testing of the NHIS will be done at both the Guadalupe Field and the Landfill. Any material that does not meet the NHIS specifications will be returned to the Guadalupe Field stockpile for additional natural attenuation.

1.2 Summary of Proposed Project

Unocal currently is proposing the trucking of materials to the Landfill as the proposed project. The RWQCB has approved the Santa Maria Landfill to accept the Guadalupe hydrocarbon-impacted material as fill as part of the Landfill's NHIS or impacted soils Program.

For the proposed project of offsite trucking to the Landfill, trucks would be brought onsite and loaded with NHIS. These trucks would then travel to the Landfill, a permitted, offsite, solid-waste-handling facility located in the Santa Maria city limits, where the NHIS would be offloaded. An estimated 860,000 cy of NHIS would be hauled offsite. Included in this number is an anticipated 22,000 cy of red rock/road base material that would also be removed and trucked offsite.

Aggregate from screening activities may be generated onsite during excavation and treatment/disposal activities. The overburden from an excavation site may be screened to remove rocks and/or asphalt chunks before it is reused. Land treatment may require removal of large particles from the material before it can be processed. These would also require transportation offsite. It is estimated that an additional 10,000 cy of aggregate could be removed from the site if screening is conducted.

The material taken to the Landfill would be used to expedite the closure process by using the NHIS to achieve design grades and serve as the foundation layer of the final cover system for the landfill cells that would be closed. This SEIR provides a description of the Landfill operations that would be associated with the handling of the NHIS from the Guadalupe Field. The environmental impacts associated with the placement of the Guadalupe material at the Landfill were addressed in a Supplemental EIR prepared by the City of Santa Maria (May 2004). This SEIR provides a summary of the environmental impacts identified in the City of Santa Maria's Supplemental EIR, which addressed the use of NHIS material from the Guadalupe Field.

1.3 Objectives of the Project

Section 15124(b) of the CEQA Guidelines requires that the SEIR discuss the objectives of the project. The objective of the proposed transportation project is to remove the NHIS material from the environmentally sensitive areas of the Guadalupe Field and move it to a location where it can be contained and controlled.

1.4 Agency Use of this Document

In order to implement the project, Unocal is requesting an amendment to CDP/DP D890558D from SLO County to allow for the transportation of the NHIS material from the Guadalupe Field to the City of Santa Maria Landfill.

San Luis Obispo County, as the CEQA Lead Agency, will need to certify the SEIR in order to consider the Applicant's request for an amendment to CDP/DP D890558D to allow the transportation of the NHIS material from the Guadalupe Field to the Landfill. San Luis Obispo County will use the document for decision-making regarding the proposed project. Decisions made by San Luis Obispo County regarding the CDP/DP can be appealed to the California Costal Commission.

The San Luis Obispo County Air Pollution Control District will use this document for reviewing Unocal's requested modifications to their existing Authority to Construct and Permit to Operate (ATC/PTO) that covers the activities at the Guadalupe Field. Modifications to the ATC/PTO will be needed in order to allow transportation of NHIS from the Guadalupe Field to the Santa Maria Landfill.

The RWQCB will use this document for reviewing Unocal's requested modifications to a number of the proposed excavation sites as specified in Cleanup and Abatement Order (CAO) 98-38.

All project activities will take place within the coastal zone and are subject to the provisions of the San Luis Obispo County General Plan and Local Coastal Program (LCP), which was certified by the Coastal Commission in February 1998. After an LCP is certified, coastal development permit authority for new development within the coastal zone is returned to local government. However, the Coastal Commission retains direct permit authority for development activities (including remediation efforts) within portions of the coastal zone seaward of the mean high tide line, and over tidelands, submerged lands or public trust lands, as defined by the Coastal Act. Certain actions taken by the County in implementing the LCP remain appealable to the Coastal Commission in accordance with Section 30603 of the Coastal Act. Unocal's proposed Guadalupe Field projects are appealable to the California Coastal Commission.

1.5 Unocal Requested CDP/DP D890558D Existing Condition Modifications

In December 1998, the County of San Luis Obispo issued CDP/DP D890558D to Unocal, covering the remediation and abandonment activities at the Guadalupe Field. During the past six years, a number of requirements in the conditions have been completed. Unocal is proposing to modify these conditions to indicate that the requirements have been met. For some of the other conditions, Unocal has worked with the County and other agencies over the last six years to

develop practices and protocols to implement the intent of the conditions. Unocal is requesting that some of the existing permit conditions be modified to reflect these practices and protocols. For other permit conditions there are inconsistencies with other regulatory agency permits. Unocal is requesting modification to these existing conditions to make them consistent with the other regulatory agency permits.

While these existing permit condition modifications are not part of the proposed project, they have been discussed in Section 9.0 of the SEIR because SLO County will most likely make decisions on the requested existing permit condition modifications as part of the hearing process for the proposed project. The information presented in Section 9.0 will provide the public and decision makers with (1) a better understanding of what the requested permit condition modifications are; (2) the reason for the requested modification; and (3) the effect these modifications would have on mitigating the environmental impacts of the Guadalupe Restoration Project. Appendix F contains a mark up of the CDP/DP D890558D permit conditions showing Unocal's requested modifications to the existing permit conditions.

1.6 SEIR Contents

This SEIR has been prepared in accordance with the State and County administrative guidelines established to comply with CEQA, as amended. Section 15151 of CEQA Guidelines provides the following standards for EIR adequacy:

> *"An Environmental Impact Report should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure."*

In compliance with CEQA guidelines, San Luis Obispo County, as the Lead Agency, solicited public agency comments through distribution of a Notice of Preparation (NOP). The scope of work developed for the preparation of the SEIR and comments received in response to the NOP were the basis of the technical focus of this FSEIR.

The SEIR is divided into the following major sections:

Executive Summary. Provides an overview of the project and a summary of the major impacts identified in the analysis. A summary of the alternatives and cumulative analyses is also provided.

Impact Summary Tables. Provides a summary of the identified impacts by significance class, and where applicable, provides a summary of proposed and/or recommended mitigation measures. Impacts and mitigation measures are provided for the proposed project and the alternatives that were evaluated in detail throughout the SEIR.

1. **Introduction and Background**. Provides some general background on the proposed project, a brief description of the proposed project, the objectives of the project, and an overview of the contents of the SEIR.
2. **Project Description**. This section provides a detailed description of the proposed project to move NHIS from the Guadalupe Field to the Santa Maria Landfill.
3. **Alternative Project Description/Screening Analysis**. Describes the screening analysis methodology used to select alternatives for the proposed project to move NHIS from the Guadalupe Field to the Santa Maria Landfill. Provides detailed descriptions of the alternatives that were carried forward for environmental analysis throughout the SEIR.
4. **Cumulative Projects Description.** Provides a description of the reasonably foreseeable projects located in the vicinity of the proposed project that have either been proposed or are in their permitting stages. These projects have been included in the cumulative analysis presented in Section 5.
5. **Proposed Project Environmental Impact Analysis**. Describes the existing conditions found on the proposed project site and vicinity and assesses the potential environmental impacts that may be generated by implementation of the proposed project to move NHIS from the Guadalupe Field to the Santa Maria Landfill. These potential project impacts are compared to various "Thresholds of Significance" in order to determine the severity of the direct and indirect impacts. Mitigation measures, intended to reduce significant, adverse impacts to insignificant levels, are proposed where feasible (Class II impacts). Those impacts which cannot be eliminated or mitigated to insignificant levels are also identified (Class I impacts). This section also includes the environmental impacts analysis for the alternatives to the proposed project to move NHIS from the Guadalupe Field to the Santa Maria Landfill, as well as the cumulative impact analysis.
6. **CEQA Environmentally Superior Alternative**. Summarizes the environmental advantages and disadvantages associated with the proposed project and the associated alternatives. Based on this discussion, the environmentally superior alternative is identified as required by CEQA. The CEQA Guidelines, Section 15126.6(e)(2) states that if the environmentally superior alternative is the No Project Alternative, then the next most environmentally preferred alternative must also be identified.
7. **Other CEQA/NEPA Issues**. Identifies the spatial, economic, and/or population growth impacts that may result from development of the proposed project. Describes any changes to the existing environment which are irreversible in nature, such as use of non-renewable resources or commitment of future generations to similar land uses.
8. **Summary of Mitigation Measures**. Contains a listing of all mitigation measures proposed as part of the SEIR for the proposed project.
9. **Requested CDP/DP D890558D Condition Modifications.** Provides a description of the requested CDP/DP condition modifications, the reason for the requested modification and a summary of any associated environmental impacts.
10. **Comment Letter and Response to Comments.** Provides a copy of all the comment letters received on the public draft SEIR and a set of responses that address each of the comments received.

The SEIR also contains a number of appendices, which include the Notice of Preparation (NOP), technical appendices, Mitigation Monitoring Plan, CDP/DP D890558D modifications, a substantial conformity review for a number of CAO sites, a list of document preparers, and a list of acronyms.

2.0 Proposed Project Description

This chapter of the SEIR provides a detailed description of the proposed project that would involve transporting the Non-hazardous Hydrocarbon-Impacted Soils (NHIS) from the Guadalupe Field to the Santa Maria Landfill. The reader is referred to Appendix G for a detailed description of the additional Cleanup or Abatement Order (CAO) excavation sites, and to Section 9.0 for a description of the proposed Coastal Development Permit/Development Plan (CDP/DP D890558D) condition language changes.

Many terms have been used for the contaminated material at the Guadalupe Field. The primary contaminated material at the site is diluent-affected material. This is soil or sand that has been contaminated with diluent. The term diluent is derived from “dilute” and refers to hydrocarbon blends that act as a thinner for the crude oil, changing the specific gravity, fluid density, and viscosity. Diluent is similar to a kerosene/diesel mixture and contains low levels of volatile compounds (e.g., benzene, toluene, ethyl benzene, and total xylenes [BTEX]) that are frequently associated with petroleum products. There is a high degree of chemical variability in the diluent detected onsite due to many factors, such as the source of the diluent, the age of release, and exposure to the environment. Over the years, the diluent-affected material as been referred to as “affected material” or “impacted soil.” The other main source of contaminated material at the site is sump material. This is soil or sand that has been contaminated with crude oil. Both the diluent and sump material at the site has also been called NHIS. Throughout the remainder of this document, NHIS has been used to refer to the diluent- and sump-affected material at the Guadalupe Field, except in places where the text is specific about diluent or sump material.

2.1 NHIS Quantities

In accordance with Waste Discharge Requirement (WDR) 01-041, the Regional Water Quality Control Board (RWQCB) has agreed to allow the City of Santa Maria to accept NHIS at their landfill (see Appendix H). Based on a letter from the RWQCB to Dwayne Chisam of the City of Santa Maria, dated March 11, 2003, the RWQCB determined the following with respect to the NHIS acceptance criteria:

All sources of NHIS material accepted at the Landfill must have proper engineering properties for use as foundation layer material, shall undergo the appropriate sampling protocol, and the hydrocarbon fractions in the NHIS shall not exceed the following concentrations:

- 1,000 parts per million (ppm) TPH in soil in gasoline fraction (C4 CI2). The DI WET shall not exceed 1.0 mg/L TPH gasoline fraction.
- 15,000 ppm TPH in soil in diesel fraction (C13 C22). The DI WET shall not exceed 5.0 mg/L TPH diesel fraction.
- 200,000 ppm TPH in soil in heavy oil fraction (C23 and above). The DI WET shall not exceed 10.0 mg/L TPH heavy oil fraction.

These concentrations shall replace the concentrations contained in Table 3: "Acceptance Criteria for Hydrocarbon Impacted Soil," as outlined in the January 23, 2002 Hydrocarbon Soils Management and Disposal Plan for City of Santa Maria Sanitary Landfill.

It should be noted that because diluent-affected soils at the field are typically characterized against a diluent standard, rather than with the three TPH ranges specified in the acceptance criteria (i.e., gasoline, diesel. and heavy oil), some representative sampling and analytical work was done to evaluate the suitability of the diluent-affected soils and the analytical methodology under the current acceptance criteria. According to the soil profiles from the field, the diluent-impacted soils satisfied the NHIS acceptance criteria for all three TPH fractions. However, they did not meet the acceptance criteria for leachable hydrocarbons in the gasoline and diesel ranges. After considerable evaluation, the RWQCB agreed to revise the acceptance criteria for NHIS, as noted in their August 31, 2004 letter to the City of Santa Maria. These criteria apply only to GOF NHIS and are as follows:

- 1,000 ppm TPH in soil in gasoline fraction (C4 C12). The DI WET shall not exceed 1.5 mglL for the TPH gasoline fraction;
- 15,000 ppm TPH in soil in diesel fraction (C13 C 22). The DI WET shall not exceed 7.5 mg/l for the TPH diesel fraction;
- 200,000 ppm TPH in soil in heavy oil fraction (C23 and above). The DI WET shall not exceed 10.0 mg/l for the TPH heavy oil fraction.

As such, in evaluating the impacts of the proposed trucking project, all materials at the field were assumed to meet the RWQCB approved criteria for NHIS.

The Applicant’s submission to the RWQCB dated May 2004, detailed the results of testing of the Guadalupe materials, including PCBs and heavy metals. The RWQCB letter dated 8/31/04 approving the Guadalupe material for use at the Santa Maria Landfill as testing of the materials had indicated levels that were acceptable to the Santa Maria Landfill NHIS program. See Appendix H for a copy of the letters and the NHIS acceptance criteria.

To determine the quantities of material that should be considered for each treatment or disposal method, the sump and NHIS have been separated into categories. All sump material from both previous and future excavations is called Category A material (approximately 200,000 cubic yards [cy]). Sump material is not considered suitable for treatment, and disposal is, therefore, the only option for sump material.

Diluent-affected material has been separated into Categories B and C. Category B includes material from previous excavations (approximately 380,000 cy) most of which is currently stockpiled at TB8. Category C includes the estimated 280,000 cy of diluent-affected material anticipated from remaining CAO excavation sites.

A breakdown of the source and quantity of material in each Category is shown below in Table 2.1. The table shows the estimated volume of material from each source, including an additional 10% contingency factor (33% for sump material from future excavations). This contingency factor has been added to account for the degree of uncertainty in the volume estimates and to ensure that the estimates are conservative and should not require additional review when the excavations commence.

Table 2.1 NHIS Volumes

Description	Quantity (cy)	Contingency Factor	Total (cy)
Category A Materials (Sump Material)			
TB9 Stockpiles	25,003	10%	*27,503*
Material Used at TB9	30,860	10%	*33,946*
LTU Buffer	2,460	10%	*2,706*
Future Sump Excavations	84,800	33%	*112,782*
Red Rock and Aggregate	14,500	10%	*15,950*
Sub Total (Category A Material, rounded)			200,000
Category B Material (Diluent Affected Materials Currently Stockpiled)			
LTU Pilot/Demo	12,480	10%	*13,728*
TB8 Stockpile	334,514	10%	*367,965*
Sub Total (Category B Materials, rounded)			380,000
Category C Material (Diluent Affected Materials Remaining to be Excavated)			
Remaining CAO Excavations	237,477	10%	*261,225*
Red Rock and Aggregate	14,500	10%	*15,950*
Sub Total (Category C Materials, rounded)			280,000
Backfill Requirements			
Category A Material	96,790	33%	*128,730*
Category C Material	251,977	10%	*277,174*
		Sub Total Backfill Requirements	410,000

Source: Unocal 2001

Category B and C materials (diluent-affected materials totaling 660,000 cy) could potentially be treated. Category A materials (sump materials totaling 200,000 cy) could only be disposed of, since they are not suitable for treatment. Therefore, all tables pertaining to material quantities in this section have addressed both the total materials quantity of 860,000 cy and the sump quantity of 200,000 cy.

2.2 Proposed Trucking Project

Unocal currently is proposing the trucking of materials to the Santa Maria Landfill as the proposed project. The RWQCB has approved the Santa Maria Landfill to accept the Guadalupe hydrocarbon-impacted material as fill as part of the Landfill's NHIS Program. With the trucking of the diluent-affected material to the Santa Maria Landfill, additional sand from Q4 would be needed to provide the backfill for the excavations. The use of Q4 sand for backfill was addressed in the Original EIR, and was approved as part of San Luis Obispo (SLO) County Coastal Development Permit/Development Plan (CDP/DP D890558D). To date, SLO County has approved the use of 500,000 cy of Q4 sand for backfill. This SEIR evaluated the impacts of using up to 1,000,000 cy of Q4 sand for backfill.

2.2.1 Offsite Trucking — Santa Maria

For the proposed project of offsite trucking to the City of Santa Maria Landfill, trucks would be brought onsite and loaded with NHIS. These trucks would then travel to the City of Santa Maria Landfill (Landfill), a permitted, offsite solid-waste-handling facility located in the Santa Maria city limits, where the NHIS would be offloaded. The objective of this project is to remove the

NHIS from the environmentally sensitive areas of the Guadalupe Field and move it to a location where it can be contained and controlled. An estimated 860,000 cy of NHIS would be hauled offsite.

It is anticipated that approximately 22,000 cy of red rock/road base material would also be removed and trucked offsite in conjunction with excavation activities, regardless of the treatment/disposal method implemented for the NHIS. The offsite trucking of this red rock/road base material is included in this project description.

Aggregate from screening activities may be generated onsite during excavation and treatment/disposal activities. The overburden from an excavation site may be screened to remove rocks and/or asphalt chunks before it is reused. Land treatment may require removal of large particles from the material before it can be processed. These would also require transportation offsite. It is estimated that an additional 10,000 cy of aggregate could be removed from the site if screening is conducted.

It is anticipated that any quantity of red rock/road base or aggregate material generated from excavation or screening activities is accounted for within the 10–33% contingency provided for the NHIS (see Section 2.1).

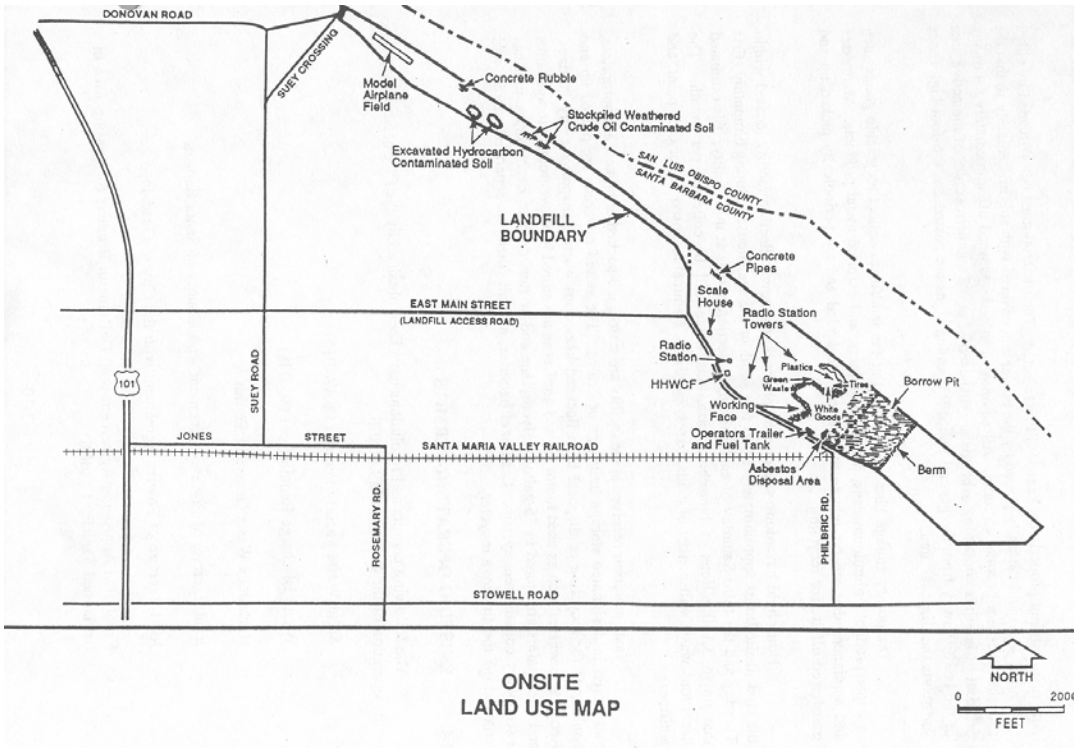
Santa Maria Landfill

The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. In accordance with Title 27, which contains provisions to use NHIS to construct foundation layers for landfill closure, the RWQCB issued Revised Waste Discharge Requirements (WDR) Order No. 01-041 on May 18, 2001 to the Santa Maria Landfill. WDR 01-041 provides guidelines for the acceptance of NHIS from the restoration and cleanup of oil-producing sites (see Appendix H). These plans were addressed in a Joint Technical Document (JTD) prepared by CH_2MHill and evaluated in the CEQA addendum to the 1993 Landfill EIR (SCH 92031045) and in subsequent EIRs (City of Santa Maria February and May, 2004a and 2004b). The landfill is located within the City of Santa Maria. The location of the landfill is shown in Figure 2-1.

According to the JTD and the SEIR, accepting impacted soils is consistent with the Landfill's intent to implement an expedited closure process by using the NHIS: (1) to achieve design grades and serve as the foundation layer of the final cover system for the existing active portion of the landfill, and (2) for daily and intermediate cover material in the lined expansion areas of the landfill. The EIR Addendum identified no significant impacts associated with the use of NHIS.

WDR 01-041 also specified that the area of the landfill that was then active (which is now inactive and the area that would receive NHIS) should become inactive after November 2002 (later changed to December 2002). This was due to the lack of containment and water quality protection systems for the municipal solid waste in this older area. This older area is now called post 12/02 inactive areas. The areas that began receiving solid waste after 12/02 are called the active cell 1 and the expansion area (cell 2). These areas have the municipal solid waste protective layers and systems a prescribed by the RWQCB.

Figure 2-1 Santa Maria Landfill Location and Site Details



Source: City of Santa Maria, 2004a.

It is important to note that the Santa Maria Landfill currently has a need for enough soils to close their remaining active cells. This need is estimated to be close to 5 million cy, well in excess of the amount located at the Guadalupe Field. Currently, the Landfill has been accepting NHIS from other sump locations in the Santa Maria Valley. However, these sources are winding down and the Landfill needs to locate other sources of materials for closure. The sources of material for closure will need to be found and materials transported to the Landfill regardless of the disposal decisions associated with this document.

On August 31, 2004, the RWQCB issued a letter to the Santa Maria Landfill that specifically addressed acceptance of NHIS material from the Guadalupe Restoration Project. This letter allows the Landfill to revise the extractable Total Petroleum Hydrocarbon (TPH) acceptance standards in order to accept NHIS material from the Guadalupe site (see Appendix H). With the issuance of this letter, the Santa Maria Landfill is allowed to accept material from the Guadalupe Field as part of the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program.

According to WDR 01-041, the placement of NHIS at the landfill must meet the following conditions:

a. Hydrocarbon-impacted soil must be placed a minimum of 20 feet above any historic or anticipated leachate or ground water elevation;
b. Hydrocarbon-impacted soil shall not be used as ADC (alternative daily cover) without prior approval from the Executive Officer;

c. Waste soil shall contain no free liquids;
d. No hazardous waste shall be accepted for disposal;
e. A hydrocarbon soils management plan/program is submitted to, and approved by the Executive Officer.

WDR 01-041 further specifies that the hydrocarbon-impacted soils management and disposal plan shall include the following items:

a. Hydrocarbon soil concentration limits for soil disposal in both the post 12/02 inactive area and the currently active area (cell 1). Concentrations limits for the post 12/02 inactive area shall be significantly less than limits proposed for the lined currently active area (cell 1);
b. Placement restrictions and volume tracking for waste in both the active and expansion areas;
c. Storage and handling procedures for soil; and
d. Waste soil characterization requirements, acceptance, and review procedures.

The Santa Maria Landfill began accepting NHIS in early 2003. The RWQCB required that the post 12/02 inactive areas be equipped with lining and leachate recovery for the cover soils/NHIS. Figure 2-2 shows pictures of the Santa Maria Landfill impacted-soils cover, as well as lining and associated leachate recovery systems. As discussed in the JTD, specific screening of the impacted soils is performed by the Santa Maria Landfill to determine its conformance with the RWQCB's acceptance criteria for each source of material entering the site. Only non-hazardous impacted soils meeting the acceptance criteria are accepted for disposal in the landfill. See Figure 2-3, which depicts the configuration for containment of NHIS within the post 12/02 inactive area of the landfill.

Figure 2-2 Santa Maria Landfill Current Operations

Cover NHIS

Cover Liner and Containment Berm

Leachate Recovery Piping

Leachate Recovery Storage and Flare

Source: Marine Research Specialists.

WDR 01-041 also allows for future use, with prior approval from the Executive Officer, of impacted soils for daily and intermediate cover material in the currently active areas (cell 1 or the expansion area, cell 2) of the Landfill. WDR 01-041 indicates that "slightly higher hydrocarbon concentrations in soils disposed of within the new lined cells numbers 1 and 2 would be appropriate, due to their low permeability base liner and leachate collection and detection systems." Details of this waste containment system are provided on pages 7 and 8 of WDR 01-041 in section C, Specification No. 5.

Figure 2-3 Santa Maria Landfill Refuse Layering

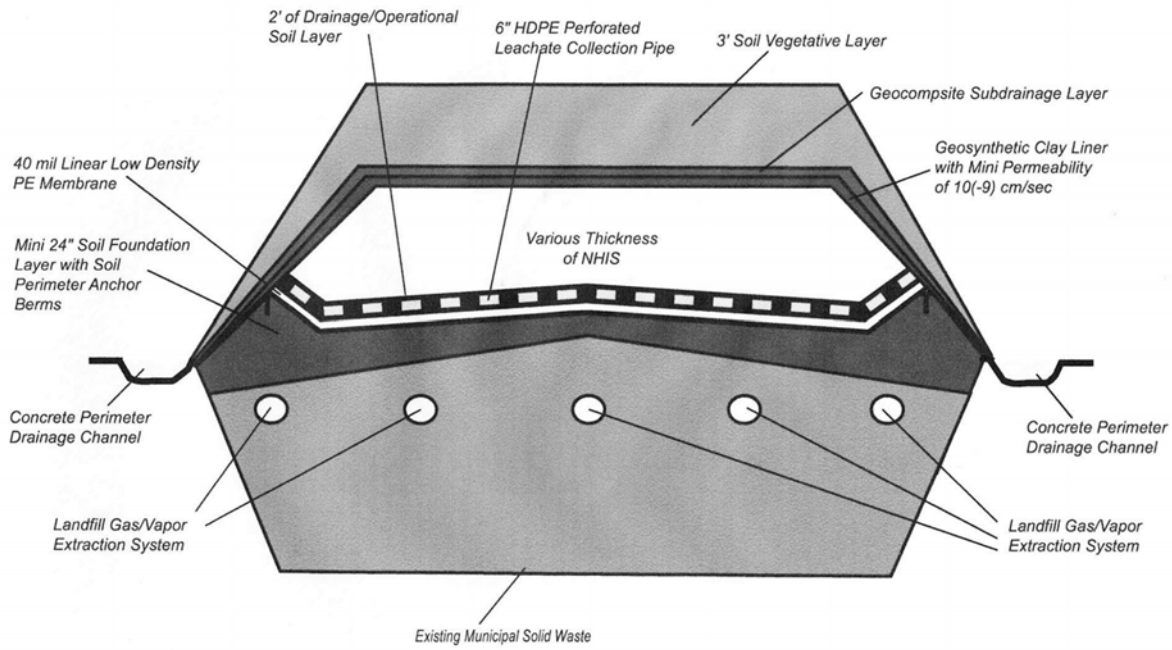


Figure provided by John Zhao with the City of Santa Maria Landfill.

2.2.1.1 Offsite Trucking — Santa Maria: Onsite Description

Loading of trucks onsite would occur at the current stockpile sites and, if feasible, at excavation sites, as shown on Figure 2-4. Additionally, material may be loaded from screening operation sites. Loading of trucks would be accomplished with loaders, excavators and bulldozers, or equivalent equipment. Loading sites would also include portable scales for weighing the loaded trucks and an area for cleaning the trucks (dry decon) before they leave the site.

NHIS is currently stockpiled or placed in two locations onsite: TB8 and TB9. Truck loading operations at TB8 and TB9 would require approximately 1 to 2 acres at each site. There are several locations at TB8 and TB9 within the existing disturbed areas that would be suitable for loading operations, so it is not anticipated that any additional site disturbance would be required.

Sites of the remaining excavations required by CAO 98-38 are shown in the Figure 2-4. If feasible, trucks for offsite trucking would be loaded directly at the excavation sites. The feasibility of direct loading from an excavation is dependant on the maneuverability of the trucks within the defined limits of disturbance at each site. Limits of disturbance would not be expanded strictly to accommodate loading of trucks. If trucks cannot be directly loaded at the excavation site, excavated material would be hauled to TB8, TB9, or another established truck-loading area.

Material may also be loaded from the site of portable screening operations. If truck loading is done at a screening operation site, it would be done within the established screening area so that no additional area would need to be disturbed.

While onsite, trucks would travel to and from loading sites on the existing paved roads. The majority of truck traffic within the site would be on the Main Road or the TB9 Road. Other roads may be employed as needed for traffic control and safety.

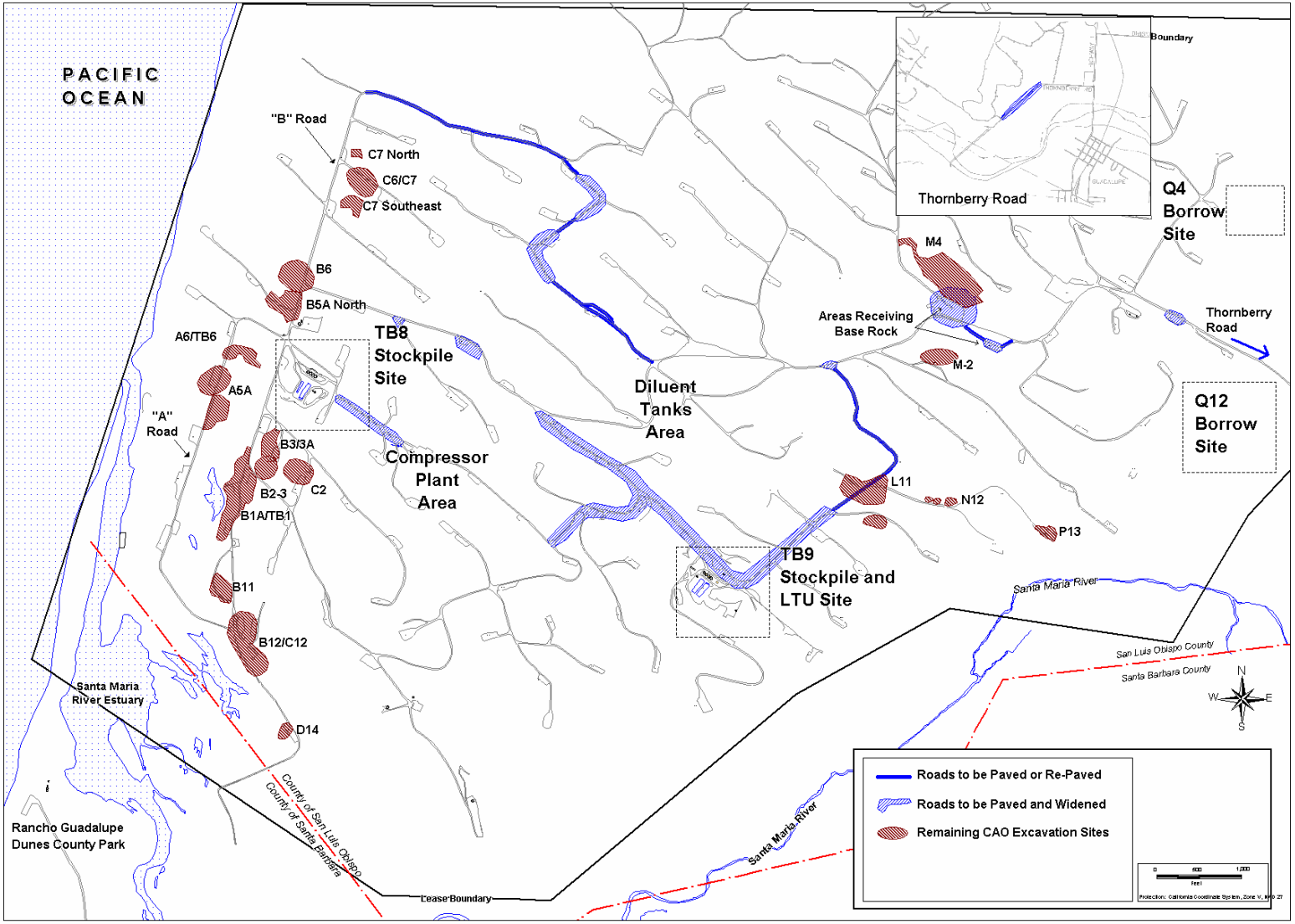
A Sampling Plan will be developed and implemented by Unocal to ensure that the material being hauled to the Santa Maria Landfill under the NHIS Program meets the Acceptance Criteria set forth in Waste Discharge Requirements Order No. 01-041 issued by the RWQCB (see Appendix H). The Sampling Plan will provide the sampling frequency and sampling/analytical procedures for the Acceptance Criteria and will address sampling for the material that is stockpiled onsite prior to loading it into trucks and material that is excavated and loaded directly into trucks, if any.

Any material that does not meet the NHIS specifications for the Santa Maria Landfill will be returned to the Guadalupe Field, where it will be stockpiled and allowed to undergo further natural attenuation. The material will then be mixed with other material at the field and sent back to the Santa Maria Landfill. It is possible that at the end of the project, some of the material that does not meet the NHIS specifications would have to be transported to another landfill, such as McKittrick or Kettleman Hills in Kern County, for disposal. However, it is expected that this volume of material would be less than 200 cy.

2.2.1.2 Offsite Trucking — Santa Maria: Construction and Mobilization

Since truck loading would take place within already disturbed areas (stockpile, screening, or excavation sites), construction activities directly related to the offsite trucking operation would be minimal. “Construction” activities would largely consist of mobilization, or transporting the equipment needed for the loading operations to the loading site. Mobilization activities would be comparable for any volume of material hauled offsite, except that additional loading sites may be needed if material is hauled from multiple stockpiles and/or excavation sites.

Figure 2-4 Site Specifics: Stockpiles, Roadwork, and Remaining Excavations



Source: Unocal 2001.

It is anticipated that loading would occur from only one site at a time, but no more than three separate loading sites would be established concurrently. Only two sites (TB8 and TB9) would need additional equipment for loading that requires mobilization specifically for trucking activities. Other sites would have equipment available from other activities, such as excavation. Table 2.3 and the discussion below address the needs for a single loading site; this information should be multiplied if additional concurrent loading sites are used.

Description of Work

Equipment necessary for the truck loading operations may include front-end loaders, bulldozers, excavators, and/or similar equipment. If it is not already onsite to support excavation activities, equipment would be brought onsite using haul trucks, trailers, or equivalent equipment. No new utility infrastructure would be needed for the trucking operation.

Prior to the start of hauling on Thornberry Road, repairs may be needed. It is anticipated that soft spots in the road would be repaired and the road overlaid with two inches of asphalt. To allow staging of trucks outside the gate, approximately 0.5 miles of Thornberry Road may be widened 10 feet. Road widening is dependent on available County right-of-ways.

Road widening and re-paving may also be conducted on roads in the Guadalupe Field, as needed. Figure 2-4 shows the roads that may be widened and paved and those that may be re-paved only. Base rock may also be placed on some existing pads/staging areas. An estimated 7,800 feet of roads may be re-paved only, and an estimated 8,600 feet of roads may be both widened and then re-paved. The average widening is estimated to be 5 feet on each side of the road for a total increase in width of 10 feet, or approximately 2.0 acres along roadsides.

Time Schedule

Approximately five days would be required for mobilization and setup of the first loading location. Mobilization of equipment onsite would involve one round trip by each haul truck/trailer for each piece of heavy equipment needed specifically for the loading/trucking operations.

Depending on the level of road paving/widening needed, this activity could take up to 18 days to complete.

If multiple loading sites are used consecutively, brief delays in operation may be experienced to demobilize equipment from the first site and move it to the next. It is anticipated that mobilization would be planned around loading operations, so delays would not affect the overall schedule of the offsite trucking operation.

Equipment, Personnel Description

Equipment and personnel involved in setup for the trucking operation are shown in Table 2.2, below.

Table 2.2 Mobilization Requirements

Task	Equipment/Personnel	Quantity	Duration of Initial Set-up	
			Days	Hours/Day
Set up loading area	Haul trucks/trailers	6 trips		
Onsite road improvements (if done)	Excavator	1	4	8
	Loader	1	4	8
	Grader	1	6	8
	Water tuck	1	6	8
	Dump trucks – offsite Base /AC	120 trips		
	Paving spreader	1	3	8
Repair Thornberry Road	Dump trucks – offsite AC	110 trips		
	Grader	1	1	8
	Compactor	1	4	8
	Broom	1	1	8
	Water truck	1	6	8
	Asphalt spreader	1	4	8
	Flatbed truck	1	6	8
	Tack oil truck	1	4	8
Widen Thornberry Road (0.5 miles x 15 feet) (if done)	Dump trucks – offsite Base/AC	60 trips		
	Grader	1	3	8
	Compactor	1	3	8
	Loader	1	5	8
	Water truck	1	5	8
	Asphalt spreader	1	1	8
	Broom	1	1	8
	Dump trucks, spoil material	30 trips		
	Tack oil truck	1	1	8
Total Duration (days)			**18**	

Source: Unocal 2001

Equipment would likely come from either San Luis Obispo or Santa Barbara County, depending on contractor availability. It is anticipated that materials and equipment would come from within a 30-mile radius (60-mile round-trip) of the site and that approximately 1.5 workers would commute to the work site for each piece of construction equipment used.

2.2.1.3 Offsite Trucking — Santa Maria: Operations

The proposed project is to haul all the material (including red rock and aggregate) to the City of Santa Maria Landfill at 2065 E. Main Street. This facility is located in Santa Barbara County, approximately 16 miles from the Guadalupe Field. The estimated requirement for foundation and interim cover in the landfill is 5 million cy. The sequence of operations for the offsite trucking operation is:

1. Load NHIS;
2. Travel to an approved offsite solid-waste-handling facility;
3. Offload NHIS;

4. Return to site for reloading.

Each of these is discussed in more detail below.

Load NHIS. Loading of the NHIS onto trucks would take place at specified loading sites or, if feasible, at excavation sites. It is anticipated that 18-wheel dump trucks, 10-wheel dump trucks, or equivalent would be used for trucking operations. These trucks have a capacity ranging from 8–18 cy (11 to 25 tons of NHIS). The most likely average quantity per truck trip would be an average of 16 cy (22 tons).

Trucks would be loaded with front-end loaders or equivalent equipment. Bulldozers, excavators, and/or similar equipment would be used to manipulate the NHIS stockpiles as necessary for loading. It is anticipated that truck loading would be during daylight hours, five days a week, 50 weeks a year. Trucks may stage along Thornberry Road if necessary.

During loading, trucks would be weighed using portable scales to help ensure that they are not loaded above safe capacity. To reduce dust during transport, tarps or other covers would be placed over the NHIS in the trucks prior to their departure from the site. Some trucks may have built-in cover assemblies; others may require installation of covers by hand. Water trucks would spray traffic areas for dust control during loading operations.

NHIS would be hand broomed from truck exteriors and removed from tires using rumble mats. (Rumble mats, or tread spreaders, are pads with a textured surface that separates the tread of the tires as the truck is driven over them. This allows the NHIS to fall out of the treads onto the mats.) The mats would be of sufficient length to allow at least one complete revolution of the tires.

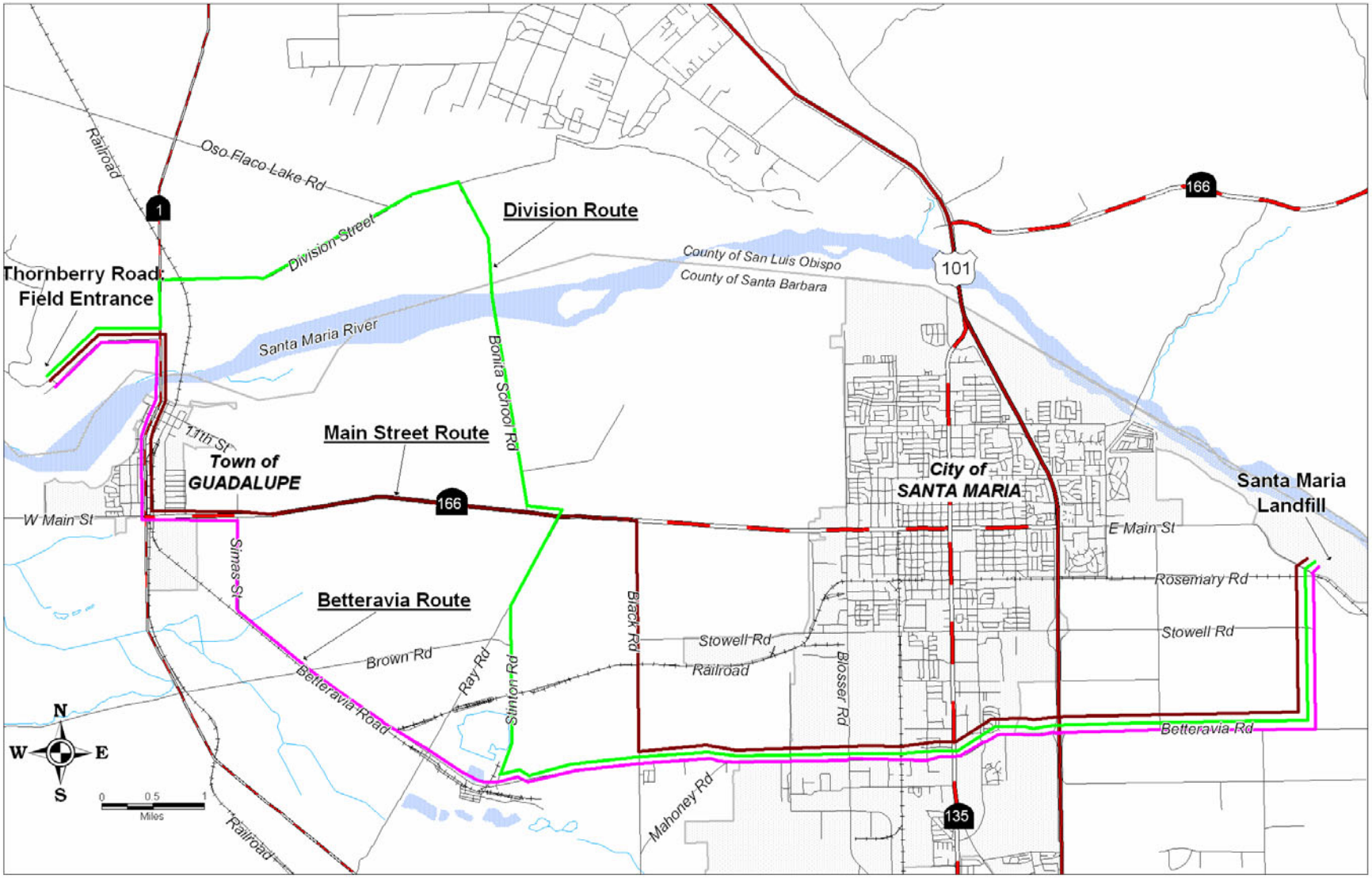
When loading activities and associated NHIS stockpile management operations cease for more than 24 hours, or as otherwise required by the Air Pollution Control District (APCD), Soil Sement® or other approved vapor control would be applied to disturbed stockpile areas.

Travel to an approved offsite solid-waste-handling facility. The trucks would drive to the Santa Maria Landfill. There are three routes proposed to be used for transporting the NHIS from the Guadalupe Field to the Santa Maria Landfill. The route actually used during the project will depend on a number of factors, including weather, impacts to populations, and other traffic. Each of the routes is described below (see Figure 2-5).

Betteravia Route
Vehicles using this route would exit the Guadalupe Field at Thornberry Road to Highway 1, travel south on Highway 1 through the town of Guadalupe to Highway 166 (Main Street), east on Main Street to Simas Street, south on Simas Street to Betteravia, then east on Betteravia Road continuing over Highway 101 to Philbric, and north on Philbric Road to the Santa Maria Landfill.

Main Street Route
Vehicles using this route would exit the Guadalupe Field at Thornberry Road to Highway 1, travel south on Highway 1 through the town of Guadalupe to Main Street, east on Main Street to Black Road, south on Black Road to Betteravia, then east on Betteravia Road continuing over Highway 101 to Philbric, and north on Philbric Road to the Santa Maria Landfill.

Figure 2-5 Proposed Truck Routes to the Santa Maria Landfill



Source: Marine Research Specialists.

Division Route
Vehicles using this route would exit the Guadalupe Field at Thornberry Road to Highway 1, travel north on Highway 1 to Division Street, east on Division Street to Bonita School Road, then South on Bonita School road over the Santa Maria River to Main Street, East on Main Street to Ray Road, then South on Ray Road to Sinton Road, South on Sinton Road to Betteravia, then east on Betteravia Road continuing over Highway 101 to Philbric, and north on Philbric Road to the Santa Maria Landfill.

A Traffic Control Plan is in place for current operations-related traffic on- and offsite. This plan would be amended as necessary to include traffic related to offsite trucking.

Offload NHIS at the Santa Maria Landfill. After the NHIS is offloaded, debris would be removed from the truck exterior and tires as needed, most likely using methods comparable to those for onsite activities. Loads would be checked as part of the Santa Maria Landfill Load Checking Program to ensure that the NHIS criteria are being met. A minimum of one sample per 20 loads would be taken at the Landfill. The samples would be sent to a local laboratory for comparison to the criteria. If the load is deemed not acceptable, Unocal would be required to haul away the material already delivered. In addition, the Landfill requires documentation from the source (Unocal) that the materials are in compliance with the NHIS criteria. This will be satisfied by Unocal's sampling plan.

Return to site for reloading. Trucks would return to the site by reversing their route to the facility. It is anticipated that each truck can complete up to five round trips per day.

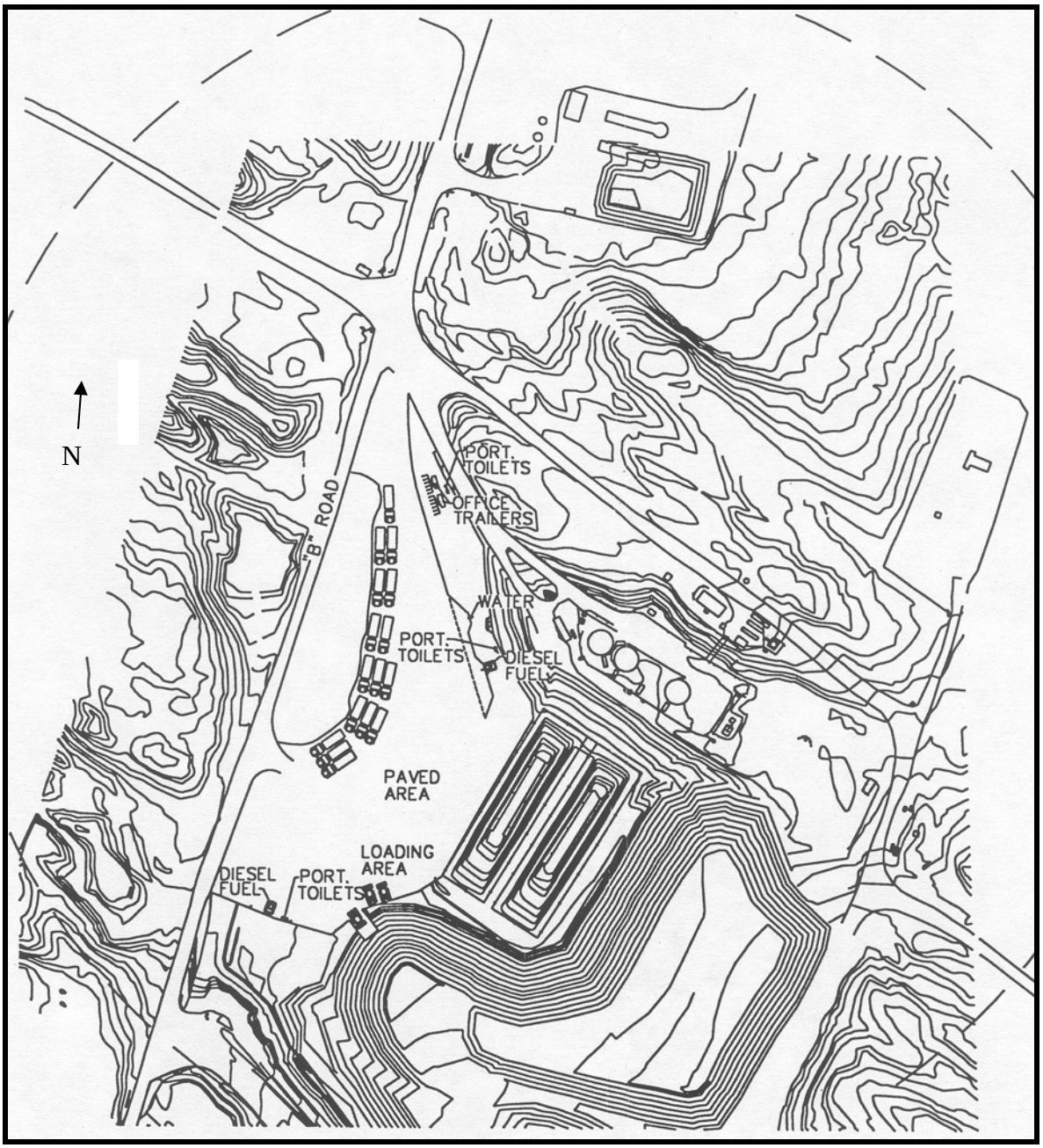
Staging may be available along Thornberry Road, if it can be widened by 10 feet. Truck staging would be also done onsite at TB8 or other available locations. Figure 2-6 shows the anticipated staging and loading layout at TB8. The trucking contractor would be required to maintain responsible procedures and spacing.

While the trucks are onsite, standard traffic safety procedures would be in place. It is anticipated that when offsite trucking is the only operation ongoing at the site, no traffic control would be needed. When concurrent operations are underway, such as excavation concurrent with offsite trucking, radios, flaggers, or other traffic control would be utilized to direct traffic safely.

Table 2.3, below, illustrates the number of trips required for the range of truck capacities, and the amounts of NHIS (the red rock/road base/aggregate volumes are anticipated to be within the contingencies). It is anticipated that 18-wheel dump trucks, 10-wheel dump trucks, or equivalent would be used for trucking operations. These trucks have a capacity ranging from 8–18 cy (11 to 25 tons of NHIS). The most likely quantity per truck trip would be an average of 16 cy (22 tons). The actual number of trips required to complete the trucking operation would likely be within this range.

Hauling is anticipated for a period of two years for Category A (200,000 cy of sump) material only, and for a period of three years for the entire 860,000 cy of material, but a range of two to four years was also reviewed to provide for schedule changes. Average daily trips for a two-, three-, and four-year duration of trucking are shown below in Table 2.4. Estimates assume a maximum peak rate of 150 truck round trips (300 one-way trips) per day during short-term peak periods of activity. Equipment and personnel involved in offsite trucking operations are shown in Table 2.5.

Figure 2-6 TB8 Staging Areas



Source: Unocal 2001.

Table 2.3 Offsite Trucking: Truck Trips

Quantity (cubic yards)	Truck Trips Required	
	8 cubic yards minimum per trip	18 cubic yards maximum per trip
Red Rock/Road Base 38,500	4,813	2,139
200,000	25,000 trips	11,111 trips
860,000	107,500 trips	47,779 trips

Source: Unocal 2001.

Table 2.4 Offsite Truck Trip Durations

	Average Number of Truck Round Trips					
	Duration 2 Years*		Duration 3 Years		Duration 4 Years	
	Per Day	Per Hour	Per Day	Per Hour	Per Day	Per Hour
8 cy Trucks						
200,000 cy	50	8.4	33.4	5.6	25	4.2
860,000 cy	150	18.8	143.4	18	107.6	13.4
Maximum peak short-term rate	150	18.8	150	18.8	150	18.8
18 cy trucks						
200,000 cy	22.2	3.7	14.8	2.5	11.1	1.9
860,000 cy	95.6	11.9	63.7	8.0	47.8	6.0
Maximum peak short-term rate	150	18.8	150	18.8	150	18.8

Notes: Round Trips (for total one-way trips, multiply by 2), 5 days per week, 50 weeks per year.
6-hour work day for Cat. A (200,000 cy) material, 8-hour work day for all (860,000 cy) material and for maximum peak short-term rate. The 8 cy, 2-year duration and 860,000 cy volume would involve the use of some 18 cy trucks in order to achieve the haul requirements.
Red rock/road base is assumed to be included in contingency for NHIS.

Source: Unocal 2001.

Table 2.5 Equipment and Personnel

Task	Equipment/Personnel	Quantity	Daily duration (hours)
Load Trucks	Komatsu PC600 Excavator	1	6 – 8
	D8R Dozer	1	6 – 8
	Front-End Loader	1	0 – 2
	Front-End Loader	1	6 – 8
	Water Truck	1	3
	Soil Sement® Applicator	1	As needed
	Portable Scales	1	6 – 8
	Light Plants with diesel Generators, <50 hp	2	As needed
Decontaminate Trucks	Brooms, Sweeping personnel	As needed	6 – 8
	Rumble Mats	1	6 – 8
Travel to and from solid-waste handling facility	Trucks, drivers	each	See truck trips and equivalent mileage

Notes:
- Six hours per day needed for Category A (200,000 cy of sump material) truck trips; eight hours per day for truck trips to handle all 860,000 cy of material.
- Use of light plant assumed to be ½ hour per day average.

Source: Unocal 2001.

Utilities used during loading operations would include water for the water trucks and Soil Sement® to apply as needed. Additionally, lights or light plants with less than 50-horsepower (hp) generators may be used, but are anticipated only for refueling or maintenance operations if these are performed beyond daylight hours.

Any diesel fuel stored at the Guadalupe Field to fuel vehicles and/or equipment would have secondary containment and be kept in a secured area.

Project demobilization for offsite trucking activities would be minimal, and similar to mobilization efforts. If multiple loading sites are established, multiple demobilization efforts could be necessary, potentially resulting in a brief delay in demobilization operations from one site to the next.

The truck drivers working onsite receive site orientation training including site safety measures, protective measures for ecological resources, and spill prevention, response and notification procedures. For both safety and ecological reasons, a maximum speed limit of 25 mph has been established for vehicles traveling on the site.

Two accidents involving trucks have occurred at the site during previous activities. One accident occurred when a truck unloaded while parked on a slope and the bed tipped over. The other occurred when the driver of a truck loaded with clean sand and rock was exceeding the site-wide speed limit, lost control of the vehicle, and went off the road. The front transfer tipped over, spilling the load of clean material. It was determined during the investigations that the accidents would not have occurred if the truck operators had been following the site procedures.

2.2.1.4 Offsite Trucking — Santa Maria: Demobilization

Demobilization would require the dismantling of the loading area, the removal of loading equipment and restoration of the loading area to the agreed upon condition. In addition, Thornberry Road would be repaired, as required. The repairs needed for Thornberry Road will be determined by a post-project survey. The equipment and level of effort for demobilization is listed in Table 2.6.

Table 2.6 Demobilization Equipment and Personnel

Task	Equipment/Personnel	Quantity	Duration of Demobilization	
			Days	Hours/Day
Demobilize loading area and return equipment	Haul trucks	6 trips	6	8
Repair Thornberry Road (If needed)	Dump trucks – offsite AC	110 trips		
	Grader	1	1	8
	Compactor	1	4	8
	Broom	1	1	8
	Water truck	1	6	8
	Asphalt spreader	1	4	8
	Flatbed truck	1	6	8
	Tack oil truck	1	4	8
Total Duration (days)			**6**	

Source: Unocal 2001.

2.3 Q4 Borrow Site

With the removal of the NHIS from the Guadalupe Field, material from onsite locations will need to be used for backfill in the excavated areas. The Applicant has proposed to use clean sand from a location at the site known as Q4. San Luis Obispo County has already approved the use of 500,000 cy of material from this site. The environmental impacts associated with using material from Q4 as a source of backfill for excavations was addressed in the 1998 EIR (ADL 1998) and in subsequent CEQA Addendums.

Q4 is a large sand dune that has an estimated volume of approximately 9,600,000 cy. To date, the Applicant has used approximately 200,000 cy of material from Q4 as backfill for excavations. The Applicant has requested approval for the use of up to 1,000,000 cy of material from Q4 for use as backfill for excavations at the site. Material that would be removed from Q4 would be hauled to various excavation sites by trucks.

2.4 References

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3.0 Alternative Project Description/Screening Analysis

The California Environmental Quality Act, Section 15126.6, requires an SEIR to describe a reasonable range of alternatives to a project or to the location of a project which could feasibly attain its basic objectives and evaluate the comparative merits of the alternatives. This section discusses a range of alternatives to the proposed Non-hazardous Hydrocarbon-Impacted Soils (NHIS) trucking project. Criteria used to evaluate the range of alternatives and remove certain alternatives from further consideration are addressed. CEQA Guidelines Section 15126.6 provides direction for the discussion of alternatives to the proposed project. This section requires:

- A description of *"...a range of reasonable alternatives to the project, or to the location of a project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."* [15126.6(a)]
- A setting forth of alternatives that *"...shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project."* [15126.6(f)]
- A discussion of the "No Project" alternative, and *"...If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."* [15126.6(e)(2)]
- A discussion and analysis of alternative locations *"…that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR."* [15126.6(f)(2)(A)]

This document has used an alternative screening analysis to limit the number of alternatives evaluated in the SEIR. The use of an alternative screening analysis provides the detailed explanation of why some of the alternatives were rejected from further analysis and assures that only the environmentally preferred alternatives are evaluated and compared in the SEIR.

This screening methodology also uses the *"rule of reason"* approach to alternatives as discussed in CEQA (Guidelines Section 15126.6(f)). The rule of reason approach has been defined to require that EIRs address a range of feasible alternatives that have the potential to diminish or avoid adverse environmental impacts. The CEQA Guidelines state:

> *"The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effect of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project."* (Section 15126.6(f))

In defining feasibility of alternatives the CEQA Guidelines state:

> *"Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general*

> *plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site."* (Section 15126.6(f)(1))

If an alternative was found to be technically infeasible, then it was dropped from further consideration. This was the primary feasibility factor that was used to eliminate an alternative without further screening analysis.

In addition, CEQA states that alternatives should "… *attain most of the basic objectives of the project* ..." (Section 15126.6(a)). If an alternative is found to not obtain the basic objective, then it was also eliminated.

The use of a screening analysis for the alternatives ensures that the full spectrum of environmental concerns is adequately represented, and that a reasonable choice of alternatives is selected for evaluation in the SEIR.

Alternatives screening analysis is used in EIR preparation as a tool for focusing the environmental review process and limiting the amount of detailed analysis. For example, in SLO County, this type of analysis has been used successfully in the Unocal Avila Beach Cleanup Project EIR/EIS (ADL 1998a), the 1998 Guadalupe EIR (the 1998 EIR) (ADL 1998b), and the WorldCom MFS Globenet EIR (Morro Group 2000).

Given the CEQA mandates listed above, the remainder of this section covers: (1) a brief description of a range of reasonable alternatives to the proposed project; (2) a screening analysis that summarizes and compares the significant environmental effects of the project and each alternative; and (3) a detailed description of the alternatives that were selected for further consideration in the SEIR.

3.1 Alternative Screening Analysis

The method used to select remedial alternatives provided the means of identifying and selecting the technologies, or mix of technologies, that would provide effective NHIS cleanup, and at the same time, minimize environmental impacts. This approach meets the legal requirements of CEQA; assures that the SEIR evaluates a range of alternatives; and minimizes the number of alternatives that are carried forward for analysis in the SEIR.

The 1998 EIR examined a total of 100 alternative remedial technologies for the initial screening analysis. These were composed of the following types:

- Containment
- Access and Removal
- External (Ex-situ) Treatment
- In-place (In-situ) Treatment
- Air Emissions Controls
- Disposal

This list was screened down to 64 technologies that were considered to be most suitable for application at the Guadalupe Field. Based on the above review, 30 technologies were retained and used as a "tool kit" for developing remedial scenarios. Table 3.1 lists the criteria that were used to screen the various technologies evaluated in the 1998 EIR.

Table 3.1 Environmental Screening Criteria

Environmental Discipline	Screening Criteria Description
Geology	Technology could result in potential impacts to drainage patterns, sediment transport, disturbance to dune stability, or potential for landslide.
Water Quality	Technology could result in exceedance of water quality standards, drawdown of the water table, modified flow direction, mobilization of contaminants, changes in hydraulic conductivity, or saline intrusion.
Onshore Biology	Technology could have impacts on endangered, threatened, or rare species, reduction in populations, or loss of habitat.
Marine Water Quality	Technology could result in increased turbidity reaching the ocean or hydrocarbon discharge.
Marine Biology	Technology could result in mechanical hazards, increased turbidity, or a hydrocarbon release that would adversely impact marine organisms.
Safety	Technology could introduce safety hazard to public or result in increased exposure to toxic substances, fires, or explosions.
Visual Resources	Technology could impact scenic quality, visibility, and/or quality of viewshed.
Air	Technology could result in emissions that exceed the APCD CEQA thresholds or regulatory emission limits.
Noise	Technology could result in significant noise impacts at sensitive receptors and/or to threatened, endangered, or sensitive species.
Traffic	Technology could cause increased traffic levels that exceed available capacities, or damage to roads from heavy equipment.
Land Use/Recreation	Technology could result in migration of sand offsite, or it could interfere with public access and use of beach.
Cultural Resources	Technology could disturb cultural resources.
Public Services	Technology could result in the need for increased public services and/or public utilities.

The soil remediation technologies which passed the initial screening in the 1998 EIR are listed in Table 3.2.

This list of remedial technologies was reduced to only those that were ranked as having a good technological effectiveness. It was then screened for applicability to the contamination and specific conditions at the Guadalupe Field. The technologies screened included:

1. Thermal Desorption
2. Landfarm followed by Treated Material Land feature (Reuse/Recycle)
3. Slurry Injection (Deep Well Reinjection)
4. Engineered Containment Unit (ECU, or Reuse/Recycle)
5. Trucking to Other Destinations (or Solid Waste Landfill in the Table)
6. Rail transportation of NHIS (Solid Waste Landfill)

Table 3.2 Remedial Technologies Addressed in the 1998 EIR

Remedial Technology \ Issue Areas Affected	Technology Effectiveness		Geology	Water	Biology	Marine Water Quality	Marine Biology	Safety	Visual	Air	Noise	Traffic	Land Use/Recreation	Cultural	Public Services
EX SITU TREATMENT - SOILS															
Screening	P														
Steam Stripping	M		⓪	⓪	⓪					⓪					
Oxidation	P			⓪						⓪					
Photolysis	P			⓪						⓪					
Thermal Desorption	G				⓪					⓪					⓪
Aerobic Processes	M		⓪	⓪	⓪					⓪					
Anaerobic Processes	P		⓪	⓪	⓪					⓪					
Facultative Processes	P		⓪	⓪	⓪					⓪					
Wetlands Treatment	M			⓪	⓪	⓪				⓪			⓪		
Landfarm Bioremediation	G		⓪	⓪	⓪					⓪					
Soil/Slurry Bioreactor	M		⓪	⓪	⓪					⓪					
Soil Washing	M		⓪	⓪	⓪					⓪					
Evaporation	M		⓪	⓪	⓪					⓪					
WASTE DISPOSAL															
Surface Water Discharge	M		⓪	⓪	⓪	⓪									
Deep Well Reinjection	G			⓪											
Ground Water Recharge	G			⓪	⓪										
Reuse/Recycle (onsite)	G		⓪	⓪	⓪										
Asphalt Incorporation (offsite)	G			⓪								⓪			
Hazardous Waste Landfill (offsite)	G			⓪								⓪			⓪
Solid Waste Landfill (offsite)	G			⓪								⓪			⓪

Technology Effectiveness = Good, Medium, Poor. Good technologies shown in bold type.
Symbol in Table indicates that the environmental impacts listed in Table 3-1 could occur for the remedial technology.

Source: ADL 1998

Each technology was reviewed against each of the 13 environmental disciplines discussed above. Whenever a technology could result in a significant adverse impact, either during construction or during operation, it was considered to be a constraint against the technology. Each of these technologies is discussed below.

- ***Thermal Desorption.*** Though costly to operate, this technology has proven to be very effective in past projects such as the 5X beach excavation. Thermal Desorption Units (TDUs) would be used to heat the NHIS so that the hydrocarbons would be driven off and combusted. It would involve the importation of large quantities of fuel, either propane brought in by trucks or natural gas brought in by pipeline. The emissions resulting from TDU operations may make it infeasible to obtain a permit from the Air Pollution Control District

since the necessary offset may not be available. This technology was evaluated in the 1998 EIR and is therefore not examined further since this SEIR is a supplement to the 1998 EIR.

- ***Landfarm Bioremediation.*** This technology is possibly effective for treatment of affected soils. Pilot studies conducted to date by Unocal have been inconclusive. The time required to reach low levels of cleanup may limit its application for large volumes of soil. The LTU would be a pre-step to the Treated Materials Land Feature, listed below. To date the LTU has been unable to achieve a level of cleanup that would allow the material to be used as backfill for the excavations. This is what has lead to the need for this SEIR. An LTU was examined in detail in the 1998 EIR as part of the proposed project and is therefore not examined further since this SEIR is a supplement to the 1998 EIR.
- ***Reuse/Recycle — Treated Material Land Feature (TMLF).*** This technology would involve the formation of treated materials from the LTU into a dune formation. As a disposal alternative, reuse and recycling is a technology that is very applicable for treated soils and liquids. This option was generally described in the 1998 EIR. The TMLF would be revegetated and allowed to blend in to the surrounding environment. Depending on the method used to treat the material, a leachate containment and collection system may be installed below the TMLF. Reuse of material to create a dune feature was not examined in detail in the 1998 EIR and therefore is examined further in this SEIR.
- ***Deep Well Reinjection.*** Unocal has deep wells permitted for reinjection of wastewater generated at the Field. The possibility of using deep wells for disposal of NHIS as slurry was screened as a good possible disposal method in the 1998 EIR, but was not evaluated in detail. Use of this technology would require a permit from the U.S. Environmental Protection Agency (EPA). The EPA current deep well injection program does not allow the injection of refined products. Diluent is considered a refined product and, therefore, diluent impacted soils could not be reinjected into a deep well. Deep well reinjection was not examined in detail the 1998 EIR and is therefore examined further in this SEIR.
- ***Engineered Containment Unit (ECU).*** Development of an engineered containment unit, with a leachate containment and collection system, was not examined in detail as part of the 1998 EIR. It would be similar to the TMLF except that the materials would not be treated in an LTU first. The Engineering Containment alternative has been examined further in this SEIR.
- ***Solid-Waste Landfill.*** This technology is applicable for soil disposal, unless the soils are considered to be hazardous. This option requires offsite transportation and disposal, and was not examined in detail in the 1998 EIR. Transporting the NHIS to the nearby Santa Maria Landfill has been selected by the applicant as the Proposed Project. Transportation of the NHIS to other, more distant, locations, either by truck or by rail, is included as an alternative in this analysis.

An environmental screening analysis was conducted for each of the alternatives that were selected for further evaluation in this SEIR. The results of the environmental constraints analysis are summarized in Table 3.3. This table provides a qualitative indication of the environmental constraints for each technology, by discipline. These constraints were used to evaluate the

Table 3.3 Environmental Screening Results: Impacts Relative to Proposed Project

Environmental Discipline	Trucking to Outside County	Rail	TMLF	Slurry Injection	ECU
Geology			Potential erosion impacts during construction of the TMLF and after installation of the cover.	Potential loss of containment in the injection formation due to over pressurization.	Potential erosion impacts during construction of the ECU and after installation of the cover.
Water Quality	Potential for increased impacts to surface water due to spills along truck routes.	Potential for increased impacts to surface water due to spills along rail routes.	Release of leachate could impact surface and ground water.	Large water use, potential ground water contamination. EPA current requirements would not allow injection of diluent contaminated soils since diluent is considered a refined product.	Release of leachate could impact surface and ground water.
Onshore Biology	Potential for increased impacts to biological resources due to spills along truck routes.	Potential for increased impacts to biological resources due to spills along rail routes.	Potential impacts to biological resources due to release of leachate.		Potential impacts to biological resources due to release of leachate.
Safety	Increased in potential accidents due to farther trucking distances.	Increased in potential accidents due to farther distances by rail.	Fewer impacts to public safety due to reduction in truck travel.	Fewer impacts to public safety due to reduction in truck travel.	Fewer impacts to public safety due to reduction in truck travel.
Visual Resources		New visual impacts associated with the new rail loading facility.			

Table 3.3 Environmental Screening Results: Impacts Relative to Proposed Project

Environmental Discipline	Trucking to Outside County	Rail	TMLF	Slurry Injection	ECU
Air	Increased air emissions due to longer distance to disposal site	Construction of rail loading facilities would increase emissions. Increased emissions due to longer distance to disposal facility.	Fewer air emissions from trucks due to elimination of trucking to disposal facility.	Fewer air emissions from trucks due to elimination of trucking to disposal facility. If diesel fuel is used for the slurry pumps than air emissions would increase.	Fewer air emissions from trucks due to elimination of trucking to disposal facility.
Noise	Increase noise exposure to additional areas along a longer route.	Increase noise due to operation of the rail loading facility.	Less noise due to elimination of trucking to disposal facility.	Less noise due to elimination of trucking to disposal facility. Potential increase in noise due to grinding operations associated with slurry injection.	Less noise due to elimination of trucking to disposal facility.
Traffic	Increased truck traffic volumes over a larger area due to the longer distance to the disposal site.	Somewhat less truck traffic impacts since trucks would only need to travel to the rail loading facility.	Fewer traffic impacts since trucks would not need to travel to the disposal site.	Fewer traffic impacts since trucks would not need to travel to the disposal site.	Fewer traffic impacts since trucks would not need to travel to the disposal site.
Land Use/Recreation					Inconsistent with San Luis Obispo County land use since the project would involve the construction of a waste facility at the Guadalupe Field.

different technologies, providing a basis for considering the technologies with the least environmental impacts.

3.2 Alternative Descriptions

Based on the above screening analysis, the following alternatives have been selected for detailed review in this SEIR. These include:

- Offsite Trucking to Other Destinations
- Treated Materials Land Feature
- Engineered Containment Unit
- Deep Well Injection

Each of the alternatives selected is discussed in the following sections.

3.2.1 Offsite Trucking — Other Destinations

Destinations other than the Santa Maria Landfill for the offsite trucking would include:

- Clean Harbors Environmental Services Facility at Buttonwillow,
- Waste Management at McKittrick, or
- Kettleman Hills

Offsite trucking for these destinations would have the same elements of site description, mobilization, and onsite operations as the proposed project, trucking to Santa Maria Landfill. However, the distances of travel would be greater. Trucking to these three destinations is discussed below.

Operations for the other destinations would be similar to the Santa Maria Landfill project description. This section will address only the differences from the proposed project.

The destinations listed above have a maximum amount per day that they would accept. This limits the number of trips that can be made to each of the facilities. Table 3.4 shows the landfill limitations, the maximum number of truck trips that could be made under these limitations. Table 3.5 provides the travel distances to each destination.

Table 3.4 Destination Capacities

Site	Buttonwillow		McKittrick		Kettleman Hills	
Daily Capacity Limit	1600 cy/day maximum		785 cy/day maximum		430 cy/day maximum	
Truck Capacity	8 cy per truck	18 cy per truck	8 cy per truck	18 cy per truck	8 cy per truck	18 cy per truck
Max Truck Trips/day	150	89	99	44	54	24

cy – cubic yards.

Source: Unocal 2001

There are two possible routes to the McKittrick and Buttonwillow facilities. The first (Route 1) would be from the Field, north on Highway 1, east on Division Street, south on U.S. Highway 101, east on Highway 166 and north on Highway 33. The second (Route 2) would be from the Field, south on Highway 1, east on Highway 166 to Highway 101, north on Highway 101, east on Highway 166 and north on Highway 33.

The route to Kettleman Hills would be north on Highway 1, east on Division Street, north on Highway 101, east on Highway 46, and northeast on Highway 41. See Figure 3-1 for an overview of the routes.

Distances for the other destinations are shown below along with the respective distances within each County.

Table 3.5 Mileage to Other Waste Handling Facilities

Route	Facility Name	Total Miles (One Way)	Miles Traveled in Each County			
			San Luis Obispo County	Santa Barbara County	Kern County	Kings County
Route 1	McKittrick/ Buttonwillow	130/137	66	25	39/46	
Route 2	McKittrick/ Buttonwillow	133/140	52	42	39/46	
Route 3	Kettleman Hills	117	87		10	20

Average mileages in each county are shown.
Source: Unocal 2001

3.2.2 Treated Material Land Feature

The Treated Material Land Feature (TMLF) would be a dune constructed of diluent-affected excavated material that has been treated. The proposed treatment method is bioremediation in a land treatment unit (LTU). The TMLF objective is for onsite reuse of treated sand where it is

Figure 3-1 Alternative Truck Routes

Source: Unocal 2001

needed for restoration, in an aboveground area where the material would not be placed directly into saturated soils or environmentally sensitive areas.

The TMLF would be located at Tank Battery 9 (TB9) and designed with liners and a leachate collection system. A silt/clay-amended layer and a vadose zone/ground water monitoring system may already be in place if a TMLF is a post-LTU feature. The lead oversight agency for treatment standards and ground water considerations of the TMLF would be the Regional Water Quality Control Board (RWQCB). After review of the proposed project, the RWQCB would present guidelines and conditions governing aspects of the TMLF that relate to treatment and ground water issues.

3.2.2.1 Material Treatment

The TMLF project is the construction (recontouring into a dune feature and restoring the surface) of the TMLF after treatment via a “treat up” LTU located at TB9. The TMLF would be located

at TB9. In a “treat up” LTU, each successive lift of NHIS would be placed and treated directly on top of the previous one. The final result would be a stockpile of treated material in an LTU configuration. After recontouring and restoration, the TMLF would be monitored and maintained using the existing LTU facilities until the treated material is determined by the RWQCB to no longer be a threat to the environment. At that point, the site would be decommissioned and left to natural processes.

The TMLF could also be constructed after excavated material is treated by some means other than LTU, such as thermal desorption (TDU). In this case, treatment may be conducted at TB9 or at an alternate location, and treated material would be stockpiled at TB9 within the TMLF footprint.

Bioremediation in an LTU has historically been proposed as the primary technology for treating affected soils produced from excavation activities. LTU impacts are described in detail in the 1998 EIR. Details of the impacts of the LTU system are not addressed in this document, but a short description is provided below for informational purposes.

Bioremediation utilizes naturally occurring micro-organisms for the degradation of hydrocarbons. Exposing the affected soils to the air and adding moisture and other nutrients in an LTU enhances the activity of the microorganism, resulting in increased rates of hydrocarbon degradation.

Prior to treatment, the NHIS may be screened to remove aggregate. During operations, soil would periodically be wetted down with water pumped from existing onsite wells to maintain optimum (5–10%) moisture content by weight for biodegradation. Nutrients may also be sprayed over the excavated soil, or nutrients could be introduced by tilling the affected soil with amendments. If needed, on a periodic basis soil would be tilled or disked with conventional earthworking equipment.

The proposed LTU at TB9 with a 16.4-acre footprint would provide an average treatment area of eleven acres. Treating 660,000 cubic yards (cy) of affected soils in this LTU could take up to seven years.

3.2.2.2 Design Basis

For any means of treatment, the resulting stockpile of treated material would be graded to resemble a natural dune, capped with clean material, and restored with native vegetation. The final TMLF is intended to blend with the surrounding environment and provide restoration of the area. Because the TMLF would be considered a permanent feature, construction assumes that there would be no future remediation activity requiring removal to provide access to the subgrade.

It is anticipated that the NHIS will be contained in the TMLF by a silt/clay-amended liner placed under the NHIS. If required by the RWQCB, an HDPE (high-density polyethylene) liner may be placed above the silt/clay liner. Monitoring wells and a leachate collection system will be installed as required by the RWQCB.

An estimated 860,000 cy of NHIS will be excavated under CAO 98-38. Of this amount, 200,000 cy would be sump material containing heavy hydrocarbons that may be unsuitable for treatment

and reuse and, therefore, might have to be transported offsite. It is anticipated that up to 660,000 cy of NHIS could be treated and subsequently reused as the TMLF. If some of the treated material is reused as backfill or in another way, the quantity in the TMLF would be less.

The proposed TMLF has a footprint of approximately 16.4 acres, as shown in Figure 3-2, which corresponds to the grading boundary for the LTU treatment area. Figure 3-2 shows the potential configuration based on an assumed quantity of 660,000 cy. For a smaller amount of treated material, the footprint would stay the same and the profile would be lower. The final configuration would be submitted in a Site Specific Restoration Plan (SSRP) for approval by the appropriate agencies.

3.2.2.3 Site Description

The TB9 site is the proposed location for the TMLF. TB9 was selected based on its need for restoration, distance from surface water, the current level of disturbance, and the existing natural drainage characteristics.

NHIS currently placed at the LTU site and graded into the current topography would be left as the subgrade. Because this material is included in the estimate of NHIS, the actual volume available after treatment may be somewhat less than specified above.

Roads to and from the TB9 site are already in place. Some of these roads may require repair or widening prior to TMLF construction (see Figure 2-4).

Figure 3-2 illustrates the footprint and disturbed boundaries. With equipment staging/support areas, the construction (recontouring/restoration) activities of the TMLF will require approximately 18.8 acres of total area, with 13.9 acres of that currently disturbed.

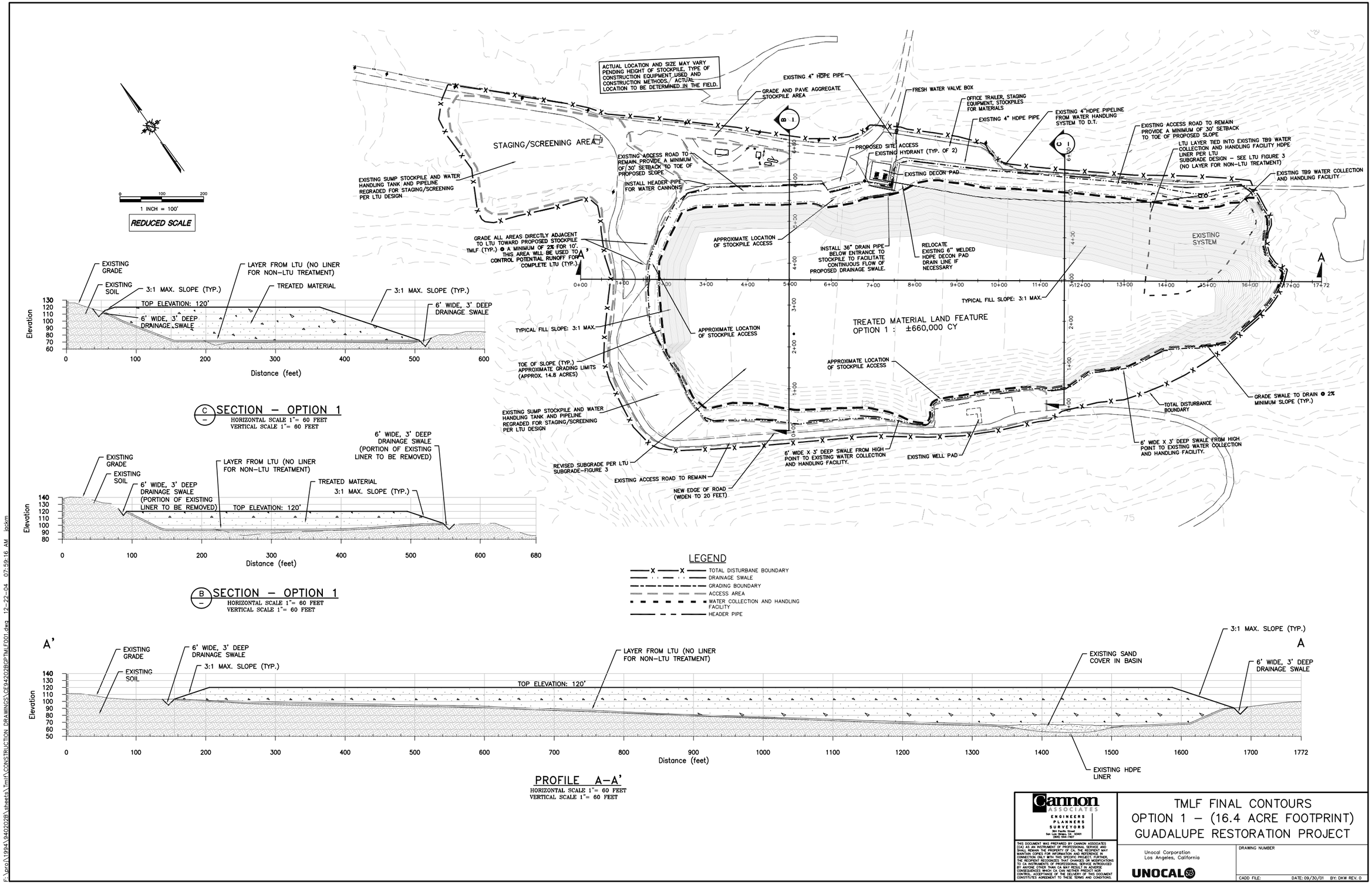
The same 18.8 acres would be needed for LTU operations, so no new disturbance would be anticipated for a post-LTU TMLF. (The 1988 EIR contains an analysis of the environmental impacts associated with the LTU.)

If treatment is achieved by another method, such as TDU, the required areas would be the same (TMLF footprint of 16.4 acres, with total construction area of 18.8 acres). In this case, the needed areas would not have been disturbed for the treatment phase and approximately 4.9 acres of new disturbance is anticipated.

Grading quantities for this scenario would include approximately 8,000 cy of vegetated material and, for the subgrade work, approximately 40,000 cy cut and 10,000 cy fill. The grading specifics for the maximum volume of 660,000 cy of material treated by LTU are shown in Table 3.6.

For each one-foot layer of liner, the amount of clay/silt needed will depend on the design mix quantities of clay/silt to soil. For a 30% mixture of silt/clay to 70% soil, approximately 7,200 cy of silt/clay will be needed; for a liner consisting of 100% clay/silt, 24,000 cy of silt/clay will be needed. A slightly larger quantity of 9,000 to 30,000 cy of silt/clay may be needed for each one-foot layer of cap containment liner, if required by the RWQCB. An estimated 649,000 square feet of HDPE material would be used over the silt/clay liner, if required by the RWQCB.

Figure 3-2 TMLF Configuration



Source: UNOCAL 2001

3.2.2.4 Construction and Restoration

Before the construction of the TMLF, material would be treated and/or stockpiled in place at TB9 within the approximate footprint of the TMLF. Because the transport and stockpiling of treated material at TB9 would likely occur as part of treatment or excavation activities, transportation to the TB9 site is not discussed.

The sequence of construction activities includes the following:

1. Install vadose zone/ground water monitoring system, if needed and not already in place.
2. Construct a containment liner per WDR requirements.
3. Cover silt/clay amended liner with an HDPE liner or at least two feet of NHIS.
4. Grade treated soil stockpile to resemble surrounding dunes.
5. Cover the TMLF surface with two to three feet of clean sand and/or vegetated overburden.
6. Install erosion control measures, as needed.
7. Restore the TMLF surface per the approved SSRP.

Table 3.6 Grading Quantities for the TMLF

Grading Activity	Quantity
Subgrade (cy)	
Cut	0[1]
Fill	0[1]
TMLF Footprint (Acres)	16.4[1]
Disturbed Areas (Acres)	
Total Disturbance	18.8[1]
Existing	0[1]
Existing Currently under Restoration	0[1]
New	0[1]
Vegetated Overburden Removed (cy)	0[1]
Contour Stockpiled Treated Material (cy)[2]	
Cut	90,000
Fill	90,000
Clean Sand for 2- to 3-foot cap	54,400–81,600

[1] These quantities would have been completed for, and associated with, an LTU if the TMLF is post-LTU. Quantities shown for grading and disturbance may be required for the TMLF if another method is used to treat the material (see discussion under Site Description).

[2] Cut and fill quantities are the estimated amounts required to contour the TMLF from either an LTU or a standard stockpile configuration to a dune configuration. It is anticipated that only a portion of the stockpiled material along the top and sides would need to be moved to create the dune structure.

Source: Unocal 2001

Actions involved with each activity are further described below:

Install vadose zone ground water monitoring system, if needed and not already in place. A silt/clay-amended layer and a vadose zone/ground water monitoring system would already be in place if a TMLF is constructed after LTU treatment at TB9. For construction of a TMLF from material treated by means other than an LTU, the site would be graded as necessary to drain to the existing water-handling system. However, a silt/clay-amended layer would not be anticipated, because this scenario would be implemented only if the RWQCB agrees that the treated material is inert and does not require containment.

Construct a containment liner per WDR requirements. The containment liner will consist of 30 to 100% silt/clay by volume. If the liner consists of silt/clay-amended soil, clean material from Q4 or another clean material source will be used.

To construct the liner, proportionate amounts of silt/clay and clean material will be spread in lifts. The two materials will be thoroughly mixed with rotary equipment, such as a rototiller or disks. A water truck will be used to add moisture during mixing. Once the clean material and silt/clay are thoroughly combined, the lift will be compacted using a sheep's foot and/or vibratory roller or comparable equipment until permeability requirements are met.

The final thickness of the silt/clay-amended liner is assumed to be one to two feet. Thickness and design permeability will be specified in the WDRs. Maintaining optimum moisture levels during silt/clay-amended liner construction and compaction will help ensure that permeability requirements are met. During ECU construction, testing will be done to verify in place properties of the silt/clay liner (for example, permeability, moisture content, and thickness).

Silt/clay will be transported from an offsite source within six miles of the Field. Silt/clay will be transported in dump trucks with capacities ranging from eight to 18 cy. The anticipated average load is 16 cy. The silt/clay will be hauled from the offsite source to a stockpile location at TB9 until it is needed for installation in the ECU. Each one-foot thickness of silt/clay-amended liner will require approximately 7,200 to 24,000 cy of silt/clay. Depending on the quantity and size of trucks, a range of 400 to 3,000 offsite truck trips will be needed to transport the material to the Field.

Cover silt/clay-amended liner with an HDPE liner or at least two feet of NHIS. Because a silt/clay-amended liner is subject to cracking as it dries, it will be built in sections as needed to keep pace with the excavations and transfer of material from TB8. If required by the RWQCB, an HDPE liner will be installed above the silt/clay-amended liner. Otherwise, each section will be covered immediately with at least two feet of NHIS to retain moisture and prevent the liner from drying and cracking.

Grade treated-soil stockpile to resemble surrounding dunes. Treated soil would be located in a stockpile at TB9. If an LTU is conducted at TB9, the stockpile would have an LTU configuration. If another treatment method is used, the stockpile would most likely have a more conventional configuration and the area may need to be prepared for TMLF construction.

For TMLF recontouring, soil would be redistributed to make the pile resemble a dune formation. The treated material would be graded using standard earthmoving equipment. A potential contoured dune configuration containing 660,000 cy is shown in Figure 3-2. Actual contours would be submitted to the appropriate agencies in an SSRP for approval.

Measures to protect against wind erosion during construction includes minimizing temporary windward fill faces that may be cut by wind and ceasing construction work when wind speeds exceed 25 mph if deemed necessary by the Onsite Environmental Coordinator (OEC).

If not already completed for an LTU, prior to TMLF construction, the existing facilities within the construction footprint would be decommissioned or relocated. The stockpiled sump material, liners, and the water-handling facilities associated with each stockpile would be removed. Utilities would be removed or relocated. Monitoring wells currently in place at TB9 would be removed, relocated, or protected in place. Additional ground water monitoring wells may be installed, if required by the RWQCB. If water cannons would be used for grading and erosion control (discussed below), a header would be installed from the water line around the northern TMLF perimeter. If required by the RWQCB, vadose zone and moisture sensors would be placed during preparation of the subgrade. These sensors would be used to detect leachate migration into the subsurface.

Cover the TMLF surface with two to three feet of clean sand and/or vegetated overburden. As required by the RWQCB and/or other resource agencies, additional clean sand may be used to provide a two- to three-foot cover over the treated material, requiring approximately 54,400–81,600 cy of sand. Clean sand would likely come from the Q4 borrow site and/or other borrow sources and be added to the surface after grading of treated material. After re-grading, any available clean vegetated overburden removed from similar habitat would be distributed over the soil surface.

To promote stability, the conceptual TMLF slopes are designed at or less than the natural angle of repose for the dunes in the area, at an approximate slope of 3:1 or less. The final design of the TMLF would withstand significant seismic events, per applicable codes and regulations, and would be based on a slope stability analysis pursuant to RWQCB requirements. To minimize the likelihood of slope failure during grading, the design would allow adequate space for heavy equipment to turn without nearing slope edges.

The completed TMLF would be graded so as to avoid creation of catchment areas that would encourage pooling on the surface and concentrated flows of water within the TMLF. Soil Sement® would not be used on horizontal surfaces during construction of the TMLF in order to reduce the likelihood of catchment areas.

Install erosion control measures, as needed. If needed for erosion control, any or all of the following measures may be employed:

- Water cannons, using headers that may be installed around the perimeter of the TMLF,
- Jute netting,
- Hydromulch,
- Crimped or mulched straw plugs.

Restore the TMLF surface per the approved SSRP. An SSRP would be prepared to detail the restoration process of the TMLF so it is consistent with the surrounding dune landscape.

If needed, installation of the vadose zone ground water monitoring system would require a total of approximately seven days. It is expected that grading of the treated-material stockpile,

installation of erosion control measures, and re-vegetation can be accomplished in approximately three months.

Equipment and personnel needed for construction of the TMLF are shown in Table 3.7.

Table 3.7 Construction Equipment and Personnel

Task/Operation	Equipment/Personnel	Quantity	Duration	
			Days	Hrs/Day
Install vadose zone/ ground water monitoring system, if needed and not already in place	Drill Rig	1	9	8
	Front End Loader	1	9	8
Grade treated soil stockpile to resemble surrounding dunes	Excavator	2	13	8
	Dozer	2	13	8
	Volvos	4	13	8
	Water Truck	1	13	8
Cap re-graded surface with clean material and/or stockpiled vegetated overburden [1]	Excavator	2	13	8
	Dozer	1	13	8
	Volvos	8	13	8
	Water Truck	1	13	8
Install erosion control measures, if needed.	As needed			
Restore the TMLF surface per the approved SSRP [2]	Excavator	1	13	8
	Dozer	1	13	8
	Volvos	2	13	8
	Water Truck	1	13	8
Total Duration (Days)			**59**	

1. Assumes Q4 sand will be used.
2. Material quantity assumed to be the same as cap.
3. Information shown assumes:
   - an LTU will be used to treat soil
   - a treated material quantity of 660,000 cy
   - materials and equipment will be mobilized from within a 30-mile radius of the Field (60-mile round trip)
   - onsite hauling will be conducted 5 days per week, at an on-site speed of 25 mph
   - 1.5 workers will commute to the Field for each piece of construction equipment

Source: Unocal 2001

If water-handling facilities are required by the RWQCB, water-handling and electrical systems currently in place would be used. Water would be used for soil compaction and dust control. If not already in place, a header may be constructed along the northerly side for erosion control watering. Minor additional electricity would be used for a temporary construction office.

Any diesel fuel stored at the Field to fuel vehicles and/or equipment would have secondary containment and be kept in a secured area.

3.2.2.5 Post-Construction Monitoring, Maintenance, and Decommissioning

Upon completion of construction and restoration, the TMLF would be monitored and maintained as required by the RWQCB and the SSRP. At that time, the TMLF would be left to natural processes, with the possible exception of post-LTU facilities that are left in place and maintained. Two phases of post-construction activities are anticipated.

The first phase consists of monitoring and maintenance of the TMLF and support infrastructure. The second phase, site decommissioning, would begin when the RWQCB confirms that the

TMLF no longer needs active maintenance. Decommissioning may involve restoring percolation through the silt/clay-amended layer (if left from the LTU) and water-handling system, allowing the area to return to natural processes.

Monitoring and Maintenance. During the first phase of the post-construction period, TMLF operations would primarily involve maintenance of required systems and monitoring of soil and ground water. Specific activities would include:

- Operating and maintaining erosion control measures and post-LTU system(s)
- Ground water and vadose monitoring.

Operating and maintaining erosion control measures and post-LTU system(s). Erosion control measures would be operated and maintained as necessary. The existing water-handling system would be operated on an as-needed basis to manage storm water runoff from the TMLF. Water collected in the water-handling system would be injected into EPA-permitted wells.

Ground water and vadose monitoring for the TMLF would likely be performed as part of the existing sitewide ground water monitoring program required by the RWQCB per CAO 98-38. If the TMLF requires special monitoring procedures specified by the RWQCB, these procedures would be implemented.

Maintenance would be performed as needed, and monitoring would be performed as required. Equipment and personnel needed for monitoring and maintenance activities are estimated to be 50% time for a single person and 50% for a single vehicle on a daily basis for operating and maintaining the water-handling systems and erosion control measures.

Decommissioning of the TMLF (the second phase of the post-construction period) involves abandonment of systems used for operations, to allow natural processes to resume.

When the RWQCB determines that a post-LTU TMLF can be decommissioned, natural percolation or flow can be allowed to resume at the site. Natural flow may be established or promoted by methods such as drilling holes in the silt/clay-amended layer and/or in the liner of the basin of the TB9 water-handling system. Piping and other support structures for the water-handling system would be removed or capped and abandoned in place.

It is anticipated that decommissioning activities could be completed within one or two months, once the determination to abandon the area has been made. Equipment and personnel needs for decommissioning are shown in Table 3.8.

Table 3.8 TMLF Decommissioning Personnel and Equipment Requirements

Task	Equipment/Personnel	Quantity	Duration	
			Days	Hours/Day
Restore natural flow or percolation (LTU)	Drill rig	1	1	8
Remove or cap and abandon water-handling system piping	Personnel	4	3	8
	flatbed truck	1	3	8
Total Duration (Days)			**4**	

Source: Unocal 2001

The utilities anticipated for the TMLF post-closure period are water and electricity, as required. Water may be used for erosion control. There would be a need for onsite electricity for as long as the water-handling system is operational. The TB9 electrical system would be decommissioned when it is no longer needed.

A long-term ground water monitoring program is in place for the Field. This program may be modified for the TMLF, as required by the RWQCB. No further monitoring is anticipated after the end of sitewide monitoring programs.

3.2.3 Engineered Containment Unit

An engineered containment unit (ECU) is essentially the same as the TMLF except that the materials would not be treated first and would be placed directly in the containment area. The TMLF would also have a shorter timeframe until decommissioning than the ECU due to the treatment of the materials before placement in the TMLF. In addition, all of the excavated material, including sump material, could be placed into the ECU, whereas, for the TMLF alternative, the sump material would be transported to the Santa Maria Landfill. The ECU would be located at TB9 and designed with liners and a leachate collection system, as required by the RWQCB.

NHIS currently stockpiled at TB8 and TB9, as well as material removed from the remaining CAO excavations, will be placed directly into the ECU. The completed ECU will be graded to drain to the existing TB9 water-handling system and to blend with the surrounding environment, then restored. After restoration, the ECU would be monitored and maintained until the NHIS no longer represents a threat to the environment.

3.2.3.1 Design Basis

The alternative evaluated here, described as Option 2 in “Treatment and Handling Methods” (Unocal 2001), is designed to contain all of the estimated NHIS from the excavations, up to 860,000 cy.

It is anticipated that the NHIS will be contained in the ECU by a silt/clay-amended liner placed under the NHIS. If required by the RWQCB, an HDPE (high-density polyethylene) liner may be placed above the silt/clay liner. Monitoring wells and a leachate collection system will be installed as required by the RWQCB.

Unocal proposes to cap the NHIS in the ECU with 2–3 feet of clean material to allow degradation to continue through the life of the ECU. However, if required by the RWQCB, the ECU will first be capped with a silt/clay liner and/or HDPE liner. Clean cover material may include subgrade material excavated and stockpiled during construction of the ECU, sand from Q4, and/or other clean material. The ECU would be restored/revegetated to resemble the surrounding dunes.

The design details, such as the exact configuration of the silt/clay amended liner(s) and the need for an HDPE liner, will be determined in the future and specified in Waste Discharge Requirements (WDRs) issued by the RWQCB.

3.2.3.2 Site Description

The ECU site will be located on and adjacent to the current Pilot Land Treatment Unit (LTU) site in the TB9 area. It is anticipated that material currently placed at TB9 will remain as subgrade for the ECU. Approximately 100,000 cy of material will be cut from the slope to the south of the existing LTU site to prepare the subgrade.

The ECU footprint would be 14.9 acres. Approximately 9.6 acres are within the existing disturbed area, with another approximate 0.3 acres disturbed and currently under restoration, and 5.0 acres of new disturbance extending south outside the footprint toward the adjacent ridge. The final design elevation is 132 feet above mean sea level, which is somewhat higher than the elevation of the adjacent ridge. The configuration shown in Figure 3-3 includes 860,000 cy of NHIS.

For each one-foot layer of liner, the amount of clay/silt needed will depend on the design mix quantities of clay/silt to soil. For a 30% mixture of silt/clay to 70% soil, approximately 7,200 cy of silt/clay will be needed; for a liner consisting of 100% clay/silt, 24,000 cy of silt/clay will be needed. A slightly larger quantity of 9,000 to 30,000 cy of silt/clay may be needed for each one-foot layer of cap containment liner, if required by the RWQCB. An estimated 649,000 square feet of HDPE material would be used over the silt/clay liner if required by the RWQCB.

Approximately 30,000 cy of clean sand will be needed for each foot of cover over the ECU. It is anticipated that 2–3 feet of cover material will be used, requiring a total of 60,000 to 90,000 cy of clean sand. Approximately 8,650 cy of vegetated overburden removed from the area during construction would be reused if possible.

It is anticipated that material will be placed in the ECU directly from existing stockpiles or ongoing excavations. Since material placed in the ECU will not need processing, such as screening, prior to placement, only a small staging/operations support area will be required. Stockpile 1 will be decommissioned and the area prepared for the staging/operations support activities.

Also, existing stockpile sites will be used to stockpile clean overburden from ECU construction until it is reused for capping. An existing 16-foot-wide access road will be repaired and widened is some areas to 20 feet to facilitate movement around the ECU.

The design and site details of the ECU described above are summarized in Table 3.9, below.

Table 3.9 Grading Quantities for the ECU

Grading Activity	Quantities
Subgrade (cy) Cut Fill	 100,000 0
ECU Footprint (Acres)	14.9
Disturbed Areas (Acres) Total Disturbance Existing Existing Currently under Restoration New	 14.9 9.6 0.3 5.0
Vegetated Overburden Removed (cy)	8650
Base Containment Liner	

Table 3.9 Grading Quantities for the ECU

Silt/Clay (30% - 100%) (cy)[1] Sand (cy) HDPE/Synthetic (SF)	7,200 – 24,000 0 – 16,777 649,000
Cap Containment Liner Silt/Clay (30% - 100%) (cy)[1] Clean Sand for 2- to 3-foot cap (cy)	 9,000 – 30,000 60,000 – 90,000

Quantities in table are for a one-foot-thick layer.
Source: Unocal 2001

3.2.3.3 Construction and Restoration

The steps to construct the ECU are as follows;

1. Improve roads as necessary.
2. Prepare clean overburden stockpile sites.
3. Prepare site.
4. Construct a containment liner per WDR requirements.
5. Cover silt/clay amended liner with an HDPE liner or at least two feet of NHIS.
6. Place NHIS in lifts to reach the final design grade.
7. Install top containment liner above final lift of NHIS, if required by the RWQCB.
8. Cover the ECU surface with two to three feet of clean sand.
9. Install erosion control measures, as needed.
10. Restore the ECU surface per the approved Site Specific Restoration Plan (SSRP)

Each step is discussed in more detail below.

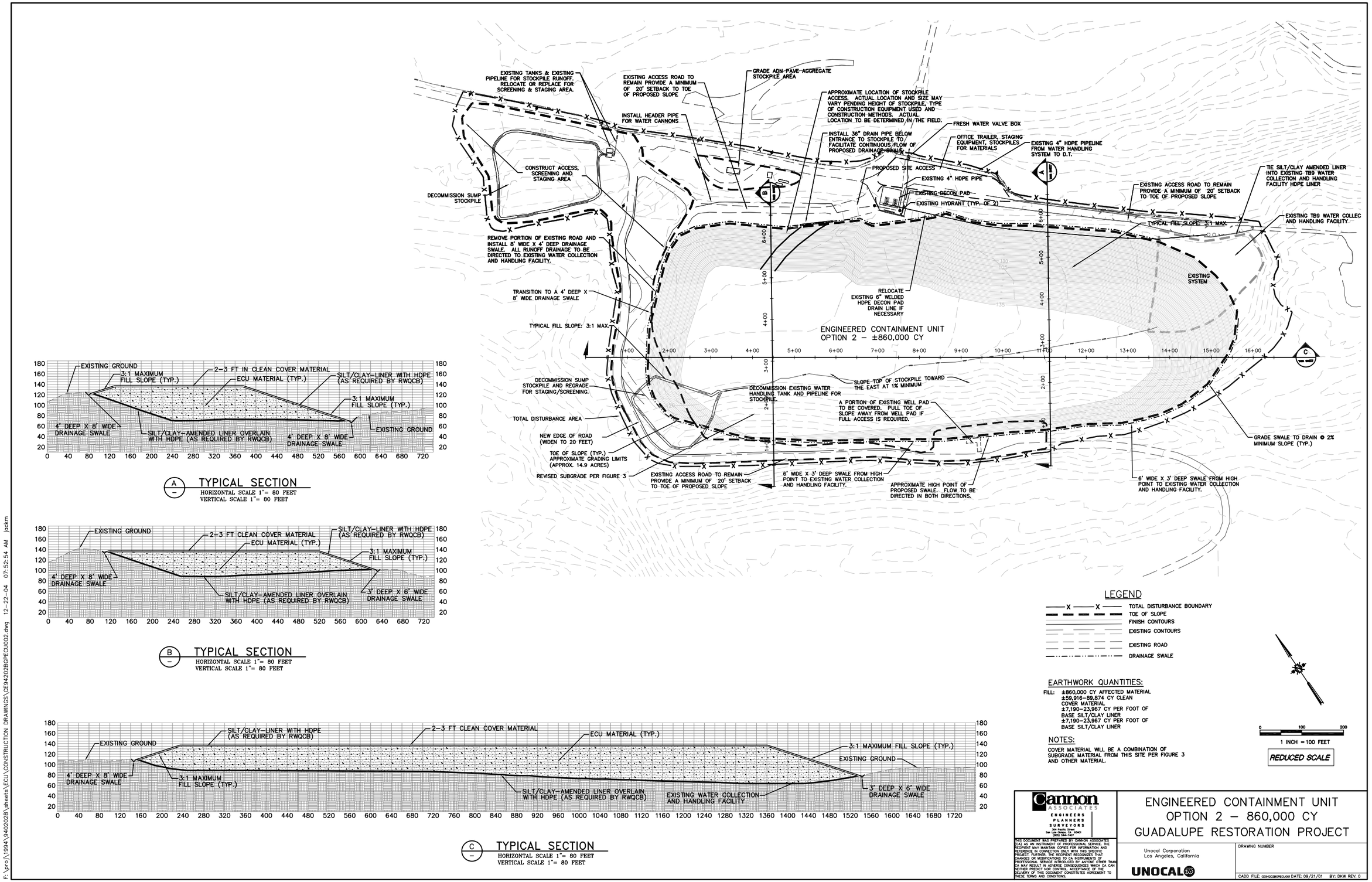
Improve roads as necessary. Prior to operations, roads providing access to the TB9 site will be repaired, repaved and/or widened as needed (see Figure 2-5 in Section 2.0).

Prepare clean overburden stockpile sites. Stockpile sites will be cleared and/or prepared at the K-15 Well Pad, I-11, or clean material stockpile sites for the material that will be excavated and removed from the southerly slope to prepare the ECU subgrade.

Prepare site. The existing facilities within the construction footprint of the ECU will be decommissioned or relocated. Monitoring wells currently in place at TB9 will be removed, relocated, or protected in place. Additional ground water monitoring wells may be installed, if required by the RWQCB.

Within the construction footprint, the stockpiled sump material, liners, and the water-handling facilities associated with each existing stockpile will be removed. Stockpile 1 will be decommissioned and the area prepared for use as the staging/construction support area. Utilities will be removed or relocated. If water cannons will be used for grading and erosion control (discussed below), a header will be installed from the water line around the northern ECU perimeter

Figure 3-3 ECU Configuration



Source: UNOCAL 2001

Any vegetated overburden from previously undisturbed areas will be removed and preserved for eventual use in restoration of the ECU or at another location. It may be difficult to remove vegetation due to the steep slopes in some areas. For these locations, vegetation may be cut at ground surface and the lower portion left in place. As needed, these previously undisturbed areas will be graded so that the silt/clay amended liner will drain to the existing TB9 water-handling system.
The southerly slope will be excavated and the material moved to the designated stockpiles. If needed, the ECU footprint may be expanded within the existing disturbed area at TB9 to lower the final profile. The NHIS currently in place at the Pilot LTU site will be left as subgrade below the silt/clay amended liner.

Construct a containment liner per WDR requirements. The containment liner will consist of 30 to 100% silt/clay by volume. If the liner consists of silt/clay-amended soil, clean material from Q4 or another clean material source will be used.

Installation and transportation of the clay and liner would be identical to that required for the TMLF operations.

Cover silt/clay-amended liner with an HDPE liner or at least two feet of NHIS. Because a silt/clay-amended liner is subject to cracking as it dries, it will be built in sections as needed to keep pace with the excavations and transfer of material from TB8. If required by the RWQCB, an HDPE liner will be installed above the silt/clay-amended liner. Otherwise, each section will be covered immediately with at least two feet of NHIS to retain moisture and prevent the liner from drying and cracking. The installation of the clay layer and liner would be identical to the TMLF liner and clay layer installation.

Place NHIS in lifts to reach the final design grade. The ECU will be built up in lifts with the NHIS from the TB8 and TB9 stockpiles and the remaining CAO excavations. The NHIS will remain uncovered only during the ECU construction period. Once it is completed, cover material will be placed as described below.

The conceptual ECU design includes a dune-like configuration, with side slopes of approximately 3:1 for stability. Detailed design of the side slopes will include a slope stability analysis as specified in Title 27 regulations, with the appropriate safety factors. The final footprint of the ECU may be greater than presented in this description, based on the slope stability analysis. A contingency plan will be prepared prior to construction for handling fluids that may seep from the side slopes during the construction process. The TB9 area will be prepared to contain liquids prior to placement of NHIS through the bottom liner and the existing water-handling system.

During construction, a minimum 20-foot-wide paved road with access to the ECU on slopes of 5% or less will be provided. Material would be moved using standard earthmoving equipment. The working area on the top of the ECU will be wide and flat enough to accommodate the turning radius of the heavy equipment, including a safety margin near the side slopes.

Install top containment liner above the final lift of NHIS, if required by the RWQCB. The cover over the ECU will be consistent with state, federal, and local requirements. If required by the RWQCB, a second silt/clay liner or other containment structure will be constructed over the NHIS prior to placing the clean material cover. If a silt/clay liner cap is required, an additional

9,000 to 30,000 cy of silt/clay will be needed for each one-foot thickness of liner cap. Depending on the quantity and size of trucks, a range of 500 to 3,750 offsite truck trips will be required to transport this material to the Field.

Cover the ECU surface with two to three feet of clean sand. To provide a favorable environment for revegetation, the ECU will be covered with two to three feet of clean sand. If a containment liner is not constructed over the top of the NHIS, the cover material will control emissions from the NHIS. Clean sand will likely come from material that is excavated during subgrade preparation and/or from the Q4 borrow site. The cover will be added to the top and side slopes after all the NHIS has been placed and, if required, the top containment liner has been constructed.

Install erosion control measures, as needed. If needed for erosion control, any or all of the following measures may be employed:

- Water cannons, using headers that may be installed around the perimeter of the ECU.
- Jute netting.
- Hydromulch.
- Crimped or mulched straw plugs.

Restore the ECU surface per the approved Site Specific Restoration Plan (SSRP). An SSRP will be prepared to restore the ECU so it will be consistent with the surrounding landscape. Restored vegetation will also reduce the effects of wind and rain erosion. Vegetated overburden removed from the previously undisturbed areas prior to start of construction may be used to establish a native material cover.

Equipment and personnel needed for construction of the ECU are shown in Table 3.10.

Table 3.10 ECU Construction Equipment and Personnel Requirements

Task	Equipment/ Personnel	Quantity	Duration (860,000 cy)	
			Days	Hours/Day
Remove vegetated overburden in previously undisturbed areas and grade site.	Excavator	1	1	8
	Dump Truck	2	1	8
	Water truck	1	1	8
	Dozer	1	1	8
Road improvements	Excavator	1	8	8
	Dozer	1	8	8
	Dump trucks, offsite		220 trips	8
	Grader	1	8	8
	Water truck	1	15	8
	Compactor	1	13	8
	Volvos	3	6	8
	Asphalt spreader	1	5	8
Prepare subgrade and stockpile sites	Excavator	2	56	8
	Dozer	1	56	8
	Volvos	6	56	8

Table 3.10 ECU Construction Equipment and Personnel Requirements

Task	Equipment/ Personnel	Quantity	Duration (860,000 cy)	
			Days	Hours/Day
	Water truck	1	56	8
Install water header if needed	Flatbed truck	1	4	8
	Personnel	4	4	8
	Backhoe	1	1	8
Haul, stockpile, and mix silt/clay (30%-100%) with affected sand. (Based on unit thickness of 1 foot)	Excavator	2	13	8
	Motor Grader	1	3	8
	Dozer	2	13	8
	Dump Trucks, offsite		400 – 3000 truck trips	
	Rototiller	1	13	8
	Roller/ Sheepsfoot	1	13	8
	Volvos	4	13	8
	Water Truck	1	13	8
Install HDPE liner, if required OR Cover silt/clay amended layer with at least two feet of NHIS using TB8 material.	Offsite trucking		4 trips	
	Loader	1	9	8
	Excavator	1	4	8
	Quadrunner 4x4	1	9	8
	Personnel	8	9	8
	Excavator	1	13	8
	Dozer	1	13	8
	Volvos	8	13	8
	Water Truck	1	13	8
Place NHIS in lifts to reach the final design grade. (Days indicated will occur within total 3-year duration of excavation project)	Excavator	2	269	8
	Loader	1	25	8
	Dozer	1	269	8
	Volvos	10	269	8
	Water Truck	1	269	8
Construct cap of 30% - 100% clay (Based on unit thickness of 1 foot)	Loader	1	4-13	8
	Dozer	1	18	8
	Offsite truck		500 – 3,750 truck trips	
	Water Truck	1	18	8
Cover/contour with 2 to 3 feet of clean sand.	Excavator	2	31	8
	Dozer	1	31	8
	Volvos	8	31	8
	Water truck	1	31	8
Revegetate ECU surface per the approved Site-Specific Restoration Plan (SSRP).	Volvos	2	3	8
	Dozer	1	3	8
	Excavator	1	3	8
	Water Truck	1	3	8
	Personnel (with hand tools)	12	6	8
Lay venting system pipe or drill vertical	Drill rig	1	6	8
	Personnel	4	4	8

Table 3.10 ECU Construction Equipment and Personnel Requirements

Task	Equipment/ Personnel	Quantity	Duration (860,000 cy)	
			Days	Hours/Day
venting wells, if needed (see Alternatives discussion, § 3.1.3)	Truck trips to bring materials		2 trips	8
Total Work Days			**439**	

Source: Unocal 2001

3.2.3.4 Post-Construction Monitoring, Maintenance, and Decommissioning

Like the TMLF, upon completion of construction and restoration, the ECU would be monitored and maintained as required by the RWQCB and the SSRP. At that time, the ECU would be left to natural processes. There would be monitoring and maintenance. Site decommissioning would begin when the RWQCB confirms that the ECU no longer needs active maintenance

Maintenance of the ECU would require ensuring that the water-handling system remains functional, monitoring the leachate system and the ground water monitoring wells, and conducting periodic soil and air testing. The personnel and equipment requirements for this activity are shown in the Table 3.11.

Table 3.11 ECU Maintenance Equipment and Personnel Requirements

Task	Equipment/Personnel	Quantity	Frequency
Maintaining the water-handling system	Personnel	1/2	Daily
	Maintenance vehicles	1/2	Daily
Ground water monitoring	Personnel	2	Quarterly
	ORV	1	Quarterly
	Small generator	1	Quarterly
	Electric pump	1	Quarterly
	Water level sounder	1	Quarterly
Air quality monitoring	Personnel	1	Quarterly
	Flame or photo-ionizing analyzer	1	Quarterly
Soil Testing	Personnel	1	Quarterly
	Drill rig or hand-auger tools	1	Quarterly
	Dump truck or front-end loader for moving bulk samples or supplies	1	Quarterly

Source: Unocal 2001

Abandonment of the ECU will involve the same steps as the TMLF.

3.2.4 Deep Well Slurry Injection

Slurry Fracture Injection (SFI or Slurry Injection) is proposed to dispose of NHIS by mixing it with water and injecting this mixture into an underground oil reservoir beneath the former Guadalupe Oil Field (Field). Injection pressures must be high enough to deform and fracture the unconsolidated sand formation, allowing slurry to flow from the well into the reservoir, with solid material deposited in the parting plane and adjacent pore space.

The objective of Slurry Injection is to remove NHIS from environmentally sensitive areas and dispose of it deep within a confined oil reservoir. The U.S. Environmental Protection Agency (EPA) regulates injection activities via the Underground Injection Control Program - Class I Wells and/or Injection Well Permit - Class II Wells from the Division of Oil, Gas, and Geothermal Resources.

3.2.4.1 Design Basis

The hydrocarbon-affected sands would be screened and fed into a large hopper, where they would be mixed with water. A screen and/or shaker would be used to separate large particles from the process. A centrifugal transfer pump would be used to convey the slurry material to a storage tank or directly to a pump for high-pressure down-hole injection.

The estimated amount of material that each Slurry Disposal Unit (SDU) can process and that each injection well can receive is 250 cy per 8-hour day, up to a total of 200,000 cy over the life of the well. However, this rate and volume may vary depending on actual conditions encountered during operations. To increase the rate of material injected, multiple SDUs could be installed/operated per 8-hour day, or one SDU could pump into two wells for 8 hours each, over a 16-hour day. Either operation allows the formation around each well approximately 16 hours to recover to normal pressures prior to the next injection cycle.

The proposed slurry injection system would be extensively monitored to determine the optimal and safe operation of the system. Four existing water injection wells permitted by the EPA Underground Injection Control (UIC) Program may be used as monitoring wells. These wells are LeRoy C4-A and LeRoy YC-4, both located at the C Well Pad, and LeRoy 1-2A and LeRoy Y1-2, located at the I Well Pad. If these existing wells do not supply appropriate monitoring parameters, or if it is determined that these wells should remain in service as water injection wells, new wells would be drilled for slurry injection monitoring. Monitoring data such as pressure and temperature would be analyzed to verify that the slurry is confined to the injection zone.

The final quantities to be injected are dependent on several variables, including other treatment/disposal methods utilized and actual quantity the formation can accept. Based on the existing data, the formation should accept all of the material generated from the excavations through four wells spaced 2000 feet or more apart. The actual amount the formation will accept, however, will be determined during operations.

Slurry injection could process up to 860,000 cy of material. Unless otherwise specified, the discussion below applies regardless of the quantity of material injected. Items that may vary with quantity of material are noted.

The time frame required to complete injection at the Field will depend on the total quantity of material injected, the number of wells and well sites, and the actual conditions encountered during operations. The total time needed for slurry injection of 860,000 cy of material will vary from 3.3 to 6.6 years, if at least two sites are established with two wells at each site.

3.2.4.2 Site Description

There are a number of important criteria used in determining the suitability of a geologic formation for slurry injection. These include:

- High permeability within the target formation,
- At least 50 feet of thickness,
- Porosity greater than 20%,
- Poorly consolidated formation sands which can be displaced easily by fracturing,
- The presence of a thick overlying confining unit that is impermeable and resists fracturing, and
- No nearby fault zones that may permit fluid communication to the surface.

The conditions at Guadalupe are appropriate for slurry injection, as determined by the Applicant. Both the Oil Silt and Oil Sand intervals of the Sisquoc Formation fit the above criteria, although each unit alone is on the lower end of what is considered to be sufficient thickness to support injection of large volumes of waste. Collectively, the thickness of the target zones is adequate for sufficient volumes of slurry injection. Data collected during oil production showed that the Sisquoc Oil Sand zone is unconsolidated and channelized. A slurry injection well injecting into the Oil Silt and Oil Sand intervals will accept approximately 200,000 cy per well, assuming wells are spaced at least 2,000 feet apart.

Other geologic formations comprising the Field (the Foxen, Monterey, and Knoxville Formations) are not considered viable target zones for injection due to inappropriate lithology and/or lack of sufficient localized lithologic data to make a reasonable conclusion at the present time.

Table 3.12 summarizes the four criteria considered for slurry injection well selection at the Field, comparing the existing UIC wells to characteristics of a new well. From a technical standpoint, the best option is to drill new wells for slurry injection operations.

Table 3.12 Slurry injection Technical Considerations

Well Location	Best Injectivity	Best Storage Capacity	Best Logistics	Best Completion
C Wells	X		X	
I Wells		X		
New Well	X	X		X

Source: Unocal 2001

Two sites, the TB8 area near the C Well Pad (by existing UIC wells LeRoy C4-A and LeRoy YC-4) and the DT area near the I Well Pad (by existing UIC wells LeRoy 1-2A and LeRoy Yl-2) could be designated for the Slurry Injection project. The TB8 stockpile lies within 500 feet of existing LeRoy C4-A and LeRoy YC-4 UIC wells. Given the proximity of the NHIS stockpile, the TB8 area is the preferred site for initial injection operations.

Both TB8 and DT areas are generally improved/disturbed and flat with sufficient space to accommodate surface injection equipment. A total of up to four new wells may be drilled, two wells at each site. Wells would be drilled at an angle so that a single well pad can accommodate surface facilities for two wells while maintaining the minimum 2,000 feet of separation within the injection zone.

The proposed layout at the TB8 site is shown on Figure 3-4. At the TB8 area, a space approximately 200 x 100 feet (approximately 0.5 acre, or about the size of the existing well pads) would be required for one SDU. In addition, an area about 200 feet in length and 100 feet in width (0.5 acre) will be required for the pre-screening equipment.

Pre-screening equipment would be located on or adjacent to the TB8 stockpile. The screened material may require an interim stockpile until it can be moved to the injection site. Alternatively, screened material may be transported to the TB8 slurry injection site via a conveyor system. An interim stockpile location may be necessary for oversize aggregate material segregated during the screening process. It is anticipated that oversize material will represent about 5% of the current stockpiles. This ratio would be verified in the field during initial operations. Should tests prove that the amount of oversize material is less than expected, pre-screening would be halted.

The proposed layout at the Diluent Tank (DT) area is shown on Figure 3-5. A stockpile of pre-screened NHIS sufficient to supply a one-week operation (up to 2,500 cy) would be established at the DT site. A similar stockpile will be needed for the TB8 site if direct feed via a conveyor is not implemented.

The water used for the slurry may come from several locations, including fresh water from the regional aquifer (a deeper well may be drilled if warranted), process water, storm water and/or effluent water from the Phillips (formerly Tosco) Santa Maria Refinery. Process water and storm water will be used first, with make-up supplied by one of the other alternatives as necessary.

There are two existing 8-inch lines from the Santa Maria Refinery, which were formerly used to transport fuel gas and oil from the Refinery to the Field. The lines are approximately 29,000 feet in length and extend southwest from the Santa Maria Refinery, one terminating at the Compressor Plant (CP) area in the central portion of the Field and the other extending past the DT area to TB8 and TB9.

Several geologic layers (formations) lie beneath the Field. The oil reservoir tapped during active oil production at the Field is within the Sisquoc Formation. Situated at a depth of 2,400 to 3,200 feet below sea level, the Sisquoc Formation is made up of an Oil Sand layer on the bottom covered by a layer of Oil Silt. Impervious Oil Shale caps the Oil Sand and Oil Silt, forming a barrier to prevent upward movement of fluids from the oil reservoirs beneath. In addition, the depth of the Sisquoc is well below the fresh water base at 1,200 feet. Both conditions substantially reduce the likelihood that the injected NHIS will impact ground water.

A more detailed geologic analysis was conducted by the Applicant and is included in the Geologic and Well Review (Appendix 6A, Unocal, October, 2001)

Reservoir pressure in the Sisquoc Formation in 1947 is estimated to have been approximately 1,205 psi. Due to continued oil production in the Field, that reservoir pressure fell to an average of 740 psi in 1976 (latest data available). Low formation pressure provides a reduced fracturing pressure and a natural pressure sink and containment zone for slurry injection operations.

For a Slurry Injection site, an area of approximately 0.5 acre (20,000 sq. ft.) will be required for one SDU, approximately 0.5 acre (20,000 sq. ft.) for the working stockpile and pre-screening area, and an additional 0.12 acre (5,000 sq. ft.) for the screening equipment.

3.2.4.3 Construction

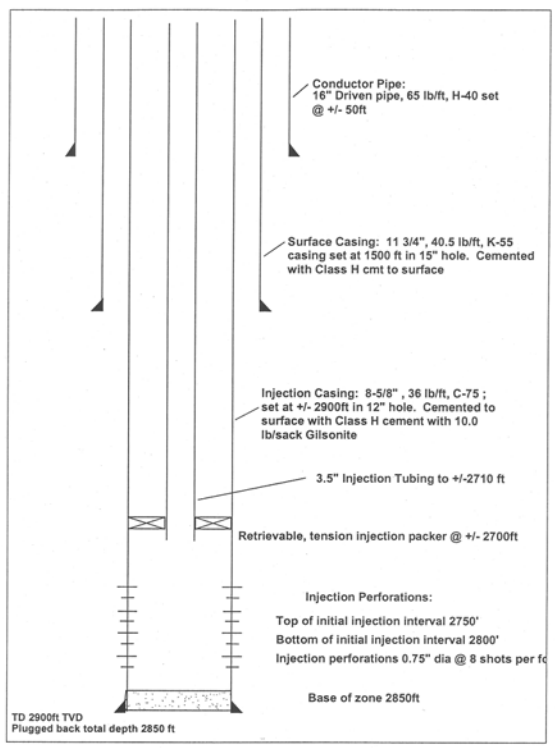
This section describes the construction activities that would be required to prepare the slurry injection site(s) for operation. Construction will include:

- Improve roads, as necessary,
- Drill and complete wells,
- Prepare processing site,
- Construct water and power utilities,
- Mobilize slurry injection equipment,
- Connect slurry injection equipment to wells and utilities.

Improve roads, as necessary. Before operations can begin, some roads may need to be repaired, repaved and/or widened (see Figure 2-5 in Section 2.0).

Drill and complete wells. Up to four new injection wells would be drilled, two at the TB8 area and two at the DT area. Target injection zones are the Oil Silt and Oil Sand units of the Sisquoc Formation.

Figure 3-6 Well Schematic



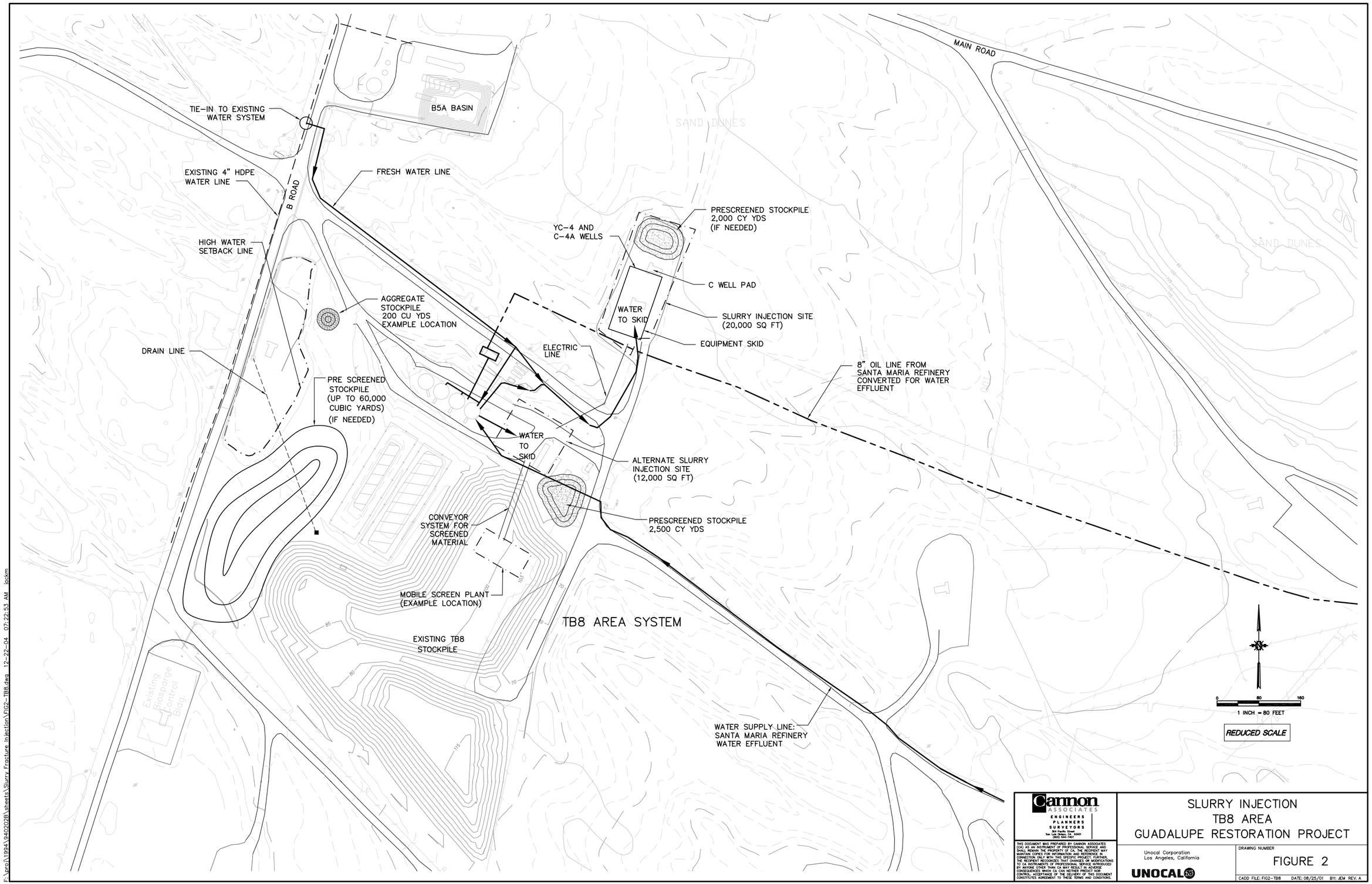
Source: Unocal 2001

A drilling rig would mobilize at the TB8 area to drill the injection wells. A wireline truck will be required on site to log the well. The geophysical logs generated will be used to confirm strata encountered and will assist in maximizing well screen placement. A cement truck will be required on site to cement the well. If wells will be drilled at the DT area, the equipment will move there and repeat the process.

The drilling mud will either be added to the existing stockpiles or placed in an interim stockpile and reinjected. Anticipated volumes of drilling mud have been estimated at 100–200 cy per well.

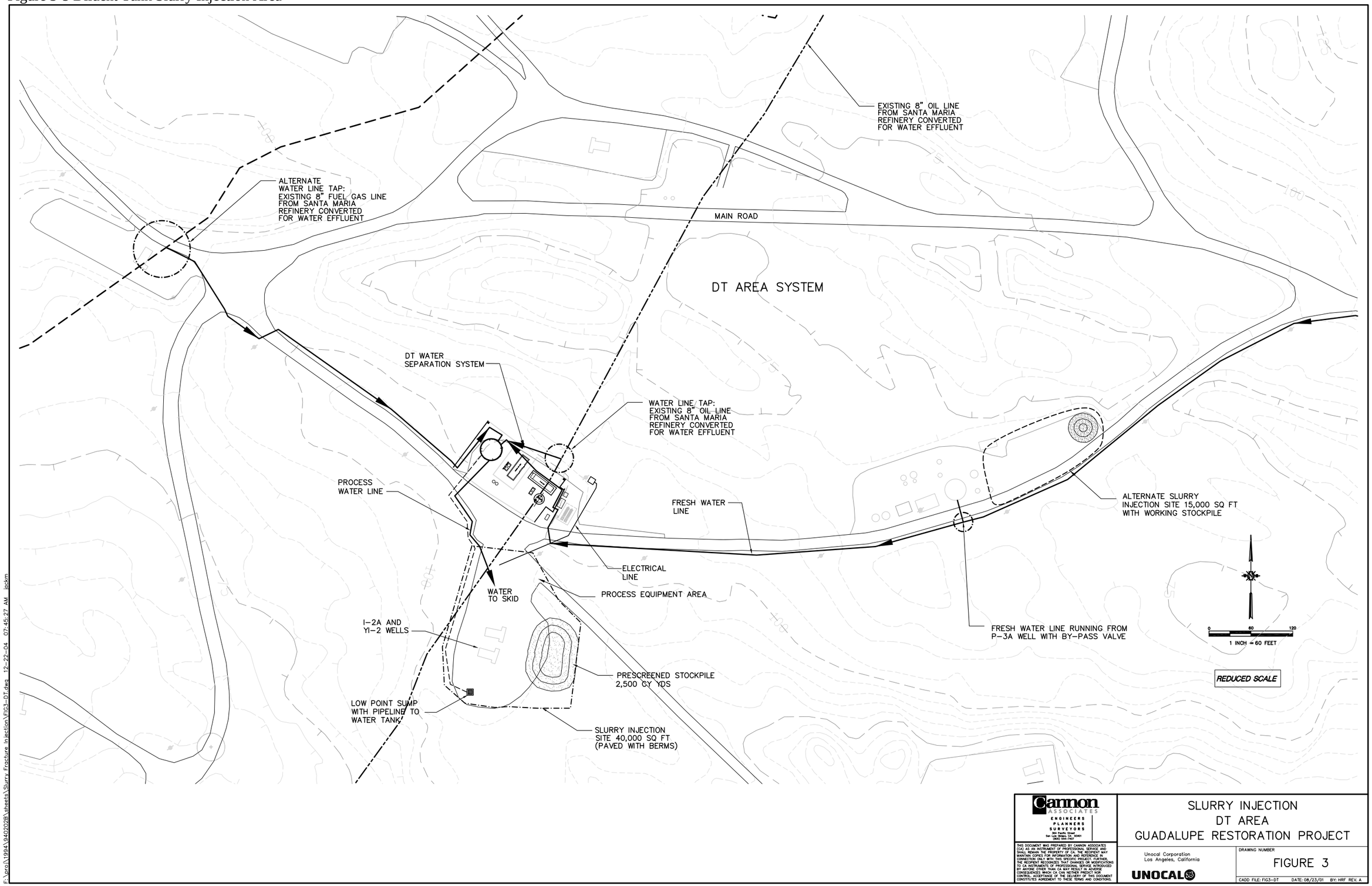
A proposed well construction schematic for the slurry injection wells is illustrated in Figure 3-6.

Figure 3-4 TB8 Slurry Injection Area



Source: UNOCAL 2001

Figure 3-5 Diluent Tank Slurry Injection Area



Source: UNOCAL 2001

The anticipated general well construction details are:

- Conductor pipe: 16-inch driven pipe, 65 lb/ft, H-40 set at approximately 50-foot depth.
- Surface casing: 11 3/4-inch, 54 lb/ft, K-55 casing set at 1,500 feet in 15-inch hole, secured to the surface with Class H cement.
- Injection casing: 8 5/8-inch, 36 lb/ft, C-75 casing set at about 2,900 feet in 12-inch hole, secured to the surface with Class H cement with additives to improve cement integrity.
- Packer: retrievable tension injection packer at approximately 2,700 feet.
- Injection perforations: Top of initial injection interval just below perforations. Injection perforations will be approximately 3/4-inch diameter, 8 shots per foot.
- Total depth: approximately 2,850 feet.

Proposed wells for the slurry injection alternative would be drilled and constructed to strict specifications for high-pressure injection. As shown in Figure 3-6, a “Conductor Pipe” will be driven into place to isolate the water table aquifer. A “Surface Casing” will be placed inside the conductor pipe and will extend to an estimated 1,500 feet below ground surface to protect other/deeper aquifers.

Prepare processing site. For the C Well Pad site, the well pad would be regraded and a paved roll-over berm constructed around the edge of the pad for spill containment. The well pad site is already level, but requires additional space to accommodate screening and injection equipment as well as the affected-material stockpile. Any additional space needed beyond the well pad would be on previously disturbed area. The expected volume of soil movement required to expand the area and create the berm is approximately 3,000 cy.

Alternatively, the SDUs may be placed on the north end of the TB8 stockpile area, and the injection lines will be constructed under the road to the well pad. (The slurry injection equipment may be located up to 1,000 feet from the wells without impairing the process.). At the TB8 stockpile site, 500 cy of material would be graded for site preparation, and no new area would be disturbed.

Screening equipment would be set up on or next to the TB8 stockpile. The anticipated footprint for the screening operation would be 50 x 100 ft.

Stockpiles for screened materials would be placed within the existing TB8 stockpile containment. The oversized and aggregate material stockpile will use approximately 1,500 square feet, and the screened material stockpile will require 6,500 square feet.

Slurry injection at the DT area, the stockpile, containment, and process area requirements would be similar to those at TB8. Approximately 0.2 acre (8,600 sq. ft.) of new disturbance will be required to construct the stockpile and equipment area at the I Well Pad.

Construct water and power utilities. Anticipated utilities needed would be water and electricity. Electrical connections for the equipment motors, office trailers, and instrumentation would be run from the existing electrical system. Electrical requirements would be met at both the TB8 and DT sites by installing conduits and running wires from the pole lines to the process equipment and offices. Some electrical step down equipment may be required.

Water sources for the slurry mixture would include process and storm water from the existing water-handling system and fresh water from the existing well water system.

Process water would be piped from existing tanks at TB8 or DT to the hydraulic skid. Fresh-water connections would be made from an existing line along the B Road for the TB8 area. For the DT area, fresh water would be supplied via a new pipeline along the Main Road from the P-3 area with a tie-in to the plant fresh-water tank. A new well approximately 1,000 feet below ground surface may be drilled as a source of fresh water.

Another possible source of water would be effluent from the nearby Phillips (formerly Tosco) Santa Maria Refinery. There are two existing 8-inch lines from the Santa Maria Refinery, one which terminates at the CP area in the central portion of the Field and the other which extends past the DT area to TB8 and TB9. A comprehensive inspection, cleaning, and testing of these lines would be performed to determine if either is viable for use.

A 1,200 hp diesel-powered emergency back-up generator would be set up at each pumping site. The diesel engine would require a pad of approximately 300 square feet. The existing paved areas at the TB8 and DT areas would be sufficient. The diesel fuel tank would have secondary containment and would be located within a bermed, contained area.

Diesel, natural gas, or propane engines may be installed if it is determined that the existing electrical facilities do not have sufficient capacity for the anticipated electric motor load. If it is determined that diesel, natural gas, or propane engines would be used to operate the equipment, appropriate tank pads, containment areas, and fuel lines would be run. Natural gas engines would only be feasible if there is a viable fuel line from the Santa Maria Refinery that is not needed for refinery effluent-water transport.

Mobilize slurry injection equipment. Slurry injection equipment would be brought to the Field on flatbed transport trucks. Equipment would likely be mobilized from within California, although it may come from as far away as Canada or the East Coast. A crane would remove the SDU equipment from the trucks and place them on the site. The SDUs would be moved and positioned with the crane and winch trucks. This process would require about four to six hours per process unit.

Connect slurry injection equipment to wells and utilities. Installing the pipe to connect the various SDUs and components to the wells would require a crew of two to three workers. A crane would be used for heavy pipe sections.

Once the SDUs are in place, the water piping, electrical and fuel connections would be completed. Water from the existing tanks at TB8 and DT would be piped to the SDUs.

Construction Time Schedule

Well drilling would take approximately 3–4 weeks per well. Preparation of each injection site is expected to take approximately one month. Installation and connection of injection equipment, well testing, and preparation for injection operations is anticipated to take approximately five weeks per process unit.

Equipment, Personnel Description
The anticipated equipment and personnel required for slurry injection construction is shown in Table 3.13. Similar equipment may be substituted, depending on availability.

3.2.4.4 Project Operations

Two phases would be associated with slurry injection operations: pre-operation activities and full-scale operations.

Pre-Operation Activities
The pre-operation phase would be conducted for 1–3 months to test the wells and slurry injection equipment and refine the operating process as necessary prior to initiation of full-scale operations. The sequence of pre-operation activities for slurry injection would include material pre-screening and slurry injection initiation procedures.

Table 3.13 Slurry Equipment and Personnel during the Construction Phase

Task	Equipment/Personnel	Quantity	Duration (days/well)	Duration (Hrs/Day)
Drill and Complete Well(s) (Up to 4)	Drilling Rig	1	2 weeks per well	24
	1-ton flatbed haul trucks	35 trips		
	Cement truck	9 trips		
	Rig Operators	5 per shift	2 weeks per well	24
	Retrievable tension injection packer or Production Rig (400 HP engine)	1	1	8
Grade and pave process equipment area(s)	Grader	1	3	8
	Offsite trucks	Up to 100 trips		
	Asphalt spreader	1	1	8
	Front loader	1	3	8
	Compactor	1	4	8
	Water truck	1	4	8
	Equipment Operators, laborers	4	4	8
Road Improvements (onsite)	Excavator	1	2	8
	Dozer	1	2	8
	Dump trucks	55 offsite truck trips		
	Grader	1	2	8
	Water truck	1	4	8
	Compactor	1	3	8
	Volvos	3	1	8
	Asphalt spreader	1	1	8
Construct Water Line from P3 Well Pad to DT area [1]	15-ton crane	1	31	8
	10-wheel boom truck	1	31	8
	Welders	2	31 each	8
	2-ton flatbed truck	1	31	8
	Backhoe	1	6	8
	Dump truck	1	6	8
	Hydrotest pump	1	3	8
Clean, Test, Inspect	Air compressor	1	19	8

Table 3.13 Slurry Equipment and Personnel during the Construction Phase

Task	Equipment/Personnel	Quantity	Duration (days/well)	Duration (Hrs/Day)
Santa Maria Refinery line and construct connections to process equipment sites	Pump	1	19	8
	Vacuum truck	2	19	8
	Trucking	Up to 25 trips (offsite)		
	Crane	1	3	8
	Flatbed truck	1	19	8
	500 bbl tanks	6	19	8
	Welder	1	3	8
	Line testing personnel	4	13	8
	Dump truck	1	4	8
	Backhoe	1	4	8
	Water truck	1	19	8
Construct Water and Power Utilities	Pole truck	2	4	8
	Personnel	4	4	8
	Flatbed truck	1	4	8
	Backhoe	1	4	8
	Welder	1	1	8
Set up propane tank at B3 well pad/TB9	Trucking	Up to 8 trips (offsite)		
	Flatbed truck	1	3	8
	Front-end loader	1	3	8
	Dump truck	1	3	8
	Compactor	1	3	8
Mobilize SFI Equipment [2]	Trucks capable of carry equipment up to 45 ft. long; weighing up to 39,000 lb. and a maximum height of 13 ft.	7	7 trips total	8
	Winch truck with a 36 ft. deck	1	6	8
	25-ton crane	1	6	8
	Equipment Operators, laborers	7	6	8
Connect SFI Equipment to Well(s)	Personnel	2	6	8
	Welder	1	6	8
	25-ton crane, if needed	1	4	8
Total Duration (Weeks per Well)			**8**	

Source: Unocal 2001

Material pre-screening equipment would be located on the TB8 Stockpile. A bench of approximately 0.1 acres (5,000 sq. ft.) would be constructed to provide the screening area. The bench used for screening cannot be covered with any vapor control materials due to the nature of the screening activities. Approximately 3,000 cy of NHIS would be prescreened through a 1/2-inch screen to determine the oversize ratio in the TB8 stockpile. If the amount of oversize material is minimal, then prescreening would not be required during full-scale operations and screening would be achieved only by the SDU screen. NHIS would be moved by excavator, front-end loader, or a conveyor system into the pre-screening equipment. Pre-screening would run approximately 8 hours per day, 5 days per week. An estimated 1,000 cy per day would be screened. A water truck would be used for dust control, as needed.

Material pre-screening will occur concurrently with construction activities so that when the injection system comes on line, the material to be injected will be ready for processing.

Injection initiation procedures would be performed after well drilling is complete to ensure that the wells and equipment are working efficiently before full-scale operations commence. Further details are described in the Unocal report *Detailed Procedures for Pre-operations and Operations,* Appendix 6B (Unocal October, 2001).

The well would be shut in and an injection string pressure test performed (from the pump to the well head) to the maximum pressure available from the Slurry Disposal Unit (>2,900 psi if possible) without exceeding burst pressure of casing, tubing, and wellhead.

To minimize the skin effect (the decrease in efficiency of fluid flow) from the drilling and perforating of the well, 100 barrels of water will be injected at 16 bbl/min or up to a maximum wellhead pressure of 3,000 psi and the well shut in for two hours. A pressure fall-off test would be conducted with the water, followed by a step-rate test. When tests are complete and results are satisfactory, soil injection would commence.

Full-Scale Operations

The sequence of full-scale operations for slurry injection is described below and illustrated below in Figure 3-7. The operational steps would include:

- Material pre-screening, if required
- Material injection
- Daily injection startup
- Daily slurry injection operations
- Daily injection shutdown
- Emergency shut-down procedures
- Implement scheduled test procedures
- Monitoring

Material prescreening, if required. If required, pre-screening would take place prior to injection operations. The soil would be transferred by earthmoving equipment into pre-screening equipment that would remove large chunks and other debris larger than about 1/2 inch in size. The oversize material may be set aside for separate testing and processing if necessary (washing or subsequent grinding and injection). It is anticipated that oversize material will represent approximately 5% of the NHIS. Pre-screening requirements would be verified in the field prior to drilling or injection activities.

Screened material may be transported via conveyor, excavator or front-end loader. The screening equipment will run for 8 hours per day, 5 days per week. Up to 1,000 cy will be screened per day.

For DT operations, material may be hauled from screening at TB8 or directly from excavations. Dry decontamination methods will be used before trucks return to the site.

It is anticipated that working stockpiles of material would be left uncovered after screening, as Soil Sement® or similar chemical vapor suppressants will form solid chunks that cannot be processed through the soil washing equipment. Operational controls would be in place to limit emissions from the working stockpiles as agreed upon with the APCD. Emission calculations would determine needs, but potential operational controls would include minimizing stockpile sizes at the end of the week (when they would not be worked for more than 24 hours), then covering them with 10-mil visqueen secured with sandbags.

Aggregate materials separated during pre-screening would be stockpiled for disposal offsite at an approved solid-waste-handling facility.

Material injection. The quantity of soil that would be slurried for injection by one SDU will be approximately 250 cy per well per day. Soil would be moved by conveyor or front-end loader into a hopper on the SDU. The hopper would feed a three-stage auger. The soil would be moved by the auger to a 3/16-inch screen. Water would be injected into the base of the auger to begin mixing the soil. Water will be sprayed over the top of the screening operation. Particle sizes greater than 3/16 inch will be separated.

Oversized material (up to 5% of the soil fed to the screen) may be recirculated twice to break down anything that can be disaggregated. The remaining oversize material will be stockpiled for offsite disposal. Alternatively, this material may be ground in a separate mix tank, fed back into the main process stream, and injected.

The screened soil would be moved via a two-stage auger to the mix tank. Water would be added in the auger and in the mix tank to create a slurry that has a water-to-soil ratio of approximately 4: 1. The slurry must be continuously agitated and kept flowing at sufficient velocity to prevent solids from dropping out of the mixture prior to injection.

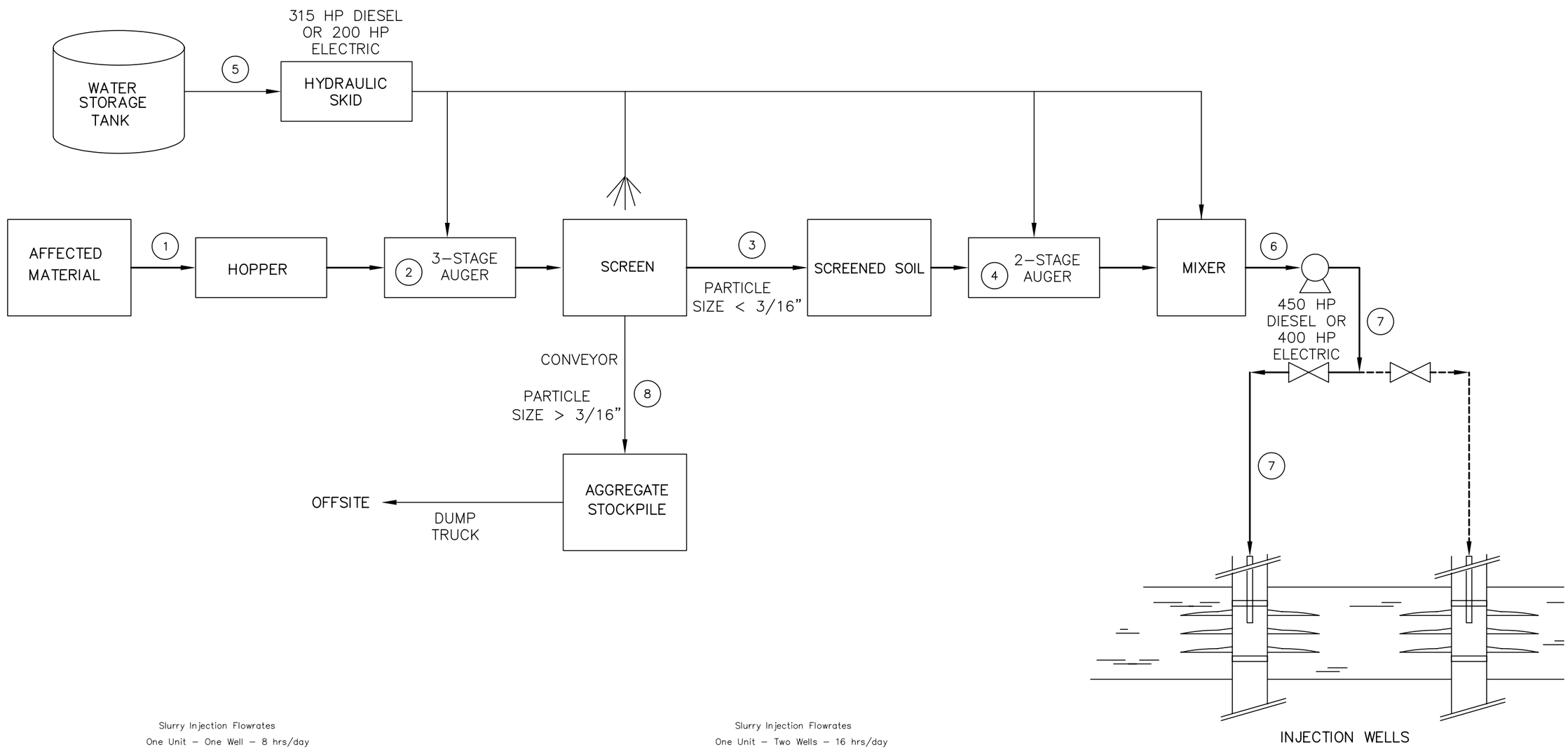
The injection pump would take suction from the mixer tank and push the slurry mixture into the formation. During injection, a sufficient velocity would be maintained from the pump discharge to the well formation to prevent the deposition of solids. The system would have the flexibility of using one pump for one or two wells, with a system spare for maintenance purposes.

The slurry mixture would be pumped at a pressure of approximately 2,600 psig. Each pump would be driven by 400-hp electric motors, so 800 hp total would be available on each pump skid to pump slurry into each injection well. If sufficient electrical power is not available onsite, 450-hp diesel, propane, or natural gas engines would be used instead.

Daily start-up, shutdown, testing and operations activities are described below. The impact of injection on the target formation will be monitored by a number of techniques, including continuous Bottom Hole Pressure (BHP) measurement. Testing procedures such as step rate tests and tracer logs will be performed at intervals.

Daily injection startup. Before daily injection of NHIS begins, the Slurry Disposal Unit (SDU) must be prepared for injection. The slurry mix tank would be filled 3/4 full with water. A pre-flush pad would then be injected into the well to initiate fracturing of the oil reservoir. Rates would be built up over 5–10 minutes; then the operation will be checked to ensure the proper Well Head Pressure (WHP) and BHP are being maintained with no unusual pressure surges or drops.

Figure 3-7 Slurry Injection Process Flow Diagram



Slurry Injection Flowrates

One Unit – One Well – 8 hrs/day

Reference Units	1	2	3	4	5	6	7	8
yd3/8 hr day	263	263	250	250	1,040	1,290	1,290	13
BBL/8 hr day	1,262	1,262	1,202	1,202	5,000	6,202	6,202	60
GPM	110	110	105	105	438	543	543	5
Specific Gravity	1.43	1.43	1.43	1.43	1.0	1.08	1.08	1.43
Density lb/ft3	89.2	89.2	89.2	89.2	62.4	67.6	67.6	89.2
Pressure, psig	ATMOSPHERE	ATMOSPHERE	ATMOSPHERE	ATMOSPHERE	ATMOSPHERE	ATMOSPHERE	2600	ATMOSPHERE
yd3/hr	33	33	31	31	130	161	161	2

Slurry Injection Flowrates

One Unit – Two Wells – 16 hrs/day

Reference Units	1	2	3	4	5	6	7	8
yd3/8 hr day	525	525	500	500	2,079	2,579	2,579	25
BBL/8 hr day	2,525	2,525	2,405	2,405	10,000	12,405	12,405	120
GPM	110	110	105	105	438	543	543	5
Specific Gravity	1.43	1.43	1.43	1.43	1.0	1.08	1.08	1.43
Density lb/ft3	89.2	89.2	89.2	89.2	62.4	67.6	67.6	89.2
Pressure, psig	ATMOSPHERE	ATMOSPHERE	ATMOSPHERE	ATMOSPHERE	ATMOSPHERE	ATMOSPHERE	2600	ATMOSPHERE
yd3/hr	33	33	31	31	130	161	161	2

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SLURRY INJECTION
PROCESS FLOW DIAGRAM
GUADALUPE RESTORATION PROJECT

Unocal Corporation
Los Angeles, California

UNOCAL

DRAWING NUMBER
FIGURE PFD–1

CADD FILE: SLURRYPFD DATE: 08/23/01 BY: XX REV. 0

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Source: UNOCAL 2001

Daily slurry injection operations. When the pre-flush pad has been injected, soil would be moved into the slurry mix tank. Injection parameters would be recorded at 30-minute intervals. WHP and BHP would be monitored for any anomalous surges or drops.

Daily injection shutdown. At the end of each day's injection procedures, measures must be followed to clean and shut down the well and SDU. The slurry mix tank would be emptied of the soil slurry and filled with water. After the unit is flushed with water, the wellhead valve would be closed, the SDU shut down and lines drained, and pressure data collected.

Emergency shut-down procedures. While monitoring would be performed to attempt to prevent and correct emergency situations before they arise, an emergency shut-down may be necessary. If there is reason to shut down the injection process under emergency conditions, the injection stream will be switched immediately to water. After a minimum 125 bbl of water injection, the wellhead valve will be closed and the slurry injection operations shut down.

Emergency shutdown will be performed under the following conditions:

- BHP and WHP show a sustained pressure surge or drop over a 15-minute interval. A surge or drop is defined as a change in pressure by at least 500 psi.
- Casing pressure on the well annulus.
- Water or soil rising to the surface at any of the observation wells.
- Breakdown of any of the injection equipment affecting pumping or the injection monitoring system.
- Loss of electrical power.

Implement scheduled test procedures. Step-rate and pressure fall-off tests would be performed on a regular basis. The step-rate test would be conducted to evaluate formation parting pressure and changes in in-situ stress. Consistent pressure curves over time indicate that containment of the injected slurry within the target formation is being maintained.

The pressure fall-off test would be conducted at the end of operations daily to ensure that the pressure in the formation is able to normalize and accept additional material when operations resume. The subsequent day's injection operations would not commence if formation pressures remain high compared to previously established background pressure.

Monitoring. A detailed monitoring and analysis program would be designed for the Slurry Injection process. Offset monitoring wells would be used at each site to verify containment of injected material for environmental protection, fully comply with regulatory requirements, and optimize operations for long-term injectivity. Monitoring tools would include:

- continuous injection and well pressure monitoring and analysis
- continuous injection well temperature monitoring
- periodic injection tracer log surveys
- periodic step rate tests in the injection well temperature and pressure monitoring in two offset observation wells.

One or both of the existing UIC wells at each site may be modified to serve as a monitoring well. Alternatively, new monitoring wells may be drilled at each site, if the existing UIC wells are unsuitable or are needed for process water injection.

Time Schedule

The anticipated amount of NHIS to be slurried and injected by one SDU is approximately 250 cy per day per well. Two operating schedules are under consideration. Injection operations may take place for approximately 8 hours per day between 6:00 a.m. and 6:00 p.m., Monday through Friday throughout the year. To decrease the duration of injection activities, duplicate SDUs may be set-up at each well site so that both wells may be used concurrently during the eight-hour operating period.

Alternatively, process and injection equipment may be operated for 8 hours on each well, each day, for a total of 16 operating hours each day. This schedule would require nighttime operations, but would reduce the instantaneous power requirements associated with duplicate equipment and accomplish the injection within the shorter duration.

For each well, injection would be accomplished in periodic stages, generally lasting for 8 to 10 hours of injection, with shut-in periods lasting from 10 to 64 hours. The shut-in periods allow stress and pressure fields generated within the formation to redistribute and dissipate between injection episodes. Extended shut-in periods of 64 hours or more may be necessary in order to accommodate equipment maintenance and formation testing and monitoring. Extended shut-in periods would be scheduled to take place on weekends. Step-rate tests may require 1 to 2 days of downtime quarterly.

The volume of NHIS for injection may vary significantly. Should the targeted formation be unable to receive the expected 250 cy per day or should the formation begin to build pressure more rapidly than estimated, additional injection wells would be drilled or one of the other treatment and/or disposal methods currently being studied may be implemented.

Operations Equipment and Personnel Requirements

The equipment and personnel anticipated for slurry injection operations are shown 3.14. The data provided in Table 3.13 assumes that one set of process and injection equipment will be installed at each injection site. If duplicate SDUs are installed to allow for concurrent operation of both wells at each site, equipment and power requirements would double. Similar equipment may be substituted, depending on availability.

Table 3.14 Operations Equipment and Personnel per Injection Site

Task	Equipment/Personnel	Quantity	Duration	
			Hrs/day	Days
Material Pre-screening	Screening Equipment	1	2.5	Length of project
	Dump truck for material transport to well sites	1	3	Length of project,
Grinding of Aggregate Materials OR Haul aggregate material offsite for disposal	Grinding Unit Haul trucks	1 3 trips per day	2.5 or 1.5 days/wk 8	Length of project

Table 3.14 Operations Equipment and Personnel per Injection Site

Task	Equipment/Personnel	Quantity	Duration	
			Hrs/day	Days
Slurry Injection Initiation Procedures	Personnel	4	8	2
Material Injection	240 hp electric motors or 315 hp diesel motors to run 60 hp hydraulic pumps, two-stage auger, and mixer	1	8	Length of project
	400 hp electric motors or 450 hp engines	2	8	Length of project
	Emergency backup diesel generator (1,200 hp)	1	As needed	
	Front end loader	1	8	Length of project
Emergency Generator testing	Personnel	1	<1/2	Length of project
Daily Injection Start-up	Personnel	1	0.75	Length of project
Daily slurry injection Operations	Personnel	3	8	Length of project
Daily Injection Shutdown	Personnel	1	0.75	Length of project
Emergency Shut-Down as Needed	Personnel	2	As needed	
Implement Scheduled test Procedures	Personnel	2	4-8	Quarterly, Length of project
Monitoring	Personnel	1	8	Length of project

Aggregate would be hauled offsite (estimated need is 3 trips per day), or a grinder would be used to add the aggregate to the slurry process.

Source: Unocal 2001

Utility Usage

Operation of slurry injection pumping equipment, conveyor belts, lights, computers, and control room air conditioner would require approximately 2,000 kilowatts of power per site. These requirements include the two 400-hp and one 240-hp electric motors.

If sufficient power is not available on site for operation of the electric motors indicated above, diesel, natural gas or propane engines may be used to drive the pumps instead of one or more electric motors. Estimated power or fuel requirements per number of concurrent wells are shown in Table 3.15.

A water-to-soil ratio of 4:1 is required for injection. Injection of 250 cy of material per 8-hour shift per well would require approximately 1,000 cy (approximately 5,000 bbls) of water. Additionally, a phone line will be needed at each office trailer for data processing. An emergency 1,200 hp diesel generator would be in place at each site to maintain pump operation for emergency shut down in case of a power failure.

Table 3.15 Power and Fuel Requirements per Number of SDUs

Number of SDUs (Hrs/day)	Electrical (KWHrs/Day)	Diesel (Gal/hr)	Propane (Gal/hr)	Natural Gas (scf/hr)
1 (8)	4,297	39	75	6,945
1 (16)	8,594	39	75	6,945
2 (8)	8,594	78	150	13,890
2 (16)	17,188	78	150	13,890
3 (8)	12,891	117	225	20,835
4 (8)	17,188	156	300	27,780

Combinations calculated include:

1. Electric: Each pump driven by two 400 hp motors, with a 240 hp motor for the slurry mixing equipment.
2. Diesel: Each pump driven by two 450 hp motors, with a 315 hp motor for the slurry mixing equipment.

Source: Unocal 2001

Operational Upsets

The upsets that may occur during slurry injection operations include surface operation problems and injection well upsets. A supply of replacement parts would be maintained for all major system components on site for any breakdown. Workover rigs would be called in as needed to deal with well problems. Should adverse conditions occur the SDU would be shut down until normal slurry injection conditions return.

Surface operations are confined to the affected-material stockpile areas, tank and storage areas, and to the pumping equipment pads. Berms would be constructed around each of these areas for containment.

Normal inclement weather conditions for the Guadalupe area would have no adverse effects on injection operations. The road to the project site is paved, onsite storage tanks will be covered, and the slurry processing and injection equipment is weather-proof.

The processing and pumping equipment, trucks, and loaders would receive regular maintenance. Further, there would be duplication in the injection pump system so that a spare injection pump would be available should a failure occur. In the event of a failure, water would be pumped until the fluid to the well has a specific gravity of about 1.05 to clear the well of solids.

If power is lost to the site or the Field, the equipment will be unable to pump water to clear the well. The steel tubing may fill with slurry and the solids may settle and plug the perforations at the base of the wellbore. In this event, the equipment would be down for approximately one week to clean out the well. To reduce the likelihood of this occurrence, a diesel generator is planned for emergency backup, or an alternate-fueled engine may be used to drive the pumps.

Another potential upset is shearing of the well casing in or just above the injection formation. Shearing of the well prevents injection of slurry below the shear point. This type of failure is caused by injected fluid migrating upward along a poor cement bond outside the injection well casing and pressurizing laminated formations. Fortunately, shearing of the well does not permit injected fluids or solids to migrate upward into overlying formations or aquifers, so no environmental damage is anticipated if this failure does occur.

Shearing of the well can be prevented by careful placement of the casing cement during well drilling and completion. If shearing of the well casing does occur, the well can be re-perforated to inject into a suitable formation above the shear point. If no suitable injection formations are present in the damaged well, a replacement injection well would need to be drilled. Drilling another well may cause a delay in the project.

Should adverse pumping conditions or other upsets occur, whether due to surface or injection well problems, the injection process would be stopped following the Emergency Shut-Down procedures.

Quantity and Rate of Injection

Based on an average of 260 working days per year, it is anticipated that approximately 65,000 cy of material will be injected per year per well. The estimated rate of injection of NHIS is shown in Table 3.16. Operations are assumed to run approximately 8 hours per day per well. Equipment may be run for longer periods or on weekends in order to mitigate time constraints, if necessary. Additionally, larger-than-anticipated waste volumes and/or time constraints may necessitate the drilling of more injection wells at other appropriate areas within the Field.

Table 3.16 Quantity and Rate of Injection

	Well Configurations and Rate of Injection (Years)						
Quantity (cy)	1 Well, 1 SDU @ 8 hrs/day (250 cy/day)	2 Wells, 1 SDU @ 16 hrs/day (500 cy/day)	2 Wells, 2 SDUs @ 8 hrs/day (500 cy/day)	4 Wells, 2 SDUs @ 8 hrs/day (500 cy/day)	4 Wells, 2 SDUs @ 16 hrs/day (1000 cy/day)	3 Wells, 3 SIDUs @ 8 hrs/day (750 cy/day)	4 Wells, 4 SDUs @ 8 hrs/day (1000 cy/day)
200,000	3.2	1.6	1.6	1.6,	0.8	1.1	0.8
860,000				6.9	3.4		3.4

Source: Unocal 2001

Note that each well would accept approximately 200,000 cy total. Therefore, a single well would be able to accommodate the volume of all of the excavated sump material, but none of the remaining material. Four wells will be able to accept approximately 800,000 cy of material. It is anticipated that approximately 5% of the material will be separated as aggregate during the screening process. In addition, the material quantities estimates add approximately 10% (33% for the remaining sump excavations) as a contingency factor. Therefore, it is assumed that the total volume of material could be injected with 4 wells (the actual volume of material should be 800,000 cy or less).

3.2.4.5 Decommissioning and Restoration

Certain facilities installed for the slurry injection project may have potential for use in future operations at the Field. For instance, slurry injection wells may be used for process water injection after slurry operations are complete. New water and fuel lines and electrical facilities with potential future use would be left. Those facilities with no potential for future use at the Field would be decommissioned as described below.

Decommissioning would include the following:

- Disconnect slurry injection equipment from well and utilities
- Demobilize slurry injection equipment
- Abandon injection wells
- Restore disturbed areas

Disconnect slurry injection equipment from well and utilities. A crew of two to three workers would disconnect the piping from the various SDUs and components. A crane would be used to maneuver heavy pipe sections as needed.

Demobilize slurry injection equipment. Equipment would be disassembled in the opposite order of assembly and loaded onto flatbed trucks for transport offsite via a crane. All equipment would be cleaned and decontaminated before leaving the Field. Demobilization would require seven flatbed transport trucks, a crane, a winch truck, and approximately three field assistants.

Abandon injection wells. If there is no further use for the injection wells, they will be abandoned.

Cement plugs would be placed across specified intervals to protect oil and gas zones, prevent degradation of usable waters, protect surface conditions, and for public health and safety purposes. At the discretion of the Division of Oil, Gas, and Geothermal Resources (DOGGR) District Deputy, cement may be mixed with or replaced by other substances with adequate physical properties.

Mud fluid having the proper weight and consistency to prevent movement of other fluids into the well bore would be placed across all intervals not plugged with cement, and would be poured into all open annuli.

A cement plug would be placed at a depth no greater than 3,000 feet. A surface cement-pour would be permitted in an empty hole with a diameter of not less than 5 inches. Depth limitations will be determined on an individual well basis by the district deputy.

Blowout prevention equipment may be required during plugging and abandonment operations. Any blowout prevention equipment and inspection requirements determined necessary by the district deputy would appear on the approval to plug and abandon issued by DOGGR.

Restore disturbed areas. Slurry injection is not expected to require additional disturbance to habitat; therefore, restoration is not anticipated. However, in the event that area(s) outside the existing well pads, stockpile locations, etc. are disturbed, they would be restored consistent with the approaches and techniques described in the Habitat, Restoration, Revegetation, and Monitoring Plan (HRRMP) and a Functionally Equivalent Site-Specific Restoration Plan (FESSRP) would be prepared.

Decommissioning Time Schedule

Decommissioning and removal of the slurry injection equipment is anticipated to take approximately two weeks. Abandonment of the injection wells would take approximately one week each or approximately one month for all four wells.

Equipment, Personnel Description

The equipment and personnel required for decommissioning activities are shown in Table 3.17. Alternative equipment may be substituted, depending on availability.

Table 3.17 Equipment and Personnel Specifications in Decommissioning Phase (per injection site)

Task	Equipment/Personnel	Quantity	Duration	
			Days	Hrs/Day
Disconnect Slurry Injection Equipment to Wells (Per well)	Personnel with hand tools	2	6	8
Demobilization of the equipment from the site (Per injection site)	Flat-bed transport trucks	7	18	8
	Winch truck with a 36 ft. deck	1	1	8
	25-ton crane	1	1	8
	Equipment Operators	3	1	8
Abandon Wells (Per well)	Pump Truck	1	1	8
	Cement bulk truck	1	1	8
	Crane	1	1	8
	Blowout prevention equipment	1	1	8
	Flatbed truck	1	1	8
	Welder	1	1	8
	Personnel	6	1	8
Total Duration (Days)			**18**	

Source: Unocal 2001

3.2.5 No Project Alternative

With this alternative, all the NHIS would be left in place and the additional NHIS from future excavations would be stocked piled at the site. This represents the no project alternative. This alternative has been dropped from further consideration because it is inconsistent with the San Luis Obispo Coastal Land Use Ordinances. The San Luis Obispo County Coastal Plan Policy 3 for Energy and Industrial Facilities states:

> *Upon completion or abandonment, all above-ground oil production and processing facilities shall be removed from the site, and the area in which they were located shall be restored by appropriate contouring, reseeding, and planting to conform with surrounding topography and vegetation. [This policy shall be implemented pursuant to Section 23.08.174 of the Coastal Zone Land Use Ordinance.]*

Since this alternative would not be allowed under the San Luis Obispo County Coastal Zoning Ordinance, it has been dropped from further consideration.

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4.0 Cumulative Projects Description

The California Environmental Quality Act (CEQA), in Section 15355 of the Guidelines, defines "cumulative impacts" as two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts.

A typical "project specific" cumulative analysis looks at the changes in the environment that result from the incremental impact of development of a proposed project and other reasonably foreseeable projects that have not been included in the environmental setting. For example, the traffic impacts of two projects in close proximity may prove to be insignificant when analyzed separately, but could be significant when the impacts of the projects are analyzed together. While these projects may be unrelated, their combined (i.e., cumulative) impacts are significant.

4.1 Cumulative Projects Description

The study area for cumulative projects has been defined to include the South County Planning Area of San Luis Obispo County and the Santa Maria Valley area of Santa Barbara County.

A list of all approved and pending development projects located in the study area was assembled using information from the San Luis Obispo (SLO) County Department of Planning and Building, the Santa Barbara (SB) County Department of Planning and Development, and the Cities of Guadalupe and Santa Maria. Table 4.1 provides a list of projects that could potentially have cumulative impacts with the proposed project. Figure 4-1 shows locations of larger projects from the list relative to the project site and the proposed truck route between the project site and the Santa Maria Landfill.

Future Projects in the Guadalupe Field. There remain a large number of excavations and other project-related activities that would occur at the Guadalupe Field during the period of the proposed project. The excavations include a number of wetland sites, plus other required sites, including the additional Cleanup or Abatement Order (CAO) excavation sites discussed in Section 9 of this SEIR. There is also ongoing site assessment work and site characterization work that occurs on a regular basis at the Field. These activities are considered part of the cumulative projects list.

DJ Farms project involves development of 209 acres in the City of Guadalupe (the site annexed to the City in 1995) located at the southeast corner of Main Street (Highway 166) and Guadalupe Street (Highway 1) (see Figure 4-1). Planned are: a nine-acre public park, a 10-acre school, 980 mixed occupancy units (mostly single-family dwellings), and 18 acres of commercial space. The project also includes a minimum 200-foot agricultural buffer and separating landscaping around the perimeter of the development area. The project entails a potential Guadalupe area population growth of 60%.

Two existing roadways — Obispo Street and Flower Avenue — will be extended south across Highways 166 to provide access to the site. A series of improvements to Highways 166 and 1 and the intersections are planned.

Currently the project is at the stage of the EIR preparation (Notice of Preparation public comment period ended on August 10, 2004). The project will be phased over approximately 10 years, with construction potentially starting during 2005. The Initial Study contained in the NOP identified potentially significant impacts in most of the environmental areas (Agriculture, Land Use, Geology, Hazardous Materials, Hydrology, Traffic, Air Quality, Noise, Biology, Cultural Resources, Recreation, Aesthetics, Public Services and Utilities and Service Systems.)

Nipomo and South SLO County Areas. Several projects are planned in Nipomo and unincorporated areas of southern SLO County in the Nipomo area. The following projects are in various stages of review and approval: approximately 40 single-family dwellings (19 of them on Leaf St.), 5 apartment buildings (on Nipomo, Division, and Orchard Streets), one commercial area on Division Street (approximately 45,000 sf), Nipomo High School improvements (on Thompson Street), and several mobile homes. There is no consistent approach for determining the exact schedule of these projects, so it is assumed that at least 50% of the projects will overlap in time with the proposed project.

Santa Maria. There are many projects in various stages of review and approval in the Santa Maria area (see Table 4.1). Several of them are located within one mile from the transportation route from the Guadalupe Field to the Santa Maria Landfill (see Figure 4-1). The larger ones include Liberty Elementary School (12 acres), Central Coast Wine Services Expansion (12 acres), and Enterprise Research (10 acres and 35,000 sq ft industrial space).

Santa Barbara County has proposed to construct an extension to the Juvenile Jail facility in the south of Santa Maria. There are also several Public Works (90-bed facility) and other County buildings proposed in that area (see Figure 4-1 and Table 4-2) with a total area of 30,000 sq ft.

The larger residential projects in the city of Santa Maria include developments at Carmen Lane and Blosser Road (169 lots, 42 acres), at Miller and McCoy (142 lots), at Battles and Westgate (291 lots), and at McCoy/College Drive and Crossroads and Bradley Road (Bradley Square Development – 539 lots).

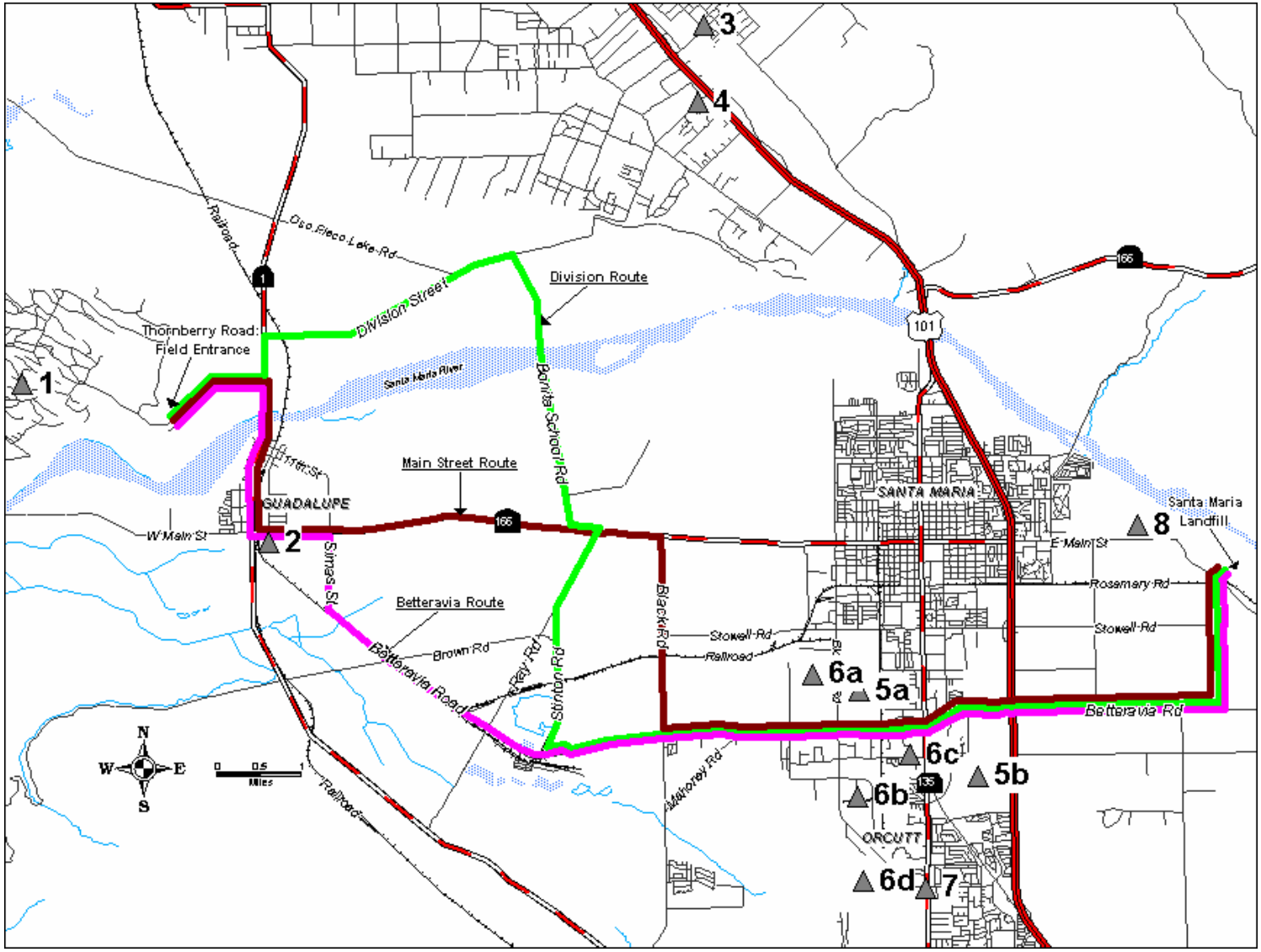
Orcutt and SB County Areas South of Santa Maria. Several projects are proposed in Orcutt and unincorporated Santa Barbara County areas south of Santa Maria. These include: residential single-family lots from 3,500 sq ft up to 26,000 sq ft at Jensen's Crossing (112 lots), Mesa Verde (64 lots), Harp Springs (44 lots), Rice Ranch (755 lots), Stonegate Ranch (43 lots), Old Mill Road (58 lots), George Lane (3.17 acres 9 lots), and 32 condominium units at Glacier Lane.

Santa Maria Landfill. There are several changes proposed to the Santa Maria Landfill physical characteristics and operations. This project's EIR was certified in July 2004. In summary, the project will involve an increase in the final elevation of the closed active landfill area; modifications to the entrance and gates; relocation of the scale house and additional scales; addition of soil-screening operations; addition of various materials bailing and recycling (e.g., metals, concrete, asphalt, toys, furniture, textiles, and agricultural plastics); and addition of grinding operations of construction and demolition material for alternative daily cover. Operation hours are proposed to change from 7:00 a.m.–4:00 p.m. to 5:30 a.m.–7:00 p.m. The project also entails construction of a sports complex/recreational area on the inactive part of the landfill. All of the proposed facilities are planned to be constructed within one year of the project's approval.

Table 4.1 List of Foreseeable Projects that Could Have Cumulative Impacts

	Project Name	Status/Date	Description	General Location
San Luis Obispo County				
1	Areas A6/TB2, B5A North, C7 North, C7 Southeast, P13 (Future Projects at the Guadalupe Oil Field)	Proposed, included in this SEIR, Section 11)	137,980 sq ft of excavation area (44,620 cy of NHIS)	At the Guadalupe Oil Field
2	DJ Farms	Proposed, NOP distributed	209- acre development: includes 822 single-family and 158 multi-family lots, school; 18 acres of commercial space; public park	Guadalupe area
3	Various residential developments	Proposed or in plan-check	40 single-family dwellings, 5 apartment buildings, several mobile homes	Nipomo and Rural South County areas
4	Commercial developments	Proposed or in plan-check	One commercial area on Division Street (approximately 45,000 sq ft); Nipomo High School improvements	Nipomo and Rural South County areas
Santa Barbara County				
5	Various residential developments	Approved, proposed, or in plan-check	1,781 dwelling units	Santa Maria area
6	Various commercial and industrial developments	Approved and proposed	1,145,600 sq ft of commercial or industrial space approved or in plan-check	Santa Maria area
7	Various residential developments	Approved, proposed or in plan-check	1,173 single-family and condo residential units	Orcutt area. SB County area south of Santa Maria
8	Santa Maria Regional Landfill	EIR certified	Operational and physical changes to the existing waste-disposal facility	Eastern Santa Maria

Figure 4-1 Map of Foreseeable Projects in the Project Area



Source: Marine Research Specialists

Table 4.2 Larger Projects Shown in Figure 4-1

#	Project Name
1	Future Projects in Guadalupe Field
2	DJ Farms Development
3	19 residential lots on Leaf St. in Nipomo
4	Commercial space & apartment building on Division St.
5	a. 291 lots at Westgate and Battles Rd. and 169 lots at Carmen Ln. and Blosser Rd. b. 539 lots at Bradley Rd. and College Dr. (Bradley Square Development) in Santa Maria
6	a. Liberty Elementary, b. Central Coast Wine, c. Enterprise Research, d. County offices (30,000 sq ft) and Juvenile Hall expansion (58,500 sq ft, 90-bed jail facility)
7	755 residential lots on Rice Ranch
8	Santa Maria Landfill

4.2 References

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5.0 Analysis of Environmental Impacts

This section of the SEIR contains the analysis of the environmental impacts of the proposed Non-hazardous Hydrocarbon-Impacted Soil (NHIS) trucking project, the alternatives, and the cumulative projects. Through the Notice of Preparation (NOP) and scoping process, 11 issue areas were identified where significant impacts could occur for the proposed NHIS trucking project. For each of these issue areas, the following sections are provided:

- Environmental Setting
- Regulatory Setting
- Significance Criteria
- Proposed Project Impacts, Mitigation Measures, and Residual Impacts
- Alternative Impacts, Mitigation Measures, and Residual Impacts
- Cumulative Impacts
- Mitigation Monitoring Plan
- References

The impact analysis has been developed based on the information provided in Section 2 (NHIS Trucking Project Description), Section 3 (NHIS Trucking Alternative Descriptions), and Section 4 (Cumulative Projects Descriptions). All impacts in this document have been classified according to the following criteria:

- Class I – Significant adverse impacts that cannot be mitigated to insignificance: Significant impacts that cannot be effectively mitigated. No measures could be taken to avoid or reduce these adverse effects to insignificant or negligible levels.
- Class II – Significant impacts that can be mitigated to insignificance: These impacts are potentially similar in significance to those of Class I, but can be reduced or avoided by the implementation of mitigation measures.
- Class III – Insignificant impacts: Generally, no mitigation measures are required for this Class of impacts.
- Class IV – Beneficial impacts: Effects that are beneficial to the environment.

The term “significance” is used in the impact summary tables and throughout the SEIR to characterize the magnitude of the projected impact. For the purpose of this SEIR, a significant impact is a substantial or potentially substantial change to resources in the local proposed project area or the area adjacent to the proposed project.

In the discussions of each issue area, criteria used to distinguish between significant and insignificant impacts are provided. To the extent feasible, distinctions are also made between local and regional significance and short- versus long-term duration. Impacts and mitigation measures are systematically presented in tabular form in the Impact Summary Tables, which are located directly following the Executive Summary.

5.1 Surficial Geology and Coastal Geomorphology

This section discusses the existing regional and local surficial geology and coastal dune geomorphology of the project area and evaluates potential geologic and geomorphologic impacts that could affect or be caused by the proposed development. Given the importance of the dune formations to the region, geomorphological processes are covered in detail in this section. The discussion of the existing geologic environment is based largely on information from the 1998 EIR (ADL 1998). The evaluation of project components is based on the aforementioned document, other published reports and maps, and a surface reconnaissance.

5.1.1 Environmental Setting

This section provides a description of the existing regional and project-specific geologic environment.

5.1.1.1 Regional Geologic Setting

The Guadalupe Field is located in a geologically unique area comprised of a large area of active dunes (unvegetated, unstable) and backdunes (vegetated, persistent) lying within the Santa Maria Valley, one of the larger coastal valleys of California, near the juncture between the Coast Ranges and the Transverse Ranges. Bordered by the Pacific Ocean to the west and the Santa Maria River to the south, and underlain by alluvial deposits up to 230 feet thick, the Guadalupe Field is exposed to various geomorphic changes and hydrogeologic conditions. Much of the dune complex within the Field is active, and its characteristics are a result of coastal and riverine processes occurring well beyond the boundaries of the project area.

The most predominant onshore features within the Santa Maria Valley are an extensive dune system and a broad river valley. The Guadalupe Field is located within the Guadalupe-Nipomo Dunes Complex, which is part of a larger coastal dune complex, extending from Mussel Rock to Pismo Beach (Nipomo Dunes Complex). The Guadalupe-Nipomo Dunes Complex (Dunes Complex) lies entirely on the alluvial plain of the Santa Maria River, between the Santa Maria River mouth to the south and Oso Flaco Lake to the north, and extends inland over three miles to near Highway 1.

The Santa Maria Valley is defined by a wedge-shaped, bowl-like structural basin containing Miocene and younger formations to depths of 1,600 feet. The Santa Maria Valley is bounded to the northeast by the Coast Ranges and to the south by the Casmalia-Solomon Hills. The basin is approximately 50 miles long and opens toward the west. The western portion of the Santa Maria Valley extends offshore for about 35 miles, where it terminates at the Santa Lucia Bank. Between Point Sal and Point San Luis, five miles south and 20 miles north of the Santa Maria River, respectively, the longshore movement of sediment is contained within two confined areas known as the San Luis Obispo Bay (north of Fossil Point) and Pismo littoral cells.

5.1.1.2 Soils and Topography

The Dunes Complex consists primarily of beach sands, eolian (wind-formed) dune sands, plus sands and silty sands from stream and alluvial deposition. The beach and dune sand deposits have some thin layers of silty sands or sandy silt. The sands and silty sands that compose the beach area and the dunes generally have similar engineering properties across the site resulting from the natural sorting which occurs as part of eolian dune formation processes.

Wide expanses of bare sand continue to be relatively mobile throughout the Guadalupe Field but have been recorded in recent history to be decreasing in size as vegetative growth increases along the margins. Dune elevations range from sea level to approximately 120 feet above mean sea level (msl). Specifically, the elevation of Tank Battery 8 (TB8) area is over 30 feet msl and is developed with a network of roads and pavement used in association with the stockpile management. The stockpile (to be removed as part of the project) contains approximately 330,000 cy of diluent-affected sand.

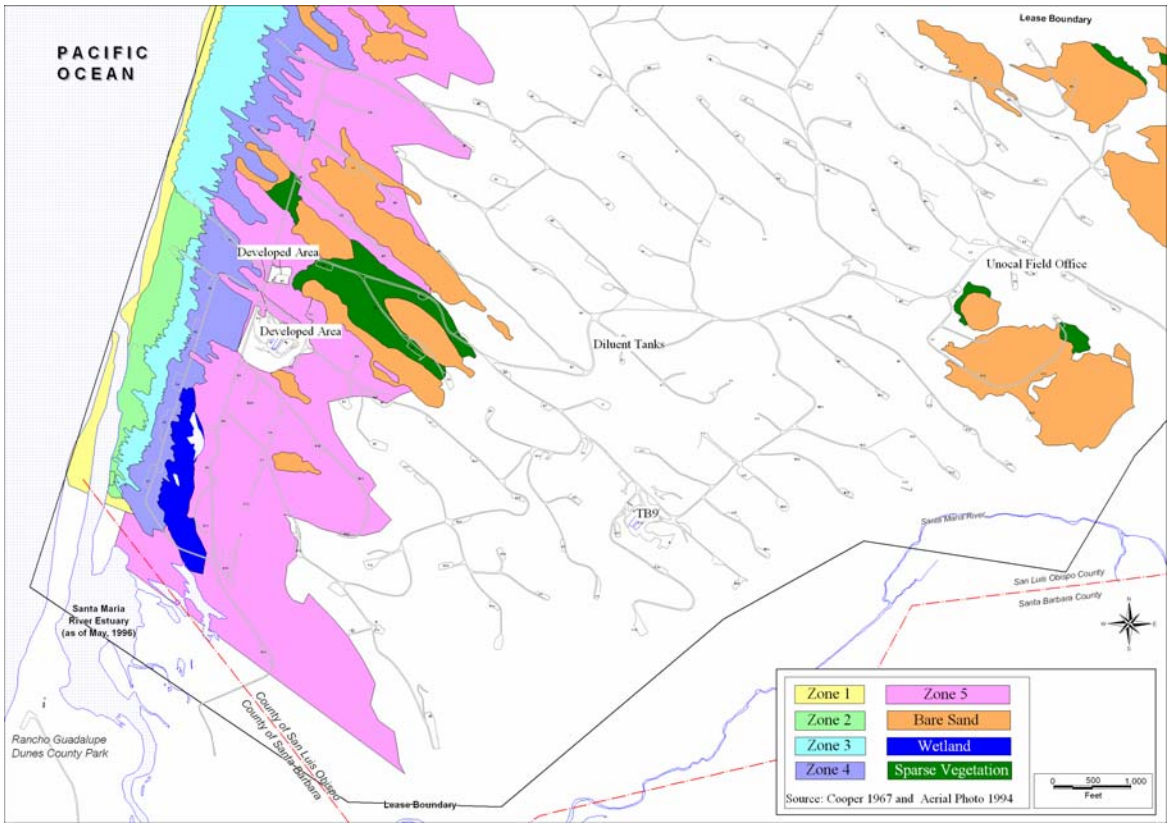
5.1.1.3 Geomorphology

The dunes of the Dunes Complex and the Santa Maria River are the two major geomorphic units that characterize the study area. It is the southern half of the Guadalupe dune sheet, approximately 2,700 acres bounded by the river along its southern margin, which has been developed by Unocal and is the focus of this study. Following a general description of the natural environments that are occupied by coastal and riverine geomorphic features, a site-by-site description of the project area is presented.

Guadalupe Dunes. The Guadalupe dune sheet occupies a roughly triangular area located between Oso Flaco Lake on the north and the mouth of the Santa Maria River to the south, and extending inland over three miles to near Highway 1 (Figure 5.1-1). The entire Guadalupe sheet is Flandrian and, according to Cooper (1967), was formed during two distinctive periods (i.e., Episodes I and II). They are roughly separated by the ridge of high dunes crests (i.e., 100 to 120 ft). The older, more stabilized dune sheet is characterized by an extensive area of imbricated parabolic dunes reaching elevations above 120 ft and represent Episode I. These parabolic dunes are moderately to highly elongated downwind toward the southeast, and exhibit complex overlapping relationships. On the whole, the ridges are sharply crested and have steep flanks which give the landscape a rugged, youthful aspect. As such, Episode I has not run its course (Cooper 1967) if one considers that long-term settling and erosion typically rounds off sharp crests and lessens the angles of flank slopes.

Episode II is a more recent, active belt which is migrating at a rate of 0.15 cubic feet per foot per day (ft^3/ft/day) or of 26,000 yd^3/yr (USACOE 1986) into the older, Episode I, more stabilized dunes. Cooper (1967) describes two zones within Episode II; but upon closer scrutiny, several zones can be delineated (Figure 5.1-1). While all the dune forms within the Episode II area are considered highly dynamic and sensitive geomorphic features, the zonation generally reflects a descending level of critical importance for dune formation processes (i.e., Zone 1 is more important than Zone 5). Zone 1, although not technically dunes, comprises the sand supply for the foredunes in the form of beach and baymouth barrier deposits. This zone is unvegetated, responds daily to waves, currents and tides and adjusts its profile seasonally as a function of storms.

Figure 5.1-1 Active Dune Zones



Zone 2 is an area of incipient or rebuilding foredunes that is approximately 4,000 ft long and 400 ft wide. It extends northward from the Santa Maria River and in the 1940s was occupied by the river channel which had eroded and truncated longitudinal dunes found in Zone 3. These highly active longitudinal dunes in Zone 3 are narrow (50 to 100 ft wide) low-lying (10 to 20 ft mean sea level [msl]) sparsely to moderately vegetated deposits, elongated in the effective wind direction and extending some 600 to 900 ft inland from the beach. Zone 4 is another area of active, low-lying longitudinal or young parabolic dunes, but are wider (100 to 200 ft) and more vegetated on the dune crests. Finally, Zone 5 is a broad area of parabolic formations extending some 3,000 ft inland, rising up to 120 ft msl and ranging in stability, as a function of vegetative cover.

Wide expanses of bare sand continue to be quite mobile (2 to 5 meters/year) but are decreasing in size as vegetative growth increases along the margins. These are the active masses of Episode II invading the surface of Episode I in broad slipfaces and tongues. Burial of intact, stabilized ridges is a striking feature (Cooper 1967). The stable parabolic dunes (Episode I) extend several miles inland from this Zone 5 boundary reaching heights of 140 ft msl. There are also areas of active unvegetated tongues of sand and low-lying dune swales or slacks which have wetland communities.

Santa Maria River. The 22-mile-long Santa Maria River begins at the confluence of the Sisquoc and Cuyama rivers. Flows on the Cuyama are regulated at Twitchell Dam. The dam is empty

during the dry season; the Santa Maria River is quite ephemeral with no surface flow 83% of the time (SBCPDD and SLOCDPB, 1997). When storms occur, flow release occurs such that ground water recharge is maximized. Flows greater than 350 cubic feet per second (cfs) at the confluence of the Cuyama and Sisquoc rivers result in some release of Santa Maria River water to the Pacific Ocean. Although large, there is no agreement on how much sand reaches the shoreline from the river; mean annual discharge rates may vary between 130,000 tons and 300,000 tons (Evert 1994). Much of this sand has been eroded, historically, from the southern margin of the Guadalupe (Episode I) dunes.

As sea level continues to rise, sedimentation will increase at the mouth and lower reaches of the Santa Maria thereby decreasing the gradient of the river bottom and decreasing flow velocities. As a result, less sediment will be transported to the ocean and shoreline recession rates will increase. Historically, the river bottom gradient was 30% steeper before sea-level began to rise (Worts 1951). Another potential impact on sediment loads in the Santa Maria is the gravel mining planned for the next 64 years (SBCPDD and SLOCDPB 1997). Approximately 87.8 acres within 12 miles of the Guadalupe Field distance will be excavated anywhere between 5 and 25 feet deep. However, several policies address methods to minimize the impacts on sediment transport, so it should not interfere greatly with geomorphologic processes at the Santa Maria River mouth, and the importance of the relevance of these processes; therefore, at this time, there is little concern about its relationship to the Guadalupe Restoration Project.

Floods in the Santa Maria River initiate outlet migration, and subsequent river and marine phenomena compound it. Most of the northward migration probably occurs during the post-flood stage. While the outlet could shift position by closing at one location and opening at one further to the north or south, it appears that its shift in position usually occurs as the result of a progressive, but not steady, migration. A progressive northward movement of the outlet occurs when the barrier spit elongates on the south side of the outlet. This happens when alongshore sand transport is to the north. The rate of spit elongation is, to a large extent, a function of the rate of alongshore transport. The cross-sectional area of the outlet as it passes through the spit is controlled by the freshwater discharge in the river plus the tidal prism (ebb-tidal flow of saltwater from the lagoon), and the longshore sand transport rate. As the barrier spit elongates at the south side of the outlet, the spit on the north side is cut by the migrating channel. There must be some flow in the river for this to occur. High flows through the outlet reduce the migration rate. Low to moderate flows that occur when the alongshore transport rate is large favor migration. At very low flows, the outlet may close. This occurs when freshwater flow in the river is less than the combination of percolation through the barrier and evaporation from the lagoon. Closure occurs when incoming sand transported along the coast cannot all be removed by coastal processes and freshwater flow through the outlet. The river will break out when flows increase. Usually the breach will occur where the barrier is lowest and not necessarily where it was last open (Everts 1994).

Another important riverine feature is the associated wetland communities located at the southwest corner of the study area between dune Zones 4 and 5. It is a broad area (approximately 2,400 ft by 400 ft) of wetland vegetation and open water which most likely occupies a former channel position of the Santa Maria River. The biological description is provided in Section 5.3, but topographically, the area is very flat and gently grades into upland along its eastern boundary. Steeper grades exist along the western boundary of the wetlands where overwash and

dune migration processes have occurred. Arguably, all the dune and beach deposits seaward of this wetland area could be considered barrier beach environment.

5.1.1.4 Seismicity and Geologic Hazards

Seismicity

Southern California is recognized as one of the most seismically active regions in the United States. Earthquake faults are considered "active" if they have shown displacement since Holocene time (past 11,000 years). These active faults represent most of the earthquake hazard in southern California (CGS 2002). Faults that show displacement during the Quaternary period (past 1.8 million years) are commonly called "potentially active" (CGS 1997). Most active or potentially active faults are regulated under the Alquist-Priolo Earthquake Fault Zoning Act (APEFZA). This act requires the State Geologist to map Earthquake Fault Zones along known active faults and some sections of potentially active faults, and it requires regulating agencies to limit certain projects in these zones (CGS 1997).

No active faults traverse the Guadalupe Field; however, several regionally important earthquake faults are located in the vicinity of the Guadalupe Field. Of these faults, portions of the Los Osos (15 miles northeast), San Simeon-Hosgri (5 miles west), and San Andreas faults (40 miles east) have been designated as active under APEFZA.

Geologic Hazards

Similar to all of southern California, the project area is subject to several types of seismically induced geologic hazards, including ground shaking, liquefaction, landslides, and tsunamis. Ground shaking can occur as a result of small to moderate earthquakes, which can be common in the region. The most recent major earthquake within 100 miles of the area was the 6.5 San Simeon earthquake in December 2003, which caused very minor damage at the Guadalupe Field, but moderate to substantial damage in other parts of the County and the nearby town of Guadalupe in Santa Barbara County.

Liquefaction is a form of seismically induced ground failure, which can occur in saturated sand or silty sands as a result of a rapid increase in pore fluid pressures (a compression of space between individual grains resulting in an upwelling of water). Liquefaction generally occurs in areas where ground water is within 50 feet of the ground surface. Ground water at the Guadalupe Field generally ranges from 5 feet below ground surface (bgs) at the base of the dunes (in some locations) to several hundred feet bgs at dune crests. Although ground water is known to occur within 5 to 10 ft of the ground surface in some areas, geotechnical studies indicate that the soils are generally not subject to liquefaction (ADL 1998). Liquefaction can occur as a result of seismic activity or other vibration-causing activity, including pile driving, use of heavy construction equipment, or excavation/earthwork.

In dune systems, slope failure is generally localized on active slopes, but can result in large sheet movements that alter the processes of dune formation and may bury or destroy vegetation and habitats below. Slope failure is generally a result of the angle of the surface slope on site and, therefore, active dune slopes have the highest potential for slope stability problems on site. Due to the processes that create sand dunes, the leeward face (slope away from direct wind) often develops at the maximum slope angle sustainable by the dune sand, where disturbance is most

likely to result in localized failures. For built up sands, slope failure generally can occur on slope angles of approximately 20 degrees and will likely occur on slope angles of approximately 30 degrees (ADL 1998).

Tsunamis, or long-period sea waves created due to seismic events or submarine landslides, have historically occurred in the project region. A study performed by Houston & Garcia (1978) estimated the 100-year and 500-year tsunami run-ups in the study area, based upon far-field source generation locations (such as the Aleutian or Chile-Peru Trenches). On the basis of their study, the estimated maximum tsunami run-up in the project area is 9 ft and 24 ft, for the 100-year and 500-year event, respectively.

5.1.2 Regulatory Setting

The following State and local regulations apply to the project area and are designed for the protection of health and safety from geologic hazards.

Public Resources Code, Section 2621, et seq.
The Alquist-Priolo Special Studies Zone Act of 1972 establishes criteria and policies to assist cities, counties, and state agencies in the exercise of their responsibility to prohibit the location of developments and structures for human occupancy across the trace of active faults, as defined by the State Mining and Geology Board. As identified in Section 5.1.1.4, no Alquist-Priolo Earthquake Fault Zones are located within the Guadalupe Field. In addition, no structures for human occupancy are planned as part of the proposed project.

Title 23 of the San Luis Obispo County Code
The Coastal Zone Land Use Ordinance (CZLUO) (sec. 23.07.080) establishes the Combining Designation Standards for Geologic Study Areas. These are areas where “geologic and soil conditions could present new developments and their users with potential hazards to life and property.” The standards require preparation of a report on geologic hazards and appropriate mitigation measures. Structures must be designed to overcome these hazards. Sedimentation and erosion control plans are required under the CZLUO (sec. 23.05.036) for land-disturbing activities that occur under certain conditions. No new development is planned for the site, and no study areas have been mapped for the site.

Local Coastal Plan
The Local Coastal Plan (LCP) for San Luis Obispo County includes detailed policies, programs, and standards to address issues of the California Coastal Act of 1976, through a Land Use Element (LUE) and Land Use Ordinance (LUO) System. Within the Coastal Plan Policies adopted under Ordinance 2544 (amended May 1992), specific policies for energy and industrial development and abandonment of facilities (Policy 3 more specifically), shall be implemented pursuant to section 23.08.174 of the CZLUO. Policy 3 states: “Upon completion or abandonment, all above ground oil production and processing facilities shall be removed from the site and the area in which they were located shall be restored by appropriate contouring, reseeding, and planting to conform with surrounding topography and vegetation.”

County Policies 36–40 state that resource dependent development within the Guadalupe Dunes must meet the requirements specified in the “Energy Facility Siting Management Plan for the

Nipomo Dunes System" (Volume II, Guadalupe Unit, October 2, 1980) and the certified Local Coastal Program. The policies associated with Alternative 2 of the Energy Facility Siting Management Plan shall be implemented as standards. These standards apply to limited coastal-dependent and resource-dependent development outside of the LeRoy Lease area. However, these standards are considered best practices and would be appropriate for the proposed project. Those standards relevant to potential impacts to surficial geology and coastal geomorphology are listed under Impact Mitigation Techniques of the management plan and address access roads, site abandonment, and habitat restoration.

Other Regulatory Requirements

Section 17922, 179511-17958.7 of the California Government Code requires cities and counties to adopt and enforce the Uniform Building Code (UBC), including the grading section (Chapter 70), providing minimum protection against geologic hazards. The County of San Luis Obispo (SLO County) implements these provisions.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) sets forth specific standards for the construction industry. The Construction Standards are legal requirements defining the minimum protections employers are obligated to provide employees and the mechanisms for enforcing these protections. The Secretary of Labor under section 107 of the Contract Work Hours and Safety Standards Act issued these safety and health standards. SLO County complies with these requirements.

5.1.3 Significance Criteria

SLO County adopts those criteria identified in Appendix G of the California Environmental Quality Act (CEQA) Guidelines to determine geologic impacts. Appendix G states that a project will normally have a significant impact if it would "expose people or structures to major geologic hazards." Impacts would, therefore, be considered significant if any component of the project is located in an area subject to high risks associated with seismic activity, liquefaction, subsidence, or slope instability. Impacts are also considered significant if the project would create a new geologic hazard, alter or destroy a geologically unique feature, or create major landform alterations that could lead to slope instability or major erosion. Specifically, impacts would be considered significant from a surficial geology and coastal geomorphology perspective if it would:

1. Result in exposure to or production of unstable earth conditions such as landslides, earthquakes, liquefaction, soil creep, mudslides, ground failure, or similar hazards.
2. Result in loss of topsoil.
3. Result in permanent substantial changes in topography.
4. Result in changes in deposition or erosion of beach sands or dunes, or changes in siltation, deposition, or erosion which may modify the channel of a river, or stream, or the bed of the ocean, or any bay, inlet, or lake.

The Initial Study determined that project development would not result in the exceedance of the following threshold criteria, and therefore, these are not discussed further:

1. Disruptions, displacements, compaction, or overcovering of the soils by cuts, fills, or extensive grading.

   The project would not involve any new grading that might cause disruptions or modifications to the existing areas.

2. The destruction, covering, or modification of any unique geologic, paleontologic, or physical feature.

   Project activities are limited to the removal of an existing stockpile of contaminated material, minor road widening, and grading in previously disturbed areas.

3. The placement of septic disposal systems in impermeable soils with severe constraints to disposal of liquid effluent.

   No septic tanks are included as part of the project.

4. Extraction of minerals or ore.

   No extraction of minerals or ores is planned as part of the project.

5. Excessive grading on slopes of over 20%.

   No excessive grading on slopes greater than 20% would occur as part of the project.

6. Vibrations, from short-term construction or long-term operation which may affect adjoining areas.

   No residential or commercial developments are present in the vicinity of the site.

7. Excessive spoils, tailings or over-burden.

   NHIS would be disposed in the Santa Maria Landfill, as indicated in the project description. Overburden would be reused as backfill in the excavations.

5.1.4 Impact Assessment Methodology

The proposed project includes removal and transfer of the existing NHIS material at the TB8 and TB9 stockpile sites, as well as the transfer of other contaminated materials that will be excavated in the future, to the Santa Maria Landfill. No excavations or other removal of oil field related facilities are part of the project.

Potential geologic impacts were evaluated based on the likelihood and significance of occurrence as a result of project activities. Specifically, activities associated with removal of the TB8 and TB9 Stockpiles and disposal at the Santa Maria Landfill (proposed project) or disposal at the alternative disposal sites, construction of a treated-materials land feature (TMLF) or Engineered Containment Unit (ECU) at BT9, and slurry injection (proposed alternatives) were reviewed with respect to potential geologic hazards and substantial changes to existing and future dune

formation. Impacts associated with short-term and construction related erosional impacts are discussed in Section 5.2.

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that are incorporated into all work and projects that occur at the Guadalupe Field.

5.1.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that would be incorporated into the proposed project or alternatives as part of the existing permit conditions.

The following measures would be implemented to protect geological resources in accordance with the CDP/DP D890558D Coastal Development Permit (CDP) County Conditions of Approval:

F9 Prior to the commencement of each stage, Unocal shall submit to the County Department of Planning and Building for review and approval a time schedule and plan of excavation site sequencing. To reduce the length of exposure time of the excavated and soil storage areas, the clean overburden shall be used to immediately fill the cavity, or clean sediment from a similar site shall be used to replace the excavated soil.

F11c Unocal may stockpile contaminated soil at TB9 or TB8. Backfill sources for projects may include Borrow site Q4 may be used if approved by the County Department of Planning and Building after a site specific biological and geomorphological review of the site, conducted by a qualified geomorphologist approved by the County Planning Director and the Executive Director of the Coastal Commission. The report(s) of the site specific reviews may be subject to an independent peer review conducted by an expert retained by the County and funded by Unocal. (This study was conducted by Unocal and submitted to San Luis Obispo County and the California Coastal Commission.)

F23 At a minimum, Unocal shall implement some or all of the following measures at any time when sustained wind speeds exceed 20 knots (25 mph) and when the independent Onsite Environmental Coordinator or SLO APCD determines that an excessive amount of wind erosion is occurring to stockpiles or borrow sites, disturbed areas or other portions of the work site:

- Water shall be applied to areas generating eroding areas.
- Activities that increase erosion shall cease until conditions change.
- Other anti-erosive measures approved by the SLOAPCD are implemented.

F64.c. For areas where vegetation and soil are to be removed, salvage and replace topsoil that is reasonably weed-free. In consultation with the resource agencies and revegetation specialists, develop a plan for removing the topsoil that will maximize, to the extent

feasible, salvage of the seed bank. This plan must be approved by the County Department of Planning and Building and the Executive Director of the Coastal Commission.

F64.V.c Protocols to determine quantitatively, following physical restoration and grading, whether the physical habitat has been built-to-plan. The post-construction monitoring report must be approved by the County Department of Planning and Building and the Executive Director of the Coastal Commission, prior to revegetation efforts within the area physically restored. This does not preclude early restoration and revegetation activities in portions of the site not subject to construction activities.

5.1.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

The proposed project includes removal and transfer of the existing TB8 and BT9 Stockpiles, as well as transfer of other NHIS excavated in the future, and disposal of all materials at the Santa Maria Landfill. Impacts associated with previously approved, anticipated excavation work have been evaluated under the original EIR (ADL 1998) and are not considered part of this project.

The remainder of this section presents the seismic and geologic impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

Impact	Impact Description	Residual Impact
GEO.1	Removal of the TB8 Stockpile would increase exposure to unstable earth conditions, such as landslides or similar hazards, as a result of seismic activity.	Class III

Impact Discussion

Removal of the TB8 Stockpile would require substantial earthwork, which could temporarily trigger superficial landslides or result in temporarily unstable slopes. Slope failure would most likely occur if the active working face were steeper than 25 degrees. Slope failure could also occur as a result of sudden ground shaking associated with seismic activity. Although no active faults are known in the vicinity of the project area, ground shaking could occur as a result of a regional earthquake. Ground shaking would likely only induce small surface disturbances on temporarily unstable slopes; however, such failure could result in injury to onsite workers and/or damage to equipment. This limited increase in exposure to earthquakes would exist only during removal of NHIS and would not result in a permanent or long-term exposure. In addition, the TB8 Stockpile is currently covered with Soil Sement® (an insoluble, non-toxic, polymer emulsion used to suppress dust generation), which prevents erosion and would increase slope stability in the unlikely event of an earthquake during project operations. Although shallow ground water is locally present, geotechnical studies indicate that soils beneath the Guadalupe Field are generally not subject to liquefaction. Therefore, seismic and slope stability impacts associated with the TB8 Stockpile are considered adverse, but less than significant.

It is highly unlikely that a tsunami would occur during project operations. In the unlikely event that a tsunami occurred, the TB8 Stockpile site is more than 1,000 feet from the beach, it is at elevation 30 feet msl and, as stated in Section 5.1.1.4, a 500-year tsunami run-up was estimated at 24 feet, and the stockpiled material would be removed as part of the project. Therefore, the hazard of tsunami-related impacts associated with the TB8 Stockpile would gradually be reduced as the stockpiled material is removed and the impact is less than significant.

NHIS from future excavations on the Guadalupe Field would similarly be stockpiled or removed directly offsite subsequent to excavation. Geologic impacts would be similar to those described above for the TB8 Stockpile. All project operations would comply with industry-accepted engineering standards and all Federal, State, and local safety and construction-related laws and regulations. Therefore, geologic impacts associated with removal of NHIS from the site are considered *less than significant*.

Mitigation
No mitigation measures are required, because no significant impacts would occur.

Residual Impact
Residual geologic impacts would be *less than significant* (Class III).

Impact	Impact Description	Residual Impact
GEO.2	Road-widening activities would increase the potential for a loss of topsoil.	Class III

Impact Discussion
Widening of roads throughout the Guadalupe Field would likely result in the loss of native topsoil adjacent to existing roads. However, CDP/DP D890558D Condition F64.c requires Unocal to salvage for reuse all topsoil where soil and/or vegetation are to be removed. Therefore, impacts associated with the removal and loss of topsoil are considered *less than significant*.

Mitigation
No mitigation measures are required, because no significant impacts would occur.

Residual Impact
Based on compliance with existing laws and regulations, standard engineering practices, and the aforementioned Conditions of Approval, potential project impacts would be *less than significant* (Class III).

Impact	Impact Description	Residual Impact
GEO.3	The excavation of sand at Q4 may modify erosion/sedimentation patterns as a result of wind scour, contour changes, and loss of vegetation.	Class III

Impact Discussion

As required by CDP/DP D890558D Condition F11.c, Unocal prepared a geomorphological report (Sherman 1998) for removal of up to 1,000,000 cy from Q4. Previous environmental reviews, conducted by the San Luis Obispo County have addressed the removal of 500,000 cubic yards (cy) of clean sand from Q4 to use as backfill in the excavations. Based upon these reviews, San Luis Obispo County has approved the use of up to 500,000 cy of sand from Q4 for use as backfill in excavations. This impact discussion addresses the use of up to 1,000,000 cy of sand from Q4 for backfill in excavations.

Conventional excavation methods are proposed at the Q4 Area. A level area at the 75 foot elevation will be maintained into the excavation area, where up to 75 vertical feet of sand will be removed at the easternmost end.

Per the Sherman (1998) report, the alteration of dune morphology associated with a sand excavation project poses two main types of risk for a negative environmental impact. First, there is the risk of destabilizing an otherwise relict feature, and initiating blowouts and a new period of dune migration. The proposed Q4 borrow location is an existing blowout, and the dune is already active. As long as the vegetation edging the open sand areas is not disturbed by this operation, there is minimal risk of this impact resulting.

The second form of risk is associated with the unintentional, large-scale alteration of dune morphology that persists after the completion of the project. This can result from altering dune morphology to the extent that the patterns of surface wind flow over the dune are substantially changed. This can affect rates and vectors of sand transport, and have sequential, long-term effects on dune migration and evolution.

The present form of the Q4 dune makes it unlikely that impacts of this nature will occur. In the first place, the volume of sand in the dune is large relative to the proposed volume to be excavated. Second, there are no small-scale features of geomorphological significance that would be destroyed or altered by the project.

The magnitude of this disruption is estimated (conservatively) as approximately 10 cy per yard of length of the downwind edge of the excavation. This disruption will be manifested as a deposit of that volume at the downwind bottom of the excavation, and the erosion of the volume from the upper edge of the excavation. Morphological impacts of the excavation will be minimal at downwind distances more than about ten meters. Given the necessity of replacing up to 1,000,000 cy of sand into the excavation, any downwind alterations could be corrected easily with minor grading. It is most likely that no remedial work would be required, except immediately adjacent the edges of the excavation.

Examination of aerial photography spanning the interval March 1949 to August 1998 indicates that the boundary between the open sand surface and vegetation is migrating downwind at a maximum rate of 0.86 m/year (or about 2.8 ft/year). Using this value to assess potential

migration of the vegetation line during a six-year period indicates that this boundary might move 5.2 m (17 ft) while the excavation is open. Therefore, the edges of the excavation should be set back at least 8 meters (26 ft) from the present boundary of established vegetation, as recommended in the Sherman report and implemented by Unocal for previous borrow activities at the Q4 site.

Mitigation Measures

GEO-3.1 *Edges of the excavation boundary at Q4 should be set back at least 8 meters (26 ft) from the present boundary of established vegetation on adjacent undisturbed slopes prior to removal of sand from Q4.*

Residual Impact

Residual geologic impacts would be *less than significant* (Class III).

Impact	Impact Description	Residual Impact
GEO.4	Excavation activities at Q4 could trigger shallow slides or infinite slope failures.	Class III

Impact Discussion

The proposed project includes activities which have the potential to trigger superficial landslides along the face of steep dunes. In particular, any activities on the face or at the toe of a dune slope steeper than 25 degrees may lead to propagation of a shallow failure as far as the top of the dune. Although a shallow slide would not significantly change the contours of the dune surface, the shifting of the sand can uproot and bury established vegetation, alter established habitats, or bury wetland areas at the base of the dune. Deep slope failure could result from unsupported excavation on the face or at the toe of a dune slope steeper than 25 degrees. Loading on or near the crest of an existing slope could also induce deep slope failure. A deep slide would significantly change the contours of the dune surface.

Excavation proposed at the Q4 Area will result in 2:1 side slopes (22.5 degrees) along the perimeter, but steeper slopes may occur during the excavation process and pose a safety concern. Since slope adjustments will occur from the top of the dune down, the limit of excavation at the bottom must be controlled in such a manner that the top does not migrate outward into vegetated areas.

The proposal is to not replace the excavated sands. It is apparent that the most immediate impact of this scenario will be the changes in dune morphology that will occur as a result of not replenishing the Q4 area. Secondary impacts will be the subsequent changes in sand transport rates, and thus, dune migration rates, and changes in rates and patterns of vegetation colonization. Several findings were concluded (Sherman 1999):

1. Compared to an estimated dune volume of 9,660,000 cy for the area where Q4 is located, approximately 10% or 1,000,000 cy is proposed for excavation.
2. With an annual transport rate of 10,000 cy per year, the excavated volume would represent about 100 years of natural transport from the dune system. Therefore, there will be a reduction in the total dune volume that could be moved, but there should be minimal or no reduction in the overall migration rate of the dune system.

3. Compared to a sand mining operation conducted south of the Santa Maria River for decades, the removal of 1,000,000 cy from Q4 would potentially have the same magnitude impact as approximately 24 years of the nearby sand mining allocation.
4. Morphological impacts of residual tracks from excavating machines and the angular boundaries of the excavation could be eliminated in as few as three months, as occurred following the Q12 excavation. The wind will probably smooth the boundaries into a substantially natural appearance in less than two years. The post-excavation changes in morphology of Q4 will not mimic those observed at Q12 because of the difference in location of the excavation. At Q4, the excavation is located on the windward side of the dune deposit, whereas the excavation at Q12 was located on the leeward, or downwind, side of the dune. Winds were able to work on an area of unvegetated sand upwind of the excavation and move it into the void space provided by the excavation at Q12. In the case of Q4, the downwind area is vegetated and relatively stable, so there is no source of sand to fill the open pit.

Mitigation Measures

GEO-4.1 *Position of the angular boundary at the top of the excavated dune area shall be monitored weekly at Q4 in areas adjacent to the vegetation line while excavation of the Q4 area is actively occurring, so that GEO-3.1 is not violated.*

Residual Impacts

The residual impacts will be *less than significant* (Class III).

Summary of Impacts at the Santa Maria Landfill

The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. In accordance with CCR Title 27, which contains provisions to use NHIS to construct foundation layers for landfill closure, the RWQCB issued Revised Waste Discharge Requirements (WDR) Order No. 01-041 on May 18, 2001 to the Santa Maria Landfill. WDR 01-041 provides guidelines for the acceptance of NHIS from the restoration and cleanup of oil-producing sites. These plans were addressed in a Joint Technical Document (JTD) prepared by CH_2MHill and evaluated in the CEQA addendum to the 1993 Landfill EIR (SCH 92031045) and in subsequent EIRs (City of Santa Maria February and May, 2004a and 2004b)

According to the JTD and the SEIR, accepting impacted soils is consistent with the Landfill's intent to implement an expedited closure process at the landfill by using the NHIS: (1) to achieve design grades and serve as the foundation layer of the final cover system for the existing active portion of the landfill, and (2) for daily and intermediate cover material in the lined expansion areas of the landfill. The EIR Addendum identified no significant impacts associated with the use of NHIS.

On August 31, 2004, the RWQCB issued a letter to the Santa Maria Landfill that specifically addressed acceptance of NHIS material from the Guadalupe Restoration Project. This letter allows the Landfill to revise the extractable Total Petroleum Hydrocarbon (THP) acceptance standards in order to accept NHIS material from the Guadalupe Field. With the issuance of this letter, the Santa Maria Landfill is allowed to accept material from the Guadalupe Field as part of

the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS or impacted soils) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

For geology, this SEIR found that there was a significant but mitigable impact associated with the onsite grading activities that could lead to an erosive soils hazard. The proposed mitigation was the development of a grading and erosion control plan. The reader is referred to Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, for more information on the geology impacts at the Landfill.

5.1.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures are for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.1.7.1 Offsite Disposal to Other Landfills

This alternative involves trucking and disposal of NHIS at other landfills (Buttonwillow, McKittrick, or Kettleman Hills) in lieu of transport and disposal at the Santa Maria Landfill. As mentioned, CDP County Condition F13 requires that all waste materials removed from the Guadalupe Field will be disposed in accordance with applicable laws and regulations. These alternate landfills are permitted facilities that are designed and operated to prevent offsite migration of contaminants. Impacts on geological resources from reuse/disposal at permitted facilities have already been evaluated, and mitigated as appropriate, through the environmental documentation and permitting process. Therefore, impacts from landfilling contaminated soils at these sites are not addressed in this SEIR. Any potential impacts to geological resources that occurred after the material has been disposed would be addressed through compliance with the mitigation measures adopted for those sites.

Impacts associated with this alternative would be identical to those identified for the proposed project (GEO.1, GEO.2, GEO.3, and GEO.4). The mitigation measures identified for these impacts would apply to this alternative. No geological impacts would occur along haul routes.

5.1.7.2 Treated-Material Land Feature

Impacts GEO.2, GEO.3, and GEO.4 identified for the proposed project would also apply to this alternative. The mitigation measures identified for these impacts would apply to this alternative. Additional impacts associated with this alternative are discussed below.

Impact	Impact Description	Residual Impact
GEO.5	Development of the TMLF would increase exposure to unstable earth conditions, such as landslides or similar hazards.	Class III

Impact Discussion
The TMLF would be equipped with a clay and HDPE liner. Construction of the TMLF would result in a new topographic feature where unstable slopes could occur, resulting from events such as seismically induced ground shaking. However, this feature will be designed following standard engineering practices and would comply with all appropriate local and industry-accepted standards for slope stability hazard prevention. Therefore, people or structures would not be exposed to seismically induced ground shaking or slope failure.

Mitigation Measures
No mitigation measures are required, because no significant impacts would occur.

Residual Impact
Based on compliance with existing laws and regulations, standard engineering practices, and the aforementioned Conditions of Approval, potential project impacts would be *less than significant* (Class III).

5.1.7.3 Engineered Containment Unit

Impacts GEO.1, GEO.2, GEO.3, and GEO.4 identified for the proposed project would also apply to this alternative. In addition, Impact GEO.5, identical for the treated material land feature alternative, would apply to this alternative. The mitigation measures identified for these impacts would apply to this alternative. There would be no other impacts associated with this alternative.

5.1.7.4 Slurry Injection

Impacts associated with this alternative would be identical to those identified for the proposed project (GEO.1, GEO.2, GEO.3, and GEO.4). The mitigation measures identified for these impacts would apply to this alternative. Additional impacts associated with this alternative are discussed below.

Impact	Impact Description	Residual Impact
GEO.6	High slurry injection pressures could result in release of injected material from the injection formation.	Class III

Impact Discussion
The Guadalupe Field is a gently south-southeasterly dipping homocline extending westward from the Santa Maria Valley Field. The oil productive zones lie primarily above the Jurassic Knoxville Formation in the unconsolidated Pliocene Sisquoc Oil Silt and Oil Sand intervals.

These units pinch out to the north on a Knoxville erosional surface, shale out to the east, and extend to the oil-water interface of the Oil Sand to the south. The Guadalupe Field extends into the ocean to the west and is not fully delineated in this direction. Shales and clays in the Upper Sisquoc zone overlying the Oil Silt form the upward limit of oil production. Toward the south, the Sisquoc directly overlies the Monterey Formation (Lemm 1977).

The generalized stratigraphy of the Guadalupe area consists of the Pleistocene Paso Robles Formation, the Pliocene age Careaga, Foxen, and Sisquoc Formations, the Miocene Monterey and Point Sal Formations, and the Upper Jurassic Knoxville Formation. Four formations are evaluated here with respect to the appropriate geologic criteria for successful Slurry Fracture Injection (SFI). These are the Foxen, Sisquoc, Monterey, and Knoxville Formations. The Applicant is proposing to inject the slurry into the Sisquoc Formation.

The average original reservoir temperature at a datum of 2,700 feet below sea level (generally within the Upper Sisquoc) is 131° F. The estimated original average pressure of the formation in 1947 was 1,205 pounds per square inch (psi). Average reservoir pressure in 1958 was 1,048 psi. Field pressures declined with time due to continued oil production, to a measured average of approximately 740 psi in 1976 (latest data available). The low formation pressures would provide a reduced fracturing pressure and a natural pressure sink and containment zone for the injected slurry.

The base of fresh water in the vicinity of the Guadalupe Field averages 1,200 feet (DOGGR 1991). At the proposed depth of 2,650 feet, the Sisquoc Formation's water quality contains 20,000–24,000 milligrams per liter (mg/l) of total dissolved solids.

The proposed injection pressure for the slurry would be approximately 2,500 psi, which is greater than the estimated original average pressure of the formation (1,205 psi). However, these pressures would be limited to a small area around each of the wells. Given that the formation is currently under pressured due to 40 years of oil production, the pressure of the injected slurry would drop rapidly as it moves away from the injection wells. In addition, the Sisquoc Formation has an impervious oil shale cap, which would form a barrier to prevent migration out of the injection formation.

Mitigation Measures

GEO-6.1 *If slurry injection is conducted, the Applicant shall implement a monitoring and analysis program for the slurry injection process. The program shall include continuous injection and well pressure monitoring and analysis, continuous injection well temperature monitoring, and periodic injection tracer log surveys, step rate tests in the injection well temperature and pressure monitoring in offset observation wells. This data will be used to assess the distribution of the formation pressures and an evaluation of formation flow behavior. This data will be used to verify containment of the injected material. The Applicant shall submit the monitoring and analysis program to Planning and Building and DOGGR for review and approval prior to the start of slurry injection. The applicant shall submit quarterly monitoring and analysis report to Planning and Building and DOGGR.*

Residual Impacts
The residual impacts will be *less than significant* (Class III).

5.1.8 Cumulative Impacts

Onsite cumulative impacts are impacts that result from the cumulative past, ongoing, and reasonably foreseeable future actions related to (1) assessing, verifying, and monitoring the nature and extent of the contamination, (2) conducting pilot studies to test various remediation methods, (3) surveying and monitoring, and (4) implementing a variety of ongoing remediation technologies and activities. In addition to these past and ongoing onsite activities, there are likely to be future remediation activities dealing with additional contamination issues (sumps, soil stains, and plumes).

Impacts associated with surficial geology would be temporary and would not substantially contribute to cumulative impacts on the Guadalupe Field or along transit routes. Risks associated with seismic activity and unstable slopes would not continue beyond the end of the project. Cumulative impacts to regional geological resources would essentially be the same whether or not the proposed or alternative projects are implemented. Therefore, cumulative geologic impacts would be adverse, but less than significant.

5.1.9 Mitigation Monitoring Plan

Mitigation Measure	Action Required by Applicant and Action Timing	Party Responsible for Verification	Method of Verification	Verification Timing
GEO-3.1	Edges of the excavation boundary at Q4 should be set back at least 8 meters (26 ft) from the present boundary of established vegetation prior removal of sand from Q4.	Planning and Building	Site inspection	Prior to removal of sand from Q4.
GEO-4.1	Position of the angular boundary at the top of the excavated dune area must be frequently monitored in areas adjacent to the vegetation line during the period of excavation so that GEO-3.1 is not violated. Monitoring shall occur on a weekly basis.	Planning and Building	Site inspection	During removal of sand from Q4.

5.1.10 References

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5.2 Surface and Ground Water Quality

This section describes the environmental and regulatory settings for surface and ground water resources and evaluates impacts to surface and ground water quality, including those from drainage, erosion, and sedimentation processes, caused by the proposed project (see Section 2.0) and project alternatives (see Section 3.0). The impact assessment sections address significance criteria, mitigation measures, residual impacts, and cumulative impacts associated with alternatives for disposal of Non-hazardous Hydrocarbon-Impacted Soils (NHIS). The impact assessment does not address potential impacts associated with excavation of NHIS or from residual hydrocarbons that are not removed during initial cleanup phases. These impacts are addressed in the 1998 Guadalupe EIR (1998 EIR) (ADL 1998). Also, this section does not evaluate potential impacts from disposal of NHIS from the Former Guadalupe Oil Field (Guadalupe Field) at the Santa Maria Landfill. Impacts from landfilling NHIS are addressed in the EIR for the Santa Maria Landfill (addendum to the 1993 Landfill EIR (SCH 92031045) and subsequent SEIR [February 2004]; see Section 2.2.1).

5.2.1 Environmental Setting

The environmental settings for surface and ground water resources within the region and at the Guadalupe Field are described in the 1998 EIR (ADL 1998) and in a series of reports prepared by Levine-Fricke (LFR 2001, 2002, 2003) that characterized water and soil quality within or near the Guadalupe Field. This information is incorporated by reference and summarized below to provide an appropriate context for impact assessments. Information obtained since certification of the 1998 EIR is included, along with information on the environmental setting along the truck route to the Santa Maria Landfill.

The Guadalupe Field is located in the western portion of the Santa Maria Valley, which is a broad alluvial plain between the northwest-southeast trending Casmalia and Solomon Hills and the Sierra Madre Mountains. Land uses within the drainage area are primarily agricultural with growing residential and light industrial uses (see Section 5.8).

The Guadalupe Field is bound by two prominent surface water features: the Pacific Ocean to the west and the Santa Maria River and associated estuary and lagoon system to the south. Agricultural fields are adjacent to the eastern portion of the Guadalupe Field, and the Guadalupe-Nipomo Dunes National Wildlife Refuge borders the northern portion of the Guadalupe Field. Numerous small, freshwater ponds and marshes occur on the Guadalupe Field. These surface water features are characterized as permanent, seasonal, or intermittent, depending largely on the elevation of the dune sand aquifer (DSA) water table relative to the ground elevation, such that standing water or saturated soils occur within depressions where the elevation of the DSA approaches or is greater than that of the ground surface. Because of the high onsite infiltration rates, surface runoff within the Guadalupe Field is minimal (LFR 2002b).

The Santa Maria River flows from east to west, from the confluence of the Sisquoc and Cuyama Rivers to the Pacific Ocean, and drains an area of approximately 1,700 square miles. Surface water flow in the Santa Maria River is largely seasonal, and the location and elevation of water depends on rainfall, upstream releases from the Twitchell Dam, and local rates of infiltration to ground water. The river bed consists of thick and highly permeable alluvial soils. Because of the

high permeability of river bed soils, much of the water released from Twitchell Dam as well as natural flows from the Sisquoc River infiltrate to ground water upstream from the Highway 101 Bridge (LFR 2001). In contrast, the local DSA may supply ground water to the lower portions of the river. At the mouth of the river, exchange with the ocean is affected at the shoreline by the seasonally developed sand spit.

Water quality measurements at the mouth of the Santa Maria River indicate high nutrient (phosphates and nitrates) and fecal indicator bacterial concentrations, along with high turbidity and suspended solids concentrations. Other water quality conditions, such as dissolved oxygen, temperature, pH, salinity, boron, ammonium, and dissolved solids concentrations are considered acceptable for supporting beneficial uses (Moffat & Nichols Engineers 2001). The Santa Maria River is listed on the draft 2002 303(d) list of impaired water bodies for the stressors fecal coliforms and nitrates. Potential sources for both stressors are listed as agriculture, pasture grazing, and urban runoff/storm sewers, and both stressors are classified as low priority for total mass daily loads (TMDLs). Studies by Anderson et al. (2003) of water and sediment quality in the lower Santa Maria River indicated significant toxicity to resident and non-resident test organisms that was attributed to elevated concentrations of orthophosphate pesticides in interstitial waters and pyrethroid and organochlorine pesticides in bulk phase sediments. These results suggested that water quality in the lower Santa Maria River is affected by polluted drainage. The presence of petroleum hydrocarbons in waters and sediments at the mouth of the Santa Maria River is reviewed by LFR (2001b). Measurements of total petroleum hydrocarbons (TPH) and volatile aromatic hydrocarbons (BTEX) are mostly non-detectable (below limits of detection). A few samples have contained detectable TPH, but some of these results have been attributed to biologically derived hydrocarbons. Thus, although petroleum hydrocarbon (diluent)-contaminated ground water plumes occur next to the mouth of the Santa Maria River (at or near sites B12, C12, F14, N13/O13, and P13), wide-scale contamination of the water and sediments with petroleum residues from the Guadalupe Field is not indicated (LFR 2001b).

The Region 3 Water Quality Control Plan (Basin Plan) lists the following as beneficial uses for the Santa Maria River and Estuary:

- Ground water recharge;
- Municipal supply;
- Agricultural supply;
- Industrial supply;
- Contact and non-contact water recreation;
- Wildlife habitat;
- Cold freshwater and warm freshwater habitat;
- Migration for aquatic organisms;
- Support for reproduction;
- Preservation of special significance biological habitat;
- Support for rare, threatened, or endangered species;

- Aquatic spawning, reproduction, and early development;
- Estuarine habitat; and
- Commercial and sport fishing.

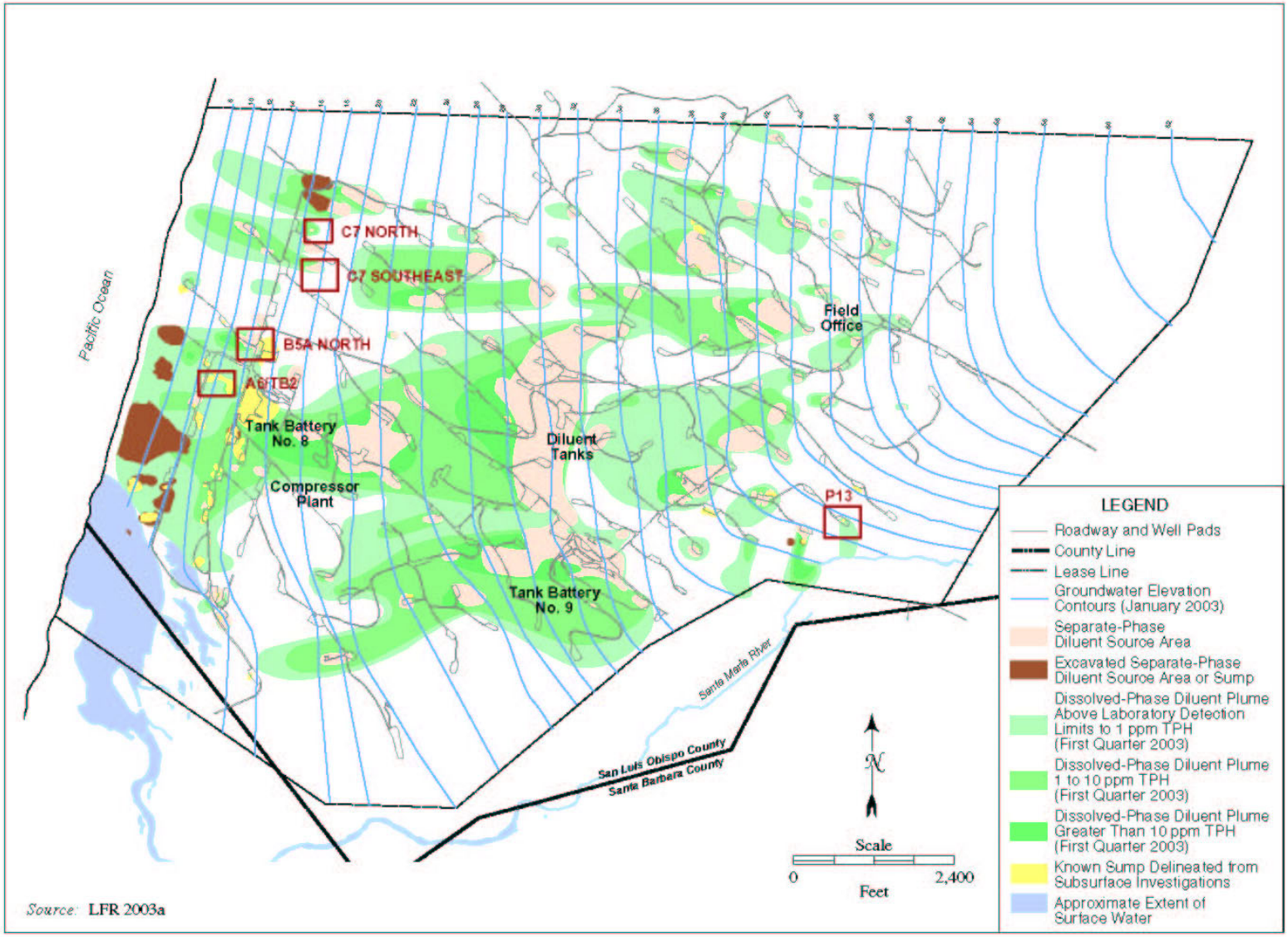
The water quality of surface water bodies (ponds and wetlands) at the Guadalupe Field has been described by LFR (2002b). Water quality across the Guadalupe Field is affected to a varying degree by the presence of diluent, as well as contributions from other contaminants that have been spilled or released at the Guadalupe Field. Site investigations have identified approximately 280 areas of diluent-stained surface soils and 190 sites of historically used sumps. A comprehensive sump data interpretation report was prepared by LFR (2003b). Sumps typically were constructed near oil well pads and used to hold crude oil, drilling muds, and/or other production-related fluids, which subsequently were covered or mixed with native sands. The distribution of known diluent contamination, as indicated by elevated total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, xylene (BTEX), and polycyclic aromatic hydrocarbons (PAH) concentrations, is shown in Figure 5.2-1. Concentrations and composition of diluent residues vary across the Guadalupe Field, reflecting proximity to the source, composition of the materials spilled, extent of environmental weathering, and effects from previous remediation. The extent of contamination is described in the 1998 EIR (ADL 1998).

Beneficial uses for coastal waters adjacent to the project area include: contact and non-contact water recreation, industrial service supply, navigation, marine habitat, shellfish harvesting, support for rare, threatened, or endangered species, and commercial and sport fishing.

Ground waters in the region are part of the Arroyo Grande-Santa Maria Ground Water Basin that extends through the southwestern portion of San Luis Obispo County and the northwestern portion of Santa Barbara County. The western boundary of the ground water basin is the Pacific Ocean, although the basin also extends past the shoreline beneath the ocean. . Ground water in the main Santa Maria Basin is recharged by stream infiltration and subsurface inflow. Released waters from Twitchell Dam are also used to recharge ground waters.

The Guadalupe Field overlies the DSA, which is an unconfined aquifer that is separated from the Principal Aquifer (PA) by a Confining Unit (CU) of interbedded sands, silty sands, silty clays, and clays (LFR 2003). Depth to ground water varies across the Guadalupe Field; due primarily to the varied topography associated with the dunes habitat, but generally decreases from east to west (Figure 5.2-1). Minimal depths to ground water are associated with the topographic lows (e.g., dune swales), while maximum depths are associated with the tops of dunes. Infiltration within the Guadalupe Field is rapid, and recharge of the DSA is primarily from percolation and precipitation. Ground water flow is primarily to the west, where ground waters discharge to the Pacific Ocean, although ground water movement in the southern portions of the Guadalupe Field is towards the Santa Maria River. The average ground water gradient across the Guadalupe Field is 0.004 feet per foot; the horizontal hydraulic conductivity is approximately 40 to 150 feet per day, with a geometric mean of 77 feet per day (LFR 2003a). Relatively lower conductivities are expected to occur in areas of silt and finer soils.

Figure 5.2-1 Area Reference Map



The CU separating the upper and lower aquifers is up to 115 feet thick, with a vertical hydraulic conductivity of 10^{-2} to 10^{-5} feet/day and averages 10^{-4} feet per day (LFR 2003a). Based on multiple lines of evidence, LFR (2003a) concluded that "collectively, the weight of evidence approach suggests that, at the GOF, the CU effectively impedes dissolved petroleum hydrocarbons in the overlying DSA from entering the underlying Principal Aquifer …"

Ground water quality at the Guadalupe Field is affected by the presence of diluent. Previous investigations have identified approximately 90 separate-phase diluent source areas at the capillary fringe. Ground waters contain dissolved-phase petroleum hydrocarbons. Concentrations and composition vary across the Guadalupe Field, reflecting proximity to the source, composition of the materials spilled, extent of environmental weathering, and effects from previous remediation. The extent of contamination is described in the 1998 EIR (ADL 1998). The characteristics and behavior of dissolved-phase diluent plumes are being evaluated (LFR 2002a) to determine rates of natural attenuation (i.e., decomposition) of petroleum hydrocarbons in site ground waters.

Sediment/soil movement within the watershed is largely controlled by episodic river flow, and it is restricted to high flow events. A significant portion of the sediments eroded within the drainage area is trapped behind Twitchell Dam. Accumulations of sands at the mouth of the Santa Maria River form a spit and delta immediately offshore from the river mouth. Erosion of the delta sands nourishes beaches adjacent to the Guadalupe Field. Onshore, wind-driven transport of sands supplies the Nipomo Dunes complex. The net rate of sand movement across the beach is estimated at 2 to 5 meters per year. Large areas of the Guadalupe Field were treated historically with viscous oil to stabilize slopes and retard soil erosion. The dune structures are subject to erosion and transport by wind and runoff, and, to a lesser degree, by cleanup operations.

Surface and Ground Water Quality Along the Truck Route to SML.
The proposed truck route from the Guadalupe Field to the Santa Maria Landfill is adjacent to agricultural and undeveloped fields, except for the portion of the route that crosses through the cities of Guadalupe and Santa Maria, which consist predominantly of residential areas and light industry. In addition to the surface water features within the Guadalupe Field, bodies of open water along the truck route consist of drainage ditches from agricultural fields and seasonal ponds (vernal pools) that form in undeveloped fields following winter rain storms.

The truck route to the Santa Maria Landfill is within the boundaries of the Santa Maria Ground Water Basin, and the ground water characteristics are the same as described above for regional conditions, including the Guadalupe Field.

5.2.2 Regulatory Setting

The regulatory setting for the proposed site remediation project is described in the 1998 EIR (ADL 1998).

5.2.3 Significance Criteria

The significance criteria used to evaluate potential impacts to surface and ground water resources are the same as those identified in the 1998 EIR (ADL 1998):

- The Water Quality Control Plan (RWQCB 1994) specifies cleanup levels to the municipal and domestic supply (MUN) designation for surface and ground water. Since the compilation of the Basin Plan, several Maximum Contaminant Levels (MCL's) have been revised, and all action levels now conform to California primary MCL's. Therefore, action levels for benzene, toluene, ethylbenzene, and xylene are 1 parts per billion (ppb), 150 ppb, 300 ppb, and 1,750 ppb, respectively. The Basin Plan does not identify specific water quality objectives for polycyclic aromatic hydrocarbons (PAHs) in surface and ground water; however, EPA has MCLs for benz(a)anthracene (0.1 ppb), benz(a)pyrene (0.2 ppb), benzo(b)fluoranthene (0.2 ppb), and total PAHs (0.2 ppb).
- The water quality objectives in the Water Quality Control Plan require that all surface waters be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life.
- The water quality objectives in the Water Quality Control Plan require that surface waters (e.g., Santa Maria River, ponds, dune swale wetlands) shall not contain odor-producing substances in concentrations that are a nuisance or adversely affect beneficial uses of surface and ground water.
- The Water Quality Control Plan contains the Anti-Degradation Policy (RWQCB 1994). According to the policy, a change in water quality is allowed if it is consistent with the maximum benefit to the people of the State, does not reasonably affect the present or future beneficial uses of water, and does not result in water quality less than prescribed in the Water Quality Control Plan (i.e., BEX concentrations are prescribed not to exceed MUN-designated levels or California primary MCL's). If ground water flow direction is altered, it cannot result in spreading contamination into uncontaminated areas above these criteria.
- Changes in hydraulic conductivity could result in changes in ground water elevation (i.e., mounding or drawdown) resulting in impacts to soil properties, flora, and fauna. Changes in flow direction could spread dissolved-phase contaminants into uncontaminated areas, violating the Water Quality Control Plan's Anti-Degradation Policy. Changes in hydraulic conductivity cannot result in spreading contamination or mounding ground water to unacceptable levels.
- Alterations in tidal influences cannot result in spreading contamination into uncontaminated areas as described above. Alterations in tidal influence cannot result in increased erosion of the beach (increased from seasonal, normal beach erosion).
- The water quality objectives in the Basin Plan require that surface and ground water not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water (or objects in the water) and that cause nuisance or adversely impact beneficial uses of water. The Water Quality Control Plan also does not allow the generation of floating materials on ground water that include any foam or scum.
- The water quality objectives of the Water Quality Control Plan require that surface and ground water not contain biostimulatory substances (i.e., nitrogen and phosphorus) that promote aquatic growths (e.g., algal blooms) that are a nuisance or adversely impact beneficial uses. The water quality objectives in the Water Quality Control Plan require that

un-ionized ammonia concentrations not exceed 0.025 parts per million (ppm), and nitrate (as NO_3) concentrations not exceed 45 ppm (10 ppm as N) in surface and ground water bodies.

- The water quality objectives in the Water Quality Control Plan require that surface and ground water coliform bacteria not exceed 200 most probable number (MPN)/100 mL for REC1 waters (e.g., for human contact uses) and not exceed 2,000 MPN/100 mL for REC2 waters (non-contact uses). Coliform bacteria in ground water cannot exceed 2.2 MPN/100 mL.
- The water quality objectives in the Water Quality Control Plan require that the pH of surface and ground waters not be depressed below 7.0 units and not raised above 8.5 units. The maximum concentration level (MCL) for pH is 6.5 to 8.5.
- The water quality objectives in the Water Quality Control Plan do not allow surface and ground waters to contain floating materials, including solids, liquids, foams, and scum that affect beneficial uses of water or cause nuisance. The MCL for foaming agents is 500 ppb.
- The water quality objectives in the Water Quality Control Plan require that waters be free of coloration. Surface water is not to exceed 15 units or 10 percent above natural background color. The MCL for coloration is 15 units.
- The water quality objectives in the Water Quality Control Plan require that the mean dissolved oxygen levels in the ocean not be less than 7.0 ppm, nor shall the minimum dissolved oxygen levels be reduced below 5.0 ppm.
- The water quality objectives in the Water Quality Control Plan require that surface waters be free of turbidity that cause nuisance or adversely affect beneficial uses. Turbidity levels are not to exceed 20 percent of natural background levels. The water quality objectives in the Water Quality Control Plan require that surface water not contain suspended material, sediment, or settle-able materials in concentrations that cause nuisance or adversely affect beneficial uses.
- Impacts to water quality are considered to be significant if they result in a drawdown of the water table that exceeds natural variability. Based on a review of monitoring data for the site, a drawdown of 5 feet is used as the threshold of significance.

5.2.4 Impact Assessment Methodology

Impacts from the proposed project, and project alternatives, to surface and ground water resources are based on qualitative assessments of the extent and duration of the potential change compared to the current baseline condition and the specific significance criteria listed above. Modeling of ground water flow or contaminant dispersion and weathering was not performed for this SEIR. Results and findings of previous Guadalupe Field modeling are presented in the 1998 EIR (ADL 1998).

5.2.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of

the project description. These conditions outline mitigation and other standard measures that are incorporated into all work projects that occur at the Guadalupe Field.

The following measures to protect or reduce impacts to surface and ground water quality would be implemented on the Guadalupe Field in accordance with San Luis Obispo CDP/DP D890558D County Conditions of Approval for the Guadalupe Restoration and Remediation Project. See Appendix F for more detailed description of permit conditions.

F30. As part of design review and prior to issuance of a grading permit for each excavation project,

Unocal shall obtain a National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Activity Permit from the RWQCB. Unocal's Pollution Prevention Plan shall specify Best Management Practices (BMP) to reduce erosion of disturbed soils within construction staging areas. These may include, but are not limited to: utilization of hay bales, silt fences, sediment traps, coffer dams, and containment berms. Chemical soil stabilizers shall not be used unless specifically authorized by the RWQCB and SLO County Air Pollution Control District (SLOAPCD).

F38. Prior to conducting any remediation or abandonment activities, Unocal shall submit to the County Department of Planning and Building and the Executive Director of the Coastal Commission a California Department of Fish and Game/Oil Spill Prevention and Response (CDFG/OSPR)-approved final oil and fuel spill contingency plan that includes but is not necessarily limited to the following provisions:

a. Identification of HAZWOPER-certified personnel to deploy emergency response equipment;

b. Adequate oil spill cleanup and containment equipment maintained on site to respond to the first two hours of a spill until Clean Seas Cooperative reaches the site;

c. Secondary containment for parked construction equipment and fuel storage vessels. Proper containment techniques including plastic sheeting, sorbent pads and booms, and vacuum trucks shall be used when cutting or draining pipelines. All purge water and waste oil shall be disposed at a NPDES or other type of permitted facility. All storage vessels used for temporary containment of contaminated ground water or recovered product shall have adequate containment structures in place so that potentially spilled materials will not impact adjacent water resources;

d. A wildlife contingency plan that specifies measures to deter animals from the remediation/abandonment sites and provide care for animals that became oiled or injured during remediation/abandonment activities;

e. Offshore emergency oil spill cleanup equipment, including skimmers and boom, staged onsite during remediation/abandonment activities at sites 5X, A2A, A5A, 8X, A8, C7 and C8;

f. Staging, fueling, equipment and materials storage areas and soil stockpiles shall be located at least 100' away from surface water bodies or inside bermed areas to prevent releases into surface waters;

g. Immediate notification to the CDFG/OSPR, the County Department of Planning and Building, the RWQCB, the U.S. Fish and Wildlife Service (USFWS) and the Executive Director of the Coastal Commission if any sheen, foam or other contaminated material is detected in the Santa Maria River or ocean. Containment boom shall be stockpiled in close proximity and ready for immediate deployment if directed by the CDFG/OSPR or the USFWS. The foam and visible film shall be removed regularly if feasible (2–4 times per day), and contained for disposal.

F39. If a release into the Santa Maria River or ocean occurs, Unocal shall, with oversight by the independent Onsite Environmental Coordinator, collect samples as soon as practicable such that quantification of the spill volume can be estimated and potential impacts to biota and water quality can be evaluated. Unocal shall provide split samples to the CDFG/OSPR and the RWQCB as requested.

F93. Unocal shall prepare a Traffic Control Plan to detail specific commuter and truck trip vehicle routes, peak hour and route restrictions; road surface maintenance; and traffic safety. The Traffic Control Plan shall be approved by the County Engineering Department in consultation with the Santa Barbara County Public Works Department, Roads/Traffics Division.

5.2.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

This section addresses potential impacts to and mitigation measures for surface and ground water resources associated with the proposed project, which consist of transporting NHIS to the Santa Maria Landfill using trucks and along routes described in Section 2.0. As mentioned, impacts from all excavation activities are addressed in the 1998 EIR (ADL 1998), and impacts from disposal at the landfill are addressed in a separate EIR (the CEQA addendum to the 1993 Landfill EIR [SCH 92031045] and subsequent SEIR [February 2004]; see Section 2.2.1). The Santa Maria Landfill is a permitted facility designed and operated to prevent offsite migration of contaminants. Impacts on water resources from reuse/disposal at permitted facilities have already been evaluated, and mitigated as appropriate, through the environmental documentation and permitting process (Revised WDR Order No. 01-041). Therefore, impacts from landfilling NHIS are not addressed in this SEIR. Any potential impacts to water resources that occurred after the material has been disposed would be addressed through compliance with the mitigation measures adopted for this landfill. Acceptance criteria for the Guadalupe Field NHIS have been defined for different classes of hydrocarbon compounds, and these are listed in Section 2.2.1. The volumes of Guadalupe Field soils with hydrocarbon concentrations in excess of the acceptance criteria defined for the Santa Maria Landfill have not been determined. Soils with hydrocarbon concentrations or other constituents that are greater than these criteria would have to be transported and disposed at one or more alternate landfills that are permitted to accept the material.

The remainder of this section presents the surface and ground water impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

Impact	Impact Description	Residual Impact
W.1	NHIS spills from trucks on route to the offsite facility could release hydrocarbon-affected soils to surface waters or sensitive wetland habitats.	Class II

Impact Discussion

The CDP/DP D890558D Condition F13 requires that all waste materials removed from the Guadalupe Field will be disposed in accordance with applicable laws and regulations. Trucking NHIS to the Santa Maria Landfill would not result in any deliberate waste discharges to surface or ground waters or ground water withdrawal. Releases of contaminated materials (i.e., soils) to surface waters would occur only as a result of accidental spills from a truck(s) or loading equipment that occur near surface waters (e.g., Santa Maria River, ditches draining agricultural fields, or seasonal ponds). Although unlikely, spills could degrade the water quality of the affected water body and/or cause localized changes in flow patterns. Potential impacts to ground water from spills are considered minimal because spills would be contained and cleaned up before significant leaching of any residual soluble contaminants would occur.

The truck route from the Guadalupe Field to the Santa Maria Landfill involves a number of potential traffic hazards, including narrow roads with minimal or unpaved shoulders and slow-moving agricultural equipment (see Section 5.6). In particular, the truck route in the Guadalupe Field is narrow, with minimal shoulders and blind corners, and is subject to buildup of wind-blown migrating dune sand. These conditions could increase the risk of accidents and spills of NHIS onto the roadway or shoulder. Truck accidents have already occurred during the site remediation activities to date [County OEC Monitoring Report]. The potential for future truck spills is expected to increase with the greater numbers of truck trips required to transport soils to the Landfill. Impacts of the proposed project on traffic conditions are discussed in Section 5.6.

Impacts from spills to water resources depend on the size of the spill, conditions at the spill site, and the amount of NHIS that cannot be cleaned up. The truck route avoids the major surface water bodies near the Guadalupe Field. For most portions of the truck route, a spill would not directly threaten any surface water features and, with appropriate spill response resources, most or all of spilled soils should be recovered without significant losses due to dispersion by wind or runoff. CPD/DP D890558D Condition F38 requires Unocal to have an agency-approved oil and fuel spill contingency plan, and this existing plan should be revised or a similar plan prepared to address response for spilled NHIS involving trucks en route to the Landfill.

The truck loads of NHIS will be covered to minimize loss of materials during transit to the Landfill. The presence of a tarp or cover is also expected to reduce potentials for spreading if the truck is overturned. Further, the volume of material associated with a single spill event (e.g., 8 or 16 cubic yards) is considered too small to cause adverse impacts related to contamination of the spill site or altered stormwater drainage, flooding, or siltation. While a small spill could contribute to the existing potential for polluted runoff and/or degradation of water quality in receiving water bodies, this contribution is likely to be relatively small, and it is considered a minimal impact on water resources. The truck route crosses the Santa Maria River at a location that may have standing water with riparian habitat, as well as undeveloped open areas subject to

seasonal ponding (e.g., dune swale or vernal pools) that can represent important habitat for sensitive species.

Although unlikely, a spill of NHIS directly into the river or standing water body would be more difficult to recover without causing significant impacts to water quality or biological resources. In addition to direct burial of small water features, impacts to water quality could include increased turbidity, suspended solids, and settle-able solids. CDP/DP D890558D Condition F39 requires Unocal to collect samples as soon as possible following a spill into the Santa Maria River to determine the extent of potential impacts to water quality. Regardless, these impacts would be localized, and impacts associated with cleanup likely would be temporary. Similarly, spilled NHIS is expected to have very low moisture content, with low potentials for any soil contaminants to infiltrate to the aquifer, thereby minimizing potential impacts to ground water quality.

Mitigation Measures

W-1.1 *Require licensed professional drivers to operate trucks and adhere to the Traffic Control Plan (described in Condition F93).*

W-1.2 *Develop and implement response plans specifically for NHIS spills from trucks that include explicit emergency notification procedures. Identify a designated response team and maintain cleanup equipment onsite or near the truck route. Require drivers to complete spill response training program.*

Residual Impact

Implementation of Mitigation Measures W-1.1 and W-1.2, along with existing Conditions of Approval, would reduce the magnitude of this potentially significant impact to les*s than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
W.2	Offsite transport and release of NHIS adhering to trucks could contaminate surface waters or aquatic habitats.	Class II

Impact Discussion

Truck-loading operations would occur at each of the current stockpile sites (TB8 and TB9) and, possibly, at future excavation sites and at the site of portable screening operations. Loading operations are expected to spill NHIS onto the ground and/or sides of the trucks. Because the loading sites are considered already disturbed, and they do not support standing water or sensitive habitats, spills onto the ground will not appreciably alter contaminant levels at these loading sites or re-contaminate previously remediated areas. NHIS spilled within the loading sites may be subject to transport by wind or surface runoff following rain events. However, the project description proposes to use spray trucks in the loading area and applications of Soil-Sement® (an insoluble, non-toxic, polymer emulsion used to suppress dust generation) to minimize wind dispersion. CDP/DP D890558D Condition F23 also requires that Unocal implement one or more measures to prevent excessive erosion or dispersion of soils when wind speeds exceed 25 mph. Additionally, CDP/DP D890558D Condition F37 requires that materials that can cause turbidity and sedimentation be stored inside bermed areas where surface runoff

can be controlled and kept from surface water bodies. Because of the high permeability of site soils, dispersion by runoff is expected to be localized. Contaminated soils that adhere to the surface of the truck or to truck tires may be subject to migration or dispersion out of the loading sites to uncontaminated portions of the Guadalupe Field and/or offsite portions of the truck route. The project description proposes to clean (dry brush) the wheels of each truck after it has been loaded with NHIS. The project description also proposes to place rumble mats (corrugated plates) at the exit to the loading area to dislodge any NHIS that adhere to the truck tires. Nevertheless, with the large number of truck trips proposed, subsequent release and accumulation of fugitive soils over a period of months to years could represent a longer-term potential for contamination of presently uncontaminated areas and/or potentials for future transport into surface waters. Accumulations of fugitive soils could occur along the truck route, but the magnitude of accumulation, and potentials for subsequent dispersion, is expected to decrease with distance from the loading area. This means that any detectable impact would be expected to occur mainly within the Guadalupe Field.

Mitigation Measures

W-2.1 *Unocal, in coordination with the County OEC, shall monitor the effectiveness of current cleaning and decontamination methods for haul trucks leaving loading areas. If monitoring results indicate that the existing practice of using rumble-pads and tire-brushing is not effectively removing soil from haul trucks Unocal shall implement additional and more effective truck cleanup procedures (e.g., washing each truck following loading, with collection and treatment of wash waters).*

Residual Impacts

Implementation of Mitigation Measures W-2.1, in addition to existing CDP County Conditions, would reduce the magnitude of this potentially significant impact to *less than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
W.3	Erosion of sand dunes and agricultural drainage systems due to road widening, truck traffic, and truck staging could alter local drainage patterns.	Class II

Impact Discussion

The proposed truck route within the Guadalupe Field (primarily the Main Road or TB9 Road) contains narrow, single lane roads with unpaved shoulders of uncompacted sand. The proposed project could involve up to 150 round trips per day of trucks to the Landfill during peak periods of activity. Additional trips onsite may be required if excavated materials need to be transported to one of the stockpile sites for subsequent loading. Portions of some of the main roads onsite may be repaved (total of 7,800 feet of the road length) and/or widened (8,600 feet of the road) to accommodate the truck movements. Regardless, repeated truck traffic over unpaved shoulders as a result of increased frequency of large trucks passing one another along narrow portions of the onsite roads may increase the rate of erosion of the dunes along the truck route. Onsite erosion could cause minor and localized changes in surface runoff patterns, but this is not expected to represent a significant risk of contaminating surface or ground water or threatening structures within the drainage system. Road improvements would not cause significant changes in runoff

patterns or the rates or magnitude of ground water recharge because the total area of roadway that is planned for paving is small relative to the unpaved portions of the Guadalupe Field.

The proposed project may also stage trucks on the shoulder of Thornberry Road that leads into the Guadalupe Field. The shoulder of the entrance road also forms the banks of drainage ditches associated with the agricultural fields that are immediately adjacent to the Guadalupe Field. A portion (0.5 miles) of Thornberry Road could be widened. Regardless, repeated traffic on the dirt shoulders could promote erosion of soils into the drainage ditches, causing localized flow restrictions. CDP/DP D890558D Condition F94 requires Unocal to monitor road conditions and restore roads damaged by truck-related traffic to pre-project conditions. However, unless the drainage ditch berms are also monitored and repaired, erosion could dam the flow, causing small floods of agricultural drainage waters onto the surface roads or agricultural fields.

Mitigation Measures

W-3.1 *During road construction and trucking operations, Unocal's traffic control plan shall include added traffic control measures such as (1) placing a flagman and traffic cones to prevent trucks from passing along narrow portions of the onsite route with non-paved shoulders, (2) creating turn-outs to minimize erosion from truck traffic, and (3) installing temporary erosion control measures (e.g., silt fences) as needed, where there are construction activities, along truck routes to minimize dispersion of eroded soils.*

W-3.2 *Monitor ditches along Thornberry Road that drain agricultural fields and work with the landowner/jurisdictional agency to repair any erosion related to project truck staging or transport activities.*

Residual Impacts

Implementation of Mitigation Measures W-3.1 and W-3.2, along with existing Conditions of Approval, would reduce the magnitude of this potentially significant impact to *less than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
W.4	Inadvertent spills of petroleum products from trucks or fueling structures could release hydrocarbons to the project site, causing recontamination of a previously remediated site or introduce contamination to an uncontaminated site.	Class III

Impact Discussion

Indirect effects on water resources from the project could result from accidental spills into or near open water of petroleum products, such as diesel fuel and hydraulic fluids, required for operation of motorized equipment. Although unlikely, large oil spill volumes could degrade water quality, with the potential for toxicity and contaminant bioaccumulation in aquatic organisms, and/or leaching into the aquifer. Preparation and implementation of an approved Spill Contingency Plan is required by CDP/DP D890558D Condition F38. Spill containment and cleanup protocols, such as storage requirements and notification procedures, are also specified in spill response portions of the operation plan prepared and implemented by the trucking contractor.

Mitigation Measures
No new mitigation is required.

Residual Impacts
Implementation of Condition F38 would reduce the magnitude of this potentially significant impact to *less than significant* (Class III).

Summary of Impacts at the Santa Maria Landfill
The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. In accordance with CCR Title 27, which contains provisions to use NHIS to construct foundation layers for landfill closure, the RWQCB issued Revised Waste Discharge Requirements (WDR) Order No. 01-041 on May 18, 2001 to the Santa Maria Landfill. WDR 01-041 provides guidelines for the acceptance of NHIS from the restoration and cleanup of oil-producing sites. These plans were addressed in a Joint Technical Document (JTD) prepared by CH_2MHill and evaluated in the CEQA addendum to the 1993 Landfill EIR (SCH 92031045) and in subsequent EIRs (City of SM February and May, 2004a and 2004b).

According to the JTD and the SEIR, accepting impacted soils is consistent with the Landfill's intent to implement an expedited closure process at the landfill by using the NHIS: (1) to achieve design grades and serve as the foundation layer of the final cover system for the existing active portion of the landfill, and (2) for daily and intermediate cover material in the lined expansion areas of the landfill. The EIR Addendum identified no significant impacts associated with the use of NHIS.

On August 31, 2004, the RWQCB issued a letter to the Santa Maria Landfill that specifically addressed acceptance of NHIS material from the Guadalupe Restoration Project. This letter allows the Landfill to revise the extractable Total Petroleum Hydrocarbon (THP) acceptance standards in order to accept NHIS material from the Guadalupe Field. With the issuance of this letter, the Santa Maria Landfill is allowed to accept material from the Guadalupe Field as part of the Landfill's NHIS Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR (City of SM, 2004b), which was certified by the Santa Maria City Council.

For water resources, this SEIR found that there was significant but mitigable impact associated with impacts to surface and ground water from potential releases of leachate associated with the NHIS from the Guadalupe Field. The SEIR found that strict adherence to the existing RWQCB Waste Discharge Requirements (WDR) and permit conditions would ensure that the disposal of NHIS imposes minimal impacts to surface and ground water quality. NHIS disposal areas receiving the material from Guadalupe would be required to be lined with either a single low-density polyethylene liner or double containment system to prevent NHIS leachate from reaching the surface or ground water prior to the installation of the closure cover. The disposal operations would be conducted such that the majority of the NHIS material would be closed annually prior to the rainy season.

As part of the SEIR for the Landfill, a fate and transport modeling study was conducted that looked at potential releases of NHIS leachate from defects in the liner. The results of this analysis showed that two low-carbon fractions of TPH could have measured impact on ground

water. The maximum concentration for one of the low-carbon TPH fractions was estimated to be seven parts per billion. The Landfill's EIR concluded:

Strict adherence to the existing RWQCB WDR compliance requirements and permit conditions would ensure that the disposal of NHIS imposes minimal impact to ground water quality. The final closure cover system will provide protection to entomb the NHIS materials. NHIS disposal areas receiving the diluent contaminated soils would be required to be lined with either a single low-density polyethylene liner (in areas currently without a bottom liner system), or a double containment system (in area of the newly constructed disposal cell in the expansion area) to prevent NHIS leachate, if any, from reaching the ground water prior to the installation of the final closure cover. The NHIS disposal cells would be closed once the cells reach the designed elevation for installation of the final closure cover.

The reader is referred to Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR (City of SM, 2004b) for more information on the geology impacts at the Landfill.

5.2.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures are for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.2.7.1 Offsite Transport to Other Landfills

This alternative involves trucking and disposal of NHIS at other landfills (Buttonwillow, McKittrick, or Kettleman Hills) in lieu of transport and disposal at the Santa Maria Landfill. As mentioned, CDP/DP D890558D Condition F13 requires that all waste materials removed from the Guadalupe Field will be disposed in accordance with applicable laws and regulations. These alternate landfills are permitted facilities that are designed and operated to prevent offsite migration of contaminants. Impacts on water resources from reuse/disposal at permitted facilities have already been evaluated, and mitigated as appropriate, through the environmental documentation and permitting process. Therefore, impacts from landfilling NHIS at these sites are not addressed in this SEIR. Any potential impacts to water resources that occurred after the material has been disposed would be addressed through compliance with the mitigation measures adopted for those sites.

Impacts associated with this alternative would be identical to those identified for the proposed project (W.1, W.2, W.3, and W.4). The mitigation measures identified for these impacts would apply to this alternative.

5.2.7.2 Treated Material Land Feature

Impacts W.3 and W.4 identified for the proposed project would also apply to this alternative. The mitigation measures identified for these impacts would apply to this alternative. Impacts W.1 and W.2 would also apply to this alternative, but would be less severe due to the reduction in the number of truck trips that would occur. The mitigation measures identified for W.1 and W.2 would apply to this alternative. Additional impacts associated with this alternative are discussed below.

Impact	Impact Description	Residual Impact
W.5	If a TMLF is implemented, failure of the leachate or runoff collection and treatment system could result in hydrocarbon migration into the dune sand aquifer or offsite.	Class II

Impact Discussion

CDP/DP D890558D Conditions F47 and F48 require landform operations to be designed and constructed to collect and store excess water from wetting operations prior to treatment and disposal, and installation of a barrier that prevents migration of treatment water into the DSA and other water bodies. Impacts to surface and ground water resources from construction and operation of the TMLF primarily would be related to a potential failure of the leachate and/or runoff collection and treatment systems. Incomplete capture of leachate and/or runoff from the TMLF could result in migration of petroleum hydrocarbons into ground waters beneath the site or soils in the immediate drainage area. The magnitude of impacts to ground water quality from incomplete capture of leachate from the TMLF cannot be determined quantitatively because it would depend on the diluent residue concentrations and composition in the source materials, volumes of leachate that escape the leachate collection system, and rates of ground water movement from the TMLF.

Because the TMLF represents the final phase of the LTU, potential impacts to surface and ground water quality associated with the TMLF are not expected to be greater than those associated with the LTU (as discussed in the 1998 EIR). Unocal estimates that it will require up to seven years to treat 660,000 cubic yards of diluent-affected soils in the LTU. This should provide adequate time to demonstrate the effectiveness of the collection and treatment systems for purposes of constructing and operating the TMLF. The project description also indicates that maintenance of the LTU will be performed as needed and monitoring will be performed as required.

Mitigation Measures

W-5.1 *If a TMLF or ECU is implemented, develop contingency plans for responses to failures of the leachate collection, runoff collection, and ground water monitoring systems.*

Residual Impact

Although failure of the TMLF leachate collection system could result in significant impacts to water resources at the Guadalupe Field, the present CDP/DP D890558D Conditions and mitigation measure W 5.1 would ensure that a system defect would be detected and repaired before the impact occurred. Thus, Impact W.5 is considered potentially significant, but it can be mitigated to les*s than significant with mitigation* (Class II).

5.2.7.3 Engineered Containment Unit

Impacts W.3 and W.4 identified for the proposed project would also apply to this alternative. In addition, impact W.5 identical for the treated material land feature alternative would apply to this alternative. The mitigation measures identified for these impacts would apply to this alternative. Impacts W.1 and W.2 would not apply to this alternative, because there would be no offsite NHIS transportation, and thus no potential for offsite spills of NHIS. There would be no other impacts associated with this alternative.

5.2.7.4 Slurry Injection

Impacts W.3 and W.4 identified for the proposed project would also apply to this alternative. The mitigation measures identified for these impacts would apply to this alternative. Additional impacts associated with this alternative are discussed below.

Impact	Impact Description	Residual Impact
W.6	If slurry injection is implemented, contamination of surface and ground water could occur due to release of slurry material containing hydrocarbons from the injection formation.	Class III

Impact Discussion

The base of fresh water in the vicinity of the Guadalupe Field averages 1,200 feet in depth. Slurry injection will be performed at a depth of approximately 2,650 feet into the Sisquoc Formation. The proposed injection pressure for the slurry would be approximately 2,500 pounds per square inch (psi), which is greater than the estimated original average pressure of the formation (1,205 psi). However, these pressures would be limited to a small area around each of the wells. Given that the formation is currently under pressured due to 40 years of oil production, the pressure of the injected slurry would drop rapidly as it moves away from the injection wells. In addition, the Sisquoc Formation has an impervious oil shale cap, which would form a barrier to prevent migration out of the injection formation. In addition, the Foxen Formation overlying the Sisquoc is largely fine-grained siltstones and mudstones with low permeability, which would act as a permeability barrier to the overlying underground sources of drinking water.

The proposed injection wells would have several layers of protection. Waste material would be pumped down a steel tube within the cased well bore with a packer located just above the injection zone. Outside the tubing would be an annular region filled with fluid. The pressure of this fluid in the annular region would be constantly monitored to detect any leaks. If any material was to leak it would be contained within the steel casing, which is surrounded by a cement sheath. The Applicant has also proposed to install a second casing and cement string from the surface to several hundred feet to provide additional protection for the shallow ground water. Given these multiple layers of protection it is highly unlikely that any of the injected slurry material would be released to surface or ground waters.

Mitigation Measures

Implementation of mitigation measure GEO-6.1 would serve to prevent the release of the slurry material to surface water and ground water.

Residual Impact
The residual impacts would be *less than significant* (Class III).

5.2.8 Cumulative Impacts

Cumulative impacts primarily reflect those associated with the planned and future excavation and remediation operations, as evaluated in the 1998 EIR, with the disposal alternatives addressed in this SEIR. Some amount of diluent residue and other legacy contaminants from the oil production operations will remain after the site has been decommissioned. The threshold concentrations representing acceptable residual contaminant levels have not been defined by RWQCB, although it is assumed that the specified threshold cleanup levels will be considered protective of beneficial uses. Regardless, site remediation, associated with ongoing excavation and treatment along with alternatives evaluated in this SEIR, will reduce the levels of onsite contaminants and ultimately improve the quality of ground and surface water resources. This represents a beneficial impact.

Present water quality conditions at the mouth of the Santa Maria River appear to reflect the presence of stressors (nutrients and pesticides) from agricultural and urban areas rather than runoff or ground water migration from the Guadalupe Field. Therefore, it is possible that the proposed project, or other disposal/reuse alternatives for contaminated soils, will neither adversely or beneficially affect water quality in the Santa Maria River.

5.2.9 Mitigation Monitoring Plan

Mitigation Measure	Action Required by Applicant and Action Timing	Party Responsible for Verification	Method of Verification	Verification Timing
W-1.1	Require licensed professional drivers to operate trucks and adhere to the Traffic Control Plan (described in CDP/DP D890558D Condition F93).	Planning and Building	Review of Traffic Control Plan and Site Inspection	Prior to and during transportation of material to the landfill.
W-1.2	Develop and implement response plans specifically for NHIS spills from trucks that include explicit emergency notification procedures. Identify a designated response team and maintain cleanup equipment onsite or near the truck route. Require drivers to complete spill response training program.	Planning and Building	Review and approval of the response plan	Prior to transportation of material to the landfill.
W.2-1	Monitor the effectiveness of current cleaning and decontamination methods for haul trucks leaving loading areas. If monitoring results indicate that the existing practice of using rumble-pads and tire-brushing is not effectively removing contaminated material, implement additional and more effective truck cleanup procedures (e.g., washing	Planning and Building	Site Inspection	Prior to transportation of material to the landfill.

Mitigation Measure	Action Required by Applicant and Action Timing	Party Responsible for Verification	Method of Verification	Verification Timing
	each truck following loading, with collection and treatment of wash waters).			
W-3.1	During road construction and trucking operations, Unocal's traffic control plan shall include added traffic control measures such as (1) placing a flagman and traffic cones to prevent trucks from passing along narrow portions of the onsite route with non-paved shoulders, (2) creating turn-outs to minimize erosion from truck traffic, and (3) installing temporary erosion control measures (e.g., silt fences) as needed, where there are construction activities, along truck routes to minimize dispersion of eroded soils.	Planning and Building	Field verification	During transportation of material to the landfill.
W-3.2	Monitor ditches along Thornberry Road that drain agricultural fields and repair any erosion related to project truck staging or transport activities.	Planning and Building	Field verification	During transportation of material to the landfill.

5.2.10 References

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5.3 Onshore Biological Resources

5.3.1 Environmental Setting

The Guadalupe Field is located on the Central Coast of California, in southern San Luis Obispo County, just bordering the northern boundary of Santa Barbara County. The Guadalupe Field occupies approximately 2,700 acres within the larger Guadalupe-Nipomo Dunes Complex (Dunes Complex), one of the largest remaining natural coastal dune complexes on the West Coast, which extends from the Pismo Beach area in southern San Luis Obispo County to Mussel Rock in northern Santa Barbara County. The Dunes Complex was characterized by Holland et al. (1995) as the largest, most scenic, and most ecologically diverse of the coastal dune-wetland complexes in California, and it was designated as a National Natural Landmark by the Department of the Interior in 1980.

The Dunes Complex is located in a transition zone between California's northern and southern floristic province. As such, the dunes support a diversity of plant communities that include several endemic and regionally rare plant species (Holland et al. 1995). Habitats found within the Dunes Complex include sandy beaches, foredunes, backdunes, open sand, dune swales, freshwater marshes, and riparian habitats. An overview of biological resources of the Guadalupe Field is found in the Guadalupe Oil Field Remediation and Abandonment Project EIR (1998 EIR) (ADL 1998). ADL (1999) includes general descriptions of habitats and biota and a table listing sensitive species present on the Guadalupe Field. Not all of these habitats would be affected by the proposed project described in this document.

The following section includes descriptions of vegetation and wildlife, the habitats in which they occur, and sensitive species known or expected in the areas affected by the specific activities addressed in the project description. Only those onshore biological resources that could be affected by proposed project activities are described in this document, including the biological resources on the Unocal property, as well as biological resources outside of the Guadalupe Field boundaries, such as along haul routes.

5.3.1.1 Vegetation and Wildlife

Onshore biological resources potentially affected by project activities include uplands, disturbed habitats, and dune swales adjacent to roads that would be used for haul routes and/or may require repaving and widening in selected locations (Figure 5.3-1). Biological resources potentially affected by alternative project activities include the same habitats as the proposed project. The upland habitats potentially affected by project activities are grouped together in the 1998 EIR (ADL 1998) as backdune habitat, which includes coastal dune scrub, open sand, and disturbed habitats. Disturbed habitat includes existing roads, pads, and roadside vegetation. The dune swale habitat areas potentially affected by road-widening activities and hauling activities include the L11/M12 wetland complex and the wetlands located along the Main Road near the entrance to the Unocal Property (Entrance Road wetlands).

Figure 5.3-1 depicts the proposed project and distribution of habitats within and adjacent to the proposed project. Appendix B is a comprehensive list of scientific and common names of the plants discussed in this section.

5.3.1.2 Backdunes (Including Open Sand or Active Dunes)

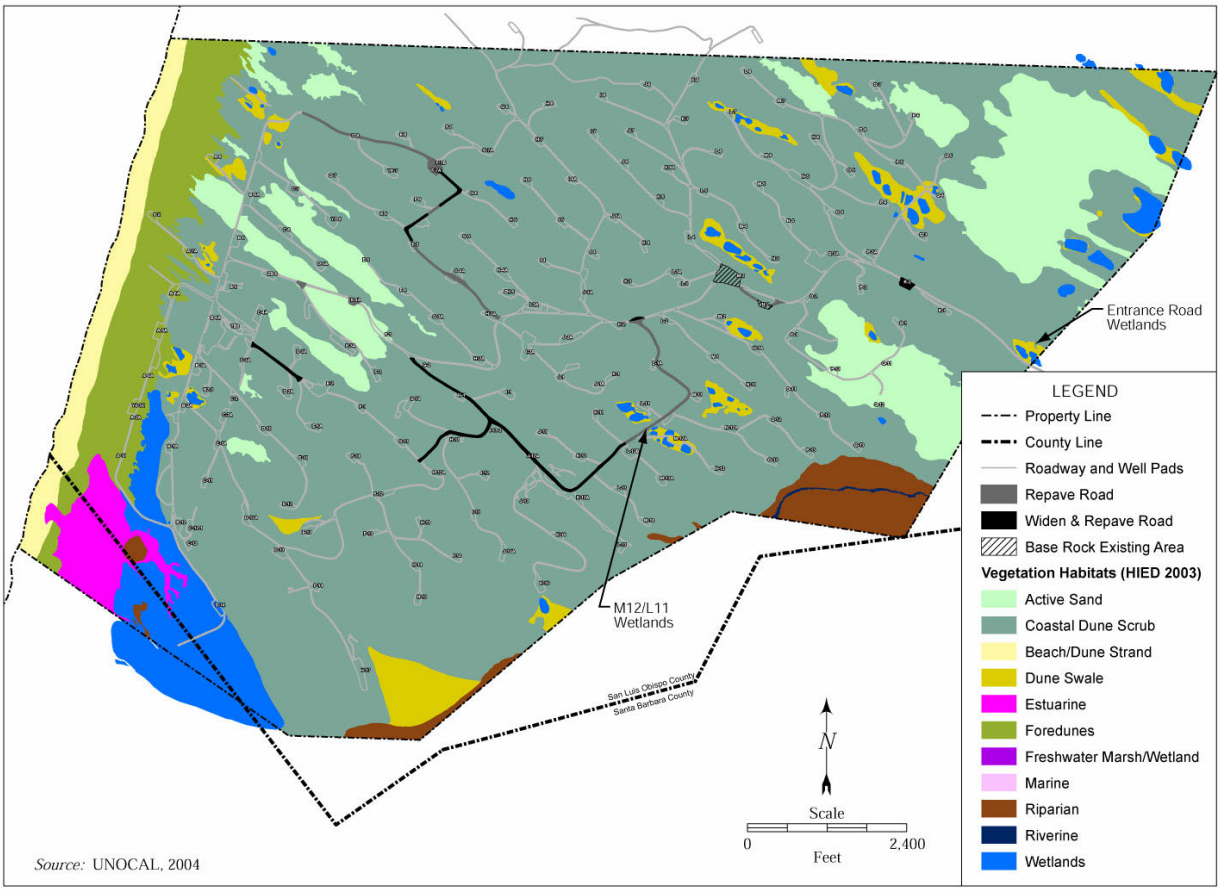
In general, the backdunes of the Guadalupe Field are characterized by large sand dunes supporting dune scrub vegetation, which is dominated by shrub species such as mock heather (*Ericameria ericoides*), dune lupine (*Lupinus chamissonis*), seacliff buckwheat (*Eriogonum parvifolium*), and Blochman's groundsel (*Senecio blochmaniae*). In the larger dune scrub areas, there is often a mosaic pattern of vegetation where one or another of the more common shrub species dominates, although in some areas two or more species may be co-dominant. Other shrub species that also occur and may be locally dominant include California aster (*Lessingia filaginifolia*), coyote brush (*Baccharis pilularis*), Blochman's leafy daisy (*Erigeron blochmaniae*), California croton (*Croton californicus*), deerweed (*Lotus scoparius*), poison oak (*Toxicodendron diversilobum*), coastal goldenbush (*Isocoma menziesii*), dune mint (*Monardella crispa*), giant coreopsis (*Coreopsis gigantea*), and arroyo willow (*Salix lasiolepis*). Herbaceous species that are commonly found in the dune scrub communities include pink sand-verbena (*Abronia umbellata*), sand mat (*Cardionema ramosissima*), suffrutescent wallflower (*Erysimum insulare* ssp. *suffrutescens*), California spineflower (*Mucronea californica*), horkelia (*Horkelia cuneata* ssp. *cuneata*), and Nuttall's milk-vetch (*Astragalus nuttallii* var. *nuttallii*).

Several of the species mentioned above are considered sensitive (Table 5.3.1) and are included on the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (2001): Blochman's leafy daisy and dune mint are included in List 1B, plants rare and endangered in California and elsewhere; and Blochman's groundsel, suffrutescent wallflower, Nuttall's milk-vetch, and California spineflower are included on List 4, a watch list. In addition, dunedelion (*Malacothrix incana*), a CNPS List 4 species, is known to occur in the transition habitat between backdunes and foredunes and may also be present in areas affected by project activities.

Other than the disturbed areas (discussed below), which are predominantly related to oil field activities, most of the habitats in the Guadalupe Field would be characterized as being in good condition. Grazing was formerly allowed by lease agreements, as were past oil field operations, and the cattle usually preferred areas where herbaceous species dominate, such as the Santa Maria River floodplain and dune swales. Grazing is no longer allowed on the Guadalupe Field because the grazing lease is no longer in effect, and grazing is greatly reduced; however, there are no barriers on the property boundaries, and cattle still occasionally trespass onto the Unocal property from grazing lands adjacent to the Santa Maria River. The northern portion of the Guadalupe Field is more isolated from disturbance from humans and livestock. Areas where the backdune habitats have been degraded in this portion of the Guadalupe Field are restricted to around pads and roads.

The shrub-dominated backdune plant communities are interspersed with active unvegetated dunes (open sand habitats) and low-lying (swales) areas dominated by grass-like plants and other low herbs, sometimes accompanied by trees or large shrubs, such as willows.

Figure 5.3-1 Vegetation Habitats in Locations of Road Widening and Repaving Areas



These dune swale plant communities are discussed below under wetlands. The open sand habitats are large unvegetated areas where accelerated sand movement and exposure to the wind and other elements create a hostile environment for plant establishment. Several areas along the Main Road are adjacent to large tracts of open sand and require regular maintenance and clearing of encroaching sand to keep the road open to vehicle traffic. A unique environment exists at the periphery of the open sand areas adjacent to dune scrub. Transitional areas between open sand and dune scrub exhibit a mix of pioneer dune species, including those found on the coast, such as beach evening primrose (*Camissonia cheiranthifolia*) and beachbur (*Ambrosia chamissonis*), as well as species unique to this habitat, such as mesa phlox (*Eriastrum densifolium*) and dune mint, and scattered shrubs. Dune lupine is able to successfully colonize the periphery of open sand habitats and seedlings and adult shrubs commonly occur (Holland et al 1995). Dune mint, a CNPS List 1B species, appears to thrive in this habitat and is often abundant in a wide band around the open sand habitats, including the open sand habitat along the Main Road closest to the entrance of the property.

The extensive backdune habitat provides valuable resources to numerous wildlife species. Mule deer (*Odocoileus hemionus*), brush rabbit (*Sylvilagus bachmani*), and blacktailed jackrabbit

(*Lepus californicus*) are common and are frequently observed foraging throughout the Guadalupe Field. Rodent species, including Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), western harvest mouse (*Reithrodontomys megalotis*), and Heermann's kangaroo rat (*Dipodomys heermanni*) are widespread and abundant and attract larger mammal predators, including long-tailed weasel (*Mustela frenata*), American badger (*Taxidea taxus*) (a species recognized by the California Department of Fish and Game as a "Special animal"), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), and bobcat (*Lynx rufus*). Other large mammals include raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), and striped skunk (*Mephitis mephitis*). Several amphibian species are expected in this habitat (most commonly in proximity to wetland habitat), including western toads (*Bufo boreas*) and western spadefoot toads (*Spea hammondii*), which burrow into the sandy soils throughout the property, and an occasional Pacific chorus frog (*Pseudacris regilla*) or California red-legged frog (*Rana aurora*) (federally listed as threatened), which occasionally move between aquatic habitats on the Guadalupe Field.

Several reptile species are expected to be common throughout the Guadalupe Field, including gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus viridis*), California whipsnake (*Masticophis lateralis*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), and southern alligator lizard (*Elgaria multicarinata*). Backdune-habitat-abutting wetlands may occasionally be used as nest sites by western pond turtles (*Emys marmorata*) (California Species of Special Concern [CSC]), which lay eggs up to 1/4 mile away from a water source. The loose sandy soils throughout the backdunes also provide habitat to the silvery legless lizard (*Anniella pulchra*) and the California (Coast) horned lizard (*Phrynosoma coronatum*)

Commonly observed avian species in the backdunes include Bewick's wren, horned lark (CSC), white-crowned sparrow, wrentit, California quail, California towhee, loggerhead shrike (CSC), and California thrasher. Raptors and owls common to this area include barn owl, great horned owl, red-tailed hawk, red-shouldered hawk, golden eagle (CSC), white tailed kite (a "special" status animal), northern harrier (CSC), and American kestrel.

5.3.1.3 Disturbed/Degraded Habitats

The upland habitats in the Guadalupe Field have been subject to various disturbances in the past, mostly related to historic oil field activities. The disturbed and/or degraded areas are mostly localized and include roads, surface facilities, oil well pads, and other areas that have been paved or graded to accommodate equipment or services, areas where crude oil has been sprayed on the dunes, and grazed areas. Areas that have been subject to more recent disturbances, such as the former LTU site (proposed location for the TMLF), that have been left undisturbed for several years have become colonized by a combination of native and invasive exotic species, especially around their periphery. Plant species present within the disturbed area at the proposed TMLF site include common pioneer dune plants such as sea rocket (*Cakile maritima*), beachbur, dune evening primrose, and scattered dune mint.

In addition to the disturbed and degraded areas mentioned above, there are areas in the Guadalupe Field that have been temporarily or periodically disturbed by various activities. In some cases, the dune habitat along existing roads may become degraded if the road is within a high use area, subject to repeated disturbance, or becomes infested with non-native species.

However, Unocal requires vehicle access to remain within the existing pavement, and generally, most of the roadside vegetation reflects a similar condition as the surrounding habitat. These areas tend to be in various states of degradation or recovery and are referred to in this report as degraded communities.

Invasive plant species that are problems in coastal dune systems elsewhere in Central California are present at the Guadalupe Field and are often dominant in the disturbed or degraded areas. These include iceplant or sea fig (*Carpobrotus* spp.), conicosia or narrow-leaved iceplant (*Conicosia pugioniformis*), and veldt grass (*Ehrharta calycina*). The iceplant and conicosia are relatively widespread through the Guadalupe Field but are low to moderate in cover except in a few localized areas. Veldt grass is present as occasional individual plants and localized infestations in the northern portion of the Guadalupe Field and is becoming relatively widespread in the southern portion of the site, especially on the upper slopes of large dune hummocks. Based upon observations in similar habitats, all of these species have the potential to spread and dramatically increase their dominance, displacing native vegetation. Past surveys in the Guadalupe Field have indicated that veldt grass, in particular, exhibits a pattern of invasion, especially in the southern portion of the project area. The spread of invasive species is facilitated by human activity, especially factors that weaken or locally remove the native vegetative cover. However, Unocal has implemented an ongoing program for controlling the spread and reducing the cover of invasive plant species. Pampas grass or jubatagrass (*Cortaderia jubata*), beach grass (*Ammophila arenaria*) and purple ragwort (*Senecio elegans*) formerly occurred in localized areas in the oil field but have mostly been eliminated from the site. These species are subject to continual monitoring and are removed immediately if found on the Guadalupe Field (Unocal 2003). Treatment of iceplant, conicosia, and veldt grass is ongoing.

The disturbed portions of habitats within the Guadalupe Field provide little food or cover for wildlife species. Roads are frequently used as thoroughfares for coyotes (*Canis latrans*), mule deer, gray fox (*Urocyon cinereoargenteus*), and raccoons. Berms on or adjacent to disturbed areas are often used by burrowing animals, such as kangaroo rats, and some of these have subsequently been used by burrowing owls (CSC). California horned larks (CSC) forage along roads and pad sites and in areas with short grass. Sandy or gravelly soils associated with some roads and abandoned oil well pads provide marginal habitat for reptile species including the California horned lizard (CSC).

5.3.1.4 Dune Swale Habitats

Dune swales are low places among the dunes that are moister than, and support vegetation that is distinct from, the dune scrub or open sand of the surrounding dunes (Ferren et al. 1995). Conditions are moister primarily because of a shallow water table, although other factors, such as reduced wind and insulation, drainage from upslope areas, and the greater retention of water in the soil due to the accumulation of fine sediments and organic matter, may contribute.

Dune swales provide a range of habitats, depending primarily on depth to the water table. Habitats encountered in dune swales include ponds, marshes, willow scrub/woodlands, mesic swale communities, and upland dune scrub. These habitat and community types may be zoned as elevational bands within swales, or they may be expressed individually where the appropriate

hydrologic regime exists or existed in the recent past. Often there is a mixture of two or more community types, reflecting a transition from wetter to drier conditions.

Within the wetter dune swale communities (corresponding to lower elevations) grasses, forbs and low-growing subshrubs predominate, except to the extent that willows may be present as overstory. These habitats have seasonally saturated soils with occasional standing water, and may be somewhat alkaline, based on the occurrence of several of the constituent species in coastal salt marshes or interior alkaline marshes. Plant communities found in the wetter areas include deep/low marsh, shallow/high marsh, and willow woodlands. Common species of the deep/low marsh include California bulrush (*Scirpus californica*) and cattail (*Typha latifolia*). The shallow/high marsh plant community includes species such as Yerba mansa (*Anemopsis californica*), marsh baccharis (*Baccharis douglasii*), salt grass (*Distichlis spicata*), rabbitsfoot grass (*Polypogon monspeliensis*), common plantain (*Plantago major*), coast silverleaf (*Potentilla anserina* ssp. *pacifica*), and dock (*Rumex* spp.). Willow woodland is typically dominated by arroyo willow with an understory of poison oak, marsh baccharis, and California blackberry (*Rubus ursinus*). The drier dune swale communities, which are often transitional between wetland and upland, include open herbaceous and transitional herb/scrub. Surface water is rarely present, although the soil becomes seasonally saturated. Plant species commonly found in the open herbaceous plant community include sedges (*Carex pansa* and *C. praegracilis*), dune rush (*Juncus lesueurii*), wild rye (*Leymus triticoides*), horkelia (*Horkelia cuneata* ssp. *cuneata*), and goldenrod (*Solidago* spp.). These species are also present in the transitional herb/scrub community with native upland shrubs, including coyote brush (*Baccharis pilularis*) and coastal goldenbush (*Isocoma menziesii* var. *vernonioides*). These drier wetland communities typically make a transition into upland dune scrub at higher elevations above the ground water table. The federally and state-listed endangered La Graciosa thistle (*Cirsium loncholepis*) occurs in the shallow/high marsh plant community in some of the dune swale wetlands at the Guadalupe Field.

The L11/M12 wetland area is a complex of several wetland types but is predominantly herbaceous wetland with areas of seasonal ponding and one small group of willows. The access road to the proposed TMLF/ECU site bisects the L11/M12 wetland complex. The wetlands adjacent to the road at the base of the road bank have seasonal ponding in some years. The Entrance Road wetlands, which are located partly on Unocal property and partly on property owned by others, are similar to the L11/M12 wetlands and support herbaceous wetlands, large stands of willow woodland, and also have areas with seasonal ponding. The Federal and State-listed endangered La Graciosa thistle (*Cirsium loncholepis*) occurs in dune swale wetland habitats at the Guadalupe Field and is present at both the L11/M12 and Entrance Road wetlands.

Wildlife species expected to occur in the dune swale communities include those species described above for the backdune habitat. The mesic swales are often characterized by open, flat areas with sparse vegetation, and could therefore, support more rodent species, such as Botta's pocket gopher, deer mouse, and California vole (*Microtus californicus*). Willows, if present and depending on their height and density, add cover, additional foraging habitat, nest sites, and natural perch sites. Standing water is often associated with dune swale habitat and would attract species similar to those that occupy the freshwater pond habitats on the Guadalupe Field. Although areas of ponding may be intermittent, depending on rainfall, they remain an important wildlife resource. Several wildlife species are closely associated with willow stands, including the dusky-footed woodrat (*Neotoma fuscipes*) and numerous species of birds. Avian species using this habitat include insectivorous birds (yellow warbler [CSC], orange-crowned warbler,

yellow-rumped warbler, Wilson's warbler, black phoebe, ruby-crowned kinglet, and oak titmouse), seed eaters (white-crowned and song sparrows, house finch, and American goldfinch), and generalists (western scrub jay and American crow). Great horned owls, long-eared owls (CSC), and barn owls may roost in these habitats during the day. Cooper's hawks and sharp-shinned hawks (both CSC) may forage and roost in these areas. The willow and seasonal open water habitat on the project site also provides valuable habitat for birds migrating through the area.

5.3.1.5 Proposed Haul Route

The proposed project includes hauling NHIS to the Santa Maria Landfill, approximately 16 miles from the Guadalupe Field (See Section 2.2.1). As described in Section 2.2.1, Project Description, the haul route follows existing roads. Modifications to the roads are proposed within the Guadalupe Field, as described below. The access road to the Guadalupe Field is a private road and starts at Thornberry Road with a gated entry manned by a security guard during business hours. The road crosses property owned by others before reaching the Unocal property boundary.

The habitat traversed by the access road from the Guadalupe Field boundary to the Unocal gate (located on Thornberry Road approximately 0.5 mile from the Guadalupe Field boundary) is predominately dune scrub vegetation along both sides of the road, with the exception of agricultural fields and a large dune swale, which supports willow woodland and open herbaceous wetland plant communities (described above under Section 5.3.1.4, Dune Swale Habitats). The remaining portion of the proposed haul route, after passing through the Unocal gate, utilizes public roads through primarily urban development, such as the town of Guadalupe and City of Santa Maria, and agricultural fields used for production or grazing. Biological resources along the haul route are limited, with the exception of where Highway 1 crosses the Santa Maria River and a segment along Betteravia Road (described below).

The Santa Maria River is one of the larger drainage basins in California, draining approximately 1,880 square miles (or approximately 1,203,200 acres). Upstream from Highway 1, the river is dry for most of the year and flows intermittently during rainfall events or releases from Twitchell Dam. At the Highway 1 crossing and downstream, surface water is present at various times throughout the year. Riparian habitat, primarily willow woodland, is prevalent at the Highway 1 crossing and downstream until the river reaches the estuary/lagoon, approximately 5 miles downstream. The river outlet is closed by sand most of the year, and water accumulates in the lagoon. The sandbar is periodically breached when sufficient water builds up in the lagoon; then the water flows rapidly into the Pacific Ocean. The sandbar typically builds up again and closes the river mouth. The position of the river outlet changes considerably in response to environmental conditions. Northward excursions of the mouth encroached into the Guadalupe Field, requiring emergency measures during the mid-1990s to prevent encroachment into sites with diluent plumes and sumps (SAIC 2004).

A large vernal pool complex is located along the proposed haul route immediately north of Betteravia Road between Black and Blosser roads. Vernal pools typically form in depressions formed by an impervious layer that prevents water from percolating downward. The hydrology of these areas usually includes inundation during the winter and spring rainy season and a period of desiccation during the summer and fall seasons. Vernal pools support a diverse assortment of

plants and animals. This habitat type is typically very important habitat to several aquatic species, including California tiger salamander (*Ambystoma tigrinum*) (FT) and western spadefoot toad (CSC). Neither of these species has been recorded at this vernal pool complex; however, the Santa Barbara County Department of Planning and Development describes this area as Potential California Tiger Salamander Breeding Habitat. Known breeding habitat for this species is located at four locations 1.5 miles or more south of the haul route at (1) the Laguna County Sanitation Facilities, (2) along Black Road near Highway 1, (3) within several ponds near the Santa Maria Airport, and (4) along Telephone Road near the intersection of Clark Avenue. Both California tiger salamanders and western spadefoot toads are known to use upland habitat surrounding their breeding pools during the summer and fall seasons. California tiger salamanders have been documented to move up to 1.3 miles away from their breeding pool into upland habitat; however, the typical range of CTS is less than 0.5 miles from the breeding ponds (USFWS 2004).

5.3.1.6 Rare, Threatened, or Endangered Species

Table 5.3.1 is a list of sensitive species (including their status) that may be affected by the proposed project activities and are discussed in this document.

Beach spectacle-pod and Surf thistle have not been observed in, and are not expected to occur within, the areas potentially affected by proposed project activities. La Graciosa thistle occurs in dune swale habitats and has historically been found in the L11/M12 dune swale complex and, more recently, along the Entrance Road wetlands (the haul route). As stated in the habitat description, several of the plant species that are common in the dune scrub vegetation are included on the CNPS Inventory. Blochman’s groundsel is a common component of the dune scrub vegetation throughout the Guadalupe Field. Suffrutescent wallflower is also widespread in the coastal dune scrub on the Guadalupe Field, but is less common. Blochman’s leafy daisy, Nuttall's milk-vetch, and California spineflower are commonly found in dune scrub habitats, though are not as widespread as the Blochman’s groundsel and suffrutescent wallflower. California spineflower, an annual species, is often found in disturbed areas such as Off-Road Vehicle (ORV) or animal trails and may become established in areas disturbed by project activities. Dune mint appears to be restricted to areas of open sand within the backdunes habitat. Dunedelion occupies a wide band within foredunes, transition, and backdunes habitat that appears to straddle the B road in the western portion of the site. There is one small area of dunedelion reported in the inland backdunes just east of the growing facility (LFR 2003). There are other less-common sensitive plant species present on the Guadalupe Field that would not be affected by project activities and therefore are not included in this discussion.

Sensitive wildlife species have been observed in the dune swale wetland habitat on the Guadalupe Field that is located near the proposed haul route. This area is known to, or can be expected to, support sensitive wildlife species, including California red-legged frog and two-striped garter snake. The upland dune scrub habitat that is located near the proposed TMLF/ECU, along the haul routes, and along portions of the road proposed for widening is expected to support small numbers of coast horned lizards and silvery legless lizards.

Table 5.3.1 Sensitive Species Potentially Affected by the Newly Proposed Remediation Activities

Common Name	Scientific Name	Status Fed/State/Other
Federally and State-Listed Species		
Wildlife		
California red-legged frog	*Rana aurora draytonii*	T/CSC
California tiger salamander*	*Ambystoma californiense*	FT/CSC
Plants		
La Graciosa thistle	*Cirsium loncholepis*	E/T/CNPS 1B
Surf thistle	*Cirsium rhothophilum*	FSC/T/CNPS 1B
Beach spectacle-pod	*Dithyrea maritima*	FSC/T/CNPS 1B
Other Sensitive Species		
Wildlife		
Two-striped garter snake	*Thamnophis hammondii*	—/CSC
Western spadefoot toad	*Spea (=Scaphiopus) hammondii*	-/CSC
Silvery legless lizard	Anniella pulchra pulchra	—/CSC
California horned lizard	***Phrynosoma coronatum frontale***	—/CSC
Loggerhead shrike	***Lanius ludovicianus***	—/CSC
Plants		
Blochman's leafy daisy	*Erigeron blochmaniae*	—/—/CNPS 1B
Dune mint	*Monardella crispa*	—/—/CNPS 1B
Nuttall's milk-vetch	*Astragalus nuttallii* var. *nuttallii*	—/— /CNPS 4
Suffrutescent wallflower	*Erysimum insulare* ssp. *suffrutescens*	—/— /CNPS 4
Dunedelion	*Malacothrix incana*	—/— /CNPS 4
California spineflower	*Mucronea californica*	—/— /CNPS 4
Blochman's groundsel	*Senecio blochmaniae*	—/— /CNPS 4

Notes:

* The California tiger salamander is potentially present along the proposed haul route, but not within the Guadalupe Field.

Federal Status (determined by U. S. Fish and Wildlife Service):
E Endangered. In danger of extinction throughout all or a significant portion of its range.
T Threatened. Likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
FSC Federal Species of Concern (USFWS 2004)

State Status (determined by California Department of Fish and Game):
E State listed as Endangered
T State listed as Threatened
CSC California Species of Special Concern

California Native Plant Society List (CNPS) List:
1B Plants considered rare or endangered in California and elsewhere
4 Plants of limited distribution – a watch list

La Graciosa Thistle *(Cirsium loncholepis)*

La Graciosa thistle was federally listed as endangered on March 20, 2000, and State-listed as threatened in February 1990, and is included on the CNPS List 1B (rare and endangered in California and elsewhere). It is a short-lived (generally 1 or 2 years) member of the sunflower family. The plant produces one to many flowering stems, 4 to 40 inches tall, from a rosette base. The rosette leaves are up to 12 inches long, dark green, deeply lobed, with wavy, spine-tipped margins. Flower heads are in tight clusters at the tip of the stems and produce whitish flowers

with dark purple anthers. The plant dies after it flowers and sets seed. La Graciosa thistle is found in wet soils surrounding dune lakes, moist dune swales, and on the floodplain near the Santa Maria River estuary. Its historical distribution included the backdunes and coastal wetlands from the Pismo Dunes of southern San Luis Obispo County to the Santa Ynez River in northern Santa Barbara County. This species also was known to occur in wetland habitats in the Orcutt region that have since been converted to agriculture or otherwise developed. Its current distribution is restricted to several colonies in the Dunes Complex, including the Santa Maria River Estuary, which supports the largest known population of this species. The species is threatened by ground water pumping and oil field development (USFWS 2000). USFWS recently proposed critical habitat for the La Graciosa thistle (USFWS 2001) that includes the dune swales and Santa Maria River floodplain on the Guadalupe Field where this species is known to occur. Unocal botanical monitors conduct an annual census to determine the numbers of individuals and distribution of this species on the Guadalupe Field (Unocal 2004).

California Red-Legged Frog (*Rana aurora draytonii*)
The California red-legged frog was proposed for Federal listing as endangered on February 2, 1994 (59 FR 4888). The species was listed as threatened on May 23, 1996, and the final rule became effective on June 24, 1996 (USFWS 1996). Adult red-legged frogs prefer dense, shrubby or emergent riparian vegetation closely associated with deep (more than 2.3 feet in depth), still or slowly moving water. Well-vegetated terrestrial areas near the aquatic habitat may provide important sheltering habitat during winter, foraging areas, and dispersal corridors. California red-legged frogs breed from November to March, with the earlier breeding records occurring in southern localities. Eggs hatch in 8 to 14 days, while larvae take 3.5 months or longer to metamorphose. California red-legged frogs may live 8 to 10 years. The frogs disperse from breeding habitat to forage and seek resting habitat. They take cover in small mammal burrows and moist leaf litter (up to 100 feet from water) in dense vegetation and will use other cover sites when traveling overland. Adults can typically be found up to several hundred feet from aquatic habitat, and at least one individual has been recorded on the Guadalupe Field to move over 1.5 miles to reach known breeding habitat. After winter rains begin, red-legged frogs move away from summer habitat, primarily at night, and can travel up to one mile from those habitats. Juveniles may also disperse locally, shortly after metamorphosis in July–September and away from their natal habitats during warm rain events. On the Guadalupe Field, this species has been observed in the Entrance Road wetlands in 2004 and historically at the M12/L11 wetlands in 2003 (the last year pond water persisted in these wetlands for any considerable amount of time).

5.3.2 Regulatory Setting

5.3.2.1 Federal Laws, Regulations, and Executive Orders

Clean Water Act (33 U.S.C. 1252 et seq.)
The Clean Water Act (CWA) was enacted to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters through the elimination of discharges of pollutants. Among other things, the CWA provided that continuing (point-source) pollutant discharges could not occur unless specifically authorized by permit, and it established permit programs for various forms of discharges, including the discharge of dredged materials. The U.S. Army Corps

of Engineers (USACE) has the legal authority to regulate, through the issuance of a CWA Section 404 permit, the discharge of dredged or fill material in waters of the U.S.

Endangered Species Act (16 U.S.C. 1531 et seq.)
The Endangered Species Act (ESA) protects threatened and endangered species and critical habitats, as listed by the U.S. Fish and Wildlife Service (USFWS), from unauthorized take, and directs Federal agencies to ensure that their actions do not jeopardize the continued existence of such species. Section 7 of the Act defines Federal agency responsibilities for consultation with the USFWS. The Act requires preparation of a Biological Assessment to address the effects on listed and proposed species of a project requiring an EIS. Under Section 10 of the Act, the USFWS may issue permits, with conditions, that authorize the take (harm or harassment) of a listed species.

Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) and Executive Order 13186
The Migratory Bird Treaty Act (MBTA) governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over-utilization. Further, the MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase, or barter of any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). Executive Order 13186 (effective January 10, 2001) outlines the responsibilities of federal agencies to protect migratory birds, in furtherance of the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Acts, the Fish and Wildlife Coordination Act, ESA, and National Environmental Policy Act (NEPA). This order specifies that the USFWS as the lead for coordinating and implementing EO 13186; requires Federal agencies to incorporate migratory bird protection measures into their activities; and requires Federal agencies to obtain permits from the Service before any “take” occurs, even when the agency intent is not to kill or injure migratory birds.

Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.)
This Act requires the Federal lead agency to consult with and consider the recommendations of the USFWS, the California Department of Fish and Game (CDFG) and, for projects affecting steelhead or managed fish species, with the National Marine Fisheries Service (NMFS).

Executive Order 11990 — Protection of Wetlands
This order directs Federal agencies to avoid to the extent possible long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Specifically, Federal agencies are directed to:

- provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities when acquiring, managing, and disposing of Federal lands and facilities; and providing federally sponsored, financed, or assisted construction and improvements, or conducting Federal activities and programs affecting land use.

This Order does not apply to the issuance of permits (by Federal agencies), licenses, or allocations to private parties for activities involving wetlands on non-Federal property.

Executive Order 11988 — Floodplain Management
This order directs Federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Specifically, Federal agencies are directed to:

- provide leadership and take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for acquiring, managing, and disposing of Federal lands and facilities, providing federally sponsored, financed, or assisted construction and improvements and conducting Federal activities and programs affecting land use.

Executive Order 13112 — Invasive Species
The National Invasive Species Management Plan was developed in response to this order in 1997. This order established the National Invasive Species Council (Council) as the leaders in development of the plan, and directs the Council to provide leadership and oversight on invasive species issues to ensure that Federal activities are coordinated and effective. In addition, the Council has specific responsibilities including: promoting action at local, state, tribal, and ecosystem levels; identifying recommendations for international cooperation; facilitating a coordinated network to document, evaluate, and monitor invasive species' effects; developing a web-based information network on invasive species; and developing guidance on invasive species for Federal agencies.

5.3.2.2 State Laws, Regulations, and Policies

California Environmental Quality Act (Public Resources Code 21000-21177)
The California Environmental Quality Act (CEQA) contains requirements similar to NEPA and requires the preparation of an Environmental Impact Report (EIR) prior to implementation of applicable projects. CEQA requires significant impacts to be mitigated to a level of insignificance or to the maximum extent feasible, and that less damaging alternatives be considered. The State or local Lead Agency is responsible for CEQA compliance.

Porter-Cologne Water Quality Control Act (C.W.C. Section 13000 et seq.; California Code of Regulations Title 23, Chapter 3, Chapter 15)
This Act is the primary state regulation addressing water quality and waste discharges (including dredged material) on land; and all permitted discharges must be in compliance with the regional Basin Plan. The Act’s requirements are implemented by the Central Coast Regional Water Quality Control Board (RWRCB).

California Endangered Species Act (Fish and Game Code Section 2050 et seq.)
This Act provides for recognition and protection of rare, threatened, and endangered plants and animal species. The Act requires state agencies to coordinate with the CDFG to ensure that state authorized/funded projects do not jeopardize a listed species. The Act prohibits the taking of a listed species without authorization from the CDFG.

California Lake and Stream Alteration (Fish and Game Code Section 1600 et seq.)
This program governs projects that involve lake and streambed alteration in the state of California, and requires that such alterations are evaluated under CEQA and authorized via a Streambed Alteration Agreement by regional CDFG staff. Section 1601 governs activities undertaken by public agencies, and Section 1603 governs activities undertaken by private parties.

Executive Order W-59-93 — California Wetlands Conservation Policy
In August 1993, the Governor announced the California Wetlands Conservation Policy. The goals of the policy are to establish a framework and strategy that:

- Ensures no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property.
- Reduces procedural complexity in the administration of State and Federal wetlands conservation programs.
- Encourages partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.

The Executive Order also directed the California Resources Agency to establish an Interagency Task Force to direct and coordinate administration and implementation of the policy.

The Resources Agency and the departments within that agency generally do not authorize or approve projects that fill or harm any type of wetlands. Exceptions may be granted for projects meeting all the following conditions: the project is water dependent; there is no other feasible alternative; the public trust is not adversely affected; and the project adequately compensates the loss.

California Coastal Act of 1976 (Public Resources Code Section 30000 et seq.)
The California Coastal Act was established to provide for the conservation and development of California's coastline. It established the Coastal Commission as a permanent State coastal management and regulatory agency, with jurisdiction over the Coastal Zone. Cities and Counties, including San Luis Obispo County, have prepared, with the approval of the Coastal Commission, Local Coastal Programs (LCPs) that provide policies, land use plans, and zoning ordinances that guide development decisions through the issuance of Coastal Development Permits.

5.3.2.3 Local Laws, Regulations, and Policies

The proposed project is subject to a San Luis Obispo County Coastal Development Permit/Development Plan (CDP/DP D890558D) which authorizes Unocal to conduct remediation activities consistent with the California Regional Water Quality Control Board's

Cleanup and Abatement Order (CAO No 98-38) and incorporates Conditions of Approval for all such activities.

5.3.3 Significance Criteria

Under CEQA Guidelines, impacts on biological resources are significant if they:

- Conflict with local, State, or Federal plans and policies designed to protect sensitive species and habitat resources;
- Cause a substantial effect on a rare or endangered species (as defined in the CEQA Guidelines) of animal, plant, or the habitat of the species;
- Cause substantial interference with the movement of any resident or migratory fish or wildlife species;
- Cause substantial loss of habitat for fish, wildlife, or plants.

For this project, plants and animals that may be considered rare or endangered include state- and/or federally listed, proposed, and candidate species, and other species that can reasonably be considered rare or endangered under CEQA, such as the California Native Plant Society's list 1B – "plants that are rare or endangered in California and elsewhere." Species known to be regionally rare or declining may also qualify in some cases, but a higher threshold of impact to the local population would apply.

What constitutes "substantial" requires professional judgment as to the magnitude and duration of the impact, taking into account the abundance, distribution, and sensitivity of the resource to impact. To distinguish between short- and long-term impacts, we consider losses of habitat or population that are expected to be measurable 5 years or more from the time of occurrence to be long-term impacts and impacts of lesser duration to be short-term impacts. Impacts that are short-term or small in scope are less likely to be significant, but the threshold for significance is lower for resources of greater vulnerability or concern to the public and regulatory agencies.

5.3.4 Impact Assessment Methodology

The impact assessment method generally consists of (1) identifying how different project activities for the proposed project and each Alternative could affect biological resources, (2) quantifying the effect to the extent feasible (e.g., amount of habitat affected), (3) applying the impact significance criteria, and (4) determining significance of impacts with reference to the impact significance criteria and professional judgment. Mitigation measures are identified to enable avoidance, reduction, rectification, or compensation for the impact to the extent feasible. The likely effectiveness of the mitigation measures in reducing impacts to a less than significant level is evaluated using the professional judgment of the investigators, and the residual impacts are identified.

The timing and duration of project activities are important in determining effects on biological resources, since some species are present only part of the year and some are only sensitive to the activities during certain phases of their lives, such as breeding. Information from other resource

areas, such as surface water and ground water analyses, is used in assessing impacts to biological resources.

Determining the potential effectiveness of a mitigation measure requires consideration of many interrelated factors, including the magnitude of the impact (including the total area disturbed; proportion of the population affected), the sensitivity of the resource (including the condition and characteristics of the habitat), the anticipated time required for the resource to recover from the impact (assuming implementation of recommended mitigation measures), and the degree of uncertainty concerning the anticipated success of the mitigation and recovery of the resource from the impact.

Each of these factors is inversely related to an impact's mitigability (i.e., impacts having a combination of large magnitude impact, high resource sensitivity, long recovery time, and/or high uncertainty concerning mitigation success are unlikely to be mitigable to less than significant levels).

5.3.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

Numerous measures to protect or reduce impacts to biological resources are currently being implemented on the Guadalupe Field in accordance with CDP/DP D890558D Conditions of Approval or the Applicant-proposed measures defined in the 1998 EIR (ADL 1998). These measures are assumed to be part of the project description for purposes of this analysis and the conditions most relevant to this evaluation are discussed below:

- Pre-construction surveys would be conducted prior to any ground disturbance (Condition F64.a.i) to characterize areas of disturbance and to relocate wildlife species as feasible (Condition F64.b.iii).
- Remediation activities are designed to avoid impacts to sensitive resources identified during pre-construction surveys wherever possible (Condition F68).
- Sensitive resources locations would be flagged and staked by Unocal botanical monitors to delineate equipment access corridors and work areas (Condition F68).
- Special-status plant species in the proximity of proposed remediation activities would be flagged and avoided to the extent possible (Condition F68.d, i, and j).
- In the foredune areas, seasonal constraints on remediation activities would be observed from March to September to avoid disturbance of nesting snowy plovers. Work within these areas would be conducted in accordance with CDFG and USFWS guidelines (Condition F69).
- Efforts to locate and remove legless lizards from disturbance areas (Condition F73) would include pre-construction raking and careful removal and storage of topsoil removed from the site. Individual lizards would be released away from the site.
- Excavation areas would be staked prior to pre-construction biological surveys and a soil stockpile location identified (Condition F68.i).
- Dune stabilization methods, such as shoring, would be employed to limit the area of disturbance (Condition F63).

- Prior to construction activities, the areas of disturbance would be brush-raked and the vegetative material stockpiled. The top one foot of surface soil would be removed and stockpiled, covered, and redistributed after construction is complete. Vegetation and detritus from the brush-raked stockpile would be redistributed. Additional seed would be collected from adjacent sources to augment the revegetation material (Unocal 2002).
- Areas identified for excavation would be backfilled and recontoured to approximate pre-existing conditions. The sites would be stabilized and/or revegetated as appropriate (Condition F68.k). The revegetation program/techniques would most likely include a combination of stabilization, native seed collection/distribution, and erosion/reestablishment monitoring (Condition F64.b.ii).
- Unocal has an approved Habitat Revegetation, Restoration, and Monitoring Plan (Condition 64) that would be implemented for all areas where disturbance to native habitats or soils occurs. This plan includes pre-treatment to remove invasive exotic plants, salvage and replacement of topsoil, salvage of non-listed sensitive plant species, replanting of native species, soil stabilization techniques, maintenance, ongoing monitoring and reporting requirements, and success criteria (Condition F65.f) (Unocal 2002).
- Unocal has a Site-Wide Exotic Species Management and Eradication Program (Condition F62.k) currently being implemented at the Guadalupe Field to control the spread and reduce the presence of invasive exotic plant species on the Guadalupe Field. This Program includes methods to eliminate weeds and reduce the weed seed bank in any areas subject to disturbance from remediation activities and to monitor and maintain restoration sites to ensure they remain relatively weed free (Unocal 2003).
- Implementation of a Field-wide Sensitive Species Management Plan (SSMP) which includes measures taken to avoid or minimize impacts to sensitive species at the Field and the monitoring and mitigation measures for unavoidable impacts (Condition F62.m). Field-Wide Sensitive Species Management Plans are required for each sensitive species that is potentially impacted by site characterization, oil spill remediation, field abandonment, infrastructure removal, or other project related activities. Representatives from Unocal, San Luis Obispo County, and the California Coastal Commission agreed that specific Sensitive Species Management Plans are required only for those species that are significantly impacted and are not adequately mitigated for through research and habitat restoration. Unocal will prepare a Sensitive Species Management Plan for any species significantly impacted by the proposed project activities and submit these for approval to the County, Coastal Commission, and other appropriate agencies (USFWS and/or CDFG) in accordance with the requirements of the condition.

5.3.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

Section 2.0 of this document includes details of the proposed project. This section will focus on those project activities that have the potential to affect biological resources both on and off the Guadalupe Field. Those activities are as follows:

- Offsite trucking may include repaving and widening of portions of existing roads on the Guadalupe Field. Road-widening activities would result in the direct loss of habitat

present along the edges of the roads to be widened (Figure 5.3-1). Repaving of existing roads is expected to be contained within the existing boundaries of the road pavement and would therefore not result in the loss of habitat, although indirect effects to biological resources may occur due to vegetation trimming, noise, and construction activities.

- Offsite trucking, which would extend outside the boundaries of the Guadalupe Field, would utilize existing roads and would not have any direct effects on biological resources. One small area along Thornberry Road is proposed to potentially be widened; however, both sides of Thornberry Road between the Unocal gate and Highway 1 are actively farmed, and it is expected that there would be no biological resources that would be affected by the proposed project in this area.

An evaluation of traffic impacts (Section 5.6) found that the truck trips proposed for the proposed project and the Alternatives would not have an effect on the Level of Service on haul routes. In addition, there would not be a substantial increase in the total number of trips on these proposed routes in relation to the existing conditions. Because there are no significant traffic impacts associated with theses haul routes, and because of the temporary nature of the hauling, it is assumed that hauling activities would not affect biological resources along the haul routes. An evaluation of the potential for accidents and spills along the haul routes (Section 5.2) found that spills would be unlikely and would result in only temporary impacts. Therefore, due to the nature of the hydrocarbons contained in the transported NHIS, which is easily contained in dry areas, and the low probability of spills, spills of NHIS are not reasonably expected to have any substantial effect on biological resources along all of the proposed haul routes.

The remainder of this section presents the onshore biological resources impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.3.6.1 Impacts of Construction

Impact	Impact Description	Residual Impact
BIO.1	Road widening, paving, and placement of road base material within the Guadalupe Field could result in the removal or degradation of vegetation and wildlife habitat and the potential removal of sensitive plant species.	Class II

Impact Discussion

Implementation of the proposed road widening, paving, and placement of road base materials would affect approximately 2.0 acres of backdune habitats, including dune scrub, open sand, and disturbed areas. Road-widening activities would not encroach on dune swale habitats, including the L-11/M-12 wetland site, and would not have any effect on dune swale vegetation or wildlife habitats.

Unocal estimates approximately 8,600 linear feet of road widening could be required, with an estimated ten-foot-wide disturbance corridor (approximately 2.0 acres) (Figure 5.3-1). Removal and/or degradation of backdune vegetation or wildlife habitats may occur in areas where:

- Vegetation is removed, buried (by road base material), or crushed during road widening;
- Invasive exotic species such as iceplant, slender-leafed iceplant, veldtgrass or other species are allowed to establish in areas disturbed by project activities.

Disturbance to open sand areas has the potential to cause destabilization of dunes and accelerate sand movement. Areas of open sand that would potentially be affected by project activities are located along the Main Road. At these sites, sand movement often encroaches on the road itself, and sand is periodically removed from the road to maintain access. With regard to open sand habitats, it is not likely that the road repaving or widening activities in these locations would result in a substantial change to the existing conditions.

Impacts on backdune habitat from proposed project activities are likely to include removal of individuals of sensitive plant species, including two CNPS List 1B species (Blochman's leafy daisy and dune mint) and three CNPS List 4 species (California spineflower, suffrutescent wallflower, and Nuttall's milk-vetch). The prevalence of the non-listed sensitive plant species within the dune scrub habitats is an indication of the condition and biological significance of this habitat type. At a minimum, Blochman's groundsel is a common component of the dune scrub vegetation on the project site and is likely to be present at or near all sites affected by the proposed project activities. Though the other species listed above are not as widespread, there is a high potential for one or more of these species to be affected by project activities. However, it is expected that relatively few individuals of these plant species would be removed or damaged, representing a very small percentage of the population or habitat for these species.

Long-term impacts could occur from destabilization of dune surfaces if road-widening activities encroach into a dune or cause loss or degradation of existing native habitats.

The direct loss of vegetation from road widening could be long term (longer than the duration of the offsite hauling). The roads that are widened may be left in place indefinitely or until the existing roads are removed as part of the Guadalupe Field abandonment and remediation project (it is not known whether roads would be removed or left in place for future management of the Guadalupe Field). The long-term loss of approximately 2 acres of backdune habitat represents less than one percent of this habitat type at the Guadalupe Field. Although this is a small percentage of this habitat type, it would be considered a significant impact because of the long-term nature of the impact to a habitat recognized for its scarcity, uniqueness, the prevalence of sensitive species, and its sensitivity to impact.

The following are measures that would be implemented where applicable to protect biological resources in accordance with the Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval:

- Disturbance to native habitats would be minimized (Condition F68) for all sites where road widening would be conducted:

  – Construction activities and equipment would be restricted to existing roads, pads, or otherwise disturbed areas as much as possible.

  – Limits of the construction zone would be clearly marked and delineated in the field. No unauthorized personnel or equipment would be allowed in native habitats outside the construction limits.

- Biologically sensitive areas would be clearly marked on grading plans and on site and avoided by personnel and equipment.

- Unocal's approved Habitat Revegetation, Restoration, and Monitoring Plan would be implemented for any areas temporarily affected by project activities or that are designated for revegetation once construction is complete (Condition F64).

Mitigation Measures

BIO-1.1 *If road-widening activities are conducted, Unocal shall mitigate loss of backdune habitat and sensitive plant species individuals and habitat and reduce impacts associated with the loss of habitat by implementing the restoration of an equal number of acres of backdune habitat at other currently disturbed or degraded locations within the Guadalupe Field (such as areas degraded by infestations of invasive species). Unocal shall implement the guidelines of the approved Habitat Revegetation, Restoration, and Monitoring Plan (Condition F64) for areas restored as a result of road widening. To minimize temporal losses, the restoration would need to be initiated before or concurrently with the road widening project.*

Residual Impact

The implementation of Mitigation Measure BIO-1.1 and the County Conditions designed to protect biological resources, described above, is expected to reduce impacts to backdune vegetation and wildlife habitats to *less than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
BIO.2	Road-widening activities in the Guadalupe Field could result in disturbance and mortality to wildlife.	Class III

Impact Discussion

Road widening, occurring in the backdune habitat would result in the potential loss of individuals of common wildlife species and species of Federal or State concern. Impacts associated with ground disturbances, vegetation removal, noise, and increased human presence (during road-widening and paving activities) could include mortality to some less-mobile species (reptiles and rodents) inhabiting the zone of disturbance and frightening of wildlife of both common and sensitive species from the area. Most wildlife species do not generally occur close to roads and are already exposed to impacts from traffic on the main roads of the Guadalupe Field. However, several sensitive wildlife species having smaller home ranges are known to occur immediately adjacent to the road ways. Sensitive wildlife species occurring in the backdune habitat close to roads and potentially affected by activities include California horned lizard (CSC) and silvery legless lizard (CSC). Only a small portion of backdune area is expected to be affected by road-widening activities and represents less than one percent of the Guadalupe Field’s total backdune habitat area.

CDP/DP D890558D Condition F64.b.iii requires Unocal to conduct wildlife surveys prior to any activity that would impact wildlife or wildlife habitat. The area of disturbance and surrounding habitat would be searched with appropriate methods (in upland habitat, biologists would visually

search for animals using rakes to expose those animals underground, and a biologist would be present during initial disturbances to capture and remove any wildlife in danger). Captured animals would be relocated to the nearest available habitat away from the disturbance zone. CDP/DP D890558D Condition F68 requires Unocal to adjust or limit the area of disturbance as feasible to avoid impacts to individual or populations of sensitive species.

Mitigation Measures
No additional Mitigation Measures are required.

Residual Impact
Due to the small amount of backdune habitat that would be impacted by the proposed project, the location of the disturbance along existing roadways where wildlife are already exposed to the effects of existing traffic, and the County conditions that require pre-disturbance surveys and wildlife removal (Condition F64.b.iii), residual impacts of road widening to wildlife would be adverse and *less than significant* (Class III). Condition F64 requires Unocal to produce a Habitat Restoration, Revegetation, and Monitoring Plan for all activities resulting in habitat loss, and implementing the guidelines of this agency-approved plan, along with Mitigation Measure BIO-1.1, would ensure no net loss of wildlife habitat.

5.3.6.2 Impacts of Operations and Decommissioning

Operations include loading NHIS onto trucks and hauling it to the Santa Maria Landfill for disposal. Truck traffic has the potential to cause impacts to wildlife as described below.

Impact	Impact Description	Residual Impact
BIO.3	Use of the proposed haul routes in the Guadalupe Field for offsite hauling near existing dune swale wetlands could result in disturbance and mortality to wildlife including the California red-legged frog, federally listed as threatened.	Class II

Impact Discussion
There would be no direct impacts to dune swale wetland habitat resulting from the proposed project. However, numerous wildlife species, including several listed and non-listed sensitive species are attracted to the dune swale wetlands due to the presence of water, cover, nesting, and foraging habitat.

Increased traffic on the haul route would substantially increase the potential for habitat destruction and wildlife injuries and mortalities; would discourage wildlife use; and would reduce the availability of water sources for wildlife species including several sensitive species such as western spadefoot toad, red-sided garter snake, two-striped garter snake, and California red-legged frog (federally listed as threatened). Other wildlife species potentially affected include several avian species such as raptors, owls and yellow warbler (CSC), and other birds that forage and nest in this habitat. These bird species may be frightened from the area, or their breeding might be disturbed.

California red-legged frogs are known or have historically been present along the proposed haul route in both the Entrance Road wetlands and the M12/L11 dune swale wetland complexes. This species has been observed on paved roads throughout the Guadalupe Field during rain events and

during the breeding season on several occasions. California red-legged frogs are known to move between different wetlands on the Guadalupe Field, and large-scale movements most often occur during rainy winter and spring nights. On these occasions, frogs can be expected to appear almost anywhere on the Guadalupe Field. Mortality to individuals of this species resulting from increased traffic near suitable habitat would be significant because of the threatened status of this species and its vulnerability to local extirpation.

La Graciosa thistle, a federally and State-listed threatened plant species, occurs in the dune swale habitats in the vicinity of the haul route. However, the proposed project activities, including road widening and hauling NHIS offsite, would not encroach on and would not have any effect on La Graciosa thistle individuals or habitat.

Unocal has implemented a field-wide speed limit of 25 mph. Speed limits are further reduced in portions of the Guadalupe Field (including the Main Road adjacent to the Entrance Road wetlands) to 15 mph during rain events or when driving occurs after nightfall. In addition, biologists survey all main routes on the Guadalupe Field each morning prior to any activities onsite (which is the primary period when wildlife would be expected to be present on the haul route) and periodically during the day. Wildlife observed on roads is moved to safe habitat. Unocal has also implemented a temporary shutdown of the Main Road during the unusual event that sensitive wildlife species are observed to be present on the Main Road. However, even with these Unocal-implemented precautions, individuals of sensitive as well as common wildlife species inhabiting or migrating to or away from the dune swale wetlands are still killed on the main roads, including the portion of road near the dune swale wetlands. Mortalities would be expected to increase with the substantial increase (proposed to include an increase of up to 300 truck trips each day) in traffic on the Main Road. Impacts to wildlife including species of concern and federally or State-listed species using the dune swale habitats could be significant.

Mitigation Measures

BIO-3.1 *Unocal shall not begin any hauling activities along the Main Road Entrance wetlands or the M12/L11 Valley during the red-legged frog migration period (from November 1 through June 1) until the Sensitive Species Management Plan (SSMP) (described below in BIO-3.2) has been revised to add provisions for the hauling activities to protect California red-legged frogs and other wildlife and the revised SSMP has been approved by the County OEC, CDFG, and the USFWS.*

BIO-3.2 *Unocal shall revise the Sensitive Species Management Plan to include measures that would be implemented to protect California red-legged frogs, and other non-listed sensitive and common wildlife species potentially affected by hauling activities near known or potential habitat. The revised SSMP shall be approved by the USFWS, CDFG, and the County OEC and shall include measures such as the following:*

- *Unocal shall implement a speed limit of 15 mph along the main haul road adjacent to dune swale wetlands in the M12/L11 Valley and the Entrance Road wetlands during the California red-legged frog breeding season when it is raining, the roads are wet, or after daylight. Signs detailing speed limits shall be posted in appropriate locations along the route.*

- *Biologists shall survey the active portions of the haul route within 200 feet of sensitive resources, including the dune swale wetlands, at least four times per day during hauling activities when it is raining or the roads are wet.*
- *If a substantial number of mortalities, as identified in the revised SSMP, continue to occur along the haul route after implementing the above mitigation, Unocal shall halt hauling activities on the roadways adjacent to dune swale wetlands during the California red-legged frog migration period until additional protective measures are determined and approved by the County OEC, USFWS and CDFG or for the duration of the specific migration event (as determined by Unocal and the County OEC) to reduce wildlife mortality.*

Residual Impact

CDP/DP D890558D Conditions of Approval and mitigation measures BIO-3.1 and BIO-3.2 proposed to protect wildlife species potentially affected by hauling activities near dune swale habitat would reduce significant impacts to *less than significant with mitigation* (Class II).

Residual impacts to California red-legged frogs include the unavoidable potential for mortality of individual frogs. This residual impact is not likely to have a substantial effect on the Guadalupe Field-wide population due to the implementation of protection measures BIO-3.1 and BIO-3.2. These measures, which include compliance with the any Federal authorization for take of listed species (i.e., a Biological Opinion, etc.) and a revised Sensitive Species Management Plan with protection measures including speed limits, regular monitoring of areas most likely to support red-legged frogs, and temporarily halting activities on the haul road if necessary, would reduce significant impacts to *less than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
BIO.4	Hauling of NHIS offsite has the potential to adversely affect biological resources outside the Guadalupe Field.	Class III

Impact Discussion

The habitat adjacent to the proposed haul route to the Santa Maria Landfill off of the Guadalupe Field is predominantly agricultural fields and industrial or urban areas. These areas, in general, do not provide suitable habitat for most biological resources. However, portions of the haul route along Betteravia Road (predominantly between Black and Blosser roads) contain vernal pool and open grassland habitats, both of which support numerous plant and wildlife species and potentially support several species with special status (California tiger salamander, FT, and western spadefoot toad, CSC). The traffic impacts discussion (see Section 5.6) describes the current average daily traffic conditions (in a peak month) on this portion of the haul route as exceeding 10,000 truck trips (CalTrans 2003) and, therefore, the proposed increase of 300 round-trip truck trips on these routes are not reasonably expected to increase the potential for impacts to wildlife or plant species along any portions of the haul route. Impacts to all biological resources off of the Guadalupe Field would be *less than significant*.

Mitigation measures and existing CDP /DP D890558D Conditions described in Section 5.6, Transportation/Circulation, would further reduce the potential for impacts to biological resources.

Mitigation Measures
No additional mitigation is proposed.

Residual Impact
Impacts resulting from hauling activities outside of the Guadalupe Field are not likely to have a substantial effect on plant or wildlife species and are considered to be *less than significant* (Class III).

Summary of Impacts at the Santa Maria Landfill
The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. In accordance with CCR Title 27, which contains provisions to use NHIS to construct foundation layers for landfill closure, the RWQCB issued Revised Waste Discharge Requirements (WDR) Order No. 01-041 on May 18, 2001 to the Santa Maria Landfill. WDR 01-041 provides guidelines for the acceptance of NHIS from the restoration and cleanup of oil-producing sites. These plans were addressed in a Joint Technical Document (JTD) prepared by CH_2MHill and evaluated in the CEQA addendum to the 1993 Landfill EIR (SCH 92031045) and in subsequent EIRs (SML February and May, 2004)

According to the JTD and the SEIR, accepting impacted soils is consistent with the Landfill's intent to implement an expedited closure process at the landfill by using the NHIS: (1) to achieve design grades and serve as the foundation layer of the final cover system for the existing active portion of the landfill, and (2) for daily and intermediate cover material in the lined expansion areas of the landfill. The EIR Addendum identified no significant impacts associated with the use of NHIS.

On August 31, 2004, the RWQCB issued a letter to the Santa Maria Landfill that specifically addressed acceptance of NHIS material from the Guadalupe Restoration Project. This letter allows the Landfill to revise the extractable Total Petroleum Hydrocarbon (THP) acceptance standards in order to accept NHIS material from the Guadalupe Field. With the issuance of this letter, the Santa Maria Landfill is allowed to accept material from the Guadalupe Field as part of the Landfill's NHIS Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

The biological impact identified in the Landfill SEIR was related to potential impacts to water resources from a release of NHIS material to the Santa Maria River. This was found to be a significant impact but mitigable with the installation of a bottom liner containment system in all NHIS disposal areas, which would include a leachate collection system. The reader is referred to Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, for more information on the biological impacts at the landfill.

5.3.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.3.7.1 Offsite Trucking to Other Destinations

This alternative involves trucking and disposal of NHIS at other landfills (Buttonwillow, McKittrick, or Kettleman Hills) in lieu of transport and disposal at the Santa Maria Landfill. As mentioned, CDP/DP D890558D Condition F13 requires that all waste materials removed from the Guadalupe Field be disposed of in accordance with applicable laws and regulations. These alternate landfills are permitted facilities designed and operated to prevent offsite migration of contaminants. Impacts on biological resources from reuse/disposal at permitted facilities have already been evaluated, and mitigated as appropriate, through the environmental documentation and permitting process. Therefore, impacts from landfilling of NHIS at these sites are not addressed in this SEIR. Any potential impacts to biological resources that occurred after the NHIS material has been disposed of would be addressed through compliance with the mitigation measures adopted for those sites.

Impacts associated with this alternative would be identical to those identified for the proposed project (BIO.1, BIO.2, BIO.3, and BIO.4). The mitigation measures identified for these impacts (BIO-1.1, BIO-3.1, and BIO-3.2) would apply to this alternative.

5.3.7.2 Treated Material Land Feature (TMLF)

Impacts associated with the TMLF include (1) development and restoration of the feature, (2) use of the haul routes within the Guadalupe Field to haul sump material to an offsite disposal facility, and (3) post-construction monitoring, maintenance, and decommissioning, as described in this section. Impacts BIO.1 and BIO.2 identified for the proposed project would also apply to this alternative. The mitigation measures identified for these impacts would apply to this alternative. Because sump materials would still have to be hauled offsite (although involving smaller quantities and fewer trips than the total amounts hauled in the proposed project), Impacts BIO.3 and BIO.4 identified for the proposed project would also apply to this alternative. The mitigation measures identified for these impacts would apply to this alternative as well.

Additional impacts associated with this alternative are discussed below.

Impact	Impact Description	Residual Impact
BIO.5	Disturbance of the topsoil associated with the TMLF would result in the removal or degradation of vegetation and wildlife habitat and removal of sensitive plant species.	Class II

Impact Discussion

Additional loss of dune scrub would be associated with construction of the TMLF if a treatment method other than bioremediation in an LTU is used. The TMLF would occupy approximately 18.8 acres, of which 13.9 acres are currently disturbed (disturbed during previous cleanup activities including original LTU activities at this site), and 4.9 acres are undisturbed, native dune scrub habitat. The TMLF is designed to be a permanent feature and would be equipped with a clay and/or HDPE liner but would not have a clay cap. The TMLF surface would be covered with two to three feet of clean sand and/or vegetated overburden and would be revegetated with backdune (coastal) scrub habitat. The revegetation phase would not be implemented until the completion of the TMLF, which would occur when all of the future, proposed excavations on the Guadalupe Field have been completed (estimated by Unocal to require between three and five years) and the affected material has been treated. A Site-Specific Restoration Plan (SSRP) would be prepared by Unocal to detail the restoration process of the TMLF so it is consistent with the surrounding dune landscape.

If the TMLF is formed from material treated in an LTU, the TMLF would occupy the area disturbed to build the LTU and no new disturbance would result. Unocal estimates it would take approximately three months to form the dune structure after all Phase 1 excavations have been completed, and then it would be restored. If the TMLF is formed from material treated by another method, then there would be a direct loss of vegetation resulting from the construction of the TMLF representing a long-term impact. The loss of habitat functionality (temporal loss of habitat value) would extend until revegetation and habitat restoration activities have succeeded. If environmental conditions are favorable, a healthy, functioning native shrub cover could be established within three growing seasons after reseeding, with gradual changes thereafter, based on experience on the Field and elsewhere in the region. This would mean a minimum temporal loss of habitat value for up to five years during remediation activities, plus a minimum of three years for restoration of basic habitat function which represents a long-term impact.

Assuming restoration is successful, approximately 18.8 acres of dune scrub habitat would be restored. This would include areas previously disturbed from past oil field operations and construction of the LTU (addressed in the 1998 EIR).

As described for the proposed project, impacts resulting from the construction of the TMLF from non-LTU material would include the removal of individuals of non-federally or State-listed sensitive plant species, including four CNPS List 4 species (Blochman's senecio, California spineflower, suffrutescent wallflower, and Nuttall's milk-vetch). Blochman’s leafy daisy, CNPS List 1B, is also present in the dune scrub habitat in this area, and dune mint, CNPS List 1B, is present in the open sandy habitat in the previously disturbed area. Removal of or damage to individuals of these plant species as part of this project would not be expected to substantially affect the overall local populations of these species Field wide, but would contribute to the significance of the impact of vegetation removal.

There would be no impacts on State- or federally listed threatened or endangered species.

Unocal's approved Habitat Revegetation, Restoration, and Monitoring Plan would be implemented for any areas temporarily affected by project activities and those areas that are designated for revegetation once construction is complete (CDP/DP D890558D Condition F64). For sites where large numbers of individuals of sensitive species (including Blochman's leafy daisy, dune mint, Blochman's senecio, suffrutescent wallflower, California spineflower and/or Nuttall's milk-vetch) occur and impacts to these species are unavoidable, individual plants and/or seed would be salvaged from the site and propagated and incorporated into the onsite restoration after remediation activities are complete (CDP/DP D890558D Condition F64.b.ii).

Incorporation of the TMLF into Unocal's approved Habitat Revegetation, Restoration, and Mitigation Plan (CDP/DP D890558D Condition F64) and implementation of measures to avoid or reduce impacts to biological resources (CDP/DP D890558D Condition F68) is expected to reduce impacts to backdune vegetation and wildlife habitats, but not to less than significant levels.

The long-term loss of 4.9 acres of backdune vegetation represents less than one percent of 2,071 total acres of backdune habitat at the Guadalupe Field. Although this is a small percentage of this habitat type, it would be considered a *significant* impact because of the feasibility of restoration of dune scrub habitat over the treated material, coupled with the prevalence of sensitive species, the recognized scarcity and uniqueness of the habitat, and its sensitivity to impact.

Mitigation Measures

BIO-5.1 *If a TMLF is implemented, Unocal shall mitigate the loss of backdune habitat and sensitive plant species individuals and habitat resulting from implementation of this alternative, and reduce impacts associated with the loss of this habitat by restoration of the completed TMLF to dune scrub habitat. Unocal shall incorporate the restoration site and the TMLF into the approved Habitat Revegetation, Restoration, and Monitoring Plan (CDP/DP D890558D Condition F64) for this restoration.*

To mitigate the temporal loss of dune scrub habitat, Unocal shall restore 4.9 acres of habitat to dune scrub at other currently disturbed or degraded locations within the Guadalupe Field (such as areas degraded by infestations of invasive specie). Unocal shall incorporate the restoration site(s) into the Habitat Revegetation, Restoration, and Monitoring Plans approved by the County, CDFG, and Coastal Commission within 6 months of project approval.

Residual Impacts

Implementation of Measure BIO-5.1, in addition to the CDP/DP D890558D Conditions designed to protect biological resources, described above, is expected to reduce impacts to vegetation and wildlife habitats to *less than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
BIO.6	Disturbance of the topsoil, movement of soil, and presence of heavy machinery associated with the TMLF could result in disturbance and mortality to wildlife.	Class III

Impact Discussion
Development of the TMLF, including mobilization, contouring, and revegetation, would result in impacts to wildlife species inhabiting the affected habitats. Development of the TMLF could result in the potential loss of individuals of common wildlife species and species of Federal or State concern. With the TMLF alternative, impacts related to road widening and paving would be similar to those of the proposed project. Impacts to backdune habitats would be considerably greater than for the proposed action due to development of the TMLF itself. In addition, impacts to offsite biological resources and some of the dune swale wetland resources (i.e., wildlife species mortalities on haul route) would be reduced compared to those of the proposed project because most of the hauling traffic in the Guadalupe Field would not pass by the Entrance Road wetlands, where the greatest potential for traffic related wildlife mortality exists. Impacts resulting from the development of the TMLF are associated with ground disturbances, vegetation removal, noise, and increased human presence (during construction and operations of the site). Sensitive wildlife species occurring in the backdune habitat within the project area that could be affected by TMLF development include the California horned lizard (CSC) and the silvery legless lizard (CSC).

CDP/DP D890558D Conditions of Approval require Unocal to conduct wildlife surveys prior to any activity, to relocate any observed animals (Condition F64.b.iii), and to limit areas of disturbance as feasible (Condition F68). Condition F64 requires Unocal to replace or restore habitat disturbed during any remediation activity.

Impacts on wildlife would be adverse but not significant, given that the area would already be disturbed and with the implementation of the above mentioned species protection and impact minimization measures.

Mitigation Measures
No new mitigation is proposed.

Residual Impact
Residual impacts to wildlife would be adverse and *less than significant (Class III).*

Impact	Impact Description	Residual Impact
BIO.7	Post-construction monitoring, maintenance, and decommissioning associated with the TMLF could result in the removal or degradation of vegetation and wildlife habitat (including restored habitat) and removal of sensitive plant species.	Class III

Impact Discussion
After development and restoration of the TMLF has been completed, the TMLF would be monitored and maintained until the RWQCB confirms that the TMLF no longer needs active maintenance, at which time the site would be decommissioned. Monitoring and maintenance would include operating and maintaining erosion control measures and existing LTU systems, and ground water and vadose zone monitoring. Disturbance to biological resources would result from periodic access by personnel and vehicles similar to that associated with currently ongoing ground water monitoring activities in the Guadalupe Field. It is expected that personnel and

vehicle access would use ORV trails that would be established within and around the TMLF for that purpose.

Once monitoring and maintenance is no longer required, decommissioning activities would include abandonment of the systems used for operation and allowing natural processes to resume. This may include restoring percolation by drilling holes through the silt/clay-amended layer and/or in the liner of the basin of the TB9 water-handling system. Piping and other structures would be removed or capped and abandoned in place (similar to other pipeline removal activities at the Guadalupe Field).

All personnel and vehicle access on the Guadalupe Field is restricted per the CDP/DP D890558D Condition F68. All access corridors must first be surveyed by a qualified biologist in cooperation with the Onsite Environmental Coordinator (OEC). ORV trails are periodically monitored (at least once every 3 years) to ensure that there are no problems associated with erosion or spreading of invasive plant species. Incorporating the long-term monitoring and maintenance of the TMLF site into the ongoing monitoring and maintenance activities at the Guadalupe Field would ensure impacts to biological resources would be less than significant.

Decommissioning of the TMLF, as described above, would result in minor and temporary impacts to vegetation within the areas previously disturbed and revegetated. Areas temporarily disturbed by these decommissioning activities would be restored per the guidelines in the approved Habitat Revegetation, Restoration, and Monitoring Plan (CDP/DP D890558D Condition F64).

Mitigation Measures
No new mitigation is proposed.

Residual Impact
Residual impacts to vegetation and wildlife habitat would be adverse and *less than significant* (Class III).

5.3.7.3 Engineered Containment Unit

The Engineered Containment Unit (ECU) alternative would be essentially the same as the TMLF alternative, except that the affected material would not be treated first, would be placed directly into the containment area, and would be capped. Also, the offsite hauling of sump material would not be required because all affected material would be placed in the ECU. The ECU would be located at the same site and would result in a similar project footprint as the TMLF. Additional loss of scrub would be associated with construction of the ECU, which would occupy approximately 14.9 acres, of which 9.9 acres were previously disturbed (disturbed during previous cleanup activities including original LTU activities at this site), and 5.0 acres are undisturbed, native dune scrub habitat.

Impacts BIO.1 and BIO.2 identified for the proposed project would also apply to this alternative. The mitigation measures identified for these impacts would not apply to this alternative. Impacts BIO.3 and BIO.4 identified for the proposed project would apply to this alternative, since the NHIS would not be hauled offsite. Silt/clay material would still have to be hauled to the site for

the construction of the ECU, so BIO.3 would apply for these hauling activities. The applicable portions of mitigation measures identified for BIO.3 would apply to this alternative.

In addition, Impacts BIO.5, BIO.6, and BIO.7 identified for the TMLF alternative would also apply to the ECU alternative. The mitigation measures identified for these impacts would apply to this alternative, including mitigation measure BIO-5.1 described above under the TMLF discussion. For mitigation measure BIO-5.1 the amount of native dune scrub habitat that would need to be restored would be 5.0 acres. There would be no other impacts associated with this alternative. Because the ECU may require a silt/clay cap over the deposited NHIS, revegetation of the ECU may be more difficult than for the TMLF, and the presence of the clay layer under the clean overburden would need to be addressed in the SSRP for the ECU.

5.3.7.4 Slurry Injection

Slurry injection would involve the injection of affected materials mixed with water into the subsurface via wells. The installation and operation of injection piping, mixing vessels and tanks, and injection pumps would be part of this alternative.

The site that would be used for the slurry injection is already disturbed and, therefore, there would be no biological resource impacts associated with the construction of the slurry injection equipment. Impacts BIO.1 and BIO.2 identified for the proposed project would also apply to this alternative. The mitigation measures identified for these impacts would apply to this alternative. There would be no other impacts associated with this alternative.

5.3.8 Cumulative Impacts

The impacts of the proposed project activities would contribute to the cumulative impacts on the Guadalupe Field associated with the ongoing remediation and abandonment activities. Several mitigation measures were identified in the 1998 EIR and subsequent addendums for the remediation and abandonment activities, and these were developed to minimize and compensate for onsite impacts to biological resources.

Onsite cumulative impacts are impacts that result from the cumulative past, ongoing, and future actions related to (1) assessing, verifying, and monitoring the nature and extent of the contamination, (2) conducting pilot studies to test various remediation methods, (3) surveying and monitoring, and (4) implementing a variety of ongoing remediation technologies and activities. In addition to these past and ongoing onsite activities, there are likely to be future remediation activities dealing with additional contamination sources, such as sumps and plumes.

Cumulative onsite activities would result in repeated disturbances to native vegetation and wildlife habitat throughout the Guadalupe Field, impairing ecosystem functions and values and interrupting the natural process of ecosystem recovery after disturbance. Because these ongoing activities are dispersed throughout the Guadalupe Field, resulting impacts are widespread. The duration of the ongoing activities contributes to impact significance by making it possible for long-term, possibly irreversible ecosystem changes to occur. However, assuming the implementation of Mitigation Measures BIO-1.1, BIO 3.1, BIO-3.2, and BIO-5.1 described for the proposed project and the continued implementation of the CDP/DP D890558D Conditions of Approval designed to protect biological resources, including listed and non-listed sensitive

species, as described above, and Condition F62, Unocal's approved Comprehensive Management and Coordination Plan are expected to adequately reduce onsite cumulative impacts to biological resources to *less than significant*.

5.3.9 Mitigation Monitoring Plan

Mitigation Measure	Action Required by Applicant and Action Timing	Party Responsible for Verification	Method of Verification	Verification Timing
BIO-1.1	Unocal shall incorporate the restoration site into the approved Habitat Revegetation, Restoration, and Monitoring Plan (CDP County Condition F64). Prior to road-widening activities.	Planning and Building and/or Coastal Commission	Site inspection	Before, during, and after (2–3 years) road-widening activities
BIO-3.1	Unocal shall receive a signed Biological Opinion (BO) from the USFWS prior to any hauling activities during the red-legged frog migration period (from November 1 through June 1) in proximity to the Main Road Entrance Ponds or the M12/L11 Valley.	Planning and Building and/or Coastal Commission	OEC and site inspection.	Before (for BO) and during project activities
BIO-3.2	Unocal shall prepare a Sensitive Species Management Plan to protect California red-legged frogs, and other non-listed sensitive and common wildlife species in proximity to hauling activities.	USFWS, Planning and Building and/or Coastal Commission	OEC and site inspection	Before (for plan) and during project activities

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5.4 Visual Resources

The visual resources section addresses the potential for the project to cause significant impacts on the visual resources in the project vicinity and its regional context. The assessment was conducted in conformance with the California Environmental Quality Act (CEQA) documentation requirements. Appendix G of the CEQA Guidelines defines a project as having a significant visual effect on the environment if it:

- Has a substantial adverse effect on a scenic vista,
- Damages scenic resources,
- Degrades the visual character or quality of an area, or
- Creates a substantial source of light or glare.

To assess the intensity and magnitude of the potential impacts, the analyses includes: (1) an estimate of the public sensitivity to adverse changes in the aesthetic quality of potentially affected views, (2) a description of the existing character of the views potentially affected, (3) an estimate of the intensity of possible adverse visual impacts, (4) an evaluation of the significance of the possible impacts, and (5) a consideration of possible mitigation measures that could lessen the impacts to negligible levels of intensity.

This approach follows the same methodology used in the 1998 EIR (updated where appropriate).

5.4.1 Environmental Setting

5.4.1.1 Introduction

Overview

The visual resources of an area comprise the features of its land forms, vegetation, water surfaces, and cultural modifications (physical changes caused by human activities) that give the landscape its visually aesthetic qualities. Landscape features, natural appearing or otherwise, form the overall impression of an area. This impression is referred to as “visual character.” Visual character is studied as a point of reference to assess whether a given project would appear compatible with the established features of the setting or would contrast noticeably and unfavorably with them. Existing land forms, water surfaces, vegetation, and cultural modifications are treated as an established part of the setting if they reflect how the landscape was formed (i.e., ecological processes versus human activities), how it functions (i.e., as part of an urban versus agricultural context), and how it is structured (“patterns” of development, such as irrigated croplands versus natural mosaic of grasslands and woodlands).

Visual resources have a social setting which includes public values, goals, awareness, and concerns regarding visual quality. This social setting is addressed as “visual sensitivity,” the relative degree of public interest in visual resources and concern over adverse changes in the quality of that resource (U.S. Department of Interior, Bureau of Land Management [BLM] 1986; U.S. Department of Agriculture, Forest Service [U.S. Forest Service] 1977). As applied to visual

impact analyses, sensitivity refers to public attitudes about specific views, or interrelated views, and is key in assessing how important a visual impact may be and whether or not it represents a significant impact.

Visual Sensitivity

The assessment of visual sensitivity establishes the most important viewing positions early in the analytical process. The other attribute, visual character, is assessed only in relation to the important, potentially affected views. Visual impacts subsequently are evaluated in the context of the character of these views.

To assess visual sensitivity, indicators of public concern have been identified for this project and sensitivity rated accordingly. The indicators are listed in Table 5.4.1 and reflect the concepts and methods of several federal agencies, which treat sensitivity as a function of viewer activity, awareness, values, and goals (U.S. Forest Service 1977; U.S. Department of Agriculture Soil Conservation Service [SCS] 1978; BLM 1986; U.S. Department of Transportation, Federal Highway Administration [FHWA] 1980). Certain activities tend to heighten viewer awareness of scenic resources, while others tend to be distracting. People who are camping, picnicking, or driving for pleasure are more apt to notice the surrounding scenery than those commuting in heavy traffic or working at a construction site. Viewer awareness may also be heightened where areas are formally classified or otherwise designated as being of special interest, such as national historic monuments, national and state parks and forests, scenic routes and overlooks, visitor information centers, and wildlife refuges.

High visual sensitivity is assumed to exist where landscapes, particular views, or the visual characteristics of certain features are protected through policies, goals, objectives, and design controls in public planning documents. Visual significance is not always a function of aesthetic appeal. The public may confer visual significance on landscape components and areas that would otherwise appear unexceptional (FHWA 1980). For example, unexceptional landscapes along tertiary roads may be particularly important to local residents as undesignated open spaces (Kaplan 1979). Other areas may have regional or national cultural significance, but not be especially scenic. Nonetheless, their visual character may be considered important to their cultural value (FHWA 1980).

Three levels of visual sensitivity are defined below.

***High Sensitivity*.** High sensitivity suggests that at least some part of the public is likely to react strongly to a threat to visual quality. Concern is expected to be great because the affected views are rare, unique, or in other ways are special to the region or locale. A highly concerned public is assumed to be more aware of any given level of adverse change and less tolerant than a public that has little concern. A small modification of the existing landscape may be visually distracting to a highly sensitive public and represent a substantial reduction in visual quality.

***Moderate Sensitivity*.** Moderate sensitivity suggests that the public would probably voice some concern over substantial visual impacts. Often the affected views are secondary in importance or are similar to others commonly available to the public. Noticeably adverse changes would probably be tolerated if the essential character of the views remains dominant.

Table 5.4.1 Indicators of Visual Sensitivity

HIGH SENSITIVITY
• Views of and from areas the aesthetic values of which are protected in laws, public regulations and policies, and public planning documents. • Views of and from designated areas of aesthetic, recreational, cultural, or scientific interest, including national, state, county, and community parks, reserves, memorials, scenic roads, trails, interpretive sites of scientific value, scenic overlooks, recreation areas, and historic structures, sites, and districts. • Views of and from areas or sites of cultural/religious importance to Native Americans. • Views from national- or state-designated scenic highways or roads, or designated scenic highways or roads of regional importance. • Views from resort areas. • Views from urban residential subdivisions • Views from segments of travel routes, such as roads, rail lines, pedestrian and equestrian trails, and bicycle paths near designated areas of aesthetic, recreational, cultural, or scientific interest leading directly to them. Views seen while approaching an area of interest may be closely related to the appreciation of the aesthetic, cultural, scientific, or recreational significance of that destination.
MODERATE SENSITIVITY
• Views from segments of travel routes near highly sensitive use areas of interest, serving as a secondary access route to those areas. • Views from rural residential areas and segments of roads near them which serve as their primary access route. • Views of and from undesignated but protected or popularly used or appreciated areas of aesthetic, recreational, cultural, or scientific significance at the local, county, or state level. • Views from highways or roads locally designated as scenic routes and of importance only to the local population, or informally designated as such in literature, road maps, and road atlases. • Views from travel routes, such as roads, trails, bicycle paths, and equestrian trails leading directly to protected or popularly used undesignated areas important for their aesthetic, recreational, cultural, or scientific interest. • Views of and from religious facilities and cemeteries.
LOW SENSITIVITY
• Views from travel routes serving as secondary access to moderately sensitive areas. • Views from farmsteads, or groupings of fewer than four residences. • Views from industrial research/development, commercial, and agricultural use areas.

***Low Sensitivity*.** Low sensitivity is considered to prevail where the public is expected to have little or no concern about changes in the landscape. This may be because the affected views are not "public" (not accessible to the public) or because there are no indications that the affected views are valued by the public. For instance, little public concern for aesthetics is assumed to pertain to views from industrial, commercial, and purely agricultural areas. There are exceptions: some agricultural areas are prized for their open space value, and views of such are highly sensitive. Visual sensitivity is low for views from all sites, areas, travel routes, and sections of travel routes not identified as moderate or high in sensitivity.

Visual Character

The visual character of the affected landscape typically is described in terms of its land forms, vegetation, water features, and the "built" features of the environment. There are three objectives in assessing visual character. One is to identify the types of features considered to be inherent to the area. Such features are expressive of the prevailing land uses, for instance, in an urban or rural area; or they would express the ecological processes in a natural appearing landscape. The more defined the landscape is (e.g., totally natural appearing, purely residential, consistently rural), the more opportunity there is for introduced features not part of the prevailing character to noticeably contrast with those defining the landscape.

The second objective in assessing visual character is to identify patterns or distribution of features that are characteristic of the affected setting. For instance, ecotones might define the distribution of vegetation in a natural setting. Architectural styles or density of housing might be defining attributes of a residential area.

The third objective is to describe the existing quality of the visual resources, which varies inversely with how noticeable incongruous features may be within public views. The current visual quality of the physical environment is described as its existing visual condition, which is defined in terms of four Visual Modification Classes (VMC) noted in Table 5.4.2, below.

5.4.1.2 Regional Overview

Visual Sensitivity

The study site is located within the 12,000-acre Guadalupe-Nipomo Dunes Complex (Dunes Complex), which reaches from Pismo Beach in southern San Luis Obispo County to Mussel Rock in northern Santa Barbara County. By the criteria in Table 5.4.1, views of the Dunes Complex and views from the dunes are defined as highly sensitive. The Dunes Complex is within the Coastal Zone, where scenic resources are protected in laws, regulations, and policies, as noted in Section 5.4.2. Also, the dunes represent a resource of national, regional and local significance. In designating the Dunes Complex as a National Landmark, the Secretary of the Interior stated that " ... The area ... [is] one of the most scenically attractive areas in southern California" (ADL 1998).

Table 5.4.2 Visual Modification Class (VMC) Definitions

VMC	Definition
1	**Not noticeable** Changes in the landscape are within the field of view but generally would be overlooked by all but the most concerned and interested viewers; they generally would not be noticed unless pointed out (inconspicuous because of such factors as distance, screening, low contrast with context, or other features in view, including the adverse impacts of past activities).
2	**Noticeable, visually subordinate** Changes in the landscape would not be overlooked (noticeable to most without being pointed out); they may attract some attention but do not compete for it with other features in the field of view, including the adverse impacts of past activities. Such changes often are perceived as being in the background.
3	**Distracting, visually co-dominant** Changes in the landscape compete for attention with other features in view, including the adverse impacts of past activities (attention is drawn to the change about as frequently as to other features in the landscape).
4	**Visually dominant, demands attention** Changes in the landscape are the focus of attention and tend to become the subject of the view; such changes often cause a lasting impression of the affected landscape.

The Dunes Discovery Center increases the capacity and convenience for visitation and heightens visitor awareness of the Dunes Complex and expectations for a natural appearing area. Sensitivity to adverse changes in the dune landscape would be correspondingly heightened.

That a substantial part of the Dunes Complex is a regional tourist attraction also indicates high visual sensitivity. At the northern end of the dunes, there are two contiguous state parks, Oceano Dunes State Vehicular Recreation Area (SVRA) and Pismo State Beach, totaling 3,000 acres of beaches, wetlands, and sand dunes. Combined, the two parks receive over one million visitors per year.

There are two entrances to the SVRA and Pismo State Beach. One is at the west end of Grand Avenue, in Grover Beach, from which the public can drive, horseback ride, or hike the beach in either direction. The other is from Pier Avenue, in Oceano, where the public can also drive, hike, or horseback ride along the beach strand to the SVRA. Activities within the SVRA include camping, in addition to off-highway vehicle use.

To the south of the SVRA there are two other points of public coastal access to the Dunes Complex. One is at the Oso Flaco Lake Natural Area, which is off State Highway 1, at the west end of Oso Flaco Lake Road. The dunes and beach in this location are accessed by hiking along a trail and boardwalk. Hiking is limited to the path and boardwalk until one is on the beach, and no vehicles are permitted. The second point of public access is 2.85 miles west of State Highway 1 and the town of Guadalupe at the end of West Main Street where there is an entrance station. The road continues on for approximately two miles to the parking lot in Rancho Guadalupe County Park (County Park). No vehicles are allowed off the road or parking lot. The public may hike along the beach north or south of there.

Surveys indicate that the public visits primarily for sightseeing. An onsite visitor survey conducted in January and February of 1995 by TNC (Christiano 1995) indicates that, for the entire Dunes Complex, sightseeing was the activity most often cited of a list of nine “Kinds of

Activities Done During This Visit" (76% of respondents), and nature study was the third most often cited activity (17%). Among respondents entering via the West Main Street entrance station, the priority of sightseeing and nature study was the same, but the percentages were 36% and 17%, respectively.

The area to the north of the Guadalupe Dunes is designated a Wildlife Refuge by the USFWS. A USFWS document completed in 2000 (USFWS 2000) indicated that the Unocal property would qualify as being a candidate for inclusion in the wildlife refuge in the future.

Given the indications that the public is highly interested in the scenic qualities of the dunes, views from segments of travel routes near the dunes that serve as primary access to them are also to be accorded high sensitivity. Such travel routes would include the stretch of State Highway 1 east of the dunes from Guadalupe to Oceano; West Main Street from Guadalupe to the Rancho Guadalupe County Park entrance station; Oso Flaco Lake Road, from Highway 1 west to the Oso Flaco Lake Natural Area entrance station; Grand Avenue, in Grover Beach; and Pier Avenue, in Oceano.

Views from urban and rural residential areas are highly and moderately sensitive, respectively. A limited portion of the dunes is visible from some residential areas in Guadalupe and from residences along the southern bluffs of the Nipomo Mesa.

Landscape Character

To the east of the dunes are the agricultural lands of the Santa Maria Valley and a mix of rural residences and agricultural lands on the Nipomo Mesa. Bordering the north end of the dunes is a cluster of cities within the Cienega and Arroyo Grande Valleys (Pismo Beach, Grover City, Oceano, and Arroyo Grande). A second major population center is in Santa Maria, approximately eight miles east of the southern part of the dunes. A smaller area of residential development occurs in Guadalupe, the west side of which is approximately 0.75 mile from the nearest dunes.

Views from points within the Santa Maria Valley and west of Santa Maria are panoramic across the river plain, enclosed to the north by the Nipomo Mesa and the Coastal Range, to the southwest by the Casmalia Hills, and to the west by the Dunes Complex. The topography in this basin is relatively flat. Relief generally varies by not more than 500 ft. Within the dunes, crests primarily are less than 160 ft above sea level, and the Nipomo Mesa rises only 200 to 400 ft above shallow flood plains of the Cienega, Arroyo Grande, and Santa Maria Valleys. The dunes are minimally visible from the east, given their subtle topography and the low angle of view. The dunes are inconspicuous even from elevated viewing positions along Nipomo Mesa. The Casmalia Hills are the dominant land form in views to the west from points between Santa Maria and Guadalupe, their broad ridges reaching over 1,600 ft in elevation. Hill and mountain slopes are characteristically rounded, defining a smoothly undulating skyline, and vegetation on the hills is sparse and low growing.

Apart from the Dunes Complex, the scenic qualities of the region are defined most by features associated with agriculture. The rectilinear pattern of irrigated croplands contrasts with rolling hills that are gray-brown throughout most of the year. Farm houses, appurtenant structures, and equipment offer points of focal interest. The visual quality of the regional landscape is affected by features associated with petroleum processing, such as the Santa Maria refinery located on

State Highway 1 and pumps and storage tanks seen across irrigated croplands from West Main Street. In an agricultural-rural residential landscape, such industrial features are incongruous and, in some places, dominate views.

5.4.1.3 Study Area

The study area includes all points from which the effects of the project could be visible to the public. Also included are sequences of views that form the context for those that may be affected, such as those from travel routes leading to the affected views or alternative destinations within the same visual character type. So defined, the study area extends approximately 7.5 miles from Oso Flaco Lake Natural Area at the northern end, to Mussel Rock to the south. To the east, the study area includes the City of Guadalupe and State Highway 1 from approximately two miles south of town to the Santa Maria refinery east of the Oso Flaco Lake Natural Area. Within the part of the dunes included in the study area, there is a continuity of visual experience. All the dune system that is accessible to the public is relatively undisturbed, natural appearing, and broadly similar.

Visual Sensitivity Within the Study Area

All views of and from the Dunes Complex are considered highly sensitive. The segments of the main travel routes included in the study area — State Highway 1, Oso Flaco Lake Road, and West Main Street — serve as primary public access to the dunes. Views from these roads, as well as those from points within the dunes and on the beach, are considered highly sensitive. Particularly, views at a scenic vista turnout along the entrance road and the vicinity of an interpretive facility will be especially important and highly sensitive.

Views from the City of Guadalupe area and its vicinity are generally highly sensitive. However, from LeRoy County Park in Guadalupe, views into the project area are blocked by the backdunes less than one mile away and limited by trees and other park landscaping and structures in the foreground. Views into the project site from the proposed bicycle path and recreational vehicle camping facility will be similarly blocked. Groves of willows and dune topography can be expected to limit views to the foreground. However, a limited vista of Tank Battery 9 (TB9) is possible from the Point Sal Dunes Subdivision, 2.2 miles southeast of the tanks. Also, views of the Tank Battery 8 (TB8) tanks are possible from the County Park.

Views from offshore recreational boating are considered only moderately sensitive, given that there is no specific provision for access to the dunes (docks, harbor) by boaters. That is, boaters follow no direct route to the dunes.

Visual Character of the Study Area

Except for a limited and distant view of the TB9 area from the City of Guadalupe, the potentially affected views are from points within the Dunes Complex and the beach west of the project site, as well as the locations immediately south of the Santa Maria River and the County Park. TB8 tanks and the current stockpile at TB8 can be viewed from the beach areas and County Park. Screening by vegetation and dunes blocks all other views of all proposed project activities.

5.4.2 Regulatory Setting

The proposed project would occur within the County of San Luis Obispo and the California Coastal Zone. Section 30251 of the Coastal Act states, in part:

> *"Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas and, where feasible to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting."*

The County of San Luis Obispo Local Coastal Program Policy Document is a portion of the Land Use Element of the San Luis Obispo County General Plan and was certified by the California Coastal Commission in 1988. Of the eight policies in the document, the following are pertinent to the visual resources:

- ***Policy 1: Protection of Visual and Scenic Resources.*** Unique and attractive features of the landscape, including but not limited to unusual land forms, scenic vistas, and sensitive habitats are to be preserved, protected, and in, visually degraded areas, restored where feasible.
- ***Policy 2: Site Selection for New Development.*** Permitted development shall be sited so as to protect views to and along the ocean and scenic coastal areas. Wherever possible, site selection for new development is to emphasize locations not visible from major public view corridors. In particular, new development should utilize slope created "pockets" to shield development and minimize visual intrusion.
- ***Policy 5: Landform Alterations.*** Grading, earthmoving, major vegetation removal, and other land form alterations within public view corridors are to be minimized. Where feasible, contours of the finished surface are to blend with adjacent natural terrain to achieve a consistent grade and natural appearance.
- ***Policy 7: Preservation of Trees and Native Vegetation.*** The location and design of new development shall minimize the need for tree removal. When trees must be removed to accommodate new development, the site is to be replanted with similar species or other species which are reflective of the community character.
- ***Policy 10: Development on Beaches and Sand Dunes.*** Prohibits new development on open sandy beaches, except facilities required for public health and safety (e.g., beach erosion control structures). Requires permitted development to minimize visibility and alterations to the natural land form and minimize removal of dune stabilizing vegetation.

Although the Visual Resources Study Area extends into Santa Barbara County south to Mussel Rock, no project activities will occur within Santa Barbara County; therefore, Santa Barbara County will have no jurisdictional authority over project activities.

5.4.3 Significance Criteria

An adverse visual impact occurs when within public view: (1) an action perceptibly changes features of the physical environment so that they no longer appear to be characteristic of those inherent to the region and/or locale; (2) an action introduces features to the physical environment that are perceptibly uncharacteristic of the region and/or locale; or (3) aesthetic features of the landscape become less visible (e.g., partially or totally blocked from view) or are removed.

The significance of a visual impact is partly a function of the impact's intensity and duration, as well as the sensitivity of the public views affected. The intensity of the visual impact depends upon how noticeable the adverse change may be, which is a function of project features and their context and viewing conditions (e.g., angle of view, distance, primary viewing directions, etc.). Four levels of visual impact intensity may occur. These are termed "Visual Modification Classes" (VM Classes) and are defined in Table 5.4.2. The relationship of visual impact intensity and viewer sensitivity to the perception of lowered visual quality is summarized in Table 5.4.3.

Table 5.4.3 Relationship of Impact Intensity (VM Class) and Visual Sensitivity to a Perceptible Reduction of Visual Quality

Intensity of Impact [a]	Sensitivity [b]		
	High	Moderate	Low
VM Class 4	P	P	N
VM Class 3	P	P	N
VM Class 2	P	N	N
VM Class 1	N	N	N

P = Perceptible Reduction in Visual Quality

N = No Perceptible Reduction in Visual Quality

Visual Modification Classes [a]: VM Class 4 Visually dominant, demands attention; VM Class 3 Distracting, competes for attention; VM Class 2 Noticeable, visually subordinate; VM Class 1 Not Noticeable. See Table 5.4.2 for complete definition of Visual Modification Classes.

Sensitivity [b]:

High Sensitivity (H). Great public concern over adverse change in scenic/visual quality; reactive, vocal. Affected views are rare, unique, or in other ways are special and highly valued in the region or locale.

Moderate Sensitivity (M). Some public concern and controversy over such change. Affected views are secondary in importance or similar to views commonly found in the region or locale.

Low Sensitivity (L). No evidence of public concern over, or interest in, scenic/visual resource impacts on the affected area.

Visual impacts are further defined as follows:

Significant Visual Impacts	Occur for more than one year and result in: 1) an inconsistency with public policies, goals, plans, laws, regulations, or other directives concerning visual resources; or 2) a perceptible reduction of visual quality occurring within moderately to highly sensitive public views. Visual quality is perceptibly reduced when, within a highly sensitive view, visual conditions are affected adversely by one or more class ratings to Visual Modification Class 2, 3, or 4; and within a moderately sensitive view the impact reduces quality one or more class ratings to Visual Modification Class 3 or 4 (see Table 5.4.3).
Temporary Impacts	Lasting for one year or less.

Short-Term Impacts	Lasting for more than one year but fewer than five years.
Long-Term Impacts	Lasting for five years or more.

5.4.4 Impact Assessment Methodology

The visual resources assessment has focused on identifying potentially significant impacts, with the analyses being directed toward views representing the more critical ones (those important public views in which the project would be most visible). The approach is described in more detail below.

Identifying the Critical Viewing Positions
Critical views are partly defined as those that are moderately to highly sensitive. The public is considered to have a substantial concern over adverse changes in the quality of such views. Critical views also are defined as being those public views that would be most affected by the subject action (e.g., the greatest intensity of impact due to viewer proximity to the project and project visibility, duration of the affected view, etc.).

Critical views that were identified in the 1998 EIR (ADL 1998) were again addressed to determine which views might be affected by the proposed project and alternatives.

Assessing the Magnitude and Significance of Impacts on the Most Critical Views
Information concerning the design of facilities, limits of construction and other features associated with the proposed project, and alternatives has been derived from Sections 2.0 and 3.0, respectively. Views used in the 1998 EIR were utilized to estimate the impacts of similar type projects, particularly those along the beach area, County Park, and the “B” Road area.

5.4.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that would be incorporated into the proposed project or alternatives as part of the existing permit conditions.

The following measure would be implemented to protect visual resources in accordance with the CDP/DP D890558D Coastal Development Permit (CDP) County Conditions of Approval:

F82. Unocal shall, to the maximum extent feasible, schedule excavations that are located within the viewshed of Rancho Guadalupe County Park during periods of lowest visitation (December – March) to Rancho Guadalupe County Park.

This measure has been included as part of the proposed project, since it is a condition that would apply to the proposed activities.

5.4.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

A portion of the area of the proposed project and the alternatives is within highly sensitive public views. These views are primarily from the entrance road serving the County Park and the beach areas from the park north. No project sites are visible from populated areas to the east. Views toward the interior of the project site from the beach and points south of the river are variably blocked by the narrow band of foredunes that rises 30 to 50 ft above mean sea level (msl) and the much higher interior dunes, the crests of which are approximately 0.6 mile inland from the shoreline.

Concerning screening by foredunes, north of the 7X Site (a past excavation site), no aspect of the proposed project east of the foredunes would be visible from the beach. Here, the foredunes are consistently formed, with no flat areas of wind-scour, and their crests exceed 55 ft above msl. South of the 7X Site, the foredunes are less well formed and lower due to the repeated migration of the Santa Maria River north to the 7X Site. For instance, at the 7X Site, there is an area of wind-scour where the foredunes are low enough to permit a view of the structures at TB8. Moreover, TB8 is intermittently in view as one walks along the beach south to where the foredunes end at the estuary.

In particular, the current stockpiles at TB8 are visible both from the beach area and from the parking lot at the Dunes Park. Views towards TB8 from these areas are shown in Figure 5.4-1. Figure 5.4-1 includes simulations of construction equipment, including loaders and trucks. This equipment would be visible from the beach areas, although construction equipment would appear small compared to the existing site features. The stockpiles, considered part of the baseline, are short-term in nature and will be removed or modified as part of the project.

The backdunes serve to screen views of the interior of the lease area. However, TB9 can be seen from residences 2.27 miles away in the Point Sal Dunes Subdivision along the west side of the City of Guadalupe.

Impacts associated with previously approved, anticipated excavation work have been evaluated under the original EIR (ADL 1998) and are not considered part of this project.

The remainder of this section presents the visual impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

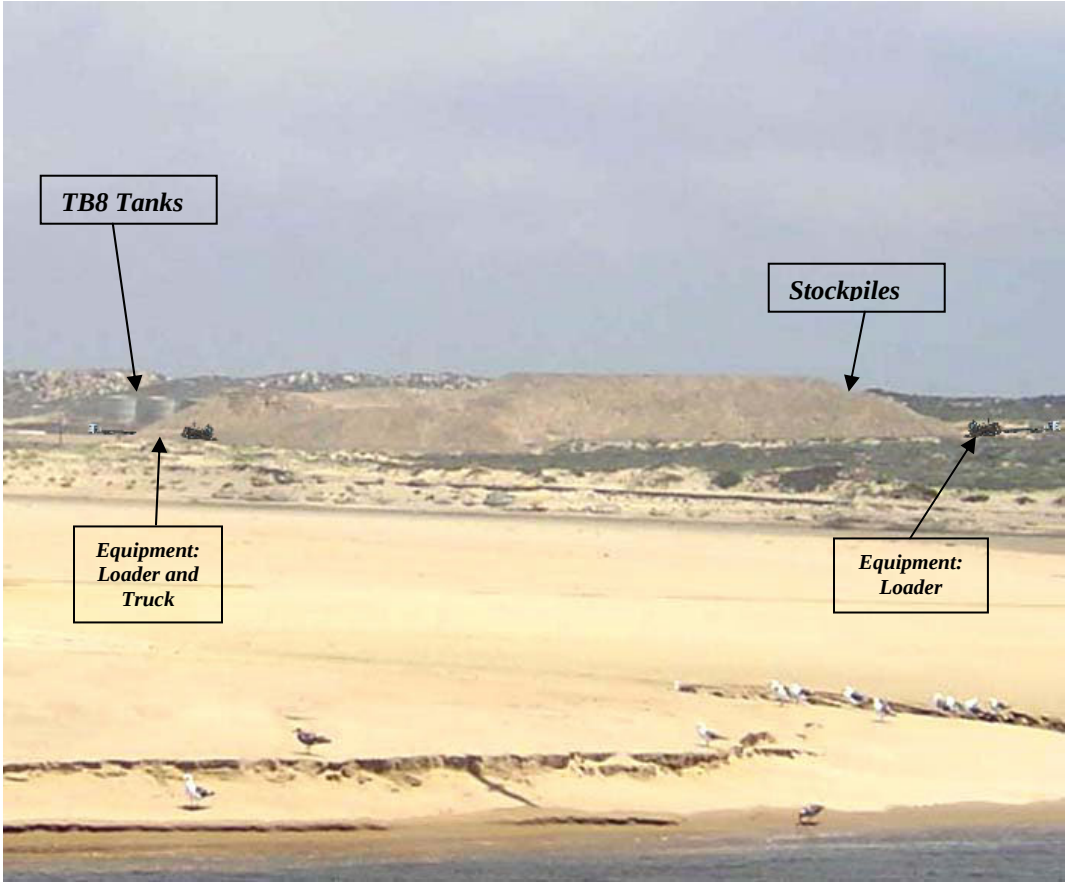
Impact	Impact Description	Residual Impact
VR.1	Temporary and short-term, adverse visual impacts would result from the presence and operation of construction equipment for loading and transport of NHIS from TB8.	Class III

Impact Discussion

Activities for the proposed project would be concentrated at the TB8 and the stockpiles located there and TB9. The critical view of TB8 is from the beach areas and the County Park. Figure 5.4-2 shows a viewshed analysis depicting the areas that can be seen from West Main Street and the

County Park. Note that TB8 can be seen from the County Park (see Figure 5.4-1, with simulated construction equipment), which is close to a mile from TB8. Views from points along West Main Street are generally limited to the dunes along the Santa Maria River because they are higher than areas inland. Figure 5.4-2 also shows shaded relief of the Dunes Complex dunes, based on surveys of the Guadalupe Field taken for the 1998 EIR.

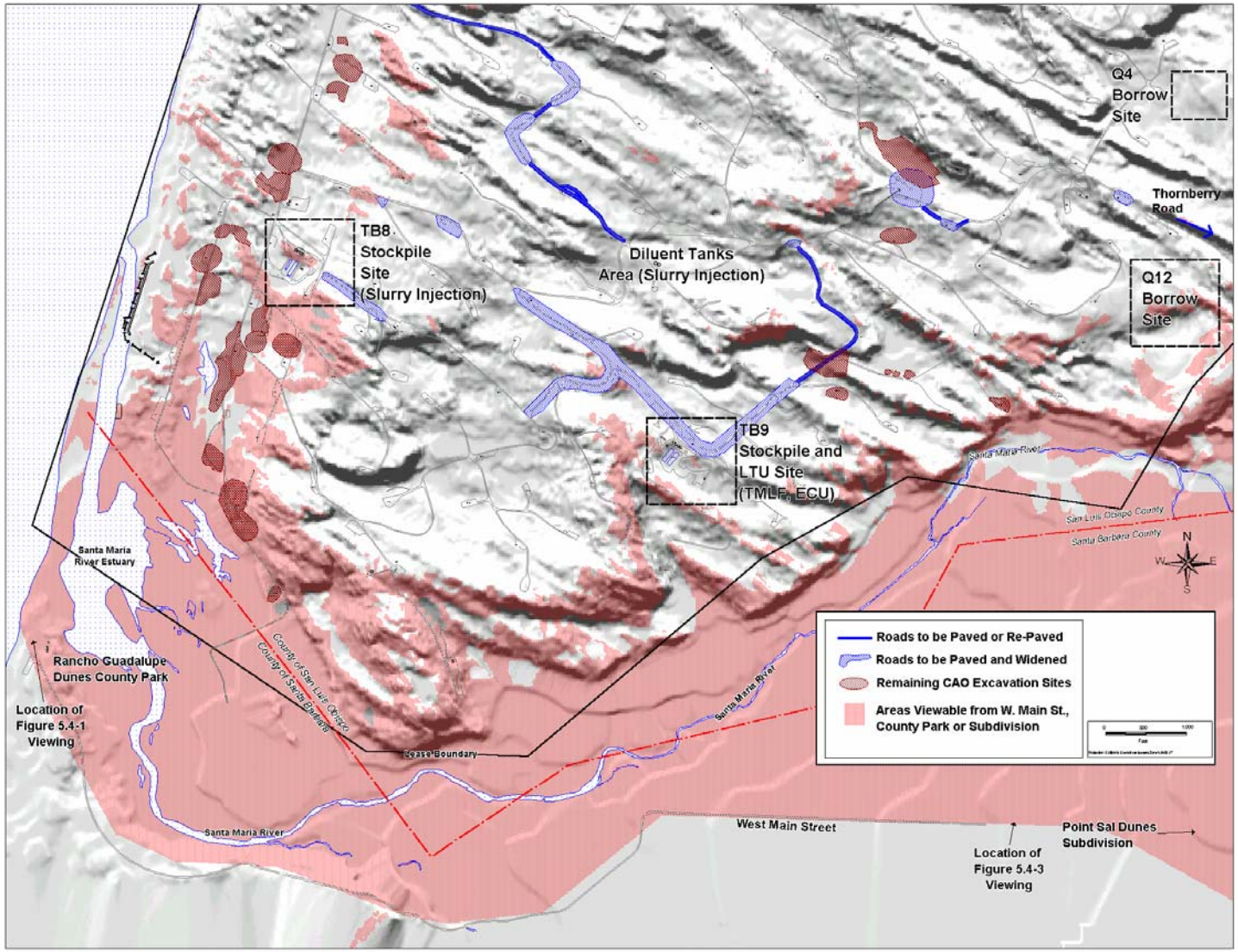
Figure 5.4-1 Simulation of Tank Battery 8 from Santa Maria River Mouth with Construction Equipment



Source: Marine Research Specialists.

Equipment located at TB8 would include trucks and loaders, as well as possible screening equipment. The viewing distance is greater than 1,500 ft from the closest beach areas, and the construction equipment would appear small compared to the existing site features. While noticeable, the equipment and activity should be subordinate to other features in view, particularly the existing structures. Existing visual conditions are VMC 3 (distracting, visually co-dominant), having been adversely affected by TB8 structures; those features are co-dominant in the subject view. In addition, some equipment-related dust plumes may be generated that would be visible from the beach areas, along Main Street, or from the Point Sal Dunes subdivision. However, these impacts would be very short term in nature.

Figure 5.4-2 Areas Visible from West Main Street, County Park, or Point Sal Subdivision



Source: Adapted from Unocal 2001.

Therefore, although adverse, the impact of construction activities would not perceptibly reduce visual quality and would be temporary.

Mitigation Measures
No mitigation measures are recommended.

Residual Impact
Due to the existing equipment and the relatively large distances from the proposed project to the beach and other viewing areas and the temporary nature of the project, the impacts would be considered *less than significant*, Class III.

Summary of Impacts at the Santa Maria Landfill
The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill were addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

For visual resources, there were no impacts identified with the use of the Guadalupe material in the NHIS program.

5.4.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures are for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.4.7.1 Offsite Trucking to Other Destinations

Offsite trucking to other destinations would have identical visual impacts at the Guadalupe Field as the proposed project. Loading and truck transportation would occur primarily at TB8 and would be visible from the beach areas and from the County Park. However, the existing visual character of the area would not be adversely affected due to the existing equipment located at TB8 and the small size of the construction equipment relative to the distance from the viewing location. Because this alternative would be identical to the proposed project for visual impacts, impact VR.1 identified for the proposed project and resulting mitigation measures and residual impact conclusions would also apply to this alternative. There would be no other impacts associated with this alternative.

5.4.7.2 Treated Materials Land Feature (TMLF)

The TMLF would involve contouring of NHIS treated in the LTU (Land Treatment Unit). Loading and trucking activities would occur at TB8 and TB9 to transport sump material to the Santa Maria Landfill or another offsite location for disposal.

Impact	Impact Description	Residual Impact
VR.2	Temporary and short-term, adverse visual impacts would result from the presence and operation of construction equipment at TB9	Class III

Impact Discussion

The location of the TMLF and loading operations for trucking of sump material at TB9 would not be visible from West Main Street, as shown in the viewshed analysis, Figure 5.4-2. The dune immediately in front of the TMLF location would block views of that area because the dune lies approximately 55–60 feet above the TMLF location.

The formation of a dune at TB9, which the TMLF would resemble after revegetation, would be difficult to see from public areas. Dunes in the foreground and background of the TB9 site, along with the vegetation of the TMLF, would effectively make the TMLF imperceptible from West Main Street. The TB9 area would be visible from the Point Sal Dunes subdivision at the west end of the City of Guadalupe. While activities at TB9 would be noticeable, the equipment, activity, and resulting TMLF would be subordinate to other features in view. Once completed and landscaped, the TMLF would be imperceptible from other dunes in the area (see Figure 5.4-3, which would be a similar view from both West Main Street and the Point Sal Subdivision). The impact to views from public areas would be considered *less than significant*, Class III.

Mitigation Measures

No mitigation measures are recommended

Residual Impact

Due to the relatively large distances from the proposed project (more than 4,000 feet from public areas), the temporary nature of the project, and the similarity of the restored dune to the surrounding dunes, the impacts would be considered *less than significant*, Class III.

5.4.7.3 Engineered Containment Unit (ECU)

The ECU would involve building a containment sub-structure at TB9 and then moving the existing stockpiles at TB8 to TB9 into the ECU and containing the NHIS there for an indefinite period of time. Construction activities would occur primarily at TB8 and TB9 and would involve the loading of NHIS stockpiles at TB8 and TB9 to move them to the ECU, construction of sub-containment systems and leachate collection systems at TB9, and subsequent covering of the ECU with topsoil/sand, and revegetation.

TB8 is visible from the beach and from the County Park (see Figure 5.4-1, Figure 5.4-2, and the 1998 EIR). However, because the distances are large (more than 1,500 feet from the beach or 5,000 feet from the County Park), the loading and transport equipment would not present a substantial change to the visual character of the region. Impacts to visual resources would be

identical to the proposed project. Impact VR.1 identified for the proposed project would also apply to this alternative.

The formation of a dune at TB9, which the ECU would resemble after revegetation, would be difficult to see from the public areas.

Dunes in the foreground and background of the TB9 site, along with the vegetation of the ECU, would effectively make the ECU imperceptible from West Main Street. It would be visible from the Point Sal Subdivision, but would be subordinate to the other dunes in the area and, once landscaped, would be imperceptible from the other dunes in the area (see Figure 5.4-3, which would be a similar view from both West Main and the Point Sal Subdivision). In addition, the ECU would be located approximately 4,000 feet from the closest point on West Main Street or the subdivision. Impact VR.2 identified for the TMLF alternative would also apply to this alternative.

5.4.7.4 Slurry Injection

The injection of NHIS via slurry would have impacts similar to the proposed project. These impacts would include construction activities at TB8 visible from the beach areas and from the County Park. Impact VR.1 identified for the proposed project would also apply to this alternative. There would be no other impacts associated with this alternative.

5.4.8 Cumulative Impacts

Cumulative impacts to visual resources could occur as a result of the proposed project and the projects described in Section 4, Cumulative Projects Description, being within the same field of view. The cumulative impacts will depend on the degree to which the character of the viewshed is adversely altered, the degree to which the impacts are within sensitive public views, and whether scenic resources are blocked from view or destroyed.

Short-term cumulative impacts may occur if other projects in close proximity to the proposed activities are constructed at the same time as the proposed remediation and abandonment activities, particularly those projects proposed along West Main Street at the approach to the County Park. For the West Main Street projects, construction activities and/or equipment associated with the projects would not be visible within the sensitive views addressed within this section. Moreover, residential developments are visually consistent with the character of urban development flanking the projects to the east; aside from temporary or short-term visual impacts of construction, there would be no adverse impact. Therefore, there would be no cumulative visual impacts associated with these offsite projects.

Potential addition of the Unocal property to the USFWS Wildlife Refuge designation may increase public access to the property in the future. This would increase the impacts of facilities remaining on the property, specifically the ECU and the TMLF. These features would be noticeable to the public (wildlife refuge users) and would therefore constitute an impact. If ECU or TMLF revegetation efforts are unsuccessful, these impacts would be considered significant.

Figure 5.4-3 View of Tank Battery 9 from West Main Street

Baseline

Simulation of TMLF in Background

Source: Marine Research Specialists.

5.4.9 Mitigation Monitoring Plan

No mitigation measures have been included for visual impacts.

5.4.10 References

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5.5 Air Quality

5.5.1 Environmental Setting

Environmental setting outlines air quality baseline conditions for the proposed project. The proposed project would be located within the South Central Coast Air Basin (SCCAB) in southern San Luis Obispo (SLO) County and Northern Santa Barbara County. As a result, baseline conditions for both counties are discussed.

5.5.1.1 Regional Overview

SLO and SB Counties are located within the Air Resources Board-designated South Central Coast Air Basin. Three distinct air basins exist in SLO County: the Coastal Plateau, Upper Salinas River Valley, and the East County Plain. Air quality characteristics differ among these regions, although the geography which separates them only marginally limits the transport of pollutants between them. The Coastal Plateau contains 75% of SLO County's population and commercial and industrial facilities.

SLO and SB Counties have a Mediterranean climate characterized by mild winters, when most rainfall occurs, and warm, dry summers. The influence of the Pacific Ocean causes mild temperatures year-round along the coast, while inland areas experience a wider range of temperatures. The average temperature in the Santa Maria area ranges from 65° F in August, to 52° F in January, with average highs varied from 64.4° F to 76.4° F, and average lows varied from 39.7° F to 54.1° F. Precipitation averages 3.4 inches and is confined primarily to the winter months. For the coastal community of Pismo Beach, which is closer in climate to the Guadalupe Field area, the Pismo Beach weather station reports the following historical numbers for the period from 1949 to 2004. Average maximum temperature varies from 63.4° F in January to 72.3° F in September. Average low temperatures vary from 42.3° F to 53.1° F. Precipitation varies from 3.53 in January to 0.2 inches in any of the summer month, with average annual precipitation of 17.1 inches (NOAA 2004).

The regional climate is dominated by a strong and persistent high-pressure system, which frequently lies off the Pacific Coast (generally referred to as the Pacific High). The Pacific High shifts northward or southward in response to seasonal changes or the presence of cyclonic storms. In its usual position to the west, the high produces an elevated temperature inversion. An inversion is characterized by a layer of warmer air above cooler air near the ground surface. Normally, air temperature decreases with altitude. In an inversion, the temperature of a layer of air increases with altitude. The inversion acts like a lid on the cooler air mass near the ground, preventing pollutants in the lower air mass from dispersing upward beyond the inversion "lid," resulting in higher concentrations of pollutants trapped below the inversion.

Atmospheric stability is a primary factor that affects air quality in the study region. Atmospheric stability regulates the amount of air exchange (referred to as mixing) both horizontally and vertically. Restricted mixing (that is, a high degree of stability) and low wind speeds are generally associated with higher pollutant concentrations. These conditions are typically related to temperature inversions that cap the pollutants emitted below or within them.

The airflow plays an important role in the movement of pollutants. Local winds are normally controlled by the location of the Pacific High. Wind speeds typical of the region are generally light, another factor that contributes to higher levels of pollution because low wind speeds minimize dispersion of pollutants. The sea breeze is typically northwesterly throughout the year; however, local topography causes variations. During summer months, these northwesterly winds are stronger and persist later into the night. The Guadalupe Field area frequently experiences stronger winds from the northwest. When the Pacific High weakens, a Santa Ana condition can develop, with warm air traveling westward into the county from the east, and could even bring pollutants from the adjacent South Coast Air Basin. Stagnant air often occurs at the end of a Santa Ana condition, causing a buildup of pollutants.

Several types of inversions are common to the area. In winter, weak surface inversions occur, caused by radiation cooling of air in contact with the cold surface of the earth. During the spring and summer, marine inversions occur when cool air from over the ocean intrudes under the warmer air that lies over the land. During the summer, the Pacific High can cause the air mass to sink, creating a subsidence inversion.

Topography plays a significant role in affecting the direction and speed of winds. During the day, the sea breeze (from sea to land) is normally dominant. Winds reverse in the evening as the air mass over land cools, gets heavier, and flows down the coastal mountains and mountain valleys back towards the ocean as land breezes (from land to sea). This diurnal “sloshing” effect can aggravate pollution by continually recycling an air mass over pollution sources. This effect is exacerbated during periods when wind speeds are low.

5.5.1.2 Air Quality

Air quality is determined by measuring ambient concentrations of air pollutants that are known to have adverse health effects. For regulatory purposes, there are several air pollutants for which standards have been set. These pollutants are generally recognized as “criteria pollutants.” For most criteria pollutants, regulations and standards have been in effect, in varying degrees, for more than 25 years, and control strategies are designed to ensure that the ambient concentrations do not exceed certain thresholds. Another class of air pollutants that is subject to regulatory requirements is called hazardous air pollutants (HAPs) or air toxics. Substances that are especially harmful to health, such as those considered under the U.S. Environmental Protection Agency’s (EPA) hazardous air pollutant program or California’s Assembly Bill (AB) 1807 and/or AB 2588 air toxics programs, are considered to be air toxics. Regulatory air quality standards are based on scientific and medical research. These standards establish minimum concentration of an air pollutant in the ambient air that could start to cause adverse health effects.

For air toxics emissions, however, the regulatory process usually assesses the potential impacts to public health in terms of “risk” (such as the Air Toxics “Hot Spots” Program in California), or the emissions may be controlled by prescribed technologies (as in the new Federal approach for controlling hazardous air pollutants).

The degree of air quality degradation for criteria pollutants is determined by comparing the ambient pollutant concentrations to health-based standards developed by government agencies. The current National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for “criteria pollutants” are listed in Table 5.5.1.

Ambient air quality monitoring for criteria pollutants is conducted at numerous sites throughout the state. Table 5.5.2 presents relevant data from several monitoring stations located in the vicinity of the proposed project area. A summary of the attainment status for both counties is provided in Table 5.5.3. Ambient air quality in the county is generally good (i.e., within applicable ambient air quality standards), with the exception of particulate matter (PM) with an aerodynamic diameter of ten microns or less (PM_{10}), and ozone (O_3) (EPA 2004a).

Criteria pollutants are also categorized as inert or photochemically reactive, depending on their subsequent behavior in the atmosphere. By definition, inert pollutants are relatively stable and their chemical composition remains stable as they move and diffuse through the atmosphere. However, the primary photochemical pollutants may react to form secondary pollutants. For these pollutants, adverse health effects may be caused directly by the emitted pollutant or by the secondary pollutants.

Inert Pollutants

Criteria pollutants that are considered to be inert include carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10}, lead, sulfates, and hydrogen sulfide (H_2S).

Carbon monoxide is formed primarily by the incomplete combustion of organic fuels. Both counties are in attainment of the California and Federal 1-hour and 8-hour CO standards.

Nitric oxide (NO) is a colorless gas formed during combustion processes which rapidly oxidizes to form NO_2, a brownish gas. The highest NO_2 values are generally measured in urbanized areas with heavy traffic. Both counties are in attainment for all the California and Federal NO_2 standards.

Sulfur dioxide is a gas produced primarily from the combustion of sulfurous fuels by stationary sources and by mobile sources. SLO County has been in attainment of the California and National SO_2 standards over the past ten years. SB County is in attainment of both State and Federal SO_2 standards.

Table 5.5.1 National and California Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California [c] Standards [a]	National Standards [b]	
			Primary [d]	Secondary [c,e]
Ozone (O_3)	1 hour 8 hour	0.09 ppm (180 μg/m^3) NS	0.12 ppm (235 μg/m^3) 0.08 ppm	0.12 ppm (235 μg/m^3) 0.08 ppm
Carbon Monoxide (CO)	8 hour 1 hour	9.0 ppm (10 mg/m^3) 20 ppm (23 mg/m^3)	9.0 ppm (10 mg/m^3) 35 ppm (40 mg/m^3)	NS[6] NS
Nitrogen Dioxide (NO_2)	Annual Avg. 1 hour	NS 0.25 ppm (470 μg/m^3)	0.053 ppm (100 μg/m^3) NS	0.053 ppm (100 μg/m^3) NS
Sulfur Dioxide (SO_2)	Annual Avg. 24 hour 3 hour 1 hour	NS 0.04 ppm [f] (131 μg/m^3) NS 0.25 ppm (655 μg/m^3)	0.03 ppm (80 μg/m^3) 0.14 ppm (365 μg/m^3) NS NS	NS NS 0.5 ppm (1,300 μg/m^3) NS
Suspended Particulate Matter – PM_{10}	Ann.Arith.Mean 24 hour	20 μg/m^3 50 μg/m^3	50 μg/m^3 150 μg/m^3	50 μg/m^3 150 μg/m^3
Suspended Particulate Matter – $PM_{2.5}$	Ann.Arith.Mean 24 hour	12 μg/m^3 NS	15 μg/m^3 65 μg/m^3	15 μg/m^3 65 μg/m^3
Sulfates (SO_4^{-2})	24 hour	25 μg/m^3	NS	NS
Lead (Pb)	30-day Avg. Calendar Qtr.	1.5 μg/m^3 NS	NS 1.5 μg/m^3	NS 1.5 μg/m^3
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 μg/m^3)	NS	NS
Vinyl Chloride	24 hour	0.01 ppm (26 μg/m^3)	NS	NS
Visibility Reducing Particles	1 Observation	Insufficient amount to reduce the prevailing visibility [g] to less than 10 miles when the relative humidity is less than 70% (CA only).		

Notes: μg/m^3=microgram/cubic meter; ppm=parts per million by volume; NS = No Standard.

[a] California standards for O_3, CO, SO_2 (l-hour), NO_2, $PM_{2.5}$ and PM_{10} are values that are not to be exceeded. SO_4^{-2}, Pb, H_2S, Vinyl Chloride, and visibility-reducing particles standards are not to be equaled or exceeded. Sulfates are pollutants that include SO_4^{-2} ion in their molecule.

[b] National Standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The O_3 Standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard.

[c] Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon reference temperature of 25° C and a reference pressure of 760 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

[d] Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the EPA.

[e] Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a “reasonable time” after the implementation plan is approved by the EPA.

[f] At locations where the State standards for ozone and/or PM_{10} are violated. National standards apply elsewhere.

[g] Prevailing visibility is defined as the greatest visibility, which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

There are two classes of PM. In addition to PM_{10} (described above), there is $PM_{2.5}$ (fine PM 2.5 microns or less in aerodynamic diameter). Both consist of many different types of particles that vary in their chemical activity and toxicity. $PM_{2.5}$ tends to be a greater health risk because it cannot be removed from the lungs once it is deeply inhaled. The greatest PM emissions appear to originate from soils (via roads, construction, agriculture, and natural windblown dust). Other sources of PM include sea salt, and particulate matter released during combustion processes, such as those in gasoline and diesel vehicles, and wood burning. Also, nitrogen oxides (NO_x) and sulfur oxides (SO_x) are precursors in the formation of secondary PM. Both SLO and SB Counties are designated as non-attainment of the California 24-hour PM_{10} standard.

In 1997, the EPA added two new $PM_{2.5}$ standards, set at 15 micrograms per cubic meter ($\mu g/m^3$) and 65 $\mu g/m^3$, respectively, for the annual and 24-hour standards. The EPA is continuing to collect data on $PM_{2.5}$ concentrations. Beginning in 2004, based on three years of monitor data, the EPA started issuing designations for areas as nonattainment that do not meet the new $PM_{2.5}$ standards. SLO County has two air monitoring stations that monitor for $PM_{2.5}$, as does SB County. The results for the last three years at these four stations indicate that both counties' $PM_{2.5}$ levels are below the Federal and the State standards for this pollutant (EPA 2004b).

Lead is a heavy metal that in ambient air occurs as a lead oxide aerosol or dust. Because lead is no longer added to gasoline or paint products, lead emissions have been reduced significantly in recent years. Both counties are in attainment with the NAAQS and the CAAQS for lead.

Sulfates are aerosols (i.e., wet particulates) that are formed by sulfur oxides in moist environments. They exist in the atmosphere as sulfuric acid and sulfate salts. The primary source of sulfate is from the combustion of sulfurous fuels. Both counties are in attainment for the California sulfate standard.

Hydrogen sulfide is an odorous, toxic, gaseous compound that can be detected by humans at very low concentrations. The gas is produced during the decay of organic material and is also found naturally in petroleum. Both counties are in attainment of the H_2S standard.

Table 5.5.2 Ambient Air Quality Summary for Project Area – 2001 to 2003

Averaging Time	Year	Maximum Observed Concentration (Number of Standard Exceedances)*			
		Nipomo	VAFB	San Luis Obispo	Santa Maria
Ozone, ppm					
1-hour	2001	0.085 (0)	0.079 (0)	0.078 (0)	0.064 (0)
8-hour		0.080 (0)	0.070 (0)	0.068 (0)	0.058 (0)
1-hour	2002	0.080 (0)	0.084 (0)	0.073 (0)	0.065 (0)
8-hour		0.069 (0)	0.078 (0)	0.063 (0)	0.059 (0)
1-hour	2003	0.097 (1)	0.089 (0)	0.070 (0)	0.065 (0)
8-hour		0.076 (0)	0.077 (0)	0.063 (0)	0.060 (0)
CO, ppm					
8-hour	2001	NA	0.62 (0)	1.99 (0)	1.31 (0)
8-hour	2002	NA	0.82 (0)	1.65 (0)	1.24 (0)
8-hour	2003	NA	0.36 (0)	1.48 (0)	0.95 (0)
NO_2, ppm					
1-hour	2001	0.042 (0)	0.049 (0)	0.054 (0)	NA
Annual Avg.		NA	0.001	0.012	NA
1-hour	2002	0.047 (0)	0.018 (0)	0.057 (0)	0.052 (0)
Annual Avg.		0.005	0.001	0.010	NA
1-hour	2003	0.047 (0)	0.017 (0)	0.039 (0)	0.043 (0)
Annual Avg.		0.005	0.001	NA	NA
$PM_{2.5}$, µg/m^3					
24-hour	2001	NA	NA	25.5 (0)	43.2 (0)
Annual Avg.				NA	10.4
24-hour	2002	NA	NA	20.1 (0)	21.3 (0)
Annual Avg.				NA	9.5
24-hour	2003	NA	NA	21.8 (0)	20.5 (0)
Annual Avg.				7.4	8.6
PM_{10}, µg/m^3					
24-hour	2001	88.9	49.2 (0)	40.0 (0)	68.0 (1 day)
State MG		NA	NA	19.3	27.4
Federal MA		NA	19.5	18.7	26.5
24-hour	2002	87.3	50.4 (0)	45.0 (0)	49.0 (0)
State MG		NA	18.8	17.8	23.4
Federal MA		NA	18.2	17.3	23.5
24-hour	2003	70 (3 days)	97.8 (1 day)	59.0 (1 day)	68.0 (1 day)
State MG		NA	NA	NA	25.2
Federal MA		NA	NA	17.3	24.4

Note: * Number or percent of exceedances of the most restrictive standard (usually, the State Standard)

VAFB = Vandenberg Air Force Base; NA = No data available; State MG = State Annual Mean Geometrical; National MA = National Mean Arithmetic

Source: Air Resources Board Air Quality Data Annual Summaries 2001–2003 (Internet web site) www.arb.ca.gov.

Table 5.5.3 Attainment Status of San Luis Obispo and Santa Barbara Counties, All Monitoring Stations

County	O_3 8-hr*	O_3 1-hr		CO		NO_2		SO_2		$PM_{2.5}$		PM_{10}	
	State/Fed	*State*	*Fed*	*State*	*Fed*	*State*	*Fed*	*State*	*Fed*	*State*	*Fed*	*State*	*Fed*
SLO	U/A	A	A	A	A	A	U/A	A	U/A	U/A	U/A	N	U
SB	U/A	N	A	A	A	A	U/A	A	U/A	U/A	U/A	N	U

Note: A = Attainment of Standards; N = Non-Attainment; U = Unclassified; U/A = Unclassified/Attainment, N/T = Non-attainment/Transitional.
* Attainment status of the Federal 8-hour ozone standard was approved by the EPA on April 15, 2004 (http://www.epa.gov/ozonedesignations/documents/tsd/ch3.pdf).
Attainment status of Federal $PM_{2.5}$ standard was promulgated in December 2004. SLO and SB Counties were designated Unclassifiable/Attainment.

Sources: CARB web site: (http://www.arb.ca.gov/desig/adm/adm.htm#state), page last updated May 29, 2003, and EPA web site: (http://www.epa.gov/ozonedesignations/documents/tsd/ch3.pdf), and (http://www.epa.gov/ozonedesignations/regions/region9desig.htm), both sites as viewed on October 5, 2004.

Photochemical Pollutants

Ozone is formed in the atmosphere through a series of complex photochemical reactions involving NO_x, reactive organic compounds (ROC) (also called reactive organic gases [ROG]), and sunlight occurring over a period of several hours. Because ozone is not emitted directly into the atmosphere, but formed as a result of photochemical reactions, it is classified as a secondary or regional pollutant. Because these ozone-forming reactions take time, peak ozone levels are often found downwind of major source areas.

In January 2004, CARB re-designated SLO County as in attainment for the State 1-hour ozone standard. SB County is designated nonattainment for the State and Federal 1-hour ozone standards. Both SLO and SB Counties are in attainment of the 8-hour standard, and they were designated so by the EPA on April 15, 2004 (EPA 2004a).

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are hazardous air pollutants that are known or suspected to cause cancer, genetic mutations, birth defects, or other serious illnesses to people. TACs may be emitted from three main source categories: (1) industrial facilities; (2) internal combustion engines (stationary and mobile); and (3) small “area sources” (such as solvent use). The California Air Resources Board (CARB) publishes lists of Volatile Organic Compound species Profiles for many industrial applications and substances.

Generally, TACs behave in the atmosphere in the same general way as inert pollutants (those that do not react chemically but preserve the same chemical composition from point of emission to point of impact). The concentrations of toxic pollutants are therefore determined by the quantity and concentration emitted at the source and the meteorological conditions encountered as the pollutants are transported away from the source. Thus, impacts from toxic pollutant emissions tend to be site-specific and their intensity is subject to constantly changing meteorological conditions.

5.5.1.3 Regional Air Emissions

Emissions within SLO County are estimated annually by the SLO Air Pollution Control District (SLO APCD). These estimates are used to address Federal and State clear air mandates. Table 5.5.4 lists the estimated emissions for SLO and SB Counties by source category.

In both SLO and SB Counties, the highest contributors to the ROC, CO, and NO_x emissions are mobile sources, primarily light-duty trucks and passenger cars. Wild fires also heavily contribute to CO emissions. The majority of SO_x emissions come from petroleum refining. PM_{10} emissions are mostly due to road dust and various farming operations.

Table 5.5.4 Regional Emissions Inventory for San Luis Obispo and Santa Barbara Counties

Emission Sources	Emissions (tons per year)				
	ROC	CO	NO_x	SO_2	PM_{10}
Stationary Sources	1,566	3,399	2,169	2,977	422
Area-Wide Sources	2,720	14,978	277	13	9,897
Mobile Sources	4,716	44,455	9,927	242	410
Natural Sources (Non-Anthropogenic)	422	7,888	118	0	1,113
SLO County Total	**9,424**	**70,720**	**12,491**	**3,232**	**11,842**
Stationary Sources	3,059	1,1416	2,001	835	414
Area-Wide Sources	3,271	7,426	551	8	6,443
Mobile Sources	9,379	76,087	15,319	751	370
Natural Sources (Non-Anthropogenic)	28,930	10,298	1,365	0	2,025
SB County Total	**44,639**	**95,227**	**19,236**	**1,594**	**9,253**

Note: Some totals may be different from the sum of the constituents due to rounding error.

Sources: SLO APCD 2000, SBC APCD 2001.

Asbestos has been identified by CARB as a toxic air contaminant. Serpentine is a very common rock type in the state and was identified by the Board as having the potential to contain naturally occurring asbestos. Serpentine-rich rock (serpentinite) and soil units constitute a significant impact where they contain a magnesium-silicate mineral called chrysotile. Chrysotile typically occurs in veins of silky fibers and is an important source of commercial asbestos. Airborne asbestos fibers are known to cause risk to human health, and the potential exists for human exposure during excavation of serpentine-rich rock and soil units. Asbestos-containing soils and rocks are known to occur in several parts of SLO County.

5.5.2 Regulatory Setting

Federal, State, and local agencies have established standards and regulations that will affect the proposed project. A summary of the regulatory setting for air quality is provided below.

5.5.2.1 Federal Regulations

The Federal Clean Air Act of 1970 directs the attainment and maintenance of the NAAQS. The 1990 Amendments to this Act included new provisions that address air emissions that affect

local, regional, and global air quality. The main elements of the 1990 Clean Air Act Amendments are summarized below:

- Title I Attainment and maintenance of NAAQS
- Title II Motor vehicles and fuel reformulation
- Title III Hazardous air pollutants
- Title IV Acid deposition
- Title V Facility operating permits
- Title VI Stratospheric ozone protection
- Title VII Enforcement

The EPA is responsible for implementing the Federal Clean Air Act and establishing the NAAQS for criteria pollutants. In 1997, the EPA adopted revisions to the Ozone and Particulate Matter Standards contained in the Clean Air Act. These revisions included a new 8-hour ozone standard and a new particulate matter standard for particles below 2.5 micron in diameter. These standards were suspended, however, when in May 1999 the U.S. Court of Appeals for District of Columbia remanded the new ozone standard. In January 2001, the EPA issued a Proposed Response to Remand, where it stated that the revised ozone standard should remain at 0.08 ppm. In February 2001, the U.S. Supreme Court upheld the constitutionality of the Clean Air Act as the EPA had interpreted it in setting health-protective air quality standards for ground-level ozone and particulate matter. On April 15, 2004, the EPA finalized the federal 8-hour Ozone attainment designations (EPA 2004a).

5.5.2.2 State Regulations

California Air Resources Board (CARB).
CARB established the CAAQS. Comparison of the criteria pollutant concentrations in ambient air to the CAAQS determines State attainment status for criteria pollutants. CARB has jurisdiction over all air pollutant sources in the State; it has delegated to local air districts the responsibility for stationary sources and has retained authority for emissions from mobile sources. CARB, in partnership with the local air quality management districts within California, has developed a pollutant monitoring network to aid attainment of CAAQS. The network consists of numerous monitoring stations located throughout the State, which monitor and report various pollutants concentrations in ambient air.

CARB revised the PM standard in 2002, pursuant to the Children's Environmental Health Protection Act. The revised PM_{10} standard is 20 $\mu g/m^3$ for an annual average. In addition, CARB adopted a fine PM ($PM_{2.5}$) standard, set at 12 $\mu g/m^3$ for an annual average. CARB staff is currently reviewing the 24-hour standard for PM_{10}, and considering the adoption of a new 24-hour standard for $PM_{2.5}$.

California Clean Air Act (CCAA) (California Health and Safety Code, Division 26).
This act went into effect on January 1, 1989, and was amended in 1992. CCAA mandates achieving the health-based CAAQS at the earliest practical date.

Air Toxics "Hot Spots" Information and Assessment Act of 1987 (California Health & Safety Code, Division 26, Part 6).
The Hot Spots Act requires an inventory of air toxics emissions from individual facilities, an assessment of health risk, and notification of potential significant health risk.

The Calderon Bill (SB 1889), (California Health & Safety Code Sections 25531-25543).
This bill, signed by Governor Pete Wilson in September 1996, sets forth changes in the following four areas: (1) provides guidelines to identify a more realistic health risk, (2) requires high-risk facilities to submit an air toxic emission reduction plan, (3) holds air pollution control districts accountable for ensuring that the plans will achieve their objectives, and (4) requires high-risk facilities to achieve their planned emissions reduction.

California Code of Regulations, Section 93105. Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. Asbestos has been identified by the State Air Resources Board as a toxic air contaminant. Serpentine is a very common rock type in the state and was identified by the Board as having the potential to contain naturally occurring asbestos. Under this CCR section, geologic analysis will be necessary to determine if serpentine rock is present prior to any grading or soil activities. If naturally occurring asbestos is found at the site, an Asbestos Health and Safety Program and an Asbestos Dust Mitigation Plan is required to be approved by the District before construction begins (CARB 2000). The Air Pollution Control Officer (APCO) may provide an exemption from this section […] if a registered geologist has conducted a geologic evaluation of the property and determined that no serpentine or ultramafic rock is likely to be found in the area to be disturbed.

5.5.2.3 Local Rules and Regulations

Local APCDs in California have jurisdiction over stationary sources in their respective areas and must adopt plans and regulations necessary to demonstrate attainment of Federal and State air quality standards. As directed by the Federal and State Clean Air Acts, local air districts are required to prepare plans with strategies for attaining and maintaining State and Federal ozone standards. In the project area, air quality rules and regulations are promulgated by the SLO APCD. In order to ultimately achieve the air quality standards, the rules and regulations limit emissions and permissible impacts from proposed projects. Some rules also specify emission controls and control technologies for each type of emitting source. The regulations also include requirements for obtaining an Authority To Construct (ATC) permit and a Permit To Operate (PTO).

The SLO APCD has jurisdiction over air quality attainment in the SLO County portion of the SCCAB, in accordance with the SLO APCD 2001 Clean Air Plan. Applicable aspects of the proposed project and alternatives occurring in SLO County must obtain a SLO APCD permit, if applicable.

Some parts of the transportation routes are in SB County. The SB County (SBC) APCD also has rules which govern emissions and permit requirements, although most of these would not be applicable to mobile sources.

5.5.3 Significance Criteria

SLO APCD has developed guidelines for evaluating the significance of air quality impacts for proposed projects undergoing CEQA review, which are outlined in the SLO APCD CEQA Air Quality Handbook (CEQA Handbook) (SLO APCD 2003). Any project would be considered to have a potential significant air quality impact if the emission levels from the proposed project were to equal or exceed any of the significance criteria set fourth in the CEQA Handbook. The criteria for construction and operations are detailed below.

5.5.3.1 Significance Criteria for Construction

Construction activities for the proposed project would occur entirely within SLO County. The SLO APCD has established daily and quarterly quantifiable emission thresholds for short-term construction emissions.

The SLO APCD has established "mitigation thresholds" that apply to air emissions from construction projects. These thresholds, which are included in the CEQA Handbook (SLO APCD 2003), are listed in Table 5.5.5. If construction emissions are above the listed thresholds, these emissions would have to be mitigated by implementation of Best Available Control Technology for Construction (CBACT).

Table 5.5.5 San Luis Obispo County APCD Significance Thresholds for Construction

Mitigation Required	ROC Mitigation Threshold	NO_x Mitigation Threshold	PM_{10} Mitigation Threshold
Best Available Control Technology for Construction Equipment (CBACT)	>185 lbs/day or 2.5 to 6.0 tons/qtr.	>185 lbs/day or 2.5 to 6.0 tons/qtr.	>2.5 tons/qtr
CBACT plus further mitigation, including offsets	**>6.0 tons/qtr.**	**>6.0 tons/qtr.**	-

5.5.3.2 Significance Criteria for Operations

SLO County has four separate significance criteria for assessing air quality impacts from project operations: (1) comparison to APCD emission significance thresholds, (2) consistency with the district Clean Air Plan, (3) comparison to standards, and (4) special conditions. Table 5.5.6 provides general guidelines for determining the significance of impacts and type of environmental analysis recommended in relation to total emissions expected from project operations.

There are no significant air quality impacts associated with a project if emissions of any of the criteria pollutants are less than 10 lbs/day (550 lbs/day for CO). Thus, mitigation measures are not required.

Any project which has the potential to generate 10 to 24 lbs/day of these pollutants has the potential to cause significant air quality impacts and should be submitted to the SLO APCD for review. Onsite mitigation measures, following the guidelines in Section 5 of the CEQA

Handbook (SLO APCD 2003), are recommended to reduce air quality impacts to a level of insignificance.

If all feasible mitigation measures are incorporated into the project, and emissions are still greater than 25 lbs/day, then additional mitigation measures, including offsets, may be required, depending on the level and scope of air quality impacts identified in the EIR. For carbon monoxide, emission levels equal to or exceeding 550 lbs/day should be modeled to determine their significance. If emissions are 25 tons per year or more, in addition to the above measures, offsets or offsite mitigation may be required.

Table 5.5.6 San Luis Obispo County APCD Significance Thresholds for Operations

Pollutant	Threshold	Tier 1	Tier 2	Tier 3
ROC, NO_x, SO_2, and PM_{10}	< 10 lbs/day	10 lbs/day	25 lbs/day	25 tons/yr
CO	< 550 lbs/day		550 lbs/day	
Significance	Insignificant	Significant	Significant	Significant
Mitigation	Not Required	On site required	On site and offsite required (if needed)	On site and offsite required (if needed)
Comments	ND should be prepared	Mitigated ND should be prepared	Modeling of CO emissions, mitigated ND or EIR	EIR should be prepared

Note: ND = Negative Declaration

Significance of CO emissions from vehicles is based on whether traffic associated with the proposed project would change the level of service (LOS[1]) of an intersection, thereby having the potential to generate CO "hot spots." If the LOS is unaffected, vehicle emissions are assumed not to contribute to CO hot spots. A significant impact would occur if: (1) project-generated traffic would degrade the LOS at intersections to level D or worse, and (2) sensitive receptors were located nearby, and (3) CO hot-spot modeling indicates that thresholds would be exceeded.

The following issues should be discussed only if they are applicable to the project:

- Emissions which may affect sensitive receptors (e.g., children, elderly or acutely ill);
- Toxic or hazardous air pollutants in amounts which may increase cancer risk for the affected population; or
- Odor or another air quality nuisance problem impacting a considerable number of people.

5.5.3.3 Significance Criteria for Health Risks

SLO APCD has adopted criteria for determining the significance of potential health risks associated with toxic emissions from a project (SLO APCD 1999). These criteria have been developed for both carcinogenic and non-carcinogenic compounds, as well as for acute and chronic exposure, as follows:

[1] See Section 5.6, Transportation/Circulation, for definition of LOS.

Potential Health Risk	Criterion
Cancer Risk	10 in one million (1 x 10^{-5})
Health Hazard Index	1.0

A cancer risk of 10 in one million represents the number of potential excess cancer cases (10) per million individuals exposed, or an individual's chance for contracting cancer of 1 in 100,000.

The APCD's cancer risk criterion is based on a continuous 70-year exposure period. To address the short duration of the proposed project, the California Office of Environmental Health Hazard Assessment (OEHHA) developed guidance for estimating potential cancer risks from projects that emit carcinogenic air pollutants for periods substantially less than the normal 70-year exposure assumption (OEHHA, 2003). *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2003) clearly identifies the methodology that should be followed for estimating the long-term cancer risk that would result from short-term exposure as follows:

> *"OEHHA has presented in this document exposure variates for estimating 9-, 30- and 70-year exposures. These exposures are chosen to coincide with U.S. EPA's estimates of the average (9 years), high-end estimates (30 years) of residence time, and a typical lifetime (70 years). We support the use of cancer potency factors for estimating cancer risk for these exposure durations. However, as the exposure duration decreases the uncertainties introduced by applying cancer potency factors derived from very long term studies increases. Short-term high exposures are not necessarily equivalent to longer-term lower exposures even when the total dose is the same. OEHHA therefore does not support the use of current cancer potency factor to evaluate cancer risk for exposures of less than 9 years. If such risk must be evaluated, we recommend assuming that average daily dose for short-term exposure is assumed to last for a minimum of 9 years."*

Emissions from the proposed project would be limited to a three-year exposure period, but were analyzed as a nine-year minimum to conservatively estimate potential worst-case health risks in a manner that is consistent with OEHHA guidance. The APCD and OEHHA exposure assumptions and significant risk thresholds are both based on the same underlying assumptions. Following the state-mandated OEHHA guidelines to estimate cancer risk is consistent with the APCD's 70-year exposure assumption and significant risk threshold of 10 in a million. Therefore, the APCD 70-year cancer risk significance threshold of 10 in one million (1 x 10^{-5}) was used to determine the significance of potential project impacts. The significance threshold of 10 in one million (1 x 10^{-5}) is also consistent with the SB APCD excess cancer risk criterion.

The health hazard index is the cumulative ratio of the estimated exposure level to a chemical-specific health threshold. The health hazard index is the sum of the ratios for all chemicals present. Therefore, potential health hazards can be significant even if the threshold for a single chemical is not exceeded, but the sum of the exposure ratios exceeds one.

5.5.4 Impact Assessment Methodology

Detailed calculations of project emissions estimates have been prepared by ENSR International (ENSR 2004a); the calculations were peer reviewed by the EIR consultant and determined

acceptable for use in preparing air quality analysis of the EIR. The calculations included the proposed project transportation options using 8-cy and 18-cy sized trucks, transportation of only 200,000 cy of Non-hazardous Hydrocarbon-affected Soil (NHIS), and transportation of the entire 860,000 cy of NHIS. The full report cannot be presented here due to its large size (ENSR 2004a); a summary of the assumptions and emissions estimates are presented in Appendix C. ENSR has also prepared a health risk assessment from transportation of the affected soil (ENSR 2004b). The report is presented in full in Appendix C.

The project emissions associated with mobilization, road improvements, and set up were considered construction emissions; those emissions associated with the soil transportation were considered operations emissions, because these activities would be spread over a long period of time — 2 to 4 years.

Conservative assumptions were made for the emission estimate calculations. The assumptions that are the same for the proposed project and the Alternatives are as follows:

- Emission factors in the CARB Off-road model depend on equipment age and model year. It is assumed that each piece of equipment is at 50 percent of its useful life.
- Entrained road dust from trucks traveling onsite is anticipated to be negligible because the paved roads will be watered twice per day, if needed.
- Emission factors for fugitive ROC from NHIS are a weighted average of the emission factors for sump material and for diluent-affected material. This is a conservative assumption for dealing with the 200,000 cy of sump material.
- Each piece of construction equipment would be transported to and from the Field in two different trips.
- The number of pieces of construction equipment was multiplied by 1.5 to estimate the number of construction workers.

Estimated emissions were compared against the thresholds of significance for each APCD. Those emissions exceeding the thresholds were classified as significant.

5.5.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that would be incorporated into the proposed project or alternatives as part of the existing permit conditions.

The following measures would be implemented to protect air quality in accordance with the CDP/DP D890558D Coastal Development Permit (CDP) County Conditions of Approval:

F83. A Dust Control Plan shall be submitted to the SLO APCD for approval prior to the start of each stage of remediation. The plan shall include measures for watering of disturbed areas stabilization of stockpiles, limitations of vehicle speeds, limiting of activities on high-wind days, watering and cleaning of paved roads and entry/exit roads, tire cleaning

on entry and exit, and inspection of heavy duty equipment to reduce particulate emissions.

F84. An Emission Reduction Plan designed to reduce emissions from sources not covered by District permits shall be submitted to the SLO APCD for approval prior to the initiation of remediation or abandonment activities. The plan shall specifically target onsite and offsite emissions from sources such as diesel powered mobile construction equipment, and heavy-duty on-road trucks. The Plan shall include at a minimum the following components:

a. NOx reduction strategies for off-road construction equipment shall meet U.S. EPA Tier 1 emission standards for all applicable heavy-duty diesel powered construction equipment to the fullest extent feasible. Unocal shall use CARB-approved diesel fuel for all diesel powered equipment.

b. NOx and ROG reduction strategies for on-road heavy-duty trucks and other equipment. Potential strategies could include conversion of some equipment to use compressed natural gas (CNG) or other clean fuel; providing incentives to encourage subcontractors to use haul trucks that meet or exceed the 1994 or 1998 California on-road heavy-duty truck certification standard when bidding on contracts to haul contaminated material from Guadalupe; or other similar strategies. Use CARB-approved diesel fuel for all diesel powered equipment.

c. All construction equipment not modified to reduce NOx and ROG emissions shall be properly maintained to manufacturers' specifications.

F86. Unocal shall develop an Emission Reduction Program to be approved by SLO APCD. Potential emission reduction projects should be located as close to the former Guadalupe Oil Field as possible including potential emission reduction projects in northern Santa Barbara County in the vicinity of Santa Maria and the City of Guadalupe.

F88. Unocal shall implement an employee trip reduction program designed to reduce emission from employee commute trips including, but not limited to, incentives to facilitate car pooling and a shuttle bus system.

F89. Unocal shall use vapor recovery and carbon canisters or other applicable devices to reduce emissions associated with waste water, line draining, purging and abandonment. These may include covering of waste water collection systems and venting to a vapor recovery and control system. In addition, cover, as soon as possible and to the greatest extent possible, all exposed contaminated soils with appropriate covers.

F90. Prior to issuance of a construction permit for any Stage, Unocal shall prepare an Odor Control Plan to be approved by the SLO APCD. The plan shall include at a minimum, the identification and characterization of potentially odorous compounds (especially the highly odorous sulfur based compounds that can be associated with petroleum products) likely to be emitted during remedial activities, mechanisms of odorous compound release, location and characteristics of potential receptors, the identification of control measures and procedures to be implemented to reduce or abate potential odor nuisance conditions, and procedures for odor complaint response and SLO APCD notification. This condition

shall be included in construction plans submitted to the County Department of Planning and Building and implemented by Unocal prior to the issuance of construction permits.

5.5.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

All project traffic impacts would be mitigated to insignificance by adhering to the Traffic Plan, scheduling truck trips during non-peak hours, and avoiding busy streets (see Section 5.6, Transportation and Circulation).

The SLO APCD requires a consistency analysis of projects with the APCD's Clean Air Plan (CAP). The consistency analysis should demonstrate that the project would not contribute to the population growth beyond what was projected in the most recent CAP (2001) for the same area, and that the rate of increase in vehicle trips and miles traveled is less than or equal to the rate of population growth for the same area (SLO APCD 2001).

The proposed project includes removal and transfer of the existing TB8 and TB9 Stockpiles, as well as transfer of other NHIS materials excavated in the future, and disposal of all materials at the Santa Maria Landfill. Impacts associated with previously approved, anticipated excavation work have been evaluated under the 1998 EIR (ADL 1998) and are not considered part of this project.

The remainder of this section presents the air quality impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

Impact	Impact Description	Residual Impact
AQ.1	The air emissions from project construction would exceed significance thresholds.	Class III

Air emissions of CO, ROC, NOx, SO_2, and PM_{10} during construction would come from the road improvements and equipment mobilization activities and equipment as described below:

- from internal combustion engines of soil moving equipment (e.g., backhoes, bulldozers, cranes);
- from engines of other onsite vehicles and machinery used to widen/pave roads;
- from engines of offsite vehicles (e.g., workers' commute vehicles, trucks delivering equipment and materials);
- dust from road improvements at the Guadalupe Field (e.g., old pavement removal and paving);
- fugitive dust from vehicles on and off site.

Air emissions from the above activities were estimated by ENSR International (ENSR 2004a) for this project. The assumptions and summary emissions from the report are presented here; more detailed report calculations are given in Appendix C.

The ENSR study used a number of assumptions and emissions estimation methods for the emissions calculations. Summaries of the project emissions are presented in Table 5.5.7 below.

Table 5.5.7 Summary of Proposed Project Construction Emissions

Activity	Peak Day Emissions (lbs/day)					Peak Quarter Emissions (tons/qtr)				
	CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
Mobilization/construction	27.80	15.00	99.20	2.30	31.30	0.16	0.05	0.49	0.01	0.12
Significance Criteria	-	185	185	-	185	-	2.5	2.5	-	2.5
Significant?		No	No		No		No	No		No
Total Construction Emissions (tons)										
Mobilization/setup/construction/demobilization						0.22	0.07	0.65	0.01	0.13

Note: Peak day and peak quarterly emissions would occur during mobilization and setup phase. Demobilization does not occur during the same quarter as mobilization and set up. Demobilization would occur after the project and emissions are lower than the mobilization/setup emissions.
Source: Summary from ENSR 2004a.

Conservative assumptions for mobilization, construction and setup, demobilization and other general assumptions included:

- Construction includes mobilization/setup, road improvements, and demobilization.
- Worst-case scenarios of road improvements were used, when the entire width of the road planned for improvements is paved. It was assumed in the calculations that Thornberry Road will be widened and/or repaired when the project begins and repaired again after the project completion.
- Materials and equipment would be mobilized from within a 30-mile radius of the site (60-mile round-trip).
- Equipment is delivered to and removed from the site in two separate trips.
- For every piece of construction equipment, 1.5 workers would commute to the site, also from within a 30-mile radius (60-mile round-trip) of the site.
- Each piece of equipment is at 50% of its useful lifetime;
- Commuting and equipment delivery vehicles speeds would be 35 mph offsite. Onsite speed of all vehicles is not more than 25 mph.
- Construction would occur 5 days per week, 50 weeks per year.
- Entrained dust is negligible due to proposed watering.
- The on-road vehicle weight used in the entrained dust calculations was set to 2.4 tons (CARB limit for SLO County).

Emissions from construction are below the significance criteria; thus, the impacts would be less than significant (Class III).

Residual Impact
The residual air quality impacts from construction are considered *less than significant,* Class III.

Impact	Impact Description	Residual Impact
AQ.2	The air emissions from project operation would exceed significance thresholds.	Class II

Assumptions for operations included:

- Operations included soil loading and transportation to the disposal site(s) via two proposed routes (1) Main Street Route and (2) Division Route. Because the Main Street Route is similar by mileage and sensitive receptors along the route are the same as for Betteravia Route, separate calculations were not done for Betteravia Route (see Section 2.0, Project description for the detailed route descriptions).
- Operations will occur at a constant rate, with a two-year duration for hauling of the 200,000 cy quantity and a three-year duration for hauling of the 860,000 cy quantity.
- Operations would occur 5 days per week, 50 weeks per year.
- Emissions from the offsite truck travel were estimated using distance from the Guadalupe Field gate to the Santa Maria Landfill (approximately 17 miles one way, 34 miles round-trip). Trucks travel at 55 mph offsite.
- Emissions resulting from onsite truck travel were calculated separately and assumed an average of 6 miles (3 miles from the site gate to the loading location and back) per round-trip for each load of material; onsite speed was assumed to be 25 mph.
- Truck loading was assumed to be done over 6 hours per day for transportation of 200,000 cy, and 8 hours per day for transportation of 860,000 cy of NHIS.
- Loading would be done using the same equipment (bulldozers, loaders, etc.) for any amount of material transported offsite.
- Tarps would be placed over the soil loaded into trucks prior to trucks' departure. Trucks would be broomed (dry decon) before departure to the disposal facility and after unloading of soil at the disposal facility.
- Emissions occurring in SLO County were estimated separately from emissions occurring in SB County.
- Peak daily emissions were estimated for a daily maximum of 150 truck trips per day.

ENSR estimated emissions for the different amounts of soil that would need to be transported offsite (see Project Description for the amounts of soil that needs to be disposed of). Emissions were also estimated for two sizes of soil transportation trucks: trucks with 8-cy and 18-cy transportation capacities.

Summaries of the project emissions from operations are presented in Tables 5.5.8 (total emissions), 5.5.9 (emissions within SLO County), and 5.5.10 (emissions within SB County), below. Average-day and peak-day NOx emissions are above the significance criteria as for the whole project as well as in the air basins of each of SLO and Santa Barbara Counties, for both proposed truck sizes and for transportation of both 200,000 cy and 860,000 cy of NHIS (see Tables 5.5.8, 5.5.9, and 5.5.10). Additionally, the following project emissions would be above the significance criteria without implementation of mitigation: (1) the project peak day ROC and PM_{10} emissions, (2) average-day ROC and PM_{10} from transportation of 860,000 cy of material by 8 cy size truck, and (3) annual NOx emissions from transportation of 860,000 cy by 8 cy size trucks exceed Tier 3 significance threshold (see Table 5.5.8). Therefore, operations air quality impacts are considered to be a *significant* impact.

Some of these emissions could be mitigated with the standard mitigation measures presented below. Worst-case scenario peak day NOx emissions are significantly higher than the significance thresholds and would require implementation of Best Available Control Technologies (BACT). The BACT technologies include catalyzed diesel particulate filters (CDPFs) and diesel oxidation catalysts (DOCs) and other APCD approved diesel emission-reduction technologies.

To reduce fugitive PM_{10} emissions, Unocal has proposed to water any disturbed surfaces or unpaved roads twice daily, and the emissions calculations have already included dust reduction due to the proposed watering. The dust-reduction measures in the Dust Control Plan prepared for CDP/DP D890558D Condition F83 ensures more frequent watering when necessitated by the weather and work environment conditions.

Table 5.5.8 Summary of Total Proposed Project Operations Emissions

Activity		Daily Emissions (lbs/day)					Annual Emissions (tons/yr)				
		CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
Main Street Route (1)											
200,000 cy	8 cy trucks	28.1	6.1	**117.6**	2.2	5.3	3.51	0.78	14.70	0.28	0.65
	18 cy trucks	21.5	4.6	**77.3**	1.8	3.5	2.69	0.59	9.66	0.22	0.44
860,000 cy	8 cy trucks	52.2	**12.3**	**267.1**	4.2	**13.5**	6.53	1.53	**33.38**	0.53	1.69
	18 cy trucks	33.5	7.9	**151.4**	2.9	7.6	4.19	0.99	18.93	0.36	0.95
Peak Day	8 cy trucks	53.7	**12.6**	**276.8**	4.4	**14.1**					
	18 cy trucks	53.7	**13.1**	**276.8**	4.4	**19.4**					
Significance Criteria		550	10	10	10	10	--	25	25	25	25
Significant?		No	**Yes**	**Yes**	No	**Yes**		No	**Yes**	No	No
Division Route (2)											
200,000 cy	8 cy trucks	30.2	6.6	**132.7**	2.4	5.9	3.77	0.84	16.58	0.30	0.73
	18 cy trucks	22.5	4.8	**84.0**	1.8	3.8	2.81	0.61	10.49	0.23	0.48
860,000 cy	8 cy trucks	58.4	**13.6**	**310.2**	4.7	**15.8**	7.30	1.71	**38.77**	0.59	1.98
	18 cy trucks	36.3	8.6	**170.6**	3.1	8.7	3.35	1.07	21.32	0.39	1.08
Peak Day	8 cy trucks	60.2	**14.0**	**321.9**	4.9	**16.6**					
	18 cy trucks	60.2	**14.6**	**321.9**	4.9	**23.0**					
Significance Criteria		550	10	10	10	10	--	25	25	25	25
Significant?		No	**Yes**	**Yes**	No	**Yes**		No	**Yes**	No	No

Notes: Peak Day emissions are the same for transportation of either 200,000 cy or 860,000 cy of material, peak day is when the loading and trucking activities are at maximum and is anticipated to only occur if needed and for short periods of time. Emission values highlighted in Bold Font signify exceedance of the SLO APCD significance thresholds (see Table 5.5.6).
Source: Summary from ENSR 2004a.

Table 5.5.9 Summary of Proposed Project Operations Emissions in SLO County

Activity		Daily Emissions (lbs/day)					Annual Emissions (tons/yr)				
		CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
Main Street Route (1)											
200,000 cy	8 cy trucks	20.0	4.3	61.2	1.6	2.8	2.50	0.55	7.65	0.20	0.34
	18 cy trucks	17.9	3.8	52.2	1.5	2.4	2.24	0.49	6.53	0.18	0.30
860,000 cy	8 cy trucks	29.0	7.1	105.3	2.4	4.8	3.63	0.88	13.16	0.30	0.60
	18 cy trucks	23.2	5.6	79.50	2.1	3.7	2.90	0.70	9.94	0.26	0.46
Peak Day	8 cy trucks	29.5	7.2	107.5	2.5	4.9					
	18 cy trucks	29.5	7.7	107.5	2.5	6.0					
Division Route (2)											
200,000 cy	8 cy trucks	22.1	4.8	76.3	1.8	3.4	2.76	0.61	9.53	0.22	0.42
	18 cy trucks	18.9	4.0	58.9	1.5	2.7	2.36	0.51	7.36	0.19	0.34
860,000 cy	8 cy trucks	35.2	8.4	148.4	2.9	7.1	4.40	1.06	18.55	0.36	0.89
	18 cy trucks	26.0	6.3	98.7	2.3	4.8	3.25	0.78	12.33	0.29	0.59
Peak Day	8 cy trucks	36.0	8.6	152.6	3.0	7.4					
	18 cy trucks	36.0	9.0	152.6	3.0	9.6					

Notes: Peak Day emissions are the same for transportation of either 200,000 cy or 860,000 cy of material, peak day is when the loading and trucking activities are at maximum and is anticipated to only occur if needed and for short periods of time.
Source: Summary from ENSR 2004a.

Table 5.5.10 Summary of Proposed Project Operations Emissions in SB County

Activity		Daily Emissions (lbs/day)					Annual Emissions (tons/yr)				
		CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
Main Street Route (1)											
200,000 cy	8 cy trucks	8.1	1.8	56.4	0.6	2.5	1.01	0.23	7.05	0.08	0.31
	18 cy trucks	3.6	0.8	25.1	0.3	1.1	0.45	0.10	3.13	0.04	0.14
860,000 cy	8 cy trucks	23.2	5.2	161.8	1.8	8.7	2.90	0.65	20.22	0.23	1.09
	18 cy trucks	10.3	2.3	71.9	0.8	3.9	1.29	0.29	8.99	0.10	0.49
Peak Day	8 cy trucks	24.2	5.4	169.3	1.9	9.2					
	18 cy trucks	24.2	5.4	169.3	1.9	13.4					
Division Route (2)											
200,000 cy	8 cy trucks	8.1	1.8	56.4	0.6	2.5	1.01	0.23	7.05	0.08	0.31
	18 cy trucks	3.6	0.8	25.1	0.3	1.1	0.45	0.10	3.13	0.04	0.14
860,000 cy	8 cy trucks	23.2	5.2	161.8	1.8	8.7	2.90	0.65	20.22	0.23	1.09
	18 cy trucks	10.3	2.3	71.9	0.8	3.9	1.29	0.29	8.99	0.10	0.49
Peak Day	8 cy trucks	24.2	5.4	169.3	1.9	9.2					
	18 cy trucks	24.2	5.4	169.3	1.9	13.4					

Notes: Peak Day emissions are the same for transportation of either 200,000 cy or 860,000 cy of material, peak day is when the loading and trucking activities are at maximum and is anticipated to only occur if needed and for short periods of time.
Source: Summary from ENSR 2004a.

Unocal has also proposed that the NHIS would be hand broomed from truck exteriors and removed from tires using rumble mats (see Section 2.2.1.3). When loading activities and associated NHIS stockpile management operations cease for more than 24 hours, or as otherwise required by the Air Pollution Control District (APCD), Soil Sement® or other approved vapor control would be applied to disturbed stockpile areas (see Section 2.2.1.3).

Mitigation Measures

In addition to the CDP/DP D890558D Conditions, which are aimed at reducing emissions, the Applicant shall implement the following mitigation measures.

AQ-2.1 In coordination with the SLO APCD, the Applicant shall update the APCD-approved Dust Control Plan to include additional mitigation measures if determined necessary by the OEC:

a. If the OEC determines that using dry decontamination methods to remove impacted material from the exteriors of trucks used to haul NHIS offsite is not sufficiently removing the impacted material such that it is being tracked outside the loading area, Unocal shall install wheel washers where vehicles enter and exit public streets, or wash off trucks and equipment leaving the site.

b. Sweep streets at the end of each day if visible soil material is carried by or spilled from the trucks hauling NHIS off the project site and deposited onto public roads. Water sweepers with reclaimed water should be used where feasible.

AQ-2.2 If required by the APCD, the Applicant shall update the APCD-approved Emission Reduction Plan to include additional mitigation measures:

a. Development of a comprehensive construction activity management plan designed to minimize, as feasible, the amount of large construction equipment operating during any given time period;

b. Scheduling of construction truck trips, as feasible, during non-peak hours to reduce peak hour emissions;

c. Limiting the length of the construction work-day period, if necessary and feasible, during periods with high air pollutant levels;

d. Phasing of construction activities, if appropriate and feasible.

e. Use of direct injection (ID) diesel engines (or equivalent) together with proper maintenance and operation to reduce emissions of NOx;

f. Electrify equipment where feasible;

g. Maintain all fossil-fuelled equipment in tune per manufacturer's specifications, except as otherwise required above;

h. Encourage use of catalytic converters on gasoline-powered equipment;

i. Substitute gasoline-powered for diesel-powered equipment, where feasible;

j. Use compressed natural gas (CNG) or propane-powered portable equipment (e.g., compressors, generators, etc.) onsite instead of diesel-powered equipment, where feasible;

k. All off-road and portable diesel-powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, shall be fuelled exclusively with CARB-certified motor vehicle

diesel fuel. Off-road equipment may use tax-exempt motor vehicle fuel if not operated on public roads;

l. Maximize, to the extent feasible, the use of diesel construction equipment meeting the CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines.

m. All on- and off-road diesel equipment shall not be allowed to idle for more than 5 minutes. Signs shall be posted in the designated areas to remind drivers of the 5-minute idling limit.

n. Portable equipment with engines greater than 50 horsepower used during the activities covered under the SEIR may require California state-wide portable equipment registration (issued by the CARB) or an APCD permit. Operational sources, such as back up generators, may also require APCD permits. To minimize potential delays, prior to start of the project, the Applicant shall contact the APCD representative for specific information regarding permitting requirements of these types of equipment.

AQ-2.3 Unocal shall fund a SLO County APCD-managed air-emission-reduction program (AER Program) designed to achieve timely, real, quantifiable criteria and diesel PM reductions to offset project emissions. The EIR estimates that the project's NOx emissions will be 90 tons. This project emission estimate shall be refined by Unocal using information about the actual fleet and the scheduling that will be used for the project. The refined estimate shall be submitted to the APCD for review and approval. The approved refined NOx emission estimate shall be used by the APCD to set the necessary funding amount for the AER Program. Payment shall be submitted to the APCD in 4 quarterly payments, with the first payment commencing after the refined emission estimate is approved and the total funding amount is finalized.

Residual Impact

The SLO APCD has evaluated the project-related emissions estimated in this SEIR. Based on this evaluation the APCD has decided to set an appropriate fee to mitigate the excess NOx emissions from the project trucking operations as described in Mitigation Measure AQ-2.3. If fully implemented, the mitigation measures would be able to either reduce the project emissions or offset them to insignificant levels; the residual air quality impact from operations is therefore *less than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
AQ.3	Remedial activities could expose public sensitive receptors to emissions of toxic vapors, resulting in adverse health effects.	Class III

Impact Discussion

Health risk to the public could arise from prolonged exposure to several EPA-regulated toxic compounds. The regulated compounds that could be emitted due to the proposed project are from diesel internal combustion engines. Some by-products of diesel combustion (benzene, for instance) are known human carcinogens, while formaldehyde, acetaldehyde, 1,3-butadiene, and diesel particulate matter are probable human carcinogens. Diesel exhaust particulate matter has

hundreds of chemicals adsorbed to particle surfaces, including many known or suspected carcinogens. To assess risks from exposure to diesel exhaust, assessment of risks from diesel exhaust particulate matter is considered adequate by CARB.

The hazardous effects from diesel exhaust would only occur if exposure is prolonged and a short distance from the sensitive receptor (and, therefore, concentrations of the pollutants would be high). Usually health risks are determined for the populations constantly exposed to the operational emissions for prolonged periods of time (typically residents near facilities).

Modeling was done to determine if exposure to diesel exhaust from trucks hauling soil to the Santa Maria Landfill could pose health risks to the sensitive receptors along the hauling route due to the long nature of the project (two to four years). ENSR has estimated the health risks from particulate matter for sensitive receptors located along the hauling route (ENSR 2004b). The full report is contained in Appendix C.

Conservative, worst-case assumptions were made for the health risk modeling. The most important assumptions contained in the ENSR report include:

- Trucks would be 8-cy size (maximizing the number of trips);
- 107,500 truck trips;
- The daily average number of round trips is 143.33, based on five days/week, 50 weeks/year of operations over a three-year period.
- Truck trips were assumed to begin at 7:00 a.m. and to end at 3:00 p.m.
- PM_{10} exhaust emission factor for the haul trucks is 0.24 grams per mile;
- Trucks were modeled as volume emissions sources;
- Truck traffic on the roadway was approximated as equally spaced volume sources along the entire length of the truck route.

Typically, a 70-year exposure time is used for health risk calculations, because this time is the basis for the cancer potency factor. However, in accordance with the OEHHA (2003) recommendation, a nine-year exposure was assumed for this health risk analysis, although the real exposure time would be three years.

It should be noted that, although the offsite trucking activities are anticipated to be completed in three years, future activities associated with restoration of the Guadalupe Field that would involve offsite diesel truck traffic may potentially occur. Although such activities have not been identified at this time, the assumption of a nine-year exposure duration for this health risk assessment would likely account for potential cancer risks from those activities, as well. The concentrations were also compared with the 5 mg/m^3 diesel exhaust particulate matter reference concentration to evaluate the potential for adverse non-cancer health effects.

The results are summarized in Table 5.5.11. The results indicate that the cancer risks from the project (maximum is equal to 1.044 in a million for a child at Bonita Elementary School) are below the modified threshold of 10 in a million. Therefore, potential health risk impacts would be *less than significant* (Class III) following the timely implementation of the air quality Mitigation Measures AQ-2.2 and AQ-2.3.

Table 5.5.11 Diesel Exhaust Particulate Matter Concentrations and Cancer Risks

Receptor	Address/Location	Main Street Route		Division Route	
		Average Concentration ($\mu g/m^3$) *	Cancer Risk per million Child/Adult	Average Concentration ($\mu g/m^3$) *	Cancer Risk per million Child/Adult
1. Residence (Ranch)	End of Thornberry Rd.	0.0104	0.587/0.397	0.0097	0.548/0.371
2. Residences in Guadalupe	Hwy 1 north end of Guadalupe	0.0141	0.793/0.537	0.0027	0.153/0.103
3. Residence	5795 West Main St.	0.0009	0.050/0.034	0.0009	0.049/0.033
4. Guadalupe Head Start	120 Tognazzini St	0.0057	0.323/0.219	0.0012	0.065/0.044
5. Guadalupe Day Care	130 Tognazzini St.	0.0066	0.371/0.251	0.0012	0.065/0.044
6. Rancho Guadalupe County Park	End of West Main St.	0.0009	0.049/0.033	0.0009	0.048/0.033
7. Point Sal Dunes residential area	W. Main St. North end of Pacific Dunes Way	0.0009	0.051/0.035	0.0009	0.049/0.033
8. LeRoy County Park	North of 11th St.	0.0129	0.725/0.491	0.0024	0.135/0.091
9. Mary Buren Elem. School	1050 Peralta St.	0.0055	0.312/0.211	0.0021	0.117/0.079
10. Kermit McKenzie Jr. High School	4710 W. Main St.	0.0012	0.067/0.046	0.0009	0.048/0.033
11. Residences at Hwys 1 and 166 intersection	Between Obispo St. and Flower Ave.	0.0106	0.594/0.402	0.0013	0.070/0.048
12. Residence	Hwy 166 between Hwy 1 & Black Rd.	0.0188	1.059/0.717	0.0021	0.120/0.081
13. Guadalupe Branch of Santa Maria Library	1005 Guadalupe St.	0.0146	0.824/0.558	0.0021	0.116/0.079
14. Guadalupe Foursquare Church	177 Guadalupe St.	0.0208	1.170/0.791	0.0012	0.069/0.046
15. Apostolic Church	893 Pioneer St.	0.0082	0.460/0.311	0.0023	0.131/0.089
16. Guadalupe Community Church	4635 6th St.	0.0089	0.501/0.339	0.0015	0.087/0.059
17. Our Lady of Guadalupe	1164 Obispo St.	0.0062	0.350/0.236	0.0023	0.128/0.087
18. Guadalupe Cemetery	4655 W. Main St.	0.0013	0.075/0.050	0.0008	0.048/0.032
19. Central Park	South of 10th St.	0.0114	0.641/0.434	0.0021	0.118/0.080
20. Bonita Elem. School	2715 W. Main St.	0.0184	1.036/0.700	0.0189	1.066/0.721
21. Residences	on Carmen Lane	0.0061	0.341/0.231	0.0059	0.334/0.226
22. Residences at Betteravia Rd. & Miller Rd. intersection	Daniel Dr., Douglas Way	0.0146	0.824/0.558	0.0146	0.821/0.555
23. Valley Christian Preschool	2970 Santa Maria Way, Santa Maria	0.0020	0.113/0.077	0.0020	0.113/0.076
24. Battles (George Washington) Elementary School	605 E. Battles Road, Santa Maria	0.0030	0.169/0.115	0.0031	0.172/0.116
25. Single Residence	E. Betteravia Rd.	0.0137	0.773/0.523	0.0137	0.773/0.523
26. Residence	2161 Division St.	0.0007	0.042/0.028	0.0158	0.891/0.603
27. Residence	2100/2108 Division St.	0.0007	0.038/0.026	0.0171	0.961/0.650
28. Residence	2299 Bonita School Rd.	0.0007	0.038/0.026	0.0166	0.935/0.633
29. Residence	2475 Bonita School Rd.	0.0007	0.039/0.026	0.0132	0.741/0.501
30. Residence	1280 Bonita School Rd.	0.0008	0.045/0.030	0.0092	0.520/0.584
31. Residence	450 Ray Rd.	0.0031	0.177/0.120	0.0153	0.864/0.721

Note: * Results are annual average concentrations. Source: Summary from ENSR 2004b.

Mitigation Measures

All emission-reduction measures for Impact AQ.2 would apply. Measures AQ-2.2 and AQ-2.3 would allow further reduction in PM_{10} emissions from diesel exhaust resulting in an additional public benefit.

No additional mitigation measures have been identified.

Residual Impacts

The residual health risk impact is considered *less than significant*, Class III.

Impact	Impact Description	Residual Impact
AQ.4	Soil-moving activities could cause human health impacts if the soils contain naturally occurring asbestos.	Class III

Impact Discussion

Evaluation of impacts from encountering serpentinite and serpentine-rich soils during soil movement activities is required by the SLO APCD. Such asbestos-containing materials constitute a potentially significant impact to human health. SLO APCD Rule 412, Airborne Toxic Control Measures, incorporates the California Code of Regulations (CCR) Section 93105, *Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations* (CARB 2000). This is the regulation that mandates requirements in regard to soil-moving operations and encountering of naturally occurring asbestos, such as serpentine-rich or ultramafic rock.

SLO APCD requires that impacts from natural asbestos presence have to be addressed in any proposed project that involves soil-moving operations, unless a geologic evaluation of the soils for these materials is performed with negative findings.

Unocal retained Levine-Fricke (LFR) to evaluate potential occurrence of serpentine or ultramafic rock at the project site. The geologic evaluation of the project site included the following (LFR 2002):

- Review of the existing data pertaining to the naturally occurring asbestos;
- Review of the existing maps and logs;
- Review of the soil survey and botanical survey data; and
- Limited surface sampling and analysis for asbestos.

The LFR evaluation concluded that no naturally occurring asbestos had been found in previous soil sampling and no surface exposures of serpentine or ultrafamic rock have been mapped at or adjacent to the project site. The nearest large exposure is approximately 5 miles to the south of the site. Other small exposures have been mapped approximately 7 miles to the north and approximately 12 miles to the east of the project site. Unocal requested the SLO APCD to grant an Exemption from the CCR Section 93105 for the soil-moving operations work at the Guadalupe Field based on the above-described geological evaluation; the exemption was granted.

Asbestos-containing materials have not been encountered during past remediation activities, and the geological evaluation concluded that it is unlikely that naturally occurring asbestos will be encountered during future soil-moving operations; therefore, the impact is *less than significant*.

Mitigation Measures
Mitigation measures are not required.

Residual Impacts
Residual impact is *less than significant*, Class III.

Impact	Impact Description	Residual Impact
AQ.5	CO "hotspots" impacts could result from trucks hauling soils offsite.	Class III

Impact Discussion
The traffic analysis, included in Section 5.6, Transportation and Circulation, estimated traffic impacts considering future conditions (increases in traffic due to future population growth have been estimated for the year 2007). If the future traffic along with the project-added traffic would result in an increase of 800 peak-hour trips at the project route intersections that currently or within the next three years would have LOS of D, CO "hotspots" analysis would be required.

In the year 2007, as compared to the current traffic, the two project-route intersections with the most traffic (Betteravia and Miller and Betteravia and Broadway) would have increases of 242 and 226 peak-hour trips, respectively, due to the project and all other traffic increases from future developments in the area (see Table 5.5.12). This includes the project 38 peak-hour trips as the worst-case, short-term scenario from the project. Currently, only the intersection of Betteravia and Broadway operates at the LOS of D. In 2007, it is projected that both of these intersections will operate at the LOS of D.

Table 5.5.12 Future Cumulative Peak-hour Traffic

Intersection	Current peak-hour trips	2007 peak-hour trips	2007 with Project	Increase from Current
Betteravia/Broadway	2,032	2,220	2,258	226
Betteravia/Miller	2,195	2,399	2,437	242

Because the project and other developments in the area would not contribute 800 peak-hour trips to the intersections classified as LOS D, the project does not meet the APCD criteria that would require CO modeling, and no significant CO "hotspot" impacts are anticipated. Impacts are therefore considered *less than significant*.

Mitigation Measures
No mitigation measures are required.

Residual Impacts
Project air quality impacts associated with CO emissions from traffic would be *less than significant*, Class III.

Summary of Impacts at the Santa Maria Landfill
The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. In accordance with CCR Title 27, which contains provisions to use NHIS to construct foundation layers for landfill closure, the RWQCB issued Revised Waste Discharge Requirements (WDR) Order No. 01-041 on May 18, 2001 to the Santa Maria Landfill. WDR 01-041 provides guidelines for the acceptance of NHIS from the restoration and cleanup of oil-producing sites.

These plans were addressed in a Joint Technical Document (JTD) prepared by CH_2MHill and evaluated in the CEQA addendum to the 1993 Landfill EIR (SCH 92031045) and in subsequent EIRs (SML February and May, 2004)

According to the JTD and the SEIR, accepting impacted soils is consistent with the Landfill's intent to implement an expedited closure process at the landfill by using the NHIS: (1) to achieve design grades and serve as the foundation layer of the final cover system for the existing active portion of the landfill, and (2) for daily and intermediate cover material in the lined expansion areas of the landfill. The EIR Addendum identified no significant impacts associated with the use of NHIS.

On August 31, 2004, the RWQCB issued a letter to the Santa Maria Landfill that specifically addressed acceptance of NHIS material from the Guadalupe Restoration Project. This letter allows the Landfill to revise the extractable Total Petroleum Hydrocarbon (THP) acceptance standards in order to accept NHIS material from the Guadalupe site. With the issuance of this letter, the Santa Maria Landfill is allowed to accept material from the Guadalupe site as part of the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS or impacted soils) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

For air quality, the Landfill's SEIR found that there was significant but mitigable impact associated with the onsite grading activities that could lead to fugitive dust. The proposed mitigation was the various fugitive dust control measures. The reader is referred to Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, for more information on the air quality impacts at the landfill.

5.5.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures are for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion

that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.5.7.1 Offsite Trucking to Other Destinations

Air impacts from trucking of the materials to other disposal sites would differ from the proposed project by the amount of emissions produced by offsite truck travel. Setup, mobilization, road improvements, onsite soil moving operations, and loading of the trucks would be the same as for the proposed project (see Table 5.5.7).

Loading of fewer trucks per day is likely, since the destination distances are much longer and, therefore, each truck would be able to make fewer trips per day. However, the worst-case scenario (peak period of 150 truck round-trips, or 300 one-way trips) was assumed, as in the proposed project. Impacts AQ.1, AQ.2, AQ.3, AQ.4, and AQ.5 identified for the proposed project would also apply to this alternative, as described below. The mitigation measures identified for Impact AQ.2 would apply to this alternative.

For Impact AQ.2, distances to the Buttonwillow, McKittrick, and Kettleman Hills landfills, which are located in Kern and Kings Counties, are between 117 and 137 miles from the project site (or 234 to 274 miles round trip). ENSR provided calculations for offsite truck emissions based on an average distance from the project site to these alternative destinations (or 263 miles round-trip) (ENSR 2004a).

Construction, mobilization, and demobilization would be same as for the proposed project; thus, Impact AQ.1 would be *less than significant* (Class III) as well as for the proposed project.

Most of the assumptions used for the proposed project (soil disposal at the Santa Maria Landfill) were also used for trucking to other destinations. Some of the differences are discussed below:

- The three alternative disposal facilities are located between 117 and 137 miles from the Guadalupe Field (234 to 274 miles round-trip). Calculations are provided for these sites using an average of the mileage to the three facilities, or 263 miles round-trip.
- Although, typically, fewer truck trips would be made per day to the disposal facilities, as a worst-case air emissions scenario, 150 round trips were assumed (300 one-way trips).

Total emissions for this alternative (sum of emissions in SLO, SB, Kern and Kings Counties) are given in Table 5.5.13 (includes onsite emissions as well as emissions from trucks along the whole route to the alternative soil disposal destinations). The summary of operational emissions for SLO County is given in Table 5.5.14, and for Santa Barbara County in Table 5.5.15.

Operational daily and peak day emissions of NOx are higher than the applicable thresholds in both SLO and SB Counties as well as for the whole project for all project options. Additionally, the project average-day and peak-day PM_{10} and ROC emissions for all options except hauling 200,000 cy soil by 18-cy trucks are higher than the significance thresholds. Annual NOx emissions for all project options are higher than the Tier 3 significance threshold of 25 tons per year. Thus, Impact AQ.2 would require the same mitigation measures as the proposed project (AQ-2.1 through AQ-2.3). Because the NOx emissions are significantly higher than the thresholds, Impact AQ-2 would be *significant* (Class I) even after implementation of the mitigation measures.

Table 5.5.13 Summary of Total Operations Emissions from Alternative Disposal Sites (in All Counties)

Activity *		Daily Emission (lbs/day)					Annual Emissions (tons)				
		CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
1	8-cy-size trucks	89.7	**19.9**	**547.9**	7.1	**18.2**	11.20	2.49	**68.50**	0.88	2.27
	18-cy-size trucks	49.0	**10.6**	**268.6**	4.0	9.2	6.12	1.35	**33.57**	0.49	1.16
2	8-cy-size trucks	308.6	**69.2**	**1,964.3**	**24.1**	**64.3**	28.32	6.37	**185.85**	2.22	6.05
	18-cy-size trucks	155.2	**34.7**	**923.1**	**12.2**	**31.0**	13.72	3.09	**85.73**	1.08	2.86
Peak Day	8-cy-size trucks	236.4	**53.5**	**1,553.8**	**18.5**	**51.1**					
	18-cy-size trucks	236.4	**54.5**	**1,553.8**	**18.5**	**52.2**					
SLO Significance Criteria		550	10	10	10	10	--	25	25	25	25
Significant?		No	**Yes**	**Yes**	**Yes**	**Yes**		No	**Yes**	No	No

Notes: * Activity 1 = transportation of 200,000 cy of NHIS over 2 years; Activity 2 = transportation of 860,000 cy over 3 years. Emission values highlighted in Bold Font signify exceedance of the applicable significance thresholds.
Source: Summary from ENSR 2004a.

Table 5.5.14 Summary of Alternative Sites Operations Emissions in SLO County

Activity *		Average Daily Emission (lbs/day)					Annual Emissions (tons/yr)				
		CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
1	8-cy-size trucks	53.7	11.9	296.7	4.3	10.2	6.71	1.49	37.09	0.53	1.27
	18-size trucks	32.9	7.1	156.9	2.7	5.7	4.12	0.90	19.61	0.33	0.71
2	8-cy-size trucks	123.4	27.9	766.5	9.6	25.5	15.43	3.49	95.81	1.20	3.18
	18-cy-size trucks	63.9	14.5	365.7	5.0	12.7	7.99	1.81	45.71	0.63	1.58
Peak Day	8-cy-size trucks	128.4	29.4	800.0	10.0	27.1					
	18-cy-size trucks	128.4	30.4	800.0	10.0	28.2					

Notes: * Activity 1 = transportation of 200,000 cy of NHIS over 2 years; Activity 2 = transportation of 860,000 cy over 3 years. Peak Day emissions are the same for transportation of either 200,000 cy or 860,000 cy of material; peak day is when the loading and trucking activities are at maximum of 150 one-way trips per day (300 round trips).
Source: Summary from ENSR 2004a.

Table 5.5.15 Summary of Alternative Sites Operations Emissions in SB County

Activity *		Average Daily Emission (lbs/day)					Annual Emissions (tons/yr)				
		CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
1	8-cy-size trucks	14.4	3.2	100.8	1.1	3.2	1.80	0.40	12.60	0.14	0.40
	18-cy-size trucks	6.4	1.4	44.8	0.5	1.4	0.80	0.18	5.60	0.06	0.18
2	8-cy-size trucks	41.4	9.2	289.0	3.3	9.2	5.17	1.16	36.12	0.41	1.15
	18-cy-size trucks	18.4	4.1	128.4	1.5	4.1	2.30	0.51	16.06	0.18	0.51
Peak Day	8-cy-size trucks	43.3	9.7	302.4	3.4	9.6					
	18-cy-size trucks	43.3	9.7	302.4	3.4	9.6					

Notes: * Activity 1 – transportation of 200,000 cy of NHIS over 2 years; Activity 2 – transportation of 860,000 cy over 3 years. Peak Day emissions are the same for transportation of either 200,000 cy or 860,000 cy of material, peak day is when the loading and trucking activities are at maximum of 150 one-way trips per day (300 round trips).
Source: Summary from ENSR 2004a.

For Impact AQ.3, trucks hauling soil to alternative destinations would also emit diesel exhaust. Because the transportation routes are different under this alternative, different receptors would be exposed to the diesel exhaust for health risk. However, the conditions are similar to those as were used for the health risk modeling for the proposed project, which showed that the cancer risk to sensitive receptors was below the acceptable threshold. Impact AQ.3 is considered similar to the proposed project, *less than significant* (Class III).

Impact AQ.4, Naturally Occurring Asbestos, would be the same as for the proposed project, *less than significant* (Class III), because similar onsite activities would be conducted.

Impact AQ.5, CO "hot-spots," would be *less than significant* (Class III), and less severe than the proposed project, because the intersections that would be affected by the trucks transporting soil to the alternative destinations are less congested than those intersection affected by the proposed project traffic.

5.5.7.2 Treated Materials Land Feature (TMLF)

The TMLF would involve contouring of material treated in the Land Treatment Unit (LTU) at TB9. Loading and trucking activities would occur at TB9 to transport sump material to an offsite disposal location.

In the worst-case scenario, 200,000 cy of the sump material would be transported offsite (e.g., to the Santa Maria Landfill) because sump materials cannot be effectively treated. Emissions due to trucking of the sump materials to an offsite disposal facility are the same as operations emissions for transportation of 200,000 cy of material detailed in the proposed project analysis. Additionally, there would be soil spreading/grading operations onsite that could generate high amounts of dust and additional internal combustion engine emissions.

Impacts AQ.1, AQ.2, AQ.3, AQ.4, and AQ.5 identified for the proposed project would also apply to this alternative as described below. The mitigation measures identified for Impact AQ.2 associated with hauling 200,000 cy of sump material offsite would apply to this alternative.

Emissions from the onsite machinery during both Construction and Operation phases of the TMLF alternative are below the significance criteria. However, average-day and peak-day NOx emissions from transporting up to 200,000 cy of sump material offsite would be above significance thresholds. Thus, total estimated NOx emissions (onsite and offsite) for this alternative are above the significance criteria (see emissions for the proposed project for transportation of 200,000 cy of material (See Tables 5.5.8 and 5.5.9).

Emissions from this alternative were estimated by ENSR International (ENSR 2004a). Construction, mobilization/demobilization, and general assumptions are the same as for the proposed project. Additional assumptions that were used for the emission estimates are as follows:

- The quantity of material used to restore the surface is the same as the quantity of material used to cap the TMLF.
- The TMLF is constructed from an LTU.
- Onsite road repairs would not be required.

- Grading and restoration would be completed in approximately three months.

The summary of the emissions estimates is presented in Table 5.5.16 below.

Table 5.5.16 Summary of TMLF Construction and Operations Emissions

Construction, Mobilization, Setup	Peak Daily Emissions (lbs/day)					Quarterly Emissions (tons/qtr)				
	CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
TMLF-related Emissions	37.0	8.1	101.6	2.3	0.1	0.57	0.13	1.53	0.04	0.14
SLO APCD Significance Criteria	-	185	185	-	-	-	2.5	2.5	-	2.5
Significant?		No	No		No		No	No		No

Operation Emissions		Peak Daily Emissions (lbs/day)					Annual Emissions (tons/year)				
		CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
TMLF-related		0.7	0.1	0.2	0.0	0.1	0.09	0.01	0.03	0.00	0.01
Sump materials* disposal (200,000 cy)	8-cy trucks	53.7	**12.6**	**276.8**	4.4	**14.1**	3.51	0.78	14.7	0.28	0.65
	18-cy trucks	53.7	**13.1**	**276.8**	4.4	**19.4**	2.69	0.59	9.66	0.22	0.44
TOTAL for 8-cy trucks		54.4	**12.7**	**277.0**	4.4	**14.2**	3.60	0.79	14.73	0.28	0.66
TOTAL for 18-cy trucks		54.4	**13.2**	**277.0**	4.4	**19.5**	2.78	0.60	9.69	0.22	0.45
SLO APCD Significance Criteria		550	10	10	10	10	-	25	25	25	25
Significant?		No	**Yes**	**Yes**	No	**Yes**		No	No	No	No

Note: Emission values highlighted in Bold Font signify exceedance of the significance thresholds.
* See Peak Daily Emissions for Main Street Route in Table 5.5.8.
Source: Summary from ENSR 2004a.

Impact AQ.1 would be *less than significant* (Class III) because construction, mobilization, and set-up emissions are below the thresholds (See Table 5.5.16).

Impact AQ.2 would be *significant* because transportation of 200,000 cy of soil to a disposal facility together with the TMLF-related emissions would create peak-day ROC, NOx, and PM_{10} emissions above the significance thresholds. Implementation of the emission-reducing mitigation measures specified for the proposed project would reduce this impact to *less than significant* level (Class II).

Impact AQ.3, Health Risks, would be less severe as compared with the proposed project, *less than significant* impact (Class III). Trucks hauling 200,000 cy soil to the Santa Maria Landfill or alternative destinations would emit diesel exhaust. There would be fewer truck trips than under the worst-case scenario for the proposed project (transportation of 860,000 cy).

Impact QA.4, Naturally Occurring Asbestos, would be the same as for the proposed project, *less than significant* (Class III), because similar onsite activities would be conducted.

Impact AQ.5, CO “hot-spots” would be less severe than the proposed project because fewer trucks would affect intersections (only 200,000 cy soil would be transported offsite, as compared with the worst-case scenario under the proposed project). This impact would be *less than significant* (Class III).

5.5.7.3 Engineered Containment Unit (ECU)

The ECU would involve building a containment sub-structure at TB9 and then moving the existing stockpiles at TB8 to TB9 and containing the NHIS there for an indefinite period of time. Materials for construction of the ECU liners (silt/clay and optional high-density polyethylene (HDPE) liners) would be delivered from offsite location(s). Construction would occur primarily at TB8 and TB9 and would involve the moving of NHIS, construction of sub-containment systems and leachate collection systems, and subsequent covering of the ECU with topsoil/sand and revegetation. This would involve the same truck loading operations as the proposed project; however, the trucks transporting soil would only travel onsite, there would be no transportation of the soil offsite, and there would be no screening of material. There would also be truck unloading and soil spreading/grading operations onsite that could generate high amounts of dust and additional internal combustion engine emissions. Additionally, an existing 16-foot-wide access road may be repaired and/or widened in some areas to 20 feet to facilitate movement around the ECU.

Impacts AQ.1, AQ.2, AQ.3, AQ.4, and AQ.5 identified for the proposed project would also apply to this alternative. The mitigation measures identified for Impact AQ.2 would apply to this alternative.

For Impact AQ.2, ENSR estimated emissions from implementation of this alternative (ENSR 2004a). The following scenarios were evaluated:

- Option 1 for 510,000 cy of NHIS, and Option 2 for 860,000 cy.
- Construction with or without the HDPE liners; and
- Usage of trucks with either 8-cy or 18-cy capacity.

The following assumptions were used:

- Silt/clay will be transported from a source that is 6 miles (12 miles round-trip) from the gate of the site.
- If an HDPE liner is used, it will be delivered from within 15 miles of the site (30 miles round-trip) and will require 4 trips.
- The final liner will be 2 feet thick and 100% silt/clay.
- The ECU will be built by placing soil in layers over three-year period, at a rate of 14,200 cy per month for Option 1, and 23,900 cy per month for Option 2.
- A water truck will be used for dust control during the liner construction.
- Material will be placed into the ECU directly from the excavations or existing stockpiles.
- The NHIS will remain uncovered only during the ECU construction period.
- During the post-closure period, there will be maintenance of the systems and soil/groundwater and air quality monitoring involving part-time personnel.

Construction air quality impacts (Impact AQ.1) would be *significant* for both Options, because the following emissions from Construction are above the significance thresholds: peak daily NOx, quarterly emissions of NOx and PM_{10}. The summary of the construction emissions

estimates is presented in Table 5.5.17, below. Construction emissions, however, are close to the emission thresholds, and thus, revisions to the construction schedule, Dust Control Plan, and other measures outlined for the proposed project (AQ-2.1 through AQ-2.3) would bring this impact to *less than significant* level (Class II).

The summary of the operations emissions estimates is presented in Table 5.5.18, below. Operational air quality impacts (Impact AQ.2) would be *significant* for both Options, because peak daily emissions of NOx and ROC are above the significance thresholds. Implementation of the emission-reducing mitigation measures specified for the proposed project (AQ-2.1 through AQ-2.3) would reduce this impact to *less than significant* level (Class II).

Table 5.5.17 Summary of ECU Construction Emissions

Construction	HDPE Liner (Y/N)	Truck Size	Peak Daily Emissions (lbs/day)					Quarterly Emissions (tons/qtr)				
			CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
Option 1	N	8	76.0	17.8	**210.6**	6.0	430.0	1.42	0.27	**4.00**	0.11	**3.22**
		18	76.0	17.8	**210.6**	6.0	430.0	1.31	0.24	**3.16**	0.08	**3.09**
	Y	8	76.0	17.8	**210.6**	6.0	430.0	1.31	0.23	**3.58**	0.10	**3.08**
		18	76.0	17.8	**210.6**	6.0	430.0	1.20	0.21	**2.74**	0.07	**3.05**
Option 2	N	8	76.0	17.8	**210.6**	6.0	460.1	1.44	0.27	**4.09**	0.11	**3.03**
		18	76.0	17.8	**210.6**	6.0	460.1	1.32	0.24	**3.20**	0.08	**3.30**
	Y	8	76.0	17.8	**210.6**	6.0	460.1	1.33	0.23	**3.66**	0.10	**3.28**
		18	76.0	17.8	**210.6**	6.0	460.1	1.22	0.21	**2.78**	0.07	**3.26**
Significance Criteria			-	185	185	-	-	-	2.5	2.5	-	2.5
Significant?				No	**Yes**				No	**Yes**		**Yes**

Table 5.5.18 Summary of ECU Operations Emissions

Operation	Peak Daily Emissions (lbs/day)					Annual Emissions (tons/year)				
	CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
Option 1	43.1	**12.8**	**124.6**	2.8	8.0	1.08	0.32	2.83	0.06	0.19
Option 2	43.1	**12.9**	**124.6**	2.8	8.0	1.78	0.38	4.66	0.10	0.22
Significance Criteria	550	10	10	10	10	-	25	25	25	25
Significant?	No	**Yes**	**Yes**	No	No		No	No	No	No

Source: Summary from ENSR 2004a.

Impacts AQ.3, Health Risks, and AQ.5, CO "hot-spots," would be the same as for the TMLF Alternative (see discussions for those impacts in Section 5.5.8, above). Although there is no transportation of NHIS offsite, there would be large number of trucks transporting materials (e.g., HDPE and clay for the liners) to the Guadalupe Field, resulting in Impacts AQ.2 and AQ.3.

Impact AQ.4, Naturally Occurring Asbestos, would be the same as for the proposed project, *less than significant* (Class III), with the same mitigation requirements. Although the ECU would require more handling of soils at the Guadalupe Field, the LFR evaluation (LFR 2002) determined that there was no naturally occurring asbestos present in the soils.

5.5.7.4 Slurry Injection

Slurry injection proposes to dispose of excavated NHIS by pre-screening the material to separate large soil pieces, mixing the screened material with water, and injecting this mixture into an underground oil reservoir beneath the former Guadalupe Field. In addition to the operational emissions from the commuter vehicles and soil-moving machinery onsite, emissions would also occur from operation of the screener, injection pumps, and transportation of the screen-rejected (oversize) material offsite.

Impacts AQ.1, AQ.2, and AQ.4 identified for the proposed project would also apply to this alternative. The mitigation measures identified for Impact AQ.2 would apply to this alternative. Impacts AQ.3, Health Risks, and AQ.5, CO "hot spots," would not be applicable because there would be no offsite materials transportation and no extensive deliveries of materials to the Guadalupe Field.

For Impact AQ.1, construction would include road improvements, site preparation, construction of the water and other utilities, delivery and mobilization of all required equipment (e.g., pumps, screener, shaker, injection slurry storage tank) to the site, and installation of these pieces of equipment. Construction could also involve drilling of the new injection wells, if it is decided that the existing wells cannot be used for injection.

The equipment would be installed on the already graded flat areas at TB8 (near the C well pad), or near the Diluent Tank (DT) area (near the I well pad, see Figure 3-4).

ENSR estimated emissions from implementation of this alternative (ENSR 2004a). The following scenarios were evaluated:

- Injection of 200,000 cy, and 860,000 cy of NHIS.
- Use of diesel, natural gas, or electrical pumps;
- Use of one to four Slurry Disposal Units (SDUs);
- Use of one to four slurry injection wells; and
- Injection taking place over 8 or 16 hours per day.

The following assumptions were used:

- Commuting, equipment transportation (except for the injection equipment deliveries), and materials transportation trips will be 30 miles one-way (60 miles round-trip);
- Trips to transport injection equipment would be 10 miles one-way in SLO County;
- Onsite vehicle speed is 25 mph; offsite speed is 55 mph;
- All treated material will require pre-screening;
- An average of 3 trips per day will be needed to haul oversize material from the Field to Kettleman Hills landfill for disposal (174 miles round-trip in San Luis Obispo County);
- The relative proportions of sump material and diluent-affected material treated at TB8 and DT area are the same.

Construction NOx emissions estimates from slurry injection are above the significance criteria for the options where three and four wells are drilled (see Table 5.5.19); thus, Impact AQ.1 would be *significant*. The impact would be *less than significant* for options when no more than two SDUs with two injection wells are constructed. If Unocal limits construction to the number of SDUs and injection wells to ensure that the emissions are below the significance thresholds, the impact would then be considered *less than significant with mitigation* (Class II).

All operational options using diesel pumps would result in operational NOx emissions that exceed the significance criteria (see Table 5.5.20) for the worst-case scenario when diesel pumps are used. Other combinations of the number of SDUs, number of wells and number of hours per day would have peak daily emissions that also exceed SOx, ROC, and PM_{10} thresholds. If use of electric pumps is maximized for the slurry injection, emissions would be reduced, although peak-day NOx emissions for all options and peak-day ROC and PM_{10} emissions for several options (see Table 5.5.20) would still be above the significance thresholds. Because the emissions from Operations are above the significance criteria, Impact AQ.2 would be *significant.* However, use of electric pumps and implementation of the mitigation measures specified for the proposed project (AQ-2.1 through AQ1.3) would reduce the severity of this impact to *less than significant with mitigation* (Class II).

Table 5.5.19 Summary of Slurry Injection Construction Emissions

No. of SDUs	No. of Wells	Peak Daily Emissions (lbs/day)					Quarterly Emissions (tons/qtr)				
		CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
1	1	39.6	12.9	145.2	3.1	9.6	0.71	0.16	1.09	0.03	0.12
1	2	49.3	12.9	145.2	3.5	9.6	0.82	0.17	1.25	0.03	0.13
2	2	49.3	12.9	145.2	3.5	9.6	0.90	0.19	1.33	0.03	0.14
2	4	98.5	19.3	**280.9**	7.0	14.7	1.12	0.21	1.66	0.04	0.16
3	3	73.9	14.5	**210.7**	5.2	11.0	1.12	0.23	1.76	0.05	0.17
4	4	98.5	19.3	**280.9**	7.0	14.7	1.31	0.26	2.00	0.05	0.19
Significance Criteria		-	185	185	-	-	-	2.5	2.5	-	2.5
Significant?			No	**Yes**				No	No		No

Note: Emissions that exceed significance thresholds are in Bold font.
Source: Summary from ENSR 2004a.

Table 5.5.20 Summary of Slurry Injection Operation Emissions – Diesel Pumps

CY*	No. of SDUs	No. of Wells	Hrs/ day	Peak Daily Emissions (lbs/day)					Annual Emissions (tons/year)				
				CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
200,000	1	1	8	31.8	**11.0**	**158.2**	3.5	6.0	3.44	1.24	18.49	0.41	0.68
200,000	1	2	16	57.9	**20.5**	**299.7**	6.6	**11.2**	6.84	2.49	**36.89**	0.81	1.36
200,000	2	2	8	57.9	**20.5**	**299.7**	6.6	**11.2**	6.84	2.49	**36.89**	0.81	1.36
200,000	2	4	8	57.9	**20.5**	**299.7**	6.6	**11.2**	6.84	2.49	**36.89**	0.81	1.36
200,000	2	4	16	110.3	**39.6**	**582.7**	**12.8**	**21.6**	10.50	3.82	**56.67**	1.25	2.09
200,000	3	3	8	84.7	**29.0**	**443.3**	9.8	**16.6**	10.32	3.59	**55.55**	1.23	2.07
200,000	4	4	8	111.5	**37.5**	**586.8**	**12.9**	**22.0**	10.62	3.61	**57.09**	1.26	2.13
860,000	2	4	8	57.9	**20.5**	**299.7**	6.6	**11.2**	6.84	2.49	**36.89**	0.81	1.36

Table 5.5.20 Summary of Slurry Injection Operation Emissions – Diesel Pumps

CY*	No. of SDUs	No. of Wells	Hrs/ day	Peak Daily Emissions (lbs/day)					Annual Emissions (tons/year)				
				CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
860,000	2	4	16	110.3	**39.6**	**582.7**	**12.8**	**21.6**	13.65	4.96	**73.67**	1.62	2.72
860,000	4	4	8	111.5	**37.5**	**586.8**	**12.9**	**22.0**	13.80	4.70	**74.22**	1.63	2.77
Significance Criteria				550	10	10	10	10	-	25	25	25	25
Significant?				No	**Yes**	**Yes**	**Yes**	**Yes**		No	**Yes**	No	No

Note: Numbers in bold font indicate above significance thresholds emissions. Worst-case emission estimates assume use of diesel pumps.
* volume of material to be injected, cubic yards.
Source: Summary from ENSR 2004a.

Table 5.5.21 Summary of Slurry Injection Operation Emissions – Electric Pumps

CY*	No. of SDUs	No. of Wells	Hrs/ day	Peak Daily Emissions (lbs/day)					Annual Emissions (tons/year)				
				CO	ROC	NOx	SOx	PM_{10}	CO	ROC	NOx	SOx	PM_{10}
200,000	1	1	8	17.0	5.6	**58.9**	1.3	3.3	1.52	0.55	5.58	0.12	0.34
200,000	1	2	16	28.4	9.8	**101.1**	2.2	5.9	3.00	1.09	11.07	0.24	0.67
200,000	2	2	8	28.4	9.8	**101.1**	2.2	5.9	3.00	1.09	11.07	0.24	0.67
200,000	2	4	8	28.4	9.8	**101.1**	2.2	5.9	3.00	1.09	11.07	0.24	0.67
200,000	2	4	16	51.3	**18.1**	**185.5**	4.0	**11.0**	4.60	1.67	16.95	0.36	1.03
200,000	3	3	8	40.4	**12.9**	**145.4**	3.1	8.7	4.56	1.50	16.82	0.36	1.04
200,000	4	4	8	52.4	**16.1**	**189.6**	4.0	**11.4**	4.72	1.47	17.37	0.37	1.08
860,000	2	4	8	28.4	9.8	**101.1**	2.2	5.9	3.00	1.09	11.07	0.24	0.67
860,000	2	4	16	51.3	**18.1**	**185.5**	4.0	**11.0**	5.98	2.17	22.03	0.47	1.34
860,000	4	4	8	52.4	**16.1**	**189.6**	4.0	**11.4**	6.13	1.91	22.58	0.48	1.40
Significance Criteria				550	10	10	10	10	-	25	25	25	25
Significant?				No	**Yes**	**Yes**	No	**Yes**		No	No	No	No

Note: Numbers in bold font indicate above significance thresholds emissions. Worst case emission estimates assume use of diesel pumps.
* volume of material to be injected, cubic yards.
Source: Summary from ENSR 2004a.

Impact AQ.4, Naturally Occurring Asbestos, would be the same as for the proposed project with the same mitigation requirement. Although slurry injection would require more handling of soils at the Guadalupe Field, the LFR evaluation (LFR 2002) determined that there was no naturally occurring asbestos present in the soils and, thus, Impact AQ.4 is *less than significant* (Class III) because similar onsite activities would be conducted.

5.5.8 Cumulative Impacts

Future excavation projects will take place at the same time as the proposed project's emission-generating activities. These actions would produce additional air emissions; therefore, because the project air emissions are already significant, cumulative air impacts would be significant and are of higher severity.

Several projects in the area are likely to take place at the same time as the proposed project. Development of DJ Farms in Guadalupe is likely to produce high levels of emissions because it is a large development project. It will be constructed over 7 to 10 years, starting probably in 2005. Parts of the DJ Farms project are likely to be constructed during the same time as the proposed project. Thus, cumulative air quality impacts would be significant. One way to reduce cumulative emissions would be to coordinate with the other projects' management to avoid peak-day emissions on the same day.

5.5.9 Mitigation Monitoring Plan

Mitigation Measure	Action Required by Applicant and Action Timing	Party Responsible for Verification	Method of Verification	Verification Timing
AQ-2.1	The Applicant shall submit project-specific revisions to the APCD-approved Dust Control Plan to the SLO APCD prior to land use clearance.	SLO APCD	SLO APCD to review and approve the Dust Control Plan prior to start of the project. The SLO APCD representative visits to construction sites to verify compliance	Prior to project start. Periodically during construction
AQ-2.2	The Applicant shall submit project-specific revisions to the APCD-approved Emissions Reduction Plan to the SLO APCD prior to land use clearance.	SLO APCD	SLO APCD to review and approve the Emission Reduction Plan prior to start of the project. The SLO APCD representative visits to construction sites to verify compliance	Prior to project start. Periodically during construction
AQ-2.3	The Applicant shall discuss with the SLO APCD and determine necessity for air-emission-reduction program and the exact emission offset fee amounts. If determined that the program is necessary, the Applicant shall prepare and submit the developed program to the SLO APCD prior to land use clearance. The Applicant shall provide guarantees of future payments prior to land use clearance.	SLO APCD	Review and approval of the program. Verify that the program is in place before the start of the project. Verify that the guarantees of payments are in place.	Prior to project start.

5.5.10 References

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5.6 Transportation/Circulation

This section describes the transportation systems that can be affected by the proposed project and Alternatives. The analysis is based on a review of local and regional maps, the 1998 EIR (ADL 1998), and discussions with appropriate agencies.

5.6.1 Environmental Setting

5.6.1.1 Roadway and Intersection Classification by Various Jurisdictions

Circulation conditions are often described in terms of levels of service (LOS). Level of service is a means of describing the amount of traffic on a roadway versus the design capacity of the roadway. The design capacity of a roadway is defined as the maximum rate of vehicle travel (e.g., vehicles per hour) that can reasonably be expected along a section of roadway. Capacity is dependent on a number of variables, including road classification and number of lanes, road condition, terrain, weather, and driver characteristics. The LOS rating uses qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists. These measures include freedom of movement, speed and travel time, traffic interruptions, types of vehicle, comfort, and convenience.

Trucks impact the LOS of roadways more than passenger cars because they occupy more roadway space and have poorer operating qualities than passenger cars. Because heavy vehicles accelerate more slowly than passenger cars, gaps form in traffic flow that affect the efficiency of the roadway. Also, intersections present a number of variables that can influence LOS, including curb parking, transit buses, turn lanes, signal spacing, pedestrians, and signal timing.

The LOS of a roadway is described using scale ranging from A to F, with A indicating excellent traffic flow quality and F indicating stop-and-go traffic. Level E is normally associated with the maximum design capacity that a roadway or intersection can accommodate. The LOS of A, B, and C are generally considered satisfactory. Due to the high cost of improving roadways up to an LOS of C, the LOS of D is considered tolerable in urban areas during peak hours. The City of Santa Maria has established the LOS of D as the minimum acceptable level of roadway operations.

The Transportation Research Board (TRB) has developed the Highway Capacity Manual (HCM) and method called Circular 212, which detail the procedures to be used in predicting LOS for a range of roadways and intersections. The HCM established LOS classification depending on roadway volume to capacity (v/c) ratios for different types of roadways and for intersections; these are given in Table 5.6.1, below.

Table 5.6.1 LOS vs. Volume to Capacity Ratios for Different Types of Roadways

LOS	Traffic Conditions	V/C		
		2-Lane* Highways	Arterials	Inter-sections
A	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersections is minimal.	0.15-0.26	0.00-0.60	<0.60
B	In the range of stable flow, but the presence of other users in the traffic streams begins to be noticeable.	0.27-0.42	0.61-0.70	0.60-0.69
C	In the range of stable flow, but marks beginning of the flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	0.43-0.63	0.71-0.80	0.70-0.79
D	High-density but stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences poor level of comfort.	0.64-0.99	0.81-0.90	0.80-0.89
E	Near capacity. Operations with significant delays and low average speeds.	1.00 and over	0.91-1.00	0.90-0.99
F	Forced or breakdown flow. Operations with extremely low speeds, high delay.	--	>1.00	1.00 and over

* For level terrain, when passing is allowed.
Source: Transportation Research Board (TRB 1994).

For screening purposes of traffic impacts, Santa Barbara County uses volume levels given in Table 5.6.2. The roadway capacities listed in the table are "rule of thumb" figures. Some factors that affect these capacities are intersections (numbers and configuration), degrees of access control, roadway grades, design geometries (horizontal and vertical alignment standards), sight distance, level of truck and bus traffic and level of pedestrian and bicycle traffic. San Luis Obispo County does not have a screening tool such as the Santa Barbara County table.

Table 5.6.2 Santa Barbara County — Screening LOS Values for Roadway Design

Roadway Class	LOS (high values)				
	A	B	C	D	E
Freeway – 4 lanes	29,600	49,600	59,200	66,600	74,000
Arterial – 4 Lanes	23,900	27,900	31,900	35,900	39,900
Arterial – 2 Lanes	12,000	14,000	16,000	18,000	20,000
Major – 4 Lanes	19,200	22,300	25,500	28,700	31,900
Major – 2 Lanes	9,600	11,200	12,800	14,400	16,000
Collector	7,100	8,200	9,400	10,600	11,800

Note: the screening levels are not to be used for intersections.
Source: Based on Santa Barbara County Public Works Department Roadway Design Capacities.

In addition, LOS values are often developed by the respective county engineering and public works departments to address future land use and impacts on requirements of future roadway projects. These analyses are normally conducted as part of a community plan and are available for only limited locations in the project area. They generally utilize the detailed approach given in the Highway Capacity Manual and include both roadways and intersections.

Santa Barbara County Association of Governments (SBCAG) is designated by State and Federal governments as the Metropolitan Planning Organization (MPO), the Local Transportation

Authority (LTA), and the Regional Transportation Planning Agency (RTPA). Under these designations, SBCAG has responsibility for all regional transportation planning and programming activities.

SBCAG has developed a set of traffic impact guidelines to assess impacts of land use decisions made by local jurisdictions of regional transportation facilities located within the Congestion Management Program (CMP) roadway system. According to the CMP, local agencies must ensure that the scope of any traffic analysis performed for the environmental review process required under CEQA includes assessment of project-related impacts on the CMP system if total trip generation exceeds 50 peak hour or 500 daily trips.

SBCAG issues a CMP biannually (the latest revision is 2003). This program specifies the method used for traffic analysis for projects. SBCAG developed CMP thresholds that are used to determine the significance of project-generated traffic impacts on the regional CMP system; these thresholds are listed in Section 5.6.3, below.

Intersection Capacity Utilization (ICU) method was formally adopted as the CMP LOS methodology by the SBCAG board in November 2002. This amendment to the CMP replaced Circular 212 and the Highway Capacity Manual (HCM) Operations Method for estimating LOS at signalized CMP intersections. The decision to replace Circular 212 and the HCM with the ICU Method was the result of year-long comprehensive study by the SBCAG Transportation Technical Advisory Committee (TTAC). The study included a comparative analysis between the Circular 212, ICU, and the HCM methodologies and surveys of 39 CMP intersections throughout the Santa Barbara County to estimate saturation flow rates and lost time that reflect “local” conditions. Given that SBCAG is both the Regional Transportation Planning Agency and Congestion Management Agency for Santa Barbara County, concurrence by CalTrans for this change in LOS methodology was required.

The ICU method provides a straightforward method to calculate an intersection’s LOS by taking the sum of each pair of intersection critical movements (conflicting turning movements) and dividing that value by the intersection’s saturation flow rate (capacity). The saturation flow rate for all CMP intersections is 1,600 vehicles per lane per hour. Each critical movement’s v/c ratio is then summed, and a ten percent lost time (0.1) adjustment is added to this sum to derive the intersection v/c ratio for the peak hour.

Within the project-affected roadway system, Miller Road and Betteravia Road in Santa Maria, and State Highways 1, 135 (Highway 135 is called Broadway Street within the city of Santa Maria) and 166 are on the list of CMP-designated roadways.

5.6.1.2 Overview of Roadways Potentially Affected by the Project

The Guadalupe Field is located in the coastal zone of San Luis Obispo County, with Oso Flaco Lake Road to the north, West Main Street to the south in Santa Barbara County, the Pacific Ocean to the west, and Highway 1 to the east. The Southern Pacific Railroad main line parallels Highway 1 to the east. Highway 101 travels north/south approximately 10 miles east of Highway 1 (Cabrillo Hwy). Access to the project site would be obtained from Highway 1 onto Thornberry Road to the Guadalupe Field access road. Roads throughout the Guadalupe Field are not

included in this discussion because they are on private property and are not accessible to the public.

There are three routes proposed to be used for transporting NHIS from the Guadalupe Field to the Santa Maria Landfill: Betteravia Route, Main Street Route, and Division Route. Each of the routes is described in Section 2.0, Project Description, and depicted in Figure 2-5.

Trucks would return to the Field by reversing their route to the Santa Maria Landfill. It is anticipated that each truck can complete up to five round trips per day, resulting in a maximum of 300 one-way trips or 150 round-trips, or 38 one-way trips during a peak hour. Other routes may be used for contingency only.

A Traffic Control Plan is in place for current operations-related traffic onsite and offsite. This plan would be amended as necessary to include traffic related to the offsite soil transportation. Pursuant to the 1998 EIR (ADL 1998) findings, project-related traffic would be restricted from travel on Route 166 between Highway 1 and Highway 101 between the hours of 4:30 p.m. and 5:30 p.m.; however, Route 166 would be affected by the proposed traffic only in the locations where LOS is A. Thus, this mitigation will not be effective in mitigating the current project traffic impacts on other roads that are impacted by the project.

Principal Routes

Following are brief descriptions of the principal routes that could be affected by the project-generated traffic (see Figure 2-5).

Thornberry Road terminates several hundred feet south of the Guadalupe Field access road in San Luis Obispo County. This two-lane, undivided roadway provides all access to the Guadalupe Field from State Highway 1. San Luis Obispo County designates this road as a minor road. The pavement is damaged in many places, and the road shoulders are below the pavement level due to agricultural and irrigation activities.

State Highway 1 is the only road that connects to Thornberry Road, and its use would be required to access the Guadalupe Field. It is located west of U.S. Highway 101, running in the north-south direction, and serves the communities of Pismo Beach, Grover Beach, Oceano, Guadalupe, and Lompoc in Santa Barbara and San Luis Obispo Counties. It is a two-lane, undivided highway with a single lane in each direction. This roadway is maintained and operated by the California Department of Transportation (CalTrans). In the City of Guadalupe, Highway 1 has bicycle lanes and a speed limit of 35 mph.

State Highway 166 and Main Street. State Highway 166, in Santa Barbara County, provides access from U.S. Highway 101 in Santa Maria to Highway 1, in Guadalupe. Highway 166 is a four-lane, undivided arterial roadway from Highway 101 to Blosser Road, with signalized intersections at Highway 101, College, Miller, Town Center, Broadway, Pine, Western, and Blosser. Speed limits along this stretch are 30 to 35 mph. At Blosser Road, the roadway becomes a two-lane, undivided arterial roadway from the city limits of Santa Maria to Guadalupe, heading west. The speed limit increases to 45 mph and then to 55 mph. The Simas Road intersection is an all-way stop. This roadway is maintained and operated by CalTrans. At Highway 1, Highway 166 ends, and the road continues west as West Main Street. Access to this route would be south from the project area through the City of Guadalupe on Highway 1, or bypassing the town along

11th Avenue. This route could be used for access to the City of Guadalupe and Highway 101, as well as points to the south.

U.S. Highway 101 is a major interstate highway that extends in the north-south direction; as it passes through Santa Maria, it is a divided freeway with two travel lanes in each direction. It is located east of the Guadalupe Field, and is maintained and operated by CalTrans. Highway 101 could be used for commuters to the Guadalupe Field or for transporting equipment and materials to and from the Guadalupe Field either from the south or the north. The segment of Highway 101 that goes through Santa Maria (between Santa Maria Way exit and San Luis Obispo County line) has LOS rating C (CalTrans 2001) and a truck volume of 7.7%.

Simas Road is a rural, two-lane (one lane in each direction) arterial roadway that goes in a north-south direction and connects Highway 1 and Betteravia Road, with an unsignaled all-way-stop intersection at Highway 166.

Black Road is a rural, two-lane (one lane in each direction) road that goes in a north-south direction and connects Highway 166 and Betteravia Road, with unsignaled intersections at Highway 166 and at Betteravia Road.

Betteravia Road is located south of the Guadalupe Field, parallels Highway 166 to the south, and eventually turns north and becomes Simas Road, which then intersects Highway 166. Access to this road from the Guadalupe Field would be south through the City of Guadalupe, using Highway 1, and east along Highway 166. Betteravia Road is a four-lane, arterial road from Highway 101 to “A” Street (which is between Black and Blosser Roads), where it becomes a two-lane road from “A” Street to Simas Road. The area between Highway 101 and “A” Street is mostly industrial and business, where main intersections include Broadway Street (another name for State Route 135), Miller Road (a two-lane arterial road), and Blosser Road. After “A” Street, the area is mostly agricultural.

Blosser Road is a four-lane road that goes in a north-south direction and connects Betteravia Road and Main Street, where it has signaled intersections. This road operates at LOS A most of the day; however, peak hour traffic at Betteravia Road intersection is worse and reaches LOS B or C.

Division Street. For the proposed project, Division Street would be used as a route from Highway 1 to Bonita School Road. This route would be also used for soil transportation to the alternative soil disposal sites. Division Street, a rural two-lane arterial road located in San Luis Obispo County, runs approximately parallel to Route 166 to the north. Division Street operates at LOS A. For transportation to the alternative disposal sites, Division Street could be used to access Highway 101 or the area of Nipomo through Orchard Avenue (a two-lane arterial road), and then Tefft Avenue (four-lane arterial road) to the Highway 101 on-ramps. Before Orchard Avenue, Division Street travels through primarily agricultural areas, climbs a steep grade with three sharp turns posted at 30, 20, and 35 mph each, and intersects Orchard Avenue at a stop sign. Signals are located at Tefft Street and Orchard, Tefft Street at Pomeroy, Tefft Street at Mary Avenue, and Tefft Street at Highway 101. Tefft Street is the major east-west arterial road serving the Nipomo urban area, and it provides the only freeway access in this urban area.

Bonita School Road. This is a rural two-lane road used by agricultural equipment and service vehicles, and by traffic associated with Bonita School, that is located at the intersection of Main Street and Bonita School Road. This road operates at LOS A.

Ray Road. This is a rural two-lane major roadway that is used primarily by agricultural equipment and service vehicles. Traffic counts data are not collected for this road by the Santa Barbara County (Smart 2004); however, this road is not congested (City of Santa Maria 2004) with typical LOS of A.

Sinton Road is a rural two-lane major roadway that experiences mostly traffic associated with the surrounding agricultural operations. Traffic counts data are not collected for this road by the Santa Barbara County (Smart 2004); however, the county states that the LOS of this road is most probably A (Smart 2004).

Philbric Road is a north-south two-lane road that connects Main Street and Betteravia Road in the vicinity of the Santa Maria Landfill. The trucks that would haul NHIS would use this road to access the Landfill through the entrance gate at the Philbric/Main Street intersection or through the main gate on Main Street.

West Main Street, located in Santa Barbara County, travels west at the junction of State Highways 1 and 166 to Rancho Guadalupe County Park. This two-lane, undivided road parallels the Santa Maria River on the south and provides the only access to the Rancho Guadalupe County Park. The Santa Barbara Roadway Classification System designates this road as a collector road. In the past, project-related traffic from the Guadalupe Field has been routed along this collector for access to Highway 101 and Santa Maria.

Highways 33, 41, and 46 are State Routes that traverse mainly rural agricultural areas and connect several small towns or communities. The most distance that the project trucks would travel would be on these routes. These routes are two-lane, undivided routes with no CalTrans freeway designations (which means there is unrestricted access to the routes from the adjacent properties).

Existing Conditions

Existing traffic circulation and roadway operating conditions for the project area were compiled for the roadways and intersections along the transportation routes discussed above. Information was obtained for the State Highways (Highways 1, 101, and 166) from CalTrans, and for major roads and arterial roads from the City of Santa Maria, Santa Barbara County, and San Luis Obispo County Public Works and Engineering Departments. Average daily traffic (ADT) rates were used to classify the LOS of the road segments according to the screening criteria based on the SBC Public Works Department. Table 5.6.3 presents the collected ADT data.

Future Conditions

Future conditions of the roadways are important in understanding the potential impacts of a proposed project. County circulation studies generally use a traffic model to develop estimates of future roadway traffic volumes to assist in planning of future projects. The models utilize inputs such as projected land use and increased growth, population projections, and building activity projections; however, circulation is examined only on selected routes. It is reasonable to assume,

for the purpose of this study, that traffic volumes would grow in the area at the same rate as population over the next three years (or to 2007).

As per the 1996 San Luis Obispo South County Circulation Study used for preparation of the 1998 EIR (ADL 1998), growth in population (and therefore in traffic volumes) between 1996 and 2006 was predicted to be 23% (or approximately 2.1% per year). However, comparison of historical 1995 and 1993 ADT to the current ADT data shows that traffic volume growth in the Santa Maria area and in Guadalupe in the last several years was at varying levels. The comparison shows that in Guadalupe and its rural vicinity, traffic volumes did not grow, or grew by less than a percent since 1995 (the LOS did not change from A to C as was calculated based on the 23% growth from 1996 to 2006). However, on Betteravia Road between Miller and Highway 101, where large shopping centers were built during this time, traffic volumes grew at much higher than predicted rates (5–6% per year). Now that the identified area of Betteravia Road is mostly built out, high traffic growth rates are not expected. Thus, for the current SEIR, to estimate future ADT on the project-affected roadways, a growth rate of 3% per year was assumed, which is higher than the SLO County predicted rate, but lower than the historical rate of the last five years. It is assumed that this level would be sustained over the next several years. Table 5.6.3 shows current and year 2007 ADT for the roadways potentially affected by the project. Future development and growth in the area over the next three years is estimated to produce LOS C or D for Betteravia Road segments east of “A” Street.

Table 5.6.3 lists each segment of the proposed transportation route, along with the corresponding ADT volumes, and the LOS classification, based on the LOS of E as road capacity. Data in Table 5.6.3 indicate that most of the project-affected routes operate at LOS of A. Betteravia Road has segments that currently operate at LOS B or C for the daily traffic volumes, and, as predicted for the year 2007, will be C or D. However, traffic flow on roadways is most constrained at intersections and during peak hours. Therefore, the ADT sometimes is not a good indicator of the traffic flow on roadways during peak hours, and so, for those segments where screening analysis resulted in an LOS of B or worse, more detailed traffic flow analyses of peak-hour volumes at intersections were done using the ICU methodology used by the SBCAG.

Table 5.6.3 Average Daily Traffic on Roadways that could be Affected by the Project

Roadway Segment	ADT*	Current ADT *	Current LOS**	2007 ADT*	2007 LOS**
Hwy 1 s/o Thornberry Rd	5,200 (1) (a)	5,682	A	6,209	A
Hwy 1 n/o Hwy 166	5,700 (3) (a)	5,871	A	6,415	A
Hwy 166 (Hwy 1 - Simas Rd.)	8,000 (3) (a)	8,240	A	9,004	A
Hwy 166 (Simas Rd. - Black Rd.)	8,800 (3) (a)	9,064	A	9,904	A
Simas Road s/o Hwy 166	2,900 (1) (b)	3,169	A	3,463	A
Division Street	3,850 (3) (d)	3,966	A	4,597	A
Bonita School Road	1,640 (3) (d)	1,689	A	1,958	A
Ray Road ***	2,000	2,185	A	2,388	A
Stinton Road ***	2,000	2,185	A	2,388	A
Black Rd. (Hwy 166 - Betteravia)	2,000 (1) (b)	2,185	A	2,388	A
Blosser Road (Main St. – Betteravia Rd.)	20,563 (2) (c)	21,815	A	23,838	A
Betteravia Rd. e/o Simas	3,100 (1) (c)	3,387	A	3,702	A
Betteravia Rd. (Simas - Black Rd.)	3,900 (0) (c)	4,262	A	4,797	A

Table 5.6.3 Average Daily Traffic on Roadways that could be Affected by the Project

Roadway Segment	ADT*	Current ADT *	Current LOS**	2007 ADT*	2007 LOS**
Betteravia Rd. (Black Rd. - "A" St.)	3,100 (0) (c)	3,387	A	3,813	A
Betteravia Rd. ("A" St. - Blosser Rd.)	13,995 (2) (c)	14,847	A	16,224	A
Betteravia Rd. (Blosser Rd - Broadway)	18,884 (2) (c)	20,034	A	21,892	A
Betteravia Rd. (Broadway - Miller)	24,267 (2) (c)	25,745	**B**	28,132	**C**
Betteravia Rd. (Miller - Bradley)	29,003 (2) (c)	30,769	**C**	33,622	**D**
Betteravia Rd. (Bradley - Hwy 101)	28,126 (2) (c)	29,839	**C**	32,606	**D**
Betteravia Rd. (Hwy 101 - Philbric Rd.)	5,800 (0) (c)	6,528	A	7,133	A
Philbric Rd. (Betteravia - Main St.)	1,400 (1) (c)	1,530	A	1,672	A

Notes: e/o = east of; w/o = west of; s/o = south of.

* Year of the traffic data: (0) – 2000; (1) – 2001; (2) – 2002; (3) – 2003. To obtain current or future ADT, the ADT data from earlier years were increased by 3% per year.

** LOS as per SBC Public Works Department screening criteria (see Table 5.6.2).

*** Traffic counts are assumed to be similar as for Black Road, because data for these roads are not collected by the SBC (Smart 2004).

Sources for ADTs: (a) Traffic Volumes on State Highways, CalTrans, 2003; (b) Roadway Traffic Volumes, Santa Barbara County, Public Works Transportation Division, October 2001; (c) ADT in Santa Maria, City of Santa Maria Engineering Department, 2002, (d) San Luis Obispo County Traffic Counts. 2003.

LOS estimated using ADT on Betteravia Road ranges from an A to a C. Signaled intersection analysis of the current traffic data calculated using the SBCAG ICU methodology results in an LOS rating of D for the intersection of Betteravia Road and Broadway (Highway 135) (see Table 5.6.4). City of Santa Maria traffic policy, however, classifies that as an acceptable LOS.

Table 5.6.4 Peak Hour LOS on CMP Intersections Potentially Impacted by the Project

Signaled Intersection	Current Peak Hour Traffic	Peak Hour LOS	v/c (1), (2)
Betteravia and Blosser	1,318	B-C	0.66, 0.73
Betteravia and Broadway St.	2,032	D	0.83, 0.81
Betteravia and Miller St.	2,195	C	0.75, 0.78
Betteravia and Hwy 101 ramp	1,207	A	0.51, 0.52

Notes: v/c = roadway volume to capacity ratio; LOS = level of service.

Sources: (1) SBCAG 2003; (2) MRS calculation using ICU method.

Truck Traffic

Truck traffic affects the level of service of a roadway by affecting traffic flow. Information on truck traffic is available from CalTrans for Highways 1, 135, and 166; truck traffic on Betteravia Road was not available and was assumed to be the same as on Highway 135 where it crosses Betteravia Road. Table 5.6.5 lists the truck traffic percentages for each highway segment. A method for estimating the truck traffic effects on the LOS is included in the Highway Capacity Manual. Essentially, for each 10% increase in truck traffic, the LOS volume rating is decreased by approximately 5%.

Table 5.6.5 Truck Traffic Volumes

Roadway	Trucks as percent of Total Traffic	ADT	Trucks ADT*
Highway 1 n/o Highway 166 (1)	5.7	5,871	335
Highway 166: Jct. Highway 1 (1)	7.2	8,240	593
Highway 166 w/o Blosser Rd. (1)	11.0	9,064	997
Betteravia: e/o Route 135 (2)	5.5	18,884	1,227

Notes: * Calculated by multiplying ADT by the truck percentage.

Sources: CalTrans 2001 Truck Traffic Volumes (actual data in this reference were obtained during 1997 counts). For ADT Source (1) - CalTrans Counts, 2003, (2) City of Santa Maria map, 2002.

Rail Facilities

A main line for the Union Pacific Railroad runs parallel to State Highway 1 within the vicinity of the proposed project site. The railway carries both passenger and freight traffic. There are three Amtrak trains per day in each direction and seven regularly scheduled freight trains per day. In addition, there may be other scheduled freight trains on the line in peak-demand periods. The Santa Maria Valley Railroad joins the Union Pacific route at the intersection of State Highways 166 and 1.

5.6.2 Regulatory Setting

The transportation system requirements for the project are subject to the policies and plans of San Luis Obispo County, Santa Barbara County, and CalTrans.

San Luis Obispo County outlines traffic and circulation standards and guidelines in the Circulation Element of the County General Plan for the South County Planning Area. This area extends to the urban boundaries of the “Five Cities” on the north, the coastal range on the east, the Santa Maria River to the south, and the Pismo Dunes on the west. The Land Use Element includes general planning guidance as well as specific development “standards” to address problems and conditions in individual communities. The existing standards apply to area-wide development plan projects; driveways for new land divisions; equestrian, pedestrian, and bikeways; road design; and construction for new land divisions.

Santa Barbara County outlines policies and standards in the Circulation Element of the County Comprehensive Plan. The standards provide guidance in defining whether the proposed project is consistent with established roadway capacity levels and intersection levels of service. Project consistency with roadway standards is based upon the number of ADTs contributed by the project and the potential for exceeding acceptable capacity, design capacity, and the estimated future volumes for roadways in the project area. In addition, the Santa Barbara County Environmental Thresholds and Guidelines Manual defines the impact thresholds for determining significance of proposed projects.

The policy for the City of Santa Maria requires that roadways within their jurisdiction maintain a minimum LOS of “D.”

Maximum load limits for trucks and safety requirements for oversized vehicles are generally regulated by CalTrans for operation on State highways, and by the counties and cities for their roads.

5.6.3 Significance Criteria

State CEQA Guidelines provide a general canvas for the determination of the project transportation impacts. Transportation/Circulation significance criteria have been established for both San Luis Obispo County and for Santa Barbara County. The City of Santa Maria and SBCAG also have their significance criteria for the roadways under their respective jurisdictions. Since roadways within jurisdictions of all these agencies will experience traffic-related impacts, the criteria established by all these agencies have been considered in developing significance criteria for the project. To simplify the analysis, the more stringent or more appropriate criteria have been chosen to provide a conservative assessment of impacts, regardless of the location of an impact.

Santa Barbara County Thresholds

Significance criteria for Santa Barbara County were found to be the most stringent criteria (SBC 1995). The main criterion is based on the ratio of traffic volume to capacity (v/c) of the roadway or intersection. Impacts are regarded as significant when the project traffic increases an intersection peak hour v/c ratio by the value provided in Table 5.6.6 or adds at least 5, 10 or 15 peak-hour trips to a roadway with LOS F, E, or D, respectively.

Table 5.6.6 SBC Significance Criteria

Peak Hour LOS (including project)	Increase in V/C	Additional Trips per hour
A	0.20	-
B	0.15	-
C	0.10	-
D	-	15
E	-	10
F	-	5

Other Santa Barbara County thresholds that would deem the traffic impacts significant include:

- Project adds traffic to a roadway that has design features or receives use which would be incompatible with substantial increases in traffic. This could be indicated by exceeding the Circulation Element Capacity designation for the roadway.
- A major roadway (arterial or collector classification) would be closed to through traffic as a result of project activities, with no suitable alternative route available.
- Project activities would restrict access to or from private property or adjacent land uses (i.e., beach, pier, port facilities, etc.), with no suitable alternative access.

- Project activities would restrict the movements of emergency vehicles (police cars, fire trucks, ambulances, and paramedic units), with no reasonable alternative access routes available.
- Project activities would impede pedestrian movements or bike trails, with no suitable alternative pedestrian/bicycle routes.
- Project activities would increase the demand for and/or reduce the supply of parking spaces, with no provisions for accommodating the resulting parking deficiencies.
- An increase in roadway wear in the project vicinity occurs as a result of heavy truck or construction equipment movements, resulting in noticeable deterioration of pavement or roadway surfaces.
- Project activities would result in safety problems for vehicular traffic, pedestrians, or bicyclists.

City of Santa Maria

Santa Barbara County thresholds are consistent with the City of Santa Maria policy in that the thresholds become more stringent when LOS changes from C to D. However, the City of Santa Maria traffic impact thresholds state that project-specific impacts are considered significant if the addition of project traffic degrades an intersection's level of service from LOS D (acceptable) to LOS E or worse.

SBCAG Thresholds

SBCAG developed a set of significance criteria/thresholds to determine the significance of project-generated traffic impacts on the regional CMP system. These are listed below.

- For any roadway or intersection operating at LOS A or B, a decrease of two levels of service resulting from the addition of project-generated traffic.
- For any roadway or intersection operating at LOS C, project-related traffic that results in a LOS D or worse.
- For intersections within the CMP system with existing congestion, the criteria listed in Table 5.6.7 define significant impacts:

Table 5.6.7 SBCAG CMP Significance Criteria for Intersections

Level of Service	Project Added Peak-Hour Trips
LOS D	20
LOS E	10
LOS F	10

- For freeway or highway segments with existing congestion, the criteria listed in Table 5.6.8 define significant impacts:

Table 5.6.8 SBCAG CMP Significance Criteria for Highway Segments

Level of Service	Project Added Peak-Hour Trips
LOS D	100
LOS E	50
LOS F	50

5.6.4 Impact Assessment Methodology

The transportation impact analysis for the proposed project and alternatives was conducted by evaluating the impacts of project-related traffic on the existing roadway conditions in the area. Project-related activities that could impact transportation and circulation in the vicinity of the Guadalupe Field include: (1) worker vehicles commuting to and from the project site, (2) mobilization and demobilization of equipment and material, and (3) transportation of waste materials to be disposed of offsite. Each of these activities was analyzed for the proposed project and Alternatives using the significance criteria presented in Section 5.6.3.

5.6.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that are incorporated into all work projects that occur at the Guadalupe Field.

The following measures would be implemented to mitigate traffic and circulation impacts in accordance with the Coastal Development Permit/Development Plan (CDP/DP D890558D) County Conditions of Approval:

F92. All project-related traffic shall be restricted from travel on Route 166 between the hours of 4:30 p.m. and 5:30 p.m. Possible alternative routes are presented in Table 5.9.2 of the Final EIR.

F93. Unocal shall prepare a Traffic Control Plan to detail specific commuter and truck trip vehicle routes, peak hour and route restrictions; road surface maintenance; and traffic safety. The Traffic Control Plan shall be approved by the County Engineering Department in consultation with the Santa Barbara County Public Works Department, Roads/Traffics Division.

F94. Roads damaged by project-related truck traffic shall be properly restored to their pre-project condition. Prior to the remediation and abandonment activities, Unocal shall survey the proposed routes to assess the condition of the roads. Road damage monitoring shall be conducted throughout the project. Unocal shall pay for road restoration.

These measures have been included as part of the proposed project, since they are conditions that would apply to the proposed activities.

5.6.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts on vehicular traffic associated with the proposed project. Due to the location of the proposed project, impacts associated with road or lane closures, private property access restrictions, parking restrictions, and pedestrian circulation are not applicable in this analysis. All construction, mobilization, and soil-loading activities will take place at the Guadalupe Field, where public access is restricted and the current Traffic Control Plan is in effect. Therefore, only offsite on-road vehicle trips have the potential to create an impact to the surrounding roadway network. The following is a description of potential impacts associated with the proposed project.

The proposed project includes removal and transfer of the existing TB8 and TB9 NHIS Stockpiles, as well as transfer of other NHIS excavated in the future, and disposal of all NHIS at the Santa Maria Landfill. Impacts associated with previously approved, anticipated excavation work have been evaluated under the 1998 EIR (ADL 1998) and are not considered part of this project.

The remainder of this section presents the traffic impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

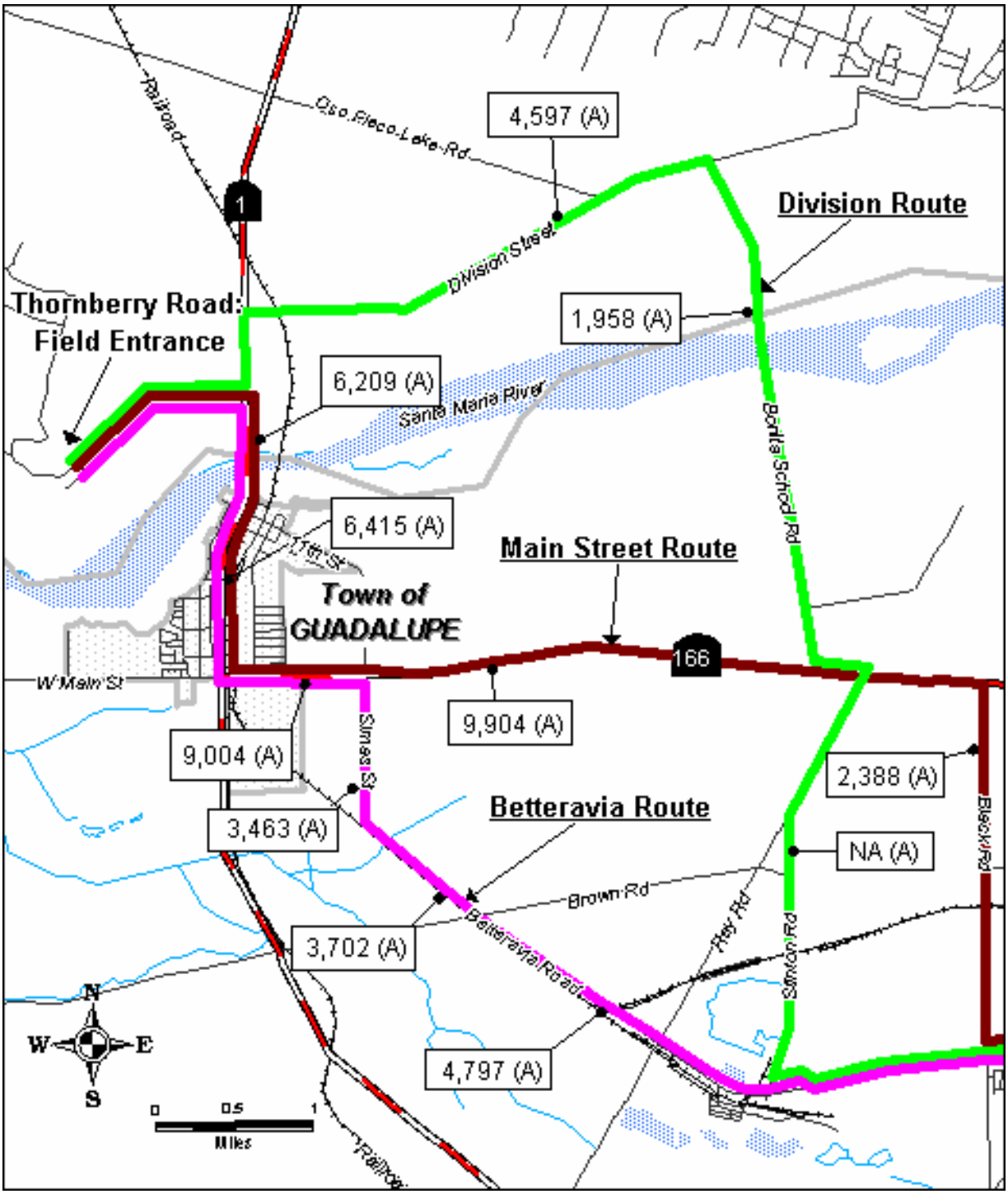
Impact	Impact Description	Residual Impact
T.1	Offsite vehicle trips to haul NHIS to Santa Maria Landfill could impact traffic flow on Betteravia Road during PM peak commuting hours.	Class II

Impact Discussion

Machinery, equipment, and materials would need to be delivered to the Guadalupe Field to improve roads before NHIS could be trucked offsite; however, these trips would be limited. As can be seen from the Project Description, 326 round trips are needed during road improvements. Other mobilization-related traffic could include deliveries of 12 pieces of soil-loading equipment. Worker commuter traffic would add up to 12 round-trips during mobilization and up to 17 round-trips during soil hauling (assuming that for every piece of onsite machinery/equipment there would be 1.5 workers commuting to the Guadalupe Field).

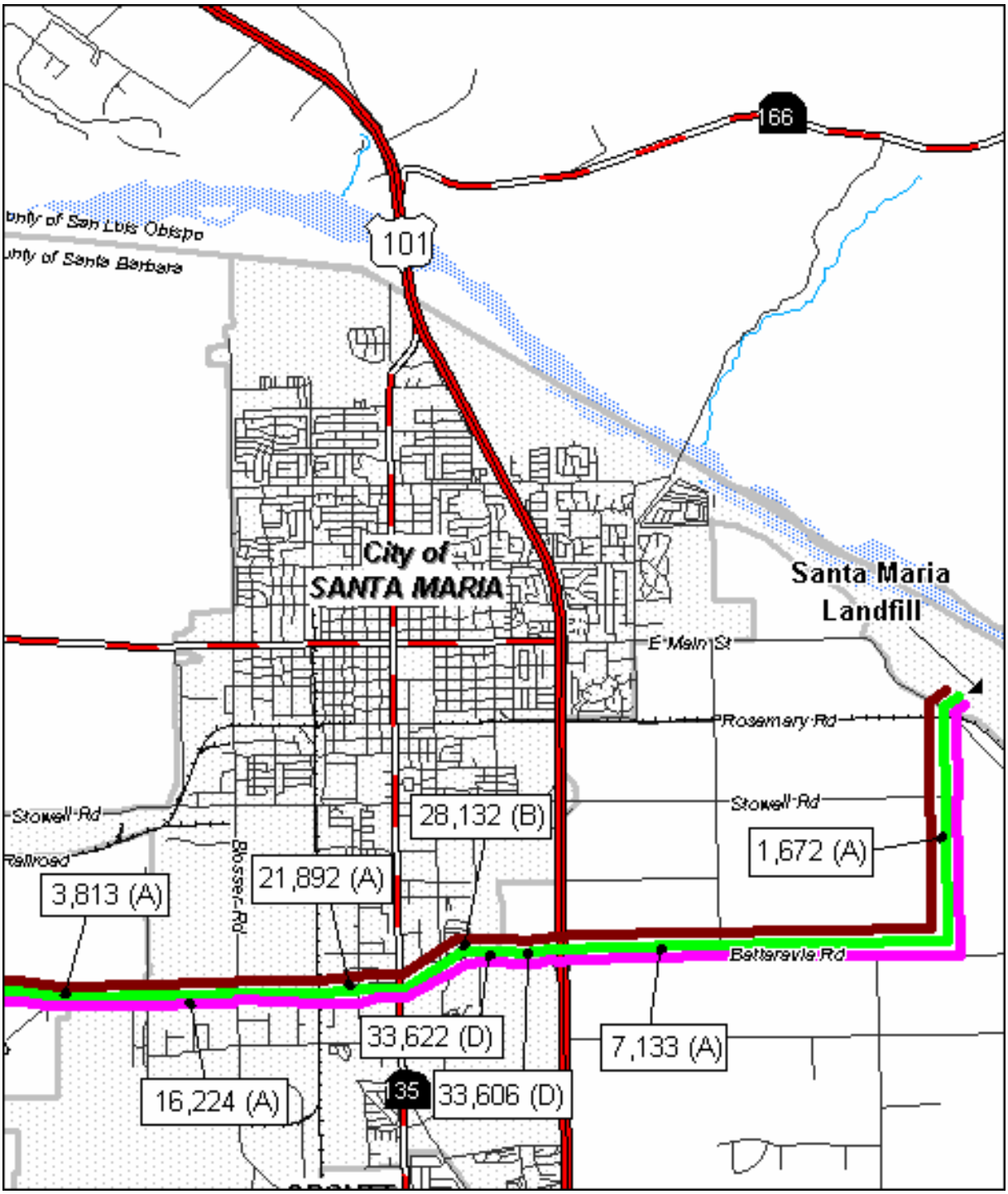
The majority of transportation impacts would come from trucks hauling NHIS offsite. The proposed project is to haul the NHIS to the City of Santa Maria Landfill at 2065 E. Main Street. This facility is located in Santa Barbara County, approximately 16 miles from the Field (see Figure 5.6-1a and b). However, the trucks would drive to the Santa Maria Landfill using a slightly longer route. This route was proposed to avoid traveling through downtown Santa Maria on Main Street, which is congested. Trucks would return to the Guadalupe Field by reversing their route to the solid-waste-handling facility.

Figure 5.6-1a Traffic Routes and ADT on the Project-Affected Roadways



Notes: The ADT numbers are estimated average daily traffic counts for the year 2007. The roadway LOS at the listed ADT is given in parenthesis.

Figure 5.6-1b Traffic Routes and ADT on the Project-Affected Roadways



Notes: The ADT numbers are estimated average daily traffic counts for the year 2007. The roadway LOS at the listed ADT is given in parenthesis.

It is anticipated that each truck can complete up to five round-trips per day, with a total for all trucks that would not exceed 150 round-trips per day during times of peak work activity (or 167 round-trips considering the commuter trips; however, it is assumed that commuter trips do not contribute to the peak hour and it is assumed that the commuters would not use the Betteravia Road to get to the Guadalupe Field). The worst peak-hour traffic will be 38 one-way trips (or 19 round-trips) (it is assumed that the commuter trips and deliveries of materials to the Guadalupe Field would be conducted outside of peak hours, and only the NHIS-hauling truck trips are included in peak hours). The worst-case total number of trips would be 107,500 round-trips (to transport 860,000 cy of soil with 8-cy-size trucks.

Table 2.4 in the Project Description, Section 2.0, illustrates the number of trips required for the range of truck capacities, for the red rock/road base/aggregate, and the different quantities of NHIS that would be transported.

While the trucks are onsite, standard traffic safety procedures would be in place (e.g., flaggers), as proposed by the Applicant. A Traffic Control Plan is in place for current operations related to traffic onsite and offsite. This plan would be amended as necessary to include the traffic related to offsite trucking.

Thornberry Road would be impacted by the project-related traffic, since it is not a frequently traveled roadway. Currently, this roadway is used only by agricultural traffic and other traffic related to the ranch at the end of this road. This road is also used by the vehicles related to the ongoing remediation and monitoring activities at the Guadalupe Field. The Applicant may, as a potential part of the proposed project, widen and/or improve Thornberry Road to provide a staging area for trucks waiting to enter the entrance gate.

Pursuant to the 1998 EIR (ADL 1998) findings, the Applicant proposed to restrict project-related traffic from travel on Route 166 (Main Street) between Highway 1 and Highway 101 between the hours of 4:30 p.m. and 5:30 p.m. However, this restriction would not mitigate the main congestion related to the current proposed project. The roadway segment that has the most congestion along the proposed NHIS-hauling route is on Betteravia Road between Blosser Road and Highway 101 (see Figures 5.6-1a and b, and Tables 5.6.4 and 5.6.7). Table 5.6.9 indicates that, in 2007, the portion of Betteravia Road from Miller to Highway 101 would operate at LOS of D, and addition of 300 trips per day from the project would not change the LOS of this road segment. The City of Santa Maria policy deems ADT with the LOS of D as acceptable.

Betteravia Road and Broadway Street (also known as State Route 135) are in the CMP-designated roadway system. The CMP-designated roadways are required to be examined against the CMP thresholds only for those projects generating 500 ADT, or peak-hour traffic of 50 trips. The proposed project would generate only 300 ADT and 38 maximum trips during short-term periods of peak project activity through Betteravia Road, and an average of 9 truck trips per hour (see Section 2.2.1.3, Project Description, Table 2.4, Offsite Truck Duration). The peak-hour project-related traffic consists entirely of heavy trucks, and trucks affect a roadway LOS more severely than lighter vehicles (see beginning of Section 5.6.1.1).

These heavy trucks will affect roadways and intersections that, in 2007, are expected to operate at LOS of C or D, specifically Betteravia Road and the intersections of Betteravia Road with Broadway Street and with Miller Road. Therefore, it was determined that the CMP thresholds for

the peak-hour traffic would be more applicable in this case to the roadways designated as CMP than to the City of Santa Maria thresholds.

Analysis of current LOS of the intersections of Betteravia Road shows that the intersection with Broadway operates at LOS of D during peak hours. In the future, this situation will worsen due to population growth and subsequent increase in traffic. However, as shown in Table 5.6.10, peak-hour LOS for 2007 would remain at LOS D if the same growth rate of 3% per year is applied to the current intersection data. The intersection of Betteravia and Miller would operate at LOS of D, with and without the project. Applying the SBCAG thresholds, the impact would be potentially significant because more than 20 peak-hour vehicle trips would affect two of the CMP intersections (Betteravia and Broadway and Betteravia and Miller) that operate at LOS of D.

Table 5.6.9 Future ADT and LOS on the Project-Affected Roadways

Roadway Segment	2007 ADT*	2007 LOS**	2007 ADT + Project	LOS With Project
Hwy 1 (s/o Thornberry Rd))	6,209	A	6,543	A
Hwy 1 (n/o Hwy 166)	6,415	A	6,749	A
Hwy 166 (Hwy 1 - Simas Rd.)	9,004	A	9,338	A
Hwy 166 (Simas Rd. - Black Rd.)	9,904	A	10,238	A
Simas Road s/o Hwy 166	3,463	A	3,797	A
Division Street	4,597	A	4,931	A
Bonita School Road	1,958	A	2,292	A
Ray Road***	2,388	A	2,722	A
Stinton Road***	2,388	A	2,722	A
Black Rd. (Hwy 166 - Betteravia)	2,388	A	2,722	A
Blosser Road **	23,838	**A**	24,138	**B**
Betteravia Rd. (e/o Simas)	3,702	A	4,002	A
Betteravia Rd. (Simas - Black Rd.)	4,797	A	5,097	A
Betteravia Rd. (Black Rd. - “A” St.)	3,813	A	4,113	A
Betteravia Rd. (“A” St. - Blosser Rd.)	16,224	A	16,524	A
Betteravia Rd. (Blosser Rd - Broadway [Hwy 135])	21,892	A	22,192	A
Betteravia Rd. (Broadway [Hwy 135] - Miller)	28,132	**C**	28,432	**C**
Betteravia Rd. (Miller - Bradley)	33,622	**D**	33,922	**D**
Betteravia Rd. (Bradley - Hwy 101)	32,606	**D**	32,906	**D**
Betteravia Rd. (Hwy 101 - Philbric Rd.)	7,133	A	7,433	A
Philbric Rd. (Betteravia - Main St.)	1,672	A	1,972	A

Notes:
* 2007 ADT is predicted at 3% annual traffic growth using current data.
** Blosser Road may be used by the project trucks as a contingency.
*** The County of Santa Barbara does not measure traffic on Ray Rd. and Stinton Rd. (G. Smart 2004); traffic on these roads was assumed to be similar to traffic on Black Road.

Table 5.6.10 Peak Hour LOS on CMP Intersections Potentially Impacted by the Project

Signaled Intersection	Current	Current LOS	2007	2007 LOS	2007 With Project	2007 with Project LOS
Betteravia and Blosser	1,318	B-C	1,440	C	1,478	C
Betteravia and Broadway St.	2,032	D	2,220	D	2,258	D
Betteravia and Miller St.	2,195	C	2,399	D	2,437	D
Betteravia and Hwy 101 ramp	1,207	A	1,319	A	1,357	A

Notes: v/c = roadway volume to capacity ratio; LOS = level of service.
Sources: (1) SBCAG 2003; (2) calculation using ICU.

Mitigation Measures

T-1.1 *Truck-hauling traffic shall be restricted from travel between the Guadalupe Field and the Santa Maria Landfill on Betteravia Road between the hours of 4:30 p.m. and 5:30 p.m. (evening peak hour), except as otherwise approved by the OEC.*

Residual Impacts

Restricting vehicles from traveling to and from the Guadalupe Field on Betteravia Road between the hours of 4:30 p.m. and 5:30 p.m. will reduce the potentially significant traffic impacts during the peak hour to less than significant. The non-peak LOS for Betteravia Road could support the additional volume contributed by the project. With mitigation on Betteravia Road and implementation of Condition F93, this impact is considered *less than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
T.2	Use of local roadways by heavy trucks for offsite hauling of NHIS could cause physical damage to road surfaces.	Class III

Impact Discussion

There is the potential for road surfaces in the project area to be damaged or altered from the project-related trucks over the course of the project. Although road wear is caused by excessive repetitive use, the proposed project would contribute only approximately 1% to 7% (depending on the road segment) to the current daily truck traffic on Betteravia Road during NHIS hauling to the Santa Maria Landfill (the number of truck trips per day are estimated to be 300 in the worst case for periods of peak activity). However, Thornberry Road and Highway 1 in the City of Guadalupe receive significantly less traffic and could experience road surface damage from repetitive project-related trucks. Thornberry Road is proposed to be repaired by the Applicant. CDP/DP Condition F94 is required to be implemented for this project, and will serve to mitigate any road damage. Thus, this impact is considered to be *less than significant* (Class III).

Mitigation Measures

T-2.1 *The Applicant shall update the existing Traffic Control Plan (see CDP/DP Condition 93) that details specific truck trip vehicle routes to the Landfill, peak*

hour and route restrictions, road surface maintenance, and traffic safety. The updated Traffic Control Plan shall be approved by the San Luis Obispo County Department of Public Works in consultation with the Santa Barbara County Public Works Department, Roads/Traffic Division.

Residual Impacts

With the proposed mitigation and the mitigation outlined in CDP/DP Condition F94, this impact is *less than significant* (Class III).

Summary of Impacts at the Santa Maria Landfill

The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004 (Santa Maria Landfill project EIR), which was certified by the Santa Maria City Council.

For transportation, there were no impacts identified within the Landfill boundary. This SEIR has addressed the transportation impacts associated with moving the material from the Guadalupe Field to the Landfill.

5.6.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures are for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.6.7.1 Offsite Trucking to Other Destinations

This alternative proposes trucking of the NHIS to other locations outside the County. Alternative destinations for the offsite trucking would include McKittrick, Buttonwillow, and Kettleman Hills.

Offsite trucking for these destinations would have the same elements of the site description, mobilization, and onsite operations as the proposed project (trucking to the Santa Maria Landfill).

There are two Routes proposed to reach the alternative waste facilities. The first (Route 1) would be from the Guadalupe Field, north on Highway 1, east on Division Street, south on U.S. Highway 101, east on Highway 166, and north on Highway 33. The second (Route 2) would be

from the Field, south on Highway 1, east on Highway 166 to Highway 101, north on Highway 101, east on Highway 166, and north on Highway 33.

The route to Kettleman Hills would be north on Highway 1, east on Division Street, north on Highway 101, east on Highway 46, and northeast on Highway 41.

Distances would be substantially greater than the proposed project. However, the worst case number of trips (300 trips for peak periods of activity) was assumed to be the same as the proposed project. The trucks will affect Highway 101 traffic, which is at LOS D in the Santa Maria area. Applying the SBCAG thresholds for freeways, the impact would be considered significant if the project would add 100 peak-hour trips to freeways with the LOS of D. The project would only add 38 peak-hour trips in the worst case. This is considered an insignificant impact.

Other roads affected by this alternative operate at the LOS of A (see Table 5.6.11), and thus, addition of 300 ADT or 38 peak-hour trips would not result in a significant impact. Impacts from offsite traffic would be *less than significant*. Impact T.1 would not apply to this alternative, since the routes proposed for this alternative would not include heavy use of Betteravia Road.

Impact T.2, Road Surface Wear, identified for the proposed project would also apply to this alternative. Wear on Thornberry Road would be the same as for the proposed project, potentially significant; however, CDP/DP Condition F94 and measure T-2.1 would mitigate any impacts to road surface; thus, the impact would be less than significant (Class III).

Table 5.6.11 Traffic on Routes That Could be Affected by Disposal at Alternative Disposal Sites

County	Roadway Description	Present ADT	ADT+ Project	LOS With Project
	Division Street Route			
SLO	Division St. e/o Orchard Avenue	4,341	4,641	A
SLO	Division St. 0.7 mi. e/o Bonita School Rd.	3,850	4,150	A
SLO	Division St. e/o Bonita School Road	3,243	3,543	A
SLO	Orchard Ave. s/o Division Street	6,807	7,107	A
SLO	Orchard Ave. s/o Tefft Street	5,985	6,285	A
SLO	Tefft St. w/o Mary Avenue	17,558	17,858	A
	Highway 101			
SB	Betteravia Road.	59,000	59,300	D
SB	East Stowell Rd	61,000	61,300	D
SB	Jct. with Rte. 166 West, Main Street	58,000	58,300	C
SB	Donovan Road	55,000	55,300	C
SB	Jct. Rte. 135 South, Santa Maria	61,000	61,300	D
SLO	Jct. Rte. 166 East	53,000	53,300	C
SLO	Tefft Street	53,000	53,300	C

Table 5.6.11 Traffic on Routes That Could be Affected by Disposal at Alternative Disposal Sites

County	Roadway Description	Present ADT	ADT+ Project	LOS With Project
	State Route 166			
SB	Guadalupe, Jct. Rte. 1	8,600	8,900	A
SB	Bonita School Rd.	10,600	10,900	A
SB	Black Rd.	12,200	12,500	A
SB	Santa Maria, Blosser Rd.	20,400	20,700	A
SB	Santa Maria, Jct. Rte. 135	22,600	22,900	A
SB	North Jct. Rte. 101	2,900	3,200	A
SLO	Suey Rd.	2,500	2,800	A
SLO	Tepesquet Rd.	2,400	2,700	A
SLO	New Cuyama, Perkins Rd.	4,000	4,300	A
SLO	Bell Rd.	4,550	4,850	A
Kern	Maricopa, North Jct. Rte. 33	4,050	4,350	A
	State Route 33			
Kern	Maricopa, Jct. Rte. 166 East; Poso St.	5,700	6,000	A
Kern	County Road P263	6,500	6,800	A
Kern	Taft, Jct. Rte. 119 East	5,600	5,900	A
Kern	Taft, Kern/1st Streets	9,200	9,500	A
Kern	Taft, Kern/6th Streets	12,700	13,000	A
Kern	Taft, Lincoln/10th Streets	13,500	13,800	A
Kern	Midway Rd. (County Rd. P268)	3,200	3,500	A
Kern	Jct. Rte. 58 West; McKittrick, South	3,100	3,400	A
Kern	Jct. Rte. 58 East; McKittrick, North	1,800	2,100	A
Kern	Lokern Rd. (County Rd. P208)	5,500	5,800	A
Kern	Lost Hills Rd. (County Rd. P213)	4,200	4,500	A
Kern	Blackwells Corner	2,500	2,800	A
Kern	Devils Den Rd. (Barker Rd.)	2,500	2,800	A
Kern	Kings County	2,400	2,700	A
Kings	Reef City, Jct. Rte. 41	2,450	2,750	A
Kings	Avenal, 7th Ave.	2,650	2,950	A
Kings	Jct. Rte. 269, Skyline Blvd.	2,600	2,900	A
	State Route 58			
Kern	Jct. Rte. 33; McKittrick-Lokern Rd.	1,700	2,000	A
Kern	Lokern Rd. - Corn Camp Rd.	3,950	4,250	A
Kern	Corn Camp Rd. - Buttonwillow Ave.	5,200	5,500	A
Kern	Buttonwillow Ave - Wasco Way (Road 267)	5,800	6,100	A
Kern	e/o Wasco Way (Road 267)	8,200	8,500	A
	State Route 41			
Kings	Kings County boundary – Rte. 33	10,500	10,800	A
Kings	n/o Reef City, Jct. Rte. 33	7,500	7,800	A
Kings	n/o Jct. Rte. 5	11,300	11,600	A
Kings	n/o Bernard Dr.	8,000	8,300	A
Kings	n/o Quail Ave.	9,400	9,700	A
Kings	n/o Nevada Ave/Coalinga Rd.	9,000	9,300	A

5.6.7.2 Treated Materials Land Feature (TMLF)

The TMLF would involve contouring of material treated in the Land Treatment Unit (LTU) at TB9. Loading and trucking activities would occur at TB9 to transport sump material (material that cannot be treated) to the Santa Maria Landfill or other offsite location for disposal.

Only 200,000 cy of NHIS would need to be transported offsite for disposal. The number of trucks to transport 200,000 cy of sump material is smaller than the number of trucks that are proposed to haul all NHIS to the Santa Maria Landfill. However, the peak-day traffic would be the same as for the proposed project; therefore, transportation impacts could be potentially significant (see discussions for Impacts T.1 and T.2 for the proposed project).

Impacts T.1 and T.2 identified for the proposed project would apply to this alternative. The mitigation measures identified for these impacts would also apply to this alternative. There would be no other impacts associated with this alternative.

The same numbers of equipment and materials would be needed for road repairs and widening (see Table 2.2), which would result in additional 326 trips offsite and 7–8 trips to deliver the machinery. A small number of additional equipment/materials (as compared to the proposed project) would be needed to drill vadose zone monitoring wells. The materials/equipment delivery vehicles would only affect the transportation routes in the beginning and at the end of the project, however.

Although the total number of project vehicle trips (25,000 trips for 8 cy trucks or 11,111 trips using 18 cy trucks) would be reduced as compared to the worst case in the proposed project (107,500 trips using 8 cy trucks of 47,779 trips using 18 cy trucks), the peak-day truck traffic could still be 38 one-way trips to transport sump material to the Landfill. Therefore, Impact T.1 would become insignificant only if mitigation measure T-1.1 is implemented (Class II impact). Impact T.2 (road surface damage) under this alternative would be reduced and would be considered *less than significant* (Class III); implementation of measure T-2.1 is required.

5.6.7.3 Engineered Containment Unit (ECU)

The ECU would involve building a containment sub-structure at TB9, then moving the existing stockpiles at TB8 to TB9, and containing the NHIS there for an indefinite period of time. Construction would occur primarily at TB8 and TB9 and would involve the moving of NHIS within the Guadalupe Field, construction of sub-containment systems and leachate collection systems, subsequent covering of the ECU with topsoil/sand, and revegetation.

Transportation impacts would be significantly reduced as compared to the proposed project because only commuter vehicles and vehicles that deliver materials, machinery, and equipment would impact offsite roadways. Some onsite road improvement will still be done by the Applicant; however, smaller areas of road surface would need to be repaired within the Guadalupe Field because there would be no need to accommodate trucks to transport the NHIS from the Guadalupe Field. Thus, the number of trips needed for road widening would be reduced.

Additional trips, as compared to the proposed project, would be needed to deliver the liner materials (high-density polyethylene [HDPE] and silt/clay materials). Depending on the quantity

and size of trucks, a range of 900 to 6,750 offsite truck trips (up to 13,500 one-way trips) will be needed to transport the silt/clay to the Guadalupe Field (400 to 3,000 trips for the containment liner and 500 to 3,750 trips for the top/cover liner). Additional trips would be needed to transport HDPE material if a liner from this material is required by the RWQCB. The resulting number of truck trips is smaller compared to the worst case in the proposed project — 107,500 trips (to transport 860,000 cy of NHIS using 8-cy-size trucks); however, the peak-day traffic could be still significant.

Impacts T.1 and T.2 identified for the proposed project would apply to this alternative. The mitigation measures identified for these impacts would also apply to this alternative. There would be no other impacts associated with this alternative.

Because the number of such vehicles is significantly smaller than the number of trucks that are proposed to haul NHIS to the Santa Maria Landfill, Impacts T.1 and T.2 under this alternative would be reduced. However, Mitigation Measure T-1.1 would be applicable if the delivery trucks use Betteravia Road at more than 20 trips during the peak hour.

5.6.7.4 Slurry Injection

Slurry injection would involve the injection of affected materials mixed with water into the subsurface, via wells. The installation and operation of injection piping, mixing vessels and tanks, and injection pumps would be part of this alternative.

Transportation impacts from this alternative would be from commuter vehicles and deliveries of the equipment (e.g., pumps, screens, augurs) and construction materials. Moving of the NHIS to the slurry injection site or sites is expected. This would be done using the site roads and will not affect offsite traffic.

Transportation impacts would be significantly reduced as compared to the proposed project because only commuter vehicles and vehicles that deliver materials, machinery, and equipment would impact offsite roadways. Only a limited amount of soil (includes oversized aggregates from soil pre-screening operations) would be transported offsite either to the Santa Maria Landfill or other waste-disposal destinations, as described above in Section 5.6.6. Because the number of offsite trips is significantly smaller than the number of trucks trips that are proposed to haul NHIS to the Santa Maria Landfill, Impacts T.1 and T.2 under this alternative would not be applicable. Mitigation measures would not be required.

5.6.8 Cumulative Impacts

Potential impacts to transportation/circulation resulting from some of the cumulative projects listed in Section 4 could be significant. Highways 166 and 1 in the vicinity of Guadalupe would be used by construction vehicles related to development of DJ Farms.

The Santa Maria Landfill project is the cumulative project with the largest potential to increase the traffic in the vicinity of the landfill. The Landfill project could generate additional 1,000 trips at the time of the proposed project — between years 2005 and 2008, depending when the Guadalupe project is approved (Fugro/McClelland 2001 and 2004). The certified EIR for the Santa Maria Landfill project analyzed truck trips related to the Guadalupe Remediation Project

and identified no significant cumulative impacts. Thus, for the landfill vicinity roadways — East Main Street, Philbric Road, Highway 101 — the two projects together will not have significant impacts.

Impacts from other projects in the vicinity of Betteravia Road could be significant if traffic from other projects would affect Betteravia Road at the same time as the proposed project. Construction of one or more of the larger developments discussed in Section 4 could have an indirect cumulative traffic impact if they were constructed simultaneously with the proposed project's NHIS trucking operations. Project-related vehicle traffic on Betteravia Road is considered to be significant but mitigable due to the existing peak-hour LOS rating of D for the CMP roadway intersections with Broadway Street (Highway 135) and Miller Road, and the fact that the project adds heavy trucks to this roadway.

5.6.9 Mitigation Monitoring Plan

Mitigation Measure	Action Required by Applicant and Action Timing	Party Responsible For Verification	Monitoring/ Reporting Schedule	Party Responsible For Verification
T-1.1	Unocal shall monitor all construction-related traffic, and restrict project-related traffic from traveling on Betteravia Road during the identified peak periods.	San Luis Obispo and Santa Barbara County Engineering Dept.	Unocal shall monitor and report to San Luis Obispo and Santa Barbara County Engineering Dept. quarterly	Designated Monitor
T-2.1	Unocal shall submit the updated Traffic Control Plan to the SLO County for review and approval prior to the approval of the project.	San Luis Obispo and Santa Barbara County Engineering Dept.	Unocal shall monitor and report to San Luis Obispo and Santa Barbara County Engineering Dept. quarterly	Designated Monitor

5.6.10 References

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5.7 Noise

This section describes the baseline noise in the vicinity of the proposed project and the project's potential noise impacts. The analysis is based on existing noise data, a review of local and regional noise contours, and discussions with local agencies.

5.7.1 Environmental Setting

5.7.1.1 Definitions

Noise is defined as unwanted sound that is heard by people or wildlife and that interferes with normal activities or otherwise diminishes the quality of the environment. Sources of noise may be transient (e.g., the passing of a train or aircraft through the area) or continuous (e.g., the hum of distant traffic or the operation of air conditioning equipment). Sources of noise may have a broad range of sounds and may be generally nondescript or have a specific, readily identifiable sound, such as a car horn. The sources of noise may also be steady or impulsive. These characteristics all bear on the perception of the acoustic environment.

Noise is usually measured as sound level on a logarithmic decibel (dB) scale, with the frequency spectrum adjusted by the A-weighting network. The dB is a unit division on a logarithmic scale that represents the intensity of sound relative to the reference intensity near the threshold of normal human hearing. The A-weighting network is a filter that approximates the response of the human ear at moderate sound levels. The resulting unit of measure is the A-weighted decibel (dBA).

To analyze the overall noisiness of an area, noise events are combined for an instantaneous value or averaged over a specific time period (e.g., one hour, multiple hours, and 24 hours). The time-weighted measure is referred to as Equivalent Sound Level (L_{eq}). The equivalent sound level is defined as the same amount of sound energy averaged over a given time period. The percentage of time that a given sound level is exceeded can also be represented. For example, L_{10} is a sound level that is exceeded 10% of the time over a specified period.

5.7.1.2 Effects on Wildlife

Wildlife response to noise is dependent not only on the magnitude, but also on the characteristic of the sound, or the sound frequency distribution. Wildlife is affected by a broader range of sound frequencies than are humans. Noise is known to affect an animal's physiology and behavior, and chronic noise-induced stress is deleterious to an animal's energy budget, reproductive success, and long-term survival (Radle 2001).

5.7.1.3 Effects on Humans

Human response to noise is dependent not only on the magnitude but also on the characteristic of the sound, or the sound frequency distribution. Generally, the human ear is more susceptible to higher frequency sounds than to lower frequency sounds. This is reflected in the A-weighting, which essentially assigns a weighting of zero to sounds with a frequency below 10 cycles per second and has a maximum weighting for sounds with a frequency in the 2,000 to 5,000 cycles-per-second range.

Human response to noise is also dependent on the time of day and expectations based on location and other factors. For example, a person sleeping at home might react differently to the sound of a car horn than to the same sound while driving during the day. The regulatory process has attempted to account for these factors by developing overall noise ratings such as Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (L_{dn}) which incorporate penalties for noise occurring at night. The L_{dn} rating is an average of noise over a 24-hour period, in which noises occurring between 10:00 p.m. and 7:00 a.m. are increased by 10 dBA. The CNEL is similar but also adds a penalty of 5 dBA to noises that occur between 7:00 p.m. and 10:00 p.m. Average noise levels over daytime hours (7:00 a.m. to 7:00 p.m.) are represented as L_d and nighttime noises as L_n. Table 5.7.1 shows typical noise levels encountered in common daily activities.

The effects of noise are considered in two ways: how a proposed project may increase existing noise levels and affect surrounding land uses, and how a proposed land use may be affected by existing surrounding land uses. The SLO County General Plan Noise Element focuses on particular types of land uses when measuring the effects of noise. These “sensitive receptors” include residences, transient lodging (e.g., hotels, motels), hospitals, nursing homes, convalescent hospitals, schools, libraries, offices, churches, public assembly places, and outdoor sports and recreation facilities.

5.7.1.4 Direction, Terrain, and Building Effects

Noise impacts are generally calculated based on a free-field condition. However, some noise effects are directional in nature, and the sound spreads in only one direction. This is described by a direction factor wherein the higher the direction factor, the more concentrated the sound energy in a certain direction.

Terrain also affects the propagation of sound. Hilly terrain (e.g., dunes) or soft surfaces (e.g., trees, brush) can absorb the sound energy and cause fewer noise impacts at the same distance. Similarly, buildings and walls can deflect the sound energy and cause a significantly varying noise field within a short distance. Weather conditions and altitude can also affect the propagation of sound. Increased temperature or altitude can increase the propagation of sound energy, since less energy is absorbed by the atmosphere.

5.7.1.5 Vibration

Vibrations are caused by some of the same activities as noise. Instead of being transmitted through the air, vibrations are transmitted through solid matter, such as the earth. Vibrations are perceived through touch rather than hearing. Since soils and other solid materials have varying transmission properties, the effects of vibrations differ widely from location to location. Vibrations are measured in meters per second, squared (m/s^2), which is a unit of acceleration.

Table 5.7.1 Common Environmental Noise Levels

Common Outdoor Noise Levels	Noise Level (dBA)	Common Indoor Noise Levels
	110	Rock Band
Jet Flyover at 1,000 feet		
	100	
		Inside Subway Train (New York)
Gas Lawnmower at 3 feet		
	90	
Diesel Truck at 50 feet Noisy Urban Daytime		
		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Gas Lawnmower at 100 feet		Shouting at 3 feet
	70	
Commercial Area Heavy Traffic at 300 feet		Vacuum Cleaner at 10 feet
		Normal Speech at 3 feet
	60	
		Large Business Office
Quiet Urban Daytime		
	50	
		Dishwasher Next Room
Quiet Urban Nighttime		
	40	Small Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night
	20	Concert Hall (Background)
		Broadcast and Recording Studio
	10	
		Threshold of Hearing
	0	

Source: Aspen 1996.

5.7.1.6 Regional Overview

Impacts from noise-generating activities (e.g. soil-moving machinery, trucks transporting soil to the landfill) would be experienced along the coastline area from Rancho Guadalupe County Park to the Oso Flaco Lake Natural Area, and along the soil transportation route. However, the noise analysis focuses primarily on sensitive receptors (such as residences, hospitals, schools), which are mostly affected by noise.

5.7.1.7 Sensitive Receptors

Land uses that are listed in the San Luis Obispo and Santa Barbara Counties and the City of Santa Maria General Plan Noise Elements are considered when measuring the effects of noise. "Sensitive receptors" include residences, recreational areas, transient lodging (hotels, motels, etc.), hospitals, nursing homes, convalescent hospitals, schools, libraries, houses of worship, public assembly places, mortuaries, and recreational areas. These receptors could be subject to noise generated by onsite activities as well as by increased traffic from the transportation of soil to the Santa Maria Landfill. Table 5.7.2 shows sensitive receptors in the area of the Guadalupe Dunes and along the soil transportation route. These receptors can be affected by noise from the onsite machinery, or from the increased truck traffic, or both.

5.7.1.8 Background Noise Sources

Major sources of noise in the study region near the Guadalupe-Nipomo Dunes Complex include occasional passing aircraft and trains and recreational activities, such as off-road vehicles, northwest of Oso Flaco Lake. Breaking waves along the beach are also a source of background noise. Along the transportation route to the Santa Maria Landfill, the noise sources include the vehicles on the roadways.

Baseline noise levels were collected as part of the 1998 Guadalupe Oil Field Remediation and Abandonment Project EIR (1998 EIR) (ADL 1998) and as part of the current analysis. Noise sources associated with maximum readings were generally produced by ocean surf or traffic on nearby roads. Background noise levels were measured at several sensitive receptors closest to the project site and those located within 1,000 feet from the transportation route.

Noise levels associated with past studies (URS 1985, SLO 1992b, and ADL 1998) have been used as part of the current analysis, as well as the noise levels measured specifically for this SEIR. During the current noise study, it was not possible to measure noise at the exact distance and location, as was done during the previous studies. However, when compared, noise levels measured during the 2004 study have been found to be similar to the noise levels measured at the same sensitive receptors during the past noise studies.

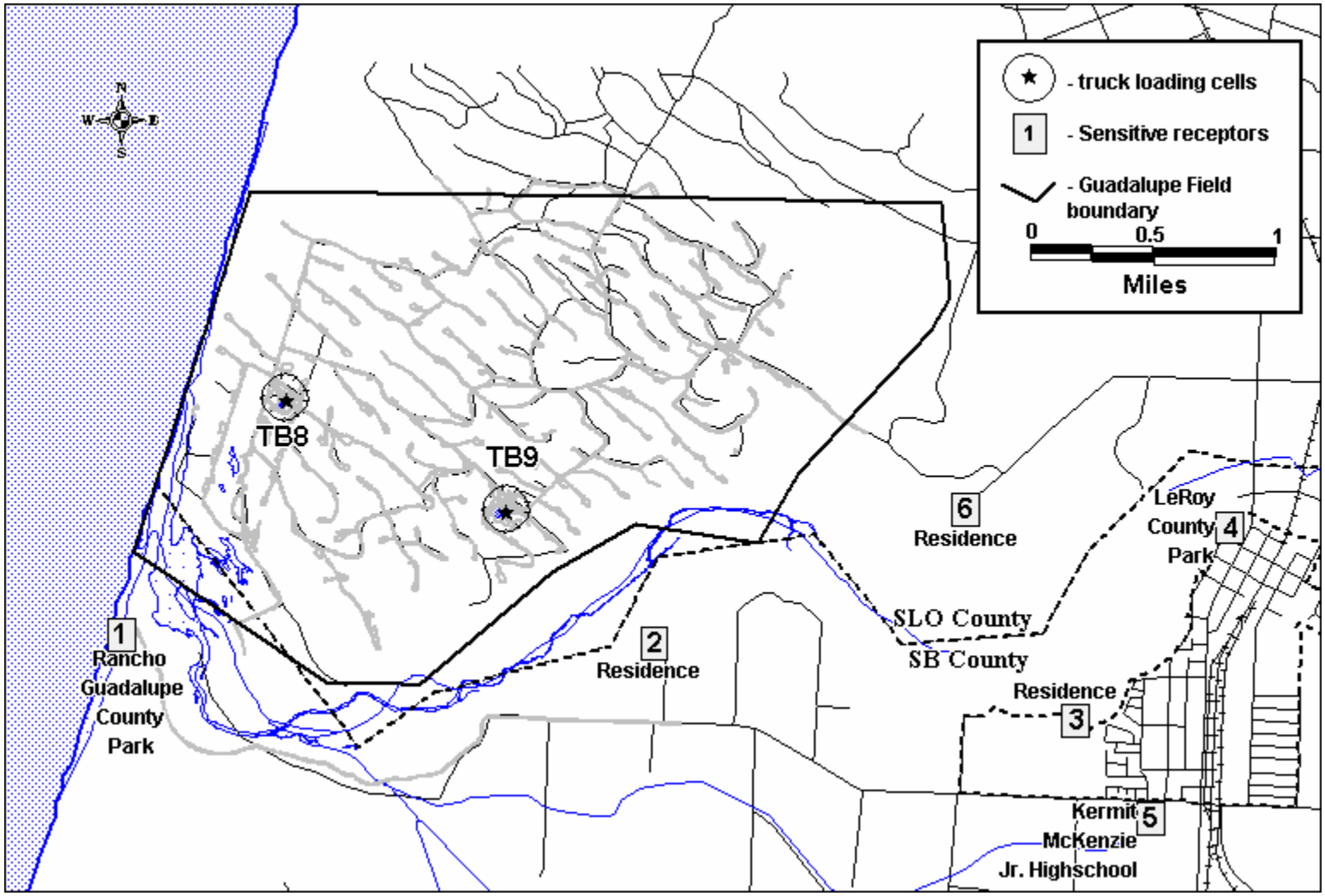
The current set of baseline noise readings at selected sensitive receptors was taken on May 27, 2004 in order to verify the earlier data, and obtain new data for the new residential developments in the City of Santa Maria, evening noise measurements, and noise measurements at the receptors along the truck route. The readings taken at the sensitive receptors are listed in the Table 5.7.3. Figure 5.7-1 shows the locations of background noise monitoring in the vicinity of the Guadalupe Field; Figure 5.7-2 shows noise monitoring locations along the truck route; monitoring locations numbering is as per Table 5.7.3.

Table 5.7.2 Sensitive Receptors Near the Project that Could Experience Elevated Noise Levels

Sensitive Receptors	Address or Location/Jurisdiction	Distance*, ft
1. Rancho Guadalupe County Park	end of West Main St./SBC	5,400 / TB8
2. Residence	5795 West Main St./SCB	3,800 (1)
3. Residential neighborhood	North end of Pacific Dunes Way, Point Sal Dunes residential area/City of Guadalupe	12,300 (1)
4. LeRoy County Park**	North of 11th St. / SBC	14,800 (1) 400 (2)
5. Kermit McKenzie Jr. High School**	4710 W. Main St./ City of Guadalupe	14,400 (1) 1,240 (2)
6. Residence (ranch)**	Thornberry Rd./SLO County	9,200 (1) 900 (2)
7. Guadalupe Head Start	120 Tognazzini St. / City of Guadalupe	770 (2)
8. Guadalupe Day Care	130 Tognazzini St. / City of Guadalupe	800 (2)
9. Guadalupe Branch of Santa Maria City Library	1005 Guadalupe St. / City of Guadalupe	60 (2)
10. Guadalupe Foursquare Church	177 Guadalupe St. /City of Guadalupe	60 (2)
11. Guadalupe Community Church	4635 6th St. / City of Guadalupe	120 (2)
12. Central Park	South of 10th St. / City of Guadalupe	300 (2)
13. Mary Buren Elementary School	1050 Peralta St. / City of Guadalupe	1,489 (2)
14. Guadalupe Cemetery	4655 W. Main St. / City of Guadalupe	60 (2)
15. Guadalupe Foursquare Church	177 Guadalupe St. / City of Guadalupe	60 (2)
16. Apostolic Church	893 Pioneer St. / City of Guadalupe	1,300 (2)
17. Our Lady of Guadalupe	1164 Obispo St. / City of Guadalupe	1,100 (2)
18. Residences at north end of Guadalupe	Hwy 1 (Guadalupe St.) / City of Guadalupe	60 (2)
19. Residential neighborhood	between Obispo St. & Flower Ave; .Northeast of Hwy 166 and Hwy 1 intersection/Guadalupe, SBC	80 (2)
20. Residence on Hwy 166	between Hwy 1 & Black Rd./SBC	350 (2)
21. Bonita Elementary School	Hwy 166 (2715 W. Main Street)/ City of Santa Maria	60-150 (2)
22. Residential neighborhood	at intersection of Betteravia and Blosser Roads.; Carmen Lane/N. Westgate Rd. / City of Santa Maria	80 (2)
23. Residential neighborhood	at intersection of Betteravia Rd. & Miller Rd.; Daniel Dr., Douglas Way/City of Santa Maria	100 (2)
24. Residence	W. Betteravia Rd./Coast Rd./ City of Santa Maria	150-200 (2)
25. Residence	2161 Division St./SLO County	80-100 (2)
26. Residences	2100/2108 Division St./SLO County	80-100 (2)
27. Residence	2299 Bonita School Rd./SLO County	80-100 (2)
28. Residence	2475 Bonita School Rd./SLO County	80-100 (2)
29. Residence	1280 Bonita School Rd./SLO County	80-100 (2)
30. Residence	450 Ray Road/SB County	80-100 (2)

Notes: * Distances are given from the site, TB9 (1) unless noted otherwise; also for those receptors that are close to the truck route, distances are given from the closest point on the route from the centerline of the roadway (2).
** Receptors that are likely to have impacts from noise from the onsite machinery as well as the noise from offsite trucks.

Figure 5.7-1 Locations of Background Noise Monitoring near the Guadalupe Field



Source: Marine Research Specialists.

5.7.1.9 Study Area

The study area encompasses the area contiguous to the Guadalupe Field and west of Highway 1 in San Luis Obispo and Santa Barbara Counties and includes the City and environs of Guadalupe and City of Santa Maria in Santa Barbara County, and the area adjacent to the transportation route for the NHIS (see Section 5.6, Transportation/Circulation).

Table 5.7.3 Baseline Noise Levels at Sensitive Receptors

#	Sensitive Receptor, Location	Day L_{eq} (dBA)
1	Rancho Guadalupe County Park parking lot (2)	61.2
2	Residence, 5795 West Main St. (1)	44.2
3	North end of Pacific Dunes Way, Point Sal Dunes residential area (1, 2)	52.1
4	LeRoy County Park, west end of parking lot (2)	50.1
5	Kermit McKenzie Jr. High School, 4710 W. Main St. (2)	58.1
6	Residence, end of Thornberry Rd. (2)	58.0
7	Residences, Highway 1, north end of Guadalupe (2)	66.3
8	Residences at intersection of Hwy's 1 and 166, (noise barrier) (2)	56.9
9	Residence on Highway 166 between Black Rd. and Highway 1 (2)	62.2
10	Bonita School, 2715 W. Main St., Santa Maria**	66.9
11	Residences along W. Betteravia Rd., at Carmen Lane (behind noise barrier) (2)	54.5
12	Residences along W. Betteravia Rd., at Douglas Way (behind noise barrier, approximately 110 feet from the Betteravia road centerline) (2)	53.7
13	Residence at E. Betteravia Rd. intersection w/ Coast Rd. (2)*	69.1
14	Residences along Division Street (2) *	58.7
15	Residences on Bonita School Rd. near intersection with Division St. (2) *	56.1
16	Residences along Bonita School Road (2) *	56.0
17	Residence on Ray Road (2) *	57.1

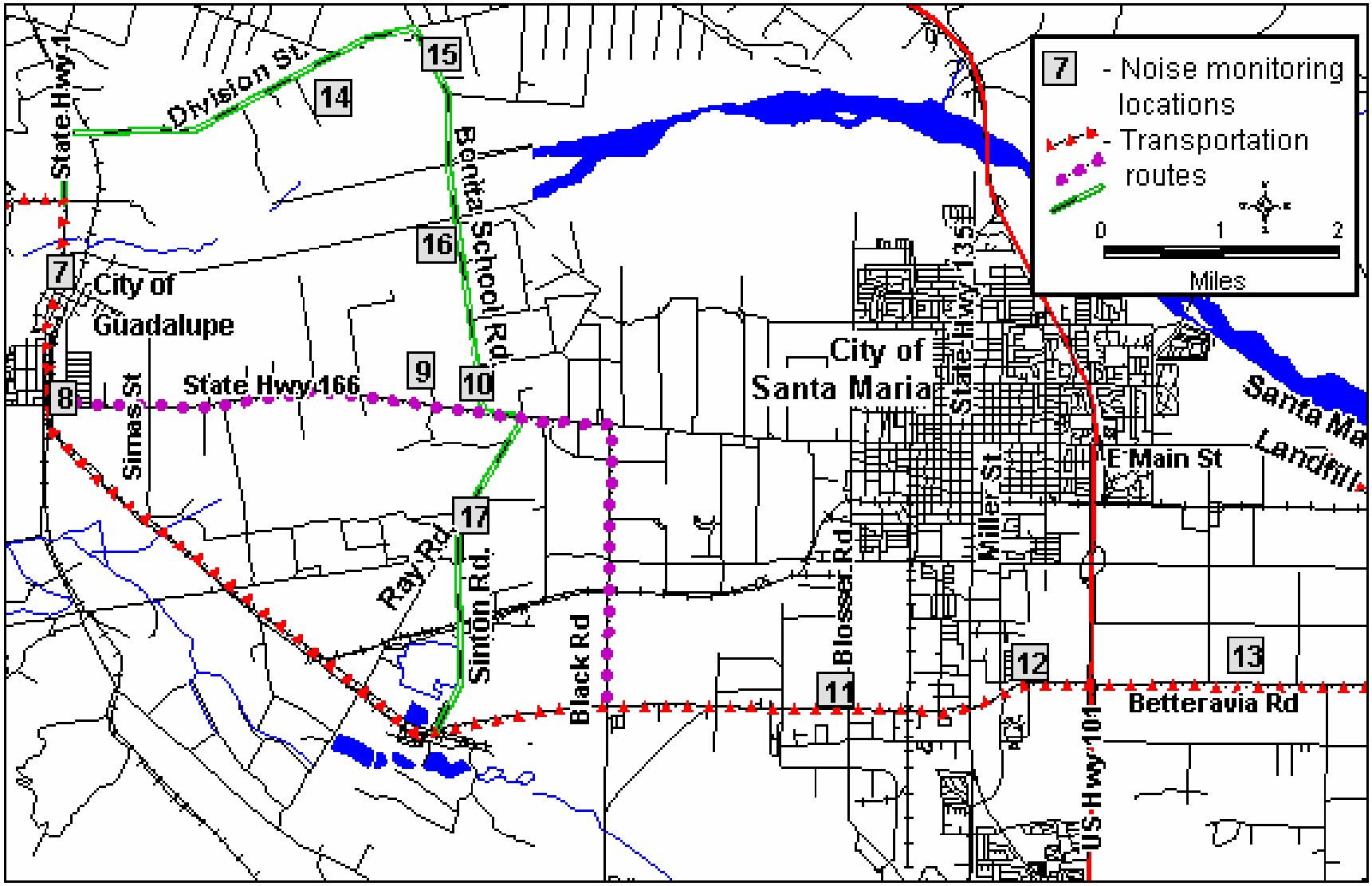
Notes: distances are from the center of TB9, unless noted otherwise; distances in parenthesis are from the nearest point on the truck route, as noted.
* It was not possible to measure noise at the receptor; therefore, noise monitoring was done at the noted distance from the source.
** Noise level estimated from the traffic counts on Main Street, Division Street and Bonita School Road using Sound 2000 software.

Sources: (1) Arthur D. Little, Inc. 1998; (2) MRS 2004.

5.7.2 Regulatory Setting

Noise is regulated at the Federal, State, and local levels through regulations, policies, and/or local ordinances. Local policies are typically adaptations of Federal and State guidelines, based on prevailing local conditions or special requirements. These guidelines have been developed at the Federal level by the U.S. Environmental Protection Agency (EPA), the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA), and the Department of Transportation (DOT), and at the state level by the California Department of Transportation (CalTrans) and the now-defunct California Office of Noise Control.

Figure 5.7-2 Locations of Background Noise Monitoring along Transportation Route



Source: Marine Research Specialists.

5.7.2.1 Federal Jurisdiction

The FHWA has established traffic noise design levels for use in the planning and design of federally funded highway projects (Program Manual, Volume 7, Chapter 7), see Table 5.7.4. These are based on hourly L_{eq} or hourly L_{10} levels for interior and exterior exposure of surrounding land uses. These levels are based on the category of activity through which the freeway passes. These categories range from A, for areas of extraordinary significance, to E for interior noise impacts, as described below. Category D is applicable to undeveloped lands and has no specific L_{eq} or L_{10} value.

Table 5.7.4 FHWA Traffic Noise Design Levels for Highway Projects

Category	Category Description	L_{eq}	L_{10}
A	Tracts of land in which serenity and quiet are of extraordinary significance. May include parks, open spaces, or historic districts	57	60
B	Picnic areas, recreation areas, playgrounds, and other parks. Also residences, hotels/motels, churches, libraries, and hospitals	67	70
C	Developed lands, not included in A or B above	72	75
D	Undeveloped lands	–	–
E	Residences, hotels/motels, churches, libraries, and hospitals (interior noise level)	52	55

Source: FHWA 2000.

Under the authority of the Noise Control Act of 1972, the EPA has established noise emission criteria and testing methods (40 CFR Chapter 1, Subpart Q). These criteria apply to interstate rail carriers and a limited number of construction and transportation equipment.

The U.S. Department of Transportation (DOT) has established allowable noise levels for motor vehicles (49 CFR Chapter III, Part 325). These standards address measurement protocols for measuring highway noise, instrumentation, and stationary testing procedures. In addition, the Department of Defense (DOD) has established noise compliance requirements.

5.7.2.2 State Jurisdiction

The California Administrative Code, Chapter 9, Title 4, which applies to airports operating under permit from the California Department of Transportation Division of Aeronautics, defines a noise-impacted zone as any residential or other noise-sensitive land uses (e.g., hospitals, also see Section 5.7.1.3) with CNEL 65 and above. The California Administrative Code, Title 2, establishes CNEL 45 as the maximum allowable indoor noise level resulting from exterior noise sources for multi-family residences.

The California Streets and Highways Code, Section 216 (Control of Freeway Noise in School Classrooms) requires, in general, that CalTrans abate noise to 55 dBA, L_{10}, or 52 dBA $L_{eq,}$ or less. CalTrans Policy and Procedure Memorandum P74-47 (Freeway Traffic Noise Reduction, September 24, 1974) outlines the CalTrans policy and responsibilities related to transportation noise. In the California Government Code, Section 65302, CalTrans is also required to provide cities and counties with a noise contour map showing noise levels along state highways. The

State Motor Vehicle Code includes regulation(s) related to the selling and use of vehicles which do not meet specified noise limits.

5.7.2.3 Local Jurisdiction

Since the study region includes portions of San Luis Obispo and Santa Barbara Counties and the City of Santa Maria, the noise elements and ordinances for these jurisdictions are applicable to the project components.

The San Luis Obispo County Noise Element establishes land use compatibility guidelines, as indicated below in Table 5.7.5, for transportation source activities. The guideline levels are a function of the sensitive receptor land use and indoor or outdoor receptors.

Table 5.7.5 Transportation Source Noise Exposure Guidelines

Receiving Land Use	Transportation Source: Maximum Allowable Noise Level		
	Outdoor Activity (L_{dn})	Indoor Activity, (L_{dn})	Indoor Activity, (Max hour L_{eq})
Residential, hotels, motels	60	45	-
Public Assembly and Entertainment	-	-	35
Offices	60	-	45
Churches, meeting halls	-	-	45
Schools, libraries, museums	-	-	45
Outdoor sports and recreation	70	-	-

Source: San Luis Obispo County 1992a.

The San Luis Obispo County Noise Element also establishes maximum allowable noise exposure levels for stationary activities. Unlike those for transportation sources, these maximum allowable levels are not a function of the land use of the sensitive receptor. During the daytime (7:00 a.m. to 10:00 p.m.), the hourly L_{eq} should not exceed 50 dB, the maximum level should not exceed 70 dB, and impulse noise should not exceed 65 dB at any sensitive receptor. Nighttime levels are reduced by 5 dB for all categories (see Table 5.7.6).

Table 5.7.6 Stationary Source Noise Level Standards in SLO County

Criteria	Maximum Allowable Noise Exposure	
	Daytime, 7a.m. to 10p.m.	Nighttime, 10p.m. to 7a.m.
Exterior Standards		
Hourly L_{eq}	50	45
Maximum Level	70	65
Maximum Level, impulse	65	60
Interior Standards		
Hourly L_{eq}	40	35
Maximum Level	60	55
Maximum Level, impulse	55	50

Source: San Luis Obispo County 1995.

Exceptions to the noise standards are provided in Land Use Ordinance 23.06.042. They include, among others, noise sources associated with construction between the hours of 7:00 a.m. and

9:00 p.m. on weekdays and 8:00 a.m. and 5:00 p.m. on weekends, traffic on public roadways, and the use of any mechanical equipment related to emergency activities.

The Santa Barbara County Noise Element includes a recommended policy that states:

> *"In the planning of land use, 65 dB Day-Night Average Sound Level should be regarded as the maximum noise exposure compatible with noise-sensitive uses unless noise mitigation features are included in project designs."*

This policy is primarily directed toward housing developments proposed for locations near existing sources of noise. Policy No. 9 of the Noise Element states:

> *"Noise level limits, applicable to new noise sources, should be incorporated into all commercial and industrial zoning districts and into conditional use permits."*

5.7.2.4 Vibration

Under most circumstances, instances of perceptible or annoying vibration are limited to locations near railroad rights-of-way or specific types of industrial activity (forges, large punch presses, pile drivers, etc.). Guidelines are available to assist in preparation of vibration criteria (such as the American National Standard S3.29-1983, "Guide to the Evaluation of Human Exposure to Vibration in Buildings").

As a point of reference, the U.S. Bureau of Mines has identified acceptable maximum transverse ground velocity levels. This criterion sets the maximum peak particle velocity as a function of frequency. The Bureau of Mines recommends a "safe blasting limit" of 2.0 inches per second as a damage threshold. At this level, the probability of damage was seen to be less than 5%. A recommended annoyance peak velocity threshold of 0.4 inches per second was seen to cause complaints by roughly 8% of the affected population.

5.7.3 Significance Criteria

There are two criteria for judging noise impacts. First, noise levels for the proposed project must comply with relevant Federal, State, and local standards or regulations. Noise impacts to the surrounding community are enforced through the local noise ordinance and supported by nuisance complaints and subsequent investigation.

The second measure of project impact is the increase in noise levels above the existing ambient level as a result of a new noise source. The degree of impact is hard to assess because of the highly subjective character of individuals' reactions to changes in noise. Most people begin to notice changes in environmental noise levels when noise changes by approximately 3 dBA.

In community noise impact analysis, long-term noise increases of 5 to 10 dBA are considered to have "some impact." Noise level increases of more than 10 dBA are generally considered severe. In the case of short-term noise increases, such as those from construction activities, the 10 dBA threshold between "some" and "severe" is often replaced with a criterion of 15 dBA. These noise-averaged thresholds should be lowered when the noise level fluctuates, when the noise has an irritating character with considerable high frequency energy, or if it is accompanied by subsonic vibration. In these cases, the impact must be individually estimated.

Impacts from project-related noise would be considered significant if:

1. Adopted noise element policies, standards, or ordinances would be exceeded in noise level, timing, or duration (according to Table 5.7.6 for SLO County, 65 dBA CNEL for unincorporated SB County; for the City of Santa Maria see below).
2. The project would increase the ambient noise level above ordinance-specified limits or by more than 3 dBA in areas already exceeding the limits.
3. An increase in noise levels of 15 dBA or more would occur over a period of at least one-half day at a sensitive receptor at any ambient noise level; permanent daytime or nighttime increases of 10 dBA would also be significant.
4. The project would generate noise levels in excess of 65 dBA that affect sensitive receptors.
5. The project would generate detrimental earth-borne vibrations perceptible at the lot line of sensitive receptors for more than two consecutive weeks.
6. Within the City of Santa Maria (Santa Maria land use compatibility guidelines), noise is considered a significant impact if:
   a. Sensitive land uses are exposed to an exterior noise level of greater than 60 dBA CNEL,
   b. Interior level greater than or equal to 45 dBA CNEL for habitable rooms,
   c. Exceeds 65 dBA CNEL for commercial land uses,
   d. Exceeds 70 dBA CNEL for industrial land uses.

5.7.4 Impact Assessment Methodology

The stationary equipment noise impact analysis included:

1. Identifying construction equipment or operations which are significant noise sources;
2. Identifying receptors sensitive to noise in the project area;
3. Measuring distances between the project noise sources and sensitive receptors;
4. Identifying intervening obstacles or barriers to sound propagation;
5. Estimating noise levels from expected equipment;
6. Adding noise logarithmically from all noise sources, accounting for distance to sensitive receptors to estimate resulting noise levels at those sensitive receptors;
7. Comparing the resulting noise levels at the receptors to the thresholds to determine significance of the impacts.

Table 5.7.7 lists typical construction equipment, the type of which is significant from a noise analysis standpoint. Also included in this list are the corresponding A-weighted noise emission characteristics of the equipment.

Table 5.7.7 Noise Emission Characteristics of Construction Equipment

Equipment	Noise Level, dBA[1]	Data Source
Backhoe	85	EPA 1971[2]
Bulldozer or Excavator	80	EPA 1971
Compressor	81	EPA 1971
Concrete mixer	85	EPA 1971
Crane	89	Guadalupe Sheetpile Installation, 1996 Monitoring
Dump truck, 40 mph	80	Avila Beach Sand Augmentation, 1996 Monitoring
Front loader	76	Avila Beach Sand Augmentation, 1996 Monitoring
Generator	78	EPA 1971
Highway truck, <35 mph	86	Santa Barbara County, Noise Element

[1] Levels are equivalent noise levels (Leq) at a 50-foot reference distance. These values are based on a range of equipment and operating conditions. Analysis values are intended to reflect noise levels from equipment in good condition, with well-fitted mufflers, air intake silencers, etc., operating at near-peak level. In addition, these values assume some averaging of sound level over all directions from the listed piece of equipment.

[2] EPA 1971. Noise from Construction Equipment Operations, Building Equipment, and Home Appliances, p. 26.

Stationary equipment noise calculations are based on the following assumptions:

1. Noise from construction equipment is considered a single point source rather than spread over the construction zone;
2. The fraction of the day when peak noise is being generated is assumed to be 50% for the worst case, wherein all machinery is creating peak noise during half the daily work period (4–5 hours); and
3. All pieces of equipment used during the course of construction are considered to be operating at the same time.

Noise from on-road vehicles was also estimated. Existing and future on-road vehicular noise levels for State routes, County roads and City of Santa Maria roadways were computed using the California Department of Transportation (CalTrans) software Sound 2000, which is a successor to the CalTrans program Sound32. Program Sound32 is CalTrans version of the Federal Highway Administration (FHA) highway noise-prediction program STAMINA2.0/OPTIMA. Sound 2000 software was used in conjunction with the traffic information provided by the City of Santa Maria Engineering Department.

5.7.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that would be incorporated into the proposed project or alternatives as part of the existing permit conditions.

The following measures would be implemented to mitigate noise impacts in accordance with the Coastal Development Permit/Development Plan (CDP/DP D890558D) County Conditions of Approval:

F95. All construction activities involving motorized equipment shall be conducted between the hours of 7:00 A.M. and 9:00 P.M. to the extent practical.

F96. Advance notice of project commencement shall be provided to the local community, including The Nature Conservancy as manager of the Guadalupe–Nipomo Dunes Preserve. Notification shall be by newspaper. The announcement shall state where and when construction will be scheduled. It shall also provide suggestions for residents to reduce noise intrusion (e.g., closing windows facing the oil field).

F97. An 800 telephone number shall be established for receiving complaints and procedures shall be developed for responding. The number shall be included in the notification (see measure N-1.2).

F98. Mufflers on all internal combustion and vehicle engines shall be maintained to reduce noise to the maximum extent feasible.

F99. Noise attenuation barriers shall be installed, as necessary.

F100. All back-up beepers on equipment shall be turned down to the minimum allowed by OSHA.

These measures have been included as part of the proposed project, since they are conditions that would apply to the proposed activities.

5.7.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

The proposed project includes removal and transfer of the existing TB8 and TB9 stockpiles, as well as transfer of other NHIS excavated in the future, and disposal of all NHIS at the Santa Maria Landfill. Impacts associated with previously approved, anticipated excavation work have been evaluated under the 1998 EIR (ADL 1998) and are not considered part of this project.

The remainder of this section presents the noise impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

Impact	Impact Description	Residual Impact
N.1	The proposed project would expose sensitive receptors near the project site to increased noise levels.	Class III

Impact Discussion

The sensitive receptors will be exposed to different levels of noise during mobilization/ demobilization activities versus soil loading and hauling. Noise levels from both these project phases were evaluated. Noise levels from project equipment were estimated using the described methodology (see Section 5.7.4, above).

The mobilization phase would include equipment/materials deliveries and road repairs/widening. This phase would be short term. Repairs of the onsite roads would be similar in noise levels to the noise from loading trucks during the operational phase of the project (see discussion below).

The delivery trucks using the roads would expose sensitive receptors along those roads to increased noise. However, the number of trucks used for mobilization is much smaller than the number of offsite trucks for transportation of soil to the Santa Maria Landfill. The only potential activity that would create significant noise increases during the project mobilization phase is paving and repairs to Thornberry Road, because the road is located offsite and closer to several sensitive receptors. The closest point scheduled for repairs on Thornberry Road is 900 feet from the residence located at the end of Thornberry Road. Heavy equipment involved in road repairs would create peak CNEL of 64.6 dBA at that receptor, which is over the threshold of 50 dBA (SLO County), and this noise level represents an increase from the baseline noise of 60.7 dBA. Other receptors would experience lower noise levels during repairs to Thornberry Road.

Although the noise created by paving Thornberry Road would be over the significance threshold, it would be short term. The receptor would be exposed to this level of noise for a maximum of 18 days at the beginning of the project, and for an estimated 6 days at the end of the project (see Table 2.2, Project Description). Also, the County of San Luis Obispo makes an exemption from the noise standards for construction activities between hours of 7:00 a.m. and 9:00 p.m. on week days (see Section 5.7.2.2). Because the project mobilization-phase-related noise would last for only a short period and construction noise is exempt by the County, the impact is considered *less than significant*.

Operational phase noise would be generated by the heavy equipment moving and loading soil into the haul trucks and by the trucks along the haul route. Noise impacts associated with the proposed project will occur over 2 to 4 years, depending on the quantity of soil transported (200,000 cy or 860,000 cy) and size of the trucks (see Section 2.0, Project Description). Project noise levels at most impacted sensitive receptors near the project site are given in Table 5.7.8. Several sensitive receptors would be impacted both by noise from the onsite equipment and by additional noise generated by the haul trucks along the transportation route to the Landfill, due to the proximity of those receptors to the noise sources and a lack of noise barriers (e.g., other buildings, landscape) shielding them from noise. For those receptors (residence at the end of Thornberry Road, Kermit McKenzie School, and LeRoy County Park), noise estimates accounted for both noise sources (impacts from the haul trucks are discussed for Impact N-2, below).

Resulting noise levels at most of the sensitive receptors would be within the applicable thresholds. Noise increases were estimated to be less than 3 dBA for all but two sensitive receptors in the vicinity of the Guadalupe Field. All receptors except for the residence at the end of Thornberry Road are under the SBC noise criteria. The resulting CNEL for those receptors was estimated to be under the threshold of 65 dBA CNEL. Because of this, the noise impacts for those receptors are considered *less than significant*.

The residence at the end of Thornberry Road is under the SLO County jurisdiction. By the SLO County criteria, a project would result in the significant noise impacts if the project results in daily Leq over 50 dBA. If the baseline noise is already over L_{eq} of 50 dBA for that receptor, then the project impacts would be significant if the day L_{eq} increase exceeds 3 dBA. The baseline noise at the residence at the end of Thornberry Road is already above the significance criteria (Baseline L_{eq} = 58.0 dBA). However, noise from the project will not result in a peak daily L_{eq} increase over 3 dBA at this receptor. Thus the noise impact would be considered *less than significant*. Table 5.7.8 summarizes noise impacts at the sensitive receptors.

Table 5.7.8 Project Peak Noise Levels at Sensitive Receptors

Sensitive Receptors near Guadalupe Field	Applicable Criteria*	L_{eq} with Project, dBA				CNEL Increase from Baseline	Above Criteria ?
		Day	Even.	Night	CNEL with Project		
1. Rancho Guadalupe County Park parking lot	CNEL<65 dBA	61.6	56.4	53.4	**62.3**	0.16	No
2. Residence, 5795 West Main St.	CNEL<65 dBA	54.4	38.1	35.1	**51.8**	7.36	No
3. North end of Pacific Dunes Way, Point Sal Dunes residential area	CNEL<65 dBA	52.7	40.5	37.5	**50.7**	0.46	No
4. LeRoy County Park, west end of parking lot**	CNEL<65 dBA	55.3	42.0	39.0	**53.1**	3.71	No
5. Kermit McKenzie Jr. High School, 4710 West Main St.**	CNEL<65 dBA	59.5	44.9	41.9	**57.1**	1.14	No
6. Residence, end of Thornberry Rd.**	Leq<50 dBA or increase <3 dBA	**60.4**	47.1	44.1	58.2	**1.85**	No

* The applicable noise parameter, which is compared against the significance criteria, is shown in bold.
** Estimates for these receptors also account for the project-related noise increases due to traffic noise.

Mitigation Measures
Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval listed earlier in this section will ensure that the noise impacts are minimized.

Residual Impact
The residual impact is *less than significant*, Class III.

Impact	Impact Description	Residual Impact
N.2	Transportation of affected soil offsite would expose sensitive receptors along the transportation route to increased noise levels.	Class III

Impact Discussion
Noise would also be generated offsite by the trucks hauling soil to the Santa Maria Landfill. The noise impacts from traffic were estimated using Sound 2000 software. The software allows simulation of various traffic lane configurations (e.g., if a receptor is impacted by noise from several roadways), and noise barriers (such as noise walls, buildings separating the traffic routes, and the receptors). Baseline noise levels and noise with the project traffic were simulated using Sound 2000 software.

At many sensitive receptors, current noise levels are already above the exterior noise significance threshold (a CNEL of 60 dBA (for the City of Santa Maria) or L_{eq} of 50 dBA (for SLO County) (see Table 5.7.9)), and would be increased with the project implementation. Under the worst-case scenario of 300 Average Daily Traffic (ADT) (one-way trips) or 38 peak-hour trips between the Guadalupe Field and the Santa Maria Landfill, noise levels along the proposed haul route

would increase by less than 3 dBA; see Table 5.7.9. Thus, the impacts would be considered *less than significant* using significance criteria (2).

Mitigation Measures
The existing CDP/DP D890558D Conditions of Approval listed earlier in this section will ensure that the noise impacts are minimized.

Residual Impact
The residual impact is *less than significant*, Class III.

Summary of Impacts at the Santa Maria Landfill
The NHIS transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

For noise, there were no impacts identified that were directly associated with the use of Guadalupe material in the NHIS program.

Table 5.7.9 Peak Noise Impacts from Traffic at Sensitive Receptors, CNEL (dBA)

Sensitive Receptor/Jurisdiction	Address/Location	CNEL Before Project	CNEL After Project	CNEL Differ-ence
Residences at north end of Guadalupe; Guadalupe Branch of Santa Maria City Library; Guadalupe Foursquare Church/Guadalupe	Hwy 1 (Guadalupe St.); 1005 Guadalupe St. ; 177 Guadalupe St.	58.4	60.5	2.1
Residences between Obispo St. & Flower Ave./SBC	North-east of intersection of Hwy 166 and Hwy 1	55.4	56.5	1.1
Residence on Hwy 166/SBC	Hwy 166 between Hwy 1 & Black Rd.	57.1	58.2	1.1
Bonita Elementary School/Santa Maria	Hwy 166 (2715 W. Main Street)	63.0	64.0	1.0
Residences at Intersection of Betteravia & Blosser/Santa Maria	Carmen Lane/N. Westgate Rd.	57.3	58.2	0.9
Residences at intersection of Betteravia & Miller/Santa Maria	Daniel Dr., Douglas Way	60.6	61.2	0.5
Residence/SBC	W. Betteravia Rd./Coast Rd.	54.6	56.5	1.9
Residence/SLO County	2161 and 2100/2108 Division St.	56.9	58.9	2.1
Residence/SLO County	2299 & 2475 Bonita School Rd.	56.1	59.0	2.9
Residence/SLO County	1280 Bonita School Rd.	56.1	59.0	2.9
Residence/SBC	450 Ray Road	57.1	59.5	2.4

Note: Noise levels before and after project were estimated using Sound 2000 software, based on the existing and project traffic on the roads adjacent to a sensitive receptor.

5.7.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact

and mitigation measures are for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.7.7.1 Offsite Trucking to Other Destinations

Impact N.1 identified for the proposed project would apply to this alternative, because offsite trucking to other destinations would have similar noise impacts at the Guadalupe Field as the proposed project. Soil-moving operations and loading of the trucks would be the same, and the same noise-generating machinery would be used. Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval discussed for the proposed project will ensure that the noise impacts are minimized.

Trucks would haul the NHIS to alternative disposal sites. To do this, the trucks could use the same route as the proposed project until they reach Highway 101, or select one of the other two routes: Main Street route or Division Street Route. After the trucks reach Highway 101, the trucks will use Highway 101 and Highways 166 and 33 eastbound, or Highways 41 and 46 eastbound on the way to alternative soil-disposal sites. Impacts from trucks noise for the proposed project route is expected to be less than significant (see discussion for the proposed project for Impact 5.7-2).

The addition of 300 peak-period one-way truck trips to Highway 101 and other streets used would cause little change to the noise level (see Table 5.7.10). The highest levels of noise would be experienced by those sensitive receptors located near the roadside of the affected roads. Sound 2000 software was used to estimate baseline traffic noise and traffic noise that would occur with this alternative for locations at the side of the affected roads (for locations 50 feet from a street centerline or 100 feet from Highway 101). Baseline noise levels from traffic on the affected roads are already high. The proposed peak of 38 round-trips per hour would not increase noise at those receptors by more than 3 dBA. Impact N.2 identified for the proposed project would also apply to this alternative and, as for the proposed project, noise impacts are *less than significant*. Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval discussed for the proposed project will ensure that the noise impacts are minimized. There would be no other impacts associated with this alternative.

Table 5.7.10 Peak Traffic Noise at Sensitive Receptors (Alternative Sites)

Roadway*	Location/Jurisdiction	Noise Before Project	Noise After Project	Difference
Tefft Road	Nipomo area/SLO County	L_{eq} = 71.6 dBA	L_{eq} = 72.7 dBA	1.1
Orchard Ave. s/o Division Street	Nipomo area/SLO County	L_{eq} = 67.5 dBA	L_{eq} = 69.8 dBA	2.0
Highway 101, Jct. with Rte. 135	Cal Trans, SBCAG, Santa Maria	CNEL = 72.2	CNEL = 72.3	0.1
Highway 166, Jct. with Rte. 135	SBCAG, Santa Maria	CNEL = 68.6	CNEL = 69.0	0.4

* The noise is simulated for locations at the roadside – 50 ft from the centerline for streets, and 100 ft for Highway 101.

5.7.7.2 Treated-Material Land Feature (TMLF)

The TMLF would involve contouring of material treated in the Land Treatment Unit (LTU) at TB9. Loading and trucking activities would occur at TB9 to transport sump material to the Santa Maria Landfill or other offsite location for disposal. In the worst-case scenario, 200,000 cy of the sump material would be transported offsite (e.g., to the Landfill) because sump material cannot be treated.

The mobilization and set-up phase of the TMLF would generate the same levels of noise as the proposed project. This would involve the same truck-loading operations as the proposed project; however, there will also be truck unloading and soil spreading operations that generate noise. Onsite noise levels were estimated for the machinery expected to be used for this alternative. The calculations for the worst-case scenario noise assumed that truck loading and grading the treated soil stockpile to resemble surrounding dunes would occur at the same time. The resulting noise levels at the sensitive receptors near the Guadalupe Field are summarized in Table 5.7.11. Onsite noise levels would be higher than that of the proposed project; however, these noise levels would still be within the applicable thresholds. Therefore, Impact N.1 identified for the proposed project would also apply to this alternative, and it would be considered *less than significant*. Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval discussed for the proposed project will ensure that the noise impacts are minimized.

Table 5.7.11 TMLF Alternative Peak Noise Levels at Sensitive Receptors

Sensitive Receptors near Guadelupe Dunes	Applicable Criteria*	L_{eq} with Project, dBA				CNEL Increase from Baseline	Above Criteria?
		Day	Even.	Night	CNEL with Project		
1. Rancho Guadalupe County Park	CNEL<65 dBA	61.8	56.4	53.4	**62.4**	0.26	No
2. Residence, 5795 West Main St.	CNEL<65 dBA	56.3	38.1	35.1	**53.6**	9.17	No
3. North end of Pacific Dunes Way, Point Sal Dunes residential area	CNEL<65 dBA	53.0	40.5	37.5	**51.0**	0.72	No
4. LeRoy County Park, west end of parking lot**	CNEL<65 dBA	55.4	42.0	39.0	**53.2**	3.81	No
5. Kermit McKenzie Jr. High School, 4710 West Main St.**	CNEL<65 dBA	59.5	44.9	41.9	**57.1**	1.19	No
6. Residence, end of Thornberry Rd.**	Leq<50 dBA or increase <3 dBA	**60.5**	47.1	44.1	58.3	**1.94**	No

* The applicable noise parameter, which is compared against the significance criteria, is shown in bold.
** Estimates for these receptors also account for the project-related noise increases due to traffic noise.

Offsite peak noise would be same as for the proposed project during sump material transportation (200,000 cy); however, this level of noise would not last as long as for the proposed project. Noise due to trucking of the sump materials to an offsite disposal facility are similar to the proposed project (Impact N.2), and would be *less than significant*. Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval discussed for the proposed project will ensure that the noise impacts are minimized. There would be no other noise impacts associated with this alternative.

5.7.7.3 Engineered Containment Unit

The ECU would involve building a containment sub-structure at TB9, moving the existing stockpiles at TB8 to TB9 into the ECU, and containing the NHIS there for an indefinite period of time.

Construction would occur primarily at TB8 and TB9 and would involve the moving of NHIS, construction of sub-containment systems and leachate collection systems, and subsequent covering of the ECU with topsoil/sand and revegetation. This would involve the same truck loading operations as the proposed project; however, the trucks transporting soil would only travel onsite; there would be no transportation of the soil offsite. Additionally, there would be truck unloading and soil spreading/grading operations.

The mobilization and set-up phase of the ECU would generate the same levels of noise as the proposed project. Onsite peak noise levels would be the same as for the TMLF because similar machinery would be used, and the affected soil would be loaded, transported, and unloaded within the site (please see discussion in Section 5.7.7). Therefore, Impact N.1 identified for the proposed project would also apply to this alternative and be considered *less than significant*. Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval discussed for the proposed project will ensure that the noise impacts are minimized.

Offsite noise impacts would be less severe than for the proposed project because affected soil would not be transported offsite (only equipment and materials delivery trucks and commuter vehicles would affect offsite traffic noise) (Impact N.2). Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval discussed for the proposed project will ensure that the noise impacts are minimized. There would be no other impacts associated with this alternative.

5.7.7.4 Slurry Injection

Slurry injection would involve the injection of affected materials mixed with water into the subsurface, via wells. The alternative would involve installation and operation of injection piping, mixing vessels and tanks, and injection pumps.

Mobilization and construction noise from this alternative is expected to be high because of the use of the drilling rig to drill the disposal wells. However, SLO County makes an exemption to the construction noise for construction occurring between 7:00 a.m. and 9:00 p.m. Work hours under this alternative would be within these hours.

Onsite operation noise levels would be similar to the proposed project because the same soil-handling machinery would be used. Pumps to handle the slurry and the shakers to screen the aggregates would have additional noise, however. Table 5.7.12 shows noise levels at the sensitive receptors near the site. All resulting noise levels are within the applicable thresholds. Therefore, Impact N.1 identified for the proposed project would also apply to this alternative and would be *less than significant*. Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval discussed for the proposed project will ensure that the noise impacts are minimized.

Table 5.7.12 Slurry Injection Alternative Peak Noise Levels at Sensitive Receptors

Sensitive Receptors near Guadelupe Dunes	Applicable Criteria*	L_{eq} with Project, dBA				CNEL Increase from Baseline	Above Criteria?
		Day	Even.	Night	CNEL with Project		
1. Rancho Guadalupe County Park	CNEL<65 dBA	61.6	56.4	53.4	**62.3**	0.16	No
2. Residence, 5795 West Main St.	CNEL<65 dBA	54.6	38.1	35.1	**52.0**	7.60	No
3. North end of Pacific Dunes Way, Point Sal Dunes residential area	CNEL<65 dBA	52.7	40.5	37.5	**50.7**	0.46	No
4. LeRoy County Park, west end of parking lot	CNEL<65 dBA	50.7	42.0	39.0	**49.8**	0.39	No
5. Kermit McKenzie Jr. High School, 4710 West Main St.	CNEL<65 dBA	58.1	44.9	41.9	**55.9**	0.00	No
6. Residence, end of Thornberry Rd.	Leq<50 dBA or increase <3 dBA	**58.3**	47.1	44.1	56.6	**0.21**	No

* The applicable noise parameter, which is compared against the significance criteria, is shown in bold.

Offsite noise impacts would be less severe than for the proposed project because affected soil would not be transported offsite (only equipment and materials delivery trucks and commuter vehicles would affect offsite traffic noise). Therefore, Impact N.2 identified for the proposed project would also apply to this alternative and would be *less than significant*. Although noise impacts are not significant, the existing CDP/DP D890558D Conditions of Approval discussed for the proposed project will ensure that the noise impacts are minimized. There would be no other impacts associated with this alternative.

5.7.8 Cumulative Impacts

Future excavation projects will take place at the same time as the proposed project noise-generating activities. Sheetpile installation that is proposed at several excavation locations would generate the highest noise level, and even by itself, would be significant, as was shown in the 1998 EIR. Therefore, cumulative noise impacts would be significant.

The DJ Farms Development would generate noise from construction activities. This noise would have cumulative impact on receptors in the southern part of Guadalupe. Other cumulative projects are far from the Guadalupe Field and would not impact noise in that area; therefore, they are not likely to have cumulative impacts. However, several large projects in Santa Maria and the DJ Farms project in Guadalupe could use the same roads as the soil-hauling trucks. However, these impacts are not likely to increase the noise from traffic to above the significance criteria.

5.7.9 Mitigation Monitoring Plan

No mitigation measures are proposed.

5.7.10 References

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URS Company. 1985. Draft Environmental Impact Statement/Environmental Impact Report for the Cities Service Oil and Gas Corporation Celeron Pipeline Company of California San Miguel Project and Northern Santa Maria Basin Area Study; Volume I Part 2; December 7, 985. Prepared by URS Company of Santa Barbara, California for San Luis Obispo County, U.S., MMS et al.

5.8 Land Use and Recreation

Land use addresses the uses of the project site, the surrounding uses that might be affected by a project, current and future land use, growth trends in a community, and land use plans, policies, and ordinances. It includes residential, agricultural, industrial, commercial, and recreational uses, as well as special use overlays, such as sensitive resource areas, mineral extraction areas, etc. Identification of land uses is based on inspection of county maps, Thomas Brothers Street Guides®, U.S. Geological Survey (USGS) maps, field reconnaissance, and contacts with appropriate jurisdictional authorities.

This section includes an environmental setting that consists of a regional overview of land ownership, management, and uses in the area, plus a regulatory setting that discusses relevant statutory requirements and local policies. The section also addresses impacts associated with the proposed project and alternatives, as well as mitigation measures.

5.8.1 Environmental Setting

5.8.1.1 Regional Overview

The existing environment within the southern San Luis Obispo (SLO) County and northern Santa Barbara County (SBC) region contains a variety of natural landform features, including the Guadalupe-Nipomo Dunes Complex (Dunes Complex), the Santa Maria River, and related sensitive resource areas, such as Oso Flaco Lake and the Dune Lakes, and prime agricultural land in the Santa Maria Valley (see Figure 5.8-1).

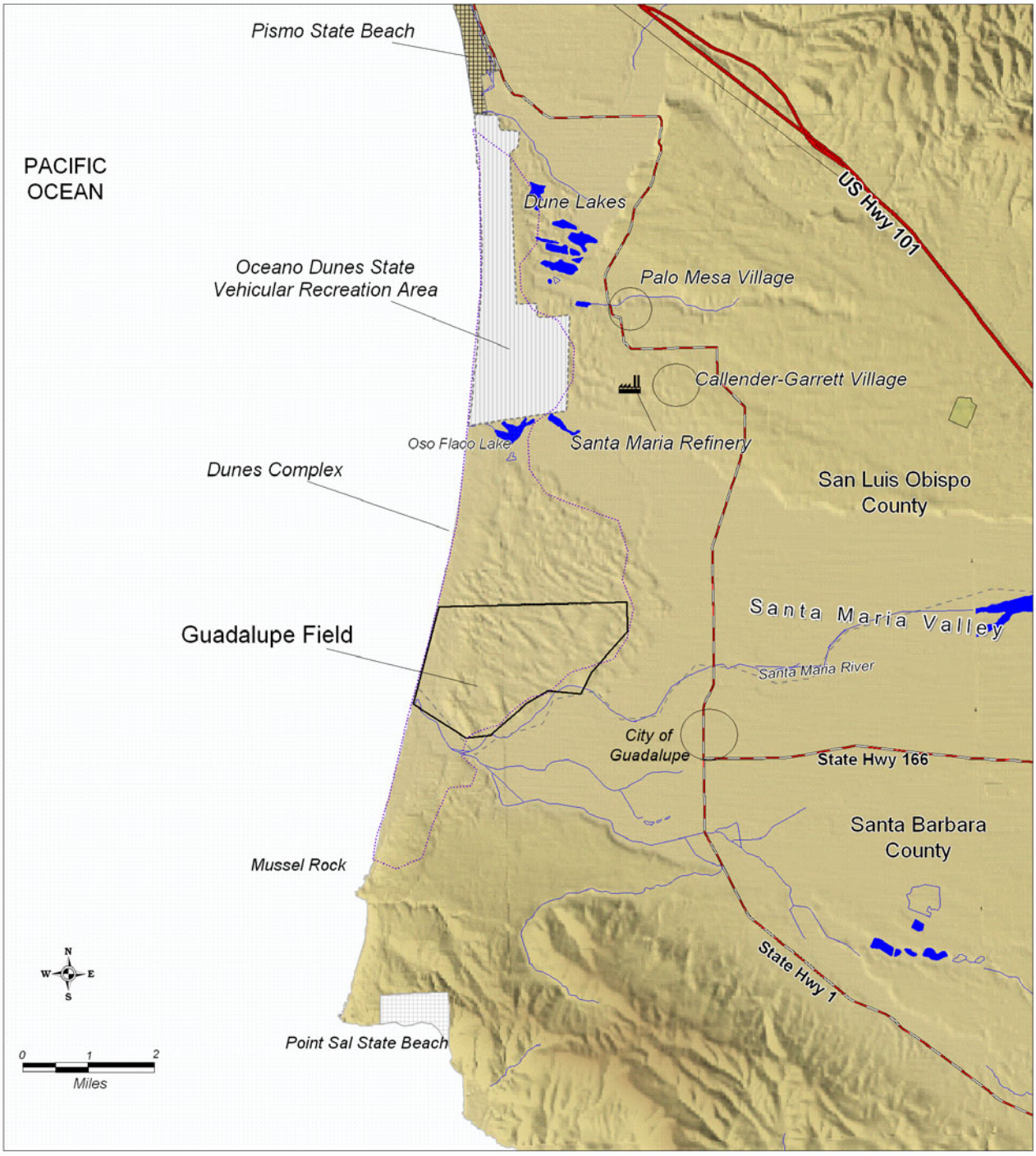
Within this region, land uses include agriculture, coastal recreation, residential suburban and rural developments, including the City of Guadalupe, Callender-Garrett Village, and Palo Mesa Village, and energy-related uses, such as the Santa Maria Refinery.

Guadalupe-Nipomo Dunes Complex

The Dunes Complex is defined as the unique coastal dune ecosystem that includes the Callender Dunes south of Pismo Beach, the Mobil Coastal Preserve and the Guadalupe Dunes north of the Santa Maria River, and the Mussel Rock Dunes south of the Santa Maria River. Areas of the Dunes Complex are owned and managed by a mix of private entities, conservancies, and public agencies.

The Guadalupe Field is part of the Dunes Complex. The Dunes Complex extends approximately 10 miles along the coast from the Callender Dunes to the Mussel Rock Dunes and has an area of approximately 12,000 acres (TNC 1991). The Dunes Complex contains one of the most unique and fragile ecosystems in the state.

Figure 5.8-1 Regional Overview



Source: Marine Research Specialists.

In recognition that the ecological and scenic values of the area are of national significance, the Secretary of the Interior designated all the coastal area between Pismo Beach and Point Sal, with the exception of approximately 50 acres of the Guadalupe Field, as a National Natural Landmark in 1974 (Envicom 1980). Part of the Guadalupe Field was excluded from Natural Landmark designation due to disturbance by oil wells and roads. Although no restrictions are placed on private owners of National Natural Landmarks, it was hoped that recognition of the national significance of the areas designated will encourage their preservation for the future.

The Department of the Interior stated that, "The Nipomo Dunes-Point Sal Coastal Area contains the largest, relatively undisturbed coastal dune tract in California. 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" (ADL 1998). The unique flora and fauna of the region are discussed in Section 5.3, Onshore Biological Resources.

Land within the Dunes Complex is owned by a variety of public and private entities, including the State of California, large corporations, and families. As a result of a 1998 legal settlement with Unocal, $9 million was placed into a trust account managed by the National Fish and Wildlife Foundation for the California Coastal Conservancy and the California Department of Fish and Game, the Restoration Subcommittee, for restoration projects. The Stewardship Collaborative, composed of local representatives, land owners, and managers, was established under a permanent endowment with the funds. The Stewardship Collaborative includes representatives from the California Department of Parks and Recreation, the Center for Natural Lands Management, the County of Santa Barbara, County of San Luis Obispo, U.S. Fish and Wildlife Service (USFWS), the Dunes Center, and the Land Conservancy of San Luis Obispo. The Stewardship Collaborative identifies the restoration, recreational and educational needs of the Dunes for the Restoration Subcommittee~~s~~ and implements restoration projects.

In 1997, the Nature Conservancy approved the transfer of 2,550 acres of the Mobil Coastal Preserve (MCP) to the USFWS. The Dunes Center was established as nonprofit center and took over visitor center and educational programs from The Nature Conservancy. In August of 2000, the USFWS established the Nipomo Dunes National Wildlife Refuge composed of the MCP.

The USFWS completed a "Proposed Guadalupe-Nipomo Dunes National Wildlife Refuge: Finding of No Significant Impact" document in July of 2000 (USFWS 2000) that identified areas that met the criteria for inclusion in the Wildlife Refuge. These criteria included that the property be owned by an individual or parties agreeable to their inclusion and that the area be able to be managed adequately with limited funding. Numerous areas between the Santa Maria River and Pismo Beach met the criteria. These are listed in the table below and shown in Figure 5.8-2.

Table 5.8.1 Properties within the Proposed Boundaries of the USFWS Refuge

Property	Owner	Acreage
Oso Flaco Lake Natural Area	California State parks, Off Highway Vehicle Division	800
Mobil Coastal Preserve (FWS)	USFWS	2,553
Black Lake	The Nature Conservancy	182
Guadalupe Field	Unocal	2,300
Dune Lakes Properties	Private	1,854
Tosco Buffer Area	ConocoPhillips	650

In 2001, Unocal finished clean-up/restoration on the 5X site. The area between the mean-high-tide and the "B" Road on the Guadalupe Field has been established as a conservation easement and was accepted by the Coastal Conservancy in 2001. In 2002, Unocal acquired the former oil field from the LeRoy Trusts, and, as required by a permit condition, recorded Offers to Dedicate (OTD) for a conservation easement over the remainder of the Guadalupe Field.

The Mussel Rock Dunes (currently the County of Santa Barbara Parks Department) portion of the Dunes Complex is located south of the Santa Maria River mouth and was acquired in 1987. The Coastal Conservancy provided The Nature Conservancy with a grant for the purchase of 567 acres. The land was purchased from the Santa Maria Valley Associates, a general partnership consisting of 11 owners. The Nature Conservancy and Santa Barbara County Parks Department entered into an agreement whereby the County acquired the property from The Nature Conservancy. The Nature Conservancy manages two other County parcels, including 22.2 acres of willow thicket along the southern edge of the Santa Maria River and 3.2 acres at the end of West Main Street adjacent to the ocean. The total acreage managed by The Nature Conservancy south of the Santa Maria River is approximately 600 acres.

The area south of the County Park to Point Sal is privately held by Maretti and Minetti Ranch Company.

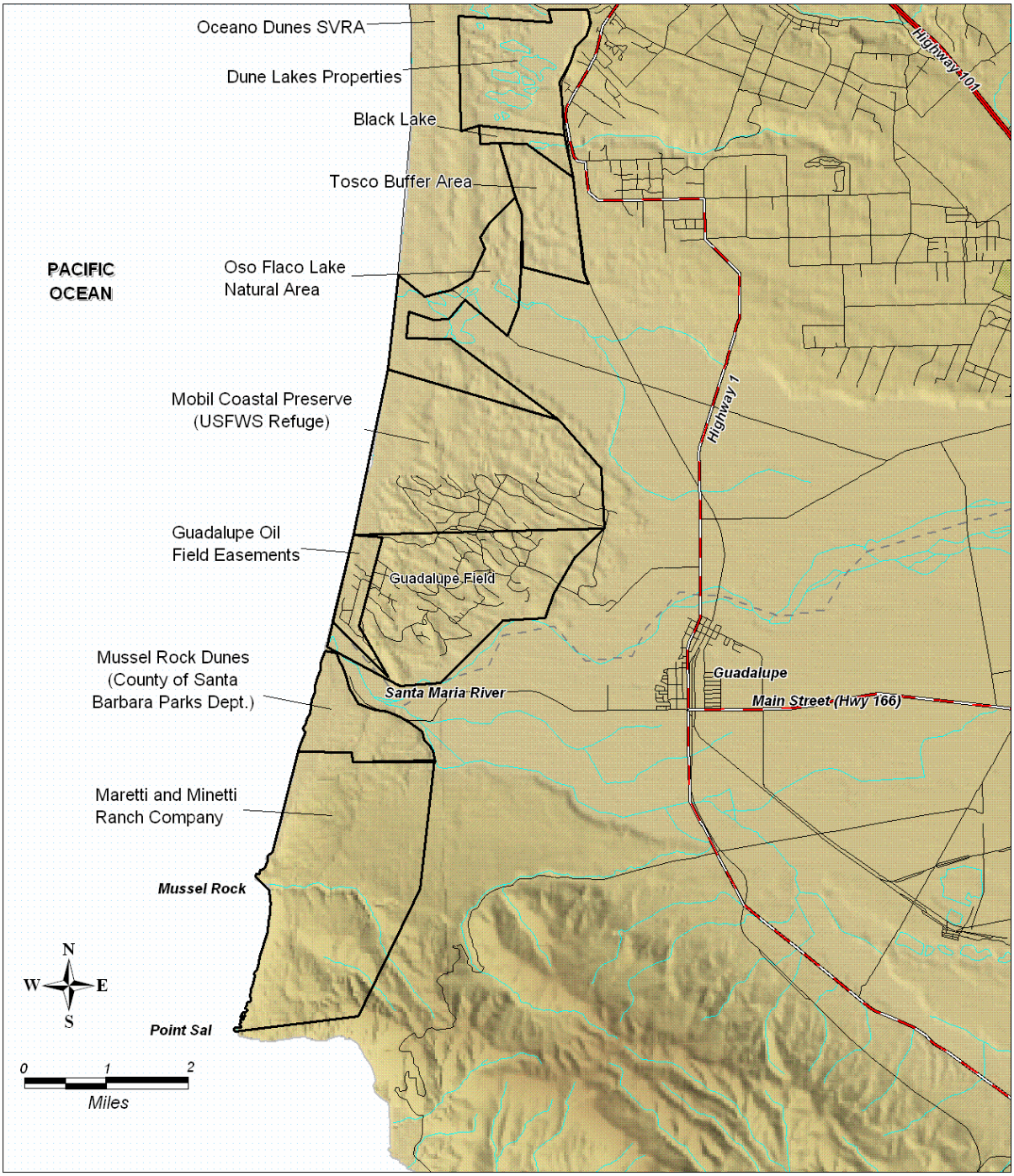
Land Uses

This section describes the primary land uses in the area, recreation and agriculture, as well as sensitive land uses. Figure 5.8-3 shows land uses in detail.

Recreational Land Uses

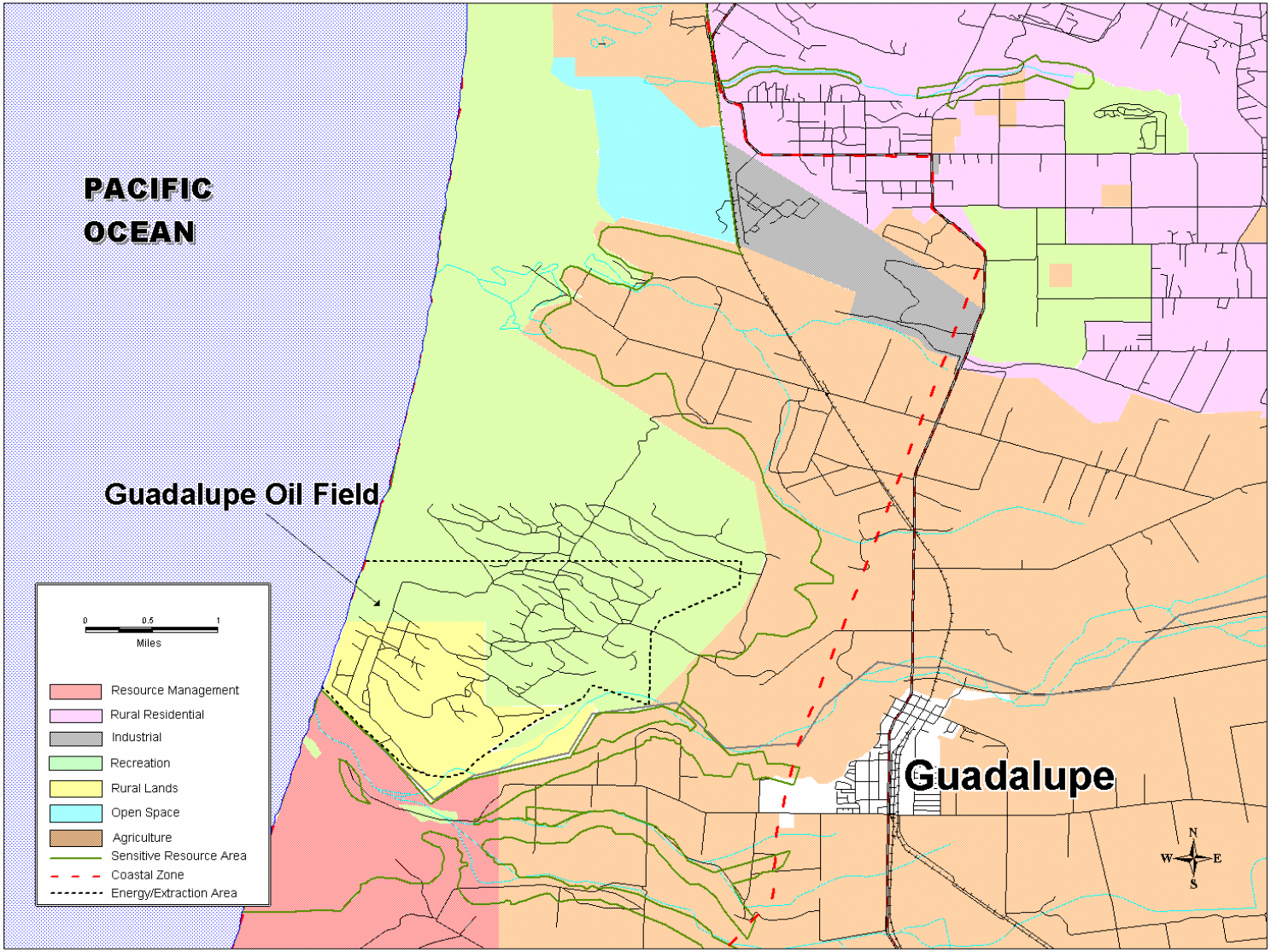
Recreation is one of the largest and most sensitive land uses in the area. Regional coastal recreational resources extend from Pismo State Beach to the north in San Luis Obispo County to Point Sal State Beach to the south in Santa Barbara County. The ocean, beaches, and dunes are the principal tourist attractions in the area. In addition, rapid population growth in the region has significantly increased demand for coastal recreational opportunities (Spectra 1991).

Figure 5.8-2 Dunes Complex Detailed Areas



Source: Marine Research Specialists.

Figure 5.8-3 Land Uses



Source: Marine Research Specialists.

Coastal recreational uses in the region encompass offshore and onshore activities. Offshore uses include recreational motor and sail boating, deep sea and surf fishing, diving, swimming, surfing, and windsurfing. Coastal onshore activities include walking/hiking, sunbathing, nature study, picnicking, horseback riding, camping, and bicycling. In addition, the Pacific Coast Bike Route runs along Highway 1, only a few miles from the coast in this area.

The shoreline of the Guadalupe Field is bounded on the north by the USFWS Refuge and on the south by the County Park. The closest recreational access to the beach west of the Guadalupe Field is provided from two entrances to the Dunes Complex. One entrance is located at the Rancho Guadalupe County Park in Northern Santa Barbara County, immediately south of the Santa Maria River, and the other entrance is approximately four miles north of the Guadalupe Field at Oso Flaco Lake Natural Area in San Luis Obispo County. The public uses the beach west of the Guadalupe Field but is not allowed inland. Presently, there is no public coastal access through the Guadalupe Field. The water-covered lands of the Santa Maria River, however, are subject to the public easement in navigable waters. This easement allows the public to use navigable waters for a variety of recreational uses.

The mouth of the river is constantly changing. The river mouth can form a natural barrier to access along the beach, especially at high tide, during storms when the waterline is higher, or during a natural breach of the sand spit, which occasionally forms at the mouth of the river, draining the lagoon.

Approximately 83,000 people visited Rancho Guadalupe County Park (67,000) and Oso Flaco Lake Natural Area (16,000) in 1996. Visitation rates are highest in the summer and fall and drop off during the rainy, winter months (Personal communication, Karen Wood, The Nature Conservancy). A survey of visitors at the Rancho Guadalupe County Park conducted by The Nature Conservancy indicated that the five most frequently mentioned reasons for visiting were: sightseeing, fishing, curiosity, exercise, and surfing (Christiano 1995). Horseback riding and dog walking are seasonally restricted to protect nesting least terns and snowy plovers. Shooting, camping, and off-highway vehicles are prohibited in the County Park. The survey targeted different user groups and interviewed them both onsite and offsite, as well as at public meetings and workshops.

The Dunes Center provides visitor orientation, educational outreach, and research facilitation to promote conservation of the Dunes Complex. It is located on Guadalupe Street in the City of Guadalupe. On the northern edge of the City of Guadalupe, LeRoy County Park offers day-use facilities, including picnic facilities, children’s play equipment, and a community building.

South of the County Park, the closest beach access is provided at Point Sal State Beach at the end of Brown Road. This beach is popular for walking, observing wildlife, and enjoying the scenery. Brown Road is currently closed to vehicle traffic, curtailing access to Point Sal State Beach (Spectra 1991).

North of the Oso Flaco Lake Natural Area are the Oceano (formerly Pismo) Dunes State Vehicular Recreation Area (SVRA) and Pismo State Beach. These two contiguous state parks include more than 3,000 acres of beaches, wetlands, and sand dunes. Combined, the state beach and SVRA are the major visitor attraction within the Dunes Complex, with over one million visitors per year. The parks are well known for providing a wide variety of recreational opportunities, including driving street vehicles on the beach, and recreational vehicle use and

camping in the dunes. A 250-acre parcel south of Arroyo Grande Creek is protected from off-highway vehicle use but is accessible to pedestrians and equestrians. Existing park facilities include two developed campgrounds and a golf course and restaurant (personal communication, Don Patton and Dave Sears, California Department of Parks and Recreation).

Coastal access via the Dune Preserve and the State Parks is facing increasing demand as local populations and tourism increase. No new beach or coastal accessways are currently planned in southern San Luis Obispo County. Access to and availability of coastal recreation has historically been limited in northern Santa Barbara County. Major portions of the Santa Barbara County coastline are in private or military ownership and public use is restricted. The coastal access points at the County Park and Point Sal State Beach are removed from large population centers, and Point Sal is currently inaccessible for vehicle access. In addition, the County Park has limited public entry due to restricted parking. On major summer holidays, visitors are turned away when the parking lot is full (Spectra 1991).

Agricultural Land Uses

Agriculture has historically been, and still is, the most widespread use of land in the region. The Guadalupe Field is bordered on the east by agricultural fields and on the south by the Santa Maria River floodplain, which is used for cattle grazing.

The Santa Maria Valley is an extremely productive agricultural area. Most of the cropland is considered prime agricultural land and averages three crops per year. The area is extensively used for vegetable production. The San Luis Obispo County portion of the Santa Maria Valley is commonly referred to as the Oso Flaco Valley. The primary crops grown in the region include broccoli, lettuce, peas, and cauliflower.

Nearly all the Oso Flaco Valley farmlands are protected in agricultural preserves and subject to land conservation contracts. The objectives of the San Luis Obispo County Agricultural Preserve Program, as provided by the California Land Conservation Act of 1965 (or Williamson Act), are to protect agricultural lands for continued production of food and fiber and to protect limited types of land devoted to open space and recreational uses. An agricultural preserve is established by landowner request in an area devoted to an agricultural, recreational, and/or an open space use. The primary incentive for property owners to request establishment of preserves is to reduce property taxes. The program is designed for property owners who are dedicated to the long-term use of the land for agricultural, recreational, and open space purposes (SLO 1995).

The Santa Maria Valley is considered the agricultural trade center of Santa Barbara County and contains the largest area of prime agricultural lands in the county. From Point Sal to the San Luis Obispo County line, there are approximately 2,000 acres in large-scale grazing and vegetable production. Most of this area is protected by agricultural preserve contracts (SBC 1982 and 1991).

Given the high productivity of the land for agricultural use and its protection in the agricultural preserve programs, it is unlikely that agricultural trends in the region would change in the foreseeable future.

Sensitive Land Uses

Sensitive land uses include residences, schools, day cares, churches, hospitals, recreational areas, etc. The closest suburban residential development to the Guadalupe Field is located in the City of Guadalupe, approximately two miles east of the Guadalupe Field. Rural residences are scattered on the agricultural land east of the Guadalupe Field on Thornberry Road and West Main Street. Non-residential sensitive receptors in the region were also identified because they may require special mitigation measures to reduce or minimize impacts. Sensitive receptors are listed in Table 5.8.2 below.

Table 5.8.2 Sensitive Receptors

Jurisdiction	Sensitive Receptor	Address
San Luis Obispo County	Residences	Thornberry Road
Santa Barbara County	Residences	West Main Street
City of Guadalupe	Residences	Area west of Highway 1 and north of West Main Street
City of Guadalupe	Guadalupe Head Start	120 Tognazzini Street
City of Guadalupe	Guadalupe Day Care	130 Tognazzini Street
City of Guadalupe	Mary Buren Elementary School	1050 Peralta Street
City of Guadalupe	Kermit McKenzie Junior High School	4710 W. Main Street
City of Guadalupe	Guadalupe Branch of Santa Maria City Library	1005 Guadalupe Street
City of Guadalupe	Guadalupe Foursquare Church	177 Guadalupe Street
City of Guadalupe	Apostolic Church	893 Pioneer Street
City of Guadalupe	Guadalupe Community Church	4635 6th Street
City of Guadalupe	Our Lady of Guadalupe	1164 Obispo Street
City of Guadalupe	Guadalupe Cemetery	4655 W. Main Street
City of Guadalupe	Central Park	South of 10th Street
San Luis Obispo County	Oso Flaco Lake Natural Area	Oso Flaco Lake Road
Santa Barbara County	Rancho Guadalupe County Park	West Main Street
Santa Barbara County	LeRoy County Park	North of 11th Street, adjacent to City of Guadalupe
San Luis Obispo County and Santa Barbara County	Beachfront	To edge of foredunes
San Luis Obispo County, Santa Barbara County, City of Guadalupe	Pacific Coast Bike Route	Along Highway 1

Land Uses at the Project Site

The Guadalupe Field was recently purchased by Unocal. Unocal leased the property from the LeRoy Trust since 1950. Oil exploration and extraction were first carried out at the Guadalupe Field by the Sand Dune Oil Company in 1947. Prior to oil production activities, the Guadalupe Field was used for cattle grazing. Grazing was formerly allowed by lease agreements. Grazing is no longer allowed on the Guadalupe Field because the grazing lease is no longer in effect, and grazing is greatly reduced; however, there are no barriers on the property boundaries and cattle still occasionally trespass onto the Guadalupe Field property from grazing lands adjacent to the Santa Maria River.

5.8.1.2 Study Area

The study area encompasses the area contiguous to the Guadalupe Field and west of Highway 1 in San Luis Obispo and Santa Barbara Counties in the coastal zone. It also includes the City and environs of Guadalupe in Santa Barbara County. Coastal recreational resources extend from Pismo State Beach to the north in San Luis Obispo County to Point Sal State Beach to the south in Santa Barbara County. Roadways in the Cities of Guadalupe and Santa Maria may also be impacted by truck travel associated with the project.

The Guadalupe Field is bounded on the north by the USFWS Refuge, on the south by the Santa Maria River and the County Park, to the east by agricultural lands, and to the west by the Pacific Ocean. The principal uses of land surrounding the Guadalupe Field have been, and continue to be, those related to crop production, cattle grazing, and recreation (see Figure 5.8-3 for Land Use categories and combining designations).

5.8.2 Regulatory Setting

5.8.2.1 Land Use Policies

The following is a summary of the regulatory environment for the proposed project and alternatives. While the Guadalupe Field is under the jurisdiction of San Luis Obispo County and the California Coastal Commission, due to its location, land use, and management policies for Santa Barbara County, the City of Guadalupe, and the Nipomo Dunes Preserve are also included in the regulatory setting. The analysis of individual policy statements that are germane to the proposed project and alternatives is discussed under impacts (Section 5.8.5). Additional information related to policies and a discussion of the project and alternatives consistency with policies is included in Appendix D, Consistency with Adopted Plans and Policies.

State of California

The California Coastal Act of 1976 mandates that local governments prepare a land use plan and schedule of implementing actions to carry out the policies of the Coastal Act. These Coastal Act policies address specific issues of shoreline access for the public, visitor-serving facilities, coastal-dependent industrial and energy-related facilities and activities, protection of sensitive habitats, and protection and preservation of visual and scenic resources.

In addition, the Coastal Act establishes a framework for prioritizing land uses. The Coastal Act places as its highest priority on the preservation and protection of natural resources, including environmentally sensitive habitat areas (dunes and wetlands), and prime agricultural lands. Only uses that are dependent on such resources are allowed within habitat areas. For agricultural land, the Coastal Act specifically addresses protection of the maximum amount of prime agricultural land in production. On non-agricultural land, coastal-dependent development has the highest priority, with public recreation uses the next priority. Where land is not required for habitat preservation, agriculture, coastal-dependent uses, or public recreation, other development is permitted. However, the Coastal Act requires that visitor-serving commercial recreation development have priority over private residential, general industrial, and general commercial development.

San Luis Obispo County

As required by the California Coastal Act, San Luis Obispo County developed the San Luis Obispo Land Use Element – Local Coastal Program (SLOLCP)/Coastal Plan Policies. The San Luis Obispo SLOLCP received certification by the Coastal Commission in 1988; thus, Coastal Act policies are implemented through the SLOLCP. As a result, the County now has coastal development permit-issuance authority over most development in the coastal zone. If the project lies on tidelands, submerged lands, or public trust lands, the Coastal Commission also retains permit jurisdiction.

San Luis Obispo County General Plan.

The General Plan is divided into sub-sections dealing with corresponding sub-areas of the County. The Guadalupe Field is governed by the Land Use Element and Local Coastal Plan for the South County Planning Area, which assigns land use categories, combining designations, specific development standards, and recommended programs.

Land Use Categories. Land uses on the Guadalupe Field are designated Rural Lands and Recreation (see Figure 5.8-3). Allowable uses on the Guadalupe Field are limited to petroleum extraction, accessory storage, and pipelines; agricultural accessory structures; aquaculture; crop production and grazing; coastal accessways; fisheries and game preserves; water wells and impoundments; and power transmission.

Combining Designations. Combining designations are special overlay land use categories. They are applied to areas with special resources or potentially hazardous conditions where a more detailed project review is needed to avoid adverse environmental impacts or effects of hazardous conditions. The Guadalupe Field is covered by Energy and Extractive Area and Sensitive Resource Area combining designations (see Figure 5.8-3).

Standards. Standards are mandatory requirements for development. They are designed to handle special problems in a particular rural area or to respond to a special concern in an individual community. Planning area standards can range from establishing special setbacks in one neighborhood to limiting the kinds of land uses normally allowed by the General Plan because of specific community conditions. These requirements apply to proposed projects in addition to the provisions of the Land Use Ordinance and Coastal Zone Land Use Ordinance.

The following standards apply to project area lands in the Energy and Extractive and Sensitive Resource Area combining designations.

- Any new oil field operation, modification, or expansion of the existing Guadalupe Field beyond that allowed by current Coastal Commission permits requires Development Plan approval. Coastal permit conditions (Permit 409-24) for expansion of the Guadalupe Field shall be met. Any new development shall be subject to the standards and conditions set forth in the Energy Facility Siting Management Plan for the Guadalupe Dunes System, Volume II Guadalupe Dune Unit (October 22, 1980). In addition to applicable provisions of the Land Use Element, Local Coastal Program, and Coastal Zone Land Use Ordinance. In the event of any conflicts between the standards, the most restrictive shall prevail.
- Development of ultimate recreation uses is to include a program for dune stabilization to prevent dune migration into the Santa Maria Valley farmland.

- In accordance with the coastal development permit (409-24) Union Oil shall record an irrevocable offer-to-dedicate to a public agency or private association an easement primarily for habitat protection/preservation or open space, and secondarily for public access consistent with preserving the habitat value of this area.
- No oil field discharge shall be allowed into the Santa Maria River wetland.
- Grazing activities shall be confined to areas which do not impact the Santa Maria River wetland habitat.
- Oil field tailings and debris shall not be located within 100 feet of the Santa Maria River wetland. Existing tailings and debris shall be removed.

The following standard applies to the Rural Lands category on the Guadalupe Field.

- Uses allowed are limited to agricultural accessory structures; aquaculture; crop production and grazing; coastal accessways; fisheries and game preserves; water wells and impoundments; petroleum extraction; accessory storage; pipelines, and power transmission.

The following standards apply to lands within the Recreation land use category in the dune areas south of Oso Flaco Lake Road.

- Access to the recreation area is not to be across lands designated in the Agriculture land use category.
- Development of recreational uses is to include a program for dune stabilization to prevent sand migration into the adjacent farmland of the Oso Flaco Valley.
- Allowable uses are limited to fisheries and game preserves, pipelines and power transmission, crop production and grazing, coastal accessways, and water wells and impoundments. No off-highway vehicular use is permitted other than for management of the natural areas or to service allowable uses.

Programs. Programs refer to non-mandatory actions or policies recommended by the Land Use Element to achieve community or area-wide objectives identified in the Plan. Because programs are recommended actions rather than mandatory requirements, implementation of any program by the County should be based on consideration of community needs and substantial community support for the program and its related cost.

To ensure the protection of recreational and rural lands, the Plan recommends that if facilities related to processing onshore or offshore oil are needed, the County shall require the development of partial processing facilities within the existing oil refinery or within the adjacent industrial area on the Nipomo Mesa.

After termination of oil extraction from the Guadalupe Field, the Plan recommends that a general plan amendment be initiated to change the land use category from Rural Lands to Recreation. This would reflect the planned ultimate use of this area for limited recreational use.

Coastal Plan Policies.
In addition to the Land Use Element and Local Coastal Plan policies and standards, the Local Coastal Plan Policy Document provides overall policy direction for the management of land use

within the coastal zone. This document states the policy commitment of San Luis Obispo County to implement the mandates of the Coastal Act. A summary of the policies is presented below.

Shoreline Access. Policies within the Coastal Plan encourage the protection of existing coastal access and the provision of new access, and the maintenance of existing access shall be provided with new development.

Recreation and Visitor Serving Facilities. As stated in the Coastal Plan, one of the primary purposes of the Coastal Act is to maximize public recreational opportunities within the coastal zone consistent with sound resource conservation practices and principles and the constitutionally protected rights of private property owners. To achieve these goals, Coastal Plan policies encourage the preservation of existing recreational opportunities and the expansion of such opportunities where feasible. Visitor-serving recreational facilities are given a priority over non-coastal dependent uses.

Energy and Industrial Development. Policies within the Coastal Plan recognize the need to accommodate coastal-dependent industrial and energy development. However, policies in the Plan encourage decision-makers to weigh the environmental consequences of allowing continued or expanded industrial and energy land uses. The expansion of existing sites is preferred over the development of new sites, and existing facilities are encouraged to be abandoned when no longer in use. The Plan also contains an array of policies related to the development of new energy facilities, including pipelines and transmission lines, new power plants, and roads serving such facilities.

Commercial Fishing and Recreational Boating. Policies in the Coastal Plan encourage the protection of commercial fishing and recreational boating facilities and give priority, where feasible, to the expansion of such facilities. Again, coastal-dependent uses are given priority over non-coastal-dependent uses. There are also policies related to the development of on-shore support facilities for offshore oil development.

Environmentally Sensitive Habitats. Coastal environments are among the most important biological resources. Policies within the Plan are intended to protect and preserve such resources from development, and where feasible, to restore and enhance such resources. Because of their sensitivity and biological importance, there are a number of policies relating to the protection of coastal wetlands and riparian corridors.

Agriculture. The Coastal Plan encourages the preservation of viable agricultural lands within the coastal zone. The agricultural policies guide agricultural land preservation and identify actions to protect the land and standards to guide development in agricultural areas.

Public Works. This section of the Coastal Plan provides policies related to the provision of sewer, water, roads, drainage, and other public facilities. For each community an Urban Reserve Line and Urban Services Line is established that denote the limits of the desired limits of the urban area and the areas currently being served by urban services, respectively. The intent of the Public Works policies is to ensure that adequate public facilities are available and provided for existing and anticipated development.

Coastal Watersheds. Coastal watersheds are important resources in the coastal zone that provide habitat for sensitive plants and animals and help maintain the productivity of coastal waters (including ground water). Policies in the Coastal Plan are intended to help maintain the long-

term viability of such resources and to manage new development so that the viability of such resources is maintained.

Visual and Scenic Resources. The Coastal Plan recognizes the scenic value of the coast to residents and visitors of the county. Policies in the Plan provide guidance for new development relative of the protection of scenic resources, and encourage the preservation of existing resources.

Hazards. These policies provide guidance for the protection of lives and property from natural and human-made hazards within the coastal zone, including floods, unstable geology, erosion, fire, and sea-cliff retreat.

Archeology. The coastal zone contains numerous important archeological sites and potentially significant sites. The Coastal Plan contains policies relating to the identification and preservation of such resources.

Air Quality. Generally good air quality is another important resource that contributes to the desirability of the coastal zone as a place to live and visit. This section of the Coastal Plan encourages the preservation and enhancement of air quality through implementation of the policies and programs of the Air Quality Management Plan.

Other Elements of the San Luis Obispo County General Plan. The following describes the noise, energy, agriculture and open space, safety, parks and recreation, and housing elements in the General Plan.

Noise Element. The Noise Element was adopted in May, 1992, and provides goals, policies and standards for the management of noise in the unincorporated county. Generally, the policies of the Noise Element seek to protect county residents from the harmful and annoying effects of exposure to excessive noise. Policies of the Noise Element establish standards for maximum allowable noise levels from transportation and stationary sources by land use category. Levels are provided for outdoor and indoor spaces.

Energy Element. The Energy Element is an optional element of the county general plan adopted in April, 1995. The Energy Element provides goals, policies, and implementation guidelines to help increase energy efficiency in the county and to provide guidance relative to energy use, while protecting public health and the environment. The Energy Element also provides policies that govern the production, transportation and use of fossil fuels, including petroleum products. The policies encourage the incorporation of features into the design and location of new or expanded fossil fuel production facilities that provide an acceptable margin of safety to residents and the environment.

Energy Element policies also provide guidance in the event of a petroleum or hydrocarbon release. Policy No. 65 states:

> *"In the event of a petroleum or hydrocarbon release, implement the following policies:*
>
> - *Emergency response and initial cleanup of the spill site shall be completed as soon as possible. An emergency permit shall be granted as appropriate. A state of emergency as defined in the general plan must exist for a permit to be granted.*

- *Environmental impacts caused by response and clean up activities shall be minimized. Environmental monitor(s) shall be on site to reduce possible impacts.*
- *A post-spill environmental assessment of the site shall be performed to evaluate and quantify the damage to resources.*
- *Remediation and restoration of the site to pre-spill conditions shall be completed. These activities are subject to land use permit/environmental review process.*
- *If the site cannot be restored to its pre-spill condition, the responsible party shall contribute to an environmental enhancement fund to be used for on or off site mitigation projects."*

Agriculture and Open Space Element. San Luis Obispo County prepared a combined Agriculture and Open Space Element to provide policy guidance for the preservation and enhancement of the county's open space and agricultural resources. The element is dated December, 1998.

Safety Element. The adopted Element provides policies and programs intended to protect the public from natural and human-made hazards, such as fires, flooding, geologic hazards such as landslides and earthquakes, and radiation.

Parks and Recreation Element. This element provides policy guidance regarding the provision of park and recreation services, documents the county's existing park and recreation resources, including those that are outside of the county's management, and facilitates the evaluation of park and recreation needs during the land use decision process.

Housing Element. The Housing Element was adopted in October, 1993, to help meet the county's goals for the provision of safe, affordable, and sound housing for all income levels. The Element addresses the provision of affordable housing; rental housing; and the maintenance of housing programs at the Federal, state, and local levels. The Housing Element also provides programs intended to help the county achieve its regional "fair share" of affordable housing.

Other Plans

Water Quality Control Plan (Basin Plan). The objective of the Regional Water Quality Control Board (RWQCB) Basin Plan is to indicate how the quality of the surface and ground water in the Central Coast Region should be managed to provide the highest water quality reasonably possible. The Basin Plan lists the various water uses, including recreational uses, and describes the water quality which must be maintained to allow those uses. While sections of the Basin Plan contain mandatory requirements, any section can be mandatory through the issuance of a Regional Board order.

Clean Air Plan (CAP). The San Luis Obispo County Air Pollution Control District (APCD) has prepared a Clean Air Plan in accordance with relevant sections of State and Federal air quality laws. The purpose of the Plan is to achieve and maintain healthful air quality for county residents. The Plan contains control strategies for stationary and mobile sources that are intended to reduce the emission of air pollutants and their precursors.

Santa Barbara County

The study area extends into Santa Barbara County, essentially south of the Santa Maria River and west of Highway 1. While Santa Barbara County would be affected by the proposed project,

specifically by traffic impacts, it does not have jurisdictional authority over activities occurring in San Luis Obispo County. Santa Barbara County has jurisdiction over the Rancho Guadalupe County Park, which provides the closest beach access to the Guadalupe Field.

The Santa Barbara County Land Use Plan and implementation program, including zoning, which comprise the Coastal Plan, are designed as a separate element to the County's General Plan. The Land Use Plan protects coastal resources and provides for greater access and recreational opportunities for the public's enjoyment, while allowing orderly and well-planned development and the siting of coastal-dependent and coastal-related industry. In general, the Land Use Plan places a strong emphasis on expanding public access opportunities to the County's beaches, protecting environmentally sensitive habitats, and preserving prime agricultural land.

The Santa Barbara Coastal Plan was partially certified by the State Coastal Commission in 1981 (the only portion of the plan which has not been certified relates to the Channel Islands). The Coastal Plan contains general policies which address coastal access and recreation for the Guadalupe area, and protection of environmentally sensitive areas. Relevant policies address:

- Protection of the public's rights of access to and along the shoreline;
- Expansion of opportunities for public access and recreation in the north Santa Barbara County area;
- Preservation of the natural and archaeological resources of the Guadalupe Dunes and expansion of public opportunities for low intensity recreation;
- Protection of environmentally sensitive habitats;
- Protection of agricultural lands.

City of Guadalupe

Guadalupe also has policies addressing agricultural lands. Relevant policies include:

- Continuation of agricultural uses in the unincorporated areas which do not cause adverse effect to the City will be encouraged.
- The City of Guadalupe shall work with the County of Santa Barbara to discourage parcelization of agricultural land and to encourage the viability of those areas until they are annexed and ready for urban development.
- Prime agricultural lands characterized by having Class I or II soils and within a Williamson Act Agricultural Preserve shall be protected from urban development until such time it is established that conversion to urban uses is necessary for the viability of the City of Guadalupe.

Federal Agencies

U.S. Army Corps of Engineers. The Corps of Engineers (USACE) undertakes water supply and flood control projects and issues permits for construction along rivers, beaches, and lakes through Section 404 of the Clean Water Act.

U.S. Fish and Wildlife Service. The Fish and Wildlife Service (USFWS) administers portions of the Endangered Species Act. Section 7 of the Act requires Federal agencies to consult with the

Service should they determine that their actions may affect listed species. Under Section 10 of the Act, the Fish and Wildlife Service may issue permits, with conditions, that authorize the "take" (harm or harassment) of a listed species.

State Agencies

California Coastal Commission. The proposed project site lies entirely within the coastal zone and is subject to the provisions of the San Luis Obispo County General Plan and Local Coastal Program (SLOLCP); the SLOLCP was certified by the Coastal Commission in February, 1988. Once the SLOLCP is certified, permit authority for new development within the coastal zone is returned to local government, in this case San Luis Obispo County. Thereafter, certain actions taken by the County in implementing the Plan remain appealable to the Coastal Commission in accordance with Section 30603 of the Coastal Act.

The California Coastal Commission (CCC) retains direct permit authority for development activities (including remediation efforts) within portions of the coastal zone seaward of the mean high tide line, and over areas defined as "tidelands" by the Coastal Act.

California Department of Fish and Game. The California Department of Fish and Game (CDFG) is responsible for the management of fish and game species and their habitat, including creeks, estuaries, and tidelands. The California Fish and Wildlife Plan (1986) guides the overall management of fish and game resources, and the Fish and Game Code is the regulatory guide. CDFG has permit authority over two activities that may be involved with the proposed remedial efforts. A streambed alteration permit is required for projects that may alter the flow of any lake, stream, or river. A permit must also be obtained from CDFG for projects that involve suction dredging or vacuum dredging activities in state waterways. CDFG also reviews projects and comments on potential impacts to fish and wildlife resources in general, and identifies potential impacts to endangered or threatened plant or animal species under the California Endangered Species Act. The Department is required to issue a written finding indicating whether a proposed project would "jeopardize" the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of habitat for such species.

The California Department of Fish and Game has permit authority for take of State-listed species under Fish and Game Code Section 208(b) and 208(c) and the California Code of Regulations, Title 14, Subdivisions 3, Chapter 6, Article 1, commencing with Section 783.

Regional Water Quality Control Board. The Regional Water Quality Control Board (RWQCB) is responsible for the management of water quality, including ground water resources. Activities that may affect ground water are subject to permit review by the RWQCB. The RWQCB is responsible for setting soil and ground water cleanup standards at the Guadalupe Field.

Local Agencies

San Luis Obispo County. The proposed project will require approval of a Coastal Development Permit/Development Plan by the San Luis Obispo County Planning Commission in accordance with Section 23.02.034 of the Coastal Zone Land Use Ordinance (Title 23 of the San Luis Obispo County Code). According to the Ordinance, the purpose of a development plan is to enable public review of significant land use proposals and to insure the proper integration into the community of land uses which, because of their type and intensity, may only be appropriate on particular sites or may only be appropriate if designed or laid out in a particular manner.

Action on a development plan is discretionary and may include approval with conditions based on standards contained in the Ordinance, or disapproval, based on conflict with the provisions of the ordinance and/or general plan. Decisions of the Planning Commission may be appealed to the Board of Supervisors.

An approved development plan is valid for a period of 24 months from its effective date, and expires at the end of that period unless substantial site work has been commenced or an extension has been granted.

San Luis Obispo County Air Pollution Control District (APCD). The APCD is responsible for the implementation of Federal, State, and local air pollution control regulations. The APCD issues two kinds of permits that may relate to project activities. An Authority-To-Construct permit is required for any proposal to construct, modify, or operate a facility or equipment that will emit air pollutants from a stationary source. A Permit To Operate (PTO) must be obtained from the District to ensure compliance with requirements implemented through the Authority-To-Construct permit.

5.8.3 Significance Criteria

Significance criteria were developed based on the uniqueness and regional importance of the coastal resources in the project vicinity. For the purposes of this analysis, impacts are considered significant if the following criteria apply:

- Preclusion of a permitted use on nearby property or disturbances that diminish the quality of a particular land use;
- Preemption of a recreational use or degradation of a coastal recreational experience;
- Loss or degradation of the recreational value of a recreational use (including public perception of degradation);
- Inclusion of public uses or sensitive land use receptors within the footprint of a hazardous area;
- Conflict with adopted local, County, or State land use plans, policies, or regulations;
- Conflict with established recreational, educational, religious, or scientific uses of the area;
- Conversion of prime agricultural land to non-agricultural use, or impairment of the agricultural productivity of prime agricultural land.

5.8.4 Impact Assessment Methodology

Although individual impacts of the proposed physical project are identified within the respective issue areas, these same impacts must be evaluated in terms of their combined effects on land uses. The type and duration of land use/recreational conflicts that would result from the project are determined by aggregating impacts of the following issue areas: air quality, noise, visual, transportation, and public safety. The land use impact analysis focuses on potentially significant impacts. Land uses not specifically addressed in the following section are expected to experience no or negligible adverse effects from the proposed project or alternatives.

In accordance with the significance thresholds described above, the proposed project and alternatives were analyzed for their potential to prevent or significantly limit the planned or intended use of properties within the study area. Each action was also analyzed for potential conflicts with adopted plans, policies, and standards.

5.8.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that would be incorporated into the proposed project or alternatives as part of the existing permit conditions.

The following measures would be implemented to protect recreational resources in accordance with the CDP/DP D890558D Coastal Development Permit (CDP) County Conditions of Approval:

F101. Unocal shall coordinate with the Nature Conservancy and the California Department of Parks and Recreation to provide notice to beach users at least one week before beginning project activities. Signs in English and Spanish shall be posted at the Rancho Guadalupe County Park and Oso Flaco Lake Natural Area parking lots. It should be made clear that the beach will remain open and that remedial activities do not pose a safety hazard to the public.

5.8.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

The technologies proposed to remediate affected material at the project site include trucking NHIS to the Santa Maria Landfill. A detailed description of the proposed project is presented in Section 2.0, Project Description, and of the alternatives in Section 3.0.

The proposed project includes removal and transfer of the existing TB8 and TB9 Stockpiles, as well as transfer of other contaminated materials excavated in the future, and disposal of all materials at the Santa Maria Landfill. Impacts associated with previously approved, anticipated excavation work have been evaluated under the 1998 EIR (ADL 1998) and are not considered part of this project.

The proposed project was determined to be consistent with local policies and plans (see Appendix D, Analysis of Consistency with Applicable Plans and Policies).

The remainder of this section presents the land use impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

Impact	Impact Description	Residual Impact
LU.1	Proposed project activities could result in disturbances that diminish the quality of a particular land use, especially residential areas along the transportation corridors.	Class III

Impact Discussion

Impacts from the activities that could affect land use include the offsite movement of NHIS, air pollution and odors, traffic, and noise. Impacts associated with these aspects of the proposed project are analyzed in the other topical sections of this SEIR.

The potential land use impacts associated with these factors are discussed below.

Air Quality – Air quality associated with the proposed project and recommended mitigation measures is analyzed in the Air Quality section. Air pollution would be generated by construction machinery, truck transportation, other motor vehicles, and earth-moving activities, among others. Decreased air quality could adversely affect land use if it would prevent or otherwise limit a planned or permitted use on a nearby property. Air quality impacts associated with truck transport would be expected to pose a disturbance that would diminish the quality of the recreational use of the area. Because the amount of agricultural activities in the area are substantial and involve a large number of trucks and associated truck diesel emissions, this impact would be considered *less than significant*. Air quality impacts to recreation from site activities, such as earth moving, truck loading, and truck transportation are remote relative to the recreational activities and land-uses and are expected to also be *less than significant*.

Traffic – Traffic impacts associated with the proposed project and mitigation measures are analyzed in the Traffic section of this SEIR. Increased traffic could adversely affect land use if it would prevent or otherwise limit a planned or permitted use on a nearby property. While increased traffic may cause delays and inconvenience, it is not expected to preclude a permitted use or pose a disturbance that would diminish the quality of a particular land use. Traffic impacts to land use are considered *less than significant*.

Noise – Noise impacts associated with the proposed project and mitigation measures are analyzed in the Noise section. Offsite trucking activities would increase the ambient noise levels for the duration of the project along transportation corridors. Temporary noise impacts would primarily affect recreational and residential land uses and receptors. Noise could adversely affect land use if it would prevent or otherwise limit a planned or permitted use on a nearby property. However, because noise impacts would occur along existing traffic corridors and it is not expected that the project would substantially increase traffic noise along these corridors to an extent that would prevent or limit uses, noise impacts to land use are considered *less than significant*.

Mitigation Measures

Please refer to the individual issue areas for discussion of mitigation measures. No additional mitigation measures beyond those already addressed as part of the remediation project are proposed.

Residual Impact
Please refer to the individual issue areas for discussion of residual impacts. This residual impact is considered *less than significant* (Class III).

Summary of Impacts at the Santa Maria Landfill
The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

For land use and recreation there were no impacts identified with the use of the Guadalupe material in the NHIS program.

5.8.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation throughout the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures are for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.8.7.1 Offsite Trucking to Other Destinations Alternative

This alternative proposes trucking of the NHIS to other locations outside the County. Alternative destinations for the offsite trucking would include McKittrick, Buttonwillow, and Kettleman Hills.

There are two routes proposed to reach the alternative waste facilities. The first (Route 1) would be from the Guadalupe Field, north on Highway 1, east on Division Street, south on U.S. Highway 101, east on Highway 166, and north on Highway 33. The second (Route 2) would be from the Field, south on Highway 1, east on Highway 166 to Highway 101, north on Highway 101, east on Highway 166, and north on Highway 33.

The route to Kettleman Hills would be north on Highway 1, east on Division Street, north on Highway 101, east on Highway 46, and northeast on Highway 41.

Trucking the affected material to locations outside of the County would have impacts to land use and recreation similar to those of the proposed project. Impacts to air quality, traffic, and noise would be similar but increased somewhat because the distances that the trucks would be required to travel would be greater. However, in regard to traffic and noise, these greater distances would be mostly on highways that currently experience substantial amounts of traffic and that are mostly rural in nature. These include Highway 101 and Highway 166. Impact LU.1 identified for the proposed project would also apply to this alternative.

There would be no other impacts associated with this alternative. This alternative was determined to be consistent with local policies and plans (see Appendix D, Consistency with Adopted Plans and Policies).

Please refer to the Air Quality, Traffic, and Noise sections for further discussion of these impacts.

5.8.7.2 Treated-Materials Land Feature (TMLF) Alternative

This alternative would involve keeping the NHIS onsite and creating, in effect, a "dune" at TB9 with the affected material after it has been treated utilizing the land treatment methods (LTU), or biofarming, as discussed in the 1998 EIR. Pilot projects conducted with the landfarming have indicated that the landfarmed material would require a leachate collection system and monitoring.

Impacts from this alternative would not generate air quality-, noise-, or traffic-related impacts to the residential communities along transportation routes at levels as high as the proposed project or the "Offsite trucking to other destinations" alternative discussed above. Because the activities related to this alternative would also involve onsite activities, noise impacts would have some minimal impacts to residential areas to the west end of the City of Guadalupe (see the Noise impact section). Impact LU.1 identified for the proposed project would also apply to this alternative due to the transportation of sump materials.

Because the material treated by the LTU and placed in the TMLF would be treated to levels approved by the RWQCB for reuse, there would be no land use impacts associated with inconsistencies with existing land use policies (Energy Element) and with the Land Use Standards in the general plan for the County of San Luis Obispo.

5.8.7.3 Engineered Containment Unit (ECU) Alternative

An ECU would involve placing untreated material in a landform feature similar to the TMLF with leachate collection and monitoring.

Impacts from this alternative would generate fewer air-quality-, noise-, or traffic-related impacts to the residential communities along transportation routes than would the proposed project and the alternative-transportation alternative discussed above. Also, because fewer trips would be required to the Santa Maria Landfill due to the sump materials being a part of the ECU, fewer impacts would be associated with the ECU project than would be for the TMLF. Because the activities related to this alternative would also involve onsite activities, noise from construction equipment would have some minimal impacts to residential areas to the west end of the City of Guadalupe (see Noise impact, Section 5.7.7).

Impact	Impact Description	Residual Impact
LU.2	The ECU alternative would establish at the Guadalupe Field a permanent depository of NHIS requiring indefinite leachate collection and monitoring.	Class I

Impact Discussion
The establishment of the ECU at the Guadalupe Field would be inconsistent with existing land use policies (Energy Element) and with the Land Use Standards in the general plan for the County of San Luis Obispo. These policies and standards indicate that the Guadalupe Field is designated as a Rural Land and Recreation area. The allowable uses of the Guadalupe Field are limited to *"…petroleum extraction, accessory storage, pipelines and power transmission*" and that *"...existing tailings and debris shall be removed.*" The General Plan indicates that the "*the planned ultimate use of this area [Guadalupe Field] is for limited recreational use.*" See Appendix D, Consistency with Adopted Plans and Policies.

In addition, the U.S. Fish and Wildlife Service (USFWS) has designated the area as part of the proposed boundary of the refuge. Storage and maintaining a non-hazardous impacted soils storage area at the Guadalupe Field and establishment of an ECU at the Guadalupe Field would be contrary to the directives of the SLO General Plan and the intentions for the area as recreation. This would be considered a *significant* impact.

There would be no other land use impacts associated with this alternative.

Mitigation Measures
No mitigation measures are proposed.

Residual Impact
This residual impact is considered *significant* (Class I).

5.8.7.4 Slurry Injection Alternative

Slurry injection would involve the injection of materials mixed with water down injection wells. The installation and operation of injection piping, mixing vessels and tanks, and injection pumps would be part of the project.

Impacts from this alternative would generate fewer air quality-, noise-, or traffic-related impacts to the residential communities along transportation routes than would the proposed project and the alternative-transportation alternative discussed above. Because the activities related to this alternative would be limited to onsite activities, noise from construction equipment and pumping would have some impacts to residential areas to the west end of the City of Guadalupe (see Noise impact section), but would not preclude any land use activities. Impact LU.1 identified for the proposed project would also apply to this alternative.

The injection of NHIS via slurry would have substantially fewer impacts related to transportation than is the case with the proposed project. Transportation would also have fewer impacts than the TMLF because all materials would be slurried and injected. In addition, slurry injection would not introduce a NHIS feature into the coastal zone, as would the ECU, which would thereby create impacts related to land use policies. Impact LU.2 identified for the proposed project would not apply to this alternative.

5.8.8 Cumulative Impacts

Cumulative land use and recreation impacts could occur if construction-related disturbances from the proposed project or alternatives in combination with other local projects resulted in impeded recreation or roadway access, noise, increased water pollution, poor air quality or odors, visual intrusions, public safety issues, and general disruption to surrounding land uses.

Section 4.0, Cumulative Projects Description, identifies other planned and approved projects in the area. Construction of any one of these projects at the same time as the proposed project or alternatives could further exacerbate impacts associated with remedial activities, such as noise, traffic, etc. Any cumulative impacts that negatively affect the recreational use of the beach near the project site could be considered significant. However, none of the proposed projects appear to impact issue areas in a manner that would produce a significant cumulative impact for land use.

The USFWS may add the Unocal conservation easement and property to the existing refuge system. This would increase public access to the Unocal property.

While the proposed project and alternatives would not be expected to increase local population, the effect of the cumulative projects described in Section 4.0 would be population growth. This increase in population in the study area would place additional demand on recreational resources and most likely increase visitation rates at the Nipomo Dunes Preserve. However, the overall impact of an increase in demand on land use at the Guadalupe Field or in the vicinity would be expected to be insignificant.

5.8.9 Mitigation Monitoring Plan

No mitigation measures have been proposed for the land use/recreation impacts. Please see the specific issue area sections of issues that could affect land use/recreation for a discussion of applicable mitigation measures for air quality, noise, and traffic.

5.8.10 References

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5.9 Cultural Resources

5.9.1 Environmental Setting

This section addresses archaeological resources in the vicinity of the Guadalupe Field. Historical resources are not addressed because none are associated with the Guadalupe Field.

5.9.1.1 Regional Overview

The Guadalupe Field is located within an area of central California with a history of prehistoric occupation extending over 9,000 years ago. The Guadalupe Field is characterized by sand dunes that began to form along the coastline above Point Conception approximately 5,000 years ago (Gibson 1993). At that time, the sea level that had been constant since the end of the last Ice Age had nearly stabilized. An archaeological site at Cayucos (CA-SLO-877) contains two components that illustrate dune formation chronology: the lower deposit containing rocky coast shellfish dates to approximately 8,000 before present (B.P.), while the upper dune component containing sandy beach shellfish dates to approximately 5,000 B.P. (Gibson 1993). Dune formation in southern San Luis Obispo County is considered to have been most extensive in the past 3,000 years (King, Parsons, and Gibson 1989). Archaeological sites explored in dune habitats at Morro Bay and northern Vandenberg Air Force Base dating to this period support this estimate (Gibson 1993). Much of the Field's dune deposit was probably deposited after 3,000 B.P. (Gibson 1993).

The initial sand dune formation corresponds to the latter portion of the Early Period (between 9,000–3,000 B.P.) of the San Luis Obispo County cultural chronology. Excavations from sites dating to these periods suggest coastal dwellers emphasized the processing of small seeds (as evidenced by grinding [mano and metate] stones), hunting of large land mammals, fishing, hunting of sea mammals, and shellfish collection. Sites were often located on elevated land forms for protection and normally were relatively small (Gibson 1993).

The subsequent Middle Period (between approximately 3,000 and 950 B.P.) is indicated by the use of acorns and islay (mortar and pestle replacing the mano and metate), and increased fishing from boats. Village site locations tended to be larger than in the Early Period, suggesting increasing social interaction and cooperation over a wider geographical range. One site in the project area, CA-SLO-851, dates to this later part of this period (Gibson 1993).

The Late Period (between 950 and 200 B.P.) of regional prehistoric development is associated with the Purismeño Chumash, the Native American group encountered and baptized by the Spanish at La Purisima Concepcíon beginning in 1787 A.D. (although the boundary between the Purismeño and the Obispeño Chumash, associated with baptisms at San Luis Obispo de Tolosa to the north, is vague and cannot be determined precisely) (Greenwood 1978). During the Late Period, subsistence practices continued to diversify, featuring use of the bow and arrow instead of spear to capture smaller land mammals, and greater use of boats for open ocean fishing with nets. Shell beads that had been used for exchange throughout previous time periods increased in number and size, suggesting a sophisticated economic exchange system. Along with

technological and economic developments, Chumash social systems evolved with large villages governed by chiefs (Greenwood 1978).

The project vicinity was originally visited by Europeans during the Gaspar de Portola expedition in 1769. Two villages were described near Guadalupe on a large spring-fed lake: *Ajuaps*, and possibly *Pascia.* A second expedition identified the village of *Pismu*' at Oso Flaco Lake. No villages were identified within the project area. The Spanish, however, described several fishing camps along the coast north of Morro Bay that were used during the winter. The project area was possibly used for these seasonal occupations as well (Gibson 1993).

Baptisms of the "heathen" populations resulted in abandonment of the Chumash villages by 1805, such that no further Native American use of the project area likely recurred after this time (Gibson 1993).

Increased access to the Guadalupe-Nipomo Dunes Complex (Dunes Complex) and the project area occurred with construction of the Southern Pacific Railroad in the early 1900s (Gibson 1993). Oil exploration and production-related activities began in the project vicinity in 1947 and continued until March 1990.

5.9.1.2 Study Area

The Guadalupe Field has been subject to several archaeological surveys and excavations. A records search of these investigations was performed at the Central Coast Information Center, Historical Resources Information System, University of California, Santa Barbara. The Information Center has records of 12 investigations. Another 10 investigations have been performed for Unocal since 1993.

The entire Guadalupe Field was surveyed in 1979 in association with the expansion of existing petroleum production activities (Spanne 1979). The intensity of the survey (individuals spaced approximately 65 feet apart) was slightly less than what is now considered professionally acceptable (a spacing of 50 feet). Six prehistoric archaeological sites were identified during this study. These resources were revisited in 1993 (Gibson 1993). Due to the shifting nature of the sand dunes on the project site, definition of the revisited archaeological site boundaries included a 100-meter (325-foot) buffer, in the event they had been partially obscured since their occupation (Gibson 1993). An additional archaeological site was recorded in 1990 (Hoover 1990), and two isolated artifacts were identified in 1995 (Gibson 1995). These are summarized in Table 5.9.1.

Table 5.9.1 Archaeological Resources in the Guadalupe Field Area

Site Number	Contents	Site Type	Condition
CA-SLO-851	Shellfish, Monterey chert tools and flakes, asphaltum	Middle Period seasonal village	Exposed in deflated dune
CA-SLO-852	Small, light-density shellfish and stone tool flake scatter	Temporary camp	Possibly buried or eroded by Santa Maria River
SL0-923	Small, light-density shellfish scatter, two pieces of mammal bone, one stone tool flake	Temporary camp	Unknown, not revisited since 1978
CA-SLO-924	Small, light-density shellfish scatter and burned rocks	Temporary camp	Buried by sand dunes or eroded

Table 5.9.1 Archaeological Resources in the Guadalupe Field Area

Site Number	Contents	Site Type	Condition
CA-SLO-925	Thin scatter of unmodified rock and shell fragment	Non-cultural deposit	No cultural remains identified when resurveyed in 1993
CA-SLO-926	Small, light-density stone tool flakes, one projectile point, and shell fragment	Temporary stone tool sharpening and/or hunting activity area	Buried by sand dunes
CA-SLO-1336	Small, moderate-density stone tool flake scatter	Temporary stone tool sharpening and/or hunting activity area	Disturbed in part by paved road
CA-SLO-ISO-34	Isolated Monterey chert chopper and core fragment	Isolated activity area	Unknown

5.9.2 Regulatory Setting

The legal framework that mandates the consideration of cultural resources in project planning is complex and wide-ranging. Federal, State, and local governments have developed laws and regulations designed to protect cultural resources which are under their jurisdictions or which may be affected by actions they undertake. For this project, relevant State and local regulations are summarized below.

The California Coastal Act, Section 30244, states:

> *"Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required."*

The California Environmental Quality Act (CEQA) addresses the need to avoid damaging archaeological resources whenever feasible, provides criteria for determining the significance of archaeological resources, provides direction for developing excavation plans, and provides procedures for the discovery and disposition of human remains encountered during ground disturbances (HSC 7050.5; PRC 21083.2; 21084.1). CEQA identifies the importance of prehistoric or historic archaeological sites as they relate to a community, ethnic, or social group.

The California Public Resource Code 5020 provides for the evaluation and protection of historic resources.

The San Luis Obispo County Local Coastal Plan states policies for the protection of archaeological resources, prevention of vandalism, identification of archaeological sites, site surveys, protection of sites through mitigation, and protection of resources discovered during construction or other activities.

5.9.3 Significance Criteria

5.9.3.1 Cultural Resources

A project will normally have a significant effect on the environment if it will:

A. Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study.

B. Conflict with established recreational, educational, religious or scientific uses of the area.

5.9.3.2 Archaeological Resources

An important, or significant, archaeological resource is one which:

A. Is associated with an event or person of:

   1. Recognized significance in California or American history, or

   2. Recognized scientific importance in prehistory.

B. Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable or archaeological research questions;

C. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;

D. Is at least 100 years old and possesses substantial stratigraphic integrity; or

E. Involves important research questions that historical research has shown can be answered only with archaeological methods.

5.9.3.3 Native American Concerns

Local Native Americans consider archaeological resources an important element of their cultural and spiritual heritage. The disturbance to any site is considered significant to their value system. They strongly desire avoidance of all impacts to prehistoric resources; archaeological investigations, though potentially increasing their understanding of the past, are also considered an impact. Therefore, the potential to disturb unrecorded archaeological sites during construction is considered a significant impact.

5.9.4 Impact Assessment Methodology

Project-specific impacts include direct and indirect impacts. Direct impacts result from land modification directly and immediately caused by the construction, restoration, operation, or

maintenance of a facility. Indirect impacts also occur as a result of a specific project, but are secondary in nature. These indirect impacts can include erosion resulting from adjacent grading, and unauthorized artifact collecting and vandalism resulting from increased human access during construction or operations.

5.9.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established County of San Luis Obispo Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that are incorporated into all work that occurs at the Guadalupe Field.

The following measure would be implemented to protect cultural resources in accordance with the CDP/DP D890558D Conditions:

F102. Remediation technology activities requiring ground disturbance within the CA-SLO-851 buffer zone shall be preceded by controlled backhoe excavations under the direction of a County-qualified archaeologist and local Native American representative. The excavations shall be sufficient to evaluate the potential horizontal and vertical presence of buried cultural resources within the impacted buffer area. A proposal for this backhoe assessment shall be reviewed by the County Department of Planning and Building prior to excavation commencement. In the event potentially significant archaeological materials are identified, a Phase 2 archaeological assessment of the find shall be funded by Unocal. If the materials are determined to be significant under CEQA Appendix K criteria, Unocal shall fund a Phase 3 data recovery mitigation program to collect a representative sample of the materials that would be lost. All investigations shall be performed by a County-qualified archaeologist and local Native American representative retained by Unocal.

F103. Remediation technology activities requiring ground disturbance shall be monitored by a County-qualified archaeologist and local Native American representative. In the event potentially significant archaeological materials are identified, work shall be temporarily redirected and a Phase 2 archaeological assessment of the find shall be funded by Unocal. If the materials are determined to be significant under CEQA Appendix K criteria, Unocal shall fund a Phase 3 data recovery mitigation program to collect a representative sample of the materials that would be lost. All investigations shall be performed by a County-qualified archaeologist and local Native American representative retained by Unocal.

5.9.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

The proposed project includes removal and transfer of the existing TB8 and TB9 Stockpiles, as well as transfer of other NHIS excavated in the future, and disposal of all materials at the Santa Maria Landfill. Section 2.0 of this document includes details of the Proposed Project, and a description of the alternatives is provided in Section 3.0. This section will focus on those project activities that have the potential to affect cultural resources both on and off the Guadalupe Field. Impacts related to construction and operations are addressed below.

The remainder of this section presents the cultural resources impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

Impact	Impact Description	Residual Impact
CR.1	Road widening, paving, and placement of road base material could result in substantial new ground disturbance, with possible disturbances to intact archaeological resources.	Class III

Impact Discussion
Approximately 8,600 linear feet of road widening, with an estimated ten-foot-wide disturbance corridor, (approximately 2.0 acres) could occur as part of the proposed project. Open sand along the Main Road could be impacted. At these sites, sand movement often encroaches on the road itself, and sand is periodically removed from the road to maintain access. Because the sands along the roadway do not represent the landform on which prehistoric populations would have lived, the likelihood for disturbing intact prehistoric resources during road widening is very low. Additionally, the depth of ground disturbance would be relatively shallow, estimated to be less than 12 inches. This shallow disturbance would also be unlikely to disturb intact prehistoric landforms. Therefore, road-widening impacts on cultural resources would be *less than significant*.

Mitigation Measures
Impacts on cultural resources would be less than significant, and therefore, no mitigation measures are required.

Residual Impact
The residual impact on cultural resources would be *less than significant* (Class III).

Impact	Impact Description	Residual Impact
CR.2	Use of the proposed haul routes for offsite trucking of the NHIS could increase impacts on cultural resources.	Class III

Impact Discussion
Increased truck traffic along proposed haul routes would not increase direct or indirect impacts on cultural resources within the vicinity. No ground disturbances would occur, and the increased traffic would not have the potential to elevate the potential access to prehistoric sites and associated illicit artifact collection. Therefore, truck hauling impacts on cultural resources would be *less than significant*.

Mitigation Measures
Impacts on cultural resources would be less than significant, and therefore, no mitigation measures are required.

Residual Impact
The residual impact on cultural resources would be *less than significant* (Class III).

Summary of Impacts at the Santa Maria Landfill
The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS or impacted soils) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

For cultural resources there were no impacts identified with the use of the Guadalupe material in the NHIS program.

5.9.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures are for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.9.7.1 Offsite Trucking to Other Destinations

This alternative involves trucking and disposal of NHIS at other landfills (Buttonwillow, McKittrick, or Kettleman Hills) in lieu of transport and disposal at the Santa Maria Landfill. Trucking of the NHIS to other locations outside of the County would have similar impacts to cultural resources as those of the proposed project.

As mentioned, CDP/DP D890558D Condition F13 requires that all waste materials removed from the Guadalupe Field will be disposed in accordance with applicable laws and regulations. These alternate landfills are permitted facilities that are designed and operated to prevent offsite migration of contaminants. Impacts on cultural resources from reuse/disposal at permitted facilities have already been evaluated, and mitigated as appropriate, through the environmental documentation and permitting process. Therefore, impacts from landfilling NHIS at these sites are not addressed in this SEIR. Any potential impacts to cultural resources that occur after the material has been disposed would be addressed through compliance with the mitigation measures adopted for those sites.

Impacts associated with this alternative would be identical to those identified for the proposed project (CR.1 and CR.2).

5.9.7.2 Treated Material Land Feature (TMLF)

The TMLF would involve contouring of material treated in the Land Treatment Unit (LTU) at TB9. Loading and trucking activities would occur at TB9 to transport sump materials to the Santa Maria Landfill or other offsite location for disposal. In the worst-case scenario, 200,000 cy of the sump material would be transported offsite because sump material cannot be effectively treated.

Activities associated with the TMLF include (1) recontouring of the treated material to form a dune feature and restoring it; (2) use of the haul routes to haul up to 200,000 cy of sump material to the Santa Maria Landfill for disposal; and (3) post-construction monitoring, maintenance, and decommissioning. Impacts CR.1 and CR.2 identified for the proposed project would also apply to this alternative. There would be no other impacts associated with this alternative.

5.9.7.3 Engineered Containment Unit (ECU)

The ECU would involve building a containment sub-structure and then moving the existing stockpiles at TB8 to TB9, and containing the NHIS there for an indefinite period of time. Construction would occur primarily at TB8 and TB9, and would involve the moving of the NHIS, construction of sub-containment systems and leachate collection systems, and subsequent covering of the ECU with topsoil/sand and revegetation. This would involve the same truck loading operations as the proposed project; however, the trucks transporting the NHIS would only travel onsite.

The ECU would be located at TB9, where cultural resources are not anticipated, and construction of the ECU would require minimal grading of previously undisturbed areas. Impacts CR.1 and CR.2 identified for the proposed project would also apply to this alternative. There would be no other impacts associated with this alternative.

5.9.7.4 Slurry Injection

Slurry injection would involve the injection of NHIS mixed with water into the subsurface via wells. The installation and operation of injection piping, mixing vessels and tanks and injection pumps would be part of this alternative.

The site that would be used for the slurry injection is already disturbed and, therefore, there would be no cultural resource impacts associated with the construction of the slurry injection equipment. Impacts CR.1 and CR.2 identified for the proposed project would also apply to this alternative. There would be no other impacts associated with this alternative.

5.9.8 Cumulative Impacts

The impacts of the proposed project activities would contribute to the cumulative impacts on cultural resources resulting from ongoing remediation and abandonment activities within the Guadalupe Field.

Onsite cumulative impacts are impacts that result from the cumulative past, ongoing, and future actions related to: (1) assessing, verifying, and monitoring the nature and extent of the

contamination; (2) conducting pilot studies to test various remediation methods; (3) surveying and monitoring; and (4) implementing a variety of ongoing remediation technologies and activities. In addition to these past and ongoing onsite activities, there are likely to be future remediation activities dealing with additional contamination sources, such as sumps and plumes.

Past and future ground disturbances impacting significant archaeological resources within the project area have been significant, but feasibly mitigated (Class II) by compliance with approved conditions, including monitoring by an archaeologist and Native American observer. The proposed remediation activities would have no impact on cultural resources, and would therefore, not contribute to this impact on cultural resources.

5.9.9 Mitigation Monitoring Plan

No additional mitigation measures are required.

5.9.10 References

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5.10 Agricultural Resources

The Guadalupe Field is located on the Central Coast of California, in southern San Luis Obispo County, and bordering the northern boundary of Santa Barbara County. The Guadalupe Field occupies approximately 2,700 acres.

San Luis Obispo and Santa Barbara County lands are devoted to various agricultural crops and other farm-use categories. Recent data for San Luis Obispo County indicates that the County has approximately 1,019,709 acres of agricultural land (FMMP 2000) and a crop value of over $529 million in year 2003 (San Luis Obispo County 2004). The top five crops (by dollar value) for San Luis Obispo County include wine grapes, broccoli, strawberries, cattle and calves, and head lettuce (San Luis Obispo County 2004). Despite the success of agriculture in San Luis Obispo County, farmland and grazing lands continue to decrease in acreage. It is estimated that between 2000 and 2002, approximately 7,000 acres of farmland and grazing land were taken out of agricultural production (CDC 2003b).

In 2003, Santa Barbara agricultural crops were valued at over $858 million (Santa Barbara County 2004). The agricultural industry continues to be Santa Barbara County's major production industry. In Santa Barbara County as a whole, approximately 70% of the land is devoted to agricultural use, essentially all of which is privately owned lands, with the exception of some lands on Vandenberg Air Force Base. The top five crops (by dollar value) for Santa Barbara County include strawberries, broccoli, head lettuce, wine grapes, and avocados (Santa Barbara County 2004). As is the trend in San Luis Obispo County, Santa Barbara County farmland and grazing lands continue to decrease in acreage. It is estimated that between 2000 and 2002, approximately 1,800 acres of farmland and grazing land were taken out of agricultural production (CDC 2003b).

The following section includes descriptions of those agricultural resources that could be affected by proposed project activities, including agricultural resources on the Unocal property and agricultural resources outside of the Guadalupe Field boundaries, such as along the proposed haul routes.

5.10.1 Environmental Setting

San Luis Obispo County, Santa Barbara County, the California Department of Conservation, and U.S. Department of Agriculture utilize nine different land mapping categories to describe farmland and non-farmlands, as follows.

- *Prime Farmland.* Land with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date to be categorized as "Prime Farmland."
- *Farmland of Statewide Importance.* Land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture

than Prime Farmland. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

- *Unique Farmland.* Lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- *Farmland of Local Importance.* Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. San Luis Obispo County considers dairies, dryland farming, aquaculture, and uncultivated areas with soils as qualifying for *Prime Farmland* and *Farmland of Statewide Importance*. Santa Barbara County considers all dryland (grains, cereals, beans) and permanent pasture (other than those not eligible for Prime or Statewide designation) to be farming areas.
- *Grazing Land.* Land on which the existing vegetation is suited to the grazing of livestock. This category is used only in California and was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing. The minimum mapping unit for Grazing Land is 40 acres.
- *Urban and Built-Up Land.* Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately six structures to a 10-acre parcel.
- *Other Land.* Land that does not meet the criteria of any other category.
- *Water.* Water areas with an extent of at least 40 acres (CDC 2004).

The San Luis Obispo County General Plan Agricultural and Open Space Element (1998) contains a general description of the main types and uses of agricultural land within the County.

Irrigated Lands

- Row Crops Terrain and Soils. Property sizes generally range from 10 acres to hundreds of acres. Characterized by various types of vegetables, seed crops, orchards, and other irrigated specialty crops.
- Specialty Crops and Forage Lands. Property sizes generally range from 20 acres to a few hundred acres. Characterized by irrigated orchards, including alfalfa and pasture, and vineyards, such as wine grapes, avocados, citrus, and apples.

Dry Farm Lands

- Mixed Croplands. Property sizes generally range from 40 acres to several hundred acres. Characterized by dry farm orchards and vineyards and specialty or high-value field crops.
- Dry Croplands. Property sizes generally range from 80 acres to several thousand acres. These areas are characterized by grain and hay production that is widespread in the northeastern part of the county. Barley, wheat, and oat hay are the principal crops. Other crops include dry beans and safflower.
- Ranchlands for Grazing. Property sizes generally range from 100 acres to thousands of acres, depending on the carrying capacity of the rangelands. Grazing land accounts for a large percentage of the privately owned land in the County. Cattle ranching is the predominant use on these lands.

The Santa Barbara County Comprehensive Plan, Agricultural Element (1991) has three additional land use categories related to agriculture:

- *Agricultural Commercial.* Land of 40 to 320 acres, minimum parcel size, located within rural, inner-rural, or existing developed rural neighborhoods, or urban areas, which is subject to or eligible for Williamson Act Contract.
- *Agricultural I.* Land of five or more acres, minimum parcel size, located inside urban, inner-rural, and rural neighborhood areas. Both prime and non-prime farmlands are included.
- *Agriculture II.* Land of 40 or more acres, minimum parcel size, located outside urban, inner-rural, and rural neighborhood areas. General agriculture is permitted, including livestock operations, grazing, and beef production, as well as more intensive agriculture uses.

Agricultural Lands in the Project Area

The proposed project has actions in different geographic areas: the truck loading areas, the truck haul routes, and truck staging areas. The truck loading areas all have been previously disturbed and are not zoned or designated as agricultural land.

During field surveys, it was noted that a large portion of the proposed haul routes, as well as the proposed staging area along Thornberry Road, are bordered by active farming operations. The presence of agricultural operations was further quantified by data from the California Department of Conservation Farmland Mapping and Monitoring Program (CDC 2004). Table 5.10.1 details the truck haul routes to the Santa Maria Landfill and the types of agriculture (as defined by California Department of Conservation) occurring along the proposed truck haul routes.

The proposed staging area along Thornberry Road is in an area designated as Prime Farmland. In total, the proposed staging area would occupy approximately 0.6 acres. The proposed staging area would reside in the shoulder area of the existing road, in an area used for assembling harvesting equipment and agricultural worker parking.

5.10.2 Regulatory Setting

Williamson Act

The Williamson Act, or the California Land Conservation Act of 1965, encourages and enables local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments that are much lower than normal because they are based upon farming uses rather than full market value. Local governments receive a subsidy for forgone property tax revenues from the state via the Open Space Subvention Act of 1971. In San Luis Obispo County approximately 806,000 acres are under Williamson Act contracts; in Santa Barbara County approximately 549,000 acres are under contract (CDC 2002).

Table 5.10.1 Agricultural Lands Adjacent to Proposed Project Truck Haul Routes

Betteravia Route		Main Street Route		Division Route	
Farmland Category	**Miles adjacent to truck route[1]**	**Farmland Category**	**Miles adjacent to truck route[1]**	**Farmland Category**	**Miles adjacent to truck route[1]**
Thornberry East		**Thornberry East**		**Thornberry East**	
Grazing	0.00	Grazing	0.00	Grazing	0.00
Local Importance	0.00	Local Importance	0.00	Local Importance	0.00
Prime Farmland	1.54	Prime Farmland	1.54	Prime Farmland	1.54
Statewide Importance	0.00	Statewide Importance	0.00	Statewide Importance	0.00
Unique Farmland	0.00	Unique Farmland	0.00	Unique Farmland	0.00
South on Highway 1		**South on Highway 1**		**North on Highway 1**	
Grazing	0.12	Grazing	0.12	Grazing	0.00
Local Importance	0.00	Local Importance	0.00	Local Importance	0.00
Prime Farmland	0.24	Prime Farmland	0.24	Prime Farmland	0.59
Statewide Importance	0.00	Statewide Importance	0.00	Statewide Importance	0.00
Unique Farmland	0.00	Unique Farmland	0.00	Unique Farmland	0.00
East on SR 166		**East on SR 166**		**East on Division Street**	
Grazing	0.00	Grazing	0.00	Grazing	0.00
Local Importance	0.53	Local Importance	4.79	Local Importance	0.00
Prime Farmland	0.00	Prime Farmland	0.00	Prime Farmland	2.64
Statewide Importance	0.00	Statewide Importance	0.00	Statewide Importance	0.47
Unique Farmland	0.00	Unique Farmland	0.00	Unique Farmland	0.00
South on Simas Road		**South on Black Road**		**South on Bonita School Road**	
Grazing	0.00	Grazing	0.47	Grazing	0.00
Local Importance	0.95	Local Importance	1.42	Local Importance	1.66
Prime Farmland	0.00	Prime Farmland	0.00	Prime Farmland	0.75
Statewide Importance	0.00	Statewide Importance	0.12	Statewide Importance	0.00
Unique Farmland	0.00	Unique Farmland	0.83	Unique Farmland	0.23
East on Betteravia		**East on Betteravia**		**East on Main Street**	
Grazing	1.42	Grazing	0.89	Grazing	0.00
Local Importance	3.49	Local Importance	2.13	Local Importance	0.36
Prime Farmland	0.00	Prime Farmland	0.00	Prime Farmland	0.00
Statewide Importance	0.83	Statewide Importance	0.30	Statewide Importance	0.00
Unique Farmland	3.49	Unique Farmland	1.12	Unique Farmland	0.00
North on Philbric		**North on Philbric**		**South on Ray Road**	
Grazing	0.00	Grazing	0.00	Grazing	0.00
Local Importance	1.54	Local Importance	1.54	Local Importance	1.00
Prime Farmland	0.00	Prime Farmland	0.00	Prime Farmland	0.00
Statewide Importance	0.00	Statewide Importance	0.00	Statewide Importance	0.00
Unique Farmland	0.00	Unique Farmland	0.00	Unique Farmland	0.00
				South on Sinton Road	
				Grazing	0.00
				Local Importance	1.06
				Prime Farmland	0.00
				Statewide Importance	0.00
				Unique Farmland	0.83
				East on Betteravia	
				Grazing	0.89
				Local Importance	2.13
				Prime Farmland	0.00
				Statewide Importance	0.30
				Unique Farmland	2.54
				North on Philbric	
				Grazing	0.00
				Local Importance	1.54
				Prime Farmland	0.00
				Statewide Importance	0.00
				Unique Farmland	0.00

Table 5.10.1 Agricultural Lands Adjacent to Proposed Project Truck Haul Routes

Summary of Betteravia Route		Summary of Main Street Route		Summary of Division Route	
Grazing	1.54	Grazing	1.48	Grazing	0.89
Local Importance	6.51	Local Importance	0.00	Local Importance	7.75
Prime Farmland	1.78	Prime Farmland	1.78	Prime Farmland	5.52
Statewide Importance	0.83	Statewide Importance	0.41	Statewide Importance	0.77
Unique Farmland	3.49	Unique Farmland	1.95	Unique Farmland	3.60

[1] Because each side of a given roadway may have a different farmland type, total miles may be greater than roadway length.

California Coastal Act of 1976

The California Coastal Act also contains provisions to protect agricultural productivity in the coastal zone. The act has specific guidance measures to avoid the conversion of prime agricultural land.

The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the area's agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:

> …(e) By assuring that public service and facility expansions and non-agricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality (§30241 California Public Resources Code).

Further, the Coastal Act calls for the protection of the long-term productivity of soils and timberlands (§30243 California Public Resources Code).

San Luis Obispo County Goals and Policies

The following paragraphs describe relevant San Luis Obispo County Agricultural Element Goals and Policies.

Goal AG2: Conserve Agricultural Resources.

a. Maintain the agricultural land base of the county by clearly defining and identifying productive agricultural lands for long-term protection.

b. Conserve the soil and water that are the vital components necessary for a successful agricultural industry in this County.

c. Establish land-use policies in this element that support the needs of agriculture without impeding its long-term viability.

Goal AG3: Protect Agricultural Lands.

a. Establish criteria in this element for agricultural land divisions that will promote the long-term viability of agriculture.

b. Maintain and protect agricultural lands from inappropriate conversion to non-agricultural uses. Establish criteria in this element and corresponding changes in the Land Use Element and Land Use Ordinance for when it is appropriate to convert land from agricultural to non-agricultural designations.

c. Maintain and strengthen the County's agricultural preserve program (Williamson Act) as an effective means for long-term agricultural land preservation.

d. Provide incentives for landowners to maintain land in productive agricultural uses.

Policy AGP18: Location of Improvements.

a. Locate new buildings, access roads, and structures so as to protect agricultural land.

Policy AGP24: Conversion of Agricultural Land.

a. Discourage the conversion of agricultural lands to non-agricultural uses through the following actions:

1. Work in cooperation with the incorporated cities, service districts, school districts, the County Department of Agriculture, the Agricultural Liaison Board, Farm Bureau, and affected community advisory groups to establish urban service and urban reserve lines and village reserve lines that will protect agricultural land and will stabilize agriculture at the urban fringe.
2. Establish clear criteria in this plan and the Land Use Element for changing the designation of land from agriculture to non-agricultural designations.
3. Avoid land redesignation (rezoning) that would create new rural residential development outside the urban and village reserve lines.
4. Avoid locating new public facilities outside urban and village reserve lines unless they serve a rural function or there is no feasible alternative location within the urban and village reserve lines.

Santa Barbara County Policies and Regulations

The following paragraphs describe relevant Santa Barbara Agricultural Element Goals and Policies.

Goal I. Santa Barbara County shall assure and enhance the continuation of agriculture as a major viable production industry in Santa Barbara County. Agriculture shall be encouraged. Where conditions allow, (taking into account environmental impacts) expansion and intensification shall be supported.

Policy I.A. The integrity of agricultural operations shall not be violated by recreational or other non-compatible uses.

Policy I.D. The use of the Williamson Act (Agricultural Preserve Program) shall be strongly encouraged and supported. The County shall also explore and support other agricultural land protection programs.

Goal II. Agricultural lands shall be protected from adverse urban influence.

Policy II.D. Conversion of highly productive agricultural lands, whether urban or rural, shall be discouraged. The County shall support programs that encourage the retention of highly productive agricultural lands.

Goal III. Where it is necessary for agricultural lands to be converted to other uses, this use shall not interfere with remaining agricultural operations.

Goal VI. The County should make effective provision for access to agricultural areas and for the necessary movement of agricultural crops and equipment.

5.10.3 Significance Criteria

Under CEQA Guidelines, the following types of impacts on agricultural resources are significant:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use; or
- Conflict with existing zoning for agricultural use or a Williamson Act contract; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Important Farmland to non-agricultural uses.

5.10.4 Impact Assessment Methodology

The impact assessment method generally consists of (1) identifying how different project activities for the proposed project and each alternative could affect agricultural resources, (2) quantifying the effect to the extent feasible (e.g., amount of agricultural land affected), (3) applying the impact significance criteria, and (4) determining significance of impacts with reference to the impact significance criteria. Mitigation measures are identified to enable avoidance, reduction, or compensation for the impact to the extent feasible.

5.10.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

There are no applicable CDP/DP D890558D Conditions of Approval that mitigate impacts to Agricultural Resources.

5.10.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

The following is an overview of the key features of the proposed project as they relate to agricultural resource impacts.

- Offsite Trucking — Santa Maria. The proposed project would result in an additional 300 daily truck trips (150 round-trips) during peak periods of work activity, between the project site and the Santa Maria Landfill over a 2- to 4-year period.
- Truck Staging along Thornberry Road. The proposed staging area would be located in the shoulder area of the existing road, in an area used for assembling harvesting equipment and agricultural worker parking. A worst-case scenario was assumed, that these activities would be relocated to an area currently under cultivation.

The remainder of this section presents the agricultural impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact

discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

Impact	Impact Description	Residual Impact
AG.1	The offsite hauling of NHIS would increase truck trips on roads used to move and transport farm equipment and farm products, which would potentially limit access to agricultural areas and movement of agricultural crops and equipment and conflict with existing Santa Barbara County agricultural goals.	Class III

Impact Discussion
The proposed project would result in an additional 300 daily truck trips (150 round-trips) during peak peariods of work activity, between the Guadalupe Field and the Santa Maria Landfill over a 2- to 4-year period. As demonstrated by Table 5.10.1, there is Important Farmland along the proposed truck routes. An evaluation of traffic impacts (Section 5.6) found that these truck trips would not have an effect on Level of Service. Because there are no significant traffic impacts associated with theses haul routes, and because of the temporary nature of the hauling, it is assumed that the increase in truck traffic would not constitute a change in the existing environment which would lead to conversion of Important Farmland to non-agricultural use. Impacts would be considered *less than significant*.

Mitigation Measures
No mitigation measures are necessary.

Residual Impact
Impacts to agricultural resources resulting from increased truck trips on haul roads would be adverse, short-term, local, and *less than significant*, Class III.

Impact	Impact Description	Residual Impact
AG.2	The offsite hauling of NHIS would increase truck trips in the vicinity of the Thornberry Road staging area, which would limit access to agricultural areas and limit movement of agricultural crops and equipment in the area and conflict with existing San Luis Obispo County agricultural goals.	Class II

Impact Discussion
The proposed staging area along Thornberry Road would be located in the shoulder area of the existing road, in an area currently used for assembling harvesting equipment and agricultural worker parking. It is assumed that the existing assembly area would be relocated further back from Thornberry Road. The new placement of the farm equipment staging area relative to the truck staging area would require farm equipment movement through the truck area. This would adversely affect the farmers' ability to conduct agricultural operations (e.g., due to greater difficulty in getting on and off the road during times of harvest, having to work farther away from the road due to increased truck traffic). Impacts would be considered significant.

Mitigation Measures

AG.2.1 A "driveway" through the truck staging area, connecting Thornberry Road to the farm equipment staging area shall be delineated using construction stakes or other means. This driveway shall be at least 20 feet in width to allow for two way traffic to and from the farm equipment staging area. Trucks shall be prohibited from blocking this driveway at all times.

AG.2.2 Advanced notification (1 week) shall be provided to farmers adjacent to the Thornberry Road staging area prior to project activities that would result in more than 100 truck haul round-trips per day.

Residual Impact

With implementation of mitigation measures AG.2.1 and AG.2.2 , impacts to farm operations and access to farms along Thornberry Road would be avoided, and Impact AG.2 would be *less than significant*, Class II.

Impact	Impact Description	Residual Impact
AG.3	The widening of Thornberry Road would result in a local, potentially long-term loss of 0.6 acres of Prime Farmland.	Class III

Impact Discussion

The proposed staging area along Thornberry Road is in an area designated as Prime Farmland. In total, the proposed staging area would occupy approximately 0.6 acres. The proposed staging area would be located in the shoulder area of the existing road, in an area used for assembling harvesting equipment and agricultural worker parking. Under a worst-case scenario, it is assumed that the existing assembly area would be relocated to an area currently under cultivation, removing 0.6 acres of crop area. Given the time to construct the staging area and the anticipated time of material hauling (2 to 4 years) this would be a temporary, short-term impact. If the required duration of the relocated assembly area extends to 5 years or more, the impact would be considered long-term.

Once hauling is complete, the truck staging area created by the proposed project could be used again for assembling harvesting equipment and agricultural worker parking, and the 0.6 acres used temporarily for this purpose could go back into agricultural production. Because the loss of agricultural production is minor (0.6 acres) and because the proposed project does not result in permanent agricultural land conversion, this is a *less than significant* impact.

Mitigation Measures

AG.3.1 Any grading necessary to temporarily relocate the farm equipment staging area along Thornberry Road shall stock pile topsoil in a manner that will preserve the soil for later replacement.

AG.3.2 At project conclusion the farm equipment staging area should be returned to its original location along Thornberry Road. Any temporary improvements made in the relocated farm equipment staging area should be removed and any topsoil replaced.

Residual Impact
Impacts to agricultural resources resulting from the loss of Prime Farmland would be short-term and *less than significant,* Class III.

Summary of Impacts at the Santa Maria Landfill
The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS or impacted soils) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

For agricultural resources there were no impacts identified with the use of the Guadalupe material in the NHIS program.

5.10.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures for the proposed project are referenced. Where an alternative would have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.10.7.1 Offsite Trucking to Other Destinations

This alternative involves trucking and disposal of NHIS at other landfills (Buttonwillow, McKittrick, or Kettleman Hills) in lieu of transport and disposal at the Santa Maria Landfill. For these destinations the agricultural impacts would be similar to that for the proposed project.

As mentioned, CDP/DP D890558D Condition F13 requires that all waste materials removed from the Guadalupe Field will be disposed in accordance with applicable laws and regulations. These alternate landfills are permitted facilities that are designed and operated to prevent offsite migration of contaminants. Impacts on agricultural resources from reuse/disposal at permitted facilities have already been evaluated, and mitigated as appropriate, through the environmental documentation and permitting process. Therefore, impacts from landfilling NHIS at these sites are not addressed in this SEIR. Any potential impacts to agricultural resources that occurred after the material has been disposed would be addressed through compliance with the mitigation measures adopted for those sites.

Impacts associated with this alternative would be identical to those identified for the proposed project (AG.1, AG.2, and AG.3), and the same mitigations measures would apply.

5.10.7.2 Treated Material Land Feature (TMLF)

The TMLF would involve contouring of material treated in the Land Treatment Unit (LTU) at TB9. Loading and trucking activities would occur at TB9 to transport sump material to the Santa Maria Landfill or other offsite location for disposal. In the worst-case scenario, 200,000 cy of the sump material would be transported offsite (e.g., to the Landfill) because sump material cannot be effectively treated.

Activities associated with the TMLF include (1) recontouring of the treated material to form a dune feature and restoring it; (2) use of the haul routes to truck up to 200,000 cy of sump material to the Santa Maria Landfill for disposal; and (3) post-construction monitoring, maintenance, and decommissioning.

There would be no new agricultural impacts associated with this alternative. Because there is a smaller volume of material that would need to be trucked offsite, Impacts AG.1 through AG.3 would be reduced.

5.10.7.3 Engineered Containment Unit

The ECU would involve building a containment sub-structure and then moving the existing stockpiles at TB8 to TB9, and containing the NHIS there for an indefinite period of time. Construction would occur primarily at TB8 and TB9, and would involve the moving of NHIS, construction of sub-containment systems and leachate collection systems, and subsequent covering of the ECU with topsoil/sand and revegetation. This would involve the same truck loading operations as the proposed project; however, the trucks transporting NHIS would only travel onsite.

There would be no new agricultural impacts associated with this alternative. There would be no NHIS transportation offsite under this alternative. However, depending on the quantity and size of trucks, a range of 900 to 6,750 offsite truck trips (1,800 to 13,500 one-way trips) will be needed to transport the silt/clay to the site (400 to 3,000 round trips for the containment liner and 500 to 3,750 round trips for the top/cover liner). This number of truck trips is less than in the proposed project; therefore, Impact AG.1 would be reduced. Impacts AG.2 and AG.3 would be eliminated because there would be no need for the staging area near Thornberry Road for hauling silt and clay materials.

5.10.7.4 Slurry Injection

Slurry injection would involve the injection of NHIS mixed with water into the subsurface via wells. The installation and operation of injection piping, mixing vessels and tanks, and injection pumps would be part of this alternative.

The site that would be used for the slurry injection is already disturbed and, therefore, there would be no agricultural resources impacts associated with the construction of the slurry injection equipment. There would be no agricultural impacts associated with this alternative.

5.10.8 Cumulative Impacts

There are multiple proposed projects in the Guadalupe, Nipomo, and Santa Maria areas that could result in conversion and loss of agricultural lands (see Section 4, Table 4.1.1) which would be considered a significant impact to agricultural resources. However, the proposed project is short-term in nature and, with mitigation, would result in less than significant impacts.

When considered together, the cumulative impacts to agricultural resources would essentially be the same whether or not the proposed or alternative projects are implemented. Therefore, implementation of the proposed project would not result in new or considerable impacts, nor would the proposed project and other cumulative projects compound or increase each other's environmental effects.

5.10.9 Mitigation Monitoring Plan

Mitigation Measure	Action Required by Applicant and Action Timing	Party Responsible for Verification	Method of Verification	Verification Timing
AG.2.1	Creation of a "driveway" through the truck staging area, connecting Thornberry Road to the farm equipment staging area, delineated using construction stakes or other means. This driveway shall be at least 20 feet in width.	Planning and Building	Site inspection	Before and during, road-widening activities.
AG.2.2	Provide advanced notification (1 week) to farmers adjacent to the Thornberry Road staging area prior to project activities that would result in more than 100 truck haul round-trips per day.	Planning and Building	OEC Notification	During project activities.
AG.3.1	Stock pile any topsoil removed to relocate farm equipment staging area along Thornberry Road. Soil to be stockpiled in a manner that will preserve the soil for later replacement.	Planning and Building	Site inspection	Before road-widening activities.
AG.3.2	At project conclusion, the farm equipment staging area to be returned to its original location along Thornberry Road. Any temporary improvements made in the relocated farm equipment staging area should be removed and any topsoil replaced.	Planning and Building	Site inspection	At project completion.

5.10.10 References

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5.11 Public Safety

This section discusses potential public safety impacts associated with the routine and upset conditions related to the environmental setting, the current operations, and the proposed project.

5.11.1 Environmental Setting

This section provides an overview of the risks in the region as well as the existing risks at the Guadalupe Field.

5.11.1.1 Regional Overview

The region in the vicinity of the Guadalupe Field is predominantly characterized by agricultural, open space/preserve, and suburban land uses, with limited industrial development. Regional public safety hazards are related to oil and gas development and processing and industrial activities associated with agriculture, as well as with the transportation of hazardous materials along highways and local roadways.

Hazards related to oil and gas development are associated with the transportation of crude oil and natural gas via pipeline. Pipeline transportation of crude oil and natural gas has the potential to expose the general population to toxic, fire, and explosion hazards in the event of a pipeline failure (either a leak or rupture). Pipelines carrying crude oil and partially refined products connect the Santa Maria Refinery with points north and south.

Oil and gas processing facilities, including refineries, also pose hazards to the public in the region. These facilities have the potential to release toxic vapors that could adversely affect individuals located downwind of the release. Oil and gas processing facilities can also release flammable vapors and liquids, which can result in fire and explosion hazards to the area surrounding the facility. The Santa Maria Refinery is the only significant oil and gas processing facility in the immediate vicinity of the Guadalupe Field.

Industrial activities associated with agriculture typically include cold storage and packing facilities which use large amounts of anhydrous ammonia as a refrigerant. Anhydrous ammonia, which is typically stored as a pressurized liquid, is highly volatile when released to the atmosphere and is also relatively toxic. There are numerous refrigeration facilities located in the Santa Maria Valley, and there have been several accidental ammonia releases over the past few years. In addition, ammonia is delivered to these facilities by tanker trucks; in the event of an accident, the public could be exposed to toxic vapors.

Truck transport of flammable liquids and compressed gasses, including gasoline and propane, along highways also poses safety risk issues to the public, in the event of an accident and subsequent release of materials along roadways. These risks include flammable vapor clouds, explosions, and thermal impacts due to fires and flame jets.

Pesticide transportation and application onto agricultural fields pose both long- and short-term health hazards to the public, if exposure occurs. While relatively rare, accidents have occurred in the past during the transportation of pesticides along local roads, as well as have inadvertent exposures to the public during pesticide applications.

Study Area
The study area for public safety is generally limited to areas where project activities would occur. This would generally include the Guadalupe Field. In addition, roadways that would be used to transport materials (especially hazardous materials) and waste to and from the Guadalupe Field are considered to be in the study area.

Current Field Activities
Existing public safety hazards in the vicinity of the proposed project sites are relatively low. The Guadalupe Field is no longer in production, and there are relatively few hazards associated with existing equipment. As mentioned previously, public access is limited within the Guadalupe Field, so hazards to the public in general would be low. There is some potential for the public to be exposed to hazards associated with activities near the beach.

Hazards to onsite workers and members of the public that are allowed onsite are generally limited to those arising from the operation of construction equipment. In this case, the potential for a fire or explosion exists from the equipment fuel and fueling activities.

Acute hazards, such as exposure to high concentrations of a toxic material, or exposure to a fire or explosion, are relatively low at the Guadalupe Field. Areas of the site where remediation activities are underway (product recovery systems, excavations, etc.) and areas where industrial infrastructure are present (pipelines, tanks, retention basins, welding shop, etc) could present a risk to the public; however, public access to these areas is not allowed.

The site has been established as safe for recreational uses (McDaniel Lambert, 2002) for chronic risks, including walking along the beach, swimming, surfing, and fishing. However, it was determined that shallow ground water should not be used for drinking. Therefore, potential acute and chronic health risks are currently considered insignificant.

Individuals involved in site characterization and other analyses (i.e., consultants, regulatory agency staff, etc.) are currently exposed to a certain level of risk, but this would be considered a low level of risk given the lack of activity at the site and the limited exposure duration of most individuals. The potential for exposure during any activity is further reduced by the Unocal requirement for each contractor to develop and implement a comprehensive Health and Safety Plan prior to working at the Guadalupe Field and for individuals such as regulatory agency staff to receive orientation training and/or review the Site Health and Safety Plan prior to working onsite.

5.11.2 Regulatory Setting

Current operations and future remediation activities at the Guadalupe Field are covered by a wide variety of Federal, State, and local regulations, especially in the areas of worker safety and waste disposal.

Remediation activities are covered by the Occupational Safety and Health Administration's (OSHA) Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120), and CalOSHA Title 8, as well as other Federal, State, and local laws and regulations, including:

- California Labor Code, Sections 6400 through 6410;
- Title 8, California Code of Regulations (CCR);

- Senate Bill 198, Injury and Illness Prevention Program;
- Proposition 65, California Health and Safety Code;
- 33 CFR, U.S. Army Corps of Engineers Standards;
- 33 CFR, U.S. Coast Guard Regulations; and
- Local ordinances covering noise exposure and traffic management.

Most of these regulations are designed to protect worker safety and ensure the safe handling of hazardous materials. In effect, these regulations will also help in protecting the health and safety of the general public by reducing the potential for accidental releases, as well as strictly limiting access to the Guadalupe Field during remediation activities. In addition, regulations such as Proposition 65 will require notification of visitors to the Guadalupe Field of potential chemical hazards.

Both California planning law and the California Environmental Quality Act emphasize the importance of protecting public safety through proactive land-use planning. Since 1971, Government Code Section 65302(g) has required local governments to prepare a Safety Element as part of their General Plans. This element, according to statute, addresses protection of the community from any unreasonable risks associated with the effects of seismically induced hazards, other geologic hazards (e.g., landslides and subsidence), flooding, and fires (both urban and wildland). California's General Plan Guidelines describe the Safety Element as the primary vehicle for identifying hazards that cities and counties must consider when making land-use decisions. The Guidelines specify that the number and types of hazards depend in part on local circumstances, noting: "*While the safety element focuses on identifying fire and geologic hazards, it may also address other locally relevant safety issues such as vehicle accidents, hazardous materials spills, power failure, and storm drainage.*"

San Luis Obispo County has a safety element in the general plan. The Safety Element establishes policies and programs to protect the community from risks associated with fires, flood, geologic hazards, and other natural disasters. In order to reduce loss of life, injuries, and damage to property, the Safety Element requires safety to be considered in the planning process.

Santa Barbara County (SBC) adopted Public Safety Thresholds in August, 1999. The thresholds provide three zones — green, amber, and red — for guiding the determination of significance or insignificance based on the estimated probability and consequence of an accident. In addition, a Safety Element Supplement was adopted in February 2000 (Board of Supervisors Resolution 00-56) covering hazardous materials. The objective of the Safety Element is to define unacceptable risk in a manner that guides consistent and sound land-use decisions involving hazardous facilities. As part of this objective, SBC has defined unacceptable risk as involving new development as well as modifications to existing development if those modifications increase risk.

5.11.3 Significance Criteria

Public safety hazards can be characterized as to their magnitude and frequency. As defined in CEQA Appendix G (vii) (the Environmental Checklist Form), a significant safety effect is one in which the project:

- Creates a hazard to the public from hazardous materials,
- Uses hazardous materials within 0.25 mile of a school,
- Is located on a hazardous waste site,
- Introduces a safety hazards near airports,
- Impair an emergency response or evacuation plan, or
- Increase the risk of wildland fires.

In this case, the local area is the land and population surrounding the Guadalupe Field.

Because a majority of the risk is associated with transportation, and most of the transportation would occur in Santa Barbara County, the SBC Safety Thresholds are used to determine significance. These thresholds utilize FN curves to define the significance level of a proposed project or modification. FN curves, developed as part of a quantitative risk analysis, are curves depicting the number of fatalities or injuries associated with a range of accidents plotted against their expected frequency. The main hazards to the public would result from mechanical, chemical, or transportation hazards. Mechanical hazards would be present during project activities and associated with activities near or on the beach. Chemical hazards would be associated with the handling of NHIS or fuels. Transportation hazards would be associated with large numbers of vehicle trips offsite on local roadways.

Mechanical hazards would be considered significant if they have the potential to result in injuries to the public and if these activities cannot be sufficiently buffered from the public. Given the recreational use of the beach, the addition of permanent structures that could pose a hazard to the public would be considered significant.

Mechanical hazards posed by foreign structures placed on the beach or in areas with reasonable public access would be considered significant if any of the following conditions are met:

1. Structure cannot be placed in a location that is not typically used for recreational activities.
2. Structure cannot be sufficiently buffered from the public, thus mitigating potential exposure and accidents.
3. Structure cannot be adequately marked to warn the public of potential hazards.
4. Placement of a structure on the beach results in the loss of an area that is currently used for recreational purposes.

Chemical hazards are related to those components of a project where there is the possibility of an accidental release of a substance that is considered hazardous. These hazards would include toxic effects, as well as fire and explosion hazards.

The transportation of NHIS offsite presents the potential for the increase of truck traffic on local area streets and the associated increase in risks to other drivers and pedestrians on those local streets. The Federal Department of Transportation (DOT) National Highway Safety Administration reports on fatal accidents involving trucks (DOT 2003) and indicates a fatality rate of 2.5×10^{-8} fatalities per truck-mile. This is for large trucks, both single-unit and multiple-unit, nationwide and mostly on highways. The proposed project fatal accident rate was reduced to 2.5×10^{-9} fatalities per truck-mile from the DOT number due to the use in this project of only

single-unit trucks, the trucks would be operating only during daylight hours and the trucks would be operating mostly on roads with speeds lower than highway speeds. All of these issues reduce the likelihood that, given an accident, fatalities would be realized.

The red region of the SBC Safety Element FN curves was used to determine the frequency at which fatalities would be considered significant. The SBC Safety Element FN curve intersects the single fatality line at 1×10^{-3} fatalities per year. Therefore, truck travel that produces a fatality rate over 1×10^{-3} fatalities per year would be considered a significant impact in the absence of mitigation.

5.11.4 Impact Assessment Methodology

There are three basic hazards that could occur during project activities. These hazards include:

- Onsite mechanical hazards to workers, regulatory agency personnel, and the public, if they are able to enter the Guadalupe Field.
- Chemical hazards associated with a spill of NHIS, or spills of hazardous materials brought to the Guadalupe Field as part of the project (e.g., importation diesel or gasoline).
- Transportation hazards associated with the movement of NHIS offsite and subsequent accidents causing fatalities.

Each of these is discussed below.

5.11.4.1 Mechanical Hazards

Mechanical hazards are related to both remedial activities and structures left in place once remediation has been completed. These hazards are typically estimated qualitatively and center on whether or not the activity has the potential to result in an injury or fatality. Examples of mechanical hazards that could occur might include exposure of the public to heavy equipment operating where the work area has not been sufficiently buffered, construction accidents, drilling accidents, or the placement of structures in areas that could result in safety hazards. Mechanical hazards are simple to fully mitigate through the use of exclusion zones (i.e., separate the public from the hazard), since these hazards tend to be localized in the immediate vicinity of the mechanical activity.

The methodology for estimating potential impacts associated with mechanical hazards is simple and qualitative. Absent any specific measures proposed by the Applicant, any mechanical hazard that would occur in public places would be considered significant prior to mitigation. Referring back to the significance criteria proposed above, this would also apply to passive mechanical hazards left in the project area on a long-term basis. This determination of significance is simply a “black or white” decision (i.e., would the public be exposed to a mechanical hazard or not?). The effectiveness of proposed mitigation measures would be treated in the same manner (i.e., would the mitigation measure result in the separation of the public from the potential mechanical hazard?).

Potential worker and regulatory personnel safety impacts would be determined in a similar manner, but would also take into consideration what safety procedures would be developed for the project, as well as the management systems that would be used to implement these

procedures. Obviously, remediation workers cannot be separated from the mechanical hazards. However, Unocal's requirement for all contractors working at the site to prepare and implement a Site Health and Safety Plan would reduce the potential for a work-related accident. Unocal's current practice of requiring all individuals that enter the Guadalupe Field to receive orientation training and/or read their Site Health and Safety Plan would reduce potential hazards for regulatory personnel as well.

5.11.4.2 Chemical Hazards

Using consequence analysis techniques, chemical hazards can be estimated quantitatively, both in terms of the frequency at which these accidents can be expected to occur and of the consequences associated with exposure to an accidental chemical release. Examples of chemical hazards that could occur might include an accidental fuel spill and possible fire or a spill of recovered hydrocarbons. The effectiveness of mitigation measures to reduce the potential frequency and effects of a chemical hazard can also be estimated quantitatively. Unlike mechanical hazards, however, exclusion zones cannot always be used to separate the public from the hazard.

The consequence analysis and hazard modeling are the part of the public safety assessment, which considers the physical effects of the materials that could be accidentally released and the damage caused by these physical effects. The consequence analysis is performed in order to judge the seriousness of potential hazards associated with accidents and their possible consequences.

The types of hazards that are generally considered in any public safety assessment include fire, flammability, explosion, and toxicity. Fire and flammability hazards are of significance for flammable vapors with relatively low flash points, where their hazard is usually in the form of thermal radiation from vapor jets or pool fires. The release and ignition of flammable vapors may also result in an explosion. Toxic chemicals can produce adverse effects to humans. The degree of the effects is dependent upon the toxicity of the material and the duration of the exposure.

In order to evaluate these hazards, several release and exposure scenarios were developed as part of the 1998 EIR. These scenarios evaluated potential hazards associated with excavations and potential fuel spills during fuel deliveries or refueling operations. Impacts associated with previously approved, anticipated excavation work have been evaluate under the 1998 EIR and are not considered part of this project. For the proposed project and alternatives, the main hazard scenarios included:

- Spills of flammable or combustible materials, such as propane, gasoline, or diesel fuel, during fuel deliveries, at fuel storage locations or from remediation equipment.

These issues were assessed during the 1998 EIR preparation. The results of those analyses are used in this SEIR.

5.11.4.3 Transportation Hazards

Transportation hazards are related to those components of a project where there is the possibility of a traffic accident resulting from the increased level of traffic on the local area roadways due to the project. This traffic increase would be primarily associated with increases in traffic

associated with truck transportation of NHIS. Employee commuter traffic is generally not considered because it is assumed that these trips would be located on area roadways for other, unrelated employment projects if the proposed project did not go forward.

The Safety Element does not specifically address the significance criteria associated with traffic accidents. However, significance criteria have been developed based on the risk level deemed acceptable in the SBC safety element. The DOT (DOT 2003) maintains data on the rate of fatal truck accidents on a nationwide basis. This data was utilized to generate an estimate of the frequency of fatalities. Information related to the details of the project is utilized to estimate the annual number of miles traveled by all trucks carrying NHIS. These are then compared to the threshold criteria for fatality frequency to determine significance.

5.11.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives

For the purposes of this analysis, previously established SLO County Coastal Development Permit/Development Plan (CDP/DP D890558D) Conditions of Approval are considered part of the project description. These conditions outline mitigation and other standard measures that would be incorporated into the proposed project or alternatives as part of the existing permit conditions.

The following measures would be implemented to protect public safety in accordance with the Coastal Development Permit (CDP) County Conditions of Approval:

F38 Preparation of an Oil and Fuel Spill Contingency Plan

F93 Preparation of a Traffic Control Plan including traffic safety

F77 All areas with hazards associated with mechanical equipment, physical barriers, excavation, and soil/water treatment shall be clearly marked, warning the public of the hazards, and informing the public of the activities that are taking place. Adequate fencing shall be constructed around these areas to prevent trespassing and vandalism throughout the remedial and restoration period. During active remediation activities that take place near points of public access at the beach, Unocal shall station a worker at the beach to keep the public at a safe distance from active remediation hazards.

F78 Physical barriers that extend above ground level, or that have the potential to extend above ground level due to erosional events, shall be removed within the four-year duration of the cleanup project.

F79 Unocal shall implement erosion-control and sand-augmentation programs where physical barriers extend above ground level, or have the potential to extend above ground level due to erosional events, until the barriers are removed pursuant to Condition 78.

F80 Remedial projects that expose the public to safety hazards shall be scheduled for early completion in order to minimize the time that the public is exposed to the hazards.

5.11.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts

Impacts associated with previously approved, anticipated excavation work have been evaluated under the original EIR (ADL 1998) and are not considered part of this project.

Potential impacts to public safety that can be caused by the proposed project are as follows:

- An accidental release or spill of fuel needed for remediation equipment could result in hazardous conditions in the Guadalupe Field and along the transportation routes from the fuel depot to Guadalupe.
- Spillage of fuel during fueling procedures or leaking fuel from heavy equipment could pose a hazard to workers and possibly the public.
- Hazards associated with remediation activities, including mechanical hazards associated with active remediation activities and the installation of physical barriers in areas with public access.
- Accidents associated with trucks transporting NHIS to their eventual disposal location.

These safety impacts apply to the proposed project and the alternatives discussed in the following sections.

The remainder of this section presents the public safety impacts associated with the proposed project. Each impact starts with an impact summary box that provides the impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

Impact	Impact Description	Residual Impact
PS.1	Mechanical hazards associated with the loading and transportation of NHIS in areas with public access could pose a hazard to the public, regulatory agency personnel, and workers.	Class III

Impact Discussion

The loading and transportation of NHIS would not be conducted in areas where the public has access. These areas, TB8 and TB9, would be accessible to workers only. Workers and regulatory agency personnel would be subjected to the hazards through the Guadalupe Field associated with construction equipment and loading operations. However, these hazards would occur in areas far removed from points of potential public access, thus restricting hazards to workers and regulatory agency personnel who will be frequently visiting the Guadalupe Field. These personnel typically are familiar with this type of occupational hazard.

Mitigation Measures

No mitigation measures required.

Residual Impact

Residual impact would be applicable only to construction workers and onsite agency personnel, who are aware of the potential safety issues. Because the area is off-limits to the public, this impact would be considered *less than significant, Class III*.

Impact	Impact Description	Residual Impact
PS.2	The offsite transportation of NHIS could introduce an increase in fatalities on local area streets due to the increase in vehicle traffic.	Class II

Impact Discussion

The project proposes up to 860,000 truck-miles annually for two years during the course of the project. This number could range down to half that amount, or 430,000 annual truck-miles, if the project is extended to four years. Transportation of NHIS would pass through Santa Maria along Betteravia Road, over Highway 101, to the Santa Maria Landfill. Some limited areas of the route would pass by residential areas near Highway 101. Because this level of truck transport would produce risks that exceed $1x10^{-3}$ fatalities per year, this would be considered a *significant* impact. Table 5.11.1, below, details the fatality frequency due to traffic accidents from the transportation of the NHIS.

Table 5.11.1 Truck Transport Fatality Frequency – Proposed Project

Element	Proposed Project
Days/year	250
Daily average truck trips	108
Annual Average Trips	26,875
Miles per Trip	32
Total Annual Miles	860,000
Fatality Frequency without mitigation	2.2E-03
Fatality Frequency with mitigation (see below)	9.9E-04
Significant with mitigation??	No

Note: Based on DOT base truck fatality rate with corrections of $2.5x10^{-9}$ fatalities per year.
Mitigation corrections include 41% due to good drivers and 21% due to speed control (SBC, 2004).

Mitigation Measures

PS-2.1 *Implement a review system for truck carriers contracted for offsite NHIS hauling to ensure that only those with the safest records can carry loads. This would include addressing issues related to: a review of CHP Mister reports, ensuring correct Class licensing, enrollment in a controlled substance and alcohol abuse program, completion of Motor Carrier Safety Review type safety questionnaire, and assessment of Bureau of Motor Carrier Safety Ratings.*

PS-2.2 *Ensure that trucking companies contracted for offsite NHIS hauling have programs in place to ensure that drivers maintain appropriate speeds. This would include: a 55-mph or applicable speed limit policy, training on speeding and speed limits along the proposed route, and/or speed control systems or governors in place on trucks.*

PS-2.3 *Ensure that contracts made with trucking companies hauling NHIS offsite address safety reviews, speeding and violations, and unacceptable incentive practices, such as*

increased pay for increased numbers of loads that may be an incentive for drivers to act in an unsafe manner.

Residual Impact

The large number of truck trips associated with this project could produce a significant impact to public safety due to the number of trucks on the roads. The Avila Beach Remediation project generated a large number of truck trips, and the only areas that produced safety issues associated with that project were trucking related.

However, with mitigation measures that ensure good driver hiring practices and driver records, good training, and controlling speeding, the risks would be reduced to less than $1x10^{-3}$ fatal accidents per year (see table 5.11-1). Mitigation effectiveness estimates are based on studies conducted for the transportation of hazardous materials in Santa Barbara County and the associated reductions in accident rates associated with the above listed mitigations (SBC 2004). The reduction percentages were generated by examining the rates of accidents due to speeding and traffic violations along Southern California highways over a 10-year period and combining those rates with estimates of mitigation measure effectiveness. With the mitigation, the impacts would be reduced to *less than significant with mitigation* (Class II).

Impact	Impact Description	Residual Impact
PS.3	Spillage of fuel during fueling procedures, during transportation of fuel and of NHIS, or leaking fuel from heavy equipment could pose a hazard to workers and possibly the public.	Class III

Impact Discussion

The proposed project involves the use of heavy equipment for loading operations at TB8 and TB9 and of trucks for hauling of affected material offsite. Fuels, primarily diesel fuel, would be used to operate the machinery. Fuel could be released during fueling or from leakage during operation. Fuel spills could result in a fire, which would be potentially significant if it occurs in close proximity to the public.

Also, fuel would need to be transported to the Guadalupe Field via tanker trucks to refuel heavy equipment used for loading operations. Hazards would be associated with a fuel spill and subsequent fire. Because only diesel fuel will be transported, which would not produce flammable vapor clouds, these impacts would be limited to the immediate vicinity of the spill, and potential exposure would be minimal.

Measures already in place (CDP/DP D890558D Condition F.38), addressing staging areas and fuel spill contingency plans, would be applied for the proposed project as well and would effectively reduce the impacts to *less than significant*.

Mitigation Measures

No mitigation measures are required.

Residual Impact

The use of a staging area would effectively separate most workers from potential fuel spill and fire hazards. A fuel spill contingency plan would also reduce the potential of the fuel spill being ignited, and would therefore reduce hazards associated with a potential spill. Also, spills of fuel

tankers en route to the Guadalupe Field would have minimal impacts to the public, given that only diesel fuel will be transported. Existing measures are in place to address issues related to fuel spills (CDP/DP D890558D Condition F.38). As a result, potential impacts associated with a spill during equipment fueling would be considered *less than significant* (Class III).

Summary of Impacts at the Santa Maria Landfill

The material transported to the Landfill would be used for cover under the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS or impacted soils) Program. In accordance with CCR Title 27, which contains provisions to use NHIS to construct foundation layers for landfill closure, the Regional Water Quality Control Board (RWQCB) issued Revised Waste Discharge Requirements (WDR) Order No. 01-041 on May 18, 2001 to the Santa Maria Landfill. WDR 01-041 provides guidelines for the acceptance of NHIS from the restoration and cleanup of oil-producing sites. These plans were addressed in a Joint Technical Document (JTD) prepared by CH_2MHill and evaluated in the CEQA addendum to the 1993 Landfill EIR (SCH 92031045) and in subsequent EIRs (SML February and May, 2004)

According to the JTD and the SEIR, accepting impacted soils is consistent with the Landfill's intent to implement an expedited closure process at the landfill by using the NHIS: (1) to achieve design grades and serve as the foundation layer of the final cover system for the existing active portion of the landfill, and (2) for daily and intermediate cover material in the lined expansion areas of the landfill. The EIR Addendum identified no significant impacts associated with the use of NHIS.

On August 31, 2004, the RWQCB issued a letter to the Santa Maria Landfill that specifically addressed acceptance of NHIS material from the Guadalupe Restoration Project. This letter allows the Landfill to revise the extractable Total Petroleum Hydrocarbon (THP) acceptance standards in order to accept NHIS material from the Guadalupe Field. With the issuance of this letter, the Santa Maria Landfill is allowed to accept material from the Guadalupe Field as part of the Landfill's Non-hazardous Hydrocarbon-Impacted Soils (NHIS or impacted soils) Program. The environmental impacts associated with the use of the Guadalupe material at the Landfill was addressed in the Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, which was certified by the Santa Maria City Council.

For safety, this SEIR found that there was significant but mitigable impact associated with the potential exposure to operating staff from the handling of the NHIS. While the NHIS is non-hazardous, improper handling of the material could result in adverse health effects. The proposed mitigation included the use of safety equipment and the control/monitoring of pubic access to areas of the Landfill. The reader is referred to Santa Maria Regional Landfill Site Facility Permit, Second Supplemental EIR, May 2004, for more information on the geology impacts at the landfill.

5.11.7 Alternative Impacts, Mitigation Measures, and Residual Impacts

This section addresses the impacts and mitigations measures associated with each of the NHIS transportation alternatives that were selected for detailed evaluation through out the SEIR (see Section 3.0 for a discussion of NHIS transportation alternatives). Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures are for the proposed project are referenced. Where an alternative would

have a new impact, an impact summary box is provided that has an impact number, a description of the impact, and the residual impact classification. This is followed by an impact discussion that details the basis for the impact, a list of proposed mitigation measures, and a discussion of the residual impact after the mitigation is applied.

5.11.7.1 Offsite Trucking to Other Destinations Alternative

Impacts associated with impact PS.1 and PS.3 would be identical to the proposed project because they are both impacts associated with site operations.

Impact	Impact Description	Residual Impact
PS.4	The transportation of NHIS could introduce an increase in fatalities on local area streets due to the increase in vehicle traffic. (same as PS.2)	Class I

Impact Discussion

This alternative proposes trucking of the NHIS to a location outside the County. Distances would be substantially greater than the proposed project, with the same number of trips. However, impact PS.2 would involve substantially great transportation distances with total annual miles possibly exceeding 3 million annual miles. Even with mitigation, this would still exceed the significance criteria for truck trips causing accident related fatalities. Impacts would therefore be considered *significant*. See table 5.11.2, below.

Table 5.11.2 Truck Transport Fatality Frequency – Proposed Project and Alternative

Element	Proposed Project	Alternative
Days/year	250	250
Daily average truck trips	108	89
Annual Average Trips	26,875	22,250
Miles per Trip	32	140
Total Annual Miles	860,000	3,115,000
Fatality Frequency without mitigation	2.2E-03	7.8E-03
Fatality Frequency with mitigation	9.9E-04	3.6E-03
Significant with mitigation??	No	Yes

Note: Based on DOT base truck fatality rate, with corrections, of 2.5×10^{-9} fatalities per year. Mitigation corrections include 41% due to good drivers and 21% due to speed control (SBC, 2004).

Mitigation Measures

Mitigation measures, PS-2.1, PS-2.2, and PS-2.3 would be applicable, except wording would reflect that material is transported to remote locations and that impacts would be on all roads, not just local roads.

Residual Impacts

The large number of truck trips associated with this project could produce a significant impact to public safety due to the number of trucks on the roads. The Avila Beach Remediation project generated a large number of truck trips, and the only areas that produced safety issues associated with that project were trucking related. Although mitigation measures that ensure good driver hiring practices and driver records, good training, and controlling speeding would reduce the

frequency of fatal accidents, the potential fatal accidents would still exceed the significance criteria. Therefore, the impacts would be *significant* (Class I).

5.11.7.2 Treated Materials Land Feature Alternative

This alternative would involve forming a dune-like area at TB-9 using material that was treated onsite. The treated material would be placed indefinitely at TB9. There would be less offsite transportation of materials than for the proposed project. The reduced level of truck trips would place the significance in the *less than significant* range. Therefore, Impact PS.2 would apply, but as a Class III impact.

Impacts PS.1 and PS.3, related to structures and fuel spills, would still apply. Within existing plans and procedures (CDP/DP D890558D Condition F.38) addressing staging areas and fuel spill contingency plans, the impacts from this alternative on public safety would be *less than significant* (Class III), or the same as the proposed project.

5.11.7.3 Engineered Containment Unit Alternative

The ECU would involve building a containment sub-structure with leachate collection systems at TB9, moving the excavated material including existing stockpiles at TB8 and TB9 into the ECU, covering the ECU with sand, and revegetating it. This would involve the same truck loading operations as the proposed project, but the trucks transporting soils would remain only onsite. No offsite transport would occur because all materials, diluent-affected and sump materials, would be placed into the ECU.

The reduced level of truck trips would place the significance in the *less than significant* range. Therefore, impact PS.2 would apply, but as a Class III impact. However, issues related to structures and fuels spills would still be applicable. Within existing measures (CDP/DP D890558D Condition F.38) addressing staging areas and fuel spill contingency plans, Impacts PS.1 and PS.3 from this alternative on public safety would be *less than insignificant* (Class III), or the same as the proposed project.

5.11.7.4 Slurry Injection

This alternative would involve establishing high-pressure injection pumps and slurry-mixing areas on the site. Impact PS.3, related to spillage of fuels, would be the same as the proposed project. Impact PS.2, related to truck transportation accidents, would not apply to this alternative because there would be minimal offsite truck trips.

Impact	Impact Description	Residual Impact
PS.5	Mechanical hazards associated with high-pressure slurry injection could pose a hazard to the public, regulatory agency personnel, and workers.	Class II

Impact Discussion

Although the slurry activities would have a low probability of endangering the public due to the location in a non-public area, there would be increased risks of injury and fatality to workers onsite due to the use of high-pressure injection pumps and piping. Through the use of appropriate

site safety plans and training, however, these risks would be mitigated to less than significant. Impact PS.1 would also apply to this alternative.

Mitigation Measures

PS-5.1 *If slurry injection is implemented, amend the Site Safety Plan to address the hazards associated with maintenance and operation of the high-pressure slurry injection system. Provisions to be added to the plan would include information regarding lock-out/tag-out during maintenance or operations to control energy sources, training of employees on the hazards associated with slurry and high pressures, appropriate protective equipment, safe operations and safe operating limits, signage and labeling of hazards, emergency operations procedures, maintenance procedures, and operating procedures.*

Residual Impact

A proper site safety plan addressing the issues outlined in PS-5.1 would effectively mitigate the operation of the slurry system to an acceptable risk level. As a result, potential impacts associated with operating the slurry system would be considered *less than significant with mitigation* (Class II).

5.11.8 Cumulative Impacts

Potential impacts to public safety resulting from any of the cumulative projects listed in Section 4 are less than significant. Public Safety impacts associated with development projects would be limited to hazards associated with increased traffic and movement of construction equipment in the area. Although increased traffic would increase the frequency of truck accidents minimally, traffic increases are not expected to degrade traffic flow to the point where new hazards are introduced. These impacts would be considered *less than significant* (Class III).

5.11.9 Mitigation Monitoring Plan

Mitigation Measure	Action Required by Applicant and Action Timing	Party Responsible For Verification	Monitoring / Reporting Schedule	Verification Timing
PS-2.1	Include measure in permit addressing carrier safety and records reviews. Prior to project start.	Planning and Building or approved construction monitor	Periodic inspection	Prior to and during transportation of material to the landfill
PS-2.2	Include measure in permit addressing speed control measures, either administrative policies or technical/mechanical methods. Prior to project.	Planning and Building or approved construction monitor	Periodic inspection	Prior to and during transportation of material to the landfill
PS-2.3	Include measure in permit addressing trucking company contracts and inappropriate incentive programs ensuring an environment that promotes safe operations. Prior to project.	Planning and Building or approved construction monitor	Periodic inspection	Prior to and during transportation of material to the landfill

5.11.10 References

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Santa Barbara County. 2004. Transportation Risk Assessment, Nuevo TRMPP . Santa Barbara Energy Division, Santa Barbara, California.

6.0 Environmentally Superior Alternative

This section summarizes the environmental advantages and disadvantages associated with the proposed Non-hazardous Hydrocarbon-Impacted Soils (NHIS) truck transportation project and alternatives. Based on this discussion, the environmentally superior alternative (ESA) is identified as required by CEQA. The CEQA Guidelines, Section 15126.6(e)(2) state that if the environmentally superior alternative is the No Project Alternative, then the next most environmentally superior alternative must also be identified.

6.1 Comparison of Proposed Project and Alternatives

To facilitate a clear understanding of the relative merits of the various alternatives, this section highlights the major differences between the impacts of the alternatives and proposed project. The No Project Alternative was dropped from further consideration due to its inconsistency with the San Luis Obispo Coastal Land Use Ordinances. The project alternatives that were described in detail in Section 3.0, and evaluated in detail in Section 5.0 included the following four alternatives:

- Offsite Trucking to Other Destinations
- Treated-Material Land Feature (TMLF)
- Engineered Containment Unit (ECU)
- Slurry Injection

Table 6.1 provides a summary of the impacts identified for the proposed project and alternatives, with the impact classes specified. Table 6.2 provides an overview of the environmentally preferred alternative for each issue area, the duration of the predominant adverse impacts, and the rationale for identifying the CEQA environmentally superior alternative. The Slurry Injection Alternative is currently not allowed by the U.S. Environmental Protection Agency (EPA), because the EPA does not consider the current activities part of the oil and gas operations or exploration and will not allow Class II injection; therefore, the next best alternative is given in parenthesis whenever slurry injection is identified as the superior alternative. Slurry injection was evaluated throughout the SEIR at the request of Unocal, since it is possible that in the future the EPA could allow the injection of the diluent-affected material.

In weighing the relative merits of the proposed project and alternatives, long-term impacts received a much higher weighting than short-term impacts. As a result, some issue areas may have favored one particular alternative based on a number of short-term impacts, but another alternative was favored for only one or two long-term impacts. In this case, the environmentally preferred alternative for this issue area would be the one based on the more favorable long-term impact. Short-term duration was identified for those impacts that would cease after the end of the project's operational phase (i.e., after 2–4 years); long-term duration was assigned for those impacts that continue after the 2–4 years of the project's operational phase.

Table 6.1 Comparison of Impacts from the Proposed Project and Alternatives by Issue Area

Impact	Impact Description	Proposed Project	Alternatives			
			Offsite Trucking	TMLF	ECU	Slurry
SURFICIAL GEOLOGY AND COASTAL GEOMORPHOLOGY (Section 5.1)						
GEO.1	Removal of the TB8 Stockpile would increase exposure to unstable earth conditions, such as landslides or similar hazards, as a result of seismic activity.	III	III	see GEO.5	see GEO.5	III
GEO.2	Road-widening activities would increase the potential for a loss of topsoil.	III	III	III	III	III
GEO.3	The excavation of sand at Q4 may modify erosion/sedimentation patterns as a result of wind scour, contour changes, and loss of vegetation.	III	III	III	III	III
GEO.4	Excavation activities at Q4 could trigger shallow slides or infinite slope failures.	III	III	III	III	III
GEO.5	Development of the TMLF (ECU) would increase exposure to unstable earth conditions, such as landslides or similar hazards.	NA	NA	**III**	**III**	NA
GEO.6	High injection pressures could result in release of injected material from the injection formation.	NA	NA	NA	NA	**III**
SURFACE AND GROUND WATER QUALITY (Section 5.2)						
W.1	Spills from trucks on route to the offsite facility could release hydrocarbon-affected soils to surface waters or sensitive wetland habitats.	II	II	II ↓	NA	NA
W.2	Offsite transport and release of NHIS adhering to trucks could contaminate surface waters or aquatic habitats.	II	II	II ↓	NA	NA
W.3	Erosion of sand dunes and agricultural drainage systems due to road widening, truck traffic, and truck staging could alter local drainage patterns.	II	II	II	II	II
W.4	Inadvertent spills of petroleum products from trucks or fueling structures could release hydrocarbons to the project site, causing recontamination of a previously remediated site or introduce contamination to an uncontaminated site.	III	III	III	III	III
W.5	If a TMLF (ECU) is implemented, failure of the leachate or runoff collection and treatment system could result in hydrocarbon migration into the dune sand aquifer or offsite.	NA	NA	**II**	**II**	NA
W.6	If slurry injection is implemented, contamination of surface and ground water could occur due to release of slurry material containing hydrocarbons from the injection formation.	NA	NA	NA	NA	**III**

Table 6.1 Comparison of Impacts from the Proposed Project and Alternatives by Issue Area

Impact	Impact Description	Proposed Project	Alternatives			
			Offsite Trucking	TMLF	ECU	Slurry
BIOLOGICAL RESOURCES (Section 5.3)						
BIO.1	Road widening, paving, and placement of road base material within the Guadalupe Field could result in the removal or degradation of vegetation and wildlife habitat and the potential removal of sensitive plant species.	II	II	II	II	II
BIO.2	Road-widening activities in the Guadalupe Field could result in disturbance and mortality to wildlife.	III	III	III	III	III
BIO.3	Use of the proposed haul routes in the Guadalupe Field for offsite hauling near existing dune swale wetlands could result in disturbance and mortality to wildlife, including the California red-legged frog, federally listed as threatened.	II	II	II ↓	II ↓	NA
BIO.4	Hauling of NHIS offsite has the potential to adversely affect biological resources outside the Guadalupe Field.	III	III	III ↓	III ↓	NA
BIO.5	Disturbance of the topsoil associated with the TMLF (ECU) would result in the removal or degradation of vegetation and wildlife habitat and removal of sensitive plant species.	NA	NA	**II**	**II**	NA
BIO.6	Disturbance of the topsoil, movement of soil, and presence of heavy machinery associated with the TMLF (ECU) could result in disturbance and mortality to wildlife.	NA	NA	**III**	**III**	NA
BIO.7	Post-construction monitoring, maintenance, and decommissioning associated with the TMLF (ECU) could result in the removal or degradation of vegetation and wildlife habitat (including restored habitat) and removal of sensitive plant species.	NA	NA	**III**	**III**	NA
VISUAL RESOURCES (Section 5.4)						
VR.1	Temporary and short-term, adverse visual impacts would result from the presence and operation of construction equipment for loading and transport of NHIS from TB8.	III	III	III ↑	III ↑	III
VR.2	Temporary and short-term, adverse visual impacts would result from the presence and operation of construction equipment at TB9.	NA	NA	**III**	**III**	NA
AIR QUALITY (Section 5.5)						
AQ.1	The air emissions from project construction would exceed significance thresholds.	III	III	III	**II**	**II**
AQ.2	The air emissions from project operations would exceed significance thresholds.	II	**I**	II ↓	II ↓	II ↓
AQ.3	Remedial activities could expose public sensitive receptors to emissions of toxic vapors, resulting in adverse health effects.	III	III	III ↓	III ↓	NA

Table 6.1 Comparison of Impacts from the Proposed Project and Alternatives by Issue Area

Impact	Impact Description	Proposed Project	Alternatives			
			Offsite Trucking	TMLF	ECU	Slurry
AQ.4	Soil-moving activities could cause human health impacts if the soils contain naturally occurring asbestos.	III	III	III	III	III ↓
AQ.5	CO "hotspots" impacts could result from trucks hauling soils offsite.	III	III ↓	III ↓	III ↓	NA
TRANSPORTATION/CIRCULATION (Section 5.6)						
T.1	Offsite vehicle trips to haul NHIS to Santa Maria Landfill could impact traffic flow on Betteravia Road during PM peak commuting hours.	II	NA	II ↓	II ↓	NA
T.2	Use of local roadways by heavy trucks for offsite hauling of NHIS could cause physical damage to road surfaces.	III	III	III ↓	III ↓	NA
NOISE (Section 5.7)						
N.1	The proposed project would expose sensitive receptors near the project site to increased noise levels.	III	III	III ↑	III ↑	III ↑
N.2	Transportation of affected soil offsite would expose sensitive receptors along the transportation route to increased noise levels.	III	III	III ↓	III ↓	III ↓
LAND USE CONSISTENCY/RECREATION (Section 5.8)						
LU.1	Proposed project activities could result in disturbances that diminish the quality of a particular land use, especially residential areas along the transportation corridors.	III	III	III	III	III
LU.2	The TMLF (ECU) alternative would establish at the Guadalupe Field a permanent depository of NHIS requiring indefinite leachate collection and monitoring.	NA	NA	**III**	**I**	NA
CULTURAL RESOURCES (Section 5.9)						
CR.1	Road widening, paving, and placement of road base material could result in substantial new ground disturbance, with possible disturbances to intact archaeological resources.	III	III	III	III	III
CR.2	Use of the proposed haul routes would not increase impacts on cultural resources.	III	III	III	III	III
AGRICULTURAL RESOURCES (Section 5.10)						
AG.1	The offsite hauling of NHIS would increase truck trips on roads used to move and transport farm equipment and farm products, which would potentially limit access to agricultural areas and movement of agricultural crops and equipment and conflict with existing Santa Barbara County agricultural goals.	III	III	III ↓	III ↓	NA

Table 6.1 Comparison of Impacts from the Proposed Project and Alternatives by Issue Area

Impact	Impact Description	Proposed Project	Alternatives			
			Offsite Trucking	TMLF	ECU	Slurry
AG.2	The offsite hauling of NHIS would increase truck trips in the vicinity of the Thornberry Road staging area, which would limit access to agricultural areas and limit movement of agricultural crops and equipment in the area and conflict with existing San Luis Obispo County agricultural goals.	II	II	II ↓	NA	NA
AG.3	The widening of Thornberry Road would result in a local, potentially long-term loss of 0.6 acres of prime farmland.	III	III	III ↓	NA	NA
PUBLIC SAFETY (Section 5.11)						
PS.1	Mechanical hazards associated with the loading and transportation of NHIS in areas with public access could pose a hazard to the public, regulatory agency personnel, and workers (1998 EIR Impact 5.11-1).	III	III	III	III	III
PS.2	The offsite transportation of NHIS could introduce an increase in fatalities on local area streets due to the increase in vehicle traffic.	II	**I (see PS.4)**	**III**	**III**	**III**
PS.3	Spillage of fuel during fueling procedures, during transportation of fuel and NHIS, or leaking fuel from heavy equipment could pose a hazard to workers and possibly the public (1998 EIR impact 5.11-4 and 5.11-5).	III	III	III	III	III
PS.4	The transportation of NHIS could introduce an increase in fatalities on local area streets due to the increase in vehicle traffic. (same as PS.2) **	II (see PS.2)	**I**	NA	NA	NA
PS.5	Mechanical hazards associated with high-pressure slurry injection could pose a hazard to the public, regulatory agency personnel, and workers.	NA	NA	NA	NA	**II**

Notes: Highlighted in bold font impact classes signify that there is a change in Class from the proposed project.
↑ Increased severity of impact as compared to the proposed project; for beneficial impacts – increased beneficial impact.
↓ Decreased severity of impact as compared to the proposed project.
NA Impact does not apply to the proposed project and/or alternative.
** Same as Impact PS.4 for transportation alternative.

Table 6.2 Comparison of the Environmentally Superior Alternative by Issue Area

Issue Area	Duration of Adverse Impacts	Environmentally Superior Alternative (ESA)	Discussion of Rationale for Superior Alternative
Surficial Geology/ Coastal Geomorphology	Long-term	None	The proposed project and each of the four alternatives would have four Class III insignificant impacts. The Slurry Injection Alternative would have an additional Class III insignificant impact.
Surface Water Quality	Long-term	Proposed Project or Trucking to Other Destinations	The TMLF Alternative has reduced severity of, and the ECU Alternative has eliminated two Class II impacts as compared to the proposed project; however, both these alternatives add one new Class II potentially significant impact associated with runoff from the TMLF or the ECU. The Slurry Injection Alternative adds one Class III insignificant impact associated with releases from the formation where injection is done.
Biological Resources	Short-term	Slurry Injection (Proposed Project)	The Slurry Injection Alternative avoids one Class II biological impact. The TMLF and ECU Alternatives have reduced severity for two Class II and one Class III impacts as compared to the proposed project; however, they add one new Class II impact and two Class III impacts associated with soil and vegetation disturbance during development of the TMLF or the ECU and post-project monitoring and decommissioning.
Visual Resources	Short-term	Proposed Project, Trucking to Other Destinations, or Slurry Injection	The TMLF and ECU Alternatives add one Class III insignificant impact. All the impacts from all alternatives are short-term and insignificant. This issue area would not be decisive in selection of the ESA.
Air Quality	Short-term	Slurry Injection (Proposed Project)	The ECU and Slurry Injection Alternatives would result in a Class II impact from construction emissions, which is greater then for the proposed project and the TMLF. .The TMLF, ECU, and Slurry Injection Alternatives have a slightly lower severity of impact due to operational emissions, but they are all Class II impacts. Three Class III insignificant impacts are also reduced in severity under TMLF and ECU Alternatives. Slurry injection eliminates two Class III impacts. Trucking to other destinations increases the severity of the operational emissions to a Class I impact.
Transportation/ Circulation	Short-term	Slurry Injection (Trucking to Other Destinations)	Slurry Injection would require the fewer truck trips to the Santa Maria Landfill or other destinations and thus would have the lowest impacts to traffic and to the road surfaces. Trucking to other destinations would have least impact to Betteravia Road; this alternative would eliminate a potentially significant Class II impact.
Noise	Short-term	Slurry Injection (None)	All noise impacts are insignificant, Class III. The Slurry Injection Alternative would reduce severity of on-road noise the most because there would be the fewest truck trips; however, this issue area would not be decisive in selection of the ESA.

Table 6.2 Comparison of the Environmentally Superior Alternative by Issue Area

Issue Area	Duration of Adverse Impacts	Environmentally Superior Alternative (ESA)	Discussion of Rationale for Superior Alternative
Land Use/ Recreation	Long-term	Proposed Project, Trucking to Other Destinations, or Slurry Injection	The ECU would create a feature at the Guadalupe Field that would have a permanent significant Class I impact to land use and recreation in this area. The proposed project, slurry injection and trucking to other destinations are equal in impacts.
Cultural Resources	Short-term	None	All alternatives and proposed project have Class III insignificant impacts. This issue area would not be decisive in selection of the ESA.
Agricultural Resources	Short-term	Slurry Injection (TMLF or ECU)	Due to the fewest truck trips, the Slurry Injection alternative would have the least disturbance to the agricultural land. TMLF has reduced severity, and ECU eliminated impacts as compared to trucking all affected soil offsite.
Public Safety	Short-term	TMLF or ECU	Slurry Injection alternative adds one potentially significant Class II impact from releases of NHIS during injection. Trucking to other destinations adds an adverse significant impact, Class I, associated with increases in heavy truck traffic and potential accidents and subsequent fatalities on local streets, while eliminating this Class II impact in the local area.

For some issue areas, impacts associated with the proposed project were similar to that for the alternatives, so no superior alternative was identified for that issue area. The identification of the superior alternative for each issue area does not necessarily indicate that the potential impacts would not be adverse, but only less adverse than under the other alternatives.

6.1.1 Proposed Project *vs.* Trucking to Other Destinations

This alternative is very similar to the proposed project, because the same amounts of NHIS would be transported offsite for disposal. One potentially significant (Class II) transportation impact related to traffic on Betteravia Road would be eliminated.

Because of the longer transportation route, this alternative increases the severity of the operational air quality emissions to a Class I impact. Air Quality impact from operations (AQ.2) and public safety impact (PS.4 or PS.2) are both significant and unavoidable impacts associated with this alternative that would not result with the proposed project.

Because this alternative would change the Public Safety and operational air emission impacts from Class II to Class I this alternative was not found to be environmentally superior to the proposed project.

6.1.2 Proposed Project *vs.* TMLF Alternative

For this alternative, most impacts that are related to offsite trucking of NHIS would be lessened in severity (e.g., biological resources, water quality, air quality, traffic, noise, agricultural) but their severity classification would not change. Impact PS.2, transportation risk, would reduce in classification from Class II to Class III due to the reduction in the number of truck trips.

Under this alternative, however, there would be two new significant-but-mitigable Class II long-term impacts.

W.5 If a TMLF is implemented, failure of the leachate or runoff collection and treatment system could result in hydrocarbon migration into the dune sand aquifer or offsite. **(Class II)**

BIO.6 Disturbance of the topsoil associated with the TMLF would result in the removal or degradation of vegetation and wildlife habitat and removal of sensitive plant species. **(Class II)**

While this alternative would lessen severity of many transportation-related impacts as compared to the proposed project, it would result in two new Class II impacts, one in biology and one in surface/ground water quality. These two impacts would be long-term impacts. This alternative would also eliminate a number of insignificant impacts associated with the use of the Guadalupe material at the Santa Maria Landfill that were identified in the May 2004 Santa Maria Landfill Supplemental EIR. However, if the Guadalupe NHIS is not sent to the Santa Maria Landfill, then other NHIS material would have to be found for use in closing the landfill cells. As such, many of the transportation-related impacts would still occur, since the material needed for closing the cells would still have to be delivered to the landfill.

The TMLF was not found to be environmentally superior to the proposed project for the following reasons.

- The TMLF alternative would result in two additional Class II long-term impacts in the areas of biological resources and surface/ground water quality.
- The TMLF alternative would not eliminate the need for NHIS to be transported to the Santa Maria Landfill. The Landfill would need to secure other sources of NHIS for closure of the landfill cells. Therefore, the transportation impacts and landfill impacts associated with the use of NHIS would still occur, but the material would come from a different location other than the Guadalupe Field.

6.1.3 Proposed Project *vs.* ECU Alternative

For this alternative, most impacts that are related to offsite trucking of NHIS would be lessened in severity (e.g., biological resources, water quality, air quality, traffic, noise, agricultural) but their severity classification would not change. This alternative would eliminate two potentially significant Class II biological resources impacts and two potentially significant Class II agricultural resources impacts. Impact PS.2, transportation risk, would be reduced in classification from Class II to Class III due to the reduction in the number of truck trips.

Under this alternative, however, there would be one new significant Class I long-term impact and two new potentially significant, but mitigable Class II long-term impacts.

LU.2 The ECU alternative would establish at the Guadalupe Field a permanent depository of NHIS requiring indefinite leachate collection and monitoring. **(Class I)**

W.5 If an ECU is implemented, failure of the leachate or runoff collection and treatment system could result in hydrocarbon migration into the dune sand aquifer or offsite. **(Class II)**

BIO.6 Disturbance of the topsoil associated with the ECU would result in the removal or degradation of vegetation and wildlife habitat and removal of sensitive plant species. **(Class II)**

While this alternative would lessen severity of or eliminate many transportation-related impacts as compared to the proposed project, it would result in a new Class I impact in land use and two new Class II impacts, one in biological resources and one in surface/ground water quality. All three of these impacts would be long-term impacts. This alternative would also eliminate a number of insignificant impacts associated with the use of the Guadalupe material at the Santa Maria Landfill that were identified in the May 2004 Santa Maria Landfill Supplemental EIR. However, if the Guadalupe NHIS is not sent to the Santa Maria Landfill, then other NHIS material would have to be found for use in closing the landfill cells. As such, many of the transportation-related impacts would still occur, since the material needed for closing the cells would still have to be delivered to the landfill.

The ECU was not found to be environmentally superior to the proposed project for the following reasons.

- The ECU alternative would result in an additional Class I long-term impact in the area of land use, since the project would not be consistent with San Luis Obispo County land use polices, which require that all existing tailings and debris shall be removed.

- The ECU alternative would result in two additional Class II long-term impacts in the areas of biological resources and surface/ground water quality.
- The ECU alternative would not eliminate the need for NHIS to be transported to the Santa Maria Landfill. The Landfill would need to secure other sources of NHIS for closure of the landfill cells. Therefore, the transportation impacts and landfill impacts associated with the use of NHIS would still occur, but the material would come from a different location other than the Guadalupe Field.

6.1.4 Proposed Project *vs.* Slurry Injection Alternative

For this alternative, most impacts that are related to offsite trucking of NHIS would be lessened in severity (e.g., biological resources, water quality, air quality, traffic, noise, agricultural) but their severity classification would not change. Impact PS.2, transportation risk, would be reduced in classification from Class II to Class III due to the reduction in the number of truck trips. Impacts T.1, traffic volume impacts, and T.2, road impacts, would be eliminated. Class II, potentially significant, water quality Impacts W.1 and W.2, biology resources Impact BIO.3, and agricultural resources Impact AG.2 would be eliminated. Class III, insignificant Air Quality Impacts AQ.2 and AQ.4, and Agricultural Resources Impacts AG.1 and AG.3 would be eliminated.

Under this alternative, however, there would be one new significant but mitigable Class II impact and two new insignificant Class III impacts.

PS.5 Mechanical hazards associated with high-pressure slurry injection could pose a hazard to the public, regulatory agency personnel, and workers. **(Class II)**

GEO.6 High injection pressures could result in release of injected material from the injection formation. **(Class III)**

W.6 If slurry injection is implemented, contamination of surface and ground water could occur due to release of slurry material containing hydrocarbons from the injection formation. **(Class III)**

This alternative would lessen severity of many transportation-related impacts as compared to the proposed project. The additional impacts associated with this alternative would be confined to the Guadalupe Field and could all be mitigated to a level of insignificance. This alternative would also eliminate a number of insignificant impacts associated with the use of the Guadalupe material at the Santa Maria Landfill that were identified in the May 2004 Santa Maria Landfill Supplemental EIR. However, if the Guadalupe NHIS is not sent to the Santa Maria Landfill, then other NHIS material would have to be found for use in closing the landfill cells. As such, many of the transportation related impacts would still occur since the material needed for closing the cells would still have to be delivered to the landfill.

While this alternative appears to offer a number of advantages over the proposed project, it is not considered a feasible alternative, since the U.S. EPA deep-well injection program would not allow the Class II injection of NHIS because the EPA does not consider the current activities part of oil and gas operations or exploration. Under current Federal law, this alternative could not be implemented, and therefore, it has been dropped from further consideration as an environmentally superior alternative.

6.2 Environmentally Superior Alternative

The proposed project was found to be the environmentally superior project. The proposed project would result in no significant impacts that can not be mitigated to a level of insignificance.

Most of the other alternatives would reduce severity of the offsite trucking impacts associated with the proposed project and the impacts associated with the use of NHIS at the Santa Maria Landfill. However, these impacts would still occur, since the Landfill would need to secure NHIS material from a different source. It is important to note that the Santa Maria Landfill currently has a need for 5 million cy of material to close their remaining active cells. Currently, the Landfill has been accepting NHIS from other sump locations in the Santa Maria Valley. However, these sources are winding down and the Landfill needs to locate other sources of materials for closure. The sources of material for closure will need to be found and materials transported to the Landfill regardless of the disposal decisions associated with this document. It is likely that if the Guadalupe NHIS material is not taken to the Landfill, material from outside of Santa Barbara and San Luis Obispo Counties would have to be brought to the Landfill. This could result in greater transportation, air quality, and public safety impact than the proposed project.

According to the Joint Technical Document (JTD) and the Santa Maria Landfill SEIR (May 2004), accepting impacted soils is consistent with the Landfill's intent to implement an expedited closure process at the landfill by using the NHIS: (1) to achieve design grades and serve as the foundation layer of the final cover system for the existing active portion of the landfill, and (2) for daily and intermediate cover material in the lined expansion areas of the landfill. The May 2004 SEIR for the Santa Maria Landfill identified no significant impacts associated with the use of NHIS.

In approving the use of NHIS from the Guadalupe Field, the RWQCB stated the following.

"We believe the acceptance of additional NHIS material from the GRP (Guadalupe Restoration Project) will expedite final rolling closure activities at the Santa Maria Landfill. The use of the NHIS material as foundation layer material will enable the waste solids to be entombed under a protective cover and will accelerate closure for the unlined active landfill area. Disposal operations must be carried out such that the majority of the NHIS would be closed annually prior to the arrival of winter precipitation. Final closure activities along with proper storm water management will significantly minimize the impact of precipitation and percolation upon the existing unlined waste mass. In turn, potential leaching from this area will be significantly reduced and underlying groundwater should be improved." (Letter to Mr. Zhao, City of Santa Maria, August 31, 2004)

The proposed project would result in the moving the NHIS material from the environmentally sensitive Guadalupe Dunes to a permitted landfill where it can be contained and controlled.

6.3 References

City of Santa Maria. 2004. Santa Maria Regional Landfill Site Facility Permit. Final Second Supplemental Environmental Impact Report. May 2004.

Letter to Mr. Zhao, City of Santa Maria, August 31, 2004.

7.0 Other CEQA Issues

This section contains additional environmental analyses and discussions required by the California Environmental Quality Act.

7.1 Growth-Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines states that growth-inducing impacts of the proposed project must be discussed in the EIR. In general terms, a project may induce spatial, economic, or population growth in a geographic area if it meets any one of the four criteria identified below:

1. Removal of an impediment to growth (e.g., establishment of an essential public service or the provisions of new access to an area).
2. Economic expansion or growth (e.g., changes in revenue base, employment expansion, etc.).
3. Establishment of a precedent setting action (e.g., an innovation, a change in zoning, or general plan amendment approval).
4. Development or encroachment in an isolated area or one adjacent to open space (being different from an “infill” type of project).

Should a project meet any one of the above listed criteria, it can be considered growth inducing. The impacts of the proposed project are evaluated below with regard to these four growth-inducing criteria.

7.1.1 Removal of an Impediment to Growth

The proposed project involves the transportation of Non-hazardous Hydrocarbon-Impacted Soils (NHIS) from the Guadalupe Field to the Santa Maria Landfill to be used as a cover material for closing the Landfill’s cells. The RWQCB has approved the use material from the Guadalupe site as part of the Landfill’s NHIS Program. Removal and transportation of the NHIS would not result in a removal of an impediment to growth, even though the project will allow the resumption of remedial excavations at the site. Land uses on the site are designated Rural Lands and Recreation. The California Coastal Conservancy holds two easements located on the west side of the property: one establishing public access along the beach and the other for conservation. Unocal has purchased the site, recorded Offers to Dedicate over the encumbered portions of the site, and is in the process of working with the U.S. Fish and Wildlife Service (USFWS) to assume the easement and management of the entire site. With these easements, no growth-inducing development could occur.

The proposed project would not result in the establishment of an essential public service, and would not provide new access to an area previously inaccessible that could be used for growth. As a result, the proposed project is not considered to cause significant growth inducement under this criterion.

7.1.2 Economic Growth

Short-term economic growth would occur as a result of the increased activity associated with the transportation activities. The economic growth would be in the area of contracting trucks to haul the material to the landfill. This would be expected to last two to four years. The workers associated with the transportation would more than likely contribute to a small increase in business activity for some of the local businesses, especially the food service industries.

Long-term project employment prospects are extremely limited. Therefore, there would be no new significant employment associated with the proposed project. While the proposed project will result in some short-term increase to the County's existing revenue base, the operational activities would not result in any substantial increase to the revenue base. Therefore, due to the short-term and limited nature, economic growth associated with this project is not considered to be significant.

7.1.3 Precedent Setting Action

Disposal of NHIS at landfills is a relatively common practice. The Santa Maria Landfill is authorized to accept these types of materials as part of their NHIS program. For the past few years, the Santa Maria Landfill has been accepting non-hazardous impacted soils for use in closing cells. As such, the proposed project would not be considered a precedent setting action.

7.1.4 Development of Open Space

Development of open space is considered growth inducing when it encroaches upon urban-rural interfaces or in isolated localities. The proposed project would take place in a previously disturbed area, and would not involve the development of open space. Therefore, the proposed project is not considered to be growth inducing under this criterion, since the available sites do not encroach upon urban-rural interfaces.

7.1.5 Conclusion

The proposed project would not meet any of the four growth-inducing criteria specified in this section. As a result, the proposed project would not be considered growth inducing.

7.2 Significant Irreversible Environmental Changes

Section 15126.2(c) of the CEQA Guidelines states that significant irreversible environmental changes caused by a proposed project need to be discussed. These changes may include the following:

- Uses of non-renewable resources during the initial and continued phases of the project, which would be irreversible because a large commitment of such resources makes removal or non-use thereafter unlikely;
- Primary impacts and, particularly, secondary impacts which commit future generations to similar uses; and

- Irreversible damage, which may result from environmental accidents associated with the project.

Table 7.1 presents a summary of potential irreversible and irretrievable commitments of resources associated with the proposed project.

Table 7.1 Summary of Potentially Irreversible and Irretrievable Commitments of Resources

Resource	Impact Summary
Surficial Geology and Coastal Geomorphology	No irreversible or irretrievable impacts.
Surface and Ground Water Quality	Significant impacts to surface and ground water quality can be mitigated to a level of insignificance; therefore, there are no irreversible or irretrievable impacts. For the Santa Maria Landfill there is the possibility that leachate from the cells that contain the NHIS material could contaminate the surface water and ground water in the event of a breach in the cell liner. Given the design of the liner system and the monitoring requirements, this is considered a highly unlikely event. Therefore, there are no irreversible or irretrievable impacts.
Biological Resources	Significant impacts to biological resources can be mitigated to a level of insignificance; therefore, there are no irreversible or irretrievable impacts.
Aesthetics/Visual Resources	No irreversible or irretrievable impacts.
Air Quality	The air emissions associated with the transportation of the NHIS to the Santa Maria Landfill would result in significant impacts that cannot be fully mitigated. However, these impacts would only last for a period of two to four years and as such, would not result in any irreversible or irretrievable impacts.
Transportation/Circulation	All of the traffic impacts are related to the transportation of NHIS to the Santa Maria Landfill and can be mitigated to a level of insignificance. Therefore, there are no irreversible or irretrievable impacts associated with Transportation/Circulation.
Noise	No irreversible or irretrievable impacts.
Land Use	No irreversible or irretrievable impacts.
Cultural Resources	No irreversible or irretrievable impacts.
Agricultural Resources	No irreversible or irretrievable impacts.
Public Safety	All of the public safety impacts are related to the transportation of NHIS to the Santa Maria Landfill and can be mitigated to a level of insignificance. Therefore, there are no irreversible or irretrievable impacts associated with public safety.

The project's main use of non-renewable resources would be the diesel fuel for the equipment to load the NHIS material onto trucks and for the trucks to transport the material to the Santa Maria Landfill. Once the material is transported to the Landfill, the amount of non-renewable fuel use would be minimal. The project would not involve a commitment of large quantities of non-renewable resources such that removal or non-use would be unlikely.

8.0 Summary of Mitigation Measures

Mitigation measures have been developed for a number of the impacts identified for the proposed project, alternatives, and cumulative projects. This section provides a listing of the identified mitigation measures for each issue area. Where mitigation measures are applicable only to a specific Alternative or Cumulative projects, the mitigation measures are placed under a separate title specifying to which alternative or cumulative projects these mitigation measures are applicable.

Section 5.1, Surficial Geology and Coastal Geomorphology

GEO-3.1 *Edges of the excavation boundary at Q4 should be set back at least 8 meters (26 ft) from the present boundary of established vegetation on adjacent undisturbed slopes prior to removal of sand from Q4*

GEO-4.1 *Position of the angular boundary at the top of the excavated dune area shall be monitored weekly at Q4 in areas adjacent to the vegetation line while excavation of the Q4 area is actively occurring, so that GEO-3.1 is not violated.*

Slurry Injection Alternative only

GEO-6.1 *If slurry injection is conducted, the Applicant shall implement a monitoring and analysis program for the slurry injection process. The program shall include continuous injection and well pressure monitoring and analysis, continuous injection well temperature monitoring, and periodic injection tracer log surveys, step rate tests in the injection well temperature and pressure monitoring in offset observation wells. This data will be used to assess the distribution of the formation pressures and an evaluation of formation flow behavior. This data will be used to verify containment of the injected material. The Applicant shall submit the monitoring and analysis program to Planning and Building and DOGGR for review and approval prior to the start of slurry injection. The applicant shall submit quarterly monitoring and analysis report to Planning and Building and DOGGR.*

Section 5.2, Surface and Ground Water Quality

W-1.1 *Require licensed professional drivers to operate trucks and adhere to the Traffic Control Plan (described in Condition F93).*

W-1.2 *Develop and implement response plans specifically for NHIS spills from trucks that include explicit emergency notification procedures. Identify a designated response team and maintain cleanup equipment onsite or near the truck route. Require drivers to complete spill response training program.*

W-2.1 *Unocal, in coordination with the County OEC, shall monitor the effectiveness of current cleaning and decontamination methods for haul trucks leaving loading areas. If monitoring results indicate that the existing practice of using rumble-pads*

and tire-brushing is not effectively removing soil from haul trucks Unocal shall implement additional and more effective truck cleanup procedures (e.g., washing each truck following loading, with collection and treatment of wash waters).

W-3.1 *During road construction and trucking operations, Unocal's traffic control plan shall include added traffic control measures such as (1) placing a flagman and traffic cones to prevent trucks from passing along narrow portions of the onsite route with non-paved shoulders, (2) creating turn-outs to minimize erosion from truck traffic, and (3) installing temporary erosion control measures (e.g., silt fences) as needed, where there are construction activities, along truck routes to minimize dispersion of eroded soils.*

W-3.2 *Monitor ditches along Thornberry Road that drain agricultural fields and work with the landowner/jurisdictional agency to repair any erosion related to project truck staging or transport activities.*

Treated Material Land Feature and Engineered Containment Unit Alternatives only

W-5.1 *If a TMLF or ECU is implemented, develop contingency plans for responses to failures of the leachate collection, runoff collection, and ground water monitoring systems.*

Section 5.3, Biological Resources

BIO-1.1 *If road-widening activities are conducted, Unocal shall mitigate loss of backdune habitat and sensitive plant species individuals and habitat and reduce impacts associated with the loss of habitat by implementing the restoration of an equal number of acres of backdune habitat at other currently disturbed or degraded locations within the Guadalupe Field (such as areas degraded by infestations of invasive species). Unocal shall implement the guidelines of the approved Habitat Revegetation, Restoration, and Monitoring Plan (Condition F64) for areas restored as a result of road widening. To minimize temporal losses, the restoration would need to be initiated before or concurrently with the road widening project.*

BIO-3.1 *Unocal shall not begin any hauling activities along the Main Road Entrance wetlands or the M12/L11 Valley during the red-legged frog migration period (from November 1 through June 1) until the Sensitive Species Management Plan (SSMP) (described below in BIO-3.2) has been revised to add provisions for the hauling activities to protect California red-legged frogs and other wildlife and the revised SSMP has been approved by the County OEC, CDFG, and the USFWS.*

BIO-3.2 *Unocal shall revise the Sensitive Species Management Plan to include measures that would be implemented to protect California red-legged frogs, and other non-listed sensitive and common wildlife species potentially affected by hauling activities near known or potential habitat. The revised SSMP shall be approved by the USFWS, CDFG, and the County OEC and shall include measures such as the following:*

- *Unocal shall implement a permanent speed limit of 15 mph along the main haul road adjacent to dune swale wetlands in the M12/L11 Valley and the Entrance*

Road wetlands during the California red-legged frog breeding season when it is raining, the roads are wet, or after daylight. Signs detailing speed limits shall be posted in appropriate locations along the route.

- *Biologists shall survey the active portions of the haul route within 200 feet of sensitive resources, including the dune swale wetlands, at least four times per day during hauling activities when it is raining or the roads are wet.*
- *If a substantial number of mortalities, identified in the revised SSMP, continue to occur along the haul route after implementing the above mitigation, Unocal shall halt hauling activities on the roadways adjacent to dune swale wetlands during the California red-legged frog migration period until additional protective measures are determined and approved by the County OEC, USFWS and CDFG or for the duration of the specific migration event (as determined by Unocal and the County OEC) to reduce wildlife mortality.*

Treated Material Land Feature and Engineered Containment Unit Alternatives only

BIO-5.1 *If a TMLF is implemented, Unocal shall mitigate the loss of backdune habitat and sensitive plant species individuals and habitat resulting from implementation of this alternative, and reduce impacts associated with the loss of this habitat by restoration of the completed TMLF to dune scrub habitat. Unocal shall incorporate the restoration site and the TMLF into the approved Habitat Revegetation, Restoration, and Monitoring Plan (CDP/DP D890558D Condition F64) for this restoration.*

To mitigate the temporal loss of dune scrub habitat, Unocal shall restore 4.9 acres of habitat to dune scrub at other currently disturbed or degraded locations within the Guadalupe Field (such as areas degraded by infestations of invasive specie). Unocal shall incorporate the restoration site(s) into the Habitat Revegetation, Restoration, and Monitoring Plan s approved by the County, CDFG, and Coastal Commission within 6 months of project approval.

Section 5.4, Visual Resources

There are no mitigation measures proposed for this issue area.

Section 5.5, Transportation/Circulation

T-1.1 *Truck-hauling traffic shall be restricted from travel between the Guadalupe Field and the Santa Maria Landfill on Betteravia Road between the hours of 4:30 p.m. and 5:30 p.m. (evening peak hour), except as otherwise approved by the OEC.*

T-2.1 *The Applicant shall update the existing Traffic Control Plan (see CDP/DP Condition 93) that details specific truck trip vehicle routes to the Landfill, peak hour and route restrictions, road surface maintenance, and traffic safety. The updated Traffic Control Plan shall be approved by the County Engineering Department in consultation with the Santa Barbara County Public Works Department, Roads/Traffic Division.*

Section 5.6, Air Quality

AQ-2.1 *In coordination with the SLO APCD, the Applicant shall update the APCD-approved Dust Control Plan to include additional mitigation measures if determined necessary by the OEC:*

a. *If the OEC determines that using dry decontamination methods to remove impacted material from the exteriors of trucks used to haul NHIS offsite is not sufficiently removing the impacted material such that it is being tracked outside the loading area, Unocal shall install wheel washers where vehicles enter and exit public streets, or wash off trucks and equipment leaving the site.*

b. *Sweep streets at the end of each day if visible soil material is carried by or spilled from the trucks hauling NHIS off the project site and deposited onto public roads. Water sweepers with reclaimed water should be used where feasible.*

AQ-2.2 *If required by the APCD, the Applicant shall update the APCD-approved Emission Reduction Plan to include additional mitigation measures:*

a. *Development of a comprehensive construction activity management plan designed to minimize, as feasible, the amount of large construction equipment operating during any given time period;*

b. *Scheduling of construction truck trips , as feasible, during non-peak hours to reduce peak hour emissions;*

c. *Limiting the length of the construction work-day period, if necessary and feasible, during periods with high air pollutant levels;*

d. *Phasing of construction activities, if appropriate and feasible.*

e. *Use of direct injection (ID) diesel engines (or equivalent) together with proper maintenance and operation to reduce emissions of NOx;*

f. *Electrify equipment where feasible;*

g. *Maintain all fossil-fuelled equipment in tune per manufacturer's specifications, except as otherwise required above;*

h. *Encourage use of catalytic converters on gasoline-powered equipment;*

i. *Substitute gasoline-powered for diesel-powered equipment, where feasible;*

j. *Use compressed natural gas (CNG) or propane-powered portable equipment (e.g., compressors, generators, etc.) onsite instead of diesel-powered equipment, where feasible*

k. *All off-road and portable diesel-powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, shall be fuelled exclusively with CARB-certified motor vehicle diesel fuel. Off-road equipment may use tax-exempt motor vehicle fuel if not operated on public roads;*

l. Maximize, to the extent feasible, the use of diesel construction equipment meeting the CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines.

m. All on and off-road diesel equipment shall not be allowed to idle for more than 5 minutes. Signs shall be posted in the designated areas to remind drivers of the 5 minute idling limit.

n. Portable equipment with engines greater than 50 horsepower used during the activities covered under the SEIR may require California statewide portable equipment registration (issued by the CARB) or an APCD permit. Operational sources, such as back up generators, may also require APCD permits. To minimize potential delays, prior to start of the project, the Applicant shall contact the APCD representative for specific information regarding permitting requirements of these types of equipment.

AQ-2.3 *Unocal shall fund a SLO County APCD managed air-emission-reduction program (AER Program) designed to achieve timely, real, quantifiable criteria and diesel PM reductions to offset project emissions. The EIR estimates that the project's NOx emissions will be 90 tons. This project emission estimate shall be refined by Unocal using information about the actual fleet and the scheduling that will be used for the project. The refined estimate shall be submitted to the APCD for review and approval. The approved refined NOx emission estimate shall be used by APCD to set the necessary funding amount for the AER Program. Payment shall be submitted to the APCD in 4 quarterly payments, with the first payment commencing after the refined emission estimate is approved and the total funding amount is finalized.*

Section 5.7, Noise

There are no mitigation measures proposed for this issue area.

Section 5.8, Land Use and Recreation

There are no mitigation measures proposed for this issue area.

Section 5.9, Cultural Resources

There are no mitigation measures proposed for this issue area.

Section 5.10, Agricultural Resources

AG.2.1 *A "driveway" through the truck staging area, connecting Thornberry Road to the farm equipment staging area shall be delineated using construction stakes or other means. This driveway shall be at least 20 feet in width to allow for two way traffic to and from the farm equipment staging area. Trucks shall be prohibited from blocking this driveway at all times.*

AG.2.2 *Advanced notification (1 week) shall be provided to farmers adjacent to the Thornberry Road staging area prior to project activities that would result in more than 100 truck haul round-trips per day.*

AG.3.1 *Any grading necessary to temporarily relocate the farm equipment staging area along Thornberry Road shall stockpile topsoil in a manner that will preserve the soil for later replacement.*

AG.3.2 *At project conclusion the farm equipment staging area should be returned to its original location along Thornberry Road. Any temporary improvements made in the relocated farm equipment staging area should be removed and any topsoil replaced.*

Section 5.11, Public Safety

PS-2.1 *Implement a review system for truck carriers contracted to haul NHIS offsite to ensure that only those with the safest records can carry loads. This would include addressing issues related to: a review of CHP Mister reports, ensuring correct Class licensing, enrollment in a controlled substance and alcohol abuse program, completion of Motor Carrier Safety Review type safety questionnaire, and assessment of Bureau of Motor Carrier Safety Ratings.*

PS-2.2 *Ensure that trucking companies contracted to haul NHIS offsite have programs in place to ensure that drivers maintain appropriate speeds. The would include: a 55-mph or applicable speed limit policy, training on speeding and speed limits along the proposed route, and/or speed control systems or governors in place on trucks.*

PS-2.3 *Ensure that contracts made with trucking companies to haul NHIS offsite address safety reviews, speeding and violations, and unacceptable incentive practices, such as increased pay for increased numbers of loads that may be an incentive for drivers to act in an unsafe manner.*

Slurry Injection Alternative only

PS-5.1 *If slurry injection is implemented, amend the Site Safety Plan to address the hazards associated with maintenance and operation of the high-pressure slurry injection system. Provisions to be added to the plan would include information regarding lock-out/tag-out during maintenance or operations to control energy sources, training of employees on the hazards associated with slurry and high pressures, appropriate protective equipment, safe operations and safe operating limits, signage and labeling of hazards, emergency operations procedures, maintenance procedures, and operating procedures.*

9.0 CDP/DP D890558D Condition Modifications

This section of the SEIR discusses the modifications that Unocal has requested to the existing conditions in Costal Development Permit/Development Plan (CDP/DP D890558D). Appendix F provides a marked up copy of CDP/DP D890558D that shows the modifications.

While these modifications to the existing permit conditions are not part of the proposed project, they have been discussed in Section 9.0 of the SEIR because SLO County will most likely make decisions on the requested modifications as part of the hearing process for the proposed project. The information presented in Section 9.0 provides the public and decision makers with (1) a better understanding of what the requested permit condition modifications are; (2) the reason for the requested modification; and (3) the effect these modifications would have on mitigating the environmental impacts of the Guadalupe Restoration Project.

There are a number of reasons why Unocal is requesting the permit modifications, which include the following.

Permit Condition Requirements are Complete
Some of the permit conditions cover work that has been completed at the site, and therefore, the conditions are no longer applicable. Unocal would like to modify these conditions to state that the work is complete. For example, the CDP/DP D890558D contains a number of conditions that are specific to the 5X remediation and restoration site. All of the work at 5X has been completed, and therefore, these conditions are no longer applicable to the project.

Combining Related Plans and Programs
A number of the permit conditions required the development of plans and programs that have overlapping requirements. Unocal would like to modify these conditions so that the requirements can be addressed in a single plan or program. For example, the CDP/DP D890558D required that site-specific restoration plans be developed that are approved by various governmental agencies. There also is a requirement for grading plans and erosion control and stabilization plans, which need to be site specific, and would be better addressed as part of the site-specific restoration plan. By combining all of the related site specific requirements into one plan, it would provide Unocal and the agencies with one document that deals with all of the site-specific requirements.

Update Specific Condition Requirements
Over the past six years, Unocal, the County of San Luis Obispo, the California Coastal Commission, and the other resource agencies have been working together to fine tune the approach that Unocal has been using to implement a number of the permit conditions. Unocal would like to modify these conditions to better reflect the approach that has been agreed upon for implementation. For example, one of the conditions requires that Unocal conduct research on sensitive species that have been significantly impacted by the project. The agencies and Unocal have developed a detailed approach to this requirement that resulted in the formation of a Stakeholder Advisory Committee (SAC) and a Scientific Advisory Panel (SAP). The SAC is comprised of the resource agencies and Unocal, and the SAP is comprised of three scientists with

expertise in biological research programs. These two panels oversee the selection and implementation of the research. Unocal is proposing to modify this condition to reflect the agreements made with the agencies on how to implement the condition requirements.

Assure Consistency Between Agency Permits

For the Guadalupe Restoration Project, Unocal has been working under 24 major permits and other regulatory directives from 10 different Federal, State, and local agencies. Table 9.1 provides a list of the major permits/regulatory directives that have been issued for the Guadalupe Restoration Project. These permits/regulatory directives contain approximately 1,200 conditions or requirements. A number of the conditions in the CDP/DP D890558D overlap with conditions or requirements in other agency documents. Unocal would like to modify a number of conditions to make sure that they are consistent with the other agency requirements. For example, CDP/DP D890558D requires that Unocal fence remediation sites within 500 feet of California red-legged frog habitat to exclude California red-legged frogs from the disturbance zone. However, the U.S. Fish and Wildlife Service (USFWS), which has jurisdiction over the California red-legged frog (CRLF) under the Endangered Species Act, must agree to the use of any fencing to control California red-legged frogs. Unocal is requesting this permit condition be changed to reflect the fact that fencing can be used only with USFWS agreement.

Over the past two years, Unocal has been working with the County of San Luis Obispo and California Coastal Commission staff, along with the other resource agencies, to develop the proposed permit condition modifications. There have been numerous meetings between all the parties to develop acceptable permit condition modifications that reflect the lessons learned over the past six years without changing the overall intent of the condition. The permit condition modifications that Unocal has proposed have been reviewed and agreed to by the County of San Luis Obispo and California Coastal Commission staff, along with the other resource agencies.

Table 9.1 List of Major Permits and Other Regulatory Directives for the Guadalupe Remediation and Abandonment Project

Agency*	Permit	# Cond
CDPB	CDP/DP D890558D	291
RWQCB	CAO 98-38	116
RWQCB	Resolution 98-04	45
RWQCB	General Waiver	17
RWQCB	Mid-Term Cleanup Order	15
APCD	PTO 598	60
APCD	PTO 350	35
APCD	PTO 521	22
APCD	Misc. Letters, etc.	7
CCC	CDP E-99-009	87
SWRCB	NPDES	76
EPA	UIC CA 197000001	83
ACOE	NWP 6	51

Agency*	Permit	# Cond
ACOE	NWP 38	44
ACOE	401 Water Quality Cert	18
ACOE	Letter of Permission	15
CDFG	2081-1999-018-3	38
DOG	Section 1776	8
USFWS	LCS BO	33
USFWS	CRLF 404	31
USFWS	CRLF BO	31
USFWS	Weden BO	25
USFWS	SPCC BO	17
USFWS	Raptor Protection	15
Total Conditions/Requirements		**1180**

*Note: CDPB = County Department of Planning and Building; RWQCB = Regional Water Quality Control Board; APCD = Air Pollution Control District; CCC = California Coastal Commission; SWRCB = State Water Resources Control Board; EPA = U.S. Environmental Protection Agency; ACOE = U.S. Army Corps of Engineers; DOG = Division of Oil and Gas; CDFG = California Department of Fish and Game; USFWS = U.S. Fish and Wildlife Service.

Table 9.2 provides a summary of the requested permit conditions changes, the reason for the proposed changes, and a discussion of the environmental impacts that would be associated with the proposed changes.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
E1	State that the requirements of the condition are complete.	These projects are complete, the areas restored, and associated excavation/construction permits issued by the Building Department have received a final inspection and been closed out	None. All of the requirements of the condition were completed consistent with the permit requirements.
E2	State that the requirements of the condition are complete.	All of the Emergency Permit activities have completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E3	State that the requirements of the condition are complete.	The sheetpile wall has been removed and all of the requirements of the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E4	State that the requirements of the condition are complete.	The 5X plume was excavated and the sheetpile wall removed. All of the requirements of the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E5	State that the requirements of the condition are complete.	The sheetpile has been removed. All of the requirements of the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E6	State that the requirements of the condition are complete.	The access road was washed away by the Santa Maria River during the 1998 El Niño Event.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E7	State that the requirements of the condition are complete.	The sheetpile has been removed. All of the requirements of the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E8	State that the requirements of the condition are complete.	The 5X plume was excavated and the extraction system removed. This requirement for an approved I&M Program for any pump and treatment system is also included in Condition F40.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E9	State that the requirements of the condition are complete.	The 5X plume was excavated and the wall removed. Requirements for an oil and fuel spill contingency plan are included in condition F38.	None. All of the requirements of the condition were completed consistent with the permit requirements.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
E10	Delete the condition.	Excavation of the C12 plume is also required by condition F1.	None. The requirement of the condition is covered by another condition in the permit.
E11	State that the requirements of the condition are complete.	A Habitat Restoration, Revegetation, and Monitoring Plan (HRRMP) that included the emergency sites was submitted by Unocal on 8/16/99 and approved by the agencies on 11/2/99. All of the requirements of the condition have been completed	None. All of the requirements of the condition were completed consistent with the permit requirements.
E12	Delete this condition. The requirements of this condition were added to condition F69.	Requirements were added to condition F69, which also contains restrictions for avoiding Western snowy plover and California least tern habitat during the breeding season.	None. The requirements of the condition were added to another condition in the permit.
E13	State that the requirements of the condition are complete.	Work at the 5X site is complete.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E14	State that the requirements of the condition are complete.	The sheetpile wall has been removed and the 5X area restored. All of the requirements of the condition have been completed	None. All of the requirements of the condition were completed consistent with the permit requirements.
E15	State that the requirements of the condition are complete.	The sheetpile wall has been removed. All of the requirements of the condition have been completed	None. All of the requirements of the condition were completed consistent with the permit requirements.
E16	State that the requirements of the condition are complete.	Completed prior to the implementation of CAO 98-38, and the same requirements are contained in condition F84.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E17	State that the requirements of the condition are complete.	The required funding was provided on 3/11/99.	None. All of the requirements of the condition were completed consistent with the permit requirements.
E18	Delete the condition.	The requirements of this condition are covered by condition F110.	None. The requirement of the condition is covered by another condition in the permit.
E19	Delete the condition.	The requirements of this condition are covered by condition F111.	None. The requirement of the condition is covered by another condition in the permit.
F1	Modify the condition to remove the start dates and reference to “stages” and to indicate what work has	The Stages and completion dates are no longer relevant and have been deleted. Numerous project elements have been completed and	None. The portions of the condition that have been modified cover all of the requirements of the condition that

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	been completed.	no longer need to be included: Biosparge at TB8 is installed and operating. Recovery systems at Compressor Plant, TB9 and Diluent Tank areas are installed and operational. Excavation of 5X, A2AN, LeRoy 3, LeRoy 6, A2A, A1/2X, 8X, C8, and B3 is complete and the areas restored. Assessment of the A13X site indicated that there is no sump material to excavate. An eco/phytoremediation system was installed at the C8 site for post-excavation treatment. After a 5-year period, the RWQCB will determine if a biosparge or other mechanical treatment system is required.	were completed consistent with the permit requirements.
F2	Modify the condition to remove the start dates.	The implementation dates are no longer applicable and have been deleted.	None. The removal of the start date does not affect the environmental impacts associated with this excavation.
F3	Modify the condition to indicate that the RWQCB may grant variances to the excavation criteria on a case-by-case basis.	The RWQCB has granted variances in the past to avoid major impacts to environmentally sensitive habitat or resources.	None. The variances are granted to avoid impacts to environmentally sensitive habitat or resources.
F5	Modify the condition to better clarify the intent. Clarify that consideration of alternative shoring methods for excavation sites are submitted to County staff for consideration and approval.	The revised language is intended to clarify that sheetpile locations accepted previously do not need to be re-approved. Decisions such as alternatives to excavation shoring are made at the County Department of Planning and Building staff level.	None. The proposed language changes do not affect the overall intent of the condition.
F6	Modify the condition to allow County Onsite Environmental Coordinator (OEC) to determine compliance with the conditions for field locations of post-excavation monitoring wells.	The OEC has been working with the County on approval of the location of post-excavation monitoring wells. As the County's field representative, the OEC should have the authority to determine compliance with the conditions for field activities.	None. The proposed language changes do not affect the overall intent of the condition.
F7	Modify the condition to indicate the required plan has been approved and that	Off-road access protocols were submitted to the County Department of Planning and	None. The proposed language changes do not affect the overall intent of the condition.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	only implementation is required. Clarify that botanists are approved by County Department of Planning and Building staff.	Building. They were approved on 4/21/99 and have been implemented since that time. The botanists at the site are approved by County Department of Planning and Building staff, not at the Director level; the condition should be worded accordingly.	
F8	Modify condition to remove the need for CDFG to review and approve the pilot studies.	California Department of Fish and Game/OSPR representatives have requested that the requirement for their review and approval of pilot studies be removed from this condition.	None. The proposed language changes do not affect the overall intent of the condition.
F9	Modify the condition to reflect the fact that "stages" are no longer relevant.	The project has progressed such that the references to "stages" are no longer relevant.	None. The proposed language changes do not affect the overall intent of the condition.
F11	Modify the condition to reflect the fact that the Implementation Plan and "stages" are no longer relevant. Modify the condition to allow the use of sand that is recovered from roads.	The project has progressed such that the references to the Implementation Plan and "stages" are no longer relevant. Clean sand is blown onto roads on the site via natural forces and periodically removed from the roads and placed in stockpiles. The RWQCB granted approval in October 2000 to use this sand without additional testing for TPH due to historical analytical results.	None. The proposed language changes do not affect the overall intent of the condition.
F12	Modify the condition to reflect information learned in the field from past excavations. Revise the grain size percentile requirements to reflect the industry standard and past clarification of the	Processing of grain size analyses for past excavations has demonstrated that grain size is typically not a concern due to the backfill sequence (replacement soil is placed in the bottom of the excavation and covered with the clean overburden from the site). In cases where the replacement soil must be placed on the surface, the sources listed in Condition 11 represent the most compatible material available. The 84th percentile is industry standard and has been accepted for all previously submitted grain size analyses. (The 16th and 84th	None. The proposed language changes do not affect the overall intent of the condition.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	requirement with the approving agencies.	percentiles are equidistant from the 50th percentile.)	
F14	Modify the condition to clarify that the RWQCB has jurisdiction over this determination.	The RWQCB determines remediation requirements for sumps on a case-by-case basis.	None. Only clarifies that the RWQCB is the lead agency for determining if sumps represent a threat to the environment and must be removed.
F18	Modify the condition to reflect the fact that "stages" are no longer relevant.	The project has progressed such that the references to "stages" are no longer relevant.	None. The proposed language changes do not affect the overall intent of the condition.
F19	Modify the condition to reflect the fact the Unocal has funded the County OEC. Add language to the condition to clarify the role of the County OEC	Funding for an independent project monitor was provided prior to Stage 1. Unocal continues to fund the County monitors on an ongoing basis; the wording of this Condition should be modified accordingly. Language from Condition F68.p was incorporated to clarify the role of the County monitor and the activities subject to potential monitoring oversight.	None. The proposed language changes do not affect the overall intent of the condition.
F21	Modify the condition to reflect the fact that "stages" are no longer relevant.	The project has progressed such that the references to "stages" are no longer relevant.	None. The proposed language changes do not affect the overall intent of the condition.
F23	Modify the condition to clarify that it applies to construction areas.	The revisions clarify that the erosion control measures are intended for construction areas.	None. The proposed language changes do not affect the overall intent of the condition.
F25	Modify the condition to remove the CCC from review and approval prior to issuance of building permit.	All parties have agreed that it is the responsibility of the County Building Department to review the sheetpile wall structural design prior to issuance of a building permit.	None. The proposed language changes do not affect the overall intent of the condition.
F26.c	State that the requirements of the condition are complete.	Work at the 5X site is complete.	None. All of the requirements of the condition were completed consistent with the permit requirements.
F29	State that the requirements of the condition are complete.	Work at the 5X site is complete.	None. All of the requirements of the condition were completed consistent with the permit requirements.
F30	Modify the condition to reflect the fact that Unocal has a site-wide NPDES permit.	Unocal has a site-wide NPDES Construction Storm Water Activity Permit, not an individual NPDES permit for each site as the deleted wording implies.	None. The proposed language changes do not affect the overall intent of the condition.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
F32	Modify the condition to clarify that monitoring wells/piezometers must be installed adjacent to wetlands if required by any of the listed agencies or the OEC.	To date, monitoring wells/piezometers adjacent to wetlands have shown no discernible drawdown during pumping. In the future, the need for monitoring wells or piezometers will be considered on a case-by-case basis and installed if required.	None. The proposed language changes do not affect the overall intent of the condition. The change provides the ability for the agencies with jurisdiction to make a case-by-case determination based on specific field conditions.
F33	Modify the condition to clarify that the RWQCB and CDFG will determine the need for surface water monitoring.	Sampling requirements are currently determined by the RWQCB or CDFG/OSPR and are subject to change based on past data and future information needs. There have been past conflicts between this condition and the requirements of RWQCB and CDFG/OSPR.	None. The proposed language changes do not affect the overall intent of the condition. The change provides the ability for the agencies with jurisdiction to make a case-by-case determination based on specific field conditions.
F34	Modify the condition to allow the RWQCB to determine the need for additional site assessment.	The RWQCB determines the adequacy of soil assessment, and requests additional assessment if more information is needed consistent with their permits.	None. The proposed language changes do not affect the overall intent of the condition. The change provides the ability for the agencies with jurisdiction to make a case-by-case determination based on specific field conditions.
F35	Modify the condition to clarify that the RWQCB to determine if compounds designed to enhance biological degradation are needed at the excavation sites.	The RWQCB has authority over ground water and approves the type and quantity of compounds added to the ground water.	None. The proposed language changes do not affect the overall intent of the condition. The change provides the ability for the agencies with jurisdiction to make a case-by-case determination based on specific field conditions.
F36	Modify the condition to reflect the fact that Unocal has a site-wide NPDES permit with guidelines for turbidity monitoring.	The site-wide NPDES permit has guidelines for turbidity monitoring during construction.	None. The proposed language changes do not affect the overall intent of the condition.
F37	Modify the condition to reflect the fact that Unocal has a site-wide NPDES permit that addresses erosion control methods.	Berms are not the only method for erosion control. The most effective Best Management Practices from the site-wide NPDES permit should be used for each specific location.	None. The proposed language changes do not affect the overall intent of the condition.
F38, F38.d	Modify the condition to reflect that an Oil and Fuel Spill Contingency Plan has been approved by the	Excavations are the only activities remaining that need an Oil and Fuel Spill Contingency Plan. An Oil and Fuel Spill Contingency	None. The proposed language changes do not affect the overall intent of the condition.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	agencies and that this plan should be submitted to the agencies annually for review and approval.	Plan was previously approved by the County, Coastal Commission, and CDFG/OSPR. These agencies would like the plan updated and submitted for review and approval on an annual basis.	
F38a,b	Modifications clarify that the requirement is to provide documentation of worker training and contractor/response equipment availability.	To clarify that the intent is for Unocal to provide documentation on the training for workers and availability of qualified contractors and response equipment.	None. The proposed language changes do not affect the overall intent of the condition.
F38.c	Modify the condition to allow the use of the best containment method for the specific conditions.	The listed oil spill equipment provides examples. The best technique should be used for each case.	None. The proposed language changes do not affect the overall intent of the condition.
F38e	Delete the condition.	The sites listed are complete if near the ocean and those still to be excavated would not cause a release to the ocean.	None. The intent of this condition has been satisfied, as the listed sites near the ocean have been excavated and those still to be excavated are not in close enough proximity to pose a threat of release to the ocean.
F38.f	Modify the condition to reflect the fact that Unocal has a site-wide NPDES permit that addresses methods to prevent releases from construction equipment and materials into surface waters.	Berms are not the only method for preventing releases into surface waters from construction equipment/material. The most effective Best Management Practices from the site-wide NPDES permit should be used for each specific location.	None. The proposed language changes do not affect the overall intent of the condition.
F38g	Modify the condition to better state the intent for proper notification and to clarify other requirements in the event of a spill.	The proposed changes clarify notification and other requirements for a release of contaminated material.	None. The proposed language changes do not affect the overall intent of the condition.
F40	Reference to the 5X well has been removed.	The 5X site has been excavated and the extraction wells have been removed.	None. The proposed language changes do not affect the overall intent of the condition.
Preamble to Conditions 41 – 61	The added language clarifies two points: • Conditions 41 – 61 are under the jurisdiction of, and will be implemented if directed by, the RWQCB.	Clarification has been added regarding Conditions 41 through 61. Conditions 41 through 61 involve activities that are under the authority of the RWQCB. Conditions 45 through 61 were intended for implementation with a biosparge system.	None. The proposed language changes clarify the intent of the conditions.

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	Conditions 45 – 61 apply to biosparge systems.		
F41	Modify condition to allow of the RWQCB to determine containment methods.	The type of containment system used to control plume migration is under the authority of the RWQCB and an HDPE wall is not always the required method. Biosparging has been required in a number of locations by the RWQCB.	None. The proposed language changes do not affect the overall intent of the condition. It just allows for the use of various control systems as directed by the RWQCB.
F42	Modify condition to clarify that monitoring behind sheetpile wall does not apply to temporary walls that are used for excavations and to allow the RWQCB to determine monitoring requirements for sheet pile walls intended for long-term use.	Clarifies that sheet pile wall used for excavation sites is temporary and does not require the monitoring of groundwater elevation and that groundwater behind walls intended for long-term use will be monitored if required by the RWQCB.	None. The proposed language changes do not affect the overall intent of the condition. It clarifies the requirements for temporary sheet pile walls used for excavation and allows the RWQCB to determine monitoring requirements for sheet pile walls intended for long-term use.
F44	Modify the condition to reflect the results of scientific work done by the agencies and scientists.	The proposed changes reflect terms and findings from the Mediation group, a team of scientific experts, and agency representatives working collaboratively to make determinations on issues such as the potential for migration of TPH between the dune sand aquifer and the confining unit.	None. The work done on this issue has reduced the concern raised in the original EIR about migration of TPH between the dune sand aquifer and the confining layer. The proposed condition change still keeps the basic intent of the condition, but incorporates the results of scientific studies completed and ratified since the original conditions were drafted
F47	Modify the condition to make it clear that the RWQCB would have jurisdiction over the design of any landfarm at the site.	If a landfarm is implemented, the RWQCB will have the authority to issue Waste Discharge Requirements (WDRs) for the facility design.	None. The proposed language changes do not affect the overall intent of the condition.
F54	Modify the condition to make it clear that the RWQCB would determine the need for establishing baseline dissolved oxygen levels prior to biosparging.	The RWQCB is the agency responsible for making the determination on whether a survey of baseline dissolved oxygen levels is necessary prior to biosparge piping installation.	None. The proposed language changes do not affect the overall intent of the condition.
F56	Modify the condition to eliminate the requirement for continuous monitoring of air injection rates and volumes.	Based upon a discussion with various agencies, it may not be feasible to conduct continuous monitoring, and continuous monitoring is not needed to detect a release.	None. The proposed language changes do not affect the overall intent of the condition.

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
Introduction to Onshore Biological Resources	The added language clarifies that many of the changes in this section were made to update the status of the requirement. Many of the required plans and other documents were completed and are now being implemented. The language also updates the status of processing for permits associated with listed species required under the Endangered Species Act and Section 2081 of the California Fish and Game Code.	Changes in the Onshore Biological Resources conditions were made to reflect the past tense of an approved plan unless otherwise noted. Unocal submitted a Biological Assessment for the entire Guadalupe Restoration Project to the USACOE in July 2002 and the USFWS is currently processing a Biological Opinion, but an HCP could be necessary in the future. The CDFG 2081 has been issued, language changed to show past tense.	None. The proposed language changes do not affect the overall intent of the condition.
F62	Modify the condition to indicate that the Comprehensive Management and Coordination Plan has been approved and is being implemented.	The Comprehensive Management and Coordination Plan has been approved by the County Department of Planning and Building, the Executive Director of the Coastal Commission, and appropriate resource agencies, and this approved plan is being implemented by Unocal.	None. The proposed language changes do not affect the overall intent of the condition.
F62g	Modify the condition to make it clear that sites are not incorporated into the Habitat Restoration, Revegetation and Monitoring Plan (HRRMP), but that restoration at the sites will be consistent with the requirements of Condition F64, which outlines the requirements of the HRRMP. As required by Condition F64, the HRRMP was submitted and approved by the applicable agencies.	The requirements of Condition F64 were incorporated into the Habitat Restoration, Revegetation, and Monitoring Plan (HRRMP), which was approved by the agencies as a guidance document and is currently being implemented. The revisions clarify that additional sites are not added to the HRRMP, but the guidelines of the HRRMP are used for all restoration activities.	None. The proposed language changes do not affect the overall intent of the condition.
F62i	Modify the condition to make it clear that when areas are substantially altered, they are resurveyed and the results presented in the quarterly ecological monitoring report (QEMR).	The changes for this condition have been included to reflect that the initial reporting was completed and submitted to the agencies in the Habitat Inventory and Ecological Database (HIED) and to clarify what areas will be resurveyed for	None. The proposed language changes do not affect the overall intent of the condition.

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	The survey data is submitted annually to the listed agencies in the third quarter "Quarterly Ecological Monitoring Reports" (QEMR).	the annual Habitat Inventory and Ecological Database (HIED) update and where and when the resurveyed data must be submitted to the listed agencies..	
F62m	Modify the condition to indicate that the Sensitive Species Management Plan has been approved and is being implemented.	The April 2003 Sensitive Species Management Plan has been approved by the listed agencies and is currently being implemented.	None. The proposed language changes do not affect the overall intent of the condition.
F62o	Specifies the quarterly monitoring reports are "Quarterly Ecological Monitoring Reports" (QEMR).	All of the agencies have agreed that the Quarterly Ecological Monitoring Report (QEMR) serves as the quarterly progress report referenced in this condition.	None. The proposed language changes do not affect the overall intent of the condition.
F63	Modify the condition to state that soil stabilization and erosion control are not addressed in a separate plan, but elements of a Soil Stabilization and Erosion Control Program that are guidelines included in other plans that cover specific activities at the site. Modify the condition to allow the OEC to make field approvals for minor, routine ground disturbance activities.	The term "Program" reflects guidelines integrated into plans. The Soil Stabilization and Erosion Control Program is addressed in the Comprehensive Management and Coordination Plan, the Habitat Restoration, Revegetation, and Monitoring Plan, Site-Specific Restoration Plans, and Construction Plans. Soil Stabilization and erosion control measures implemented for each activity, such as restoration, are integral to, and included in, each plan. Guidelines provided in the program are included in each of the listed plans, all of which require approval. As the County's field representative, the OEC should have the authority to approve minor, routine ground disturbance activities.	None. The proposed language changes do not affect the overall intent of the condition or the way the condition is currently being implemented with the agreement of the approving agencies.
F64	Modify the condition to indicate that the Habitat Restoration, Revegetation, and Monitoring Plan has been approved and is being implemented. Modify the condition to	The Habitat Restoration, Revegetation, and Monitoring Plan has been approved by the County Department of Planning and Building, the Executive Director of the Coastal Commission, and appropriate resource agencies. This approved plan is being	None. The proposed language changes do not affect the overall intent of the condition. The removal of the specific requirements for M4 and L11 do not affect the environmental impacts associated with these excavations, since they were only

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	eliminate the specific requirements for M4 and L11 and the associated timing. Modify the condition to allow for the development of Functionally Equivalent Site-Specific Restoration Plans (FESSRP) for minor ground-disturbing activities such as cultural test pits, assessment activities, and decommissioning operations. Indicate that the FESSRP has been approved by the agencies, and that the County OEC is responsible for monitoring compliance with the FESSRP at specific sites. Clarifies the different plans that may be applicable to ground disturbances and requires that all of them have the information listed in the condition.	implemented by Unocal. Originally, M4 and L11 were scheduled for excavation prior to the development and approval of the Habitat Restoration, Revegetation, and Monitoring Plan. The site conditions and resulting priorities changed, allowing these excavations to be delayed. This delay was approved by the RWQCB. Restoration of these two sites is now being addressed in the Wetland Restoration Mitigation Plan being developed by the Restoration Working Group. All of the resource agencies agreed that developing Site-Specific Restoration Plans (SSRPs) for minor ground disturbance activities did not make sense. The agencies determined that it would be more efficient to have restoration plan provision for minor disturbances that is functionally equivalent to a SSRP, referred to as a FESSRP, which incorporates the guidelines in the agency-approved SSRP but allows for a simplified review and approval conducted in the field by the OEC. The FESSRP protocol was approved by the agencies and has been implemented in the field for the last two years. Approximately 20 FESSRPs have been approved by the County OEC since agency approval of this protocol. Clarifies that three types of plans, the Habitat Restoration, Revegetation and Monitoring Plan, Site-Specific Restoration Plans and Functionally Equivalent Site-Specific Restoration Plans, are potentially applicable and each plan that is prepared shall contain the required information.	included to allow excavation early in the schedule. The conditions requiring expedited excavation of these sites changed and the excavations will be conducted in the future, after compliance with all the preconstruction requirements included elsewhere in the permit. Use of the FESSRP process meets the intent of the condition to assure that all disturbed sites are resorted consistent with an approved restoration plan.

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
F64ai	Modify the condition to clarify the survey requirements for wildlife and botanical surveys. Modify the condition so that the wildlife surveys require detailed information during surveys for the "sensitive species." Modify the condition to allow the botanical surveys to be conducted up to 12 months prior to disturbance. Modify the condition to require aerial photograph up to 12 months prior to the disturbance.	To provide clarity between the requirements for a wildlife survey versus a botanical survey. To require more detailed surveys for sensitive wildlife species. The term "sensitive" is being proposed to clarify that detailed information on wildlife will be gathered for sensitive species. For other wildlife species, recorded information will be primarily presence/absence. For a number of botanical species surveys have to be conducted at a specific time of year. Depending upon when the disturbance is scheduled to occur, it may be necessary to conduct the survey up to 12 months prior to the disturbance. The aerial photograph timing is consistent with the accepted practice of taking one aerial photograph of all the sites once a year.	None. The proposed language changes do not affect the overall intent of the condition. The requirement is clarified regarding detailed survey information for sensitive species. The extension of the time for botanical surveys assures that the vegetation is surveyed at the appropriate time for each of the species.
F64.a.ii	Modify the condition to remove the requirement to maintain wetland soil borings.	Maintaining representative wetland soil borings is not necessary because the wetlands are a result of groundwater daylighting in a dune swale, not a result of perched water over confining soils.	None. The requirement is applicable to perched wetlands over confining soils, which is not applicable to wetlands at the site. The proposed language changes do not affect the overall intent of the condition.
F64av	Modify the condition to make the construction monitoring plan requirements part of the Habitat Restoration, Revegetation, and Monitoring Plan, Site-Specific Restoration Plan and/or grading plans. Modify the condition to indicate that the ground surface will be restored to the contours in the agency	The Habitat Restoration, Revegetation, and Monitoring Plan, Site-Specific Restoration Plans, and grading plans are specific to each site and allow all of the relevant information to be included in one plan that is reviewed and approved by the agencies. These plans include all of the final grading and contour requirements for the site. The post-excavation specifications for each site are provided in the	None. The proposed language changes do not affect the overall intent of the condition. The condition assures that all relevant information consolidated into fewer plans for each site. The revision for post-excavation ground topography allows the agencies to determine the most appropriate restoration specifications for each site. The changed language makes it clear that the County OEC is responsible for reviewing and

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	approved Site-Specific Restoration Plan and/or grading plan for the site. Modify the condition to allow the County OEC to approve the post-construction monitoring report.	Site-Specific Restoration Plan and/or grading plan which require agency approvals prior to the start of excavation. The various resource agencies approve the Habitat Restoration, Revegetation, and Monitoring Plan, Site-Specific Restoration Plan and/or grading plans. The County OEC is then responsible for reviewing the post-construction report and determining if the final construction is consistent with the plan approved by the agencies. The County OEC reports the findings on the post-construction monitoring to the resource agencies.	approving the post-construction report.
F64avi	Modify the condition to make it clear that the stabilization requirements do not apply just to the dunes, but also to other areas of the site. Eliminate the need for a dune stabilization plan, since the items listed in the condition need to be included in each of the approved Restoration Plans.	This condition is not intended to solely address dunes, but dune stabilization is included in the listed erosion control measures that are part of the Soil Stabilization and Erosion Control Program required by Condition 63. Soil and sand stabilization is addressed in the approved Restoration Plans. Monitoring of stabilization and erosion is done at all restoration sites as specified in the approved Restoration Plans. Corrective actions are taken as necessary and reported in the Quarterly Ecological Monitoring Report.	None. The proposed language changes do not affect the overall intent of the condition. The plan requirements associated with the condition are included as part of the approved Restoration Plans and are also addressed in the Soil Stabilization and Erosion Control Program.
F64avii	Modify the condition to allow the use of indicator wildlife species for determining population characteristics and habitat use. Require this work to be done by a qualified biologist. Modify the condition to require identification of the responsible biologist in each restoration plan and	Given that wildlife is not always present at the sites during the time of the surveys, it is appropriate to use indicator wildlife species to determine population characteristics and habitat use. This approach is more conservative in that it does not require a specific wildlife species to be present at the site during the survey for it to be assumed that they use the site at some time of the year. These types of surveys require the use of a	None. The proposed language changes do not affect the overall intent of the condition. The change ensures that wildlife species are adequately documented at each restoration site. The change requiring identification of the restoration biologist allows agency review and approval of the person responsible for the field work, an

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	remove the requirement to identify facilities and staff.	qualified biologist. It is not feasible to identify future facilities and staff for a restoration site, as the facilities will be revised as needed and there will be turnover in the staff. It was determined by the agencies that the biologist responsible for the field work is an important factor for success of a restoration site.	important factor of restoration success, along with the other elements of the restoration plan.
F64aviii	Modify the condition to use the word "success" instead of "performance."	The Restoration Working Group (RWG) for the Guadalupe Project has requested that the word "success" be used to define the criteria that will be used to determine if requirements are being met at restoration sites.	None. The proposed language changes do not affect the overall intent of the condition.
F64aix	Modify the condition to make it clear that the County approved monitor will assist in the interim monitoring activities. Modify the condition to make it clear that the County monitor is responsible for directing the final success monitoring to determine if Unocal has met the success criteria. Modify the condition to clarify when restoration efforts are considered complete and what activities are allowed at the site during the two-year verification period.	Unocal has responsibility for interim monitoring until such time as the success criteria are met. During the interim monitoring, the County independent performance monitor will be apprised of upcoming monitoring activities and will be allowed to participate in the interim monitoring activities. When Unocal has met the success criteria, the independent performance monitor will direct the final performance monitoring. Clarifies when restoration efforts are complete and that weed control is acceptable during the two-year verification period.	None. The proposed language changes do not affect the overall intent of the condition. The changes just clarify the various roles of Unocal and the County monitors and the details for completion and verification of each restoration site. .
F64b	Modify the condition to require "sensitive species" surveys immediately prior to construction.	Unocal is required to conduct preconstruction surveys within 12 months of the construction to assure that they are conducted at the proper time of year. The additional requirement of surveys immediately prior to construction is to determine if there have been any changes with regard to sensitive species between the initial	None. The proposed language changes do not affect the overall intent of the condition. The change requires additional surveys to assure proper documentation of sensitive species.

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
		survey and construction.	
F64bii	Modify the condition to make it clear that the Salvage, Propagation, and Replanting Program elements are part of the restoration plans.	Clarifies that the Salvage, Propagation, and Replanting Program elements will be incorporated into the restoration plan submitted to and approved by the agencies or County OEC.	None. The proposed language changes do not affect the overall intent of the condition.
F64biii	Modify the condition to allow Unocal and the County OEC to determine over what area sensitive species should be relocated on a case-by-case basis. Modify the condition to make it clear that the use of barriers for controlling wildlife needs to be approved by the resource agencies. Modify the condition to remove reference to the Salvage, Propagation, and Replanting Program, since this is covered in Condition F64bii. Modify the condition to make it clear that the mitigation plan for sensitive species shall be addressed as part of the restoration plans that are approved by the various resource agencies. Modify the condition to clarify that sensitive species surveys shall be consistent with the agency-approved Sensitive Species Management Plan.	Sensitive species should only be relocated from areas where they could be impacted by construction activities and not from a fixed area around each restoration site. Past experience at the field has shown that the use of barriers for controlling wildlife can do more harm than good. This has been particularly true with the California Red-Legged Frog. Condition F64bii discusses the Salvage, Propagation, and Replanting Program, which is now included in the restoration plans. These plans are approved by the various resource agencies. The appropriate place for the mitigation plan is in each of the restoration plans, which are approved by the various resource agencies. Clarifies that surveys will be consistent with the Sensitive Species Management Plan. This plan, which addresses protocol and approach for sensitive species surveys at the site, was approved by SLO County, the Coastal Commission, USFWS, and CDFG.	None. The proposed language changes do not affect the overall intent of the condition. The proposed change will limit the potential impacts to sensitive species that could result from relocation activities. The proposed restructuring of the condition language makes it clear that all of the requirements must be addressed in each of the restoration plans, which are approved by the various resource agencies. The reference to the agency-approved Sensitive Species Management Plan clarifies the protocol for sensitive species surveys at the site.
F64c	Modify the condition to make it clear that top soil removal and reuse shall be addressed as part of the	Clarifies that the guidelines will be developed in consultation with resource agencies and revegetation specialists. Topsoil removal and	None. The proposed language changes do not affect the overall intent of the condition. The proposed restructuring of the

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	restoration plans that are approved by the various resource agencies.	reuse is not a separate plan, but is incorporated into one or more agency-approved plans.	condition language makes it clear that all of the requirements must be addressed in each of the restoration plans, which are approved by the various resource agencies.
F64f	Modify the condition to make it consistent with Condition F64a that requires annual aerial photographs of the site.	The annual site-wide aerial photo used in the QEMR meets the intent of this requirement. This change requires Unocal to take annual aerial photographs of the site to meet all of the aerial photo requirements in the permit consistent with Condition F64.a.	None. The proposed language changes do not affect the overall intent of the condition.
F65	Modify the condition to indicate that the HRRRP was submitted as required and is currently being implemented. Modify the condition to reflect an agreement between Unocal, San Luis Obispo County, and California Coastal Commission staff on the process that should be used to implement the research requirements addressed by this condition. This agreement requires the formation of a Stakeholder Advisory Committee (SAC) and Scientific Advisory Panel (SAP). The SAC is made up of representatives from the County of San Luis Obispo, the California Coastal Commission, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and Unocal. The SAP is made up of scientists selected by the SAC. Modify the condition to	Unocal submitted a HRRRP in September 1999 and April 2001 for La Graciosa thistle, California red-legged frog and Western snowy plover. The various resource agencies and Unocal had a number of meetings to discuss how best to implement the requirements of this condition to assure that appropriate research would be conducted for sensitive species that were significantly impacted by the project. The results of these meetings were the formation of the Stakeholder Advisory Committee (SAC) and the Scientific Advisory Panel (SAP). These groups are responsible for identifying the research needs for the sensitive species and selecting the research programs that will be conducted at the site. Unocal is responsible for conducting the research, with oversight from the SAC and SAP. Some of the research projects that have been identified by the SAP/SAC are designed to be implemented as part of a restoration project.	None. The proposed language changes do not affect the overall intent of the condition. The changes to this condition are intended to define and improve the process that is used to identify, design and implement the required research.

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	allow some of the research to occur as part of the restoration effort as directed by the SAP and SAC.		
F65a	Modify the condition to reflect the direction from the SAC/SAP to have consolidated plans for the sensitive species.	The change in the condition language clarifies that the research plans for sensitive species may be consolidated as directed by the SAP and SAC.	None. The proposed language changes do not affect the overall intent of the condition.
F65b	Modify the condition to make it clear that Unocal shall enter into a memorandum of understanding with the USFWS and/or CDFG if required by these agencies.	For a number of the proposed research topics USFWS and CDFG would not require a memorandum of understanding.	None. The proposed language changes do not affect the overall intent of the condition.
F65e	Modify the condition to remove the requirement for an 18-month duration.	The proposed research programs may have varying durations that could be longer than 18 months. The duration of the research will be determined by the SAC/SAP.	None. The proposed language changes do not affect the overall intent of the condition.
F65f	The requirements of this section were moved to another part of the condition and expanded to provide more detail.	The requirements of this section have been moved to the first part of Condition F65, and expanded to address the formation of the SAC/SAP.	None. The proposed changes do not affect the overall intent of the condition, and are intended to clarify the process that is used to identify, design and implement the research.
F65g	Modify the condition to require annual progress reports on the research and to allow Unocal 60 days from the end of the year to submit the progress reports to the SAC.	With the formation of the SAC/SAP and regular meetings of these groups, there was no longer a need for a progress report after the first 6-months; it was determined that annual reports were sufficient. Also, the SAP will be actively involved in monitoring the research on a regular basis. The request for 60 days allows adequate time for the Scientific Advisory Panel to review and comment upon the Progress Report before it is submitted.	None. The proposed language changes do not affect the overall intent of the condition.
F65h	This section has been deleted and the requirements incorporated into another section.	All of the reporting requirements for the research in this section have been incorporated into Condition F65g.	None. The proposed language changes do not affect the overall intent of the condition.
F67	Modify the condition to remove reference to the exception for M4 and L11,	Originally, M4 and L11 were scheduled for excavation prior to the processing of the Habitat	None. The proposed language changes do not affect the overall intent of the condition.

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	and to make it clear that the Wetland Restoration and Mitigation Plan and Site-Specific Restoration Plans are being developed in consultation with the various resource agencies.	Restoration, Revegetation, and Monitoring Plan. The site conditions and resulting priorities changed, allowing these excavations to be delayed; they are now included with all the other wetland restoration projects and have been addressed as part of the Habitat Restoration, Revegetation, and Monitoring Plan. The Wetland Restoration and Mitigation Plan and Site-Specific Restoration Plans are being prepared in consultation with the Restoration Working Group, which includes San Luis Obispo County, USFWS, ACOE, CDFG, and CCC.	
F67b	Modify the condition to delete the requirement for a less-than-5% slope and to include language that specifies a gradual transition to upland conditions.	In developing the wetland restoration plans it was found that in some instances the 5% slope was too restrictive to achieve the desired design goals for the wetland.	None. The proposed language changes do not affect the overall intent of the condition, which is to assure that the restored wetlands would provide for diverse habitat associations. By using a requirement for gradual transition to upland conditions, the restored wetlands will be able to support more diverse habitat associations in smaller construction areas.
F67c	Modify the condition to eliminate the reference to exposure thresholds for diluent, and to require that the Site-Specific Restoration Plans show the infrastructure that will be used to monitor ground water at the site after restoration. Require the reporting to be included in the quarterly ground water monitoring reports.	The Site-Specific Restoration Plans need to show the physical infrastructure that will be installed for future monitoring. The Screening Level Ecological Risk Assessment, ratified by the RWQCB, CDFG, USFWS, and Unocal, did not identify specific exposure thresholds. CDFG and USFWS are not proposing to establish thresholds for diluent. The issue of diluent exposure will be handled on a site-by-site basis. Water monitoring is reported in the Quarterly Groundwater Monitoring Report distributed to all the listed agencies.	None. The proposed language changes do not affect the overall intent of the condition, which is to assure that water quality is monitored at the restored sites and that the monitoring data is reported to the agencies. For some of the wetlands that are to be restored, the adjacent habitats will be needed to provide a protective buffer around the restored wetland, and as such will need to have a set of success criteria.
F67d	Modify the condition to make it clear that success criteria for the habitats	For some of the wetlands that are to be restored the adjacent habitat will be needed to provide a	None. The proposed language changes do not affect the overall intent of the condition, which is

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	adjacent to restored wetlands will need to be included in the Site-Specific Restoration Plans.	protective buffer around the restored wetland, and, as such, will need to have a set of success criteria.	to assure that there is a buffer area of native vegetation around the restored wetland.
F68b	Modify the condition to allow for alternative posting sites for closure information.	Allows flexibility to post information in the most appropriate location, such as the bulletin board at the front gate where the largest numbers of contractors and workers are likely to see the postings.	None. The proposed language changes do not affect the overall intent of the condition.
F68d	Modify the condition to require that the off-road vehicle trails be initially surveyed and then they must be marked, unless the County OEC determines that marking is not necessary.	Based upon the initial survey, the ORV trails were marked on maps. ORV trails will also be marked in the field, unless the County OEC determines that they are clearly visible to Prevent the ORVs from leaving the approved trail.	None. The proposed language changes do not affect the overall intent of the condition.
F68e	Modify the condition to include restrictions on time and or season of use of the ORV trails. The language of the conditions has been modified to make it clear that for trails within 200 feet of wetlands or known sensitive species that they need to be surveyed prior to or during use.	Some of the ORV trails are near sensitive species habitats and need to have time or seasonal restrictions on them to avoid potential impacts to these species. These revisions emphasize that trails in proximity to sensitive habitats require more rigorous monitoring than others, and that escorts are required to accompany personnel utilizing them.	None. The proposed language changes do not affect the overall intent of the condition.
F68f	Modify the condition to eliminate the reference to “stages” and to allow the County OEC to approve the exclusion plans.	The reference to “stages” is no longer relevant to the project. The County OEC, who represents the various resource agencies in the field, is most familiar with the site and the locations of the sensitive species.	None. The proposed language changes do not affect the overall intent of the condition.
F68j	Modify the condition to require that sensitive species be shown on drawings and mark them on site, as required by other parts of Condition 68.	Clarifies the interpretation of labeling requirements on drawings. Allows biologically sensitive areas to be indicated on drawings by specific type (wetlands, beach spectaclepod population, etc.).	None. The proposed language changes do not affect the overall intent of the condition.
F68k	Modify the condition to allow the County OEC to determine in consultation with Unocal what, if any, foreign material should be	The decisions regarding foreign debris removal need to be made in the field on a case-by-case basis as the removal is underway, and therefore, should be handled by the	None. The proposed language changes do not affect the overall intent of the condition.

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CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	left at a remediation site. Modify the condition to state that the post-construction contours should be consistent with what was approved by the agencies in the Site-Specific Restoration Plans and grading plan.	County OEC, who represents the various resource agencies. Prior to remediation, sites may have man-made features, such as well pads, that should not be reconstructed, or the area may be restored to another habitat type, such as a wetland. The contours of the restored site are determined in the Site-Specific Restoration Plans and grading plan approved by the agencies for each site.	
F68l	Modify the condition to require that the off-road vehicle trails be marked, unless the County OEC determines that marking is not necessary. Modify the condition to allow Unocal and the County OEC to determine the frequency of surveys required for the ORV trails.	ORV trails will be marked in the field unless the OEC determines that they are clearly visible, as discussed for Condition 68.d. Currently all of the ORV trails are surveyed at least once every three years. ORV trails near sensitive species are surveyed prior to or during every use. The wording change clarifies that Unocal, in cooperation with the County OEC, will determine the frequency of surveying the ORV trails on a case-by-case basis.	None. The proposed language changes do not affect the overall intent of the condition.
F68n	Modify the conditions to restrict equipment, vehicles, or personnel from entering any designated exclusion area or area designated by the County OEC as sensitive species habitat, unless approved by the County OEC and appropriate resource agencies.	Any needs to enter designated exclusion areas or sensitive species habitat are reviewed on a case-by-case basis with the County OEC and appropriate resource agencies to determine necessity and specific procedures before approval and implementation.	None. The proposed language changes do not affect the overall intent of the condition, which is to protect sensitive species from impacts associated with equipment and vehicle movements.
F69	Modify the condition to include the sign requirements that are in condition E12. Modify the condition so that the access requirements are consistent with the USFWS biological opinion.	Sign requirements were moved from Exhibit E, Condition 12. Unocal's Biological Opinion allows access to the beach prior to September 15 if the USFWS confirms that there is data to support the end of the breeding season.	None. The proposed language changes do not affect the overall intent of the condition.
F70	Modify the condition to be consistent with the agency-approved protocol that is	Revised language is consistent with the protocol approved by the County and the OEC, which is	None. The proposed language changes do not affect the overall intent of the condition.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	being used at the site.	currently being used. The biologist does not work under the direction of the County OEC, but is determined by the approving agencies to be qualified to conduct the work in consultation with the County OEC.	
F75b	Modify the condition to be consistent with the agency-approved protocol that was adopted by USFWS, which has authority over the California red-legged frog.	Revised language for approving biologists to conduct California red-legged frog surveys is consistent with the agency-approved protocol currently being used. The biologist does not work under the direction of the County OEC, but is determined by the approving agencies in consultation with the County OEC to be qualified to work independently.	None. The proposed language changes do not affect the overall intent of the condition.
F75c	Modify the condition to allow the USFWS to make the final determination regarding the use of fencing for California red-legged frogs if they feel it is not in the best interest of the species.	Fencing is not necessarily the best exclusion method, since it may expose California red-legged frogs (CRLF) to predators. The USFWS has jurisdiction over actions involving CRLFs under the Endangered Species Act, and its representatives are best suited to make case-by-case decisions regarding fencing. In the past, the USFWS has had concerns about the use of fencing.	None. The proposed language changes assures that impacts to California red-legged frogs is minimized to the maximum extent feasible.
F76	State that the requirements of the condition are complete.	Work at the 5X site is complete.	None. All of the requirements of the condition were completed consistent with the permit requirements.
F77	Modify the condition to allow the County OEC to make determination on a case-by-case basis as to what special measures are needed to protect the public from equipment and activities at the site.	Some project elements are conducted in the interior areas of the site, where public exposure is not anticipated. For project areas that could be subject to trespassing and vandalism, fencing may not provide the most effective prevention. The proposed revisions provide flexibility to work with the County OEC to implement the most practical and effective measures to warn and/or protect the public and project area.	None. The proposed language changes do not affect the overall intent of the condition. The change provides flexibility to the County in implementing this measure.
F81	Modify the condition to indicate that paint color has	A paint color was selected by a licensed architect and approved by	None. The proposed language changes do not affect the overall

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
	been approved and is being implemented.	the County Department of Planning and Building on 2/22/00. This color is currently in use at the site.	intent of the condition.
F83	Modify the condition to indicate that the Emission Reduction Plan has been approved and is being implemented.	The Dust Control Plan was approved by the SLO APCD on 10/21/99 and has been implemented at the site.	None. The proposed language changes do not affect the overall intent of the condition.
F84 and 84a	Modify the condition to indicate that the Emission Reduction Plan has been approved and is being implemented and to replace the NOx reduction measures with current standards.	The Emission Reduction Plan was approved by the SLO APCD on 3/8/99 and has been implemented at the site. The NOx reduction measures in 84.a require technology that is outdated and has been determined to increase emissions, not reduce them. The proposed U.S. EPA Tier 1 standards are consistent with the current reduction requirements and technology.	None. The proposed language changes do not affect the overall intent of the condition.
F86	Modify the condition to indicate that the Emission Reduction Program has been approved and is being implemented.	The Emission Reduction Program was approved by the SLO APCD on 11/16/98 and has been implemented at the site.	None. The proposed language changes do not affect the overall intent of the condition.
F87	Modify the condition to make it clear that SLO APCD would determine the level of emission control in the event that thermal treatment of material is needed at the site. Modify the condition to make it clear that additional mitigation would only be required if the emissions exceeded the SLO APCD significance thresholds.	The best available technology would be implemented for emission controls if thermal treatment is implemented. Mitigation measures will be needed only if significant thresholds are exceeded. The SLO APCD has authority over air monitoring and would approve the monitoring program.	None. The proposed language changes do not affect the overall intent of the condition. The 1998 EIR found that mitigation for air emissions associated with thermal treatment was only needed if the SLO APCD thresholds were exceeded. The language change makes the condition consistent with the 1998 EIR.
F89	Modify the condition to make it clear at the SLO APCD would approve the use of emission control device.	The SLO APCD is the agency responsible for making any determination with regard to the need for and type of emission control devices.	None. The proposed language changes do not affect the overall intent of the condition.
F90	Modify the condition to indicate that the Odor Control Plan has been approved and is being implemented.	The Odor Control Plan was approved by the SLO APCD on 10/21/99 and has been implemented at the site.	None. The proposed language changes do not affect the overall intent of the condition.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
F91	Modify the condition to indicate that the Ambient Air Monitoring Plan has been approved and is being implemented.	The Ambient Air Monitoring Plan was approved by the SLO APCD on 3/18/99 and has been implemented at the site.	None. The proposed language changes do not affect the overall intent of the condition.
F92	Modify the condition to add the year the EIR was completed.	The year of the previous EIR was added for clarification.	None. The proposed language changes just add clarification to the condition.
F93	Modify the condition to indicate that the Traffic Control Plan has been approved and is being implemented.	The Traffic Control Plan was approved by the SLO APCD on 1/20/99 and has been implemented at the site.	None. The proposed language changes do not affect the overall intent of the condition.
F94	Modify the condition to specify Thornberry Road.	Per the 1998 EIR, Thornberry Road was the only road anticipated to be damaged by project-related truck traffic.	None. The proposed language makes the condition consistent with the findings in the 1998 EIR.
F97	Modify the condition to indicate that Unocal has established an 800 number for receiving complaints and that a complaint process is in place.	A toll-free (800) telephone number was established for previous project activities. The reference to Condition 96 was added to clarify which notification needs to include the toll-free number.	None. The proposed language changes do not affect the overall intent of the condition.
F101	Modify the condition language to make it clear that notification is provided when activities could affect beach goers.	Many activities take place in the interior of the site and will not affect beach-goers. Notice would be provided for activities near the beach, where beach-goers could potentially be affected.	None. The proposed language makes the condition consistent with the findings in the 1998 EIR.
F102	Modify the condition to allow for various cultural assessment methodologies.	The revised language would allow the County-approved archeologist the ability to require the most appropriate cultural assessment method.	None. The proposed language changes do not affect the overall intent of the condition. The change provides flexibility to the agencies in making the most appropriate determination for the specific cultural resource.
F103	Modify the condition to allow for various cultural assessment methodologies.	The revised language would allow the County-approved archeologist the ability to require the most appropriate cultural assessment method.	None. The proposed language changes do not affect the overall intent of the condition. The change provides flexibility to the agencies in making the most appropriate determination for the specific cultural resource.
F104	Modify the condition to indicate that the Recycling Plan has been approved and is being implemented.	The Recycling Plan was approved by the County Department of Planning and Building on 3/11/99 and has been implemented at the site.	None. The proposed language changes do not affect the overall intent of the condition.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
F106	Delete the condition, which has a general requirement for fencing around wetlands. The method for protecting wetlands should be determined for each site and included in the Site-Specific Restoration Plan for review and approval by the agencies.	Protection of areas (i.e., fencing) should be addressed on a case-by-case basis in each Site-Specific Restoration Plan, which must be approved by the agencies.	None. By addressing the need for fencing in the Site-Specific Restoration Plans, issues identified in the Original EIR with regard to livestock can be addressed on a case-by-case basis, thereby minimizing secondary impacts to wildlife.
F107	State that the requirements of the condition are complete.	An Indemnification Agreement was issued and Offer to Dedicate 23795 was assumed by the Coastal Conservancy on June 5, 2001.	None. All of the requirements of the condition were completed consistent with the permit requirements.
F108	State that the requirements of the condition are complete.	An Indemnification Agreement was issued and Offer to Dedicate 23796 was assumed by the Coastal Conservancy on June 5, 2001.	None. All of the requirements of the condition were completed consistent with the permit requirements.
F109	State that the requirements of the condition are complete.	Improvements at the Rancho Guadalupe County Park were funded on 3/10/99.	None. All of the requirements of the condition were completed consistent with the permit requirements.
F110	State that the requirements of the condition are complete.	Unocal acquired the property in 2002 and Offers to Dedicate a Site-wide Conservation Easement were recorded in San Luis Obispo and San Luis Obispo Counties in September 2004.	None. All of the requirements of the condition were completed consistent with the permit requirements.
F114	Modify the condition to allow Unocal to maintain the depository of Guadalupe Oil Field ecological and geological information for use by a broader audience than the two listed universities (the public and any university).	Unocal has established a website for the project that is available to the public and universities that provides access to the Guadalupe Oil Field ecological and geological information.	None. The changes make the information available to a broader audience than the original requirement.
Introduction to Exhibit G	Modify the conditions in Exhibit G to reflect the completion of abandonment activities with the exception of facilities within excavation sites.	Abandonment activities are complete with the exception of facilities associated with future excavation sites. Removal of those facilities will be done concurrent with excavation, pursuant to Exhibit F, Condition 62.f. On April 16, 2002, agreement was received from the County that	None. The abandonment was completed consistent with the permit requirements.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
		abandonment was complete on the site. Since abandonment is complete, the majority of the Conditions in this Exhibit G are also complete. The text box for those conditions will have a shortened version of this explanation: "The abandonment activities covered by this condition have been completed".	
G1	State that the requirements of the condition are complete.	An amendment was submitted to satisfy this Condition on November 6, 2000, and approved by the County on December 4, 2000.	None. All of the requirements of the condition were completed consistent with the permit requirements.
G2	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
G3	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
G4	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
G5	State that the requirements of the condition are complete.	Notice to Proceed was obtained from the County in September 1999, after which abandonment activities commenced. The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements.
G6	Modify the condition to indicate that the Surface Restoration and Revegetation Plan has been approved and is being implemented.	The Surface Restoration and Revegetation Plan was approved by the County in September 1999 and has been implemented at the site.	None. All of the requirements of the condition were completed consistent with the permit requirements.
G7	State that the requirements of the condition are complete.	An independent project monitor was funded for abandonment activities before abandonment commenced. The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G8	State that the requirements of the condition are complete.	Evidence of permits was submitted on 3/11/99, prior to commencement of abandonment	None. All of the requirements of the condition were completed consistent with the permit

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
		activities. The abandonment activities covered by the condition have been completed.	requirements as it related to abandonment activities.
G9	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G10	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G11	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G12	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G13	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G14	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G15	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G16	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G17	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
G18	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G19	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G20	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G21	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G22	State that the requirements of the condition are complete.	The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G23	State that the requirements of the condition are complete.	The Asbestos Management Plan was approved by the SLO APCD on 10/15/98 and has been implemented at the site.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G24	State that the requirements of the condition are complete.	Proposed pipeline and tank purging and draining techniques and emission control systems were approved by SLO APCD on March 8, 1999 and implemented at the site. The abandonment activities covered by the condition have been completed.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G25	Delete the condition. The requirements of this condition are included in F110.	The abandonment activities covered by the condition have been completed, and the requirements are addressed in another condition.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G26	Delete the condition. The requirements of this condition are included in F111.	The abandonment activities covered by the condition have been completed, and the requirements are addressed in another condition.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.

Table 9.2 Summary of Requested CDP/DP Permit Condition Modifications

CDP/DP Condition #	Summary of Requested Permit Condition Changes	Reason for the Proposed Changes	Environmental Impacts of the Proposed Changes
G27	State that the requirements of the condition are complete. The requirements of this condition are included in F112.	The abandonment activities covered by the condition have been completed, and the requirements are addressed in another condition.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G28	State that the requirements of the condition are complete. The requirements of this condition are included in F113.	The abandonment activities covered by the condition have been completed, and the requirements are addressed in another condition.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.
G29	State that the requirements of the condition are complete. The requirements of this condition are included in F114.	The abandonment activities covered by the condition have been completed, and the requirements are addressed in another condition.	None. All of the requirements of the condition were completed consistent with the permit requirements as it related to abandonment activities.

A review of the information presented in Table 9.2 shows that the requested CDP/DP D890558D permit condition modifications would not result in any change to the environmental impacts identified for the Guadalupe Restoration Project in the Original EIR. The requested modifications would not result in a reduction in the effectiveness of the mitigations that each of the permit condition was meant to address. In summary, the permit condition modifications serve to update the conditions to reflect the work that has already occurred at the Guadalupe Field and to fine tune the language to reflect the ongoing practices and protocols that have been developed by the agencies and Unocal to implement the intent of the permit conditions.

10.0 Comment Letters and Responses to Comments

This section of the SEIR contains copies of all of the comment letters that were received on the Public Draft SEIR and written responses to each comment. The comments in each letter have been numbered. After each comment letter is a set of responses for the comments contained in that letter. The following table provides a list of all the comment letters that were received, the code that has been used for the comments, and the page number on which the comment letter and responses begin.

Name	Code	Page
California Department of Fish and Game	CDFG	10-3
State Clearinghouse Letter / California Department of Fish and Game	CDFG	10-5
San Luis Obispo County Department of Public Works	SLOPW	10-11
San Luis Obispo County Integrated Waste Management Authority	SLOWMA	10-11
Santa Barbara County Public Works Department	SBCPW	10-13
San Luis Obispo County Air Pollution Control District	SLOAPCD	10-17
Santa Barbara County Air Pollution Control District	SBAPCD	10-23
Regional Water Quality Control Board	RWQCB	10-25
Unocal	UN	10-53

State of California – The Resources Agency ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
1416 Ninth Street
Sacramento, CA 95814

March 25, 2005

Mr. John Nall, Principal Environmental Specialist
San Luis Obispo County Department of Planning and Building
County Government Center
San Luis Obispo, CA 93408

RE: Guadalupe Oil Field Restoration Project Draft Supplemental EIR (D890558D)

Dear Mr. Nall,

Thank you for the opportunity to review the Guadalupe Oil Field Restoration Project Draft Supplemental Environmental Impact Report (EIR). Overall, I agree the Environmentally Superior alternative is the proposed project, transporting contaminated Non-Hazardous Impacted Soil (NHIS) to the City of Santa Maria Landfill. Following are my specific comments.

1) In the Impact Summary Table, page IS5, Mitigation Measure Bio-3.2 states, "Unocal shall prepare a Sensitive Species Management Plan that shall be approved by the USFWS and County OES…" Please add Department of Fish and Game (DFG) as an approving agency as there are state Species of Special Concern and state Listed species that may be impacted by the project. **CDFG-01**

2) In the Impact Summary Table, page IS17, Mitigation Measure Bio-5.1 states, "…Unocal shall have an approved SSRP [Site Specific Restoration Plan] for the TMLF [Treated Material Land Feature] and to have a plan for the restoration of 4.9 acres of habitat elsewhere in the Field approved by the County and Coastal Commission within 6 months of project approval." Please add DFG as an approving agency. **CDFG-02**

3) Page 1-6, top paragraph, last sentence states, "…Any material that does not meet the NHIS specifications will be returned to the Guadalupe Field stockpile for additional natural attenuation." Please add information as to what will occur with the contaminated material after it is returned to the Guadalupe Field stockpile to naturally attenuate. **CDFG-03**

4) NHIS Quantities, page 2-1, states, "In order for a material to be classified as NHIS, it must meet the criteria established by the RWQCB. This criteria is 1,000 milligrams per kilogram (mg/kg) for gasoline…15,000 mg/kg for diesel…and 200,000 mg/kg for heavy oils…"There is no mention of heavy metal contaminants from sump material nor any mention of PCB contaminated material (e.g. from the M4 plume area). I understand the environmental impacts **CDFG-04**

associated with the placement of the NHIS material at the Santa Maria Landfill were addressed in a separate Supplemental EIR, which presumably evaluated potential impacts from chemicals of concern in addition to hydrocarbons. This should be expanded upon in this Supplemental EIR. **CDFG-04 Cont.**

5) Surface and Ground Water Quality, Section 5.2.5, permit conditions that apply – original permit condition language is listed here some of which is being updated as outlined in Appendix F. A reference to Appendix F should be included in portions of the document that refer to specific original permit conditions. In this section specifically, permit condition F38b and g as listed on page 5-28 is being updated as outlined in Appendix F (as discussed between myself and California Coastal Commission staff) but this is not clear when you read Section 5.2.5. **CDFG-05**

6) Onshore Biological Resources, page 5-61, Mitigation Measure Bio-3.2 states, "Unocal shall prepare a Sensitive Species Management Plan that shall be approved by the USFWS and County OEC…" Please include DFG as an approving agency. **CDFG-06**

7) Onshore Biological Resources, page 5-62, Impact Discussion Bio.4, is regarding hauling NHIS offsite and the potential to adversely affect biological resources outside of the Guadalupe Oil Field. There is no mention of the potential impacts to the Santa Maria River and associated biological resources (e.g. steelhead) at the HWY 1 Bridge crossing, which is along the proposed haul route. **CDFG-07**

8) Onshore Biological Resources, page 5-64, Section 5.3.7.2, discusses impacts associated with the Treated Material Land Feature. There is no discussion of potential impacts to biological resources during treatment (i.e. the potential for wildlife to come in contact with the contaminated material while it is being treated [bioremediated]). **CDFG-08**

9) Onshore Biological Resources, page 5-68, Section 5.3.7.3, discusses impacts associated with the Engineered Containment Unit. There is no discussion of potential impacts to biological resources from the non-treated contaminated soil/sediment/leachate if it were to leak from the Containment Unit. **CDFG-09**

10) Onshore Biological Resources, page 5-70, Mitigation Measure Bio-3-2 please add DFG to the list of parties responsible for verification. **CDFG-10**

11) Visual Resources, page 5-77, there is no mention of the USFWS National Wildlife Refuge or other organization that may, in the future, have access to the Guadalupe Oil Field with a conservation easement. The Treated Material Land Feature or Engineered Containment Unit could potentially impact visual sensitivity to the public onsite. **CDFG-11**

12) Land Use and Recreation, page 5-175, third paragraph states, "As a result of a 1998 legal settlement with Unocal, $9 million was placed into a trust account ~~established~~ managed by the National Fish and Wildlife Foundation for the California Coastal Conservancy and the California Department of Fish and Game, the Restoration Subcommittee, for restoration projects. ~~A restoration subcommittee was established, composed of the California coastal conservancy and the California Department of fish and Game to manage and administer the funds.~~ …The Stewardship Collaborative identifies the restoration, recreational and educational needs of the Dunes for the Restoration Subcommittee~~s review~~ and implements restoration projects." Suggested edits to this paragraph are incorporated in the text – underline text to be added and strikeout text to be deleted. **CDFG-12**

13) Land Use and Recreation, page 5-181, Land Uses at the Project Site, similar to comment #11 above, there is no mention of the Conservation Easement and the potential for USFWS National Wildlife Refuge or other organization that may, in the future, accept the easement which may allow public access. **CDFG-13**

14) Appendix E, Mitigation Monitoring Plan, Mitigation Measure Bio-3.2, please add DFG to the list of parties responsible for verification. **CDFG-14**

Thank you for the opportunity to review the subject Draft Supplemental EIR. I look forward to continuing to work with your agency, other agencies and Unocal on this project.

Sincerely,

Melissa Boggs-Blalack,
Staff Environmental Scientist
Department of Fish and Game
Office of Spill Prevention and Response

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

March 28, 2005

RECEIVED

MAR 31 2005

SLO CO PLANNING & BLDG.

John Nall
County of San Luis Obispo
County Government Center, Room 310
San Luis Obispo, CA 93408-2040

Subject: Guadalupe Oil Field Remediation and Abandonment Project Development Permit
SCH#: 1996051053

Dear John Nall:

The enclosed comment (s) on your Supplemental EIR was (were) received by the State Clearinghouse after the end of the state review period, which closed on March 18, 2005. We are forwarding these comments to you because they provide information or raise issues that should be addressed in your final environmental document.

The California Environmental Quality Act does not require Lead Agencies to respond to late comments. However, we encourage you to incorporate these additional comments into your final environmental document and to consider them prior to taking final action on the proposed project.

Please contact the State Clearinghouse at (916) 445-0613 if you have any questions concerning the environmental review process. If you have a question regarding the above-named project, please refer to the ten-digit State Clearinghouse number (1996051053) when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Senior Planner, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

State of California – The Resources Agency
ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

Clear 3/18/05 late

March 22, 2005

RECEIVED
MAR 28 2005
STATE CLEARING HOUSE

Mr. John Nall
County of San Luis Obispo
County Government Center, Room 310
San Luis Obispo, CA 93408-2040

Dear Mr. Nall:

Guadalupe Oil Field Clean-up Development Plan/
Coastal Development Permit (D890558D)
SCH # 1996051053

The Department of Fish and Game (DFG) has reviewed the document for the subject project. Please be advised this project may result in changes to fish and wildlife resources as described in the California Code of Regulations, Title 14, Section 753.5(d)(1)(A)-(G)[1]. Therefore, a de minimis determination is not appropriate, and an environmental filing fee as required under Fish and Game Code Section 711.4(d) should be paid to the San Luis Obispo County Clerk on or before filing of the Notice of Determination for this project. CDFG-15

A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats, should be provided. Rare, threatened and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, Section 15380). The assessment should identify any rare plants and rare natural communities, following DFG's Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (revised May 8, 2000). The Guidelines are available at www.dfg.ca.gov/whdab/pdfs/guideplt.pdf CDFG-16

[1] http://ccr.oal.ca.gov/. Find California Code of Regulations, Title 14 Natural Resources, Division 1, Section 753

Conserving California's Wildlife Since 1870

Please be advised that a California Endangered Species Act (CESA) Permit must be obtained if the project has the potential to result in take of species of plants or animals listed under CESA, either during construction or over the life of the project. Issuance of a CESA Permit is subject to CEQA documentation; therefore, the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain a CESA Permit. CDFG-17

For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require a Streambed Alteration Agreement (SAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. Issuance of SAAs is subject to CEQA. DFG, as a responsible agency under CEQA, will consider the CEQA document for the project. The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the agreement. To obtain information about the SAA notification process, please access our website at www.dfg.ca.gov/1600; or to request a notification package, contact the Streambed Alteration Program at (707) 944-5520. CDGF-18

If you have any questions, please contact Mr. Bob Stafford, Associate Wildlife Biologist, at (805) 528-8670; or Mr. Scott Wilson, Habitat Conservation Supervisor, at (707) 944-5584.

Sincerely,

Cindy Catalano

Robert W. Floerke
Regional Manager
Central Coast Region

cc: State Clearinghouse

Responses to California Department of Fish and Game (CDFG) Comments

Comment #	Comments
CDFG-01	CDFG has been included as an approving agency as part of Impact BIO-3.2 in the Impact Summary Table.
CDFG-02	CDFG has been included as an approving agency as part of Impact BIO-5.1.
CDFG-03	Any material that does not meet the NHIS specifications for the Santa Maria Landfill will be returned to the Guadalupe Field, where it will be stockpiled and allowed to undergo further natural attenuation. The material will then be mixed with other material at the field and sent back to the Santa Maria Landfill. It is possible that at the end of the project some of the material that does not meet the NHIS specifications would have to be transported to another landfill, such as McKittrick or Kettleman Hills in Kern County, for disposal. However, it is expected that this volume of material would be very low (less than 1 percent of the total material).
CDFG-04	Section 2.1 updated with information related to the RWQCB letter to Unocal dated 8/2004 indicating that the Guadalupe NHIS met all criteria. An appendix, (Appendix H), has been added including this letter and the Santa Maria Landfill NHIS acceptance criteria.
CDFG-05	The various issue area sections have listed the current permit conditions and have not included the proposed permit condition language, since this language has not and may not be approved by the County Planning Commission. The existing permit language is what is in effect at this time and is what has been used for the basis of the analysis.
CDFG-06	CDFG has been included as an approving agency as part of Impact BIO-3.2 in Section 5.3.6.
CDFG-07	Section 5.3.5 of the EIR currently includes the following discussion of hauling impacts to biological resources from potential spills: “An evaluation of the potential for accidents and spills along the haul routes (Section 5.2) found that spills would be unlikely and would result in only temporary impacts.” The probability of a spill on Highway 1 near or on the Highway 1 Bridge crossing is extremely unlikely (the probability of a spill in this area is 7×10^{-5} per year for the worst-case transportation scenario of two years, 860,000 cy and smallest trucks) and is therefore not reasonably expected to have any substantial effect on resources inhabiting the Santa Maria River.
CDFG-08	Section 5.3.6.2 includes the following discussion of impacts to wildlife resulting from the implementation of the TMLF: “Development of the TMLF, including mobilization, contouring, and revegetation, would result in impacts to wildlife species inhabiting the affected habitats. Development of the TMLF could result in the potential loss of individuals of common wildlife species and species of Federal or State concern”. There is a level of uncertainty of impacts to wildlife coming in brief contact with contaminated material, and it is expected that direct impacts from construction activities would be greater than potential contact risk. Therefore, there has been no change to Section 5.3 of the EIR.
CDFG-09	Section 5.2.6 of the EIR includes the following discussion of impacts related to the potential for leachate leaking from

Responses to California Department of Fish and Game (CDFG) Comments

Comment #	Comments
	the TMLF: Strict adherence to the existing RWQCB WDR compliance requirements and permit conditions would ensure that the disposal of NHIS imposes minimal impact to ground water quality. The final closure cover system will provide protection to entomb the NHIS materials. NHIS disposal areas receiving the diluent contaminated soils would be required to be lined with either a single low-density polyethylene liner (in areas currently without a bottom liner system), or a double containment system (in area of the newly constructed disposal cell in the expansion area) to prevent NHIS leachate, if any, from reaching the ground water prior to the installation of the final closure cover. The NHIS disposal cells would be closed once the cells reach the designed elevation for installation of the final closure cover." An analysis of the fate and transport of NHIS material stored in the Santa Maria Landfill setting was conducted by The Shaw Group (Shaw 2004). The study involved running computer models (VLEACH version 2.2a) on a hypothetical soil column of the following layers: • 10 feet of alluvium sediments • 30 feet of existing refuse • 1.5 feet of compacted soils • 40-mil-thick linear low-density polyethylene geomembrane liner • 2 feet of leachate collection and drainage • 40 feet of compacted NHIS The modeling assumed that leachate would pass through the polyethylene liner primarily through liner defects. Studies conducted by EPA and others indicate that leakage rates range from 0.2 to 1.65 gallons per acre-day (gpad). These rates are based on modeling and from field monitoring of 28 landfills. The modeling conducted by Shaw assumed 2 gpad. The modeling was broken into two stages. Stage I addressed the initial two years of NHIS placement, when the NHIS would be open to the atmosphere and fresh materials would be placed on the pile. Leakage rate during this period is the 2.0 gpad value estimated above.

Responses to California Department of Fish and Game (CDFG) Comments

Comment #	Comments
	Stage II addressed the period when the NHIS is covered by a clean soil cap and minimal leachate was expected to be produced. During this period, leachate was estimated to pass through the liner at 10% of the Stage I rate, or 0.2 gpad. Stage II modeling was run for an equivalent of 200 years. Based on the above modeling assumptions, the model was run to calculate the maximum yearly mass loading for all ten TPH surrogates. The resulting ppm concentration in the ground water would be a function of the size of the NHIS area and the flow characteristics of the aquifer as well as the mass loading, or leakage rate. The Shaw study estimated the size of the NHIS area at 5 acres and the aquifer parameters equal to those at the Santa Maria Landfill (50 foot mixing zone thickness, 5 feet/day hydraulic conductivity, and hydraulic gradient of 0.005). The modeling indicated that 8 of the 10 NHIS surrogates would have negligible impact on the ground water. The two surrogates on the lighter end, the C5-C6 and the C7-C8 would impact the ground water at between 2 and 6.5 years after the cell is closed. The calculated TPH concentrations in the ground water are estimated to be 7 ppb and 3 ppb, respectively. These levels were considered to be acceptable. The analysis was stated to be quite conservative in the following manners: the leachate was assumed to be at maximum saturation for all NHIS surrogates and there was no assumption made for natural attenuation. The applicability of the Shaw modeling analysis to the storage of NHIS at the Guadalupe Field is based on the similarity of the Landfill case to the ECU characteristics. For example, at the Field, there would not be 30 feet of existing refuse between the liner and the ground water. However, there would be approximately 20 feet of additional sand between the liner and the ground water at the field and there would be a clay layer underneath the liner, as detailed in the applicant's description (Unocal 2001). In addition, the liner would be high-density polyethylene (HDPE), not low-density polyethylene as was assumed in the Shaw report. In addition, the ECU would contain NHIS as well as materials excavated from other CAO excavation sites. Other freshly excavated materials would most likely increase the amount of materials in the higher volatile range, such as C5-C8. These were the surrogates most likely to impact the ground water in the Shaw study. It is estimated that the use of HDPE and a clay liner would serve to balance the factors that might increase leakage rates, such as more volatile materials and a shallower soil column. This, in combination with the overly conservative

Responses to California Department of Fish and Game (CDFG) Comments

Comment #	Comments
	assumptions made by Shaw, lead to the conclusion that ground water impacts would most likely be similar to those estimated by Shaw.
CDFG-10	CDFG has been included as an approving agency as part of Mitigation BIO-3.2 in Section 5.3.6.
CDFG-11	Text related to the USFWS National Wildlife refuge has been added to section 5.4.1.2. A discussion about future ownership and impacts to visual resources has been added to Section 5.4.8, Cumulative Impacts, discussing the potential impacts if the Unocal property becomes part of the refuge and the public has access to the area.
CDFG-12	Text in Section 5.8.1.1 has been edited per comment.
CDFG-13	A discussion of the potential for addition of the easement and Unocal property to the National Wildlife refuge was added to Section 5.8.8, Cumulative Impacts.
CDFG-14	The Mitigation Monitoring Plan for BIO-3.2 has been changed to include CDFG as a party responsible for verification.
CDFG-15	Comment Noted. An environmental filing fee will be submitted to the San Luis Obispo County Clerk on or before the filing of the Notice of Determination for the project.
CDFG-16	The SEIR contains a detailed assessment of the flora and fauna in the study area. The SEIR has also conducted a comprehensive evaluation of the impacts of the proposed project on rare, threatened, and endangered species. Section 5.3 of the SEIR contains the environmental setting and impact analysis for onshore biological resources. The assessment was done following the CDFG guidelines for assessing the effects of proposed projects on rare, threatened, and endangered plants and natural communities.
CDFG-17	Comment Notes. The Guadalupe Restoration Project already has a permit from CDGF covering endangered species. The application has been working with CDFG staff on modifications to this existing permit to cover the proposed project.
CDFG-18	The proposed project does not involve the alteration of any stream beds.

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS
Noel King, Director
County Government Center, Room 207 • San Luis Obispo CA 93408 • (805) 781-5252
Fax (805) 781-1229 email address: pwd@co.slo.ca.us

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March 24, 2005

MEMORANDUM

TO: John Nall, Principal Environmental Specialist

FROM: Mary Whittlesey, Solid Waste Coordinator 3/24/05

SUBJECT: Guadalupe Oil Field Restoration Project Draft Supplemental EIR (D890558D)

Thank you for the opportunity to review this Draft Supplemental EIR. I understand that the project is the transportation of 860,000 cubic yards of Non-Hazardous Impacted Soils (NHIS) to the Santa Maria Landfill for use as cover material for closing the landfill. I understand that the Regional Water Quality Control Board (RWQCB) has approved this action due primarily to the analytical tests performed on over 1,000 Guadalupe Project samples that indicate the material meets the agency's criteria established for NHIS at this landfill.

I further understand, through my own research, that soils used as closure cover in a landfill are not regarded by the California Integrated Waste Management Board as either disposed or diverted when considering the waste generation of any community. This is critically important to the County of San Luis Obispo and the cities in the County of San Luis Obispo because the Integrated Waste Management Act (Stats.1989,c1095) requires each jurisdiction to reduce the waste stream going to landfills by 50% or face significant penalties. SLOPW-01

The Project Applicant, Union Oil Company of California (Unocal), should be required, as a mitigation measure, to obtain written assurances from the California Integrated Waste Management Board that the County of San Luis Obispo's compliance with the Integrated Waste Management Act will not be adversely affected by the use of this NHIS material as landfill closure cover or daily cover by the Santa Maria Landfill or any other municipal solid waste (class III) landfill. If unable to obtain this written assurance, Applicant should indemnify the County of San Luis Obispo and member jurisdictions of the San Luis Obispo County Integrated Waste Management Authority for any liability resulting from disposal of project soils under the Integrated Waste Management Act.

File: SW 300.3 Comments on Planning Dept Projects/EIRs

San Luis Obispo County
Integrated Waste Management Authority

IWMA BOARD MEMBERS
Harry Ovitt, President
San Luis Obispo County
Rudy Natoli, Vice President
City of Pismo Beach
Ed Arnold,
City of Arroyo Grande
Becky Pacas,
City of Atascadero
Chuck Ashton,
City of Grover Beach
Melody DeMeritt
City of Morro Bay
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Christine Mulholland,
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Katcho Achadjian,
San Luis Obispo County
Shirley Bianchi,
San Luis Obispo County
Jim Patterson,
San Luis Obispo County
Jerry Lenthall,
San Luis Obispo County
Dave Brooks,
Authorized Districts
Bill Worrell, Manager
Carolyn Goodrich, Secretary
Peter Cron, Staff Analyst
Raymond A. Biering, Counsel

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Business Programs: 805/440-9540
Recycling, Compost & Haz.
Waste Info. 800/400-0811
School Programs Information
805/782-8424

S.L.O. CNTY
2005 MAR 25 P.M.
PLANNING & BUILDING
DEPT.

March 24, 2005

John Nall
Principal Environmental Specialist
County Government Center, Room 310
San Luis Obispo, Ca. 93408-2040

Subject: Guadalupe Oil Field Restoration Project Draft Supplemental EIR (D890558D)

Dear Mr. Nall,

Thank you for the opportunity to comment of the Guadalupe Oil Field Restoration Project Draft Supplemental EIR. According to the document this project will generate about 1,182,000 tons of non-hazardous hydrocarbon-impacted soils over a 4 year period or about 300,000 tons per year.

The amount of soil generated during the four years will exceed the amount of waste disposed of by our member jurisdictions. All of the benefits achieved by our comprehensive landfill diversion programs (source reduction, reuse and recycling) could be eliminated by this project. At no time during this project should any of the non-hazardous hydrocarbon-impacted soils be disposed on in a landfill. SLOWMA-01

The use of this soil as cover material would not be detrimental because that would not impact remaining landfill capacity. Detailed records of how the soil was used should be required of the applicant.

Sincerely,

William A. Worrell

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Responses to San Luis Obispo County Department of Public Works (SLOPW) Comments

Comment #	Comments
SLOPW-01	A letter from John Zhao, of the Santa Maria Landfill, which is included in Appendix H, indicates that the NHIS received from Guadalupe will not generate waste disposal reports for the County of SLO. The NHIS has been designated as beneficial reuse by the RWQCB and is classified as permanent cover material by the Santa Maria Landfill. Note that materials shipped to other landfills that use the material in a waste disposal cell would generate waste disposal reports and would therefore contribute to non-compliance with AB 939 waste reduction goals.

Responses to San Luis Obispo County Integrated Waste Management Authority (SLOWMA) Comments

Comment #	Comments
SLOWMA-01	See response to SLOPW-01, above.

COUNTY OF SANTA BARBARA
PUBLIC WORKS DEPARTMENT
123 East Anapamu Street
Santa Barbara, California 93101
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Traffic FAX 805\568-3222

PHILLIP M. DEMERY
Director

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March 24, 2005

John Nall, Principal Environmental Specialist
San Luis Obispo County
Department of Planning and Building
County Government Center, Room 310
San Luis Obispo, CA 93408

Subject: Guadalupe Oil Field Restoration Project Development Plan Draft Supplemental EIR (D890558D)

Dear Mr. Nall:

The Santa Barbara County Public Works Department Transportation Division has reviewed the above referenced document. We have some comments and concerns outlined below that we believe should be addressed and incorporated into the Draft EIR.

Comments:

1) The project will generate large numbers of trucks onto County of Santa Barbara maintained roads. We would like to see the estimated number of trucks, along with a map showing the number of trucks along the estimated routes throughout the duration of this large project. SBCPW-01

2) The DEIR should evaluate the traffic safety impacts on any County roads associated with high volume, especially where extended trucking activities are expected to take place. Recommendations such as additional signing, striping, or changeable message board signs should be considered at locations where heavy project generated truck volumes are anticipated. SBCPW-02

3) The DEIR should evaluate and provide mitigation for any roadway damage caused by the project. Details of monitoring of pavement damage should be discussed in detail in the DEIR. SBCPW-03

4) Bobby Fernandez of our Permits Division (805) 681-4992 should be contacted regarding monitoring activities associated with the Haul Route, and emergency patching and response times, especially on high speed County roads. SBCPW-04

5) What activities are planned to restore County roads, after remediation of the site, to pre-existing conditions? This is a concern especially in light of our existing maintenance backlog and funding. SBCPW-05

6) Other issues may be brought up upon further review of the ADEIR. SBCPW-06

Thank you for the opportunity to comment on the above referenced ADEIR. We look forward to working with you and your organization on this important project.

Please contact me at (805) 568-3042 if you have any questions or if I may be of assistance.

Sincerely,

Court S. Eilertson
Project Manager/Traffic Management
Public Works Department
Transportation Division/Traffic Section
County of Santa Barbara
123 E. Anapamu St, 2nd Floor
Santa Barbara, CA 93101

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Responses to Santa Barbara County Public Works Department (SBCPW) Comments

Comment #	Comments
SBCPW-01	A map showing the future (year 2007) ADT and LOS on all project-related roadways has been added to Section 5.6.6. Please also see response to SBCPW-03.
SBCPW-02	The EIR directs the applicant to develop a traffic control plan (section 5.6.5) and to avoid truck trips during peak hours (5.6.6). Impact T-1 indicates that restricting vehicles from traveling to and from the Guadalupe Field on Betteravia Road between the hours of 4:30 p.m. and 5:30 p.m. will reduce the potentially significant traffic impacts during the peak hour to less than significant. The non-peak LOS for Betteravia Road could support the additional volume contributed by the project. Section 5.11.6 indicates that safety impacts from the transportation of 100 plus truck trips per day are Class II, or less than significant, with mitigation. Therefore, no additional mitigation measures have been included. Note that truck volumes are not expected to exceed 5.5% of normal daily truck volumes along the Betteravia Road route. The percentages of the Betteravia, Division, and Main routes, which are in SB County and not under the jurisdiction of CalTrans, equal 59%, 54%, and 40%, respectively. Also see response to comment SBCPW-03.
SBCPW-03	Mitigation Measure (T-2.1) has been added that requires the Applicant to update the current Traffic Control Plan (specified in CDP/DP Condition 93) and have the plan approved by the San Luis Obispo County Engineering Department in consultation with the Santa Barbara County Public Works Department, Roads/Traffic Division (see Section 5.6.5). This mitigation would ensure that Santa Barbara County participates in the process of approval of the Traffic Control Plan, in particular the roads maintenance part of the Plan. Only a portion of the project truck-hauling routes is within Santa Barbara County jurisdiction. See the table below.

Miles on Project-affected Roadways by Jurisdiction

Hauling Route	SLO County	SB County	Route 1	Route 166	Guadalupe City	Santa Maria City	Total Miles
Betteravia	1.1	10.1	1.8	0.9	0.0	3.2	17.0
Division	5.4	11.3	0.6	0.3	0.0	3.2	20.8
Main	1.1	7.2	1.8	4.7	0.0	3.2	18.0

Mileage Percent of the Total Project-affected Routes by Jurisdiction

Responses to Santa Barbara County Public Works Department (SBCPW) Comments

Comment #	Comments

Hauling Route	SLO County	SB County	Route 1	Route 166	Guadalupe City	Santa Maria City
Betteravia	6.7	59.1	10.4	5.0	0.0	18.8
Division	25.9	54.4	2.8	1.6	0.0	15.4
Main	6.3	39.9	9.8	26.3	0.0	17.7

From the Table above it can be seen that only approximately 40% of the Main Route and 54 to 59% of Division and Betteravia Routes are under Santa Barbara County jurisdiction. The percentage of traffic increase due to the project is reflected in Table below. The project-related trucks would add anywhere from below 2% to over 15% to the future (i.e., two to four years) traffic on the roadways under SB County jurisdiction (see Table below). Those roads that have higher percentage of traffic increase due to the project are rural roads operating at LOS A (Simas Rd., Bonita School Rd., Black Rd. Betteravia Rd. east of Simas Rd., Philbric Rd.). These roads currently experience high truck and farm equipment traffic.

Roadway Segment - Guadalupe Site to Santa Maria Landfill	Percentage of project Trucks, %	Jurisdiction
Hwy 1 (s/o Thornberry Road)	4.83	CalTrans
Hwy 1 (n/o Hwy 166)	4.68	CalTrans
Hwy 166 (Hwy 1 - Simas Rd.)	3.33	CalTrans
Hwy 166 (Simas Rd. - Black Rd.)	3.03	CalTrans
Simas Road s/o Hwy 166	**8.66**	**SBC**
Division St. e/o Bonita School Rd.	6.53	SLOC
Bonita School Road s/o Division St.*	**15.32**	**SBC**
Ray Rd.	**NA**	**SBC**
Sinton Rd.	**NA**	**SBC**
Black Rd. (Hwy 166 - Betteravia)	**12.56**	**SBC**
Blosser Road (Hwy 166 - Betteravia)	**1.26**	**SBC**
Betteravia Rd. (e/o Simas)	**8.10**	**SBC**
Betteravia Rd. (Simas - Black Rd.)	**6.25**	**SBC**

Responses to Santa Barbara County Public Works Department (SBCPW) Comments

Comment #	Comments
	<table><tr><td>**Betteravia Rd. (Black Rd. - "A" St.)**</td><td>**7.87**</td><td>**SBC**</td></tr><tr><td>**Betteravia Rd. ("A" St. - Blosser Rd.)**</td><td>**1.85**</td><td>**SBC**</td></tr><tr><td>Betteravia Rd. (Blosser - S. Broadway [Hwy 135])</td><td>1.37</td><td>City of SM</td></tr><tr><td>Betteravia Rd. (S. Broadway [Hwy 135] - Miller)</td><td>1.07</td><td>City of SM</td></tr><tr><td>Betteravia Rd. (Miller - Bradley)</td><td>0.89</td><td>City of SM</td></tr><tr><td>Betteravia Rd. (Bradley - Hwy 101)</td><td>0.92</td><td>City of SM</td></tr><tr><td>**Betteravia Rd. (Hwy 101 - Phillbric Rd.)**</td><td>**4.21**</td><td>**SBC**</td></tr><tr><td>**Philbric Rd. (Betteravia - Main St.)**</td><td>**17.95**</td><td>**SBC**</td></tr></table> The increase in traffic as a result of the project does not result in a significant impact based upon the San Luis Obispo County significance criteria. This increase in traffic volume would also not result in a significant impact if the Santa Barbara County significance criteria were used. As such, no mitigation is required for the project. The SEIR does require that Unocal update their Traffic Control Plan (specified in CDP/DP Condition 93) and have the plan approved by the San Luis Obispo County Engineering Department in consultation with the Santa Barbara County Public Works Department, Roads/Traffic Division (see Section 5.6.5).
SBCPW-04	Mitigation Measure (T-2.1) has been added that requires the Applicant to update the current Traffic Control Plan (specified in CDP/DP Condition 93) and have the plan approved by the San Luis Obispo County Engineering Department in consultation with the Santa Barbara County Public Works Department, Roads/Traffic Division (see Section 5.6.5). This mitigation would ensure that the Santa Barbara County participates in the process of approval of the Traffic Control Plan, in particular the roads maintenance part of the Plan.
SBCPW-05	See response to SBCPW-03 above. The added mitigation measure (T-2.1) requiring the updated Traffic Control Plan would ensure that repairs of the damaged roads are addressed. Approval by both SLO and SB Counties would ensure that roads in both counties are repaired if damage occurs. Also, Unocal, through purchases of diesel and gasoline from retailers, pays the fuel tax that, in portion, funds road repairs.
SBCPW-06	Any other issues with regard to the project can be addressed to the San Luis Obipso County Planning Department when the project goes to the Planning Commission for hearings.

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN LUIS OBISPO

March 25, 2005

Mr. John Nall, Senior Environmental Specialist
County of San Luis Obispo
c/o Mr. Bill Henry
Morro Group, Inc.
1422 Monterey Street, Suite C200
San Luis Obispo, CA 93401

SUBJECT: SLO COUNTY APCD's COMMENTS REGARDING THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (DSEIR) FOR THE GUADALUPE OIL FIELD REMEDIATION AND ABANDONMENT PROJECT (CDP/DP D890558D).

Thank you for including the San Luis Obispo (SLO) County Air Pollution Control District (APCD) in the environmental review process. We have completed our review of the DSEIR for the Union Oil Company of California (Unocal) Guadalupe Oil Field (Field) Remediation and Abandonment Project.

As opposed to the on-site treatment and disposal of affected material as identified in the proposed projects in the 1998 EIR, the January 2005 DSEIR proposes disposal of affected material to an off-site landfill. Specifically, the proposed project includes removal and transfer of the existing TB8 and TB9 stockpiles, as well as transfer of other materials excavated in the future, and disposal of all materials at the Santa Maria Landfill (Landfill).

As a commenting agency in the California Environmental Quality Act (CEQA) review process for a project, the APCD assesses air pollution impacts from both the construction and operational phases of a project, with separate significant thresholds for each. The construction phase is relatively short in duration and includes site mobilization, road work, and demobilization. The operational phase of the proposed project is to truck approximately 660,000 to 860,000 cubic yards (cy) of Non-hazardous Hydrocarbon-Impacted Soils (NHIS) to the Landfill over a period of approximately three years.

The following are the APCD comments that are pertinent to the DSEIR.

SPECIFIC COMMENTS ON THE DSEIR:

1. Proposed Project as the Preferred Alternative. This DSEIR adds several off-site disposal alternatives to the alternatives listed in the 1998 EIR. Though there are alternatives that can demonstrate lower overall unmitigated air quality impacts, the APCD supports the short distance Santa Maria Landfill material disposal alternative (proposed project) as long as appropriate air

SLOAPCD-01

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quality mitigation is implemented. Beyond the specific mitigation measures listed in the DSEIR, and further defined in this letter, the APCD shall define specific off-site mitigation funding necessary to offset the excess nitrogen oxide (NOx) and diesel exhaust particulate matter (diesel PM) emissions from the project's trucking operations.

SLOAPCD-01 Cont.

2. Air Quality Mitigation Measure AQ.1 (Section 5.5.6, Page ES-10). This measure states that the air emissions from project construction and operations would exceed significance criteria for daily NOx, ROC, and PM10 emissions – Class I Impact. This needs to also state that the SLO County APCD's Tier 3 CEQA significance threshold for the annual operational emissions for NOx shall be exceeded without the implementation of mitigation. The excess criteria pollutant and diesel PM emissions shall be mitigated as outlined in the APCD comment below (Item 12e). With timely implementation of the off-site mitigation identified later in this document, equitable emission reductions shall be provided to reduce this to a Class II impact, significant but mitigated.

SLOAPCD-02

3. Offsite Trucking (Section F.2.1, Page ES-11). The second to last sentence on this page should list the alternative off-site trucking disposal locations as opposed to the Santa Maria landfill.

SLOAPCD-03

4. Treated Material Land Feature (TMLF) (Section F.2.2 Page ES-13). The Air Quality portion of Section F.2.2 looks like it was copied directly from language within one of the landfill disposal alternatives. It needs to be updated to properly address the air quality impacts should the TMLF alternative be selected.

SLOAPCD-04

5. The APCD Preferred Truck Hauling Volume (Discussion on Page 2-14 of Section 2.2.1.3 and Table 2.4 on Page 2-16). This discussion and table suggest that the average haul trip will include 16 cubic yards (cy) of affected material. Table 2.4 should be updated to be consistent with other tables within the DSEIR (e.g. Table 5.5.8) and Appendix C that list information for two hauling scenarios: 8 and 18 cy fleets. Previous experience suggests that it is more likely that 8 cy trucks are predominant in the available hauling fleets.

The APCD prefers 18 cy hauling trucks be used for this project to reduce the number of truck trips and associated emissions. For air quality mitigation measure AQ-1.2 on page 5-110, the applicant should research and add a submeasure after AQ-1.2b designed to maximize the use of 18 cy hauling trucks. This submeasure could include an incentive to contractors who can commit to utilizing a fleet that is composed primarily of newer 18 cy units. By "newer," the APCD offers the following suggestion:

Maximize to the extent feasible, the use of on-road heavy-duty equipment and trucks that meet the ARB's 1998 or newer certification standard for on-road heavy-duty diesel engines.

To the extent this mitigation measure is implemented, the overall emissions and necessary off-site NOx mitigation shall be determined by the project proponent and approved by the APCD, thus providing an incentive mechanism for the proponent to utilize the newest and largest capacity fleet possible.

SLOAPCD-05

6. The APCD Preferred Truck Routes: (Section 2.2.1.3 on Pages 2-14 and 2-15 and Section 5.5.6 on Page 5-106). The APCD's preferred truck route to minimize diesel toxic impacts is the proposed Division Route. This route bypasses the community of Guadalupe and the city of Santa Maria therefore providing the least impact to local residents. For these reasons, the APCD strongly opposes the Main Street route. Should a different route be considered, a modified health risk assessment shall be needed. Please review and correct the various route nomenclatures within the DSEIR and the Appendices to ensure that the two proposed truck routes are listed consistently within the document. SLOAPCD-06

7. Significance Criteria for Construction (Section 5.5.3.1, Page 5-100). This discussion includes an incorrect statement. The SLO County APCD does have daily or quarterly quantifiable emission thresholds established for short term construction emissions. Remove the word "not" from the first sentence. SLOAPCD-07

8. Significance Criteria for Health Risks (Section 5.5.3.3, Page 5-102). This section incorrectly assigns the SLO County APCD's health risk assessment threshold for long-term projects to short-term construction activities. As referenced in the DSEIR, that threshold is 10 in one million cancer risk criteria for human health risk assessments. This SLO County APCD risk significance threshold is based on a 70-year exposure duration and 70-year averaging time.

The SLO County APCD does not at this time have adopted guidelines or significance thresholds for short duration human health risk assessments associated with construction projects. **Comparing short duration health risk assessment values to their 70 year significance threshold is not appropriate.** The discussions on this topic within Section 5.5.6 and in Appendix C need to be modified to remove this improper utilization of the APCD's threshold. In addition, the last paragraph in the impact discussion for AQ.2 on Page 5-113 must be changed from: SLOAPCD-08

> The results are summarized in Table 5.5.12. The results indicate that the cancer risks from the project (maximum is equal to 1.044 in a million for a child at Bonita Elementary School) are below the threshold of 10 in a million. Therefore, health risk impacts would be *less than significant.*

to:

> The results are summarized in Table 5.5.12. The results indicate that the 9 year cancer risk from the project is a maximum of 1.044 in a million for a child at Bonita Elementary School. Though there is not a significance threshold to compare this short-term risk value against, SLO County APCD accepts the following impact statement:
>
> > Regional health risk impacts from diesel particulate matter emissions (diesel PM) from the proposed project in this DSEIR will likely be *less than significant* with the complete and timely implementation of the air quality mitigation measures listed in measure AQ-1.2.

9. CDP/DP Conditions that Apply to The Proposed Project and Alternatives SLO County (Section 5.5.5, Page 5-103). SLO County APCD worked with Kim Tullege (Consultant to Unocal) to update condition F84.a. The out of date language presented in the DSEIR is no longer considered appropriate mitigation as it reduces NOx emissions at the expense of increasing the emissions of diesel PM. The updated language to replace F84.a is: SLOAPCD-09

> NOx reduction strategies for off-road construction equipment shall meet U.S. EPA Tier 1 emission standards for all applicable heavy-duty diesel powered construction equipment to the fullest extent feasible. Unocal shall use CARB-approved diesel fuel for all diesel powered equipment.

This update has been included in Appendix F, Unocal Requested Coastal Development Permit/Development Plan D890558D Permit Condition Modifications. The APCD needs this modification to be adopted in the final SEIR.

10. Proposed Project Impacts, Mitigation Measures, and Residual Impacts (Section 5.5.6). In the construction phase discussion on Pages 5-105 and 5-106 the last bullet under "Emissions from Construction" states: SLOAPCD-10

> ROC from soil off-gassing during soil disturbance and trucking.

The soil reactive organic gases/compounds (ROC or ROG) emissions should be included in the "Emissions from Operations" discussion instead of in the "Emissions from Construction" section and this change needs to be updated in the emission tables (e.g. Table 5.5.8 Summary of Total Proposed Project Operations Emissions).

Unocal shall modify the current dust control plan used during the activities identified in the 1998 EIR to include up to date control measures and include measures that minimize dust impacts from truck loading, trucking, and any support operations that are identified in this DSEIR.

11. Proposed Project Impacts, Mitigation Measures, and Residual Impacts (Section 5.5.6, Pages 5-109 to 5-110). This discussion summarizes diesel exhaust control equipment that can reduce the toxic impacts of diesel PM and reduce the overall fugitive dust PM emissions from the project. This section needs to be modified to address the following APCD points: SLOAPCD-11

> a. The NOx significance threshold exceedence for the proposed project triggers the implementation Best Available Control Technologies (BACT). The BACT technologies include catalyzed diesel particulate filters (CDPFs) and diesel oxidation catalysts (DOCs) and other APCD approved diesel emission reduction technologies.
>
> b. Instead of requiring BACT devices be installed on project equipment supporting activities covered by this DSEIR (e.g. truck loading, truck travel, and any associated support equipment) the APCD shall obtain equitable diesel PM reductions through the required off-site air-emission-reduction mitigation measure described in 12e.
>
> c. Delete the fugitive dust references in this section and delete Table 5.5.11.

12. Mitigation Measures for the Proposed Project (Section 5.5.6 Pages 5-110 to 5-112). Proposed Project Impacts, Mitigation Measures, and Residual Impacts – The following are the APCD's suggestions for alterations of the proposed mitigation measures:

a. Add the following air quality mitigation measure to the AQ-1.2 list:

All on and off-road diesel equipment shall not be allowed to idle for more than 5 minutes. Signs shall be posted in the designated queuing areas to remind drivers of the 5 minute idling limit.

b. Add the following air quality mitigation measure to the AQ-1.2 list:

Portable equipment with engines greater than 50 horsepower used during the activities covered under the SEIR may require California statewide portable equipment registration (issued by the California Air Resources Board) or an APCD permit. Operational sources, such as back up generators, may also require APCD permits. To minimize potential delays, prior to the start of the project, please contact David Dixon of the District's Engineering Division at (805) 781-5912 for specific information regarding permitting requirements.

c. Delete AQ-1.3.

d. Delete AQ-1.4.

e. For AQ-1.5 do the following:
1. Renumber AQ-1.5 as AQ-1.3.
2. Add the following measure title: *Off-site Air-Emission-Reduction Mitigation:*
3. Change the mitigation text from:

If required by the SLO APCD, an air-emission-reduction program shall be developed for criteria pollutants emitted in SLO County by the implemented project that exceeds the SLO APCD thresholds and the quantities for which mitigation was previously provided. The emission-reduction program could include methods to improve transportation and circulation alternatives in the SLO or Santa Barbara Counties, as agreed with the SLO County APCD.

to:

Unocal shall fund a SLO County APCD managed air-emission-reduction program designed to achieve timely, real, quantifiable criteria and diesel PM reductions to offset project emissions. Unocal shall pay APCD one-half of the mitigation funds immediately based on a 90 ton NOx emission estimate. When final project details are known, Unocal shall provide a refined project emission estimates for APCD review and approval. Within 180 days of the first payment,

SLOAPCD-12

Unocal shall pay APCD the remaining balance that is computed by subtracting the initial payment from the total amount required based on the refined NOx emission estimate.

SLOAPCD-12 Cont.

The following discussion/clarifying points should be added to the discussion in Section 5.5.6 of the SEIR:

SLO County APCD has used conservative assumptions to evaluate the DSEIR proposed air emissions presented in Table 5.5.8 and have concluded that the average daily NOx emissions within the air basin from the project could result in total excess NOx emissions of 90 tons, assuming a fleet equally composed of trucks with 8 and 18 cy capacities. The APCD shall set the appropriate fee to mitigate the excess NOx emissions from the trucking operations described in the DSEIR. While this mitigation measure uses a single pollutant evaluation to define equitable mitigation, its implementation shall result in emission reductions of all excess criteria pollutants and toxic diesel PM. If fully implemented, this and the other identified mitigation measures shall offset the emission threshold exceedence(s) to a level of insignificance and result in a Class II, significant but mitigated residual air quality impact.

It should be noted that in the 1998 EIR, the implemented mitigation was for projected excess emissions of non-permitted criteria pollutants beyond the APCD allowed baseline for this project of 24 tons per year. The emissions from the proposed project in the DSEIR are additional excess emissions and as such, level of insignificance means that this project's emissions need to be mitigated to zero.

SLOAPCD-13

Again, thank you for the opportunity to comment on this proposal. We look forward to working with you as needed to help finalized the SEIR and shall work with the applicant to formalize acceptable off-site mitigation. If you have any questions or comments, or if you would like to receive an electronic version of this letter, feel free to contact me at (805) 781-5912.

Sincerely,

for

Andy Mutziger, Air Quality Specialist
San Luis Obispo County Air Pollution Control District

AJM/AAG/LRA/sll

cc: Bobbi Bratz, Santa Barbara APCD
David Dixon, Engineering Division, SLO APCD
Gonzalo Garcia, Unocal
h:\oil\planresponse\2843-2.doc

MAR 29 2

John Peirson

From: amutziger_apcd@co.slo.ca.us
Sent: Thursday, April 28, 2005 6:04 PM
To: john.peirson@mrsenv.com
Cc: kimt@unocal.com; bhenry@morrogroup.com
Subject: SLO Co. APCD Modified Language

John,

I spoke to Kim Tullage with regard to the timing for Unocal to pay the mitigation funds identified in item 12.e.3 in our March 25, 2005 DEIR comment letter for the project. The APCD is willing to modify that language to more clearly define the payment schedule. I have spoken to Kim about our propose revision and she indicated that the change was acceptable. Bill Henry said that one option we had to get this update into the final EIR was to send the change directly to you (see below). If you have any questions, please contact me.

Andy Mutziger
Air Quality Specialist
San Luis Obispo County Air Pollution Control District
(805) 781-5912

Change 12.e.3 in our March 25, 2005 letter from:

> Unocal shall fund a SLO County APCD managed air-emission-reduction program designed to achieve timely, real, quantifiable criteria and diesel PM reductions to offset project emissions. Unocal shall pay APCD one-half of the mitigation funds immediately based on a 90 ton NOx emission estimate. When final project details are known, Unocal shall provide a refined project emission estimates for APCD review and approval. Within 180 days of the first payment, Unocal shall pay APCD the remaining balance that is computed by subtracting the initial payment from the total amount required based on the refined NOx emission estimate.

to:

> Unocal shall fund a SLO County APCD managed air-emission-reduction program (AER Program) designed to achieve timely, real, quantifiable criteria and diesel PM reductions to offset project emissions. The EIR estimates that the project's NOx emissions will be 90 tons. This project emission estimate shall be refined by Unocal using information about the actual fleet and the scheduling that will be used for the project. The refined estimate shall be submitted to the APCD for review and approval. The approved refined NOx emission estimate shall be used by APCD to set the necessary funding amount for the AER Program. Payment shall be submitted to the APCD in 4 - quarterly payments, with the first payment commencing after the refined emission estimate is approved and the total funding amount is finalized.

Andy Mutziger
Air Quality Specialist
San Luis Obispo County Air Pollution Control District
(805) 781-5912

Responses to San Luis Obispo County Air Pollution Control District (SLOAPCD) Comments

Comment #	Comments
SLOAPCD-01	All of the mitigation measures that the SLO APCD has requested for the project have been included in the SEIR.
SLOAPCD-02	The requested text about exceedance of Tier 3 SLO APCD significance threshold has been added to Section 5.5.6, Impact AQ.2, Operational air quality impacts.
SLOAPCD-03	The requested language change was made to the second sentence in the Executive Summary, Section F.2.1.
SLOAPCD-04	The text in the Executive Summary, Section F.2.2, on the treated material land feature has been corrected.
SLOAPCD-05	Table 2.4 in Section 2.2.1.3 has been updated to include both 8 cy trucks and 18 cy trucks.
SLOAPCD-06	Routes were checked for consistency in Section 2.0, Section 5.5, and Section 5.6. The appendices detail the health risks of the Betteravia route. All three routes pass through the same area of the City of Santa Maria. Only the Division route avoids the City of Guadalupe.
SLOAPCD-07	The sentence in Section 5.5.3.1 was corrected to reflect the requested change.
SLOAPCD-08	The SLO County APCD's health risk assessment threshold for long-term projects is based on a 70-year exposure and averaging time, consistent with Federal and State guidance (SLO APCD Rule 219). The APCD's significance threshold of 10 in one million is also consistent with this 70-year exposure assumption. As noted in the comment, the APCD does not have a short-term health risk significance threshold to address temporary or transient emission sources and projects. The APCD's Rule 219 states: "The procedures used to develop the risk assessment shall be consistent with the latest guidelines or recommendations from the California Office of Environmental Health Hazard Assessment (OEHHA)." To address the issue of short-term projects, OEHHA developed guidance for estimating potential cancer risks from project that emit carcinogenic air pollutants for periods substantially less than the normal 70-year exposure assumption (OEHHA, 2003). The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2003) clearly identifies the methodology that should be followed for estimating the long-term cancer risk that would result from short-term exposure as follows: "*OEHHA has presented in this document exposure variates for estimating 9-, 30- and 70-year exposures. These exposures are chosen to coincide with U.S. EPA's estimates of the average (9 years), high-end estimates (30-years) of residence time, and a typical lifetime (70 years). We support the use of cancer potency factors for estimating cancer risk for these exposure durations. However, as the exposure duration decreases the uncertainties introduced by applying cancer potency factors derived from very long term studies increases. Short-term high exposures are not necessarily equivalent to longer-term lower exposures even when the total dose is the same. OEHHA therefore does not support the use of current cancer potency factor to evaluate cancer*

Responses to San Luis Obispo County Air Pollution Control District (SLOAPCD) Comments

Comment #	Comments
	risk for exposures of less than 9 years. If such risk must be evaluated, we recommend assuming that average daily dose for short-term exposure is assumed to last for a minimum of 9 years." Emissions from the proposed project would be limited to a three-year exposure period, but were analyzed as a nine-year minimum to conservatively estimate potential worst-case health risks in a manner that is consistent with OEHHA guidance. The APCD and OEHHA exposure assumptions and significant risk thresholds are both based on the same underlying assumptions. Following the state-mandated OEHHA guidelines to estimate cancer risk is consistent with the APCD's 70-year exposure assumption and significant risk threshold of 10 in a million. The text in Section 5.5.3.3 has been modified to clearly note the underlying differences between the APCD cancer risk exposure assumptions and significant risk threshold of 10 in a million and the OEHHA methodology that was followed in the EIR analysis.
SLOAPCD-09	The change has been made to Condition F84.a in Section 5.5.5.
SLOAPCD-10	The ROC emissions are contained in the Emissions for Operations calculations. The ROC bullet was deleted from the list of emissions for Construction in Impact AQ.1, Section 5.5.6. The requirement to update the APCD approved Dust Control Plan is addressed in Mitigation Measure AQ-2.1.
SLOAPCD-11	Table 5.5.11 has been deleted as requested along with the text discussing the Table. The BACT discussion has been added to Impact AQ.1. See also response to SLOAPCD-12.
SLOAPCD-12	The requested changes have been made to Mitigation Measures AQ-1.2 through AQ-1.4 (now these are renumbered as AQ-2.2 through AQ-2.4). The changes to Mitigation Measure AQ-1.5 (now AQ-2.3) have been made as per April 28, 2005 e-mail from Andy Mutziger of the SLO APCD to John Peirson of MRS. A copy of this e-mail has been included at the end of the SLO APCD comment letters.
SLOAPCD-13	The SEIR preparers agree that the fees that have been set by the APCD and agreed to be paid by the Applicant would mitigate the impact to the levels below significance. Most of the suggested text in Section 5.5 was either incorporated in Mitigation Measure AQ-2.2 (numbered as AQ-1.5 in the Public Draft SEIR) (please also see response to Comment SLOAPCD-12), or in the Residual Impact for Impact AQW-2, Operational Emissions. The mitigation measure now reflects the discussion about the fees and payments. The appropriate changes were reflected in all other sections that discuss air quality impacts from operations (Executive Summary, Impact Summary Tables).

Responses to Santa Barbara County Air Pollution Control District (SBCAPCD) Comments

Comment #	Comments
SBCAPCD-01	Comment noted. All of the mitigation measures that the SLOAPCD has requested for the project have been included in the SEIR.

California Regional Water Quality Control Board
Central Coast Region

Alan C. Lloyd, Ph.D.
Agency Secretary

Internet Address: http://www.waterboards.ca.gov/centralcoast
895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906
Phone (805) 549-3147 • FAX (805) 543-0397

Arnold Schwarzenegger
Governor

March 29, 2005

Mr. John Nall
San Luis Obispo County
Department of Planning & Building
County Government Center
San Luis Obispo, CA 93408

Dear Mr. Nall:

PUBLIC DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (SEIR), GUADALUPE RESTORATION PROJECT, SCH #1996051053 (STATE CLEARING HOUSE NUMBER 1996051053)

Thank you for the opportunity to comment on the *Public Draft Supplemental Environmental Impact Report* (Draft SEIR) document for the above-noted facility. The Central Coast Regional Water Quality Control Board's (Regional Board's) comments on the project are as follows:

General Comments on Draft SEIR

1. Overall, we concur with the preferred alternative for managing non-hazardous impacted soil (NHIS) from the Guadalupe Oil Field (GOF). We understand that this alternative of transporting NHIS via trucks to the Santa Maria landfill has inherent environmental impacts associated with it. However, from a water quality perspective, it appears to be the most environmentally practicable way of managing soil resulting from GOF excavations as well as being protective of water quality both at the GOF and the Santa Maria landfill itself. This concurrence is based on two specific matters of Regional Board focus:

   a. Extensive communication with City of Santa Maria personnel and their consultants, as well as Unocal staff, regarding the acceptability of GOF's diluent-impacted NHIS at the landfill. As noted in our August 31, 2004 letter to John Zhao of the Santa Maria landfill, we approved the City of Santa Maria's acceptance of GOF's NHIS based on revised acceptance criteria for this soil's extractable (i.e., leachable) total petroleum hydrocarbons (TPH). In a previous letter to Mr. Zhao (March 11, 2003 letter from the Regional Board), we established what we believe to be water quality-protective acceptance criteria for TPH in the soil itself. RWQCB-01

   b. The need to have Unocal complete excavations specified in our Cleanup or Abatement Order (CAO) No. 98-38. As you may know, we approved the temporary suspension of excavations at the GOF due to Unocal's need to find an acceptable means of managing the existing approximately 500,000 cubic yards of sump material and diluent-impacted soil.

2. There are several places in the document where the same acronym is spelled out and identified. The Draft SEIR would read easier if the acronyms are spelled out once, and then used consistently throughout the document. RWQCB-02

3. The following Specific Comments contain recommended changes for particular subject matter. We have tried to point out sections of the Draft SEIR to which our comments apply; however, because some text is reiterated in several sections of this Draft SEIR (and all EIRs), we may have RWQCB-03

inadvertently missed reference to multiple sections of the document. Nevertheless, please note that our Specific Comments apply to *all* sections of the Draft SEIR in which that subject is addressed.

Specific Comments on Draft SEIR

1. **Page ES-5, Section C**. The second paragraph regarding testing of GOF material for establishment of NHIS qualification is inaccurate. While it's true that the Regional Board approved specifics associated with acceptance criteria (see General Comment 1), this approval was based on Unocal's analytical testing of samples that were deemed representative of GOF's diluent-impacted soil. These representative samples numbered much less than 1,000, and were, in fact, collected so that comparable analytical methods could be used for direct comparison of GOF data to NHIS determination specifications. The City of Santa Maria and the Regional Board then evaluated Unocal's comparison of these representative analytical results to the more than 1,000 historical TPH results from the GOF. The Regional Board's August 31, 2004 letter was the result of the evaluation. RWQCB-04

2. **Page ES-7, Section D.** The Regional Board should be included as an agency that would use this document. Specifically, the Draft SEIR should note that the Regional Board is waiting for the document to get San Luis Obispo County approval so that excavation requirements noted in CAO 98-38 can resume and come to completion. RWQCB-05

3. **Page ES-8, Section E, Treated Material Land Feature (TMLF).** This section should include language that accompanies the description of the Engineered Containment Unit (ECU) in which reference is made to location at TB9, and a design that includes liners and a leachate collection system per Regional Board requirements. RWQCB-06

4. **Page ES-13, Section F.2.2, Treated Material Land Feature (TMLF) and page ES-15, Section F.2.3, Engineered Containment Unit (ECU), Land Use/Recreation.** Please explain why "indefinite leachate collection and monitoring" would impact future land use or recreational use of the site, and why this would result in unmitigable impacts. The fact that both these structures would be located at TB9 and that leachate collection systems are mainly a subsurface feature seem to have little influence on "unavoidable impact" classifications at all. RWQCB-07

5. **Page ES-15, Section F.2.3, Engineered Containment Unit (ECU), Land Use/Recreation**. The reference to TMLF should be replaced with ECU. RWQCB-08

6. **Page 2-1, Section 2.1**. As noted in Specific Comment 1, it is important to the Regional Board that an accurate portrayal of our approval for the Santa Maria landfill's acceptance of GOF NHIS be included in the Draft SEIR. Please revise the first paragraph of Section 2.1 as follows: RWQCB-09

   "In accordance with Waste Discharge Requirement (WDR) 01-041, the Regional Water Quality Control Board (RWQCB) has agreed to allow the City of Santa Maria to accept NHIS at their landfill (see Appendix _)[1]. Based on a letter from the RWQCB to Dwayne Chisam of the City of Santa Maria, dated March 11, 2003[2], the RWQCB determined the following with respect to the NHIS acceptance criteria:

[1] WDR 01-041 is attached and should be included in an appropriate appendix to the Draft SEIR.
[2] This March 11, 2003 Regional Board letter is attached and should also be included in the same appendix as WDR 01-041.

'All sources of NHIS material accepted at the Landfill must have proper engineering properties for use as foundation layer material, shall undergo the appropriate sampling protocol, and the hydrocarbon fractions in the NHIS shall **not** exceed the following concentrations:

1,000 parts per million (ppm) TPH in soil in gasoline fraction (C4[3]-C12). The DI-WET shall not exceed 1.0 mg/L TPH gasoline fraction.

15,000 ppm TPH in soil in diesel fraction (C13-C22). The DI-WET shall not exceed 5.0 mg/L TPH diesel fraction.

200,000 ppm TPH in soil in heavy oil fraction (C23 and above). The DI-WET shall not exceed 10.0 mg/L TPH heavy oil fraction.

These concentrations shall replace the concentrations contained in Table 3: "Acceptance Criteria for Hydrocarbon-Impacted Soil," as outlined in the January 23, 2002 Hydrocarbon Soils Management and Disposal Plan for City of Santa Maria Sanitary Landfill.' RWQCB-09

It should be noted that because diluent-impacted soils at the GOF are typically characterized against a diluent standard, rather than with the three TPH ranges specified in the acceptance criteria (i.e., gasoline, diesel, and heavy oil), some representative sampling and analytical work was done to evaluate the suitability of the diluent-impacted soils and the analytical methodology under the current acceptance criteria. According to the soil profiles from the GOF, the diluent-impacted soils satisfied the NHIS acceptance criteria for all three TPH fractions. However, they did not meet the acceptance criteria for leachable hydrocarbons in the gasoline and diesel ranges. After considerable evaluation, the RWQCB agreed to revise the acceptance criteria for GOF NHIS as noted in their August 31, 20004 letter[4] to the City of Santa Maria. These criteria apply only to GOF NHIS and are as follows:

- *1,000 ppm TPH in soil in gasoline fraction (C4-C12). The DI-WET shall not exceed 1.5 mg/L for the TPH gasoline fraction;*
- *15,000 ppm TPH in soil in diesel fraction (C13-C22). The DI-WET shall not exceed 7.5 mg/L for the TPH diesel fraction;*
- *200,000 ppm TPH in soil in heavy oil fraction (C23 and above). The DI-WET shall not exceed 10.0 mg/L for the TPH heavy oil fraction.*

As such, in evaluating the impacts of the proposed trucking project, all materials at the GOF were assumed to meet the RWQCB-approved criteria for NHIS."

7. **Pages 2-3 and 2-4, Section 2.2.1, Santa Maria Landfill**. In light of the recommended change to Section 2.1 noted in Specific Comment 6, above, as is, Section 2.2.1 contains redundant information regarding WDR 01-041 and Regional Board-approved acceptance criteria. Therefore, we recommend using acronyms that have previously been defined in the document, inserting a footnote immediately after the first reference is made to WDR 01-041 in which the reader is referred to the appropriate Appendix for the document, and referring to the Regional Board's August 31, 2004 letter (per the appropriate Appendix) defining the acceptance criteria. In addition, the first through fourth paragraphs on page 2-4 should be deleted (the first paragraph on page 2-4 would then begin with "According to WDR 01-041, the placement of NHIS . . ."). RWQCB-10

[3] Note that this designation is different from what is erroneously indicated on page 2-1 of the Draft SEIR.
[4] This August 31, 2004 Regional Board letter is attached and should also be included in the same appendix as WDR 01-041 and the March 11, 2003 Regional Board letter.

8. **Pages 2-3, 2-4, and 2-5, Section 2.2.1, Santa Maria Landfill.** The last paragraphs on pages 2-3, 2-4, and 2-5 contain outdated terminology with respect to sections of the Santa Maria landfill.

At the time WDR 01-041 was prepared, the Santa Maria landfill had four specific areas: the 68-acre Inactive Area in the westernmost portion of the site, the Active Area comprised of 118 acres in the central portion of the site, the 59-acre Expansion Area on the southeast part of the site, and approximately 2.5 acres adjacent to and southwest of the Inactive Area known as the DiBernardi Waste Area. However, for the sake of the Draft SEIR, only the Inactive, Active, and Expansion Areas are of concern with respect to the NHIS issue. As described in the WDR, neither the Inactive Area nor the Active Area has a bottom liner or leachate collection system beneath waste. Based on the absence of these features and because it was expected that the Active Area would reach its capacity by approximately 2005, WDR 01-041 specified that the Active Area would no longer receive municipal solid waste after November 30, 2002 (however, the Regional Board later extended this deadline to December 31, 2002). Therefore, the Active Area became inactive on December 1, 2002. It is this former Active Area that has received, and will continue to receive, the majority of NHIS coming to the landfill from various sources. After November 30, 2002, one of the two cells of the Expansion Area (Cell 1) began to actively receive waste. Therefore, to be accurate in the Draft SEIR, the post-November 30, 2002 terminology should be used in the Draft SEIR. This terminology is presented below: RWQCB-11

Pre-Nov. 30, 2002 Terminology	Post-Nov 30, 2002/Current Terminology
Inactive Area	Pre-12/02 Inactive Area
Active Area	Post-12/02 Inactive Area
Expansion Area	Active Cell 1
	Expansion Area (a.k.a. Cell 2)

Currently identified Figure 2-2 should be revised to reflect the most current terminology. (Note that based on the following Specific Comment, we recommend changing the designation for this figure.)

9. **Pages 2-5 and 2-6, Section 2.2.1, Santa Maria Landfill.** The last paragraph on page 2-5 also contains text that indicates confusion between WDR 01-041 requirements regarding municipal solid waste and NHIS. Specification 5 of the WDR (page 7) indicates that, "Wastes shall not be discharged to areas outside the present Active Area [now the Post-Nov. 2002 Inactive Area] footprint, unless discharged to an area equipped with a containment system, as follows: . . ." This information is also included as the last sentence on page 2-5. ***The waste referred to in the WDR and page 2-5 of the Draft SEIR is actually municipal solid waste, not NHIS.*** Therefore, the description of the containment system that is required in Specification 5 of the WDR and listed on page 2-6 of the Draft SEIR applies to the containment system employed at the currently Active Cell 1, and *not* to the Post-Nov. 2002 Inactive Area where the majority of NHIS is being placed. Based on this clarification, we recommend the following changes: RWQCB-12

a. Restructure the order of the first two figures in Section 2.2.1. A revised figure (per Specific Comment 8) of the "Santa Maria Landfill Location and Site Details" should be renamed Figure 2-1 and should be referred to at the bottom of page 2-3. Current Figure 2-1 should be renamed Figure 2-2.
b. A sentence should be included after the first paragraph on page 2-5 that ends with, " . . . meeting the acceptance criteria are accepted for disposal in the landfill." This sentence

should refer to Figure 2-3, which depicts the configuration for containment of NHIS within the Post-Nov. 2002 Inactive Area of the landfill.

c. Delete the last sentence on the bottom of page 2-5 and all text on page 2-6. The last paragraph on the bottom of page 2-5 should be changed as follows:

WDR 01-041 also allows for future use, with prior approval from the RWQCB's Executive Officer, of NHIS for daily cover and intermediate cover material in Active Cell 1 and the remaining Expansion Area Cell 2. WDR 01-041 indicates that, "Slightly higher hydrocarbon concentrations in soils disposed of within the new lined Cell Nos. 1 and 2 would be appropriate, due to their low permeability base liner and leachate collection and leak detection systems." Details of this waste containment system is provided on pages 7 and 8 of WDR 01-041 in Section C. Specifications, No. 5.

10. **Pages 3-9 through 3-28, Sections 3.2 through 3.2.3.3, Treated Material Land Feature (TMLF) and Engineered Containment Unit (ECU).** Although the most important comparisons in the Draft SEIR are of the Proposed Project to each of the alternatives, the descriptions of these two alternatives could be improved to clearly identify the similarities and differences of each. With respect to similarities, the TMLF and ECU are so similar from an engineered design perspective that it is difficult to identify differences. In fact, although the exact design of the TMLF and ECU will be dictated by Regional Board requirements, the figures in the Draft SEIR suggest the design will be essentially identical. The key message that should come through is that the TMLF will be more expensive to implement because the material is treated before it is placed in a repository, but that decommissioning (closure) should occur earlier for the TMLF than for the ECU because the TPH mass has been significantly reduced by bioremediation with the TMLF alternative. Therefore, operation and maintenance (O&M) costs for the TMLF should be less.

In addition to comparison of these alternatives, the document should contain the clear overall disadvantage these alternatives would face associated with the following concerns:

a. Initial permitting. The Draft SEIR does not adequately describe or account for permitting requirements, which will be significant and may take years. RWQCB-13

b. Time to closure. This timeframe is highly uncertain, and significant effort and cost will be associated with long-term O&M. Section 3.2.3 does not even include a discussion of closure/decommissioning for the ECU.

c. Potential future diluent releases. If the material in these alternatives generates significant leachate for decades, the lack of stability of these engineered features in a geologically active environment may result in future releases.

11. **Pages 5-26 and 5-27, Section 5.3.2.** There is erroneous information in this section on regulatory Significance Criteria for determining environmental impacts to surface water and groundwater. Specifically, errors are stated with respect to the content of the Water Quality Control Plan (Basin Plan) for the Central Coast Regional Board. Chapter 3 of the Basin Plan (Water Quality Objectives) is attached (Attachment 4) and should be used to verify ***all*** bullets noted on pages 5-26 and 5-27. RWQCB-14 Corrections should be made as appropriate. Note that the Basin Plan does not specify that TPH in groundwater and surface water should be cleaned up to taste and odor thresholds. Rather, taste and odor are two concerns that are considered when the Regional Board establishes cleanup levels for TPH in waters of the State. References to TPH cleanup to taste and odor thresholds in the first and third bullets on page 5-26 should therefore be revised or deleted. In addition, the Basin Plan has incorporated select Federal maximum contaminant levels (MCLs) as "organic concentrations not to

be exceeded in domestic or municipal supply." Note that although MCLs are included in Basin Plan Table 3-1 for benzene, ethylbenzene, and xylenes, the table does not include the MCL for toluene. Also note that some MCLs have been revised since the compilation of the Basin Plan in 1994. Because we now require conformance with California primary MCLs, the appropriate action levels RWQCB-14 for these four constituents are as follows: benzene (1 part per billion [ppb]), toluene (150 ppb), ethylbenzene (300 ppb), and xylenes (1,750 ppb). The first bullet should be corrected to reflect these appropriate concentrations.

Select findings from CAO 98-38 are also attached (Attachment 5). Page 2 of these findings indicates what the Regional Board has identified as beneficial uses at GOF, as well as Regional Board documents/regulations that address our concerns associated with diluent releases and sump material at GOF. These references noted in the CAO should help to focus information in Section 5.3.2 to address appropriate Regional Board concerns associated with waters of the State.

12. **Page 5-27, Section 5.3.2, last bullet.** Explain why a drawdown of 2.5 feet is used as a threshold of significance. This value seems too small given known natural variations in groundwater elevations throughout the site. RWQCB-15

13. **Pages 6-8 and 6-9, Section 6.1.2**. See Specific Comments 4 and 10. RWQCB-16

14. **Pages 6-9 and 6-10, Section 6.1.3**. See Specific Comments 4 and 10. RWQCB-17

15. **Pages 7-1 and 7-2, Sections 7.1.1, 7.1.2, and 7.1.4.** The Draft SEIR addresses only short-term economic growth that will result form short -term local employment associated with the project. The Section 7 analysis does not address long-term economic growth that may result from preserving the GOF site, and making it available for eco-tourism (e.g., The Dunes Center). Although the site would not be developed, the local economy would benefit.

In addition the Draft SEIR states that the project would take place in a previously disturbed area, and RWQCB-18 would not involve the development of open space. For the past 60 years the site has been used for industrial purposes (oil and gas production), and the public has had limited access (confined to the beach). Conversion of the site to a nature preserve would change the land use, and allow this unique property to be officially designated as open space.

16. **Section 9, CDP/DP Condition Language Changes.** The Regional Board concurs with the proposed language revisions to the existing conditions in Coastal Development Permit/Development Plan CDP/DP) D890558D.

If you have questions regarding our comments on the Draft SEIR, please call **Diane Kukol at (805) 542-4637** or Sheila Soderberg at (805) 549-3592.

Sincerely,

Sheila Soderberg for

Roger W. Briggs
Executive Officer

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Attachments:

1. Waste Discharge Requirement (WDR) No. 01-041 issued to the City of Santa Maria.
2. Regional Board letter to the City of Santa Maria dated March 11, 2003.
3. Regional Board letter to the City of Santa Maria dated August 31, 2004.
4. Central Coast Regional Board's Water Quality Control Plan, Chapter 3.
5. Pages 1 and 2, Cleanup or Abatement Order No. 98-38 issued to Unocal; amended November 6, 1998.

cc:

Paper Copy:

Mr. Scott Morgan, State Clearinghouse
Mr. Jim Dean, Program Manager, Unocal Central Coast Group
Mr. John Zhao, Solid Waste/Utilities Engineer, City of Santa Marsav i
Mr. Bill Henry, Principal, Morro Group, Inc.

Via Email (w/ Attachments):

Lori Okun, State Water Resources Control Board OCC
Melissa Boggs-Blalack, Dept. of Fish and Game, OSPR
William Brannon, DOGGR
Karen Brooks, San Luis Obispo APCD
John Catts, John G. Catts, Inc.
Allison Dettmer, California Coastal Commission
EarthDesign
Don Eley, Levine·Fricke
Gonzalo Garcia, Unocal Operations Team Manager, Guadalupe Restoration Project
Mary Hackenbracht, Dept. of Justice
Bruce Henderson, U.S. Army Corps of Engineers
Melody Kreimes, Kreimes Associates, Inc.
John Peirson, Jr., MRS
Luis Perez, Santa Barbara County Energy Division
Jeff Poel, San Luis Obispo Co., Div. of Environmental Health
Mary Root, US Fish & Wildlife Service
Kim Tulledge, Unocal
Kathy Verrue-Slater, Dept. of Fish and Game

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, CA 93401
REVISED WASTE DISCHARGE REQUIREMENTS ORDER NO. 01-041
Waste Discharger Identification No. 3420304001
Adopted at the May 18, 2001 Meeting

For
CITY OF SANTA MARIA
SANTA MARIA CLASS III LANDFILL
Santa Barbara County

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

SITE OWNER AND LOCATION

1. The City of Santa Maria (hereafter "Discharger") owns and operates the Santa Maria Class III Landfill (hereafter "Landfill"), as shown in Figures 1 and 2. This site has also been historically referred to as the Santa Maria City Landfill or Santa Maria Landfill.

2. The Landfill is east of Santa Maria, approximately one mile east of Highway 101 at 2065 East Main Street, as shown in Figure 2. The site encompasses portions of Sections 7, 8, 16, and 17 of Township 10 North, Range 34 West, San Bernardino Baseline & Meridian. The site is on Santa Barbara County Assessor's Parcel No's. 128-033-08, 128-094-15, 128-094-40, 128-094-08, and 128-094-09

PURPOSE OF ORDER

3. The Discharger submitted a Joint Technical Document/Report of Waste Discharge (ROWD) on August 30, 2000. Within the ROWD, the Discharger proposes several significant changes to the Landfill as it is presently configured. The Discharger is currently regulated by Waste Discharge Requirements Order No. 94-063 (hereafter "Order 94-063"). The purpose of Order No. 01-041 (Hereafter "Order" or "Order No. 01-041") is to revise and update requirements for discharging waste to land at the Landfill. This update includes the following key elements:
   - Interim and Final closure for the 118-acre, unlined Active Area of the facility;
   - A new 59-acre composite lined landfill unit comprised of two cells; and
   - 68-acre final cover system combined with irrigated re-use of cap as soccer fields for the Inactive Area.

4. These revisions and updates will bring the Landfill into compliance with California Code of Regulations (CCR) Title 27, Solid Waste, effective July 18, 1997; and, 40 CFR Parts 257 and 258 Solid Waste Facility Disposal Criteria, Final Rule, as promulgated October 9, 1991.

5. This Order does not contain many of the prohibitions, specifications, and provisions included in Order No. 94-063. These provisions, prohibitions, specifications, and provisions are addressed through compliance with CCR Title 27 and 40 CFR 257 and 258 as required in Item A.1 below.

SITE DESCRIPTION AND HISTORY

6. The 290-acre site is located along the southern margin of the Santa Maria River, immediately behind a Corps of Engineer-built levee that bounds the river's margin. The Corps of Engineer's levee was designed to contain the 500-year flood. Land uses within a mile of the Landfill include agricultural, commercial,

recreational, and residential. For the purposes of this Order, the Landfill can be divided into three basic areas (Figure 3):

- **Active Area**: This central portion of the site is comprised of 118 acres. There is no bottom liner or leachate collection system between wastes and underlying river sediments in this area. Active landfilling occurs predominantly in the eastern half of this area. Present calculations suggest that this area will achieve maximum capacity in four to six years.
- **Expansion Area**: The proposed lateral expansion covers 59 acres on the southeast portion of the site. The Expansion Area will be completed in two cells; Cell No. 1 will cover 36 acres and Cell No. 2 will cover 23 acres. The additional capacity provided by these two cells will add approximately 10 to 15 years capacity to the Landfill.
- **Inactive Area**: This area comprises 68 acres of the western-most portion of the site. This area was landfilled in the 50's and 60's and has an interim soil cover ranging in thickness from 3 to 10 feet. There is no bottom liner or leachate collection system beneath waste in this area.

7. Based on the Discharger's calculations, the Active Area has approximately four to six years of capacity remaining. Capacity may still exist in the Active Area following completion of Cell No. 1 construction, if this is the case, the Discharger will shift municipal waste disposal to the new Cell No. 1. Special waste disposal for non-decomposable wastes, such as soil or asbestos, may continue in the Active Area.

WASTE TYPE & CLASSIFICATION

8. The Active Area receives non-hazardous, municipal, commercial, and agricultural solid waste. Municipal waste includes residential wastes, sewage sludge, construction and demolition debris, and green waste. Commercial waste includes roofing, paper, wood, wire, plastic, and building materials. Agricultural wastes include citrus, fruit pulp, manure, plant residue, and plastics.

9. Enormous quantities of hydrocarbon-contaminated soil exist in the Santa Maria area, remaining from the oil production era during the 1900s. Most of this soil still sits on the lease sites where it was generated. Redevelopment of the former exploration properties surrounding Santa Maria requires that these soils be removed and disposed of in an appropriate manner. Disposal of low-concentration waste at the Landfill enables the waste soils to be entombed under a protective final cover and may accelerate closure for the unlined Active Area. This accelerated closure should improve groundwater quality beneath the Landfill.

10. To expedite closure of the Active Area, the Discharger has proposed accepting low-concentration hydrocarbon contaminated soils. These soils would be restricted to placement in the uppermost portion of remaining capacity in the Active Area, eliminating the possibility of contacting landfill leachate and groundwater at the base of waste in the Landfill. This soil will be used to crown the Landfill, helping achieve the necessary slopes to promote drainage from the Active Area final cover.

    Proposed hydrocarbon concentrations in waste soil would be below soluble levels. Slightly higher hydrocarbon concentrations in soils disposed of within the new lined Cell Nos. 1 and 2 would be appropriate, due to their low permeability base liner and leachate collection and leak detection systems.

    The Discharger made initial disposal concentration recommendations for hydrocarbon- contaminated soil in its draft ROWD submittal. However, the proposed concentration limits did not cover enough compounds nor adequately discuss other aspects of soils management, such as placement restrictions.

11. Closure construction was completed for a portion of the Active Area during spring 2000. This year's winter rains rapidly infiltrated through the vegetative layer of the closed area and migrated down slope, through the drain layer that over lies the low- permeability, geosynthetic clay liner (GCL). At the perimeter of the Landfill, the infiltrated runoff

flowed out through the vegetative layer eroding it and exposing the GCL. A simple design modification to the final cover, allowing the drain layer to daylight would likely solve this cover erosion problem.

Additionally, vegetation (i.e. grasses) planted on the protective vegetative cover would greatly reduce erosion, as well as promote transpiration of moisture infiltrating into the vegetative cover.

12. In WDR No. 94-063, a maximum final elevation of 325 feet above mean sea level was proposed, in an effort to accelerate closure of the unlined Active Area. Elevation closure triggers like this have proven ineffective in expediting closure for this and other unlined facilities. Active unlined landfills with elevated groundwater, like this site, have ready access to moisture through infiltration and from underlying groundwater. This additional moisture dramatically increases waste degradation and landfill settling. As a result, the unlined Active Area can likely remain open and continue to fill indefinitely, without reaching the maximum elevation, thus never triggering their closure requirement. The maximum elevation restriction in WDR No. 94-063 is not useful in protecting water quality.

13. Wastes have been found on the DeBernardi property, located adjacent to and immediately southwest of the Landfill's Inactive Area. Approximately 2.5 acres of waste or roughly 50,000 cubic yards were filled in this area during the 1950s and 1960s. There is no record that the City of Santa Maria placed this waste, however the waste is contiguous with the landfill. Additionally, wastes on the DeBernardi property were placed at about the same time as wastes in the Inactive Area. Initially the Discharger evaluated relocating the waste into the Active Area. This effort was ended when the volumes proved prohibitive; closing the waste in place is a more appropriate alternative. The Discharger is currently working with the DeBernardis to install a final cover and provide postclosure maintenance for this area.

GEOLOGY

14. <u>Setting</u> - The Landfill is located in the Coast Range geomorphic province, in the Santa Maria Valley. The Landfill is situated on the southern margin of the Santa Maria River. The river in this area serves as a recharge source for the Santa Maria groundwater basin to the south.

15. <u>Topography</u> - The Landfill topography is nearly flat with a very slight slope to the northwest. There is approximately 60 feet of elevation change across the nearly two-mile length of the site.

16. <u>Stratigraphy</u> – The Inactive, Active, and Expansion areas are all underlain by coarse-grained, highly-permeable, alluvial sediments deposited by the Santa Maria River. The sediments are Holocene in age and composed of primarily sands and gravels with subordinate sandy clays and silts. All soils on site (Metz loamy sand, Mocho sandy loam, and Metz sandy alluvial soil) are characterized by high permeability. Borrow material, used for daily cover and the final cover vegetative layers, is mined from the Santa Maria River and has extremely high permeability and erosion potential.

    Underlying the alluvium are the Orcutt Sand and the Paso Robles Formation, both Pleistocene in age. The Orcutt Sand consists of interbedded sands and gravels. The Paso Robles Formation underlies the Orcutt Sand, and is composed of sand, silt, and claystone with some gravelly conglomerate.

    Geologic characterization of materials beneath the site indicates that these sediments do not provide adequate protection for water quality. An engineered liner system is necessary for the Expansion Area.

17. <u>Structure</u> – There are no known active faults on the site. The closest known potentially active fault is the Santa Maria River Fault. This fault is located approximately two miles west of the site and offsets Pleistocene-age Paso Robles Formation sediments. The estimated peak ground acceleration expected to occur at the site from the Santa Maria River Fault is 0.111g from a Maximum Probable Earthquake (MPE) of

Richter Magnitude 4.5. The highest estimated peak ground acceleration expected to occur at the site is 0.445g, produced by a MPE of Richter Magnitude 6.5 quake on the Point San Luis Fault. The Point San Luis is a blind thrust fault estimated to be approximately three miles west of the site.

GROUND, STORM & SURFACE WATER

18. Groundwater - There are two general aquifer systems beneath the Landfill. The first is the shallow zone and is contained within the younger alluvium and Orcutt Sand. The shallow zone covers approximately 0 to 150 feet below ground surface (bgs). Underlying the shallow zone aquifer, and beginning at approximately 150 feet bgs, is the Paso Robles Formation aquifer. The Paso Robles Formation aquifer is separated from the overlying shallow aquifer by a clay aquitard. Production wells in the Paso Robles aquifer are generally 1,000 feet deep. The general groundwater flow direction in this area is toward the west. The natural groundwater gradients in the area are 35 feet per mile.

19. There are approximately 90 water wells within a one-mile radius of the Landfill. Most of these wells are used for agricultural supply.

20. Groundwater Separation – Seasonally high groundwater elevations at the site reach the bottom of waste in portions of the Active Area. Groundwater reaches the surface in the Expansion Area excavation of Cell No. 1. Neither of these conditions meet the minimum five-foot separation required by Title 27.

20. Groundwater Contamination – Groundwater has been monitored at the Landfill since late 1987. Low-concentration volatile organic compounds (VOCs) have been detected on the downgradient edge of the landfill since 1992. Historical trends for VOCs indicate moderate fluctuation, probably in response to fluctuations in groundwater elevation. CAO 96-27 was issued to the Discharger in 1996 and required delineation of the VOC plume offsite. Eleven groundwater monitoring wells have been installed downgradient of the Active Area. Presently, eleven downgradient perimeter and offsite wells consistently yield PCE concentrations ranging of 0.1 to 2.5 parts per billion. All eleven of these wells are downgradient from the unlined Active Area. Some of these chronic, very low concentration VOC detections may be attributable to landfill gas migration, however, leachate passing through the landfill is also a source. This can be verified by the presence of elevated metals (iron and manganese), nitrate, chloride, and TDS in some downgradient wells. Enhanced landfill gas recovery and installation of a final cover system over the Active and Inactive Areas will decrease groundwater impacts.

22. The Discharger has effectively satisfied the requirements of CAO No. 96-027, by reasonably delineating the extent of offsite contaminant migration.

23. Storm Water – This site is covered under the State Water Resources Control Board's (SWRCB) industrial activities stormwater general permit

24. Surface Water – The Santa Maria River channel is located immediately north of the Landfill, and is separated from the site by the Santa Maria River levee, which is designed to protect against a 500-year flood event. Surface water from the Inactive Area and closed portions of the Active Area is conveyed by sheet flow to perimeter channels. These channels discharge to the Santa Maria River.

MONITORING PROGRAMS

25. Groundwater Monitoring – The first groundwater monitoring wells were installed at the Landfill in 1987. The present monitoring systems consists of 24 wells sampled on a quarterly basis. Six additional wells are used for water level measurements. As previously discussed, several wells located downgradient from the Active Area have yielded chronic low-concentration VOC detections.

26. Leachate Monitoring – There is no leachate recovery system or leachate monitoring in either the Active Area or the Inactive Area. The Expansion Area will be equipped with

both leachate collection and leak detection recovery systems.

27. Surface Water Monitoring – Surface water monitoring is conducted at three locations on the site. These locations are the surface water discharge points from the site to the Santa Maria River basin.

28. Vadose Zone Monitoring - Vadose zone monitoring is required by Section 20415 (Title 27) unless demonstrated by representative soil suction curves that soil pore liquid cannot be extracted. A vadose zone soil investigation conducted in 1995 indicated that the course-grained alluvium at the site does not provide enough moisture retention capacity for sampling purposes. The Discharger installed a vadose zone landfill gas monitoring system around the perimeter of the landfill in accordance with Order 94-063 Monitoring and Reporting Program. This system consists of 50 monitoring probes at 26 locations.

Basin Plan

29. The Water Quality Control Plan, Central Coast Basin (Basin Plan), was adopted by the Regional Board on September 8, 1994, and approved by the State Water Resources Control Board (SWRCB) on November 17, 1994. The Basin Plan incorporates statewide plans and policies by reference and contains a strategy for protecting beneficial uses of State Waters. This Order implements the water quality objectives stated in that Plan.

30. The Basin Plan (1994) identifies the following present and anticipated beneficial uses of the Santa Maria River in the Landfill vicinity:

    a. Municipal and domestic supply;
    b. Agricultural supply;
    c. Industrial supply;
    d. Groundwater recharge;
    e. Water contact recreation;
    f. Non-contact water recreation;
    g. Wildlife habitat
    h. Cold and warm, fresh water habitat;
    i. Fish migration; and
    j. Commercial and sport fishing.

31. Present and anticipated beneficial uses of groundwater in the Landfill vicinity include:

    a. Agricultural supply;
    b. Municipal and domestic supply; and
    c. Industrial use.

California Environmental Quality Act

32. On December 7, 1993, the Santa Maria City Council certified a Final Environmental Impact Report (FEIR) and adopted the CEQA findings in accordance with the California Environmental Quality Act (Public Resources Code, Section 21000, et/ seq.) and the California Code of Regulations. The FEIR addressed potential environmental impacts of continued operation (Active areas) and the Expansion Area. Mitigation measures to prevent nuisance and assure protection of beneficial uses of surface and ground waters will be implemented through this WDR.

33. On May 1, 2000, the Santa Maria City Council certified an addendum to the Final Environmental Impact Report (EIR) and adopted the CEQA findings in accordance with the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.) and the California Code of Regulations. This addendum covered minor design and operational changes proposed in the Joint Technical Document, submitted to the Regional Board in August 2000. These changes were not covered under the original 1993 EIR. Disposal of low-concentration hydrocarbon soils are included in the EIR addendum.

34. This Order contains prohibitions, discharge specifications, water quality protection standards, and provisions intended to protect the environment by mitigating or avoiding impacts of the project on water quality. This Order is for an existing facility and therefore is exempt from provisions of the California Environmental Quality Act (Public Resources Code, §21000, et seq.) in accordance with Title 14, Chapter 3, §15301.

General Findings

35. The Discharger has funded its closure fund for the waste already in place. The estimated total required for closure of the Landfill is approximately $17,370,341, as determined by the Integrated Waste Management Board (Waste Board) from the Discharger's preliminary closure plan. The Discharger has funded closure to approximately $12,161,750 for closure. The Discharger's closure funding is in compliance with the closure-funding schedule required by the Waste Board.

36. Discharge of waste is a privilege, not a right, and authorization to discharge waste is conditioned upon the Discharger complying with provisions of Division 7 of the California Water Code and with any more stringent limitations necessary to implement the Basin Plan, to protect beneficial uses, and to prevent nuisance. Compliance with this Order should assure conditions are met and mitigate any potential changes in water quality due to the project.

37. The Landfill operates under the California Integrated Waste Board's Solid Waste Facilities Permit (SWFP) No. 42-AA-016, issued in July 1998. The Landfill is included in Santa Barbara County's Solid Waste Management Plan completed in 1998.

38. This Order implements the prescriptive standards and performance goals of CCR Title 27, as approved on July 18, 1997.

39. On March 3, 2001, the Regional Board notified the Discharger and interested agencies and persons of its intention to update the waste discharge requirements for the discharge and has provided them with a copy of the proposed Order and an opportunity to submit written views and comments.

40. After considering all comments pertaining to this discharge during a public hearing on May 18, 2001, this Order was found consistent with the above findings.

IT IS HEREBY ORDERED pursuant to authority in §13263 of the California Water Code, the City of Santa Maria, its agents, successors, and assigns may discharge wastes at the Santa Maria Class III Landfill, providing compliance is maintained with the following:

A. COMPLIANCE WITH OTHER REGULATIONS, ORDERS AND STANDARD PROVISIONS

1. Discharge of waste shall comply with all applicable requirements contained in the California Code of Regulations Title 27, Division 2 Solid Waste and 40 CFR Parts 257 and 258 Solid Waste Facility Disposal Criteria. If any applicable regulation requirements overlap or conflict in any manner, the most water quality protective requirement shall govern in all cases, unless specifically stated otherwise in this Order, or as directed by the Executive Officer.

2. This Landfill is no longer subject to this Regional Board's Order No. 93-84 "Waste Discharge Requirements Amendment for All MSW Landfills in the Central Coast Region" (Super Order). The Super Order updated all Region 3 landfill WDRs to comply with the recently updated federal landfill regulations, 40 CFR Parts 257 and 258. Through compliance with Title 27 (CCR) and 40 CFR Parts 257 and 258 as required above in Provision 1 of this Order, the Discharger will satisfy identical requirements within Order No. 93-84.

3. The Discharger shall monitor potential releases from the Landfill related to surface water runoff by complying with all requirements contained in the "State Water Resources Control Board Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000001 Waste Discharge Requirements for Discharge of Storm Water Associated with Industrial Activities Excluding Construction Activities (General Permit)".

B. PROHIBITIONS

1. Discharge of waste to areas outside the approved boundary of the landfill, as identified in this Order, is prohibited. The submittal required in Provision E.8 will provide survey locations for the limit of waste in each landfill unit. When these limits are identified to the satisfaction of the Executive Officer, these coordinates will define the limits of the corresponding landfill unit, for the purposes of this prohibition. Fill beyond defined survey limits is prohibited.

2. Discharge of wastes onto a liner system that is not approved by the Executive Officer of the Regional Board is prohibited.

3. The discharge of hazardous waste or hazardous constituents, except for waste that is hazardous due only to its asbestos content is prohibited.

4. The discharge of solid or liquid waste or leachate to ponded water or waters of the State, including groundwater, is prohibited.

5. The discharge of waste, meaning any waste materials that are determined to contain free liquid through visual inspection, or as defined by EPA Method 9095 (Paint Filter Liquids Test), is prohibited.

6. No further closure construction shall take place until the minor design flaw associated with the recently closed portion (Finding No. 11) of the Active Area is remedied.

C. SPECIFICATIONS

1. Discharge of waste shall not cause a condition of pollution or contamination to occur through a statistically significant release of pollutants and/or contaminants, or waste constituents, as indicated by the most appropriate statistical [or non-statistical] data analysis method and retest method listed in MRP No. 01-041.

2. Discharge, collection and treatment of waste shall not create nuisance, as defined by California Water Code Section 13050(m).

3. Final Closure System: Onsite materials have extremely high permeabilties, as demonstrated by high runoff at base of vegetative layer in the Active Area during recent storm events. The use of a monocover system comprised of exclusively onsite soil is insufficient to protect underlying waste from infiltration. The final cover system, detailed below, is for portions of the Active Area that will not utilize irrigation for any post-closure re-use choices. The non-irrigated, future closure areas shall, at a minimum, include:

   a. Foundation Layer: A foundation layer with a minimum thickness of two feet;
   b. Low Permeability Layer: A minimum one-foot thick layer of soil with permeability less than or equal to $1x10^{-6}$ cm/sec.
   c. Vegetative Layer: A minimum two-foot thick layer of soil. This layer shall be resistant to erosion while maximizing sheet flow runoff from the site. This layer shall also be planted and maintained to minimize erosion and protect the underlying low permeability layer.

   An engineered alternative design, as approved by the Executive Officer, will substitute for the above cover system. The alternative design must be as protective of water quality and satisfy cover design requirements stated in Title 27 and 40 CFR § 258.

4. Low-concentration hydrocarbon contaminated soils will be permissible for use in the Landfill's Expansion and Active Areas, with the following conditions:

   a. Hydrocarbon soil must be placed a minimum of 20 feet above any historic or anticipated leachate or groundwater elevation;
   b. Hydrocarbon soil shall not be used as alternative daily cover without prior approval from the Executive Officer;
   c. Waste soil shall contain no free liquids;
   d. No hazardous waste shall be accepted for disposal;
   e. A hydrocarbon soils management plan/program is submitted to, and approved by the Executive Officer.

5. Wastes shall not be discharged to areas outside the present Active Area footprint, unless discharged to an area equipped with a containment system, as follows (Figure 4):

   a. A groundwater break/subdrain will underlie the Expansion Area cells. This subdrain shall be placed beneath and

protect the liner system from contact with the highest historic and anticipated groundwater elevations for this location. This subdrain shall be considered the top of the groundwater surface, above which will be the requisite five-foot separation between groundwater and waste as stated in Section 20240, Title 27. The subdrain will be designed such that collected groundwater can be sampled from the system;

b. Above the subdrain system, a composite liner with a leak detection layer and a leachate collection and removal system shall be constructed. The liner shall consist of the following components:

1. Lower Component: a minimum two-foot layer of compacted soil with a hydraulic conductivity of no more than $1X10^{-7}$ cm/sec; and,
2. Upper Component: a minimum 80-mils high-density polyethylene (HDPE). The upper component must be installed in direct and uniform contact with the lower component;
3. A Leak Detection and Removal System (LDRS), comprised of a drainage layer overlain by a 60-mil thick HDPE geomembrane. Drainage from the LDRS will be directed to a collection pipe, which in turn, will gravity drain or be pumped to a holding tank for removal, volume measurement and testing. The LDRS shall be designed such that there is no standing leachate head on the underlying system. If liquid is found in the LDRS, the Discharger shall notify the Regional Board immediately and develop a corrective action plan (CAP) to remediate the potential discharge. This CAP will be submitted to the Regional Board within 45 days of first encountering the leak;
4. A Leachate Collection and Removal System (LCRS), designed such that any leachate gravity drains to a collection point/sump and is removed through either gravity or pumping to a holding tank for removal, volume measurement and testing. The LCRS shall be designed such that there is no standing leachate head on the underlying system. A protective soil layer shall be placed above the LCRS and liner system. This shall be a minimum of 24 inches thick;
5. An engineered alternative design, approved by the Executive Officer, will be considered for bottom and side slope liner areas. Engineered alternative designs must satisfy the performance criteria in 40 CFR § 258.40(a)(1) and (c), and satisfy the criteria for an engineered alternative to the above Prescriptive Design, as provided by CCR Title 27 § 20080 (b). Performance of the alternative composite liners' components, in combination, shall equal or exceed the waste containment capability of the Prescriptive Design, as outlined above.

While the redundant composite liner system detailed above is restrictive, it provides enhanced water quality protection appropriate for the challenging geologic and hydrogeologic conditions specific to this site. This system is also consistent with requirements for sites with similarly extreme siting conditions throughout the state.

Prior to construction of any new cell, the Discharger shall evaluate basic critical siting conditions, including, but not limited to, liquefaction potential, seismicity and active faulting, and seismic stability. These evaluations shall be included with the Expansion Area design report submittal and completed to the satisfaction of the Executive Officer.

6. The Active Area shall not receive municipal solid waste after **November 30, 2002**, or following completion of construction of the Expansion Area first cell, and subsequent approval of as-built construction report by the Executive Officer, whichever occurs first. Soil and non-decomposable wastes may be acceptable after this date, as approved by the Executive Officer.

Prior to construction of the Expansion Area cells, the Discharger will have to obtain additional permits, including a Solid Waste Facility Permit from the Integrated Waste Management Board (IWMB). Delays may occur in the acquisition of these permits that are beyond the control of the Discharger. If permit delays beyond the Discharger's control become a significant issue, by **October 1, 2001**, the Discharger shall submit a letter to the Regional Board; providing justification for up to a one-year extension of the November 30, 2002 closure date stated above. If the Discharger demonstrates to the satisfaction of the Executive Officer that construction and permitting delays are beyond the Discharger's control, the closure date may be extended by up to one year, to **November 30, 2003**. Future extensions beyond November 30, 2003 shall be at the discretion of the Executive Officer with concurrence from the Regional Board, in no more than one year increments, and based on justification submitted annually (by **October 1 each year**) by the Discharger. Additionally, the Discharger shall submit a quarterly letter report, outlining progress towards completing necessary permits, including the IWMB permit for Expansion Area construction, and closure of the unlined Active Area. These quarterly updates shall be submitted by the first day of July, October, January, and April each year.

7. Discharge of condensate or leachate to a waste management unit shall:

a. Be returned to only a waste management unit equipped with a containment system that meets or exceeds the performance standard of CCR Title 27, CFR, Part 258.40(a)(2), or in this order, whichever is more protective of water quality;
b. Each be measured by volume and recorded on a monthly basis. These monthly volumes shall be included as a part of monitoring submittals as required in the most recent Monitoring and Reporting Program;
c. Have a second containment system sized to hold 100% of the primary containment system holding capacity;
d. Be discharged in compliance with this Order; and
e. Not discharge leachate within 48 hours of any forecasted rain event.

8. Condensate or leachate handling shall:

a. Ensure that operation of the primary containment includes a phone based alarm system that notifies operations personnel of an imminent or occurring leachate collection and storage system failure;
b. Have a secondary containment system that is acceptable to the Executive Officer; and
c. Not spread leachate within 48 hours of any forecasted rain events.

9. The Discharger shall prevent formation of a habitat for carriers of pathogenic microorganisms.

10. Asbestos may be discharged in the Landfill only if it is handled and disposed of in accordance with all applicable Federal, State, and local statutes and regulations.

11. Incinerator ash wastes may be discharged in the Landfill only when chemical analyses demonstrate, to the Executive Officer's satisfaction, that the waste is non-hazardous.

12. Daily cover shall prevent nuisance and excess leachate generation, and promote lateral runoff of rainfall away from the active disposal area. Upon Executive Officer approval, alternative daily cover materials may be utilized.

13. Waste shall not be discharged to a wetland, as defined in 40 CFR §232.2(r), or to any portion thereof, unless the Discharger successfully completes all demonstrations pursuant to 40 CFR §258.12(a). Such demonstration is subject to Executive Officer approval.

14. Wastes discharged in violation of this Order, shall be removed and relocated.

15. The Discharger shall operate the Landfill and configure the final landfill contours, in conformance with the most recent Executive Officer approved Master Plan and/or Operations Plan, except where the Plan(s) conflict with this Order. In the event of conflict, this Order shall govern in cases where it is more protective of water quality. Any changes to the Plan(s) that may affect compliance with this Order shall be approved in writing by the Executive Officer.

16. If adequate daily cover material is not accessible during inclement weather, such material shall be stockpiled during favorable weather to ensure year-round compliance.

17. All Landfill surfaces and working faces shall be graded and operated to minimize rainfall infiltration into wastes, to prevent ponding of water, and to resist erosion. Positive drainage to divert rainfall runoff from areas containing waste shall be provided.

18. Storage facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm, or otherwise managed, to maintain the design capacity of the system.

19. A minimum of two feet of freeboard shall be maintained in all stormwater/sediment containment ponds.

20. Waste management units, containment structures, and drainage facilities shall be designed, constructed and maintained to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, overtopping, and damage due to natural disasters (e.g., floods with a predicted frequency of once in 100 years, the maximum probable earthquake, and severe wind storms).

21. All Landfill areas that have not reached final fill elevation, but will remain inactive over one-year, shall be provided with an approved long-term intermediate cover. The cover must be approved by the Executive Officer. The thickness and permeability of the long-term intermediate cover shall be based primarily on site-specific conditions including, but not limited to length of exposure time; volume of underlying material, permeability, thickness and composition of existing cover; amount of yearly rainfall; depth to groundwater; beneficial uses of underlying groundwater; site-specific geologic and hydrogeologic conditions; and effectiveness of existing monitoring system.

22. Each area of the Landfill, when closed shall have at least two permanent survey monuments. The monuments shall be installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure monitoring and maintenance period.

D. WATER QUALITY PROTECTION STANDARDS

1. Discharge of waste shall not cause the concentration of any Constituents of Concern (COC) or Monitoring Parameter to exceed its respective background value in any monitored media (i.e. soil, or groundwater) at any Monitoring Point pursuant to the Monitoring and Reporting Program No. 01-041 (hereafter MRP No. 01-041).

2. Constituents Of Concern (hereafter COC) and monitoring parameters for ground water and surface water are listed in MRP No. 01-041. Monitoring points and background monitoring points for Detection and Corrective Action monitoring shall be those specified in MRP No. 01-041.

3. The discharge of waste shall not cause a statistically significant difference in water quality over background concentrations for Concentration Limit for each COC or Monitoring Parameter (per MRP No. 01-041) at the Point of Compliance. The Concentration Limits shall be maintained for as long as the waste poses a threat to water quality. Discharge of waste shall not adversely impact the quality of State waters.

4. Discharge of waste shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board.

5. Discharge of waste shall not cause concentrations of chemicals and radionuclides in groundwater underlying in down-gradient of the Landfill to exceed the State Department of Health Services latest recommended Drinking Water Action Levels or Maximum Contaminant Levels of the California Code of Regulations Title 22, Division 4, Chapter 15, Article 5.5.

6. The Discharger is responsible for containment of waste and monitoring as long as the waste poses a threat to water quality.

E. PROVISIONS

1. WDR Order No. 94-063 and CAO No. 96-027, both for the City of Santa Maria, are hereby rescinded.

2. By **December 31, 2001**, the Discharger shall submit a Closure and Post-Closure Maintenance Plan providing the final cover system design for all portions of the Active and Inactive areas. This includes a specific design for portions of either area that are planned for irrigated re-use. This report shall include: areas of the landfill that will be re-used with corresponding re-use designations; areas of irrigation coverage; design components of the cover system; final cover design for the DeBernardi waste area; details for long term facility maintenance including DeBernardi waste area, locations of additional landfill gas recovery wells; and protective elements that will prevent irrigation infiltration to waste. The irrigated re-use final cover system design shall be more protective than the Final Closure System described above. This Final Closure System shall remedy erosion and infiltration problems that exist in the recently closed portion of the Active Area. A proposed schedule for construction activities with real calendar dates shall be included with this report. Each final cover system design shall be deemed acceptable by the Executive Officer prior to installation.

3. By **November 30, 2001**, the Discharger shall submit a technical report providing the design of subdrain, and liner components for the Expansion Area cells. This design report shall include, but is not limited to, all waste containment and design elements included above (Specification C.5). This report shall also include evaluation of all landfill-siting criteria, including liquefaction potential and elevated groundwater conditions. A proposed schedule for construction activities with real calendar dates shall be included with this report. The liner system design report shall be deemed acceptable by the Executive Officer prior to installation.

4. By **October 1 of every year**, the Discharger shall submit a report of Wet Weather Preparedness. The report shall detail preparedness actions taken to (1) ensure discharges to surface or groundwater do not occur during the impending rainy season, and (2) all other relevant Title 27 and 40 CFR 258 criteria.

5. By **January 31 of every year**, the Discharger shall submit a Compliance Report addressing compliance with all terms of this Order. The report can be included in the Landfill's Annual Report to the Executive Officer. The Discharger shall maintain a copy of this Order at the Landfill and make it available at all times to the regulatory agency personnel and to Landfill operating personnel, who shall be familiar with its contents.

6. By **February 28, 2002**, the Discharger shall submit a Hydrocarbon Soils Management and Disposal Plan. This plan shall include technical rationale for compound-specific, hydrocarbon acceptance limits for both the Active and Expansion Areas. The Hydrocarbon Soils Management and Disposal Plan shall be deemed acceptable by the Executive Officer prior to any disposal of low concentration hydrocarbon soils at either the Active or Expansion Areas of the landfill. This plan shall include, but is not limited to the following:

   a. Hydrocarbon soil concentration limits for soil disposal in both the Active and Expansion Areas. Concentrations limits for the Active Area shall be significantly less than limits proposed for the lined Expansion Area cells;
   b. Placement restrictions and volume tracking for waste in both the Active and Expansion Areas;
   c. Storage and handling procedures for soil; and
   d. Waste soil characterization requirements, acceptance, and review procedures.

7. By **November 30, 2001**, the Discharger shall submit a Facility Development Plan. This plan is intended as a letter report and shall include maps depicting areas of excavation, final cover, and liner construction on a year-by-year basis

for five years forward from the due date of this report. This report shall be updated on **November 30 of every successive year.** This report submittal will be used as a planning tool for both the Discharger and Regional Board staff to help prioritize forthcoming landfill work. This submittal should be in the form of a letter report accompanied by maps for each of the five years in the cycle. The report shall explain key developmental events for the facility on a year-by year basis and changes to the previous years submittals.

8. By **November 30, 2001**, the Discharger shall submit a letter report providing survey coordinates for the edge of waste perimeter surrounding both the Active and Inactive areas. Additionally, the Discharger shall include survey coordinates for the waste parcel on the DeBernardi property. Survey coordinates shall also be established for the perimeter of each Expansion Area cell.

9. By **January 31, 2002**, the Discharger shall submit a monitoring plan covering the Expansion Area. This plan should include, but not be limited to, vadose zone, surface and groundwater monitoring points, monitoring frequencies and analytical parameters.

10. The Regional Board considers the Discharger to have a continuing responsibility for correcting any problems, which may arise in the future as a result of this waste discharge. This responsibility continues as long as the waste poses a threat to water quality.

11. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit and the manner and location of discharge. Such records shall be maintained at the Landfill until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Regional Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board.

12. The Discharger shall submit a Financial Assurance Report every five years that either validates the instrument's ongoing financial viability or proposes and substantiates any needed changes. The next report is due **October 31, 2001**, and every five years thereafter.

13. By **May 18, 2006**, the Discharger shall submit a Joint Technical Document/Report of Waste Discharge pursuant to CCR Title 27 §21710, to the Executive Officer. The ROWD shall contain, but is not limited to, the following:

    a. Information on waste characteristics, geologic and climatologic characteristics of the Unit and the surrounding region, installed features, operation plans for waste containment, precipitation and drainage controls, and closure and post closure maintenance plans, in accordance with CCR Title 27 §21740, §21750, §21760, and §21769.
    b. The ROWD is to be submitted in the form of a Joint Technical Document (hereafter "JTD"), in accordance with CCR Title 27 §21585 et al.
    c. Includes a completed SWRCB JTD Index, in accordance with CCR Title 27 21585(b), with your JTD addendum.
    d. Discusses whether, in the Discharger's opinion, there is any portion of this Order that is incorrect, obsolete, or otherwise in need of revision;
    e. Includes any other technical documents needed to demonstrate continued compliance with this Order and all pertinent State and Federal requirements;
    f. Include detailed information regarding regulatory considerations; design, construction and operating provisions; environmental monitoring; and closure and postclosure;
    g. Include a Fill Sequencing Plan, including detailed maps. The Fill Sequencing Plan should describe in detail the overall development of the entire Landfill;
    h. Include a detailed description of the lateral and vertical extent of refuse within all existing Modules. It must include an accurate estimate of waste volumes within each existing Landfill module and an approximation of the remaining volume and years of capacity for each existing module and all new proposed modules within currently permitted Landfill boundaries. It must also describe all existing available space within currently permitted Landfill areas (i.e., modules where refuse has been placed in the past, but have not reached final permitted elevation and modules or portions of modules where refuse has never been placed); and
    i. Discuss any plans/proposals to close or partially close any modules or portions of modules, any proposed liner systems and respective design components, any proposed plans for long-term intermediate cover for Landfill areas which may remain inactive for long periods of time.

14. By **October 1 of each year** and throughout the rainy season of each year, a minimum one (1) foot thick compacted soil cover designed and constructed to minimize percolation of precipitation through wastes, shall be maintained over the entire active Landfill area. The only exception to this specification is the working face. The working face shall be confined to the smallest area practicable based on the anticipated quantity of waste discharged and required waste management facility operations. Based on site-specific conditions, the Executive Officer may require a thicker soil cover for any portion of the Landfill's active waste management unit prior to the rainy season.

15. By **October 1, of each year**, vegetation shall be planted and maintained over all slopes within the entire Landfill area to prevent erosion. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness. Upon Executive Officer approval, non-hazardous sludge may be utilized as a soil amendment to promote vegetation. Soil amendments and fertilizers (including wastewater sludge) used to establish vegetation shall not exceed the vegetation's agronomic rates (i.e., annual nutrient needs), unless approved by the Executive Officer.

16. By **October 1 of each year**, all necessary runoff diversion and erosion prevention measures shall be implemented. All necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or Landfill flooding and to prevent surface drainage from contacting or percolating through wastes.

17. The Discharger shall notify the Regional Board with a written request of any proposed change in ownership or responsibility for construction or operation of the Landfill in accordance with Title 27, §21710 (c)(1). Failure to submit the written request shall be considered a violation of §13264 of the Water Code. The written request shall be given at least 90-days prior to the effective date of change in ownership or responsibility and shall:
    a. Be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these Waste Discharge Requirements;
    b. Contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board; and
    c. Contain a statement indicating that the new owner or operator assumes full responsibility for compliance with this Order.

    Request for change in ownership or responsibility may be approved or disapproved in writing by the Executive Officer. In the event of any change in ownership of this Landfill, the Discharger shall notify the succeeding owner or operator, in writing, of the existence of this Order. A copy of that notification shall be sent to the Executive Officer.

18. The Discharger shall furnish, within a reasonable time, any information the Executive Officer may request to determine compliance with this Order or to determine whether cause exists for modifying or terminating this Order.

19. Reports shall be submitted in advance of any planned changes in the permitted Landfill or in an activity, which could potentially result in noncompliance. Advance submittal should

reflect relative need for Regional Board review and concurrence.

20. Any noncompliance, which threatens the Landfill's containment integrity, shall be promptly corrected. Correction schedules are subject to the approval of the Executive Officer, except when delays will threaten the environment and/or the Landfill's integrity (i.e., emergency corrective measures). Corrections initiated prior to Executive Officer approval shall be so stated in the above described written report that is to be submitted within 7-days.

21. Discharger shall notify the Executive Officer, within 24 hours by telephone and within 14 days in writing, of:
    a. Any noncompliance potentially or actually endangering health or the environment;
    b. Any flooding, equipment failure, slope failure, or other change in Landfill conditions which could impair the integrity of waste containment facilities or of precipitation and drainage control structures;
    c. Leachate seep occurring on or in proximity to the Landfill;
    d. Violation of a discharge prohibition; and
    e. Violation of any treatment system's discharge limitation.

22. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule shall be submitted within 14-days following each scheduled date unless otherwise specified within this Order. If reporting noncompliance, the report shall include a description of:
    a. The reason for non-compliance;
    b. A description of the non-compliance;
    c. Schedule of tasks necessary to achieve compliance; and
    d. An estimated date for achieving full compliance.

23. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources and with concurrence of the Executive Officer regarding the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with the MRP No. 01-041, as required by §13750.5 through §13755 and §13267 of the California Water Code.

24. The Discharger shall notify the Executive Officer at least 180 days prior to beginning any partial or final Landfill closure activities. The notice shall include a statement that all closure activities will conform to the most recently approved Closure Plan and that the Plan provides for closure in compliance with all applicable State and Federal regulations. If there is no approved Closure Plan, the Discharger must submit a complete Closure Plan at least 240 days prior to beginning any Landfill closure activities.

25. The Discharger shall file with the Regional Board a ROWD or secure a waiver from the Executive Officer at least 120-days before making any material change or proposed change in the character, location, or volume of the waste being discharged to land.

26. Should the Discharge discover that it failed to submit any relevant facts or that it submitted incorrect information in a report, it shall promptly submit the missing or corrected information.

27. Should additional data become available through monitoring or investigation that indicates compliance with this Order is not adequately protective of water quality, the Regional Board will review and revise this Order as appropriate.

28. The Discharger shall maintain a program for periodic intake load checking. The load-checking program shall be adequately designed to ensure that "hazardous wastes" and "unauthorized designated wastes" are not discharged to the Landfill. The load-checking program shall be available for review by representatives of the Regional Board and of the SWRCB at any time during normal business hours.

29. The Executive Officer may require partial and/or final closure of any Landfill unit regardless of whether such waste management unit has reached final capacity laterally and/or vertically for the protection of water quality.

Such a requirement will be requested in writing and in accordance with CCR Title 27 Section 22190.

30. For the Expansion Area cells, the leachate collection and removal system shall be tested annually to demonstrate proper operation. The results of the test shall be compared with earlier tests made under comparable conditions and included in the Compliance Report.

31. The Regional Board shall be allowed, at any time and without prior notification:
    a. Entry upon the Waste Management Facility or where records must be kept under the conditions of this Order and MRP No. 01-041;
    b. Access to copy any records that must be kept under the conditions of this Order and MRP No. 01-041;
    c. To inspect any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order and MRP No. 01-041; and,
    d. To photograph, sample, and monitor for the purpose of showing compliance with this order.

32. All reports shall be signed as follows:
    a. For a corporation: by a principal executive officer of at least the level of vice president;
    b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
    c. For a public agency: by either a principal executive officer or ranking elected official; or,
    d. Their "duly authorized representative."
    e. A California Registered Civil Engineer or Certified Engineering Geologist must sign engineering reports.

33. Any person signing a report makes the following certification, whether its expressed or implied: "I certify under penalty of perjury I have personally examined and am familiar with the information submitted in this document and all attachments and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

34. The Discharger must comply with all conditions of this Order. Non-compliance violates state law and is grounds for enforcement action or modification of the existing Order.

35. Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of Section 13267 of the California Water Code, or falsifying any information provided therein, is guilty of a misdemeanor.

36. The Discharger and any person who violates Waste Discharge Requirements and/or who intentionally or negligently discharges waste or causes or permits waste to be deposited where it is discharged into surface waters of the state may be liable for civil and/or criminal remedies, as appropriate, pursuant to Section 13350, 13385, and 13387 of the California Water Code.

37. The Discharger shall take all reasonable steps to minimize or correct adverse impacts on the environment resulting from non-compliance with this Order.

38. Provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

39. This Order does not authorize commission of any act causing injury to the property of another, does not convey any property rights of any sort, does not remove liability under federal, state, or local laws, and does not guarantee a capacity right.

40. All technical and monitoring reports submitted pursuant to this Order are being requested pursuant to Section 13267 of the California Water Code. Failure to submit reports in accordance with schedules established by this Order, attachments to this Order, or failure to submit a report of sufficient technical quality to be acceptable to the Executive Officer may

subject the discharger to enforcement action pursuant to Section 13268 of the California Water Code.

41. No provision or requirement of Order No. 01-041 or Monitoring or Reporting Program No. 01-041 is a limit on the Discharger's responsibility to comply with other federal, state and local laws, regulations or ordinances.

42. The Discharger must comply with all conditions of these Waste Discharge Requirements. Violations may result in enforcement actions, including Regional Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these Waste Discharge Requirements by the Regional Board. [CWC Section 13261, 13267, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350).

43. The Discharger shall comply with the following submittal and implementation schedule for all tasks and/or reports required by this Order:

REPORT AND TASK IMPLEMENTATION DATE SUMMARY

REPORT/TASK	IMPLEMENTATION DATE
Closure and Post-Closure Maintenance Plan [Provision E.2]	December 31, 2002
Expansion Area Construction design report [Provision No. E.3]	November 30, 2001
Wet Weather Preparedness Report [Provision No. E.4]	October 1, of each year
Annual Compliance Report [Provision No. E.5]	January 31, of each year
Hydrocarbon Soils Management and Disposal Plan [Provision No. E.6]	February 28, 2002
Facility Development Plan [Provision No. E.7]	November 30, each year
Survey Coordinate Report [Provision No. E.8]	November 30, 2001
Monitoring Plan [Provision No. E.9]	January 31, 2002
Financial Assurance Report [Standard Provision No. E.12]	October 31, 2001 and every five years thereafter
Report of Waste Discharge [Standard Provision No. E.13]	May 18, 2006
Interim Cover Requirement [Standard Provision No. E.14]	October 1, of each year
Vegetation Program [Standard Provision No. E.15]	October 1, of each year
Runoff Diversion and Erosion Prevention [Standard Provision No. E.16]	October 1, of each year

Closure of Unlined Active Area Quarterly Progress Reports (July, Oct, Jan, April) [Specification C.6]

[First Day of July, Oct., Jan, April]

I, ROGER W. BRIGGS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Coast Region, on May 18, 2001.

_____
Executive Officer

Figures: Figure 1 – Regional Location Map
Figure 2 – Site Location Map
Figure 3 – Site Development Map
Figure 4 – Landfill Liner Cross Section

Attachment: Attachment A –Monitoring and Reporting Program

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California Regional Water Quality Control Board
Central Coast Region

Winston H. Hickox
Secretary for Environmental Protection

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Gray Davis
Governor

March 11, 2003

Mr. Dwayne Chisam
Public Works Department
City of Santa Maria
601 South Black Road
Santa Maria, CA 93458-9701

Dear Mr. Chisam:

SANTA MARIA CLASS III LANDFILL; REVISED NON-HAZARDOUS HYDROCARBON IMPACTED SOILS ACCEPTANCE CRITERIA

We have reviewed the December 10, 2002 *Summary of Fate and Transport Modeling Study Disposal of Non-hazardous Hydrocarbon Impacted Soil (NHIS), Santa Maria Landfill*. The report was prepared by Shaw Environmental & Infrastructure, Inc., and received December 12, 2002. The fate and transport study evaluated the potential impact to groundwater from the disposal of non-hazardous hydrocarbon impacted soil (NHIS) at the Santa Maria Landfill. The City desires to establish revised acceptance criteria for petroleum hydrocarbon fractions in the NHIS. To assist the City in establishing rationale for revising the acceptance criteria at the Santa Maria Landfill, Shaw performed a computer-based modeling study to assess the fate and transport of petroleum hydrocarbons under site-specific conditions. The modeling study focused on the transport of petroleum hydrocarbons in the unsaturated zone of the Landfill by assuming a hypothetical quantity of leachate was released into the system. The physical process controlling the transport and transformation of petroleum hydrocarbons in the model soil column was simulated through computer-based mathematical analyses. The modeling results were used to evaluate the impact to the site groundwater. Based on the predicted impact, Shaw proposed acceptance criteria for petroleum hydrocarbon fractions in the NHIS.

The modeling study included the following considerations and assumptions:

- Assumed no environmental degradation, which is known to occur, particularly for petroleum hydrocarbons.
- Considered a hypothetical leakage rate through the NHIS cell liner that was ten times the USEPA field-observed liner leakage rate. This assumption brought the estimated leakage rate to 2 gallons per acre day (gpad).
- Assumed the soil column includes the following layers above the groundwater table (from bottom to top):
  - 10 feet of alluvium sediments
  - 30 feet of existing refuse
  - 1.5 feet of compacted soil foundation
  - 40-mil-thick linear low density polyethylene (LLDPE) geomembrane liner
  - 2-feet of leachate collection and drainage layer
  - 40 feet (assumed) of compacted NHIS
- Assumed the leachate leakage would all flow through a one-dimensional soil column with a cross section of 100 square feet (worse case leakage condition), not through the whole cross section area as

Attachment 2: Regional Board letter to the City of Santa Maria dated March 11, 2003.

suggested by USEPA. This conservative condition would lead to an earlier breakthrough time because the recharge rate used in this model was 0.976 feet/year, which was over 4000 times greater than the 2.24×10^{-4} feet/year rate for a wetting area of an acre.
- Assumed TPH at its full 100% solubility. This is a conservative assumption since under natural conditions, this is physically and chemically not possible.
- Assumed all NHIS material must meet non-hazardous criteria.
- Assumed no natural degradation of TPH, no volatilization of the TPH fractions, and no horizontal dispersion of TPH.
- Assumed no TPH retardation or attenuation in the NHIS (i.e., all TPH masses are mobile for dissolution and partitioning into leachate).

Based on the modeling results, the report makes the following conclusions and recommendations:

- The NHIS soil can contain petroleum hydrocarbon fractions up to 2,000 mg/kg TPH in gasoline range (C4-C12), 25,000 mg/kg in diesel range (C13-C22), and 200,000 mg/kg in heavy oil range (C-23 and above), and not cause measurable impact to the site groundwater.

- All NHIS materials will need to pass the State criteria (per 22CCR66261) and site-specific permit requirements (i.e., WDR No. 01-041 and SWFP No. 42-AA-016) as non-hazardous waste in order to be accepted for disposal.

Based on our review, we find the fate and transport report model provides conservative results and provides justification for revising (increasing) the acceptance criteria for hydrocarbon-impacted soils. As previously stated on several occasions, we strongly believe the use of NHIS as foundation layer material will enable the waste soils to be entombed under a protective final cover and will accelerate closure for the unlined active landfill area. Final closure activities along with proper storm water management will significantly minimize the impact of precipitation and percolation upon the existing unlined waste mass. In turn, potential leaching from this area will be significantly reduced and underlying groundwater should be improved.

However, we have reservations about increasing the acceptance criteria for petroleum hydrocarbon fractions to the proposed levels. As you may recall, our existing approval to utilize NHIS material as foundation layer material for the active landfill area is based on conditions and restrictions specified by Order No. 01-041, considerations of site-specific conditions (e.g., proximity to Santa Maria River), and the actual and potential uses of groundwater beneath and adjacent to the Landfill. Our existing approval considered several factors, including the degree of risk posed by the material's specific characteristics (mobility, volatility, leachability), intended use (foundation layer, intermediate cover, daily cover), placement location (lined/unlined areas, separation from leachate and groundwater), and the overall benefit to the environment. We also considered the importance (from a water quality prospective) of providing the unlined active landfill area with a final cover system at the earliest possible time. These conditions, restrictions and considerations are outlined in previous correspondences and remain applicable to this project.

As stated in our February 15, 2002 correspondence concerning the approved hydrocarbon soils management plan, "*Our primary concern has to do with the potential for leaching and mobility of the constituents of concern associated with the NHIS material, particularly the lighter hydrocarbon fractions (i.e., TPH-gas and TPH-diesel), which are much more soluble than the heavier fractions and have a higher potential of mobilizing. Considering the Landfill's site-specific conditions (unlined, shallow groundwater, leaking low levels of volatile organic compounds to underlying groundwater), the acceptance of NHIS material containing the lighter hydrocarbon fractions (i.e., TPH-gas and TPH-diesel) will be limited. Thus, the use of NHIS material at the Landfill is restricted primarily to NHIS material that contain heavier hydrocarbon fraction (extremely low mobility, volatility, and leaching capacity).*"

In its modeling, Shaw considered the installation of a liner system on top of 30 feet of refuse to further minimize any potential impacts of the NHIS material to underlying groundwater. As discussed during a previous meeting concerning this issue, we remain concerned with the high potential for differential settlement and complete failure of the liner system. Although the liner system may initially prevent or minimize the infiltration of leachate to underlying groundwater, the probability of differential settlement and significant damage to the liner system over the years is considered high. Thus, as agreed during a meeting between Dan Vosler, John Zhao, and Michael LeBrun and Hector Hernandez of my staff, the fate and transport modeling study was to be performed without any consideration of a liner system (i.e., complete failure of the proposed liner system). The modeling study was supposed to assume that approximately 40 feet of NHIS material will be placed directly over approximately 30 feet of refuse, without any added protection. The modeling study was to also consider that refuse is in direct contact with underlying groundwater.

We also understand that, while the modeling study performed did assume the existence of a liner system, it also included other conservative assumptions. Based on the conservative assumptions, we agree the study provides adequate assurance the site groundwater will not experience measurable impacts if the existing NHIS acceptance criteria are increased, especially in regards to the heavier hydrocarbon fraction. However, the assumptions made, regardless of how conservative, do consider the existence of a liner system. Regardless of how extreme a leakage rate is assumed, the fact remains the model does consider some level of protection because the assumed leakage rate through the liner system is only occurring through a very small area compared to the entire surface area of the liner system. The model does not completely account for (although it comes close when considering the other conservative assumptions outlined above) the most extreme situation where absolutely no protection is provided (i.e., no liner system).

We believe supporting information has been provided to justify increasing the heavy hydrocarbon fraction from 10,000 ppm TPH in soil to the proposed concentration of 200,000 ppm. This increase is deemed appropriate since the heavier hydrocarbon fraction has low mobility, volatility, and leaching capacity. However, we are not convinced that increasing the lighter end hydrocarbon fractions (diesel and gasoline) by a factor of 10 is appropriate. Considering the modeling study results, site- specific considerations, and our position to conservatively protect water quality, an appropriate increase to the lighter hydrocarbon fraction is should be less than the increases presented in the study. Based on all the information provided, the increases discussed below are deemed appropriate.

For clarification purposes, we are providing an outline of the most significant conditions and restrictions for the acceptance and use of NHIS material at the Landfill. Except for the first four conditions below, all of the following conditions and restrictions have been previously discussed, addressed in writing, and agreed to by the City of Santa Maria and its consultants and Regional Board staff.

1. All sources of NHIS material accepted at the Landfill must have proper engineering properties for use as foundation layer material, shall undergo the appropriate sampling protocol, and the hydrocarbon fractions in the NHIS shall <u>not</u> exceed the following concentrations:

   - 1,000 parts per million (ppm) TPH in soil in gasoline fraction (C4-C12). The DI-WET shall not exceed 1.0 mg/L TPH gasoline fraction.
   - 15,000 ppm TPH in soil in diesel fraction (C13-C22). The DI-WET shall not exceed 5.0 mg/L TPH diesel fraction.
   - 200,000 ppm TPH in soil in heavy oil fraction (C23 and above). The DI-WET shall not exceed 10.0 mg/L TPH heavy oil fraction.

   These concentrations shall replace the concentrations contained in Table 3: "Acceptance Criteria for Hydrocarbon-Impacted Soil," as outlined in the January 23, 2002 *Hydrocarbon Soils Management and Disposal Plan for City of Santa Maria Sanitary Landfill.*

2. NHIS material containing concentrations of PCBs, MTBE, or other oxygenates and additives above their respective practical quantitation limits (PQL) shall be **rejected**. No exceptions will be considered. The PQL used shall be the lowest possible concentration detectable with the approved analytical method. In all instances, the analytical method providing the lowest detection limit shall be utilized for the required analyses.

3. For the purposes of characterizing NHIS material, the analytical methods used shall be appropriate for the specific source of NHIS material. For instance, when characterizing the diesel TPH fraction from particular source of material, the appropriate method for the same type of material shall be used.

4. The City of Santa Maria shall, for each individual NHIS cell, maintain a log and report semiannually the total TPH mass accepted (including TPH fractions: gas, diesel, heavy oil), and the total NHIS material mass accepted. The report shall include appropriate comparisons between TPH mass and NHIS material mass accepted. Reported average concentrations shall be on volume-weighted basis.

5. The acceptance and use of NHIS material at the Landfill shall be in strict accordance with Waste Discharge Requirements Order No. 01-041, CCR Title 27, Section 21090, all conditions and restrictions outlined in our February 15, 2002 NHIS approval letter, and the January 23, 2002 *Hydrocarbon Soils Management and Disposal Plan for City of Santa Maria Sanitary Landfill.*

6. NHIS material is restricted for use as foundation layer material within the Landfill's existing unlined Active Area.

7. NHIS material shall <u>not</u> be used as alternative daily cover without prior approval from the Executive Officer.

8. NHIS material shall contain no free liquids.

9. NHIS material at or above hazardous waste concentrations shall not be accepted.

10. TPH analysis (i.e., TPH-gas, TPH-diesel, and TPH-heavy oil) analysis must be included as a groundwater detection monitoring parameter.

11. NHIS material must be placed a minimum of 20 feet above any historic or anticipated leachate or groundwater elevation.

12. NHIS material may be accepted, stockpiled and used as foundation layer material during inclement weather, as long as appropriate wet weather management controls are in place. As such, the City shall develop and submit an Inclement-Weather Management Plan (IWMP) for Executive Officer approval prior to November 1, each year during project existence. The IWMP shall be revised/amended as necessary prior to each year's rainy season and set forth storm water management and the implementation of mitigation measures during the ensuing winter season.

13. The City must implement a rolling closure at the unlined Active Area whereby the NHIS foundation layer is constructed and equipped with a final cover system during the dry season of each year. To protect the NHIS foundation layer within the unlined Active Area from exposure during the rainy season, final cover activities for any given area must be completed not later than November 15 of each year.

14. The Landfill's unlined Active Area must be equipped with a final cover system consisting of a geosynthetic layer.

15. The Landfill's Construction Quality Assurance (CQA) report must be updated and submitted yearly to document the final cover system completed during the previous year. The CQA report's section concerning the final cover system's foundation layer shall include detailed information concerning the NHIS material utilized during the construction. The CQA report shall include tonnage (cubic yards) accepted, NHIS material thickness, closure area size, GPS tracking data clearly depicted on a map, and a detailed summary of compliance with the HSMDP report, including any recommended/approved changes to the approved HSMDP report.

16. The entire unlined Active Area shall be closed and equipped with a final cover system **no later than June 30, 2008**.

We look forward to the successful implementation and completion of this project. If you have any question please contact **Hector Hernandez at: (805) 542-4641 or e-mail at:** hhernand@rb3.swrcb.ca.gov, or Michael LeBrun at (805) 542-4645.

Sincerely,

Roger W. Briggs
Executive Officer

cc:

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S:ICB/LDU/Staff/Hector/Santa Maria Landfill/Letters/031003RevisedNHISAcceptanceCriteria

California Regional Water Quality Control Board
Central Coast Region

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Arnold Schwarzenegger
Governor

August 31, 2004

Mr. John Zhao
Solid Waste/Utilities Engineer
City of Santa Maria
Public Works Department
2065 East Main Street
Santa Maria, CA 93454

Dear Mr. Zhao:

SANTA MARIA CLASS III LANDFILL; ACCEPTANCE OF NON-HAZARDOUS IMPACTED SOIL (NHIS) MATERIAL FROM THE GUADALUPE RESTORATION PROJECT

We have reviewed "City of Santa Maria NHIS Progress Report and Proposed Acceptance of NHIS Material from Guadalupe Restoration Project", dated June 2, 2004 and prepared by City of Santa Maria Public Works Department, Utilities Division. According to the Report, the City proposes to revise the extractable Total Petroleum Hydrocarbon (TPH) acceptance standards in order to accept NHIS material from the Guadalupe Restoration Project (GRP) at the City's Landfill. The City contends the NHIS materials from the GRP are naturally degraded and bio-remediated. The City proposes to add BTEX and oxygenate (MTBE) testing to the screening procedures in order to exclude the refined TPH products associated with BTEX and oxygenates (MTBE), rather than rely on the TPH (DI WET) to indicate the presence of the refined petroleum products. The City believes screening for low, medium, and high carbon chains would suffice to identify refined products and avoid excluding naturally degraded and bioremediated NHIS soils from the NHIS program.

In support of its proposal, the City has provided the following information:

1. Review of Acceptance Criteria for Non-hazardous Hydrocarbon Impacted Soil (NHIS) for Unocal Guadalupe Oil Field (GOF) Project Site, prepared by Shaw Environmental & Infrastructure, Inc. and dated January 23, 2004.
2. Santa Maria Sanitary Landfill Generator Waste Profile.
3. CCR Title 22, Chapter 11 Characterization, dated 7/24/01 for Diluent-affected material stockpiled at TB8.
4. Santa Maria Landfill NHIS Program, Results of Trial Sampling, September 11, 2003 and Reports of Analytical Results.
5. Leachate Testing Conducted at the Former Guadalupe Oil Field by LFR Levine-Fricke dated February 6, 2002.
6. Summary Tables of Historical Analytical Data:
   - **Table 1** – Total Petroleum Hydrocarbons (TPH) in Excavated Soil.
   - **Table 2** – BTEX Compounds in Pre-Excavation Soil Samples
   - **Table 3** – Volatile Organic Compounds (VOCs) in Pre-Excavation Soil Samples.
   - **Table 4** – Semi-Volatile Organic Compounds (SVOCs) in Pre-Excavation Soil Samples.
   - **Table 5** – Metals in Pre-Excavation Soil Samples.
   - **Table 6** – Polychlorinated Biphenyls (PCBs) in Pre-Excavation Soil Samples.
7. Reports of Analytical Results for Summary Data in reference No. 6, above.

Attachment 3: Regional Board letter to the City of Santa Maria dated August 31, 2004.

The Shaw Group performed an evaluation of the current NHIS acceptance criteria, because the City is considering accepting approximately 860,000 cubic yards of material from the GRP. The objective of the evaluation was to verify the applicability of Shaw's December 2002 study and provide recommendations for accepting NHIS materials containing diluent from the GRP. As part of it's evaluation/study, the Shaw Group performed extensive review of existing site characterization and monitoring data, and evaluation studies performed to date.

The Shaw group estimates that 200,000 cubic yards of the GRP NHIS is comprised of sump material with similar characteristics to the petroleum-impacted material modeled in its December 2002 fate and transport study. Thus, it is assumed this material meets the current NHIS acceptance criteria. The remaining 660,000 cubic yards of NHIS from this site is comprised of soil containing "diluent", which was used at the GRP as a thinner to increase production of the viscous crude oil. Since diluent-impacted soils at the GRP are typically characterized against a diluent standard, not in the three TPH ranges specified in the acceptance criteria, some representative sampling and analytical work was done to evaluate the suitability of the diluent-impacted soils and the analytical methodology under the current acceptance criteria. According to the soil profiles from the GRP, the diluent-impacted soils in question meet the NHIS acceptance criteria for all three TPH fractions. However, they do not meet the acceptance criteria for leachable hydrocarbons in the gasoline and diesel ranges. According to DI-WET test results, these diluent-impacted soils contain extractable gasoline-fraction TPH up to 1.3 milligrams per liter (mg/l), extractable diesel-fraction TPH up to 6.4 mg/l, and extractable heavy-oil-fraction TPH up to 3.3 mg/l. The present acceptance criteria for these three extractable fractions are 1 mg/l (gasoline fraction), 5 mg/l (diesel fraction), and 10 mg/l (heavy-oil fraction), respectively.

As part of its evaluation, the Shaw Group estimated the field TPH leachability of the diluent-impacted soils by using the ranges of the TPH found in the GRP NHIS samples and the associated DI-WET results. Based on those estimates, the TPH leachability for gasoline fraction was determined to be 0.15%, and 0.09% for the diesel fraction. The Shaw report concludes these TPH field leachability estimates are conservative because the DI-WET extraction process is more aggressive than the static leaching process in an actual landfill environment.

The Shaw report points out the existing DI-WET acceptance criteria were not based on the fate-and-transport study or site-specific leachability factors, but rather were based on generic soil screening levels for an unlined landfill with groundwater levels between 30 to 50 feet below the waste level. These generic acceptance criteria are relatively conservative so that an adequate factor of safety against unknown waste characteristics and site conditions is provided for groundwater protection. The report also indicates the December 2002 modeling study was based on a worst-case scenario assumption. The hypothetical leachate used in the modeling study contained various surrogate TPH constituents all reaching 100% solubility. Under such conservative assumption, the TPH leachability for the gasoline fraction would be up to 110 mg/L (C9-C10 alkyl benzenes). However, the transport modeling results indicated that the impact to groundwater at such level would be insignificant. The TPH concentrations in the modeling leachate were much higher than the suggested TPH contamination based on the DI-WET test results. Therefore, the current acceptance criteria for extractable TPH appear to be over-conservative and should be relaxed.

Considering the hydrocarbon soil contamination at the GRP site is well characterized by the extensive studies conducted over the past decade, the Shaw Group believes the DI-WET acceptance criteria should be based on actual field leachability derived from the diluent contamination in the soil. Using the TPH acceptance criteria (i.e., 1,000 mg/kg from the gasoline fraction and 15,000 mg/kg from the diesel fraction) as the maximum allowable diluent concentrations in the NHIS, the DI-WET acceptance criterion for the gasoline fraction could be as high as 1.5 mg/L (1,000 mg/kg x 0.0015), and 13.5 mg/L (15,000 mg/kg x .0009) for diesel fraction, while still meeting the TPH acceptance criteria.

Based on Shaw's review and evaluation of the current NHIS acceptance criteria and evaluation of its applicability for accepting the GRP NHIS at the Santa Maria Landfill, it was concluded that although the existing acceptance criteria for soil TPH fractions are applicable as long as the NHIS disposal cell is designed with similar boundary conditions as those discussed in the December 2002 modeling study, the current acceptance criteria for extractable TPH appear to be overly conservative. This conclusion is based on the observed field leachability and the leachability used in the December 2002 modeling study. Based on the TPH and DI-WET test results provided by the Unocal project personnel, the field leachability specific to the Unocal GRP NHIS was estimated to be much lower than that used in the modeling study. As such, the Shaw report recommends the acceptance criteria for extractable TPH be modified and based on estimated TPH field leachability derived from the DI-WET test results from the GRP NHIS.

We have reservations about forgoing the TPH (DI WET) standards from the existing soil acceptance criteria. As stated on numerous occasions, "*Our primary concern has to do with the potential for leaching and mobility of the constituents of concern associated with the NHIS material, particularly the lighter hydrocarbon fractions (i.e., TPH-gas and TPH-diesel), which are much more soluble than the heavier fractions and have a higher potential of mobilizing*". The DI-WET standards have been established to help us assess the leachability and mobility of the NHIS material. Thus, we deny your request do away with the DI-WET criteria entirely.

However, we have given close consideration to the evaluation and research performed by the Shaw Group, as presented in its January 23, 2004 report titled, *Review of Acceptance Criteria of NHIS from the Unocal GOF Project Site*. Based on our review, we find the information presented in the Shaw report including our close review of profiles from the NHIS material at the GRP, and our consideration of site specific conditions at the Landfill provides justification for revising (increasing) the acceptance criteria for the DI-WET criteria for the gasoline and diesel TPH fractions. Based on the conservative assumptions, we agree the study provides adequate assurance the site groundwater will not experience measurable impacts if the existing DI-WET acceptance criteria are slightly relaxed. Therefore, to allow the future acceptance of diluent-affected soils from the GRP, the present TPH DI-WET acceptance criteria are hereby revised to 1.5 mg/L in the gasoline range and 7.5 mg/L in the diesel range. These revised TPH DI-WET standards will reflect actual field leachability conditions as justified by the Shaw report. This revision will allow the City to accept diluent-affected soils from the GRP under the NHIS Program. All other conditions, restrictions and acceptance criteria remain unchanged. This revision is strictly for diluent–affected soils from the Unocal GRP. The existing acceptance criteria remains in effect for all other sources of NHIS material.

For clarification purposes, please note we hold the City of Santa Maria completely responsible and liable for any groundwater impacts associated with the implementation of the NHIS program. Our existing approval to utilize NHIS material as foundation layer material for the active landfill area is based on consideration of site-specific conditions (e.g., proximity to Santa Maria River), and the actual and potential uses of groundwater beneath and adjacent to the Landfill. To prevent/minimize the possibility of groundwater impacts, we require strict adherence to the conditions and restrictions specified by Order No. 01-041.

We believe the acceptance of additional NHIS material from the GRP will expedite final rolling closure activities at the Santa Maria Landfill. The use of this NHIS material as foundation layer material will enable the waste soils to be entombed under a protective final cover and will accelerate closure for the unlined active landfill area. Disposal operations must be carried out such that the majority of the NHIS would be closed annually prior to the arrival of winter precipitation. Final closure activities along with proper storm water management will significantly minimize the impact of precipitation and percolation upon the existing unlined waste mass. In turn, potential leaching from this area will be significantly reduced and underlying groundwater should be improved.

The present approval considers several factors, including the degree of risk posed by the material's specific characteristics (mobility, volatility, leachability), intended use (foundation layer), placement location

(lined/unlined areas, separation from leachate and groundwater), and the overall benefit to the environment. We also considered the importance (from a water quality prospective) of providing the unlined active landfill area with a final cover system at the earliest possible time. These conditions, restrictions and considerations are outlined in previous correspondences and remain applicable.

We look forward to the successful implementation and completion of this project. If you have any question please contact **Hector Hernandez at: (805) 542-4641 or e-mail at:** hhernand@rb3.swrcb.ca.gov, or John Robertson at (805) 542-4630.

Sincerely,

for Michael LeBrun

Roger W. Briggs
Executive Officer

S:\Land Disposal\Land Disposal Facilities\permitted Sites\Santa Maria (SMLF)\letters\061804 NHIS Program Modifications

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CHAPTER 3. WATER QUALITY OBJECTIVES

Section 13241, Division 7 of the California Water Code specifies that each Regional Water Quality Control Board shall establish water quality objectives which, in the Regional Board's judgement, are necessary for the reasonable protection of beneficial uses and for the prevention of nuisance.

Section 303 of the 1972 Amendments to the federal Water Pollution Control Act requires the State to submit to the Administrator of the U.S. Environmental Protection Agency (U.S. EPA) for approval, all new or revised water quality standards which are established for surface and ocean waters. Under federal terminology, water quality standards consist of beneficial uses enumerated in Chapter Two and water quality objectives contained in this chapter.

Water quality objectives contained herein are designed to satisfy all State and federal requirements.

As new information becomes available, the Regional Board will review the appropriateness of objectives contained herein. These objectives are subject to public hearing at least once during each three-year period following adoption of this plan for the purpose of review and modification as appropriate.

I. CONSIDERATIONS IN SELECTING WATER QUALITY OBJECTIVES

The aforementioned 1972 Amendments to the federal Water Pollution Control Act declare that a national goal is elimination of discharge of pollutants into navigable waters.

A prerequisite to water quality control planning is the establishment of a base or reference point. The base in this instance was various general and specific water quality criteria previously found acceptable for particular beneficial uses or selected sources of waste. Current technical guidelines, available historical data, and enforcement feasibility were given full consideration in formulating water quality objectives.

A distinction is made here between the terms "water quality objectives" and "water quality standards". Water quality objectives have been adopted by the State and, when applicable, extended as federal water quality standards. Water quality standards, previously mentioned in this chapter's introduction, pertain to navigable waters and become legally enforceable criteria when accepted by the U.S. EPA Regional Administrator.

Point and nonpoint water pollution sources described herein have the same meaning as defined in the federal Water Pollution Control Act. Point sources are waste loads from identifiable sources such as municipal discharges, industrial discharges, vessels, controllable storm waters, fish hatchery discharges, confined animal operations, and agricultural drains. Nonpoint sources are waste loads resulting from land use practices where wastes are not collected and disposed of in any readily identifiable manner. Examples include: urban drainage, agricultural runoff, road construction activities, mining, grassland management, logging and other harvest activities, and natural sources such as effects of fire, flood, and landslide. The distinction between point sources and diffuse sources is not always clear but generally applies to the practicality of waste load control.

Water quality objectives for the Central Coastal Basin satisfy State and federal requirements to protect waters for the beneficial uses in Chapter Two and are consistent with all existing statewide plans and policies.

II. WATER QUALITY OBJECTIVES

The water quality objectives which follow supersede and replace those contained in the 1967 Water Quality Control Policies; the Interim Water Quality Control Plan for the Central Coastal Basin adopted by the Regional Board in 1971, including all existing revisions; and the Water Quality Control Plan Report for the Central Coastal Basin, adopted by the Regional Board in 1974.

Controllable water quality shall conform to the water quality objectives contained herein. When other conditions cause degradation of water quality beyond the levels or limits established as water quality objectives, controllable conditions shall not cause further degradation of water quality.

Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled.

Water quality objectives are considered to be necessary to protect those present and probable future beneficial uses enumerated in Chapter Two of this plan and to protect existing high quality waters of the State. These objectives will be achieved primarily through the establishment of waste discharge requirements and through implementation of this water quality control plan.

In setting waste discharge requirements, the Regional Board will consider the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives. The Regional Board will make a finding of beneficial uses to be protected and establish waste discharge requirements to protect those uses and to meet water quality objectives.

Several water quality objectives listed herein originate from the California Code of Regulations, Title 22. If Title 22 concentrations are amended, Basin Plan objectives are automatically amended to correspond with the new regulations.

II.A. ANTI-DEGRADATION POLICY

Wherever the existing quality of water is better than the quality of water established herein as objectives, such existing quality shall be maintained unless otherwise provided by the provisions of the State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," including any revisions thereto. A copy of this policy is included in the Appendix.

II.A.1. OBJECTIVES FOR OCEAN WATERS

The provisions of the State Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan), "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan), and any revisions thereto shall apply in their entirety to affected waters of the basin. The Ocean and Thermal Plans shall also apply in their entirety to Monterey Bay and Carmel Bay. Copies of these plans are included verbatim in the Appendix.

In addition to provisions of the Ocean Plan and Thermal Plan, the following objectives shall also apply to all ocean waters, including Monterey and Carmel Bays:

Dissolved Oxygen

The mean annual dissolved oxygen concentration shall not be less than 7.0 mg/l, nor shall the minimum dissolved oxygen concentration be reduced below 5.0 mg/l at any time.

pH

The pH value shall not be depressed below 7.0, nor raised above 8.5.

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life.

II.A.2. OBJECTIVES FOR ALL INLAND SURFACE WATERS, ENCLOSED BAYS, AND ESTUARIES

II.A.2.a. GENERAL OBJECTIVES

The following objectives apply to all inland surface waters, enclosed bays, and estuaries of the basin:

Color

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is greater.

Tastes and Odors

Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

Floating Material

Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

Suspended Material

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Settleable Material

Waters shall not contain settleable material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.

Oil and Grease

Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

Biostimulatory Substances

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

Sediment

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Turbidity

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits:

1. Where natural turbidity is between 0 and 50 Jackson Turbidity Units (JTU), increases shall not exceed 20 percent.
2. Where natural turbidity is between 50 and 100 JTU, increases shall not exceed 10 JTU.
3. Where natural turbidity is greater than 100 JTU, increases shall not exceed 10 percent.

Allowable zones of dilution within which higher concentrations will be tolerated will be defined for each discharge in discharge permits.

pH

For waters not mentioned by a specific beneficial use, the pH value shall not be depressed below 7.0 or raised above 8.5.

Dissolved Oxygen

For waters not mentioned by a specific beneficial use, dissolved oxygen concentration shall not be reduced below 5.0 mg/l at any time. Median values should not fall below 85 percent saturation as a result of controllable water quality conditions.

Temperature

Temperature objectives for Enclosed Bays and Estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" including any revisions thereto. A copy of this plan is included in the Appendix.

Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.

Toxicity

All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, toxicity bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board.

Survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality conditions, shall not be less than that for the same water body in areas unaffected by the waste discharge or, when necessary, for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, latest edition. As a minimum, compliance with this objective shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available, and source control of toxic substances is encouraged.

The discharge of wastes shall not cause concentrations of unionized ammonia (NH_3) to exceed 0.025 mg/l (as N) in receiving waters.

Pesticides

No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.

For waters where existing concentrations are presently nondetectable or where beneficial uses would be impaired by concentrations in excess of nondetectable levels, total identifiable chlorinated hydrocarbon pesticides shall not be present at concentrations detectable within the accuracy of analytical methods prescribed in Standard Methods for the Examination of Water and Wastewater, latest edition, or other equivalent methods approved by the Executive Officer.

Chemical Constituents

Where wastewater effluents are returned to land for irrigation uses, regulatory controls shall be consistent with Title 22 of the California Code of Regulations and other relevant local controls.

Other Organics

Waters shall not contain organic substances in concentrations greater than the following:

Methylene Blue Activated Substances	0.2 mg/l
Phenols	0.1 mg/l
PCB's	0.3 μg/l
Phthalate Esters	0.002 μg/l

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life.

MUNICIPAL AND DOMESTIC SUPPLY (MUN)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Organic Chemicals

All inland surface waters, enclosed bays, and estuaries shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Article 4, Chapter 15, Section 64435, Tables 2 and 3 as listed in Table 3-2.

Phenol

Waters shall not contain phenol concentrations in excess of 1.0 μg/l.

Radioactivity

Waters shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 5, Sections 64441 and 64443, Table 4.

AGRICULTURAL SUPPLY (AGR)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Dissolved Oxygen

Dissolved oxygen concentration shall not be reduced below 2.0 mg/l at any time.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents in amounts which adversely affect the agricultural beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3.

In addition, waters used for irrigation and livestock watering shall not exceed concentrations for those chemicals listed in Table 3-4. Salt concentrations for irrigation waters shall be controlled through implementation of the anti-degradation policy to the effect that mineral constituents of currently or potentially usable waters shall not be increased. It is emphasized that no controllable water quality factor shall degrade the quality of any ground water resource or adversely affect long-term soil productivity.

Where wastewater effluents are returned to land for irrigation uses, regulatory controls shall be consistent with Title 22 of the California Code of Regulations and with relevant controls for local irrigation sources.

WATER CONTACT RECREATION (REC-1)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Table 3-1. Organic Concentrations Not to be Exceeded in Domestic or Municipal Supply

	Constituent	Maximum Contaminant Level (MCL), mg/l*
(a)	Chlorinated Hydrocarbons	
	Endrin	0.0002
	Lindane	0.004
	Methoxychlor	0.1
	Toxaphene	0.005
(b)	Chlorophenoxys	
	2,4-D	0.1
	2,4,5-TP Silvex	0.01
(c)	Synthetics	
	Atrazine	0.003
	Bentazon	0.018
	Benzene	0.001
	Carbon Tetrachloride	0.0005
	Carbofuran	0.018
	Chlordane	0.0001
	1,2-Dibromo-3-chloropropane	0.0002
	1,4-Dichlorobenzene	0.005
	1,1-Dichloroethane	0.005
	1,2-Dichloroethane	0.0005
	cis-1,2-Dichloroethylene	0.006
	trans-1,2-Dichloroethylene	0.01
	1,1-Dichloroethylene	0.006
	1,2-Dichloropropane	0.005
	1,3-Dichloropropene	0.0005
	Di(2-ethylhexyl) phthalate	0.004
	Ethylbenzene	0.680
	Ethylene Dibromide	0.00002
	Glyphosate	0.7
	Heptachlor	0.00001
	Heptachlor epoxide	0.00001
	Molinate	0.02
	Monochlorobenzene	0.030
	Simazine	0.010
	1,1,2,2-Tetrachloroethane	0.001
	Tetrachloroethylene	0.005
	Thiobencarb	0.07
	1,1,1-Trichloroethane	0.200
	1,1,2-Trichloroethane	0.032
	Trichloroethylene	0.005
	Trichloroflurometh ane	0.15
	1,1,2-Trichloro-1,2,2-Trifluoroethane	1.2
	Vinyl Chloride	0.0005
	*Xylenes	1.750

* MCL is for either a single isomer or the sum of the isomers.

Table 3-2. Inorganic and Fluoride Concentrations Not to be Exceeded in Domestic or Municipal Supply

Constituent	Limiting Concentration mg/l			
	Lower	Optimum	Upper	Maximum Contaminant Level
Temperature °F*	Fluoride			
53.7° and below	0.9	1.2	1.7	2.4
53.8° to 58.3°	0.8	1.1	1.5	2.2
58.4° to 63.8°	0.8	1.0	1.3	2.0
63.9° to 70.6°	0.7	0.9	1.2	1.8
70.7° to 79.2°	0.7	0.8	1.0	1.6
79.3° to 90.5°	0.6	0.7	0.8	1.4
Inorganic Chemicals				Maximum Contaminant Level
Aluminum				1
Arsenic				0.05
Barium				1
Cadmium				0.010
Chromium				0.05
Lead				0.05
Mercury				0.002
Nitrate (as NO_3)				45
Selenium				0.01
Silver				0.05

*Annual Average of Maximum Daily Air Temperature, °F based on temperature data obtained for a minimum of five years.

Table 3-3. Guidelines for Interpretation of Quality of Water for Irrigation[a]

Problem and Related Constituent	Water Quality Guidelines: No Problem	Increasing Problems	Severe
Salinity[b]			
EC of irrigation water, mmho/cm	<0.75	0.75 - 3.0	>3.0
Permeability			
EC of irrigation water, mmho/cm	>0.5	<0.5	<0.2
SAR, adjusted[c]	<6.0	6.0 - 9.0	>9.0
Specific ion toxicity from root absorption[d]			
Sodium (evaluate by adjusted SAR)	<3	3.0 - 9.0	>9.0
Chloride			
me/l	<4	4.0 - 10	>10
mg/l	<142	142 - 355	>355
Boron, mg/l	<0.5	0.5 - 2.0	2.0 - 10.0
Specific ion toxicity from foliar absorption[e](sprinklers)			
Sodium			
me/l	<3.0	>3.0	--
mg/l	<69	>69	--
Chloride			
me/l	<3.0	>3.0	--
mg/l	<106	>106	--
Miscellaneous[f]			
NH4 - N, mg/l for sensitive crops	<5	5 - 30	>30
NO3 - N, mg/l for sensitive crops	<5	5 - 30	>30
HCO3 (only with overhead sprinklers)			
me/l	<1.5	1.5 - 8.5	>8.5
mg/l	<90	90 - 520	>520
pH	Normal range	6.5 - 8.4	--

a Interpretations are based on possible effects of constituents on crops and/or soils. Guidelines are flexible and should be modified when warranted by local experience or special conditions of crop, soil, and method of irrigation.

b Assumes water for crop plus needed water for leaching requirement (LR) will be applied. Crops vary in tolerance to salinity. Refer to tables for crop tolerance and LR. The mmho/cm x 640 = approximate total dissolved solids (TDS) in mg/l or ppm; mmho x 1,000 = micromhos.

c Adjusted SAR (sodium adsorption ratio) is calculated from a modified equation developed by U.S. Salinity Laboratory to include added effects of precipitation and dissolution of calcium in soils and related to CO_3 + HCO_3 concentrations.

To evaluate sodium (permeability) hazard: *Adjusted SAR* $= Na/[\frac{1}{2}(Ca + Mg)]^{\frac{1}{2}}[1 + (8.4 - pHc)]$.
Refer to Appendix for calculation assistance.

SAR can be reduced if necessary by adding gypsum. Amount of gypsum required (GR) to reduce a hazardous SAR to any desired SAR (SAR desired) can be calculated as follows:

$$GR = \left[\frac{2(Na)^2}{SAR^2 desired} - (Ca + Mg)\right] 234$$

Note: Na and Ca + Mg should be in me/l. GR will be in lbs. of 100 percent gypsum per acre foot of applied water.

d Most tree crops and woody ornamentals are sensitive to sodium and chloride (use values shown). Most annual crops are not sensitive (use salinity tolerance tables). For boron sensitivity, refer to boron tolerance tables.

e Leaf areas wet by sprinklers (rotating heads) may show a leaf burn due to sodium or chloride absorption under low humidity/high evaporation conditions. (Evaporation increases ion concentration in water films on leaves between rotations of sprinkler heads.)

f Excess N may affect production or quality of certain crops; e.g., sugar beets, citrus, avocados, apricots, etc. (1 mg/l NO_3 - N = 2.72 lbs. N/acre foot of applied water.) HCO_3 with overhead sprinkler irrigation may cause a white carbonate deposit to form on fruit and leaves.

Table 3-4. Water Quality Objectives for Agricultural Water Use

ELEMENT	Maximum Concentration (mg/l)[a]: Irrigation supply[b]	Livestock watering
Aluminum	5.0	5.0
Arsenic	0.1	0.2
Beryllium	0.1	--
Boron	0.75	5.0
Cadmium	0.01	0.05
Chromium	0.10	1.0
Cobalt	0.05	1.0
Copper	0.2	0.5
Fluoride	1.0	2.0
Iron	5.0	--
Lead	5.0	0.1[c]
Lithium	2.5[d]	--
Manganese	0.2	--
Mercury	--	0.01
Molybdenum	0.01	0.5
Nickel	0.2	--
Nitrate + Nitrite	--	100
Nitrite	--	10
Selenium	0.02	0.05
Vanadium	0.1	0.10
Zinc	2.0	25

a. Values based primarily on "Water Quality Criteria 1972" National Academy of Sciences-National Academy of Engineers, Environmental Study Board, ad hoc Committee on Water Quality Criteria furnished as recommended guidelines by University of California Agriculture Extension Service, January 7, 1974; maximum values are to be considered as 90 percentile values not to be exceeded.

b. Values provided will normally not adversely affect plants or soils; no data available for mercury, silver, tin, titanium, and tungsten.

c. Lead is accumulative and problems may begin at threshold value (0.05 mg/l).

d. Recommended maximum concentration for irrigation citrus is 0.075 mg/l.

Bacteria

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml.

NON-CONTACT WATER RECREATION (REC-2)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Bacteria

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 2000/100 ml, nor shall more than ten percent of samples collected during any 30-day period exceed 4000/100 ml.

COLD FRESHWATER HABITAT (COLD)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/l at any time.

Temperature

At no time or place shall the temperature be increased by more than 5°F above natural receiving water temperature.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-5.

WARM FRESHWATER HABITAT (WARM)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5.

Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 5.0 mg/l at any time.

Temperature

At no time or place shall the temperature of any water be increased by more than 5°F above natural receiving temperature.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-5.

FISH SPAWNING (SPWN)

Cadmium

Cadmium shall not exceed .003 mg/l in hard water or .0004 mg/l in soft water at any time. (Hard water is defined as water exceeding 100 mg/l $CaCO_3$.)

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/l at any time.

Table 3-5 Toxic Metal Concentrations not to be Exceeded in Aquatic Life Habitats, mg/l[a,b]

METAL	Freshwater (COLD, WARM) HARD (> 100 mg/l $CaCO_3$)	SOFT (< 100 mg/l $CaCO_3$)
Cadmium[c]	.03	.004
Chromium	.05	.05
Copper	.03	.01
Lead	.03	.03
Mercury[d]	.0002	.0002
Nickel[e]	.4	.1
Zinc	.2	.004

a. Based on limiting values recommended in the National Academy of Sciences-National Academy of Engineers "Water Quality Criteria 1972." Values are 90 percentile values except as noted in qualifying note "d."

b. Revision of Table 3-5 is currently in progress by the Regional Board.

c. Lower cadmium values not to be exceeded for crustaceans and waters designated SPWN are 0.003 mg/l in hard water and 0.0004 mg/l in soft water.

d. Total mercury values should not exceed 0.05 μg/l as an average value; maximum acceptable concentration of total mercury in any aquatic organism is a total B.O.D. burden of 0.5 μg/l wet weight.

e. Value cited as objective pertains to nickel salts (not pure metallic nickel).

MARINE HABITAT (MAR)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5.

Changes in normal ambient pH levels shall not exceed 0.2 units.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/l at any time.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of limits listed in Table 3-6.

Table 3-6. Toxic Metal Concentrations Not to be Exceeded in Marine Habitats, mg/l[a]

METAL	MARINE (MAR)
Cadmium	.0002
Chromium	.05
Copper	.01
Lead	.01
Mercury[c]	.0001
Nickel[d]	.002
Zinc	.02

a. Based on limiting values recommended in the National Academy of Sciences-National Academy of Engineers "Water Quality Criteria 1972." Values are 90 percentile values except as noted in qualifying note "c."
b. Revision of Table 3-6 is currently in progress by the Regional Board.
c. Total mercury values should not exceed 0.05 µg/l as an average value; maximum acceptable concentration of total mercury in any aquatic organism is a total B.O.D. burden of 0.05 µg/l net weight.
d. Value cited as objective pertains to nickel salts (not pure metallic nickel).

SHELLFISH HARVESTING (SHELL)

Chromium

The maximum permissible value for waters designated SHELL shall be 0.01 mg/l.

Bacteria

At all areas where shellfish may be harvested for human consumption, the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 ml, nor shall more than ten percent of the samples collected during any 30-day period exceed 230/100 ml for a five-tube decimal dilution test or 330/100 ml when a three-tube decimal dilution test is used.

II.A.3. WATER QUALITY OBJECTIVES FOR SPECIFIC INLAND SURFACE WATERS, ENCLOSED BAYS AND ESTUARIES

Certain water quality objectives have been established for selected surface waters; these objectives are intended to serve as a water quality baseline for evaluating water quality management in the basin. Median values, shown in Table 3-7 for surface waters, are based on available data.

It must be recognized that the median values indicated in Table 3-7 are values representing gross areas of a water body. Specific water quality objectives for a particular area may not be directly related to the objectives indicated. Therefore, application of these objectives must be based upon consideration of the surface and ground water quality naturally present; i.e., waste discharge requirements must adhere to the previously stated objectives and issuance of requirements must be tempered by consideration of beneficial uses within the immediate influence of the discharge, the existing quality of receiving waters, and water quality objectives. Consideration of beneficial uses includes: (1) a specific enumeration of all beneficial uses potentially to be affected by the waste discharge, (2) a determination of the relative importance of competing beneficial uses, and (3) impact of the discharge on existing beneficial uses. The Regional Board will make a judgment as to the priority of dominant use and minimize the impact on competing uses while not allowing the discharge to violate receiving water quality objectives.

Table 3-7. Surface Water Quality Objectives, mg/l[a]

Sub-Basin/Sub-Area	TDS	Cl	SO_4	B	Na
Santa Ynez					
Cachuma Reservoir	600	20	220	0.4	50
Solvang	700	50	250	0.4	60
Lompoc	1000	100	350	0.4	100
Santa Maria					
Cuyama River (Near Garey)	900	50	400	0.3	70
Sisquoc River (Near Garey)	600	20	250	0.2	50
Estero Bay					
Santa Rosa Creek	500	50	80	0.2	50
Chorro Creek	500	50	50	0.2	50
San Luis Obispo Creek	650	100	100	0.2	50
Arroyo Grande Creek	800	50	200	0.2	50
Salinas River					
Salinas River					
Above Bradley	250	20	100	0.2	20
Above Spreckles	600	80	125	0.2	70
Gabilan Tributary	300	50	50	0.2	50
Diablo Tributary	1200	80	700	0.5	150
Nacimiento River	200	20	50	0.2	20
San Antonio River	250	20	80	0.2	20
Carmel River	200	20	50	0.2	20
Monterey Coastal					
Big Sur River	200	20	20	0.2	20
Pajaro River					
at Chittenden	1000	250	250	1.0	200
San Benito River	1400	200	350	1.0	250
Llagas Creek	200	10	20	0.2	20
Big Basin					
Boulder Creek	150	10	10	0.2	20
Zayante Creek	500	50	100	0.2	40
San Lorenzo River					
Above Bear Creek	400	60	80	0.2	50
At Tait Street Check Dam	250	30	60	0.2	25

a Objectives shown are annual mean values. Objectives are based on preservation of existing quality or water quality enhancement believed attainable following control of point sources.

As part of the State's continuing planning process, data will be collected and numerical water quality objectives will be developed for those mineral and nutrient constituents where sufficient information is presently not available for the establishment of such objectives.

A specific monthly mean objective for Nitrate (as NO_3) of 0.25 mg/l shall apply to both the upper and lower San Lorenzo River to protect beneficial uses from adverse biostimulatory effects. Specific biostimulant objectives for other surface waters will be added to this section in tabular form once they are determined from further studies.

II.A.4. OBJECTIVES FOR GROUND WATER

II.A.4.a. GENERAL OBJECTIVES

The following objectives apply to all ground waters of the basin.

Tastes and Odors

Ground waters shall not contain taste or odor producing substances in concentrations that adversely affect beneficial uses.

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal or aquatic life.

MUNICIPAL AND DOMESTIC SUPPLY (MUN)

Bacteria

The median concentration of coliform organisms over any seven-day period shall be less than 2.2/100 ml.

Organic Chemicals

Ground waters shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.

Chemical Constituents

Ground waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 4, Section 64435, Tables 2 and 3.

Radioactivity

Ground waters shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 5, Section 64443, Table 4.

AGRICULTURAL SUPPLY (AGR)

Ground waters shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3.

In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-4. No controllable water quality factor shall degrade the quality of any ground water resource or adversely affect long-term soil productivity. The salinity control aspects of ground water management will account for effects from all sources.

II.A.5. OBJECTIVES FOR SPECIFIC GROUND WATERS

Certain water quality objectives have been established for selected ground waters; these objectives are intended to serve as a water quality baseline for evaluating water quality management in the basin. The median values for ground waters are shown in Table 3-8.

The restrictions specified for Table 3-7 are applicable to the values indicated in Table 3-8; i.e., the values are at best representative of gross areas only. Ground waters in the Upper Valley of the Salinas River Sub-basin have average Total Dissolved Solids (TDS) concentrations that range from 300 mg/l to over 3000 mg/l. Therefore, application of these objectives must be consistent with the objectives previously stated in this chapter and synchronously reflect the actual ground water quality naturally present. The Regional Board must afford full consideration to (1) present and probable future beneficial uses affected by the waste discharge, (2) competing beneficial uses, (3) degree of impact on existing beneficial uses, (4) receiving water quality, and (5) water quality objectives, before adjudging priority of dominant use and promulgating waste discharge requirements.

As part of the State's continuing planning process, data will be collected and numerical water quality objectives will be developed for those mineral constituents where sufficient information is presently not available for the establishment of such objectives.

Table 3-8. Median Ground Water Objectives, mg/l[a]

Sub-basin/Sub-Area	TDS	Cl	SO_4	B	Na	N_b
South Coast						
Goleta	1000	150	250	0.2	150	5
Santa Barbara	700	50	150	0.2	100	5
Carpinteria	700	100	150	0.2	100	7
Santa Ynez						
Santa Ynez	600	50	10	0.5	20	1
Santa Rita	1500	150	700	0.5	100	1
Lompoc Plain[f]	1250	250	500	0.5	250	2
Lompoc Upland[f]	600	150	100	0.5	100	2
Lompoc Terrace[f]	750	210	100	0.3	130	1
San Antonio Creek	600	150	150	0.2	100	5
Santa Maria[c]						
Upper Guadalupe[f]	1000[d]	165	500[d]	0.5	230	1.4*
Lower Guadalupe[f]	1000[d]	85	500[d]	0.2	90	2.0*
Lower Nipomo Mesa[f]	710	95	250	0.15	90	5.7*
Orcutt[f]	740	65	300	0.1	65	2.3*
Santa Maria[f]	1000[d]	90	510	0.2	105	8.0*
Cuyama Valley	1500	80	--	0.4	--	5
Soda Lake	e	e	e	e	e	e
Estero Bay						
Santa Rosa	700	100	80	0.2	50	5
Chorro	1000	250	100	0.2	50	5
San Luis Obispo	900	200	100	0.2	50	5
Arroyo Grande	800	100	200	0.2	50	10
Salinas River						
Upper Valley[f]	600	150	150	0.5	70	5
Upper Forebay[f]	800	100	250	0.5	100	5
Lower Forebay[f]	1500	250	850	0.5	150	8
180 foot Aquifer[f]	1500	250	600	0.5	250	1
400 foot Aquifer[f]	400	50	100	0.2	50	1
Paso Robles[g]						
Central Basin[f]	400	60	45	0.3	80	3.4
San Miguel[f]	750	100	175	0.5	105	4.5
Paso Robles[f]	1050	270	200	2.0	225	2.3
Templeton[f]	730	100	120	0.3	75	2.7
Atascadero[f]	550	70	85	0.3	65	2.3
Estrella[f]	925	130	240	0.75	170	3.2
Shandon	1390	430	1025[h]	2.8	730	2.3
Pajaro River						
Hollister	1200	150	250	1.0	200	5
Tres Pinos	1000	150	250	1.0	150	5
Llagas	300	20	50	0.2	20	5
Big Basin						
Near Felton	100	20	10	0.2	10	1
Near Boulder Creek	250	30	50	0.2	20	5

a Objectives shown are median values based on data averages; objectives are based on preservation of existing quality or water quality enhancement believed attainable following control of point sources.
b Measured as Nitrogen
c Basis for objectives is in the "Water Quality Objectives for the Santa Maria Ground Water Basin Revised Staff Report, May 1985" and February 1986, Staff Report.
d These are maximum objectives in accordance with Title 22 of the Code of Regulations.
e Ground water basin currently exceeds usable mineral quality.
f Ground water basin boundary map available in appendix.
g Basis for objectives is in the report "A Study of the Paso Robles Ground Water Basin to Establish Best Management Practices and Establish Salt Objectives", Coastal Resources Institute, June 1993.
h Standard exceeds California Secondary Drinking Water Standards contained in Title 22 of the Code of Regulations. Water quality standard is based upon existing water quality. If water quality degradation occurs, the Regional Board may consider salt limits on appropriate discharges.

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 November 6, 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.

Attachment 5: Pages 1 and 2, Cleanup or Abatement Order No. 98-38 issued to Unocal: amended November 6, 1998.

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. UNOCAL 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.

Responses to Regional Water Quality Control Board (RWQCB) Comments

Comment #	Comments
RWQCB-01	We agree with the RWQCB's comments. A copy of the RWQCB letter to the Santa Maria Landfill has been included as part of Appendix H. All of the reasons stated in this comment are part of the basis for selecting the landfill as the environmentally superior alternative.
RWQCB-02	The SEIR preparers have tried to use acronyms consistently throughout the document.
RWQCB-04	Text was changed in Section ES C and Section 2.1 to reflect the lower representative sampling of materials.
RWQCB-05	In both the Executive Summary (ES) and the Introduction, the RWQCB has been added to the list of agencies that will use this document.
RWQCB-06	A discussion of the silt/clay liner and HDPE liners was added to ES, Section E. This discussion was already located in Section 3.2.2.2.
RWQCB-07	The storage/disposal of this material at the Guadalupe Dunes is inconsistent with existing land use policies. By the significance definition, this is considered to be a significant impact. See Section 5.8 for a more detailed discussion.
RWQCB-08	The text has been corrected in ES, Section F.2.3.
RWQCB-09	Text was added to Section 2.1.
RWQCB-10	The fourth paragraph on page 2-4 was deleted as redundant. The first 3 paragraphs were modified to make applicable references to Appendix H, containing the RWQCB letters. However, additional information was added in these paragraphs related to current landfill practices and future needs, as well as EIRs prepared for the landfill projects.
RWQCB-11	Text changes related to active and inactive areas relating to the 12/02 change date have been added to Section 2.2.1.
RWQCB-12	Modifications to text and figures have been made in Section 2.2.1, per comments.
RWQCB-13	Text has been added to Section 3.2.3 discussing the similarity of the TMLF and the ECU. In addition, a section on decommissioning has been added, which is identical to the TMLF decommissioning. Costs associated with the TMLF verses the ECU are not addressed in the document for any of the alternatives and has therefore not been added. Information on permitting has not been included for any of the alternatives. Permitting could be a significant undertaking for a number of alternatives, including slurrying. Permitting requirements were also not addressed in the original EIR. These items have not been addressed because they are not environmental issues.
RWQCB-14	Bulleted significance criteria for the Surface and Ground Water Quality Section have been reviewed and updated

Responses to Regional Water Quality Control Board (RWQCB) Comments

Comment #	Comments
	for consistency with the Basin Plan, following specific comments.
RWQCB-15	The final significance criterion in the Surface and Ground Water Quality Section has been removed in response to comments (RWQCB-15 and UN-31). This criterion refers to a drawdown threshold for ground water levels, which was included in the 1998 EIR; however, the Basin Plan referenced above does not specifically identify a threshold for drawdown.
RWQCB-16	The storage/disposal of this material at the Guadalupe Dunes is inconsistent with existing land use policies. By the significance definition, this is considered to be a significant impact. See Section 5.8 for a more detailed discussion.
RWQCB-17	The storage/disposal of this material at the Guadalupe Dunes is inconsistent with existing land use policies. By the significance definition, this is considered to be a significant impact. See Section 5.8 for a more detailed discussion
RWQCB-18	The final use of the Guadalupe site is unknown at this time. It is possible that the site could be open for public use, but the final use is not known and is speculative at this time. Therefore, any potential long-term beneficial impact to the local economy has not been included in Section 7.1. The reference to development of open space has to do with converting existing open space to other uses. For this site, the land use is moving from industrial development to open space. Therefore, the project does not result in the development of an existing open space area to another use.

UNOCAL – Guadalupe Restoration Project

SEIR Comments 3-25-05

Global Comments:

- *There are several working groups consisting of Unocal and agency representatives and their respective experts. These groups work together collaboratively to determine guidelines to be used or to resolve technical issues. One such group is the mediation group, a team of RWQCB and Unocal representatives, their respective technical experts and third party "neutral" technical experts that collaboratively address issues at the site and publish ratified reports for each issue. Reports and technical memos provided by these working groups are used in the SEIR and shown in the reference sections. Unocal suggests that these reports, especially those ratified by the mediation or other groups, should be indicated as such in the references for the benefit of the SEIR reader. Proposed language:*

  > *"Ratified documents were produced through a cooperative and collaborative mediation process by Unocal, RWQCB, other interested agencies, consultants and neutral expert participants."*

- *The references that are listed for each section are not always consistent with those cited in the text.*

UN-01

Page ES-5, Section C. Proposed Project, Paragraph 2, Lines 3

Proposed revisions: In a letter dated August 31, 2004, ~~T~~the Regional Water Quality Control Board (RWQCB) ~~has~~ approved the acceptance of the Guadalupe NHIS as part of the Landfill's NHIS Program. Testing conducted as part of the Landfill's SEIR indicated that the Guadalupe material would qualify ~~as~~under the Landfill's NHIS program. ~~Analytical tests from well over 1,000 samples of material from the Guadalupe Oil Field were~~ Representative sampling of the Guadalupe material was conducted and the analytical results compared against the Landfill's acceptance criteria~~specifications~~ for NHIS, and all of the samples met the specifications. Also, historical analytical tests from well over 1,000 samples of material from the Guadalupe Field were qualitatively compared by the Landfill and the RWQCB to the representative sampling results. As such, in evaluating the impacts of the proposed trucking project, all materials at the Guadalupe Field ~~was~~were assumed to meet the Landfill's specifications for NHIS. As part of the proposed project, additional testing of the NHIS will be done at both the Guadalupe Field and the Landfill. Any material that does not meet the NHIS specifications will be separated and handled appropriately~~returned to the Guadalupe Field stockpile for additional natural attenuation~~.

Comments: A reference is not cited for this statement and the contents are not totally factual as written.

The letter issued on August 31, 2004 by the RWQCB to the Landfill approving the NHIS material from the Guadalupe Field should be used as the reference.

As part of a program to pre-qualify NHIS from the Guadalupe Field, Unocal supplied more than 1,000 historical TPH analytical results to the Landfill. While the NHIS is well characterized by Unocal's historical sampling activities, the historical sample analyses were not done by the specific analytical methods that would allow direct comparison against the NHIS criteria. To provide a direct comparison against the specific NHIS specifications/criteria, Unocal performed testing on representative samples. Qualitative comparisons were made between the results of the representative sampling and the historical analytical results for evaluation by the Landfill and the RWQCB. As a result, the RWQCB issued the approval letter to the Landfill.

Unocal will conduct further testing of the NHIS during project implementation and the Landfill also has testing procedures that it will implement. The sampling results indicated that the NHIS material will meet the Landfill's acceptance criteria. Due to Unocal's extensive historical sampling activities, the characterization of the NHIS is well known and Unocal anticipates that most, if not all, of the NHIS from the Guadalupe Field will meet the Landfill's acceptance criteria. However, any NHIS that is identified by the future testing as not meeting the acceptance criteria will be segregated and handled appropriately,

UN-02

most likely by sending it to another disposal facility that is appropriately licensed for the specific characterization.

UN-02, Cont.

Page ES-10, Section F.1 Significant Impacts Associated with the Proposed Project, Paragraph regarding Air Quality

Proposed revisions: Project operational emissions of ~~ROC,~~ NOx~~, and PM10~~ would exceed significance criteria for peak day and average day emissions under all evaluated~~the worst-case~~ scenarios. ~~These emissions result from operation of heavy machinery and trucks, and fugitive dust from soil moving operations.~~ The majority of emissions would be generated by the trucks hauling NHIS to the Landfill. There are no control measures for NOx, therefore~~Some emissions would be controlled with the proposed mitigation measures; however~~, the impact would ~~still~~ be significant and unavoidable (Class I).

Comments: See comments for Section 5.5, Page 107.

UN-03

Page ES-11 Biology Resources

Comments: See comments under Page 5-58, 5-61 and 5-62.

UN-04

Page ES-12 Biology Resources

Comments: See comments under Page 5-58, 5-61 and 5-62.

UN-05

Page ES-13 Air Quality

Proposed corrections: Project operational emissions of ~~ROC,~~ NOx ~~and PM_{10}~~ would exceed significance criteria ~~under the worst case scenario~~.

Comments: Per Table 5.5.17, only NOx exceeds the significance criteria.

UN-06

Page ES-13, Section F.2.2 Land Use/Recreation

Proposed revisions: A permanent land feature containing ~~the NHIS~~treated material would be constructed at the Guadalupe ~~Dunes site~~Field. This feature would ~~require indefinite~~ have a leachate collection and monitoring system as required by the RWQCB, ~~thus~~with minimal impact~~ing~~ to any future land use or recreational use of the site. The land feature ~~resulting in a significant~~ impact ~~that c~~would be restored and any disturbance associated with the TMLF would be short-term, therefore this impact would~~not~~ be mitigated to insignificance (Class II). ~~The use of the TMLF would also be inconsistent with San Luis Obispo County land use polices.~~

Comments: Unocal disagrees with the determination of a Class I impact for a TMLF due to loss of the area for future land or recreational use. The material would be treated to a level of TPH concentration approved by the RWQCB, capped and restored to resemble a dune feature. A leachate collection and monitoring system would pose minimal impact to future use of the area, as the surface of the dune feature would still represent a dune that blends into the landscape – only the water handling system (manholes, piping and water separation system) would be visible from the surface.

The anticipated future use of the site is a conservation area, with docent-led tours and educational sessions, most likely managed by USFWS. The location of the TMLF, Tank Battery 9, is not anticipated as a location for these activities by USFWS. Also, the HERA for the site, ratified by the mediation group, showed that there is minimal risk to humans from exposure to low levels of diluent at the site (see comments for Page 5-221, Paragraph 4).

UN-07

Page ES-14 Biology Resources

Comments: See comments under Page 5-58, 5-61 and 5-62.

UN-08

Page ES-14, Paragraph 3, Transportation/Circulation

Proposed revisions: ~~All project-related~~Truck hauling ~~traffic shall be restricted from~~ travel will be minimized to the extent feasible on Betteravia Road between the hours of 4:30 p.m. and 5:30 p.m. (evening peak-hour), and shall not exceed seven truck trips per hour except as otherwise approved by the OEC.

Comments: See detailed comments below, Page 141 and 143.

UN-09

Page ES-14, Section F.2.3 Engineered Containment Unit (ECU), Paragraph 2

UN-10

Proposed correction: Those impacts were associated with the construction and operation of the ~~TMLF~~ECU ~~and the large number of trucks that would be required to transport material not suitable for the TMLF to the Santa Maria Landfill~~.

Comments: All NHIS would be placed into the ECU; none would be transported offsite to the Santa Maria Landfill.

UN-10 Cont.

Page ES-15 Air Quality
Proposed correction: Project operational emission of ROC would exceed significance criteria for peak daily emissions and ~~,~~ NOx ~~and PM10~~ for peak daily and quarterly construction emissions and peak daily operational emissions would exceed significance criteria ~~under the worst case scenario~~.

UN-11

Page ES-15 Water Quality
Comments: The first, second and last sentences should be deleted, as they refer to offsite trucking of NHIS. All NHIS would be placed into the ECU; none would be transported offsite to the Santa Maria Landfill.

UN-12

Page ES-15 Biology Resources
Comments: See comments under Page 5-58, 5-61 and 5-62.

UN-13

Page ES-15 Transportation/Circulation
Comments: The impacts discussed are not relevant, as they refer to offsite trucking of NHIS. All NHIS would be placed into the ECU, not transported offsite to the Santa Maria Landfill.

UN-14

Page ES-16, Air Quality
Proposed correction: Project operational emission of ~~ROC,~~ NOx ~~and PM10~~ would exceed significance criteria for peak daily operation emissions and, under the worst case scenarios, for peak daily construction emissions.

UN-15

Page ES-16 Water Quality
Comments: The first and second sentences should be deleted, as they refer to offsite trucking of NHIS. All NHIS would be injected; none would be transported offsite to the Santa Maria Landfill.

UN-16

Page IS-1, AQ.1
Proposed revisions: The air emissions from project construction and operations would exceed significance criteria for peak day and average day ~~daily~~ NOx~~, ROC, and PM10~~ emissions.

Comment: The air emissions will exceed thresholds in both San Luis Obispo and Santa Barbara Counties for NOx, but not for the other pollutants listed. See comments above for Page ES-10, Section F.1 Significant Impacts Associated with the Proposed Project.

UN-17

Page IS-4, Last Paragraph BIO.1 (Class II Impacts – Proposed Project)
This Impact, BIO.1, should be moved to the Class III Impact Summary Table.

Comments: See comments below related to the requirement for restoration to mitigate for loss of roadway shoulders, Page 5-58, Paragraph 3.

UN-18

Page IS-5, W3.2
Proposed revisions: Monitor ditches along Thornberry Road that drain agricultural fields and work with the landowner/jurisdictional agency to repair any erosion related to project truck staging or transport activities.

Comment: Unocal will not be able to physically make repairs along Thornberry Road, which is under the jurisdiction of the County Public Works department, or in the ditches for the agricultural fields, as they may be privately owned, without the permission of the landowner.

UN-19

Page IS-5, BIO.3, Mitigation Measure 3.1
Proposed revisions: Unocal shall not begin any hauling activities along the Main Road Entrance wetlands or the M12/L11 Valley during the red-legged frog migration period (from November 1 through June 1) until

UN-20

~~a signed Biological Opinion from the United States Fish and Wildlife Service (USFWS) authorizing such activities has been issued and a~~ the Sensitive Species Management P~~p~~lan (SSMP) ~~(~~described below in BIO-3.2~~) implementing~~ has been revised to add provisions for the hauling activities to protect California red-legged frogs and other wildlife and the revised SSMP is approved by the County OEC and USFWS ~~terms and conditions is in place~~.

Comments: See comments below for Page 5-61.

UN-20 Cont.

Page IS-5, BIO.3, Mitigation Measure 3.2
Proposed revisions: Unocal shall ~~prepare a~~ revise the Sensitive Species Management Plan to include~~that shall be approved by the USFWS and County OEC and that shall describe~~ measures that would be implemented to protect California red-legged frogs, and other non-listed sensitive and common wildlife species potentially affected by hauling activities near known or potential habitat. The~~is~~ revised SSMP shall be approved by the USFWS and County OEC ~~plan~~and shall include measures such as the following:

- Unocal shall implement a ~~permanent~~ speed limit of 15 mph along the main haul road adjacent to dune swale wetlands in the M12/L11 Valley and the Entrance Road wetlands during the California red-legged frog breeding season when it is raining, the roads are wet or after daylight. Signs detailing speed limits shall be posted in appropriate locations along the route.
- Biologists shall survey the active portions of the haul route within 200 feet of sensitive resources, including the dune swale wetlands, periodically throughout the day during hauling activities and ~~at least hourly~~ when it is raining or the roads are wet.
- If a substantial number of mortalities, as identified in the revised SSMP~~determined by Unocal, the County OEC, or regulatory agencies~~, continue to occur along the haul route after implementing the above mitigation, Unocal shall halt hauling activities on the roadways adjacent to dune swale wetlands during the California Red-legged frog migration period until additional protective measures are determined and approved by the County OEC and USFWS or for the duration of ~~the~~ a temporary migration event (as determined by Unocal and the County OEC) to reduce wildlife mortality.

Comments: See comments below for Page 5-61.

UN-21

Page IS-6, PS.2, Mitigation Measures
Proposed revisions:

PS-2.1 Implement a review system for truck carriers contracted for offsite NHIS hauling to ensure that only those with the safest records can carry loads. This would include addressing issues related to a review of CHP Mister reports, ensuring correct Class licensing, enrollment in a controlled substance and alcohol abuse program, completion of Motor Carrier Safety Review type safety questionnaire and assessment of Bureau of Motor Carrier Safety Ratings.

PS-2.2 Ensure that trucking companies contracted for offsite NHIS hauling~~and drivers~~ have programs in place to ensure that drivers maintain appropriate speeds. This would include a 55-mph or applicable speed limit policy, training on speeding and speed limits along the proposed route and/or speed control systems or governors in place on trucks.

PS-2.3 Ensure that contracts made with trucking companies hauling NHIS offsite address safety reviews, speeding and violations and unacceptable incentive practices, such as increased pay for increased numbers of loads that may be an incentive for drivers to act in an unsafe manner.

Comments: Unocal has every intention of ensuring that the NHIS hauling operations are as safe as possible and intends to implement the proposed mitigation measures for this activity.

UN-22

Page IS-10, Class IV Impacts
Proposed revisions: Use of NHIS from the Guadalupe Field as cover material for closure of Landfill cells is a Class IV (beneficial) impact, as it facilitates closure of cells within the Landfill as directed by the RWQCB.

UN-23

Comments: Unocal suggests that the proposed project results in a Class IV Beneficial Impact. As discussed on Page ES-17, Section H. Environmentally Superior Alternative, Paragraph 4:

> *" . . . the Landfill would need to secure NHIS or other cover material from a different source. It is important to note that the Santa Maria Landfill currently has a need for 5 million cubic yards of material to close their remaining active cells. Currently, the Landfill has been accepting NHIS from other sump locations in the Santa Maria Valley. However, these sources are winding down and the Landfill needs to locate other sources of materials for closure. The sources of material for closure will need to be found and materials transported to the Landfill regardless of the disposal decisions associated with this document. It is likely that if the NHIS material from the Guadalupe Field is not taken to the Landfill, material from outside of Santa Barbara and San Luis Obispo Counties would have to be brought to the Landfill. This could result in greater transportation, air quality and public safety impacts than the proposed project."*

UN-23 Cont.

Page IS-11, 12, 13, 14 – Alternatives Summary
Comments: Need to re-evaluate after all revisions have been made to the SEIR.

UN-24

Page IS-16, Class I Impacts – TMLF
Proposed revisions: The TMLF alternative would establish at the Guadalupe Field a permanent dune ~~depository~~ of treated material~~NHIS~~ requiring indefinite leachate collection and monitoring.

Comments: See comments for Page ES-13, Section F.2.2 Treated Material Land Feature (TMLF). Unocal disagrees with the determination that the Residual Impact is Significant.

UN-25

Page IS-17, Class II Impacts – TMLF
Comments: See comments below related to the requirement for restoration to mitigate for temporal loss, Page 5-66, Paragraph 1.

UN-26

Page IS-20, Class II Impacts – ECU
Comments: The Mitigation Measures discussion for BIO-5.1 consistently uses the term "TMLF" when this Mitigation Measure is addressing the ECU. Also, see comments below related to the requirement for restoration to mitigate for temporal loss, Page 5-65, Mitigation Measure BIO 5.1.

UN-27

Page 2-1, Section 2.1 NHIS Quantities, Paragraph 1
Proposed revisions: NHIS materials are allowed to be used as fill at the Santa Maria Landfill by the Regional Water Quality Control Board (RWQCB) (WDR 01-041). In order for a material to be classified as NHIS, it must meet the criteria established by the RWQCB. ~~This criteria is 1,000 milligrams per kilogram (mg/kg) for gasoline (C2-C12), 15,000 mg/kg for diesel (C13-C22), and 200,000 mg/kg for heavy oils (above C23), as per EPA Method 8015M (City of SM 2004a). Testing associated with the Santa Maria Landfill SEIR conducted by Shaw (City of SM 2004a, Appendix F) indicates that the Guadalupe Field stockpiles are within these criteria.~~ In a letter dated August 31, 2004, the Regional Water Quality Control Board (RWQCB) approved the acceptance of the Guadalupe NHIS as part of the Landfill's NHIS Program. Testing conducted as part of the Landfill's SEIR indicated that the Guadalupe material would qualify under the Landfill's NHIS program. ~~Analytical tests from well over 1,000 samples of material from the Guadalupe Field stockpiles were~~ Representative sampling of the Guadalupe material was conducted and the analytical results compared against the Santa Maria Landfill's acceptance criteria~~specifications~~ for NHIS, and all of the samples met the specifications. Also, historical analytical tests from well over 1,000 samples of material from the Guadalupe Field were qualitatively compared by the Landfill and the RWQCB to the representative sampling results. As such, in evaluating the impacts of the proposed trucking project, all materials at the Guadalupe Field ~~was~~were assumed to meet the Landfill's specifications for NHIS. As part of the proposed project, additional testing of the NHIS will be done at both the Guadalupe Field and the Landfill. Any material that does not meet the NHIS specifications will be separated and handled appropriately.

Comments: See previous comments provided for Page ES-5, Section C. Proposed Project.

UN-28

The discussion deleted above does not provide a comprehensive description of the Landfill's acceptance criteria, which is much more extensive than the three criteria listed. Also, The Shaw Group, Inc. conducted fate and transport studies for the Landfill, not testing. The letter issued on August 31, 2004 by the RWQCB to the Landfill approving the NHIS material from the Guadalupe Field should be cited.

UN-28 Cont.

Page 5-25, Paragraph 3, Line 8
Proposed revisions: ~~Nevertheless, the dune structures were subject to erosion and transport due to historical drilling and production operations.~~

Comment: There is no data to support this statement and it should be deleted. Historical photographs have shown that the active, unvegetated areas of the Guadalupe Field have actually decreased since oil production began, which Unocal attributes to infrastructure (roads and wells pads) built for production activities.

UN-29

Page 5-25, Paragraph 3, Last sentence
Current wording: The dune structures are always subject to erosion and transport by wind and runoff, and, more recently, by cleanup operations (e.g., effects from truck traffic on the shoulders of narrow roads that cross the site).

Comment: What is the basis for the statement regarding erosional effects from truck traffic on the shoulders? Please cite specific evidence for this statement.

UN-30

Page 5-27, Bullet 7, Line 3
Proposed revisions: … a drawdown of ~~2.5~~ 5 feet is used as the threshold of significance.

Comment: We are not aware of drawdown being specifically covered in the RWQCB Basin Plan. Five feet would be more correct from an absolute perspective. The natural variation in ground water elevations is as much as 6 feet in inland areas over the past 10 years (see data for monitoring well 204-A), and as much as 5 feet in the estuary area over the past 30 years (see on-line data for USGS/DWR well 10N/36W 2Q7-1G).

UN-31

Page 5-29, Section 5.2.6 Proposed Project Impacts, Mitigation Measures, and Residual Impacts, First Paragraph, last sentence
Proposed revisions: Soils with hydrocarbon concentrations or other constituents greater than these criteria would have to be transported and disposed at one or more alternate landfills that are permitted to accept the material.

Comment: Hydrocarbon is only one of the constituents in the acceptance criteria. Soils with any constituent in excess of the acceptance criteria parameters will be transported and disposed at an alternate landfill permitted to accept the material.

UN-32

Page 5-33, Mitigation Measure W.4
Proposed revisions: Monitor ditches along Thornberry Road that drain agricultural fields and work with the landowner/jurisdictional agency to repair any erosion related to project truck staging or transport activities.

Comment: Unocal will not be able to physically make repairs along Thornberry Road, which is under the jurisdiction of the County Public Works department, or in the ditches for the agricultural fields, as they may be privately owned, without the permission of the landowner.

UN-33

Page 5-39, Mitigation Monitoring Plan, W-3.2
Comments: Wording of Mitigation Measure W-3.2 should be revised to reflect changes per previous comments (Page 5-33 and IS-5 W3.2).

UN-34

Page 5-55, Section 5.3.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives, bullets
Proposed additional bullet: Implementation of a Field-wide Sensitive Species Management Plan (SSMP), which includes measures taken to avoid or minimize impacts to sensitive species at the Field and the monitoring and mitigation measures for unavoidable impacts (Condition F.62.m).

UN-35

Comments: The Unocal Sensitive Species Management Plan (SSMP) (JES, et al, 2003) has been approved by the Onsite Ecological Coordinator (OEC) and SLO County. **UN-35 Cont.**

Page 5-58, Paragraph 2

Proposed revisions: Long-term impacts could occur from destabilization of dune surfaces if road widening activities encroach into the base of steep active dune faces.~~or if invasive species spread through the disturbed dune areas and encroach into native habitats, causing loss or degradation of existing native habitats.~~

Comments: Road widening would not necessarily destabilize dune surfaces. Historically, roads have stabilized the dunes and have resulted in reducing the area of active sand dunes, which has allowed vegetative cover to increase in the backdunes. Destabilization could only occur if the widening involved cutting into a steep dune face. **UN-36**

In addition, the ongoing weed abatement program gives a high priority for controlling weeds along roads. There is no reason to presume that by widening the roads, invasive species will spread and encroach into native habitats. The act of widening a road does not result in the spread of invasive species. That portion of the sentence should be deleted.

Page 5-58, Paragraph 3

Proposed revisions: The direct loss of vegetation from road widening could be long term (longer than the duration of the offsite hauling). The roads that are widened may be left in place indefinitely or until the existing roads are removed as part of the Guadalupe field abandonment and remediation project (it is not known whether roads would be removed or left in place for future management of the Guadalupe field). The quality of this habitat along the shoulder of the roadways is somewhat degraded. The ~~long-term~~ loss of approximately 2 acres of backdune habitat represents less than one percent of this habitat type at the Guadalupe Field. ~~Although t~~This is a small percentage of this habitat type available in the Field; it is already degraded and therefore the loss of this marginal habitat would not be considered significant~~, it would be considered a significant impact because of the long-term nature of the impact to a habitat recognized for its scarcity, uniqueness, the prevalence of sensitive species, and its sensitivity to impact~~.

Comments: This paragraph states that the loss of 2 acres of backdune habitat from road widening activities will result in significant impacts because of the "long-term nature of the impact". The loss of 2 acres of marginal quality backdune habitat (i.e., less than 1% of GRP backdune habitat) from road widening should not be considered a "significant" impact. It is likely that much of the habitat along the side of the road consists of sand that has accumulated over the existing roadway and that has been impacted by vehicle traffic. The roads are narrow and the shoulders of the roadways are subjected to occasional disturbances from "wide loads" and sand removal activities and, as such, are already somewhat degraded. **UN-37**

All of the potential impacts associated with road widening can be addressed as they currently are through implementation of the Sensitive Species Management Plan (SSMP), the Site-Wide Exotics Eradication Plan (SWEEP), and habitat disturbance documentation and restoration procedures currently in place in the Field.

Page 5-58, Mitigation Measure BIO-1.1

Proposed revisions: If road-widening activities are conducted, ~~Unocal shall mitigate~~ the loss of backdune habitat and sensitive plant species individuals will be adequately addressed using the existing protocols and procedures in effect to mitigate such impacts including, but not necessarily limited to, ~~and habitat and reduce impacts associated with the loss of habitat by implementing the restoration of an equal number of acres of backdune habitat at other currently disturbed or degraded locations within the Guadalupe Field (such as areas degraded by infestations of invasive species). Unocal shall implement the guidelines of~~ the approved Habitat Revegetation, Restoration, and Monitoring Plan (Condition F.64), the Sensitive Species Management Plan (SSMP)(Condition F.62.m), and the Site-Wide Exotics Eradication Plan (SWEEP)(Condition F.62.k).~~for areas restored as a result of road widening. To minimize temporal losses, the restoration would need to be initialed before or concurrently with the road widening project.~~ **UN-38**

Comments: Based on considering the road widening a Class III impact (proposed above), Unocal should not need to restore up to 2 acres of disturbed or degraded backdune habitat. The removal of two acres of

degraded habitat should not be considered a Class III impact. Elsewhere in the SEIR the roadsides are considered "degraded habitat due to vehicle usage". **UN-38 Cont.**

Page 5-61, Mitigation Measure BIO-3.1

Proposed revisions: Unocal shall not begin any hauling activities along the Main Road Entrance wetlands or the M12/L11 Valley during the red-legged frog migration period (from November 1 through June 1) until ~~a signed Biological Opinion from the United States Fish and Wildlife Service (USFWS) authorizing such activities has been issued and a~~ the Sensitive Species Management P~~p~~lan (SSMP) ~~(~~described below in BIO-3.2~~) implementing~~ has been revised to add provisions for the hauling activities to protect California red-legged frogs and other wildlife and the revised SSMP is approved by the County OEC and USFWS ~~terms and conditions is in place~~.

Comments: The SEIR should not impose the issuance of a signed Biological Opinion from the USFWS authorizing hauling activities along the Main Entrance Road or M-11/M-12 wetlands during the CRLF migration period (Nov – May) as a Mitigation Measure. **UN-39**

This requirement could be considered an infeasible mitigation measure under CEQA Guidelines Section 15364, since it may not be able to be accomplished within a reasonable timeframe to satisfy the requirement, if at all. There is a possibility that the USFWS may never issue a Biological Opinion for this action. Should the Biological Opinion not be issued, Unocal could pursue a Habitat Conservation Plan (HCP) or other "Take" authorization to protect them in the event of the take of a federally listed species. If the County includes this Mitigation Measure as a permit condition, the work could not be undertaken until the permit was revised to reflect one of these other options.

Unocal already has stringent mitigation measures for protecting the "take" of CRLF, which is included in the County's approved SSMP (per CDP/DP Condition F.62.m). However, mitigation measures, such as those included in BIO-3.2 (as modified below), are within the Lead Agency's authority and would be considered feasible to mitigate BIO.3 to a Class II impact.

Page 5-61, Mitigation Measure BIO-3.2

Proposed revisions: Unocal shall ~~prepare a~~ revise the Sensitive Species Management Plan to include~~that shall be approved by the USFWS and County OEC and that shall describe~~ measures that would be implemented to protect California red-legged frogs, and other non-listed sensitive and comment wildlife species potentially affected by hauling activities near known or potential habitat. The~~is~~ revised SSMP shall be approved by the USFWS and County OEC ~~plan~~and shall include measures such as the following:

- Unocal shall implement a ~~permanent~~ speed limit of 15 mph along the main haul road adjacent to dune swale wetlands in the M12/L11 Valley and the Entrance Road wetlands during the California red-legged frog breeding season when it is raining, the roads are wet or after daylight. Signs detailing speed limits shall be posted in appropriate locations along the route.
- Biologists shall survey the active portions of the haul route within 200 feet of sensitive resources, including the dune swale wetlands, periodically throughout the day during hauling activities and ~~at least hourly~~ when it is raining or the roads are wet. **UN-40**
- If a substantial number of mortalities, as identified in the revised SSMP~~determined by Unocal, the County OEC, or regulatory agencies~~, continue to occur along the haul route after implementing the above mitigation, Unocal shall halt hauling activities on the roadways adjacent to dune swale wetlands during the California Red-legged frog migration period until additional protective measures are determined and approved by the County OEC and USFWS or for the duration of ~~the~~ a temporary migration event (as determined by Unocal and the County OEC) to reduce wildlife mortality.

Comments: There is already a Sensitive Species Management Plan (SSMP) in effect at the Field. The SSMP was prepared by JES et al, 2003 and has been approved by the County and is being implemented by Unocal. To avoid confusion, the Plan should be revised, (an Attachment can be added to the existing Plan to address this specific issue). In addition, rather than try to include the details of the Plan revision in the SEIR, it is recommended that the SEIR require the preparation of the revision to be reviewed and

approved by the appropriate agencies. This approach will allow a more thorough and specific set of requirements to protect the species and accommodate the conduct of the work.

First Bullet
Unocal has current plans and protocols for addressing the usage of roads and avoidance of wildlife on the roads. The implementation of this Mitigation Measure is assuming the existing plans and programs are not working. The requirement to implement a permanent speed limit of 15 mph along the Main Entrance Road and L-11/M-12 wetlands should be limited to the duration of the Proposed Project hauling activity only.

Second Bullet
The requirement to survey hourly when the roads are wet or when it is raining is excessive. Such surveying activities can be time consuming and potentially dangerous. It is suggested that the hourly requirement be replaced with "at a frequency determined by Unocal, the County OEC or regulatory agencies in accordance with the requirements set forth in the approved revision to the Sensitive Species Management Plan". This will allow a more comprehensive look at monitoring frequency and methodology that can be tailored more to the conditions (i.e., temperature, time of year, indications of wildlife movement elsewhere in the Field, etc.) when hauling is being undertaken and not restrict it to a specific time. Alternatively, if the EIR preparer finds it necessary to include a specific frequency, it should be no more than three times per day.

Third Bullet
The term "substantial number" of CRLF mortalities will need to be well defined in the revision to the Sensitive Species Management Plan. Alternatively, this bullet could specify five CRLF mortalities as triggering a temporary halting of hauling activities to allow for a review of the activities causing the take with the County and USFWS to determine what additional measures may be required to address the mortalities. This requirement would be consistent with the existing USFWS Biological Opinion for CRLF at the Field (BO 1-8-00-F-10R, dated June 7, 2000).

UN-40 Cont.

Page 5-62, Paragraph 1, 3rd sentence
Proposed revisions: These measures, which include compliance with any federal authorization for take of listed species (i.e., a~~the~~ Biological Opinion, etc.) and a revised Sensitive Species Management Plan with protection measures including speed limits, regular monitoring of areas most likely to support red-legged frogs and temporarily halting activities on the haul road if necessary, would reduce significant impacts to *less than significant with mitigation* (Class II).

Comments: This will allow flexibility to reflect that alternative take authorizations are possible and that in the event a Biological Opinion or other form of take is not forthcoming, the project could proceed.

UN-41

Page 5-64 – 65, Impact Discussion
Proposed revisions: Additional loss of dune scrub would be associated with construction of the TMLF if a treatment method other than bioremediation in an LTU is used. ~~, which would~~The TMLF would occupy approximately 18.8 acres, of which 13.9 acres are currently disturbed (disturbed during previous cleanup activities including original LTU activities at this site), and 4.9 acres are undisturbed, native dune scrub habitat. The TMLF is designed to be a permanent feature and would be equipped with a clay and/or HDPE liner. The TMLF surface would be covered with two to three feet of clean sand and/or vegetated overburden and would be revegetated with backdune (coastal) scrub habitat. The TMLF would not have a clay cap. The revegetation phase would not be implemented until the completion of the TMLF, which would occur when all of the future, proposed excavations on the Guadalupe Field have been completed (estimated by Unocal to require between three and five years) and the affected material treated. A Site-Specific Restoration Plan (SSRP) would be prepared by Unocal to detail the restoration process for the TMLF so it is consistent with the surrounding dune landscape.

If the TMLF is formed from material treated in an LTU, the TMLF will occupy the area disturbed to build the LTU and no new disturbance will result. Unocal estimates that it will take about three months to form the dune structure, and then it will be restored. If the TMLF is formed from material treated by another method, ~~T~~there will be a direct loss of vegetation resulting from the construction ~~and operation~~ of the TMLF, but it is likely to be a ~~long~~short-term impact, since the treated material will be stockpiled in a previously disturbed area until the time the dune is constructed.

UN-42

Either way, any~~with a~~ loss of habitat functionality (temporal loss of habitat value) ~~extending~~ will start with dune formation, which will take several months, and ending when~~until~~ revegetation and habitat restoration activities have succeeded. If environmental conditions are favorable, a healthy, functioning native shrub cover could be established within three growing seasons after reseeding, with gradual changes thereafter, based on experience on the Field and elsewhere in the region. This would mean a minimal temporal loss of habitat value, with ~~of three to five years for remediation activities, plus~~ a minimum of three years for restoration of basic habitat function. There are some uncertainties about the prospects for successful restoration of fully functioning dune scrub habitat on top of treated material, and the restoration approach (such as how much clean sand cover will be placed over the treated soils) has not yet been detailed.

Assuming restoration is successful, approximately 18.8 acres of dune scrub habitat would be restored. This would involve areas previously disturbed from past oil field operations and construction of the LTU (addressed in the 1998 EIR).

As described in the proposed project, impacts resulting from the construction of the TMLF from non-LTU material would include the removal of individuals of non-federally or state-listed sensitive plant species, including four CNPS List 4 species (Blochman's senecio, California spineflower, suffrutescent wallflower, and Nuttall's milk-vetch). Blockman's leafy daisy, CNPS List 1B, is also present in the dune scrub habitat in this area, and dune mint, CNPS List 1B, is present in the open sandy habitat in the previously disturbed area. Removal of or damage to individuals of these plant species as part of this project would not be expected to substantially affect the overall local populations of these species Field wide, but would contribute to the significance of the impact of vegetation removal.

There would be no impact on State- or federally listed threatened or endangered species.

Unocal's approved Habitat Revegetation, Restoration, and Monitoring Plan would be implemented for any areas temporarily affected by project activities and those areas that are designated for revegetation once construction is complete (CDP/DP D890558D Condition F64). For sites where large numbers of individuals of sensitive species (including Blockman's leafy daisy, dune mint, Blochman's senecio, suffrutescent wallflower, California spineflower and/or Nuttall's milk-vetch) occur and impacts to these species are unavoidable, individual plants and/or seed would be salvaged from the site and propagated and incorporated into the onsite restoration after remediation activities are complete (CDP/DP D890558D Condition F64.b.ii).

Incorporation of the TMLF into Unocal's approved Habitat Revegetation, Restoration, and Mitigation Plan (CDP/DP D890558D Condition F64) and implementation of measures to avoid or reduce impacts to biological resources (CDP/DP D890558D Condition F68) is expected to reduce impacts to backdune vegetation and wildlife habitats, but not to less than significant levels.

The ~~long~~short-term loss of 4.9 acres of backdune vegetation represents less than one percent of 2,071 total acres of backdune habitat at the Guadalupe Field. ~~Although t~~This is a small percentage of this habitat type, ~~it would be considered a~~ and restoration of the TMLF would mitigate the impact to *less than significant* ~~impact~~ because of the ~~long~~short-term nature of the impact (temporal loss) ~~and uncertainties concerning the feasibility of restoration of dune scrub habitat over the treated material, coupled with the prevalence of sensitive species, the recognized scarcity and uniqueness of the habitat, and its sensitivity to impact~~.

Comments: The effects of the LTU were evaluated in the previous EIR (ADL 1998) and are not part of the TMLF project description, which consists only of forming material that has been treated to RWQCB criteria into a dune, then revegetating it. The total time for dune formation and restoration is anticipated to be less than five years.

The SEIR states that,"The long-term loss of backdune vegetation represents less that one percent of the 2,071 acres of backdune scrub habitat at the Field." It is actually represents 0.24 percent and is not a long-term loss since the area will be restored immediately upon completion of dune formation. It has been repeatedly demonstrated in the Guadalupe Field that disturbed areas can be restored to ecological service expeditiously, and in well under five years.

UN-42 Cont.

See comments regarding the "…uncertainties concerning the feasibility of restoration of dune scrub habitat over treated material…" below. As the referenced comments illustrate, dune scrub species have colonized naturally into the original LTU area possessing treated material. This natural colonization has occurred without any native cover over the treated material, without seeding and/or planting of native species or any other active measures typically employed successfully elsewhere in the Field. Although detailed surveys have not been undertaken at the original LTU recently, sensitive plant species have been observed at that location and signs of wildlife usage (i.e., scat, burrows, tracks, etc.) are prevalent.

The SEIR should not support the conclusion that this impact is significant upon the "uncertainty" of restoration as this assumes that the restoration will not be successful. The project includes provisions for restoring disturbed areas, and the project also has provisions for adaptive management strategies, including restoring habitat elsewhere in the Guadalupe Field, if a site is not restoring in accordance with specific success criteria. To date, none of the approximately 100 acres of habitat that have been disturbed and restored have not met the success criteria for restoration performance.

UN-42 Cont.

The SEIR mentions the "recognized scarcity and uniqueness" of the habitat and its "sensitivity to impact" to substantiate the mitigation measure requiring conclusion that the TMLF will result in significant impacts. The terms "recognized scarcity and uniqueness" and "sensitivity to impact" are very subjective. In particular, the inference that the habitat is sensitive to impact is not consistent with the fact that the conditions at the Guadalupe Field are extremely harsh, resulting in continual natural "impacts" to these species that thrive in this habitat. The habitat is subject to extreme conditions including prolonged periods without rainfall, extreme daily temperature ranges, and strong salt-laden winds and shifting sands that cover plants and/or expose roots. By its very nature, this habitat is constantly subjected to impact from sand burial and exposure and the plants have developed adaptations to effectively thrive in these conditions. In fact, recently disturbed sites (i.e., Q4 and E4A) have actually been colonized with sensitive species (i.e., dune mint) and other pioneer species as a result of their being disturbed. These subjective statements should be removed from the discussion.

See comments regarding restoration below.

Page 5-65, Mitigation Measure BIO-5.1

Proposed revisions: If a TMLF is implemented, Unocal shall mitigate the loss of backdune habitat and sensitive plant species individuals and habitat resulting from implementation of this alternative, and reduce impacts associated with the loss of this habitat by restoration of the completed TMLF to dune scrub habitat. If Unocal, in consultation with the OEC, determines that the TMLF restoration will not meet success criteria within the timeframes specified in the approved Habitat Revegetation, Restoration and Monitoring Plan (CDP/DP D890558D Condition F.64), the restoration will be implemented for an equal number of acres (18.8) of habitat to dune scrub at other currently disturbed or degraded locations within the Guadalupe Field (such as areas degraded by infestations of invasive species). ~~To mitigate the temporal loss of backdune habitat, Unocal shall restore 4.9 acres of habitat to dune scrub at other currently disturbed or degraded locations within the Guadalupe Field (such as areas depgraded by infestations of invasive species).~~ Unocal shall incorporate the restoration site ~~and the TMLF~~of the "disturbed or degraded" locations into the approved Habitat Revegetation, Restoration and Monitoring Plan (CDP/DP D890558D Condition F.64) for this restoration. ~~To minimize further temporal loss of habitat value, Unocal shall have an approved SSRP for the TMLF and to have a plan for the restoration of 4.9 acres of habitat elsewhere in the Field approved by the County and Coastal Commission within 6 months of project approval. The Plan would need to provide for the timely restoration of the 4.9 acres of habitat to be initiated concurrently of before soil movement associated with this alternative.~~

UN-43

Comments: See the comments above. If the material is treated using an LTU, there will be no new disturbance from the TMLF formation. If the material is treated by another method, it will be stockpiled in a previously disturbed area until the treatment is complete, then formed into a dune. The dune will be restored after formation. The anticipated time for any temporal loss of habitat would be short-term, less than five years.

The temporal loss of use of this habitat would be significant if it was limited in area at the Guadalupe Field or if it were proven to be difficult to restore. As the SEIR points out, it represents less than one percent of

the backdune habitat in the Guadalupe Field and as the following examples illustrate, restoration activities in the Guadalupe Field have been very successful.

A number of sites have been restored at the Guadalupe Field that now have better quality habitat than when remediation began less than five years ago (i.e., C8, B3, etc.), so the project has proven that disturbed areas can be restored to ecological service quickly. Other sites where disturbances have occurred and no active restoration has been undertaken are also restoring adequately (i.e., C6C7, Q4 and B-Road Stockpiles). To the extent that natural blow-outs in excess of 25 acres occur in the Guadalupe Field and naturally restore themselves throughout this habitat (i.e., up to ¾ of a mile from the beach well into backdune habitat), it is clear that these are natural phenomena and do not represent significant impacts upon the function of the habitat as a whole.

UN-43 Cont.

The SEIR raises the "uncertainties concerning the feasibility of restoration of dune scrub habitat over treated material". However, approximately ten acres of this specific area was used to pilot test LTU technologies using diluent-affected soils in 2000. Upon completion of the tests, the treated soils (approximately 800 ppm TPH) were left in place. In the four years since that test, no active restoration (i.e., seeding, planting, weeding, etc.) of that site has been undertaken, yet it has a substantial growth of vegetation (some being sensitive), including sea rocket, beach bur, dune evening primrose and dune mint. Within five years, the estimated cover is approximately 25% without active restoration. The site would establish much more quickly with active restoration efforts (as have other sites in the Guadalupe Field), so the temporal loss is not an issue.

This comment also applies to the related discussion for the Engineered Containment Unit (ECU) on page 5-68, Paragraph 6.

Page 5-68, Section 5.3.7.3 Engineered Containment Unit, Paragraph 2, 3rd and 4th sentence

Proposed revisions: Impacts BIO.3 and BIO.4 identified for the proposed project would not apply to this alternative, since the NHIS would not be hauled offsite. Silt/clay material would still have to be hauled to the site for the construction of the ECU, so BIO.3 would apply for these hauling activities. The applicable portions of mitigation measures identified for BIO.43 would apply to this alternative.

Comments: If an ECU was constructed, the NHIS would not be hauled offsite; it would be placed in the onsite ECU. Since BIO.3 and BIO.4 apply to offsite hauling of NHIS, they would not be applicable to this project alternative.

UN-44

There is a reference to hauling of material to the site for the construction of the ECU. Unocal agrees that the number of truck trips required to bring the clay liner material onsite to construct the ECU would be substantial enough to implement specific measures to protect wildlife that may enter the roads for the duration of the hauling activities, so portions of BIO.3 could be applicable. The mitigation measures identified for BIO.4 are referenced in the SEIR, but BIO.4 refers to the offsite NHIS hauling routes and no mitigation measures are proposed for BIO.4.

Page 5-68, Section 5.3.7.3 Engineered Containment Unit Mitigation Measures

See comments above for Mitigation Measure BIO-5.1.

UN-45

Page 5-70, Section 5.3.9 Mitigation Monitoring Plan

See comments above for each mitigation measure. The wording in the Mitigation Monitoring Plan should be revised accordingly.

UN-46

Page 5-100, First Paragraph in Section 5.5.3 (Significance Criteria)

Proposed revisions: SLO APCD has developed guidelines for evaluating the significance of air quality impacts for proposed projects undergoing CEQA review, which are outlined in the SLO APCD CEQA Air Quality Handbook (SLO CEQA Handbook) (SLO APCD 2003). Any project would be considered to have a potential significant air quality impact if the emission levels within SLO County from the proposed project were to equal or exceed any of the significance criteria set fourth in the CEQA Handbook.

UN-47

SB APCD has also developed guidelines and adopted significance thresholds for evaluating proposed projects undergoing CEQA review, which are contained in the Environmental Review Guidelines for the Santa Barbara County Air Pollution Control District (SB ERG) (SBCAPCD 2000). Any project would be

considered to have a potential significant air quality impact if the emission levels within SB County from the proposed project were to equal or exceed any of the significance criteria set forth in the SB ERG.

The criteria for construction and operations are detailed below.

Comments: The air quality emissions significance thresholds established by the SLO APCD have been chosen for evaluating the significance of air quality impacts in the SEIR, regardless of the location of potential impacts. However, emissions during proposed NHIS hauling will occur in both SLO and SB Counties. The SB APCD is the air pollution control agency with jurisdiction in SB County. SB APCD adopted CEQA guidelines, including quantitative significance thresholds, for evaluating the significance of air quality impacts for projects within SB County in 1995 and revised the guidelines in 2000.
As stated in Article I B, Purpose, of the SB Environmental Review Guidelines (ERG):

> *"The purpose of these APCD Environmental Review Guidelines is to inform APCD staff, other governmental agencies, applicants and the public of definitions, procedures, and forms to be used by the APCD in the implementation of the California Environmental Quality Act [CEQA (Public Resources Code Section 21000 et seq.)] and to supplement the State CEQA Guidelines, (14 Cal. Admin. Code Section 15000 et seq.)."*

Therefore, the SEIR should apply the significance thresholds adopted by SB County to evaluate the potential significance of project emissions that would occur within SB County.

UN-47 Cont.

Page 5-100, Table 5.5.5 (San Luis Obispo County APCD Significance Thresholds for Construction)
The third and fourth entries in the second and third columns and the second entry in the fourth column of this table (all of the thresholds involving quantities of graded material) should be deleted.

Comments: These table entries are derived from screening quantities and are intended to provide a quick guideline as to when significant impacts may occur if construction activities for a proposed project exceed these levels. However, detailed emission estimates of ROC, NOx and PM_{10} were calculated for the proposed project and the alternatives evaluated in this SEIR, so screening level thresholds are not relevant. The quantitative thresholds listed above these entries are the values to be used to determine significance.

UN-48

Page 5-102, End of Section 5.5.3.2 (Significance Criteria for Operations)
The following text should be inserted at the end of this section:

SB ERG (2000) states that a proposed project will not have a significant air quality effect on the environment, if operation of the project will:

- emit, from all project sources, mobile and stationary, less than the daily trigger for offsets set in the APCD New Source Review Rule, for any pollutant; and
- emit less than 25 pounds per day of oxides of nitrogen (NOx) or reactive organic compounds (ROC) from motor vehicle trips only; and
- not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone); and
- not exceed the APCD health risk public notification thresholds adopted by the APCD Board; and
- be consistent with the adopted federal and state Air Quality Plans.

SB APCD Rule 802.D.1 specifies offset thresholds of 80 lbs/day for PM_{10}, 550 lbs/day for CO, if designated nonattainment, and 120 lbs/day for all other nonattainment pollutants and precursors. Since SB County is only nonattainment for PM_{10} and ozone, significance thresholds would be 80 lbs/day for PM_{10} emissions within SB County, 120 lbs/day for total ozone precursor (ROC and NO_x) emissions within SB County and 25 lbs/day for ROC and NOx emissions from motor vehicle trips within SB County.

Comments: As stated in the previous comment, the SEIR should use significance thresholds adopted by the SB APCD for emissions within SB County. The additional text will specify those thresholds.

UN-49

Page 5-102, First Paragraph in Section 5.5.3.3 (Significance Criteria for Health Risks)
Proposed revisions: SLO APCD and SB APCD ~~has~~have adopted criteria for determining the significance of potential health risks associated with toxic emissions from a project. These criteria, which are the same for both APCDs, have been developed for both carcinogenic and non-carcinogenic compounds, as well as for acute and chronic exposure, as follows:

Comments: The SEIR should clarify that the SLO and SB APCDs have both adopted significance criteria for health risks and that the criteria are the same.

UN-50

Page 5-105, Impact AQ.1 and Impact Discussion Section
The sections for evaluating construction and operations emission should be separate, each with its own Impacts, Impact Discussion and Residual Impacts.

Comments: The estimated emissions from construction were evaluated against different thresholds. Table 5.5.7 indicates that emissions during construction do not exceed the significance thresholds; therefore the impact would be insignificant (Class III). The evaluation needs to be addressed separately from operations, which has different conclusions.

UN-51

Page 5-105, Bullets
The bulleted list should be revised as follows:

Air emissions of CO, ROC, NOx, SO2, and PM10 during construction would come from the road improvements and equipment mobilization activities and equipment as described below:

- from internal combustion engines of soil moving equipment (e.g., backhoes, bulldozers, cranes);
- from engines of other onsite vehicles and machinery used to widen/pave roads;
- from engines of offsite vehicles (e.g., workers' commute vehicles, trucks delivering equipment and materials);
- ~~from engines of the offsite trucks that haul soil to the Santa Maria Landfill;~~
- dust from road improvements at the Guadalupe Field (e.g., old pavement removal and paving);
- ~~dust from disturbed areas and soil handling;~~
- fugitive dust from vehicles on and off site;
- ~~ROC from soil off-gassing during soil disturbance and trucking.~~

Comments: The deleted bullets list activities that are part of proposed project operations, rather than construction.

UN-52

Page 5-107, second and third full paragraphs
Proposed revisions: Summaries of the project emissions from operations are presented in Tables 5.5.8 (total emissions), 5.5.9 (emissions within SLO County), and 5.5.10 (emissions within SB County), below. Peak day and ~~A~~average-day NOx emissions are above the significance criteria ~~as for the whole project as well as~~ in ~~the air basins~~ both SLO and Santa Barbara Counties, for both proposed truck sizes and for transportation of both 200,000 cy and 860,000 cy of NHIS (see Tables 5.5.8~~9~~ and 5.5.10). No other emissions are above the significance thresholds within either county.~~Additionally the following project emissions are above the significance criteria: (1) the project total emissions peak day ROC and PM10 emissions, (2) average ROC and PM10 from transportation of 860,000 cy of material by 8 cy size truck, and (3) annual NOx emissions from transportation of 860,000 cy by 8 cy size trucks (see Table 5.5.8).~~
Therefore, operations NOx air quality impacts are considered to be a *significant* impact.
Some of these emissions could be mitigated with the standard mitigation measures presented below. Worst-case scenario peak day NOx emissions are significantly higher than the significance thresholds and would require mitigation~~implementation of Best Available Control Technologies for Construction Equipment (CBACT)~~.

Comments: When the CEQA significance thresholds developed by each APCD are applied to emissions within the APCD's jurisdiction, only NOx emissions exceed the significance thresholds.

UN-53

Pages 5-108 and 5-109, Tables 5.5.8, 5.5.9 and 5.5.10 (operations emissions summaries)
Table 5.5.8 should be revised to remove the last two rows for each route that present SLO APCD significance thresholds and apply them to total proposed project emissions, since it is not appropriate to combine the emissions within both counties to evaluate significance. None of the entries in this table should be in bold.

Two rows, showing the SLO APCD significance thresholds and the evaluation of significance, should be added at the bottom for each route in Table 5.5.9 to indicate significance of proposed project operational emissions within SLO County. All entries for daily NOx emissions should be in bold, since they exceed the 10 lbs/day significance threshold. All other entries in the table are below the significance thresholds and should not be shown in bold.

Two rows, showing the SB APCD significance thresholds and the evaluation of significance, should be added at the bottom of each route in Table 5.5.10 to indicate significance of proposed project operational emissions within SB County. The significance thresholds should be listed as 25 lbs/day for daily ROC and NOx and 80 lbs/day for daily PM_{10}. The SB APCD has not established any other significance thresholds for emissions. All entries for daily NOx emissions should be in bold, since they exceed the 25 lbs/day significance threshold. All other entries in the table are below the significance thresholds and should not be shown in bold.

Comments: As stated above, the significance thresholds adopted by each APCD should be applied only to the emissions within the APCD's jurisdiction to evaluate significance. These revisions to the table make them consistent with this evaluation of significance.

UN-54

Pages 5-109, Last paragraph and Page 5-110, Table 5.5.11 and Paragraph 1
These paragraphs and Table 5.5.11 should be deleted. The appropriate application of significance thresholds indicates that PM_{10} emissions during operations do not cause significant adverse air quality impacts. Therefore, the discussion of the use of filters and catalysts on equipment exhaust is not required or appropriate.

UN-55

Page 5-111, Mitigation Measures AQ-1.3
This mitigation measure should be revised as follows:

AQ-1.3 Because NOx emissions from the trucks hauling NHIS are above the threshold, ~~Best Available Control Technology for Construction Equipment (CBACT)~~ measures shall be used to mitigate NOx combustion emissions ~~from heavy-duty construction equipment~~, such as the following, or as otherwise agreed to with the SLO APCD:

a. Reduce emissions from heavy duty diesel engines by contributing funding to be administered by the SLO APCD or their designee for projects such as installing emission control devices, re-powering diesel engines with cleaner burning diesel engines, replacing agricultural pump engines or replacing diesel engines operating in the area with LPG-fueled engines. ~~Install diesel oxidation catalysts (DOC), catalyzed diesel particulate filters (CDPF), or other APCD-approved emission reduction retrofit devices. In particular, the Applicant shall, after discussions with the SLO APCD, ensure installation of catalytic soot filters on construction equipment or other diesel equipment in the SLO APCD or SBC APCD jurisdictional areas that will provide a reduction comparable to that which would be realized from installing the equipment on project equipment. The SLO APCD staff shall be included in the selection of candidate equipment, along with a representative of the contractor (or subcontractor), (see Mitigation Measure AQ1.5 for details) and~~

b. Use CARB-approved diesel fuel.

Comments: Catalytic soot filters and the other types of particulate-matter reduction devices mentioned are intended to reduce particulate matter emissions. Their effectiveness in reducing NOx emissions has not been established. Therefore, their use is not considered appropriate to mitigate NOx emissions.

UN-56

Page 5-118 and 119, Offsite Trucking to Other Destinations
Proposed revisions: Operational emissions of NOx are higher than the applicable thresholds in both SLO and SB Counties for all project options. Additionally, the average day PM_{10} and ROC emissions in SLO

UN-57

County for hauling 860,000 cy soil and peak-day emissions for all project options are higher than the SLO County significance thresholds ~~for 25 tons per year~~. Thus Impact AQ.1 would require the ~~same~~ mitigation measures (*list*)~~as the proposed project~~, and would be *significant* (Class I).

See comments for Page 107, 108, and 109. The mitigation measures would be different than the proposed project and need to be specifically addressed.

All other comments provided for the proposed project apply to this section also.

UN-57 Cont.

Page 5-124, Paragraph 1
Proposed revisions: Construction NOx emissions estimates from slurry injection are above the significance criteria for the options where three and four wells are drilled (see Table 5.5.19). For this analysis, it was assumed that diesel pumps would be used. All operational options using diesel pumps would result in operational NOx emissions that exceed the significance criteria (see Table 5.5.20). Because the emissions from Operations are above the significance criteria, Impact AQ.1 would be significant (Class I).

Comments: As stated on Page 5-123 in the 2nd bullet, emissions were evaluated using diesel, natural gas and electric pumps. Since diesel pumps were considered the most likely scenario, they were used for this evaluation. The use of electric pumps, if feasible, could bring the operational emissions below the level of significance.

UN-58

Page 5-141, Paragraph 5
Proposed revisions: Betteravia Road and Broadway Street (also known as State Route 135) are in the CMP designated roadway system. The CMP-designated roadways are required to be examined against the CMP thresholds only for those projects generating 500 ADT, or peak-hour traffic of 50 trips. The proposed project would generate only 300 ADT and 38 ~~peak-hour~~maximum trips during short-term periods of peak project activity through Betteravia Road, which is 40 percent below the CMP ADT significance threshold and approximately 25 percent below the CMP peak-hour threshold. The peak-hour project-related traffic consists entirely of heavy trucks, and trucks affect a roadway LOS more severely than lighter vehicles (see beginning of Section 5.6.1.1). However, the durations for the maximum project activity would be short-term and the project description indicates an average of 9 truck trips per hour, which is more than 80% under the CMP (see Table 2.4, Offsite Truck Duration).

These heavy trucks will affect roadways and intersections that, in 2007, are expected to operate at LOS of C or D, specifically Betteravia Road and the intersections of Betteravia Road with Broadway Street and with Miller Road. ~~Therefore, it was determined that the CMP thresholds for the peak hour traffic would be more applicable in this case to the roadways designated as CMP than to the City of Santa Maria thresholds~~The City of Santa Maria traffic impact thresholds consider a project to have significant impacts if the project traffic degrades an intersection's level of service from LOS D (acceptable) to LOS E or worse. Because project traffic volumes would be well below the CMP thresholds of significance, even given the nature of project traffic (heavy trucks), it was determined that the City of Santa Maria's thresholds would be more applicable in this case to the roadway and intersections affected by the proposed project than the CMP thresholds.

Analysis of current LOS of the intersections of Betteravia Road shows that the intersection with Broadway operates at LOS of D during peak hours. In the future, this situation will worsen due to population growth and subsequent increase in traffic. However, as shown in Table 5.6.8, ~~shows~~ peak-hour LOS for 2007 would remain at LOS D if the same growth rate of 3% per year is applied to the current intersection data. The intersection of Betteravia and Miller would operate at LOS of D, with and without the project. Applying the ~~SBCAG~~ City of Santa Maria impact significance thresholds, the impact would be ~~potentially~~ less than significant because the level of service would not be degraded from an acceptable level (LOS D) to an unacceptable level of service (i.e., LOS E or F). ~~because more than 20 peak-hour vehicle trips would affect two of the CMP intersections (Betteravia and Broadway and Betteravia and Miller) that operate at LOS of D~~.

Comments: Unocal disagrees with the use of CMP thresholds for evaluating the impacts to Betteravia Road, as the CMP thresholds apply to projects generating 500 ADT, or peak-hour traffic of 50 trips. The proposed project would generate only 300 ADT and 38 trips during times of peak project hauling activity

UN-59

(the most conservative scenario, anticipating the maximum number of truck trips during a short-term peak period of project hauling). Even under this conservative, maximum rate for short-term peak activity, the number of truck trips would be approximately 25% below the CMP peak-hour threshold. The average hauling rate, anticipated to be conducted over a 3-year duration, will be about 9 trucks per hour (see Table 2.4, Offsite Truck Duration), which is more than 80% below the CMP.

Even if the SEIR preparer continues to determine that CMP criteria is applicable, additional truck trips for an intersection with LOS D are significant only for 20 or more added peak-hour trips. An average of 9 truck trips per hour is anticipated per the project description. The peak number of 38 truck trips was provided for the worse case scenario, and the project description and/or Mitigation Measure T-1.1 could be revised to limit the number of trips between 4:30 and 5:30 p.m. on Betteravia Road.

See the proposed language for Mitigation Measure T-1.1 below.

UN-59 Cont.

Page 5-143, Mitigation Measures T-1.1
Proposed revisions: ~~All project-related~~Truck hauling ~~traffic shall be restricted from~~ travel will be minimized to the extent feasible on Betteravia Road between the hours of 4:30 p.m. and 5:30 p.m. (evening peak-hour), and shall not exceed seven truck trips per hour except as otherwise approved by the OEC.

Comments: See the comments above regarding the impact analysis for this mitigation measure. Unocal is committed to conducting hauling activities using the haul routes and timing that result in the least impact, as long as the requirements are reasonable. Please note that we have included in our project description that, at the request of the City of Santa Maria, the portion of Highway 166 through the city will be avoided, although this is the most direct route and avoidance will result in a longer route and a higher cost for the hauling activities.

Unocal recognizes that trucks from the project between 4:30 and 5:30 pm. on Betteravia Road will add to existing rush hour traffic congestion and agrees to minimize haul truck trips during this timeframe to the extent feasible. However, there are already numerous other restrictions and proposed mitigation measures for the project activities, such as working only during daylight hours, limited access to some areas due to listed species, one-way traffic only allowed on some of the narrower haul roads within the Guadalupe Field, delays due to weather, etc. that limit Unocal's ability to perform the work.

Because of this, along with the fact that this portion of Betteravia Road involves the latter part of the route to the Landfill and potentially the trip from the Landfill to the overnight staging location for the trucks, Unocal proposes to restrict the number of truck trips on Betteravia Road between 4:30 and 5:30 p.m. to no more than seven, as long as specific circumstances and/or contingencies requiring additional truck trips can be addressed through review and approval by the OEC on a case-by-case basis.

UN-60

Pages 5-193 and 194, Impact LU.2 and discussion for the TMLF and ECU
Proposed revisions:

5.8.7.2 Treated-Materials Land Feature (TMLF) Alternative

This alternative would involve keeping the NHIS onsite and creating, in effect, a "dune" at TB9 with the affected material after it has been treated utilizing the land treatment methods (LTU), or biofarming, as discussed in the 1998 EIR. Pilot projects conducted with the landfarming have indicated that the landfarmed material would require a leachate collection system and monitoring.

~~Impacts from this alternative would not generate air quality-, noise-, or traffic-related impacts to the residential communities along transportation routes at levels as high as the proposed project or the "Offsite trucking to other destinations" alternative discussed above. Because the activities related to this alternative would also involve onsite activities, noise impacts would have some minimal impacts to residential areas to the west end of the City of Guadalupe (see the Noise impact section). Impact LU.1 identified for the proposed project would also apply to this alternative due to the transportation of sump materials.~~

Impact LU.2: "The ~~TMLF~~ECU alternative would establish at the Guadalupe Field a permanent depository of NHIS requiring indefinite leachate collection and monitoring."

UN-61

Impact Discussion
Impacts from this alternative would not generate air quality-, noise-, or traffic-related impacts to the residential communities along transportation routes at levels as high as the proposed project or the "Offsite trucking to other destinations" alternative discussed above. Because the activities related to this alternative would also involve onsite activities, noise impacts could have some minimal impacts to residential areas to the west end of the City of Guadalupe (see the Noise impact section).

Impact LU.1 identified for the proposed project would also apply to this alternative due to the transportation of sump materials.

~~The establishment of the TMLF at the Guadalupe Field would be inconsistent with the existing land use policies (Energy Element) and with the Land Use Standards in the general plan for the County of San Luis Obispo. These policies and standards indicate that the Guadalupe Oil Field is designated as a Rural Land and Recreation area. The allowable uses of the Guadalupe Oil Field are limited to "… *petroleum extraction, accessory storage, pipelines and power transmission*" and that "…*existing tailings and debris shall be removed*". The General Plan indicates that the "the planned ultimate use of this area [Guadalupe Oil Field} is for limited recreational use." See Appendix D, consistency with Adopted Plans and Policies.~~

~~In addition, the U.S. Fish and Wildlife Service (USFWS) has designated the area as part of the proposed boundary of the refuge. Storage and maintaining a non-hazardous impacted soils storage area at the Guadalupe Field and establishment of a TMLF at the Guadalupe Field would be contrary to the directives of the SLO General Plan and the intentions for the area as recreation. This would be considered a *significant impact*.~~

UN-61 Cont.

Mitigation Measures
No mitigation measures are proposed.

Residual Impact
This residual impact is considered *significant* (Class I).

5.8.7.3 Engineered Containment Unit (ECU) Alternative

An ECU would involve placing untreated material in a landform feature similar to the TMLF with leachate collection and monitoring.

Impacts from this alternative would generate fewer air quality-, noise-, or traffic-related impacts to the residential communities along transportation routes than would the proposed project and the alternative-transportation alternative discussed above. Because the activities related to this alternative would also involve onsite activities, noise from construction equipment would have some minimal impacts to residential areas to the west end of the City of Guadalupe (see Noise impact, Section 5.7.7). ~~Impact LU.1 identified for the proposed project would also apply to this alternative due to the transportation of sump materials.~~

The establishment of an ECU at the Guadalupe Field would be inconsistent with the existing land use policies (Energy Element) and with the Land Use Standards in the general plan for the County of San Luis Obispo. These policies and standards indicate that the Guadalupe Oil Field is designated as a Rural Land and Recreation area. The allowable uses of the Guadalupe Oil Field are limited to "… *petroleum extraction, accessory storage, pipelines and power transmission*" and that "…*existing tailings and debris shall be removed*". The General Plan indicates that the "the planned ultimate use of this area [Guadalupe Oil Field} is for limited recreational use." See Appendix D, consistency with Adopted Plans and Policies.

In addition, the U.S. Fish and Wildlife Service (USFWS) has designated the area as part of the proposed boundary of the refuge. Storage and maintaining a non-hazardous impacted soils storage area at the Guadalupe Field and establishment of an ECU at the Guadalupe Field would be contrary to the directives of the SLO General Plan and the intentions for the area as recreation. This would be considered a *significant impact*.

UN-62

~~An Engineered Containment Unit would have impacts to land use designations identical to the TMLF. The establishment at the Guadalupe Field of a permanent storage area for treatment material would be contrary to the directives of the SLO General Plan and the intentions for the area as recreation and preservation. This would be considered significant impact.~~ Impact LU.2 identified for the TMLF alternative would also apply to this alternative.

There would be no other impacts associated with this alternative.

Comments: It appears that the SEIR preparer is confused as to the specific details of the TMLF and the ECU.

The material used to create the dune for the TMLF alternative would be material that is treated to a standard required by the RWQCB for onsite reuse. The standard would be determined by the RWQCB and issued in the Waste Discharge Requirements (WDRs) by the RWQCB. This alternative is very similar to the original project included in the existing CDP/DP D890558D, as it involves the onsite reuse of material treated in a Land Treatment Unit or by another method approved by the RWQCB. **UN-62 Cont.**

As described in the project description, if the treatment was done in an LTU, the leachate system that was installed for the LTU would likely be operated until it was determined by Unocal and agreed by the RWQCB that the leachate in the system would not pose a threat to water quality. Although this period of time is unknown, it is not "indefinite" as would be anticipated for the Engineered Containment Unit (ECU), where the NHIS was not treated.

Creation of a dune of material treated to a standard required by the RWQCB would not impair the future use of the property.

Page 5-228, Impact Discussion and Table 5.11.1

Comments: The SEIR uses a fairly complex methodology for developing its significance threshold of 400,000 miles per year, but does not explain the methodology clearly or show calculations that would indicate how it was applied to arrive at the threshold value. For this reason, the reader cannot review the SEIR analysis to determine whether the methodology is an appropriate one and whether it was correctly applied. Some discussion and footnotes for Table 5.11.1 should be added to clarify the assumptions.

It also should be noted that the Project Description of the SEIR indicates that the project could last two years (860,000 miles per year) to four years (430,000 miles per year), and that the four-year duration would involve truck mileage less than 10% above their 400,000 threshold. Since contingency factors were applied to the volume of material that will be hauled (10% for diluent-affected and 33% for sump) and these conservative quantities are being evaluated in the SEIR, the actual mileage may be under the threshold. **UN-63**

However, as previously stated, Unocal has every intention of ensuring that the NHIS hauling operations are as safe as possible and will implement the proposed mitigation measures regardless of the outcome of this comparison to the threshold.

Page 5-228 and 229, Mitigation Measures PS-2.1, 2.2, and 2.3

Proposed revisions:

PS-2.1 Implement a review system for truck carriers contracted for offsite NHIS hauling to ensure that only those with the safest records can carry loads. This would include addressing issues related to a review of CHP Mister reports, ensuring correct Class licensing, enrollment in a controlled substance and alcohol abuse program, completion of Motor Carrier Safety Review type safety questionnaire and assessment of Bureau of Motor Carrier Safety Ratings. **UN-64**

PS-2.2 Ensure that trucking companies contracted for offsite NHIS hauling~~and drivers~~ have programs in place to ensure that drivers maintain appropriate speeds. The would include a 55-mph or applicable speed limit policy, training on speeding and speed limits along the proposed route, and/or speed control systems or governors in place on trucks.

PS-2.3 Ensure that contracts made with trucking companies hauling NHIS offsite address safety reviews, speeding and violations, and unacceptable incentive, such as increased pay for increased numbers of loads that may be an incentive for drivers to act in an unsafe manner. **UN-64 Cont.**

Comments: Unocal has every intention of ensuring that the hauling operations are as safe as possible and intends to implement the proposed mitigation measures. Clarification is requested to indicate that these mitigation measures apply to the trucking company contracted to haul NHIS offsite.

Page 5-231, Impact Discussion and Table 5.11.2 **UN-65**

Comments: Same as those for 5-228 above, for the proposed project.

Page 5-232, 5.11.7.2 Treated Material Land Feature Alternative, first sentence

Proposed corrections: This alternative would involve ~~treating the material onsite and then~~ forming a dune-like area at TB9 using material that was treated onsite.~~where~~ tThe treated~~ment~~ material would be placed indefinitely at TB9. **UN-66**

Comments: The scope of the TMLF alternative consists of contouring treated material into a dune, not the treatment of the material. The impacts of the material treatment were previously analyzed in the 1998 EIR).

Page 5-232, 5.11.7.3 Engineered Containment Unit Alternative, first sentence

Proposed corrections: ~~This alternative would involve similar procedures as the TMLF. Less material would be transported offsite.~~The ECU would involve building a containment sub-structure with leachate collection system at TB9, moving the excavated material including the existing stockpiles at TB8 and TB9 into the ECU, covering the ECU with sand and revegetating it. This would involve the same truck loading operations as the proposed project, but the trucks transporting soil would only travel onsite. **UN-67**

Page 5-233, 5.11.7.4 Mitigation Measure PS-5.1

Proposed clarifications: If slurry injection is implemented, ~~A~~amend the ~~s~~Site Health and ~~s~~Safety ~~p~~Plan to address the hazards associated with maintenance and operation of the high-pressure slurry injection system. Provision to be added to the plan would include information regarding lock-out/tag-out during . . . **UN-68**

Pages 6-1 through 6-12, Section 6.0 Environmentally Superior Alternative

Comments: Revisions made to the detailed analysis portions of the document need to be incorporated into this section. **UN-69**

Page 6-4, Impact LU.2

Comments: See comments provided for Pages 5-193 and 194, Impact LU.2 and discussion for the TMLF and ECU. For TMLF, LU.2 should not be a Class I impact. **UN-70**

Page 6-6, Table 6.2

Comments: For Air Quality, the "Duration of Adverse Impacts" is shown as a "Long-term." This should be revised to "Short-term", as project activities that will result in emissions over the significance thresholds will occur for less than five years. **UN-71**

Page 6-7, Table 6.2

Comments: The Public Safety section is confusing, as PS.2 and PS.4 are the same impact, but different impact classes are listed for each in the table. They should be combined into one impact. **UN-72**

Page 6-8 and 6-9, Section 6.1.2

Comments: As previously discussed (see previous comments for Pages 5-193 and 194, Impact LU.2), Unocal disagrees with the Class I determination for Impact LU.2, as the TMLF would consist of a dune formed of material treated to RWQCB requirements for reuse on the site, not a depository of NHIS or "tailings and debris." **UN-73**

Page 8-1 through 8-6, Section 8.0

Comments: Revisions made to the Mitigation Measure language need to be incorporated into this section. **UN-74**

Appendix D

Comments: The Discussion sections on Page D-5 under Energy and Industrial Development Policy #3, on D-8 under Section 3.2, General Plan Policies, Land Use, on D-9 under Energy Element Policy #65 and D-10 under Section 3.4 South County Rural Area Standards, Limitation on Use all indicate that a TMLF is not consistent with the policy because it creates a long-term onsite storage of NHIS. As indicated previously (see comments for Pages 5-193 and 194, Impact LU.2 and discussion for the TMLF and ECU), the TMLF would not be a repository of NHIS with the same TPH concentrations present at the time of excavation, but would be formed of material treated to a standard determined by the RWQCB for reuse on the site. **UN-75**

Page G-37, Paragraph 2

Proposed revision: CDP/DP D890558D Condition F.64.b.i requires construction areas to be adjusted or limited to avoid impact to sensitive species; where impacts to sensitive plant species are unavoidable, Condition F.64.b.ii requires a salvage, propagation and replanting program for that plant species. If unavoidable significant impacts have occurred or are likely to occur, Condition F.65 requires a Habitat Restoration and Revegetation Research Program for the impacted sensitive species. If the excavation and remediation activities at the B5A N and C7 SE sites ~~are~~can be conducted ~~redesigned~~ to avoid impacts to beach spectacle-pod while meeting the criteria set by the RWQCB for remediation of those sites, ~~as required by CDP/DP D890558D Condition F68,~~ then the impact would be avoided per Condition F.64.b.i. ~~Condition F68 would also eliminate the potential impacts to beach spectacle-pod and surf thistle at theC7 SE, A6/TB2 and B5A N sites since the construction boundaries would have adjusted to avoid these state-listed plant species.~~ If impacts to state-listed threatened species cannot be completely avoided, then implementation of the CDP/DP D890558D conditions designed to protect sensitive resources and minimize impacts to these species (Condition F.64.b.ii) and promote the recovery of listed sensitive species (Condition F65) as well as measures described in Unocal's 2081 agreement with the CDFG would ensure impacts to these species are *less than significant* (Class III). **UN-76**

Comments: The worst-case scenario (full excavation of each site) was chosen for this environmental review. Additional alternatives were provided in the Corrective Action Plan options report (LFR 2004) for agency consideration that would be more protective of these resources.

CLARIFICATION AND CORRECTION COMMENTS

Page ES-1, Paragraph 3

Sump material should be described as crude oil and drilling mud from the development of oil wells. Sump-affected material would be soil or sand contaminated with sump material. **UN-77**

Page ES-5, Paragraph 2, Section C (Proposed Project)

We recommend stating under what regulatory standards Guadalupe material would qualify as NHIS and under what Landfill specifications for NHIS. **UN-78**

Page ES-9, Deep Well Slurry Injection, Paragraph 1

We recommend adding that the slurry injection would be into the underground oil reservoir at the Field from where the crude oil was originally removed. **UN-79**

Page ES-11, Paragraph 4, Agricultural Resources, 1st line

Proposed correction: The increased truck traffic . . . **UN-80**

Page ES-15 Land Use/Recreation, last sentence

Proposed correction: The use of ~~TMLF~~ECU would also be inconsistent with San Luis Obispo County land use policies. **UN-81**

Page IS-15, PS.4

Proposed revisions: The transportation of NHIS to remote facilities could introduce an increase in fatalities on roads~~local area streets~~ due to the increase in vehicle traffic.

Comments: The wording of the description of this impact is exactly the same as that for the proposed project (PS.2). Unocal's experience from working with previous mitigation measures is that a mitigation measure or impact analysis can be taken out of context and then it is not clear as to which project aspect(s) it is applicable. It would be helpful to have clarifying language indicating that this is addressing offsite trucking to remote facilities, not to the Santa Maria Landfill. **UN-82**

Page 1-1, Section 1.1 (Background), Paragraph 2

Proposed clarification: Over the years, diluent was inadvertently released from the pipelines and storage tanks… **UN-83**

Page 1-1, Paragraph 6, Lines 3-5

Proposed revisions: … at the Guadalupe Field to assist in the production ~~and transportation~~ of the heavy crude oil. Diluent use ceased in 1990. Over the years, diluent was released from the pipelines and storage tanks, and diluent ~~plumes~~ sources are now present in soil~~s~~ and diluent plumes are present in groundwater at the Guadalupe Field.

Comment: The mediation group (a team of RWQCB and Unocal representatives and their respective technical experts that collaboratively address issues at the site and publish ratified reports for each issue) developed terms to be used to describe features at the site. One such term that is not accurately used in this SEIR document is "plume." "Plumes" refer to areas where dissolved-phase TPH is present in ground water, while the term "source" should be used to describe areas where TPH is detectable in soil samples (also called separate-phase diluent) collected from the capillary fringe or in the aquifer. **UN-84**

Page 1-1, Paragraph 7, Line 3

Proposed revisions: … diluent ~~plumes~~ sources and treatment methods for the excavated material.

Comment: Another example of where the term "source" should be used rather than "plume". **UN-85**

Page 1-3, Paragraph 2, Line 2

Proposed revisions: … (CAO) 98-38, mandating remediation actions such as the excavation of specified ~~plumes~~ sources and sumps.

Comment: Another example of where the term "source" should be used rather than "plume". **UN-86**

Page 1-3, Paragraph 3
Proposed clarification: Since certification of the Original EIR, Unocal has had to make a number of minor modifications to the Restoration Project with the concurrence of the OEC, SLO County and the resource agencies as a result . . . **UN-87**

Page 1-4, Paragraph 6
Proposed clarification: Leachate from LTU-treated material indicated that there may be some level of ~~remaining~~intermediary toxicity . . . **UN-88**

Page 2.1, Section 2.1, Paragraph 1
Proposed correction: **UN-90**

Page 2-1, Section 2.1, Paragraph 2, 3rd line from bottom
Proposed correction: Diluent and sump material at the site ~~has~~have also . . . **UN-91**

Page 5-4, Figure 5.1-1 Active Dune Zones
Comments: There are features shown on this figure that may be outdated. For instance, the 5X features shown (road and sheet pile) were removed. Also, the northernmost undeveloped area on the figure indicates that this area extends across the B Road, which it does not. **UN-92**

Page 5-6, Paragraph 3 (Geologic Hazards), Line 6
Proposed revisions: … but moderate to substantial damage in other parts of the County and the nearby town of Guadalupe in Santa Barbara County.

Comment: Several unreinforced masonry buildings were significantly damaged in Guadalupe. **UN-93**

Page 5-17, Impact GEO.6
Proposed clarification: High slurry injection pressures could result in release of injected material from the injection formation. **UN-94**

Page 5-21, Paragraph 4, Line 7
Proposed corrections/clarifications: … ~~depth~~ elevation of the dune sand aquifer (DSA) water table relative to the ground elevation, … **UN-95**

Page 5-23, Paragraph 4, Line 1
Proposed revisions: The Guadalupe Field overlies the DSA, which is an unconfined aquifer that is separated from the Principal Aquifer (PA) by a Ceonfining Uunit (CU) …

Comment: Nomenclature adopted for the site through the Mediation process is not correctly presented. See LFR 2003a as a good resource. **UN-96**

Page 5-23, Paragraph 4, Line 10
Proposed revisions: … Santa Maria River. The average ground water gradient across the Guadalupe Field is ~~0.0035~~0.004 feet per foot; the horizontal hydraulic conductivity is approximately ~~300 to 600 feet per year~~40 to 150 feet per day, with a geometric mean of 77 feet per day (LFR 2003a). ~~(LFR 1997b).~~

Comment: A better reference would be LFR, February 27, 2003: CU Integrity Rpt., which is more recent more complete, and was written and ratified by the RWQCB and Unocal through a collaborative, formally mediated process. **UN-97**

Page 5-24, Figure 5.2-1
Comment: The red boxes around the miscellaneous "Corrective Action Plan Options" sites are out of context relative to the accompanying text. This figure is most relevant to Appendix G. **UN-98**

Page 5-25, Paragraph 1, Line 1
Proposed revisions: The CU separating the upper and lower aquifers is up to ~~100~~115 feet thick, with a vertical hydraulic conductivity of ~~10^{-4} to 10^{-6} cm/sec~~10^{-2} to 10^{-5} feet per day and averages 10^{-4} feet per day (LFR ~~1997b~~2003a). Based on multiple lines of evidence, LFR (2003a) concluded that "Collectively, the weight of evidence approach suggests that, at the GOF, the CU effectively impedes ~~but does not block~~ **UN-99**

~~flow from the DSA into the underlying PA~~dissolved petroleum hydrocarbons in the overlying DSA from entering the underlying Principal Aquifer . . .".

Comment: This is more recent information; maximum CU thickness, hydraulic conductivity values and a more correct quote from the Conclusions section of LFR 2003a (LFR 2003a, Section 8.0, page 71, from the second paragraph). **UN-99 Cont.**

Page 5-25, Paragraph 2, Line 3
Proposed revisions: … capillary fringe. Ground waters contain ~~separate-phase and~~ dissolved-phase petroleum hydrocarbons.

Comment: The term "separate-phase" is used to describe the diluent detected in soil matrix (soil samples at or below the capillary fringe). **UN-100**

Page 5-25, Paragraph 2, add a line at the end
Proposed revisions: … hydrocarbons in site ground waters. Natural attenuation rates for separate-phase sources have been calculated to be currently in excess of 120,000 kg/y (34,000 gal/y) in the Diluent Tanks source area and in excess of 15,000 kg/y (4,500 gal/y) in the Compressor Plant source (Johnson et.al. 2003).

Comments: see Johnson, P.C, P. Lundegard, J. Catts, K. DiSimone, D. Eley, and K. Schroeder. 2003. Source Zone Natural Attenuation Field Measurements, Data Interpretation and Data Reduction, at the Former Guadalupe Oil Field, Version 2.1, ratified December 18 **UN-101**

Page 5-26, first bullet
Proposed revisions: The Water Quality Control Plan (RWQCB 1994) specifies cleanup of TPH to the odor and taste threshold, and B~~T~~EX to municipal and domestic supply (MUN) designation (1.0, ~~150~~, 680~~700~~, 1750 ppb, respectively) for surface and ground water. This compares to California primary MCLs of 1.0, 150, 300 and 1750 for BTEX in drinking water, respectively.

Comment: The sentence as written in the draft SEIR quotes the RWQCB Basin Plan incorrectly, and appears to mix in the MCL for toluene with the MUN values. **UN-102**

Page 5-30, Impact W.1
Proposed clarifications: NHIS ~~S~~spills from trucks on route to the offsite facility could release hydrocarbon-affected soils to surface waters or sensitive wetland habitats. **UN-103**

Page 5-42, Section 5.3.1.2 Paragraph 3, 2nd and 3rd sentences
Proposed revisions: Grazing was formerly allowed by lease agreements, as were~~during the~~ past oil field operations and the cattle usually preferred areas where herbaceous species dominate, such as the Santa Maria River floodplain and dune swales. Grazing is no longer allowed on the Guadalupe Field because the grazing lease is no longer in effect, and grazing is ~~much~~greatly reduced; however, there are no barriers on the property boundaries, and cattle still occasionally ~~wander~~trespass onto the Unocal property from grazing lands adjacent to the Santa Maria River.

Comments: The original statement: "Cattle continue to graze on portions of the oil field." appears to be outdated language from the previous EIR. The current conditions are more accurately described in Section 5.3.1.2, Paragraph 3, 2nd and 3rd sentences. Excerpts from these sentences were used for the proposed revisions above. **UN-104**

Page 5-44, Section 5.3.1.3 Disturbed/Degraded Habitats, Paragraphs 1 and 2
Proposed revisions: The upland habitats in the Guadalupe Field have been subject to various disturbances in the past, mostly related to the ~~Guadalupe Field~~historical oil field activities. The disturbed and degraded areas are mostly localized and include roads, surface facilities, oil well pads, and other areas that have been paved or graded to accommodate equipment or services, areas where crude oil has been sprayed on the dunes, and grazed areas.

Areas that have been subject to ~~previous~~more recent disturbances, such as the former LTU site (proposed location for the TMLF), that have been left undisturbed for several years have become **UN-105**

colonized by a combination of native and invasive exotic species, especially around their periphery. Plant species present within the disturbed area at the proposed TMLF site include common pioneer dune plants such as sea rocket *(Cakile maritima)*, beach bur, dune evening primrose, and scattered dune mint.

In addition to ~~severely~~ the disturbed and degraded areas mentioned above, there are ~~natural~~ areas in the Guadalupe Field that have been temporarily or periodically disturbed by various activities~~, areas where crude oil has been sprayed on the dunes, and grazed areas~~. ~~These areas tend to be in various states of degradation, or recovery, and are referred to in this report as degraded communities.~~ In some cases, the dune habitat along existing roads may become degraded if the road is within a high use area, subject to repeated disturbance, or becomes infested with non-native species. However, Unocal requires vehicles access to remain within the existing pavement, and generally, most of the roadside vegetation reflects a similar condition as the surrounding habitat.

These areas tend to be in various states of degradation or recovery, and are referred to in this report as degraded communities.

Comments: As written, these paragraphs were confusing and the SEIR reader could mistakenly think that historical oil field practices, such as spraying crude oil on the dunes, are still being conducted by Unocal.

UN-105 Cont.

Page 5-45, Paragraph 3, 2nd sentence
Proposed revisions: Berms on or adjacent to disturbed areas are often used ~~for~~by burrowing animals such as Kangaroo rats~~by rodents and California ground squirrels *(Spermophilus beecheyi)*~~, some of which ….

Comments: The sentence states California ground squirrels are utilizing disturbed areas on the site. We have never observed them here and we think that the soil is too sandy to support them.

UN-106

Page 5-46, Paragraph 3, 4th sentence
Proposed revisions: The Entrance Road Wetlands which,…, are similar to the L11/M12 wetlands ~~but are much larger~~ and support…

Comments: The L11/M12 wetland complex, as a whole, incorporates 1.23 acres of federal and 5.15 acres of state wetland habitat. The mapped and delineated portions of the Entrance Road wetlands total 0.95 acres of federal and 3.17 acres of state wetland habitat. Accounting for the unmapped portions on the neighboring property, the Entrance Road wetland acreage still should not exceed the L11/M12 complex totals.

UN-107

Page 5-47, Section 5.3.1.5 Haul Route, Paragraph 1
Comments: Other locations in the SEIR indicate that the distance from the Guadalupe Field to the Santa Maria Landfill is approximately 16 miles.

UN-108

Page 5-47, Section 5.3.1.5 Haul Route, Paragraph 3, 3rd sentence
Proposed revisions: At the Highway 1 crossing ~~and downstream~~, surface water is ~~nearly always~~hardly ever present.

Comments: Since this paragraph is addressing the conditions along the proposed haul route, Unocal presumes that the presence of surface water in the riverbed near the bridge, which could be adversely impacted and/or transport the NHIS further downstream in the event of an accidental release of NHIS into the riverbed, is the relevant fact. We rarely see surface water in the Santa Maria River near the Highway 1 crossing.

UN-109

Page 5-48, Paragraph 1, last sentence
Proposed revisions: California tiger salamanders have been documented to move up to 1.3 miles away from their breeding pool into upland habitat (*provide citation)*. Typically, the range of CTS is less than 0.5 miles from breeding ponds.

Comments: The citation for "documented" migration of California tiger salamanders up to 1.3 miles should be provided. The typical range of CTS is less than 0.5 miles from breeding ponds.

UN-110

Page 5-48, Paragraph 3, second sentence
Proposed revisions: La Graciosa thistle occurs in dune swale habitats and ~~is~~has historically been found in the L11/M12 dune swale complex and, more recently, along the Entrance Road wetlands (the haul route).

Comments: During surveys conducted by Unocal, La Graciosa thistle is "historically" found at L-11/M-12 wetlands, and only "recently" have been seen at the Main Entrance Road wetland.

UN-111

Page 5-49, Table 35.3.1 Sensitive Species Potentially Affected . . .
Proposed addition to the footnotes: The California tiger salamander is potentially present along the proposed haul route, but not within the Guadalupe Field.

Comments: While it is clear within the discussion that the California tiger salamander is not potentially present at the Guadalupe Field, this clarification should be added to the table in the event that it is used out of the SEIR context sometime in the future.

UN-112

Page 5-57, Paragraph 1, last sentence
Proposed corrections: Therefore due to the nature of the hydrocarbons contained in the transported NHIS, which is easily contained in dry areas, and the low probability of spills, spill of NHIS ~~is~~are not reasonably expected to have any . . .

UN-113

Page 5-63, Section 5.3.7 Alternative Impacts, Mitigation Measures, and Residual Impacts, 2nd sentence
Proposed correction: . . . the impact and mitigation measures ~~are~~ for the proposed project are referenced."

UN-114

Page 5-68, Paragraph 6, 3rd sentence
Proposed correction: For mitigation measure BIO-5.1 the amount of native dune scrub habitat that would need to be ~~resorted~~restored would be 5.0 acres.

UN-115

Page 5-68, Section 5.3.7.4 Slurry Injection
Proposed correction: Slurry injection would involve the injection of affected materials mixed with water into the subsurface via wells.

UN-116

Page 5-69, Paragraph 1, 1st sentence
Proposed correction: The site that would be used for the …

UN-117

Page 5-87, Section 5.4.7.2, Impact Discussion paragraph and Residual Impact paragraph
Proposed wording: The location of the TMLF and loading operations for trucking of sump material at TB9 would not be visible from West Main Street, as shown in the viewshed analysis, Figure 5.4-2. The dune immediately in front of the TMLF location would block views of that area because the dune lies approximately 55-60 feet above the TMLF location. ~~However, the TB9 area would be visible from the Point Sal Dunes subdivision at the west end of the City of Guadalupe (see Figure 5.4-3). While activities at TB9 would be noticeable, the equipment, activity, and resulting TMLF, would be subordinate to other features in view. Existing visual conditions are VMC 3, having been adversely affected by TB9 structures; those features are co-dominant in the subject view~~.

The formation of a dune at TB9, which the TMLF would resemble after revegetation, would be difficult to see from the public areas. Dunes in the foreground and background of the TB9 site, along with the vegetation of the TMLF, would effectively make the TMLF imperceptible from West Main Street. It would be visible from the Point Sal Subdivision, but would be subordinate to the other dunes in the area and, once landscaped, would be imperceptible from the other dunes in the area (see Figure 5.4-3, which would be a similar view from both West Main and the Point Sal Subdivision). In addition, the TMLF would be located approximately 4,000 feet from the closest point on West Main Street or the subdivision.

Residual Impact
Due to the ~~existing equipment and the~~ relatively large distances from the proposed project, ~~and~~ the temporary nature of the project and the similarity of the restored dune to the surrounding dunes, the impacts would be considered less than significant, Class III.

UN-118

Comments: Any structures located at TB9 during the previous oil production that may have been visible from the referenced viewing locations activities have been removed. The impact discussion and conclusions for the TMLF should be similar to those provided for the ECU, as the two involve dune formation and restoration in the same location. The proposed wording above was taken almost directly from the ECU impact discussion. **UN-118 Cont.**

Page 5-93, Air Quality, Table 5.5-1 (National and California Ambient Air Quality Standards for Criteria Pollutants)
The information provided for ozone and PM_{10} standards in the table should be revised as indicated below. **UN-119**

Pollutant	Averaging Time	California [c] Standards [a]	National Standards [b]	
			Primary [d]	Secondary [c,e]
Ozone (O_3)	1 hour 8 hour	0.09 ppm (180 µg/m^3) NS~~0.08 ppm~~	0.12 ppm (235 µg/m^3) 0.08 ppm	0.12 ppm (235 µg/m^3) 0.08 ppm
Carbon Monoxide (CO)	8 hour 1 hour	9.0 ppm (10 mg/m^3) 20 ppm (23 mg/m^3)	9.0 ppm (10 mg/m^3) 35 ppm (40 mg/m^3)	NS NS
Nitrogen Dioxide (NO_2)	Annual Avg. 1 hour	NS 0.25 ppm (470 µg/m^3)	0.053 ppm (100 µg/m^3) NS	0.053 ppm (100 µg/m^3) NS
Sulfur Dioxide (SO_2)	Annual Avg. 24 hour 3 hour 1 hour	NS 0.04 ppm [f] (131 µg/m^3) NS 0.25 ppm (655 µg/m^3)	0.03 ppm (80 µg/m^3) 0.14 ppm (365 µg/m^3) NS NS	NS NS 0.5 ppm (1,300 µg/m^3) NS
Suspended Particulate Matter - PM_{10}	~~Ann Geo.Mean~~ Ann.Arith.Mean 24 hour	~~20 µg/m^3~~ 20 µg/m^3~~NS~~ 50 µg/m^3	~~NS~~ 50 µg/m^3 150 µg/m^3	~~NS~~ 50 µg/m^3 150 µg/m^3

Comments: Although the California ambient air quality standard for ozone is currently under review, an 8-hour average air quality standard has not yet been adopted. Additionally, the California annual-average air quality standard for PM_{10} was revised in 2002 to change the form of the standard from an annual geometric mean to an annual arithmetic mean.

Page 5-94, last paragraph
Proposed revisions: In 1997, the EPA added two new $PM_{2.5}$ standards, set at 15 micrograms per cubic meter (µg/m^3) and 65 µg/m^3, respectively, for the annual and 24-hour standards. ~~In addition, the form of the 24- hour standard for PM_{10} was changed.~~ The EPA is continuing to collect data on $PM_{2.5}$ concentrations. Beginning in 2004~~2~~, based on three years of monitor data, the EPA started issuing designations for areas as nonattainment that do not meet the new $PM_{2.5}$ standards. SLO County has two air monitoring stations that monitor for $PM_{2.5}$, as does SB County. The results for the last three years at these four stations indicate that both counties' $PM_{2.5}$ levels are below the Federal and the State standards for this pollutant (EPA 2004b). **UN-120**

Comments: The courts vacated EPA's 1997 revisions to the form of the PM_{10} standard. Additionally, EPA designated areas with respect to attainment status for the $PM_{2.5}$ standards in December 2004. The reference in Section 5.5.10 should also be updated accordingly.

Page 5-96, footnote to Table 5.5.3
The footnote to the table should be revised as follows: **UN-121**

* ~~Federal and State Standards are the same for 8-hour Ozone – 0.08 ppm.~~ Attainment status of the Federal 8-hour ozone standard was approved by the EPA on April 15, 2004 (http://www.epa.gov/ozonedesignations/documents/tsd/ch3.pdf). Attainment status of Federal PM2.5 standard was promulgated in December 2004. SLO and SB Counties were designated Unclassifiable/Attainment.~~has been proposed to the US EPA by CARB as Attainment for SLO County and Unclassifiable for SB County.~~

Comments: California has not yet adopted an 8-hour ozone standard. The U.S. EPA promulgated designations for the $PM_{2.5}$ standards in December 2004. The references in the footnote and Section 5.5.10 should be updated accordingly. **UN-121 Cont.**

Page 5-97, Section 5.5.1.3 Regional Air Emissions, Paragraph 1
Proposed revisions: Emissions within SLO County are estimated annually by the SLO Air Pollution Control District (SLO APCD). These estimates are used to address Federal and State clean air mandates. Table 5.5.4 lists the estimated emissions for SLO and SB Counties~~y~~ by source category. **UN-122**

The source of the estimated emissions for SB County should also be added.

Comments: The table referenced in the paragraph lists emissions for SB County as well as SLO County.

Page 5-100, Section 5.5.3.1, Paragraph 1 (Significance Criteria for Construction)
Proposed revisions: Construction activities for the proposed project would occur entirely within SLO County. Currently, the SLO APCD does not have daily or quarterly quantifiable emission thresholds established for short-term construction emissions. ~~If construction emissions are above the listed thresholds, these emissions would have to be mitigated by implementation of Best Available Control Technology for Construction (CBACT).~~ **UN-123**

The SLO APCD has established "mitigation thresholds" that apply to air emissions from construction projects. These thresholds, which are included in the CEQA Handbook (SLO APCD 2003), are listed in Table 5.5.5. If construction emissions are above the listed thresholds, these emissions would have to be mitigated by implementation of Best Available Control Technology for Construction (CBACT).

Comments: This paragraph should clarify that construction activities would occur only within SLO County. Also, the first paragraph is confusing as written, as it refers to non-existing thresholds. The threshold discussion should be in the next paragraph.

Page 5-107, Bullets
The following bullet should be inserted after the last bullet on the page:

- Peak daily emissions were estimated for a daily maximum of 150 truck trips per day. **UN-124**

Comments: Addition of this bullet is needed to clarify the primary assumption that was used in estimating peak daily emissions. This is important because peak daily emissions are evaluated to determine the significance of project operational air quality impacts.

Page 5-108, Table 5.5.8 (Summary of Total Proposed Project Operations Emissions)
Propose the following corrections to the table:

- Peak day PM_{10} emissions for 18 cy trucks using Division Route (2) should be changed from 20.3 lbs/day to 22.0 lbs/day **UN-125**
- Annual emissions for 860,000 cy by 18 cy trucks using Division Route (2) should be changed from 3.35 tons/yr to 4.53 tons/yr.

Page 5-108, Table 5.5.9 (Operations Emissions in SLO County)
ENSR (2004a) calculated emissions separately from sources subject to a Permit to Operate (PTO) and from other sources that would be evaluated only under CEQA. The SEIR operational emissions summaries do not include the emissions from sources subject to a PTO. **UN-126**

The following emissions from sources subject to a PTO, which include on-site fugitive PM_{10} emissions and on-site fugitive ROC emissions from handling impacted materials, should be added to the operational emissions presented in Table 5.5.9. These emissions are the same for both haul truck routes.

Operational Emissions from Sources Subject to PTO – Trucking to Santa Maria Landfill

Activity		Daily Emissions (lbs/day)		Annual Emissions (tons/yr)	
		ROC	PM_{10}	ROC	PM_{10}
200,000 cy	8 cy trucks	0.1	0.2	0.02	0.02
	18 cy trucks	0.1	0.2	0.02	0.02
860,000 cy	8 cy trucks	0.4	0.5	0.05	0.06
	18 cy trucks	0.4	0.5	0.05	0.06
Peak Day	8 cy trucks	0.4	0.5		
	18 cy trucks	0.9	1.1		

UN-126 Cont.

Page 5-108, Table 5.5.9 (Summary of Project Operations Emissions in SLO County)
Propose the following corrections to the table:

- Peak day PM_{10} emissions for 8 cy trucks using Main Street Route (1) should be changed from 4.5 lbs/day to 4.4 lbs/day
- Peak day PM_{10} emissions for 18 cy trucks using Division Route (2) should be changed from 6.9 lbs/day to 8.6 lbs/day

UN-127

Page 5-109, Table 5.5.10 (Summary of Project Operations Emissions in SB County)
Propose the following correction to the table:

1. Annual CO emissions for 860,000 cy by 18 cy trucks using Division Route (2) should be changed from 0.10 tons/yr to 1.29 tons/yr

UN-128

Page 5-111, Mitigation Measures AQ-1.4
Comments: The appropriate application of significance thresholds indicates that PM_{10} emissions during operations do not cause significant adverse air quality impacts. Therefore, the discussion of the use of filters and catalysts on equipment exhaust is not required or appropriate.

UN-129

Page 5-118, Table 5.5.15 (Alternative Sites Operations Emissions in SLO County)
ENSR (2004a) calculated emissions separately from sources subject to a Permit to Operate (PTO) and from other sources that would be evaluated only under CEQA. The SEIR operational emissions summaries do not include the emissions from sources subject to a PTO.

The following emissions from sources subject to a PTO, which include on-site fugitive PM_{10} emissions and on-site fugitive ROC emissions from handling impacted materials, should be added to the operational emissions presented in Table 5.5.15.

UN-130

Operational Emissions from Sources Subject to PTO – Trucking to Alternative Sites

Activity		Daily Emissions (lbs/day)		Annual Emissions (tons/yr)	
		ROC	PM_{10}	ROC	PM_{10}
200,000 cy	8 cy trucks	0.1	0.2	0.02	0.02
	18 cy trucks	0.1	0.2	0.02	0.02
860,000 cy	8 cy trucks	0.4	0.5	0.05	0.06
	18 cy trucks	0.4	0.5	0.05	0.06
Peak Day	8 cy trucks	0.4	0.5		
	18 cy trucks	0.9	1.1		

Page 5- Page 5-120, Paragraph 2
Proposed clarifications: ~~Impact AQ.1 is applicable because up to 200,000 cy of sump material would have to be transported offsite because it cannot be effectively treated.~~ Emissions from the onsite machinery during both Construction and Operation phases of the TMLF alternative are below the

UN-131

significance criteria. Impact AQ.1 is applicable because up to 200,000 cy of sump material would have to be transported offsite because it cannot be effectively treated and average daily NOx emissions are above the SLO APCD significance criteria. Thus, total estimated NOx emissions (onsite and offsite) for this alternative are above the significance criteria (see emissions for the proposed project for transportation of 200,000 cy of material, Tables 5.5.58 and 5.5.9).

Comments: The construction emissions do not exceed the significance thresholds by a substantial margin, and Unocal would be willing to review the proposed project to determine if reasonable changes could be implemented to bring the emissions below the thresholds.

UN-131 Cont.

Page 5-120, Table 5.5.17 (TMLF Construction and Operations Emissions)
ENSR (2004a) calculated emissions separately from sources subject to a Permit to Operate (PTO) and from other sources that would be evaluated only under CEQA. The SEIR operational emissions summaries do not include the emissions from sources subject to a PTO.

The emissions provided for 200,000 cy from sources subject to a PTO under Page 5-108, Table 5.5.9 above, which include on-site fugitive PM_{10} emissions and on-site fugitive ROC emissions from handling impacted materials, should be added to the operational emissions for sump material disposal presented in Table 5.5.17.

UN-132

Page 5-122, Table 5.5.18 (ECU Construction and Operations Emissions)
Proposed corrections: In the Construction table, all of the peak daily PM_{10} emissions for Option 2 should be 460.0 lbs/day, instead of 430.0 lbs/day. In the Operation table, peak daily CO emissions for Option 2 should be 43.1 lbs/day, instead of 42.1 lbs/day.

ENSR (2004a) calculated emissions separately from sources subject to a Permit to Operate (PTO) and from other sources that would be evaluated only under CEQA. The SEIR operational emissions summaries do not include the emissions from sources subject to a PTO.

The following emissions from sources subject to a PTO, which include on-site fugitive PM_{10} emissions and on-site fugitive ROC emissions from handling impacted materials, should be added to the operational emissions presented in Table 5.5.18.

Operational Emissions from Sources Subject to PTO - ECU

Operation	Daily Emissions (lbs/day)		Annual Emissions (tons/yr)	
	ROC	PM_{10}	ROC	PM_{10}
Option 1	3.2	2.3	0.09	0.06
Option 2	3.3	2.4	0.15	0.11

UN-133

Page 5-122, Paragraph 2
Proposed revisions: Emissions would be significant for both Options, because the NOx emissions from ~~both Construction and~~ Operations are above the significance criteria. For construction, NOx peak daily and quarterly emissions and quarterly emissions of PM_{10} are above the significance thresholds due to the truck trips required to bring the silt/clay and HDPE materials onsite. However, the emission estimates are close enough to the thresholds that revisions to the construction activities could potentially reduce them below a level of significance. The summary of the emissions estimates is presented in Table 5.5.18, below.

UN-134

Page 5-124, Table 5.5.19 and 5.5.20
Proposed corrections and clarifications: In Table 5.5.19, quarterly PM_{10} emissions for 3 SDUs with 3 wells should be 0.17 tons/qtr, instead of 1.17 tons/qtr. In Table 5.5.20, peak daily operation emissions for 2 SDUs/2 wells operating for 8 hours/day and for 16 hours per day are reversed for 200,000 cy and for 860,000 cy. Add a footnote to Table 5.5.20 that the emission estimates assume the use of diesel pumps.

UN-135

Page 5-124, Table 5.5.20 (Slurry Injection Operations Emissions)
ENSR (2004a) calculated emissions separately from sources subject to a Permit to Operate (PTO) and from other sources that would be evaluated only under CEQA. The SEIR operational emissions summaries do not include the emissions from sources subject to a PTO.

UN-136

Sources subject to a PTO, which include on-site fugitive PM_{10} emissions and on-site fugitive ROC emissions from handling and screening impacted materials as well as exhaust emissions from the engines used to power the injection pumps, should be added to the operational emissions presented in Table 5.5.20. These emissions were calculated separately for diesel-fueled, natural gas-fueled and electric powered engines. Annual and peak daily operational emissions from source subject to a PTO are listed in the attached spreadsheet, *SLURRY INJECTION, Operations Emissions, Sources Subject to Permit to Operate*. **UN-136 Cont.**

130, Paragraph 2, 1st sentence **UN-137**
Proposed correction: SBCAG has developed a set of traffic impact guidelines to assess impacts . . .

Page 5-141, Paragraph 2, 2nd sentence **UN-138**
Proposed correction: A Traffic Control Plan is in place for current operations related to traffic onsite and offsite.

Page 5-141, Paragraph 3, 3rd sentence **UN-139**
Proposed correction: This road is also used by the vehicles related to the ongoing remediation and monitoring activities ~~as~~at the Guadalupe Field.

Page 5-141, Paragraph 3, 3rd sentence **UN-140**
Proposed clarification: This road is also used by the vehicles related to the ongoing remediation and monitoring activities ~~as~~in the Guadalupe Field.

Page 5-146, last paragraph **UN-141**
Proposed clarification: Although the total number of project vehicle trips (25,000 trips for 8 cy trucks or 11,111 trips using 18 cy trucks) would be reduced as compared to the worst case in the proposed project (107,500 trips using 8 cy trucks or 47,779 trips using 18 cy trucks), the peak-day truck traffic could still be 38 one-way . . .

Page 5-149, Mitigation Measure T-1.1 **UN-142**
Proposed correction: Unocal shall monitor all construction-related traffic~~. During construction,~~ and restrict project-related traffic from traveling on Betteravia Road during the identified peak periods.

Page 5-164, Section 5.7.4 Proposed Project Impacts, Mitigation Measures, and Residual Impacts **UN-143**
Proposed correction: The proposed project includes removal and transfer of the existing TB8 and TB9 Stockpiles, as well as transfer of other NHIS . . .

Section 5.8, Land Use and Recreation **UN-144**
Comments: This section is very confusing, as different properties, organizations and agency names appear to be used for the same item throughout and the figures do not illustrate the location of all properties that are discussed, nor are those that are shown labeled with the same name as those used in the text.

Page 5-176, Table 5.8.1 **UN-145**
Comments: Ownership of the Mobil Coastal Preserve has been transferred from TNC to the United States of America (managed by USFWS as part of the Nipomo-Guadalupe Dunes National Wildlife Refuge. The owner of the area referred to as the Tosco Buffer Area is now ConocoPhillips.

Page 5-176, Paragraph 1, 2nd and 3rd sentences **UN-146**
Proposed description: The area between the mean-high-tide and the "B" ~~r~~Road on the Guadalupe ~~Oil~~ Field has been established as a conservation easement and was accepted by the Coastal Conservancy in 2001. In 2002, Unocal acquired the former oil field from the LeRoy Trusts, and, as required by a permit condition, recorded Offers to Dedicate (OTDs) for a conservation easement over ~~on~~ the remainder of the Guadalupe ~~Oil~~ Field ~~established the field as a conservation easement in the future~~.

Page 5-177, Figure 5.8.2 Guadalupe-Nipomo Dunes Complex **UN-147**
Proposed corrections to figure: Figure 5.8.2 should be modified to use terms that are consistent with the rest of the document, should label the existing easement area within the Guadalupe Field as the

Guadalupe Field Easements (to indicate that there are two existing easements), and should show the correct boundary for these easements that excludes the area within Santa Barbara County.

Comments: The figure calls the Unocal property the Guadalupe Oil Field, which is not consistent with the rest of the document where the property is called the Guadalupe Field. The figure also indicates that the existing easement within the Guadalupe Field is one easement, when it actually consists of two easements: a public access easement and a conservation easement. The figure also shows the Santa Barbara County portion of the Guadalupe Field in the existing easements, although it is not included. (An Offer to Dedicate for this area of the Guadalupe Field was recorded in Santa Barbara County by Unocal after the purchase of the property in 2002.) In addition, the figure calls out the names of land and landowners, using terms that are not necessarily consistent with the rest of the section, which makes the section difficult for the SEIR reader to follow and comprehend. **UN-147 Cont.**

Page 5-179, Paragraph 2, first sentence **UN-148**
Proposed correction: The shoreline of the Guadalupe Field is bounded on the south by Rancho Guadalupe County Park (owned by the County of Santa Barbara) and on the north by the Guadalupe-Nipomo Dunes National Wildlife Refuge (managed by USFWS)~~and Complex~~.

Page 5-179, Paragraph 2, 4th and 5th sentences **UN-149**
Proposed correction: The public uses the beach west of the Guadalupe Field but is not allowed inland~~on the oil field~~. Presently, ~~T~~there is no public access through the ~~oil~~Guadalupe ~~f~~Field.

Page 5-179, Paragraph 4 **UN-150**
Comments: References are made to the Preserve. This area is not defined in the text or shown in figures.

Page 5-180, Paragraph 2, 4th sentence **UN-151**
Proposed clarification: Major portions of the Santa Barbara County coastline are in private ~~for~~ or military ownership and use by the public is restricted ~~to public use.~~

Comments: This sentence is confusing as written, as it appears to the SEIR reader that the only acceptable use in the restricted areas is public use, and we think that the SEIR preparer is attempting to state that use by the public is restricted.

Page 5-181, Land Uses at the Project Site **UN-152**
Proposed revisions: ~~Cattle continue to graze on portions of the oil field.~~Grazing was formerly allowed by lease agreements, as were past oil field operations. Grazing is no longer allowed on the Guadalupe Field because the grazing lease is no longer in effect, and grazing is greatly reduced; however, there are no barriers on the property boundaries, and cattle still occasionally trespass onto the Unocal property from grazing lands adjacent to the Santa Maria River.

Comments: The original statement: "Cattle continue to graze on portions of the oil field." appears to be outdated language from the previous EIR. The current conditions are more accurately described in Section 5.3.1.2, Paragraph 3, 2nd and 3rd sentences. Excerpts from these sentences were used for the proposed revisions above.

Page 5-182, Paragraph 2 **UN-153**
Proposed revisions: The Guadalupe Field is bounded on the south by Rancho Guadalupe County Park,~~and~~ on the north by the Guadalupe-Nipomo Dunes National Wildlife Refuge~~Preserve~~, to the east by agricultural lands and to the west by the Pacific Ocean. The principal uses of the land surrounding the Guadalupe Field~~in the area~~ have been, and continue to be, those related to crop production, cattle grazing and recreation~~, and resource extraction~~ (see Figure 5.8-3 for land use categories and combining designations).

Comments: Most of the proposed revisions are corrections and clarifications. Resource extraction is no longer taking place in the Guadalupe Field or on any of the immediately adjacent properties.

Page 5-179, Paragraph 2, first sentence **UN-154**

Proposed correction: The shoreline of the Guadalupe Field is bounded on the south by Rancho Guadalupe County Park (owned by the County of Santa Barbara) and on the north by the Guadalupe-Nipomo Dunes National Wildlife Refuge (owned by the U.S.A. and managed by USFWS)~~and Complex~~. **UN-154 Cont.**

Page 5-188, Paragraph 1, 1st sentence and Paragraph 2, 1st sentence
Comments: The term "LCP" is used in this section for Santa Barbara County although it was previously defined in the discussion for San Luis Obispo County. Later use of the term "LCP" elsewhere in the document with no additional definition indicating whether the reference is to San Luis Obispo or Santa Barbara County could cause confusion for the SEIR reader. Suggest that the Santa Barbara LCP be specifically named here as the SB LCP for use later in the document to distinguish it from the San Luis Obispo County LCP. In the next paragraph, there is reference to the Santa Barbara County Coastal Plan, and later there are references to the "Coastal Plan", although this term is not defined. The specifics for the terms LCP, Santa Barbara County Coastal Plan and the Coastal Plan need to be defined to avoid confusion for the SEIR reader. **UN-155**

Page 5-189, California Department of Fish and Game
Proposed additional sentence: The California Department of Fish and Game has permit authority for take of state listed species under Fish and Game Code Section 208(b) and 2081(c) and the California Code of Regulations, Title 14, Subdivision 3, Chapter 6, Article 1, commencing with Section 783. **UN-156**

Page 5-189, San Luis Obispo County, first sentence
Proposed correction: The proposed project will require approval of a Coastal Development Permit/Development Plan by . . . **UN-157**

Page 5-191, Proposed Project Impacts, Mitigation Measures, and Residual Impacts, Paragraph 1
Proposed correction: The technologies proposed to remediate affected material at the project site include trucking NHIS ~~or treated~~ material to the Santa Maria Landfill. **UN-158**

Page 5-191, Proposed Project Impacts, Mitigation Measures, and Residual Impacts, Paragraph 2
Proposed correction: The proposed project includes removal and transfer of the existing TB8 and TB9 ~~s~~Stockpiles, as well . . . **UN-159**

Page 5-192, Air Quality, 1st sentence
Proposed correction: Air quality associated with the proposed project and recommended mitigation measures ~~are~~is analyzed . . **UN-160**

Page 5-193, Section 5.8.7.1 Offsite Trucking to Other Destination
Comments: The description of activities and roads in this section is not as accurate as in other sections. Suggest incorporation of the description of another section, such as Page 5-144, Section 5.6.7.1 for a more accurate description. **UN-161**

Page 5-195, Section 5.8.7.4 Slurry Injection Alternative, Paragraph 3, 2nd sentence
Proposed revisions: In addition, it would not introduce a NHIS~~treated materials land~~ feature into the coastal zone, as would the ~~TMLF and the~~ ECU, which would thereby create impacts related to land use policies.

Comments: The use of the term NHIS in this context is confusing and not consistent with the terminology for the rest of the document. It also implies to the SEIR reader that the TMLF and the ECU are the same project. The TMLF and ECU are different, in that the TMLF would consist of material treated to RWQCB criteria for reuse as a dune feature. The ECU would consist of material that is not treated (commonly referred to in this document as NHIS), but contained within a liner system. **UN-162**

Page 5-215, Mitigation Measure A.G.3.2, 1st sentence
Proposed correction: At project conclusion the farm equipment staging area should be . . . **UN-163**

Page 5-216, Section 5.10.7 Alternative Impacts, Mitigation Measures, and Residual Impacts, 2nd sentence **UN-164**

Proposed correction: Where an alternative would have the same impact as that identified for the proposed NHIS transportation project, the impact and mitigation measures ~~are~~ for the proposed project are referenced. **UN-164 Cont.**

Page 5-217, Section 5.10.7.2 Treated Material Land Feature (TMLF), Paragraph 2
Proposed correction: Activities associated with the TMLF include (1~~0~~) recontouring of . . . **UN-165**

Page 5-218, Section 5.10.9 Mitigation Monitoring Plan, Mitigation Measure AG.3.2
See comment above for MM AG.3.2, Page 5-215 **UN-166**

Page 5-220, Section 5.11.1.1 Regional Overview
Comments: There are numerous references to oil and gas development and its associated hazards, specifically attributed to transportation of crude oil and natural gas via pipeline, yet there is no indication as to what the significant production facilities or pipelines in the area are or where they are located. **UN-167**

Page 5-221, Paragraph 4
Proposed revisions: Acute hazards, such as exposure to high concentrations of a toxic material, or exposure to a fire or explosion, are relatively low at the Guadalupe Field. The site is safe for recreational uses including walking along the beach, swimming, surfing and fishing; however, shallow groundwater should not be used for drinking water (McDaniel Lambert 2002). Areas of the site where remediation activities are underway (product recovery systems, excavations, etc.) and areas where industrial infrastructure are present (pipelines, tanks, retention basins, welding shop, etc.) are not appropriate for public access. ~~Long-term hazards associated with continued exposure to vapors from contaminated areas are present, but given the limited public access, pose little hazard to the general public at this time. However, if wholesale public access were ever granted to the Field, under current conditions, an exposure to toxic vapors from the contaminated areas could result in a significant risk (Environ 1995). Potential exposure to individuals on adjacent properties and on the beach is relatively low, presuming no further releases from the plume as a result of site remediation and restoration.~~ Therefore, potential acute and chronic health risks are currently insignificant.

Individuals involved in site characterization and other analyses (i.e., consultants, regulatory agency staff, etc.) are currently exposed to a certain level of risk, but this would be considered a low level of risk given the lack of activity at the site and the limited exposure duration of most individuals. The~~is~~ potential for exposure during any activity is ~~limited somewhat~~further reduced by the Unocal requirement for each contractor to develop and implement ~~individual to review~~ a comprehensive Health and Safety Plan prior to ~~entering~~working at the Guadalupe Field and for individuals such as regulatory agency staff to receive orientation training and/or review the Site Health and Safety Plan prior to working onsite. **UN-168**

Comments: While Unocal agrees with the final conclusion, the discussion leading to the conclusion is based on outdated data. On November 12, 2002, the mediation group (see Global comments) ratified the Human Health Risk Assessment Version 2.1, by McDaniel Lambert. Representatives from the California Office of Environmental Health Hazard Assessment and the San Luis Obispo County Environmental Health Department participated in the review process for this document. Document conclusions: the site is safe for recreational uses including walking along the beach, swimming, surfing and fishing. There would be an elevated health risk to a hypothetical resident child living at the site who was exposed to the most contaminated soil and/or groundwater every day for six years. Shallow groundwater at the site should not be used for drinking water purposes.

The reference to exposure to individuals on adjacent properties and on the beach from "the plume" appears to be a reference to the former 5X diluent source, the last portion of which was removed in the fourth quarter of 2000.

The last sentence referring to Unocal's requirement for each individual working at the field is not entirely accurate. See comments for Page 5-225, first paragraph.

Page 5-223, Paragraph 2 after bullets, 2nd sentence
Comments: The term "FN curves" is not defined or explained in the document. (See also comments on Page 5-228 regarding methodology.) **UN-169**

Page 5-223, Paragraph 4 after bullets
Proposed revisions: Mechanical hazards would be considered significant if they have the potential to result in injuries to the public and if these activities cannot be sufficiently buffered from the public. Given the recreational use of the beach, the addition of permanent structures that could pose a hazard to the public would be considered significant. ~~An example of this might be a sheetpile wall along the beach or a ground-water-monitoring well placed in the middle of the beach. In this case, the monitoring well would be considered a significant hazard to the public using the beach, unless the ground-water-monitoring well were placed in a location where it would not be an obstruction to normal recreational activity. A sheetpile wall along the beach, such as the one that was installed during the 5X excavation, could be considered an attractive nuisance and a significant impact.~~ **UN-170**

Comments: The examples provided are not relevant to the project under evaluation in this SEIR and could confuse the SEIR reader.

Page 5-224, Section 5.11.4 Impact Assessment Methodology, 2nd bullet
Proposed revisions: Chemical hazards associated with a spill of NHIS, or spills of hazardous materials brought to the Guadalupe Field as part of the project (e.g., importation of fuel~~large volumes of diesel or gasoline~~ to power equipment ~~a thermal desorption unit~~.) **UN-171**

Comments: The example provided is not relevant to the project under evaluation in this SEIR and could confuse the SEIR reader.

Page 5-225, Paragraph 1
Proposed revisions: Potential worker and regulatory personnel safety impacts would be determined in a similar manner, but would also take into consideration what ~~site~~ safety ~~plans~~procedures would be developed for the project, as well as the management systems that would be ~~sued~~ used to implement these ~~plans~~procedures. Obviously, remediation workers cannot be separated from the mechanical hazards. However, Unocal's requirement for all contractors working at the site to prepare and~~the~~ implementation of a ~~site h~~Health and ~~s~~Safety ~~p~~Plan would reduce the potential for a work-related accident. Unocal's current practice of requiring all individuals that enter the Guadalupe Field to receive orientation training and/or read the~~ir~~ Site Health and Safety Plan would reduce potential hazards for regulatory personnel as well. **UN-172**

Comments: As written, the information is not completely accurate. While there is a Site Health and Safety Plan developed by Unocal for activities at the site, contractors conducting work at the site are required to develop their own Health and Safety Plan prior to starting work. Other personnel are required to receive orientation training prior to working at the site, which includes a Health and Safety section outlining general safety requirements at the site, a reference to Unocal's Health and Safety Plan and the requirement for each individual contractor to develop and implement their own Health and Safety Plan.

Page 5-225 and 5-226, Paragraph 5 and all bullets
Proposed revisions: In order to evaluate these hazards, several release and exposure scenarios were developed as part of the 1998 EIR. These scenarios evaluated potential hazards associated with the excavation ~~of a hazardous material~~, and potential fuel spills during fuel deliveries or refueling operations. Impacts associated with previously approved, anticipated excavation work have been evaluated under the 1998 EIR and are not considered part of this project. For the proposed project and alternatives, the main chemical hazard scenarios included: **UN-173**

~~•Diluent releases during excavation activities:~~

~~1.Failure of containment walls during excavation.~~
~~2.Failure of protective walls or containment systems during the operational lifetime.~~
~~a)Extraction pumps at containment sites.~~
~~b)Damage to high density polyethylene walls~~

~~•Diluent releases during treatment and disposal:~~

~~1. Dissolved- or separate-phase in piping, pumped from plume sites to central treatment areas.~~
~~2. Dissolved- or separate-phase in trucks from sites to central storage (e.g. during excavation).~~

~~3. Dissolved- or separate-phase in storage tanks at excavation sites and/or treatment areas.~~
~~4. Separate-phase in trucks sent offsite to treatment facility.~~

- Spills of flammable or combustible materials, such as propane, gasoline or diesel fuel, during fuel deliveries, at fuel storage locations or from remediation equipment.

Comments: The qualifying sentence before the list of bullet items indicates that the list is composed of chemical hazards scenarios for the proposed project and alternatives. The scope of analysis in this SEIR is disposal of the NHIS or, in the case of the TMLF, reuse of treated NHIS. The only listed chemical hazard scenario that may apply to the proposed project and alternatives is spills of fuel during deliveries or from remediation equipment. **UN-173 Cont.**

As stated in the first paragraph of Section 5.11.6, impacts of the excavation work were evaluated under the 1998 EIR and are not part of the analysis in this SEIR. The first bullet addresses hazard scenarios from diluent releases during excavation activities and the second bullet addresses diluent releases during transport of diluent or diluent emulsions from the excavation sites to storage or treatment areas, and transport of diluent to an offsite facility.

Since these activities are associated with excavations or existing groundwater recovery system that are not part of the proposed project and alternatives, they are not part of the scope of analysis for this SEIR and should not be listed.

Diesel fuel is combustible, not flammable.

Page 5-226, Section 5.11.5 CDP/DP Conditions that Apply to the Proposed Project and Alternatives **UN-174**
Comments: Conditions F.38 (Oil and Fuel Spill Contingency Plan) and F.93 (Traffic Control Plan, including traffic safety) should be included in this list of existing conditions that are part of the project description.

Page 5-227, Impact PS.1, Impact Description
Proposed revisions: Mechanical hazards associated with ~~active remediation activities and the installation of physical barriers, such as sheetpile walls,~~the loading and transportation of NHIS in areas with public access could pose a hazard to the public, regulatory agency personnel, and workers ~~(1998 EIR Impact 5.11-1)~~. **UN-175**

Comments: Restating an impact from the previous EIR and giving it a new number for this SEIR is a format that is not consistent with the rest of the SEIR. It also forces the use of wording for the impact that does not accurately represent the proposed project.

Page 5-228, Impact PS.2 **UN-176**
Proposed clarifications: The offsite transportation of NHIS . . .

Page 5-229, Impact PS.3 **UN-177**
See comment for Page 5-227, Impact PS.1

Page 5-229, Impact Discussion, Paragraph 1 and 1st sentence of Paragraph 2
Proposed clarifications: The proposed project involves the use of heavy equipment ~~in the oil field and near the beach~~for loading operations at TB8 and TB9 and of trucks for hauling of affected material offsite. Fuels, primarily diesel fuel, would be used to operate the machinery. Fuel could be released during fueling or from leakage during operation. Fuel spills could result in a fire, which would be potentially significant if it occurs in an area within~~given the~~ close proximity ~~of~~to the public ~~to remedial activities~~. **UN-178**

Also, ~~the project would utilize large quantities of~~ fuel ~~onsite that~~ would need to be transported to the Guadalupe Field via tanker trucks to refuel heavy equipment used for loading operations.

Page 5-229, Impact Discussion, Paragraph 3, 1st sentence **UN-179**
Proposed clarifications: Measures already in place (CDP/DP D890558D Condition F.38~~from PS-7 and PS-8, detailed in the 1998 EIR~~), addressing . . .

Comments: Referring to existing measures using the impact number from the previous EIR, rather than the existing permit condition, is inconsistent with the rest of the document and confusing to the SEIR reader. This comment also applies to the Residual Impact discussion on Page 5.230. **UN-179 Cont.**

Page 5-232, 5.11.7.2 Treated Material Land Feature, Paragraph 1, 2nd sentence
Proposed corrections: Within existing plans and procedures (CDP/DP D890558D Condition F.38 ~~measures PS-7 and PS-8, detailed in the 1998 EIR~~) addressing . . . **UN-180**

Comments: Referring to existing measures using the impact number from the previous EIR, rather than the existing permit condition, is inconsistent with the rest of the document and confusing to the SEIR reader. This comment also applies to the Residual Impact discussion on Page 5.230.

Page 5-232, 5.11.7.3 Engineered Containment Unit Alternative, 5th sentence
Proposed corrections: Within existing measures (CDP/DP D890558D Condition F.38~~PS-7 and PS-8, detailed in the 1998 EIR~~) addressing . . . **UN-181**

Comments: Referring to existing measures using the impact number from the previous EIR, rather than the existing permit condition, is inconsistent with the rest of the document and confusing to the SEIR reader. This comment also applies to the Residual Impact discussion on Page 5.230.

Page 6-1, Paragraph 3, 3rd sentence
Proposed corrections: The Slurry Injection alternative is currently not allowed by the U.S. Environmental Protection agency (EPA), because the EPA does not consider the current activities part of oil and gas operations or exploration and will not allow Class II injection~~diluent is considered a refined product~~; therefore . . . **UN-182**

Page 6-3, BIO.7
Proposed clarifications: Post-construction monitoring, maintenance, and decommissioning associated with the TMLF (ECU) could . . . **UN-183**

Page 6-3, Table 6.1 footnotes
Comments regarding footnotes: The footnotes indicate that a change in Class from the proposed project is highlighted in bold font. There is only one impact (PS.2) where bold font is used, although there are many Impacts with a change in Class from the proposed project. Also, the meaning of the footnote for NA is unclear, as it appears to show NA only as compared to impacts of the proposed project. In many cases, the proposed project is NA and there is an impact shown for one of the alternatives. **UN-184**

Page 6-6, Table 6.2
Comments: The first sentence of the discussion column for Biological Resources appears to have a typographical error: " . . . one Class II and one Class II biological impacts." **UN-185**

Page 6-11, Paragraph 2
Proposed corrections: While this alternative appears to offer a number of advantages over the proposed project, it is not considered a feasible alternative, since the U.S. EPA deep-well injection program would not allow the Class II injection of NHIS because the EPA does not consider the current activities part of oil and gas operations or exploration ~~diluent is considered a refined product~~; therefore . . . **UN-186**

Page 7-1, Section 7.1.1, Paragraph 1
Proposed clarifications: Land uses on the site are designated Rural Lands and Recreation. The California Coastal Conservancy holds two easements located on the west side of the property: one establishing public access along the beach and the other for conservation. Unocal has purchased the site, recorded Offers to Dedicate over the unencumbered portions of the site, and is in the process of ~~executing an Agreement for the Donation of an Easement for Open Space, Habitat Protection, and Managed Public Use~~working with the U.S. Fish and Wildlife Service (USFWS) to assume the easement and management of~~for~~ the entire site. With ~~this~~these ~~agreement~~easements, no growth-inducing development could occur. **UN-187**

Page 7-3, last paragraph, 2nd sentence
Proposed corrections: Once the ~~all~~ the material . . . **UN-188**

Appendix C, Air Emissions Technical Appendix
Comments: The sources subject to Permit to Operate should be added to this Appendix (see comments for Pages 5-108, 5-118, 5-120, 5-122, and 5-124) **UN-189**

Page G-2, Paragraph 2
Proposed clarification: All of the NHIS from full excavation of these CAO sites (approximately 44,063 cubic yards) are within the contingency included in the excavation volumes discussed in Chapter 2 of the SEIR and are considered part of the remaining CAO excavation sites as it relates to the transportation and disposal of NHIS. **UN-190**

Page G-16, 18, 21, 39, 41, and 42, first two paragraphs of Sections 4.1, 4.2, 4.3, 4.4, 4.5, and 4.6
Proposed correction: This section provides a substantial conformance review for proposed cleanup activities of contaminated soils at five corrective action sites within the Field: A6/TB2; B5A North (B5A~~-~~N); C7 North (C7 N~~0~~); C7 Southeast (C7 SE); and P13. The existing contaminant distribution patterns at these five areas, along with Corrective Action Plan options, are discussed in LFR (200~~3~~4) and summarized in Section 2 of this Appendix. The Regulatory Setting, Significance Criteria and Impact Assessment Methodology~~,~~ are discussed in the Original EIR, Chapter 5.1. **UN-191**

The remainder of this section . . .

Page G-17, SCR Impact #GEO.G.1
Proposed correction: Project activities could result in increased exposure to . . . **UN-192**

Page G-17, Impact Discussion, Paragraph 2, 1st sentence
Comments: The A6/TB2 and B5A excavations are west of the B Road and may be subject to CDP/DP D890558D Condition F.27 in the event of a tsunami warning. **UN-193**

Page G-19, Impact Discussion, Paragraph 1, 3rd sentence
Proposed correction: Prevention and response measures have been detailed in ~~a construction spill prevention, cleanup and restoration~~ an oil and fuel spill contingency plan for the Guadalupe Field. **UN-194**

Comments: The terminology in the proposed correction is consistent with that of Condition F.38, which outlines the plan requirements.

Page G-19, first Impact Discussion, Paragraph 1, 6th sentence
Proposed correction: However, the ~~prevention and response~~oil and fuel spill contingency plan that exists at the Guadalupe Field . . . **UN-195**

Comments: The terminology in the proposed correction is consistent with that of Condition F.38, which outlines the plan requirements.

Page G-19, second Impact Discussion, Paragraph 2, 3rd sentence
Proposed correction: Given that all of the sheet pile walls that would be installed for these ~~exactions~~excavations would be . . . **UN-196**

Page G-19, second Impact Discussion, Paragraph 5

Proposed correction: In addition, the use of sheetpile walls may create ground water mounding upgradient of the walls. This would potentially divert the direction of ground water flow, ~~and push contaminated ground water into uncontaminated areas or~~ and may increase a downward vertical gradient ~~thereby resulting in a violation of the Basin Plan's Anti-degradation Policy~~. Given that all of the sheet pile walls that would be installed for these ~~exactions~~ excavations would be temporary, the impact is considered *less than significant* (Class III). **UN-197**

Comments: Ground water flow will be oblique to the walls at the two partial source excavation sites (L11 and M4 excavations), which will result in a bias for potentially increased flow to go around the north ends of these walls.

Historical groundwater quality data, collected from where the additional flow may occur at the ends of these walls, show that these areas are already affected by dissolved-phase diluent. Downgradient of where the north end of the M4 wall would be, TPH concentrations have ranged from 3.9 to 22 mg/l in monitoring well M4-4, and concentrations have ranged from 8.6 to 21 in monitoring well M4-8. In addition, the area south of where the M4 wall will be is also already affected by dissolved-phase diluent, as documented by TPH concentrations in monitoring well M4-3 that have ranged from non-detect to 3.2 mg/l.

Downgradient of where the north end of the L11 wall would be, TPH concentrations have ranged from 0.45 to 8.5 mg/l in monitoring well L11-1, and TPH was detected in the one groundwater sample collected from monitoring well L11-2 at concentration of 28 mg/l. In addition, the area south of where the L11 wall will be is currently affected by separate-phase diluent, which will be excavated. **UN-197 Cont.**

Page G-20, Impact Discussion, Paragraph 1
Proposed clarification: With these additional excavation sites, ~~untreated or partially~~liquids treated by gravity separation~~water~~ generated by remedial activities would be pumped down EPA permitted injection ~~unused oil~~ wells into the oil-bearing formation approximately 3000~~thousands of~~ feet underground. Liquids generated by pumping throughout the site have been deep well injected under the U.S. EPA underground injection control program~~permit~~ as Class I fluids in this manner. Unocal currently has permits from the U.S. EPA to do this on a regular basis for four wells ~~for a number of wells~~ on site. **UN-198**

Page G-20, Impact Discussion, Paragraph 2, 4th sentence
Proposed clarification: For the past six years, Unocal has been injecting ~~untreated or partially~~liquids treated by gravity separation~~water~~ into deep~~-~~ wells. **UN-199**

Page G-21, Paragraph 4
Proposed correction to heading: A6/TB2 Area

Proposed clarification to second sentence: Excavation at this site is expected to occur mostly in and along the east side of the A Road.

Proposed correction to the 5th sentence: For a description of dune scrub see Section ~~n~~ 5.3 of the SEIR. **UN-200**

Page G-22, Paragraph 1
Proposed correction: . . . wetlands contain deep water and vegetative cover even during drought conditions and act as a refuge for these species during times when other wetlands on the ~~oil field~~Guadalupe Field are dry. **UN-201**

Page G-22, Table 2
Proposed correction: California tiger salamander should be removed from Table 2, *Sensitive Species Potentially Affected by the Proposed Corrective Actions*, since it is not present at the Guadalupe Field. **UN-202**

Page G-26, Paragraph 4
Proposed correction: This area is ~~immediately adjacent to, and may overlap into,~~south of the C8 site, which is currently in the process of revegetation.

Comments: The C8 site is actually more than 200 feet to the north. The wetland that is discussed in the following paragraph, located 250 feet north of the C7 North site, is located on the southern edge of the C8 site. **UN-203**

Page G-26, Paragraph 6
Proposed correction: No federally or State-listed plant species occur within the disturbance areas ~~although Surf thistle is present along the roadside in the vicinity of this site~~ (Figure 4).

Comments: Figure 4 does not show any populations of Surf thistle. **UN-204**

Page G-29, Paragraph 3
Proposed correction: The P13 site is located in the ~~north~~southeast area of the oil field and surrounds the P13 pad (Figure 1). The former Santa Maria River channel is approximately ~~900~~300 feet south of this site. **UN-205**

Page G-29, Paragraph 4, last sentence
Proposed correction: The former Santa Maria River channel (~~No~~a Federal or State jurisdictional wetland~~s~~ area) is located approximately 300 feet southeast ~~occur within 500 feet~~ of this site. **UN-206**

Page G-39, Paragraph 3, 2nd sentence
Proposed correction: The disturbances to the road (the portion of the A6/TB~~6~~2 Site which . . . **UN-207**

Page G-41, Paragraph 1
Proposed correction: . . . excavation and remediation, the reduction ~~is~~would not be sufficient to . . . **UN-208**

Page G-41, Paragraph 2 *(Impact Discussion)*
Proposed revision: Remedial activities would result in the emissions of several known toxic air contaminants including BTEX (benzene, toluene, ethylbenzene and xylene)~~, polycyclic aromatic hydrocarbons (PAHs), toxic metals~~ and other volatile and semi-volatile hydrocarbons.

Comments: It is unlikely that metals will be air contaminants, and the possibility of PAHs contaminating air is low. **UN-209**

Page G-43, Impact Discussion, Paragraph 1, 4th sentence
Proposed correction: The proposed remediation~~e~~ action is . . . **UN-210**

Page G-43, Impact Discussion, Paragraph 1
Comments: It is unclear which site or sites are being discussed in this paragraph. Since the discussion involves least tern and snowy plover nesting habitat and the ability to view the site from Rancho Guadalupe Park, the SEIR preparer is probably referring to the A6/TB2 location (which is the only site that would meet these two criteria), although this site has only 2.6 acres of disturbance vs. the 3.3 acres discussed. **UN-211**

Page G-43, Impact Discussion, Paragraph 2
Proposed correction: Equipment will include a track-mounted excavator or other conventional excavation equipment and trucks for hauling the sand to TB8 or TB9 or offsite for disposal and hauling sand back to the site for backfilling. All sites ~~but C7 North~~ will include sheetpiling . . . **UN-212**

Page G-44 and 45, Section 5.0 References
The *Revised Correction Action Plan Options for Hydrocarbon-Affected Soils at the A6/TB2, B5A North, C7 North, C7 Southeast, and P13 Areas of the Former Guadalupe Oil Field* dated October 29, 2004 by LFR Levine-Fricke should be added. **UN-213**

Responses to Unocal (UN) Comments

Comment #	Comments
UN-01	The SEIR prepares have made an effort to assure that the references cited are accurate and that documents prepared by a mediation process are identified as such.
UN-02	Text has been modified based on UNOCAL comments and comments from RWQCB. Changes made to Section ES C.
UN-03	The project affects air quality in the whole air basin; air quality impacts do not stop at the county boundary. Thus, the emission significance thresholds have been developed for the whole project, although the emissions in each county are reported separately as well as for the whole project as a total. The total project emissions of PM_{10}, ROC, and NOx exceed the developed thresholds; thus, no changes have been made to the text. However, because the SLO APCD and the Applicant agreed on the additional mitigation measure that provides emissions offsets, the impacts would be fully mitigated to a less than significant level (Class II). This change has been made to the text in Section ES F.1.
UN-04	The SEIR preparers have not changed the significance class level for impacts to road-side habitat or impacts due to mortality of wildlife, including federally and State-listed species. Therefore, no revisions to this section have been made. Please see response to comments UN-36, UN-37, UN-40, and UN-41.
UN-05	The SEIR preparers have not changed the significance class level for impacts to road-side habitat or California red-legged frogs, and therefore, no revisions to this section have been made. Please see response to comments UN-36, UN-37, UN-40, and UN-41.
UN-06	The proposed change has been made to the text in Section F.2.2 in the Executive Summary.
UN-07	The SEIR has been changed in Section 3.1 of the alternatives analysis and Section 5.8.7.2 to address a TMLF as acceptable from a land use policy perspective. Textual changes were made to Section 5.8.7.2, the Executive Summary, and the Impact Summary Tables. The ECU remains a significant land use impact.
UN-08	The SEIR preparers have not changed the significance class level for impacts to road-side habitat or impacts due to mortality of wildlife, including federally and State-listed species. Therefore, no revisions to this section have been made. Please see response to comments UN-36, UN-37, UN-40, and UN-41.
UN-09	The SEIR preparers were not able to find the referenced text on the referenced page or anywhere else in the Executive Summary Section. However, Measure T-1.1 has been changed to assure that the time schedule is not rigid and can be discussed further with the OEC. Please also see response to UN-60. Updates to Mitigation Measure T-1.1 have also been made in Section 8 and the Impact Summary Tables.
UN-10	Changes have been made to ES Section F.2.3 to reflect that all material will be placed in the ECU. Changes were also made to Section 3.2.3 to highlight this difference between the TMLF and the ECU (the lower number of

Responses to Unocal (UN) Comments

Comment #	Comments
	truck trips with ECU).
UN-11	Please see response to UN-47. The text has not been changed because the emissions are above significance thresholds as stated.
UN-12	Text has been corrected to omit discussion of offsite trucking as part of this alternative.
UN-13	The SEIR preparers have not changed the significance class level for impacts to road-side habitat or impacts due to mortality of wildlife, including federally and State-listed species. Therefore, no revisions to this section have been made. Please see response to comments UN-36, UN-37, UN-40, and UN-41.
UN-14	The text has been changed to state that the truck trips associated with this alternative are for transportation of the ECU liner materials to the Guadalupe Field. Reference to transportation of the NHIS materials has been deleted from Section F.2.3 in the Executive Summary.
UN-15	The proposed change has been made to the text; see Section F.2.3 in Executive Summary.
UN-16	Text has been corrected to omit discussion of offsite trucking as part of this alternative.
UN-17	The impact statement for operational emissions has been changed for a more general impact statement that does not specifically list the exceeded emissions thresholds. See Section 5.5.6 and Impact Summary Table for Class I Impacts.
UN-18	The SEIR preparers have not changed the significance class level for impacts to road-side habitat. Therefore, no revisions to this section have been made. Please see response to comments UN-36 and UN-37.
UN-19	Text has been modified per comment in the Impact Summary Table and in Section 5.2.6.
UN-20	Text has been modified per comment in the Impact Summary Table and in Section 5.3.6.2.
UN-21	Text has been modified per comment in the Impact Summary Table, except that surveys shall be conducted at least four times a day when it is raining or roads are wet.
UN-22	Changes have been made to Impact Summary Table, Section 5.11.6, and Section 8.
UN-23	The use of NHIS is a beneficial impact for the landfill; the material could come from a number of different sources. This is a beneficial impact for the landfill, but would not be considered a beneficial impact for the Guadalupe Project. As such, no beneficial impact statement has been added to the SEIR.
UN-24	The alternatives summary section of the Executive Summary has been updated based upon all of the comments received.
UN-25	See Response to Comment UN-07.
UN-26	See Response to Comment UN-42.
UN-27	For the Impact Summary Table, the reference has been changed to ECU. See Response to Comment UN-43.
UN-28	RWQCB had extensive and detailed comment on this same section. Please see response to comment RWQCB-8.

Responses to Unocal (UN) Comments

Comment #	Comments
UN-29	Text suggesting that dune structures were subjected to erosion due to historic uses has been deleted per comment.
UN-30	Text has been modified to the following: "The dune structures are subject to erosion and transport by wind and runoff, and, to a lesser degree, by cleanup operations."
UN-31	Please see response to comment RWQCB-14.
UN-32	Text has been modified per comment.
UN-33	No mitigation measure W.4 was identified.
UN-34	Text for Mitigation Measure W-3.2 has been modified per comment.
UN-35	Onshore Biology - A bullet referencing the requirements of Condition F.62.m has been added to the section. In addition, the following text has been added to clarify the use of SSMPs: "Representatives from Unocal, San Luis Obispo County, and the California Coastal Commission agreed that specific Sensitive Species Management Plans are required only for those species that are significantly impacted and are not adequately mitigated for through research and habitat restoration. Unocal will prepare a Sensitive Species Management Plan for any species significantly impacted by the proposed project activities and submit these for approval to the County, Coastal Commission, and other appropriate agencies (USFWS and/or CDFG) in accordance with the requirements of the condition."
UN-36	Text has been modified to the following: "Long-term impacts could occur from destabilization of dune surfaces if road-widening activities encroach into the base of a dune or cause the loss or degradation of existing native habitats."
UN-37	The SEIR preparers disagree that the loss of the roadside vegetation is a less than significant impact. The quality of vegetation and habitat along the shoulder of roads is not, for the most part, in a degraded state and actually supports several sensitive plant species. Impacts to two acres of this habitat would represent a substantial loss of habitat for both wildlife and plants. In addition, dune scrub vegetation is recognized as a sensitive habitat type and the road widening would result in the permanent removal of this habitat. As such, this would represent a significant impact as defined under CEQA Guidelines. No revisions to this section have been made.
UN-38	The SEIR preparers agree that the provisions of Condition F.64, (the Habitat, Revegetation, Restoration and Monitoring Plan [HRRMP]), as well as the F62.m and F.62.k, are applicable to the road-widening activities. However, widening and paving would result in the long-term or permanent loss of two acres of wildlife and plant habitat (that is recognized in the area as a sensitive habitat type and supports several sensitive plant and wildlife species), which would represent a substantial loss of habitat and would therefore be a significant impact, consistent with CEQA Guidelines. As such, appropriate mitigation is required to offset the long-term or permanent loss of habitat.

Responses to Unocal (UN) Comments

Comment #	Comments
	Roadside habitat may be considered degraded due to vehicle usage for wildlife species (edge effect); the vegetation is not affected by vehicle usage as long as vehicles remain on the road and is not considered degraded. The edge effect (on wildlife) of vehicle traffic along the road would remain when the road is widened. No revisions to this section have been made.
UN-39	Text for Mitigation Measure W-3.1 has been modified to add language concerning the Species Specific Management Plan for California red-legged frogs per comment.
UN-40	Text has been changed as recommended, except that surveys shall be conducted at least four times a day when it is raining or roads are wet.
UN-41	Text has been changed as recommended to the following: "These measures, which include compliance with the any federal authorization for take of listed species (i.e., a Biological Opinion, etc.) and a revised Sensitive Species Management Plan with protection measures including speed limits, regular monitoring of areas most likely to support red-legged frogs, and temporarily halting activities on the haul road if necessary, would reduce significant impacts to *less than significant with mitigation* (Class II)."
UN-42	If the amount of time for dune formation and revegetation is expected to be less than five years, then the impact should be considered short-term. However, according to the project description, TMLF formation would take three to five years. In addition, full revegetation of the site is expected to occur within three to five years after the formation of the TMLF. It is reasonable to assume that the site would not be revegetated for more than five years after project initiation, which would represent (according to the original 1998 EIR) a long-term impact. If the site is not restored to functioning dune scrub habitat within five years, impacts would be considered significant and would require the replacement of an additional 4.9 acres of dune scrub habitat to mitigate for the temporal loss of habitat. As such, no revisions to the text have been made to address this comment.
UN-43	The question of the uncertainty of the success of restoration stated in the SEIR was specific to the action by which a clay cap would be placed over the created dune. The references were removed from the TMLF discussion.
UN-44	Text has been changed as recommended to delete reference to impacts from offsite hauling.
UN-45	Please see response to comment UN-42.
UN-46	Please see response to comment UN-42.
UN-47	Emissions from the project influence air space of one local area; thus, the project emissions were considered together. The impacts would not change for the air basin just because the project is on the boundary of two jurisdictions. Therefore, MRS selected one set of criteria and applied those criteria to the whole project. Santa Barbara County APCD has no jurisdiction over the project and, therefore, would not be able to limit the

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	emissions even if they were significant in SB County, because those are emissions from mobile sources. In addition, San Luis Obispo County was the lead CEQA agency for this SEIR so their significance criteria were used. For the reasons stated above, no revisions were made to the significance criteria.
UN-48	The quantities of material for screening analysis of emissions in Section 5.5.3.1 have been deleted as requested.
UN-49	Please see response to Comment UN-47.
UN-50	A reference to the SBCAPCD cancer risk criterion has been added to the text. Also, see the response to comment SLOAPCD-08 for more information on the how the risk criterion was used in the analysis.
UN-51	Impact AQ.1 has been separated into two impacts: AQ.1, "Impacts from Construction," and AQ.2, "Impacts from Operations." See Section 5.5.6.
UN-52	The proposed changes have been made to Section 5.5.6, Impact AQ.1.
UN-53	Most of the proposed changes have been added to the text in Impact AQ-2 discussion. Please also see response to UN-47. At the request of the SLO APCD, which also requested addition of more details about BACT technologies (see Comment SLOAPCD-11), text regarding BACT technologies has not been deleted.
UN-54	Please see response to Comment UN-47.
UN-55	Table 5.5.11 and the associated text have been deleted; see Section 5.5.6.
UN-56	Measure AQ-1.3 has been deleted at the request of the SLO APCD. As per the SLO APCD, changes have been made to Mitigation Measures AQ-1.2 through AQ-1.4 (now these are renumbered as AQ-2.2 through AQ-2.4). Changes to Mitigation Measure AQ-1.5 (now AQ-2.3) have been made as per April 28, 2005 e-mail from Andy Mutziger of the SLO APCD to John Peirson of MRS. A copy of this e-mail has been included at the end of the SLO APCD comment letters.
UN-57	Please see response to Comment UN-47.
UN-58	The proposed change has been inserted into the text; see Section 5.5.7.4. Table 5.5.21, which lists emissions estimates for the case when electric pumps are used, has also been added. The data presented in Table 5.5.21 show that even if all pumps that are used for injection are electric, significance thresholds would be exceeded for NOx peak day emissions.
UN-59	According to the SBCAG's CMP, local agencies must ensure that the scope of any traffic analysis performed for the environmental review process required under CEQA includes an assessment of project-related impacts on the CMP system if total trip generation exceeds 50 peak-hour or 500 daily trips. Thus, the condition of 50 peak-hour or 500 daily trips triggers the requirement to analyze project-related impacts on the CMP road system. The 50

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	peak-hour trips are not the thresholds for determining significance, but the trigger for the traffic analysis. Through the CEQA process, the SEIR preparer is required to analyze those CMP intersections that are part of the transportation system affected by the project; thus, there is no need to reach the CMP analysis trigger of 50 peak-hour trips. The SBCAG's CMP thresholds are applicable to fewer than 50 peak-hour project trips, and these thresholds (listed in Table 5.6.7 in Section 5.6.3) state that the addition of only 20 peak-hour trips would be significant on CMP-jurisdiction intersections at LOS D. Thus, application of the CMP thresholds does not contradict the SBCAG's significance threshold application. For the reasons stated above, no revisions have been made to this section to address the comment.
UN-60	Mitigation Measure T-1.1 has been changed to include most of the proposed changes; see Section 5.6.6. The mitigation measure, however, would be difficult to enforce if the restriction is for seven truck trips during the peak hour. The approval by the OEC would ensure a mutually acceptable truck-hauling schedule.
UN-61	Text related to the significant impacts associated with land use policies and standards have been removed for the TMLF alternative. Text has been added to Section 5.8.7.2 to clarify this distinction. Additional changes have been made related to this issue in Sections ES F.2.2, and Impact Summary Tables.
UN-62	Text related to the impacts from ECU and the significant impacts on land use policies and standards has been moved into the ECU discussion in Section 5.8.7.3. Additional changes have been made related to this issue in the Executive Summary and Impact Summary Tables.
UN-63	Text has been added in Section 5.11.3, detailing the calculations used and converting the significance criteria to frequency, as opposed to using a mileage number. This change correlates better with the Table 5.11.1.
UN-64	Text changes to the PS mitigation measures have been made. Mitigation measures would apply only to offsite haulers of NHIS. Text changes were made to Section 5.11.6.
UN-65	Changes were made to the impact discussion to make it based on frequency rather than mileage. Mitigation measures have been updated in Section 5.11.6.
UN-66	Text changes were made to Section 5.11.7.2.
UN-67	Text changes were made to Section 5.11.7.3.
UN-68	Text changes were made to Section 5.11.7.4 and Mitigation Measure PS-5.1. Mitigation measures have also been updated in Section 5.11.9, Impact Summary Tables, and Section 8.0.
UN-69	The text of the Environmentally Superior Alternative (Section 6.0) of the SEIR has been updated based upon all of the comments received.

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UN-70	See Response to Comment UN-61.
UN-71	The air impact has been changed to short-term.
UN-72	The impacts are not combined since they have different classifications. PS-4 is for the alternative trucking, which would be a significant impact. Since the impact classification changed, the impact was given a new number.
UN-73	See Response to Comment UN-61.
UN-74	The changes in mitigation measures for impacts in Sections 5.2, 5.3, 5.5, 5.6, 5.10, and 5.11 have been reflected in Section 8.0.
UN-75	Text clarifying that the TMLF would not be in conflict with existing land use policies and standards has been added to Appendix D, page D-5, and to other sections mentioned in the comment, Section 3.2 and Section 3.4.
UN-76	The proposed text modifications have been made to Section 4.2 of Appendix G.
Unocal-Clarifications and Correction Comments (UN)	
UN-77	In Section ES A, terminology has been modified to refer to sump material as crude oil or drilling muds that could include soil or sand.
UN-78	Text on the regulations describing NHIS and the RWQCB has been added to the Executive Summary, where NHIS is first described and discussed.
UN-79	Text has been added to Section ES E.
UN-80	Text has been modified in Section ES F.1.
UN-81	Text has been added in Section ES F.2.2 which identifies TMLF as NOT having a land use impact.
UN-82	Modifications to the impact are made in the Impact Summary Tables, and text has been added to Section 5.11.7.1 describing the differences in impacts.
UN-83	The text has been modified as suggested in the comment.
UN-84	The text has been modified as suggested in the comment.
UN-85	The text has been modified as suggested in the comment.
UN-86	The text has been modified as suggested in the comment.
UN-87	The text has been modified as suggested in the comment.
UN-88	The text has been modified as suggested in the comment.
UN-90	It was assumed that this comment is the same as the previous one, but for a different section. The referenced section, Section 2.1, has been significantly modified in response to the RWQCB comments, and the Unocal comments may no longer apply.
UN-91	The referenced section, Section 2.1, has been significantly modified in response to the RWQCB comments, and the Unocal comments may no longer apply

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UN-92	Figure 5.1-1 has been modified to remove the 5x features and better reflect the boundaries of the undeveloped areas.
UN-93	Text has been edited to identify that the City of Guadalupe was subjected to damage resulting from the 2003 San Simeon earthquake.
UN-94	The text has been modified as suggested in the comment.
UN-95	The text has been modified as suggested in the comment.
UN-96	The text has been modified as suggested in the comment.
UN-97	Values presented in this section have been edited per comment and more recent technical information.
UN-98	Figure 5.2-1 has been modified to remove the red boxes around the corrective action sites.
UN-99	The text has been modified as suggested in the comment.
UN-100	The text has been modified as suggested in the comment.
UN-101	Natural attenuation studies are ongoing. To include the suggested text would require additional context to elaborate and support the suggested addition. Because this discussion is not primary to the impact analysis, the text has not been modified.
UN-102	Please see response to RWQCB-13.
UN-103	The text has been modified as suggested in the comment.
UN-104	The text has been modified as suggested in the comment.
UN-105	The text has been modified as suggested in the comment.
UN-106	The text has been modified as suggested in the comment.
UN-107	The text has been modified as suggested in the comment.
UN-108	The text has been corrected to reflect mileage from Project Description (16 miles).
UN-109	The text has been modified to state: “surface water is present at various times throughout the year.”
UN-110	The text has been modified to include the reference the distances that California tiger salamanders have been observed to move. The new text reads as follows: “California tiger salamanders have been documented to move up to 1.3 miles away from their breeding pool into upland habitat; however, the typical range of CTS is less than 0.5 miles from the breeding ponds (USFWS 2004).”
UN-111	The text has been modified as suggested in the comment.
UN-112	The text has been modified as suggested in the comment.
UN-113	The text has been modified as suggested in the comment.
UN-114	The text has been modified as suggested in the comment.
UN-115	The text has been modified as suggested in the comment.

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UN-116	The text has been modified as suggested in the comment.
UN-117	The text has been modified as suggested in the comment.
UN-118	Modifications to text were made in Section 5.4.7.2.
UN-119	Table 5.5-1 in Section 5.5.1.2 has been updated.
UN-120	The proposed change has been made to the text in Section 5.5.1.2.
UN-121	The proposed changes have been made to Table 5.5.3 footnote, Section 5.5.1.2.
UN-122	The proposed changes have been made in Section 5.5.1.3.
UN-123	The proposed changes have been made in Section 5.5.3.1.
UN-124	The proposed changes have been made in Section 5.5.6.
UN-125	The emissions in Table 5.5.8 were corrected to account for the PTO emissions (see response to UN-126).
UN-126	The PTO emissions have been added to Section 5.5.6, Tables 5.5.8 and 5.5.9.
UN-127	The emissions in Table 5.5.9 were corrected to account for the PTO emissions (see response to UN-126).
UN-128	The proposed corrections have been added to Table 5.5.10 in Section 5.5.6.
UN-129	Mitigation Measure AQ-1.4 has been deleted.
UN-130	The PTO emissions have been added to Section 5.5.7.1, Tables 5.5.13 and 5.5.14.
UN-131	The proposed change has been incorporated into the text; see Section 5.5.7.2. The construction emissions are below the significance thresholds and, thus, construction impacts are less than significant, and no mitigation is necessary.
UN-132	The PTO emissions have been added to Section 5.5.7.2, Table 5.5.16.
UN-133	The proposed corrections have been added to Table 5.5.17 in Section 5.5.7.3. The PTO emissions have been added to Section 5.5.7.3, Table 5.5.18.
UN-134	The text in Section 5.5.7.3 has been changed to reflect the requested revision as to the possibility of the impact to be reduced to less than significant level. The construction impact is now identified as Class II.
UN-135	The requested corrections of the PM emissions, and the Peak daily emissions for the reversed 8- and 16-hour-days for transportation of 860,000 cy were made. The requested footnote was added to Table 5.5.20.
UN-136	The PTO emissions have been added to Section 5.5.7.4, Table 5.5.19.
UN-137	The proposed change has been made to Section 5.6.1.1, page 5-130.
UN-138	The proposed correction has been made to Section 5.6.6, page 5-141, under Impact T.1.
UN-139	The proposed correction has been made to Section 5.6.6, page 5-141, under Impact T.1.
UN-140	See response to UN-138.

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UN-141	The proposed change has been made to Section 5.6.7.2.
UN-142	The proposed change has been made to Mitigation Monitoring Plan table column 2 in Section 5.6.9 for mitigation measure T-1.1.
UN-143	Modifications have been made to text in Section 5.7.4
UN-144	Maps and text have been better coordinated and made consistent throughout Section 5.8.
UN-145	Modifications have been made to Table 5.8.1.
UN-146	Comments were incorporated into Section 5.8.1.1
UN-147	Modifications have been made to both Figures 5.8.1 and 5.8.2.
UN-148	The text in Section 5.8.1.1 has been modified as suggested.
UN-149	The text in Section 5.8.1.1 has been modified as suggested.
UN-150	The text in Section 5.8.1.1 has been modified as suggested.
UN-151	The text in Section 5.8.1.1 has been modified as suggested.
UN-152	The text in Section 5.8.1.1 has been modified as suggested.
UN-153	The text in Section 5.8.1.1 has been modified as suggested.
UN-154	The text in Section 5.8.1.1 has been modified as suggested.
UN-155	Acronym changed to SLO LCP for SLO to clarify reference and to coastal plan for SBC in Section 5.8.2.1.
UN-156	A sentence was added to Section 5.8.2.1.
UN-157	The text in Section 5.8.1.2 has been modified as suggested.
UN-158	The text in Section 5.8.6 has been modified as suggested.
UN-159	The text in Section 5.8.6 has been modified as suggested.
UN-160	The text in Section 5.8.6 has been modified as suggested.
UN-161	Text was added to Section 5.8.7.1 addressing a description of the trucking alternative.
UN-162	Text in Section 5.8.7.4 has been modified as suggested.
UN-163	The text has been modified as suggested in the comment.
UN-164	The text has been modified as suggested in the comment.
UN-165	The text has been modified as suggested in the comment.
UN-166	The text has been modified as suggested in the comment.
UN-167	Text indicating the presence of pipelines connecting the Santa Maria Refinery has been added to Section 5.11.1.1.
UN-168	The text in Section 5.11.1 has been modified as suggested.
UN-169	A definition of FN curves has been added to the text in Section 5.11.3.

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UN-170	The example of mechanical hazards was removed from Section 5.11.3.
UN-171	The text has been changed in Section 5.11.4.
UN-172	The text has been changed in Section 5.11.4.1.
UN-173	Text changes were made to Section 5.11.4.2.
UN-174	Conditions F38 and F93 have been added to the list in Section 5.11.5.
UN-175	Modifications to PS.1 have been made in Section 5.11.6 and the Impact Summary Tables.
UN-176	Modifications to Impact PS.1 have been made in Section 5.11.6 and the Impact Summary Tables.
UN-177	Impact PS.3 wording was changed to reflect transportation of NHIS. Changes were made in Section 5.11.6 and the Impact Summary Tables.
UN-178	The text in Section 5.11.6 has been modified as suggested.
UN-179	Modifications have been made to text in Section 5.11.6 in both impacts and residual impacts sections.
UN-180	Modifications to text have been made in Section 5.11.7.2.
UN-181	Modifications to text have been made in Section 5.11.7.3.
UN-182	The text has been modified as suggested in the comment.
UN-183	The text has been modified as suggested in the comment.
UN-184	The footnotes for Table 6.1 have been clarified.
UN-185	The text has been modified as suggested in the comment.
UN-186	The text has been modified as suggested in the comment.
UN-187	The text in Section 7.1.1 has been modified as suggested.
UN-188	The text in Section 7.2 has been modified as suggested.
UN-189	Air Quality Appendix was modified as requested – PTO emissions were added.
UN-190	Modifications have been made to the text in Appendix G, Section 1.0.
UN-191	Modifications have been made to the text in Appendix G, Sections 4.1, 4.2, 4.3, 4.4, 4.5, and 4.6.
UN-192	Modifications have been made to the text in Appendix G, Section 4.1.
UN-193	Modifications have been made to the text in Appendix G, Section 4.1, related to the applicability of F.27 to sites A6/TB2 and B5A.
UN-194	Modifications have been made to the text in Appendix G, Section 4.2.
UN-195	Modifications have been made to the text in Appendix G, Section 4.2.
UN-196	Modifications have been made to the text in Appendix G, Section 4.2.
UN-197	Modifications have been made to the text in Appendix G, Section 4.2.
UN-198	Modifications have been made to the text in Appendix G, Section 4.2.

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UN-199	Modifications have been made to the text in Appendix G, Section 4.2.
UN-200	Modifications have been made to the text in Appendix G, Section 4.3.
UN-201	Modifications have been made to the text in Appendix G, Section 4.3.
UN-202	Modifications have been made to the text in Appendix G, Table 2.
UN-203	Modifications have been made to the text in Appendix G, Section 4.3.
UN-204	Modifications have been made to the text in Appendix G, Section 4.3.
UN-205	Modifications have been made to the text in Appendix G, Section 4.3.
UN-206	Modifications have been made to the text in Appendix G, Section 4.3.
UN-207	Modifications have been made to the text in Appendix G, Section 4.3.
UN-208	Modifications have been made to the text in Appendix G, Section 4.4.
UN-209	The reference in Appendix G, Section 4.4 to toxic metals has been removed. The odds of having PAH, while low, are still possible.
UN-210	Modifications have been made to the text in Appendix G, Section 4.6.
UN-211	Text referring to only the B Road area sites has been added to Appendix G, Section 4.6.
UN-212	Modifications have been made to the text in Appendix G, Section 4.6.
UN-213	A reference was added to Appendix G, Section 5.0.