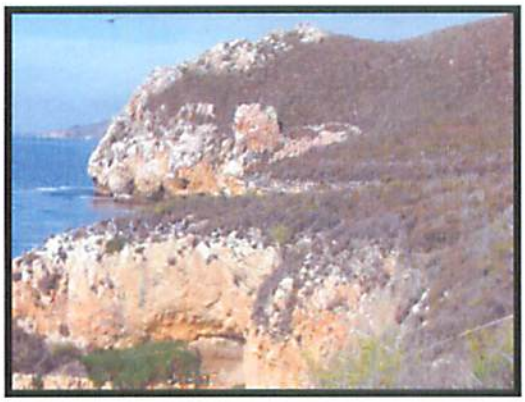
UNOCAL FORMER AVILA TERMINAL
Ecological Evaluation Supplement I



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Unocal Former Avila Terminal
ECOLOGICAL EVALUATION SUPPLEMENT I

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Unocal Former Avila Terminal
ECOLOGICAL EVALUATION SUPPLEMENT I

1.0 INTRODUCTION AND PURPOSE

The Unocal Corporation is undergoing a decommissioning and reuse planning process for the Unocal Former Avila Terminal (Avila site) that includes the assessment of the existing conditions of biological resources for use in the environmental review process for any future proposed uses. An *Ecological Evaluation* was prepared in 2003 (2003 *Ecological Evaluation)* that established existing baseline conditions of the onsite habitat types and provided a broad overview evaluation of the potential for "sensitive" plant and wildlife species to occur on the Avila site. For the purposes of that study, sensitive species (sometimes referred to as special-status species) was a broad term assigned to plant and wildlife species tracked by the California Natural Diversity Data Base (CNDDB) regardless of their legal protection status under federal or state statute. The *Ecological Evaluation* used a regional approach to identify the greatest number of sensitive plants and animals potentially occurring on the site with limited field studies to confirm actual presence or use of the Avila site by sensitive biological resources. As such, the *Ecological Evaluation* provided a useful backdrop for further study of the Avila site to refine the potentially significant biological resources that need to be considered during the Avila site planning and environmental review process. David Wolff Environmental (DWE) has conducted additional review of background information and conducted extensive field reconnaissance of the Avila site to prepare this *Ecological Evaluation Supplement I* to further refine the biological resources issues for the Avila site planning process.

The primary purpose of this *Ecological Evaluation Supplement I* is to use extensive field reconnaissance of the Avila site to identify micro habitats not identified in the 2003 *Ecological Evaluation* that might be suitable for sensitive plants and wildlife and to record observations of wildlife use during the summer of 2004 to refine the actual presence and/or use of the Avila site by sensitive wildlife species. A secondary purpose is to identify the need and timing for additional studies that would be necessary to continue to refine the actual presence/absence data for sensitive plant and wildlife species on the Avila site. To this end, this *Ecological Evaluation Supplement I* report details the methods used, briefly summarizes relevant findings from the 2003 *Ecological Evaluation*, details the results of the summer 2004 field reconnaissance, and provides recommendations for future studies to continue to refine the actual sensitive species issues for the Avila site planning process. Given the extensive background information provided in the 2003 *Ecological Evaluation*, and in an effort to use that information and not repeat it, the May 20, 2003 *Final Unocal Former Avila Terminal, San Luis Obispo, California, Ecological Evaluation*, prepared by Jordan Environmental Services, is hereby incorporated by reference into this report.

2.0 METHODS

DWE conducted a review and analysis of available background information on the various species and habitats listed in the 2003 *Ecological Evaluation*. The species evaluation focused on Table 5 of the 2003 *Ecological Evaluation* that was presented as sensitive species that have a potential to occur on the Avila site. Field guides, online species information, and literature resources were reviewed to further assess the potential or actual plant and wildlife species occurrence or use on the Avila site. A field reconnaissance of the Avila site was conducted by David Wolff, DWE Principal Ecologist, on July 7, 28, & 29, August 5 & 25, and September 1, 2004. Surveys were conducted during morning and afternoon daytime hours. The July 7th survey was focused on the accessible beach and cliff northwest of Fossil Point during a low tide. The September 1st field reconnaissance included a twilight/night survey primarily to observe bat species should they occur, and other nocturnal or crepuscular species. Sage Institute, Inc., wildlife biologist Jason Kirschenstein assisted with the September 1st survey for safety reasons and his additional wildlife expertise.

During field reconnaissance the various areas and habitat types on the Avila site were surveyed on foot and plant and wildlife observed recorded. Both the areas of native habitats and developed/disturbed areas were surveyed with an emphasis on the areas of remaining habitat. Given that many sensitive species have specific soil type requirements, soil types were evaluated based on the visible surface layer just below the leaf litter.

3.0 RESULTS

The results of the *Ecological Evaluation Supplement I* study include a brief summary of the 2003 study and the findings from the research and field reconnaissance conducted during the summer of 2004. The 2004 field surveys provided a valuable refinement of the data presented in the 2003 study to assist in focusing the biological resources issues. Further refinement is still necessary by conducting species specific protocol surveys conducted during the upcoming winter, spring, and early summer months. Once these studies are complete, then a complete evaluation of biological resources can be incorporated into the Avila site planning process.

3.1 2003 Ecological Evaluation Summary

The 2003 *Ecological Evaluation* identified, described, and mapped the following plant communities and wildlife habitats on the Avila site:

- Coast Live Oak Woodland
- Coastal Scrub
- Non-Native Grassland
- Freshwater Marsh/Man-Made Retention Basins
- Seasonal Wetland/Man-Made Retention Basins
- Coastal Bluff/Cliff
- Beach
- Tree Rows
- Previously Disturbed Areas

The analysis of sensitive species assigned a low, moderate, or high potential to occur on the Avila site to 19 species of plants, three invertebrates, four amphibians, three reptiles, 28 birds, and seven mammals. Of these species, only three bird species, the peregrine falcon, double-crested cormorant, and brown pelican have been observed on the Avila site. The remaining wildlife species were resident or migratory species with a specific habitat element requirement for their occurrence, were wide ranging non-breeding seasonal migrants, or breeding season migrants. The 2003 *Ecological Evaluation* lists these species by common and scientific name, "sensitivity" status, and describes their habitat requirements and seasonal use patterns in the region of the Avila site.

3.2 2004 Field Reconnaissance

The extensive 2004 field reconnaissance provided an important refinement of the sensitive species issues for the Avila site based on observations and further analysis of the habitats to support sensitive plant and wildlife resources. The following discussion walks through each of the species or groups of species identified in Table 5 of the 2003 *Ecological Evaluation* to provide a more specific analysis of actual, probable occurrence, and likely use of the Avila site habitats and resources.

3.2.1 BOTANICAL RESOURCES

The common elements characterizing the Avila site plant communities described in the 2003 *Ecological Evaluation* were observed during the 2004 field reconnaissance. Field reconnaissance focused on searching for the potential sensitive plant species listed in Table 5 of the 2003 *Ecological Evaluation* (Table 5) and on evidence of the specialized soil or moisture regime to support these species. Given the limited and early rainfall in 2004 and the summer timing of the surveys conducted for this supplemental study, it was not expected to find any annual species. Additionally, the grassland areas had been disked for fire suppression and were absent any identifiable plant material. Many of the potential sensitive plant species in Table 5 require a special soil, substrate, or moisture regime such as serpentine, sands, rock outcrop, or wetlands. None of the species in Table 5 were observed during the 2003 *Ecological Evaluation* surveys. One sensitive plant species was observed during the 2004 field reconnaissance and is discussed below. The following discussion provides a refinement of the potential for these species to occur based on observed field conditions during the 2004 study. A definitive spring rare plant survey will still be required to make a final determination of presence or absence of several of the Table 5 species as suitable soils and habitats have been observed on the Avila site. The common names used in this report can be referenced to scientific names and species descriptions in the 2003 *Ecological Evaluation.*

Serpentine Soil/Rock Outcrop Endemics – The San Luis Obispo mariposa lily, Brewer's and Palmer's spineflowers, Blochman's dudleya, Jone's layia, and adobe sanicle are known from areas of serpentine soils. With the exception of the Jone's layia and adobe sanicle that can also be found on clay soils these species are not expected to occur because no serpentine outcrops or serpentine soils were observed during the 2004 field reconnaissance.

Sandy Soil Endemics – Hoover's bentgrass, Morro manzanita, and Well's manzanita are known from areas of sandy soils. Only one small area of sandy soils occurs on the Avila Drive

portion of the site. Only one large manzanita shrub was observed in this area preliminarily identified from leaf characteristics as Well's manzanita. This shrub did not have any flowers or fruits to key further. No other manzanita shrubs were observed in the oak woodland or coastal scrub habitats. A springtime survey for Hoover's bentgrass and to confirm the manzanita species when flowering would be necessary.

Shale Soil Endemics – Pecho manzanita and black-flowered figwort are known from areas of shale soils. A large majority of the Avila site supports very shaly soils or areas of piles of shale and rock. As stated above, only one manzanita shrub was observed on the Avila site. Visual inspection of the areas of coastal scrub on shaly soils along the ocean-side bluff did not reveal any manzanita shrubs that would be noticeable above the dense coastal scrub vegetation on composed mostly of low growing coyote brush and California sagebrush. No black-flowered figwort was observed. The flower stalks of the black-flowered are fairly persistent and would be noticeable during the summer season. As stated above, none have been observed, however, to confirm presence/absence this species should be included in the remaining potential sensitive plant species subject to a springtime survey.

Clay Soils Endemics – Mile's milk-vetch, Coulter's saltbush, Cambria (San Luis Obispo) morning-glory, Obispo Indian paintbrush, Congdon's tarplant, Jone's layia, and adobe sanicle are known from areas of clay soils. The Avila site supports areas of clay soils along Avila Drive and the area along the main entrance from Front Street. These areas were disked for fire suppression prior to the 2004 field reconnaissance so it is uncertain if these species occur on the areas of clay soils. As such, these species should be included in the remaining potential sensitive plant species subject to a springtime survey.

Wetland Species – San Luis Obispo sedge, Congdon's tarplant, and saline clover are known to occur in wetlands, or areas of clay soils that have a high water holding capacity. Remnants of these species are fairly persistent and would be noticeable during the summer. Even though they have not been observed in the Avila site man-made wetland areas during the 2003 or 2004 surveys, they should be included in the remaining potential sensitive plant species subject to a springtime survey for a final determination of presence or absence.

3.2.2 WILDLIFE RESOURCES

The wildlife habitats on the Avila site support habitat for both common and uncommon resident, migratory, and locally nomadic species. Only two species from Table 5 not previously known from the site, the silvery legless lizard and Cooper's hawk, were observed during the 2004 field reconnaissance. The following discussion refines the habitat associations and probable uses on the Avila site of the Table 5 sensitive wildlife species either individually or as groups based on seasonal use and/or habitat preferences. Table SI-1 provides a list of wildlife species with habitat associations observed during the 2004 field reconnaissance. The common names used in this report can be referenced to scientific names and species descriptions in the 2003 *Ecological Evaluation.*

Monarch Butterfly – The 2003 *Ecological Evaluation* described the low potential for the Avila site to support a monarch butterfly winter roost site. This is a widespread common species that could use the site on its movements throughout the county but would only be an issue

for further consideration if a winter roost site occurred on the Avila site. No winter roost sites have been identified on the Avila site and a large aggregation of monarch butterflies likely would have been noticed by Unocal personal over the years and would be part of the anecdotal record. Observations during December and January to confirm the lack of a monarch butterfly winter roost site in the oak woodland and tree rows is recommended and could be easily completed in conjunction with the wet season aquatic studies and does not necessitate a separate specific effort.

Wetland/Aquatic Species – The man-made seasonal wetland ponds in the former tank bottoms provide potential habitat for a number of the Table 5 species. The seasonal wetland areas could support the vernal pool fairy shrimp and California linderiella. The recent and artificial nature of the seasonal wetlands suggest these freshwater shrimp species would not be naturally occurring on the site but, if present, would have cysts brought in the digestive tracts of transient waterfowl. The pending protocol dry and wet season surveys will be required to determine if they are present or absent from the site.

Tree frogs and western toads have been observed on the Avila site during the 2003 study but these species can tolerate a relative short and shallow ponding regime to complete their breeding cycle than most other amphibians. California red-legged frogs typically require a permanent source of water or in areas of seasonal drying, moist areas adjacent to the aquatic habitat such as riparian habitat. While there are recorded occurrences in the vicinity of the Avila site, it would only be expected that dispersing red-legged frogs would use the onsite ponds opportunistically during years of prolonged ponding. A long term population is highly unlikely given the regular drying in most years. A protocol survey during years when ponding remains after May 1st would be needed to determine if the California red-legged frog is present.

The California tiger salamander, coast range newt, and western spadefoot toad use uplands for the majority of their lifecycle and come to seasonal or permanent aquatic habitats to breed during the wet season. The two-stripped garter snake is also associated with permanent ponds, streams, and/or long standing seasonal wetland habitat. The on-site wetlands appear highly ephemeral and their recent formation would suggest these species would not be historically present and, therefore, not occupy the site as an easy opportunity to find suitable habitat from nearby occupied areas. Similarly, the highly aquatic two-stripped garter snake would not be expected to occupy the short duration seasonal wetland habitats. Aquatic sampling in conjunction with the wet season fairy shrimp surveys would determine if these species are present or absent from the Avila site wetlands. California red-legged frog surveys would also support a determination for the two-stripped garter snake.

Two upland reptile species, the silvery legless lizard and California horned lizard require very friable sandy soils to quickly burying themselves for protection and cover. The site is composed mostly of very shaly loam soils, clay soils, and piles of broken up shale that are not conducive to either species. No California horned lizards were observed during the 2003 or 2004 field surveys. They would not be expected to occur in the very shaly soils of the coastal scrub along the ocean-side bluff.

As stated above, the silvery legless lizard was observed on site in a very small patch of sandy soil under an oak tree on the Avila Drive side of the property. Soils all around this occurrence appeared to be heavier clay loam soils. This occurrence in the small sandy soil inclusion could be an extension from the coastal scrub on the hillside above the Avila site, however there are no mapped sandy soils nearby the Avila site. There is potential for the silvery legless lizard occurrence to extend into the oak woodland habitat as it is known to occur around woodrat nests. The oak woodland soils appear to be loam or clay loam soils that are not ideal for this species. The 2003 Ecological Evaluation recognized the black legless lizard subspecies with a high potential to occur. The current thinking among the scientific community is that the silvery and black legless lizard are the same species and do not warrant any subspecies status. According to Stebbins, the recognized black legless lizard subspecies was restricted to the Monterey Bay area and the dark individuals from Morro Bay to the Santa Maria River are *A.p. pulchra* not considered as the subspecies *A.p. nigra.*

Coastal and Beach Bird Species – The brown pelican and double-crested cormorant are common and abundant visitors along the edge of the bluffs and just off shore of the Avila site. Observed use during the 2004 field reconnaissance was restricted to be the very edge of the cliff and rocks below where no vegetation occurs that is within easy flight to the air or water below. Except for infrequent landward roosting, they would not be expected to use any of the habitats or other areas on the Avila site as it does not afford the opportunity of quick escape from potential predators as does the cliff edge.

The western snowy plover and least tern are beach nesting species that would only be found foraging or loafing along the beach. As noted in the 2003 *Ecological Evaluation,* no suitable breeding habitat occurs along the beach of the Avila site. Field reconnaissance during 2004 revealed that the beach is heavily used by people during the summer, it is a narrow flat beach subject to regular flooding by even moderate tides, and did not have many piles of seaweed the primary foraging source for the western snowy plover. Based on the limited resources available at Avila Beach and high volume of human use during the breeding season, these species would only be an infrequent visitor likely as a brief stopover between areas of much better habitat.

Wading Bird Species – The American bittern, least bittern, snow egret, white faced ibis, and California black rail were suggested in the 2003 *Ecological Evaluation* as potentially infrequent and brief visitors to the Avila site primarily pointing to the marsh habitat in the detention basin. The two bitterns and California black rail are highly secretive species that have an extremely limited potential of ever using the small patch of bulrush and cattails on the Avila site. The white-faced ibis occurs in this region in limited numbers as a non-breeding migratory species. It is not likely to use the tiny patch of bulrush and cattails on site. The snow egret is a common and widespread species where the concern is over protecting colonial nest sites. No snowy egret nesting colonies occur on the Avila site. The detention basin marsh was dry during 2004 field reconnaissance and none of these species were observed during the 2003 or 2004 field studies. Any use of the site would be brief as food, cover, and water resources are very limited on the Avila site.

Breeding Season Raptors – The Cooper's hawk, northern harrier, white tailed kite, and American peregrine falcon are breeding species on the central coast. As is well known with frequent observations, the American peregrine falcon is a regular nesting species on the cliffs of the Avila site. This species can be regularly seen flying over and perching on power poles on site. The Cooper's hawk is a woodland nesting and foraging species and could nest in the oak woodland habitat on site. A Cooper's hawk was observed moving quickly through the oak woodland on site during the August 25, 2004 field reconnaissance (presumably foraging). The white-tailed kite is a tree nesting species but forages in grasslands and open country that are limited on and around the Avila site. The northern harrier is a tall grass and marsh ground nesting species and an open country grassland foraging species that would not be expected to use the Avila site. There is good visibility of the oak canopy from trails underneath the oaks and no potential raptor stick nests were observed during 2004. A great-horned owl was observed several times flying and roosting in the oak woodland and is likely a resident of the area. While the literature suggests some compatibility of the great-horned owl with other nesting raptors, the small patch of oak woodland is likely dominated by the territorial and aggressive great-horned owl precluding any regular use by other raptors.

Migratory Raptors – The golden eagle, ferruginous hawk, merlin, burrowing owl, and sharp-shinned hawk are acknowledged in the 2003 *Ecological Evaluation* as highly transitory winter migrants that would have only limited use of the Avila site. The golden eagle, ferruginous hawk, and burrowing owl are grassland and open country species that would likely have minimal to no use of the foraging and cover resources on the Avila site. The merlin and sharp-shinned hawk move through varied habitats on their wide ranging winter migrations and would not be expected to find any substantial use on the Avila site.

Black Swift & Purple Martin – These are somewhat uncommon swallow-like migratory species that breed in central California preferring cracks in cliffs for nesting. There is potential habitat along the cliff face but they were not observed in either 2003 or 2004. A nesting colony of cliff swallows was observed on the cliff facing the beach during the 2004 field reconnaissance.

Other Breeding Birds – The 2003 *Ecological Evaluation* suggested the potential for a number resident, migratory, or nomadic breeding birds. None have been observed on the Avila site during either the 2003 or 2004 field surveys. The Allen's hummingbird is common in many habitats along coastal California and could breed on site. The Pacific slope flycatcher prefers moister woodlands and forest habitats than are present on site but could occur. The loggerhead shrike and California horned lark are open country and grassland species that would find limited suitability from the Avila site habitats. While there is suitable woodland and scrub habitat on site, the Peterson Field Guide suggests the ranges of the Bell's sage sparrow, black-chinned sparrow, and Lawrence's goldfinch do not include the immediate coastal areas. The tricolored blackbird is a nomadic species that nests in colonies in flooded bulrush/cattail marshes and blackberry thickets that deter predators. No remnant nests were observed during the 2004 field survey and the small on-site detention basin provides marginal habitat at best for the tricolored blackbird. .

Bats – The pallid bat, Townsend's western big-eared bat, and fringed myotis range throughout California and typically seek caves, rock crevices, mine shafts, bridges, and buildings for roost sites. Females may form natal colonies at roost locations. One of the primary purposes for the roost sites is thermal regulation (keeping warm) where they cluster in colonies of 30 to more than 100 depending on the species. A regular aggregation or roost by bats would be evident by observations of individuals, guano, and/or piles of insect remnants. All of the buildings on the Avila site were inspected for evidence of bat roosts during the 2004 field reconnaissance. No evidence of bat use was observed in the buildings. Furthermore, the metal roofs lacking insulation or a crawl space are highly unsuitable for bat roosts as they would not provide ideal thermal protection. No bats were seen flying during the September 1st twilight and evening survey.

San Diego Desert Woodrat – This species builds small mounds of sticks near entrances to underground burrows or in rock crevices in scrub habitats. More than 30 large woodrat nests were observed on the ground and in the trees under the oak woodland habitat during the 2004 field reconnaissance. This large nest building on the ground and in trees in the woodland habitat is typical of the common dusky-footed woodrat and not the desert woodrat. No animals were captured for in-hand identification, however, the nest building type and habitat location is enough to determine the use by dusky-footed woodrats.

American Badger – The badger is a grassland species where evidence of occupation is easily identified though the large half-moon shaped burrows often with several entrances. No evidence of badger use was observed during the 2004 field reconnaissance. The regular disking of the grassland areas also limits the suitability of the site for the badger.

Ring-Tailed Cat – This secretive relative of the raccoon preys on mice and woodrats throughout its range in low elevation woodlands and riparian areas throughout California where it has a preference for inhabiting stream corridors. This species is very difficult to detect but could be present given the abundance of woodrats in the oak woodland habitat.

Northern Elephant Seal – The recently established colonial breeding and haul out areas near Piedras Blancas are well known. Any use of Avila Beach would be infrequent, short duration, and is improbable.

3.2.3 WETLAND RESOURCES

The 2003 *Ecological Evaluation* identified and characterized six wetland areas within man-made retention basins on the Avila site. Two areas were called freshwater marsh because they supported robust emergent wetland plants such as bulrush and cattail suggesting a longer duration of ponding or saturation. The four other areas were described as seasonal wetlands supporting mostly annual species associated with a more temporary ponding or saturation subject to regular drying in the late spring or early summer. The higher on the site you go the wetland vegetation becomes more sparse and seasonal in nature.

It is important to note that the six wetland areas identified as man-made retention basins are all former tank sites that currently collect rainfall and localized runoff. They have outlets that drain down slope ultimately to the lowest tank site that has a discharge pipe down to the

beach. These areas support a variety of wetland plants but do not represent any type of historic wetland areas as they are a result of artificial creation of basins from removal of the tanks. The small depression supporting seasonal wetland plants near the bluff edge is a former tank area that has experienced significant cliff erosion.

The overall functions and values of the Avila site wetland basins are generally low as they are surrounded by disturbed and developed areas, and are relatively small and isolated from a more natural wetland context such as a larger marsh, river floodplain or riparian habitat, or vernal pool grassland. As stated above, given the use by transitory waterfowl, there is the potential for the introduction of fairy shrimp through the transport of cysts in the digestive systems of the bird visitors. The potential to support sensitive amphibian and bird species is low and improbable given the man-made context creating and surrounding the wetlands. Further studies conducted during the wet season are recommended to resolve the wetland species issues.

4.0 Analysis and Conclusions

The Avila site supports a mosaic of disturbed and developed former tank farm facilities among stands of native plant communities and wildlife habitat. While the 2003 *Ecological Evaluation* identified a great number of sensitive plant and wildlife resources as potentially occurring on the Avila site, further investigation of background information and extensive field reconnaissance in the 2004 study has narrowed and refined the actual use and suitability of the site to support sensitive plant and wildlife species. From a qualitative habitat perspective and based on field observations, the remaining oak woodland and coastal scrub habitats still provide good habitat values for native plant and wildlife species. The developed and disturbed areas support overall low value to wildlife as they provide poor substrate for plants and minimal food and cover resources for wildlife.

The Coast Live Oak Woodland habitat provides a stand of closed canopy oaks that support the majority of wildlife observed during the 2004 study. This patch of woodland also serves as a movement corridor for local nomadic wildlife species as evidenced by abundant tracks and scat along the dirt road that winds through the oaks. It connects to the extensive scrub habitat on the hillsides and the open space golf course and San Luis Obispo Creek corridor. The occurrence of the silvery legless lizard could extend through the patch of oaks as there is the leaf litter, woodrat nests, and thermal cover that is conducive to this species survival.

The Coastal Scrub habitat acts as an excellent buffer between the developed and disturbed areas and the coastal and marine resources that use the cliff and rocks down coast from Fossil Point. The brown pelicans and double-crested cormorants can roost on the cliff edge with the landward protection from the dense stand of shrubs. The peregrine falcon perches on the telephone poles above the coastal scrub but likely does not derive substantial food resources from this habitat.

The cliffs provide valuable perching and roosting habitat for marine birds and nesting for the peregrine falcon. Given its inaccessibility and the coastal scrub buffer, this area is subject to minimal effects from Avila site use. The sandy beach below the Unocal bluff and cliff is

narrow and subject to regular tides and extensive human use outside of Unocal control does not support valuable habitat for sensitive beach species such as the snowy plover or least tern.

In order to further refine the actual versus potential occurrence/use of the Avila site by sensitive plant and wildlife species, additional seasonally appropriate studies may need to be conducted. The following studies are being considered by Unocal for completion over the upcoming winter, spring, and summer months.

- The protocol fairy shrimp dry season survey involves collecting and analyzing soil samples from the wetland areas for fairy shrimp cysts. If no fairy shrimp cysts are found, then the wet season protocol should be conducted that involves sampling the wetland ponds every two weeks for approximately 120 days after initial ponding. The exact schedule and timing is dependent on the rainfall pattern.
- The presence/absence of the California tiger salamander, coast range newt, and western spadefoot toad can be determined as a part of the fairy shrimp wet season aquatic habitat sampling effort. Observations for any aggregations of monarch butterflies can be conducted in concert with winter aquatic studies.
- A floristic inventory and rare plant survey should be conducted over the spring and early summer to further refine the 2003 and 2004 studies to determine if any other rare plants occur on the site.
- The protocol California red-legged frog survey should be conducted in areas of suitable habitat after May 1st to confirm if this species is present or not.
- A formal wetland delineation should be conducted to determine federal and state jurisdiction over the Avila site man-made wetland habitats. Given that wetland plants have been recorded and there is not a natural soil profile, it would be best to conduct the delineation at a time that would include observed hydrology during the wet season to refine the location and extent of potential jurisdictional wetlands. An assessment of wetland functions and values can also be made during the delineation process that would incorporate the existing data and that collected over the wet season.

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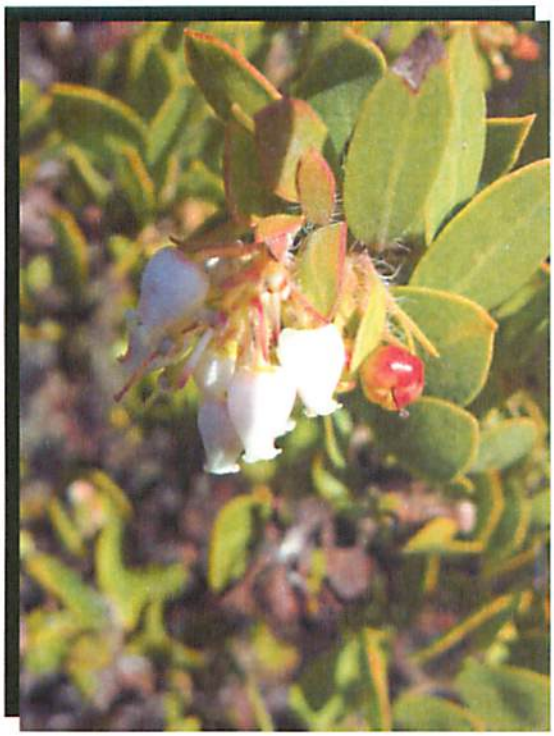
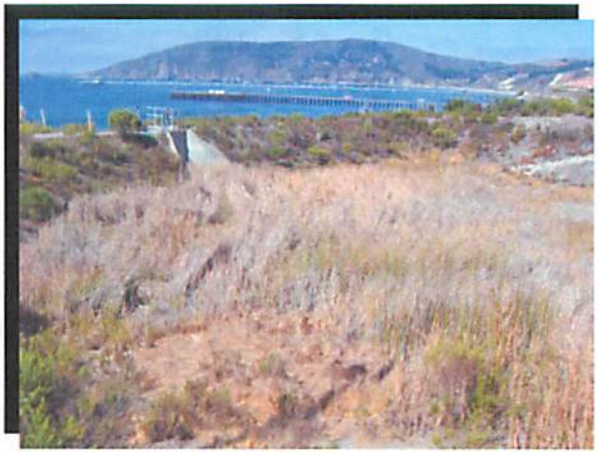
Table SI-1
2004 Field Reconnaissance Wildlife Species Observed

	Habitat Association			
Species	**Oaks**	**Scrub**	**Shore**	**Disturbed**
Reptiles				
Rattlesnake				X
Silvery legless lizard	X			
Western fence lizard	X	X		X
Birds				
American crow	X	X	X	X
Barn swallow			X	
Bewick's wren	X	X		
Black oystercatcher			X	
Black phoebe	X	X		X
Blue gray gnatcatcher		X		X
Brant's cormorant			X	
Brown pelican			X	
Bushtit	X	X		X
California quail	X	X		X
California thrasher		X		X
California tohee	X	X		
Caspian tern			X	
Chestnut-backed chickadee	X			
Cliff swallow				X
Dark-eyed junco	X	X		X
Double-crested cormorant			X	
European starling	X	X		X
Great blue heron			X	
Great-horned owl	X			
Heerman's gull			X	
Hutton's vireo	X			
Mourning dove	X	X		X
Northern mockingbird	X	X		X
Peregrine falcon		X	X	X
Pigeon guillemot			X	
Red-tailed hawk	X			
Scrub jay	X	X		X
Spotted tohee	X	X		X
Turkey vulture	X			
Western gull			X	
Wrentit		X		
Mammals				
Black-tailed deer	X	X		X
Bobcat scat	X			
California ground squirrel	X	X		X
California sea otter			X	
Coyote scat	X			
Dusky-footed woodrat nests	X			
Fox scat & tracks	X			
Harbor seal			X	
Mountain lion scat	X			
Racoon tracks	X			
Striped skunk tracks	X			

UNOCAL FORMER AVILA TERMINAL

Ecological Evaluation Supplement II





PREPARED FOR

Unocal, A Subsidiary of Chevron Corporation

PREPARED BY

David Wolff Environmental

DECEMBER 16, 2005

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Unocal Former Avila Terminal
ECOLOGICAL EVALUATION SUPPLEMENT II

1.0 INTRODUCTION AND PURPOSE

Unocal, a subsidiary of Chevron Corporation, is undergoing a decommissioning and reuse planning process for the Unocal Former Avila Terminal (Avila site) that includes the assessment of the existing conditions of biological resources for use in the environmental review process for any future proposed uses. An *Ecological Evaluation* was prepared in 2003 (2003 study) that established existing baseline conditions of the onsite habitat types and provided a broad overview evaluation of the potential for special-status plant and/or wildlife species to occur on the Avila site. The *Ecological Evaluation* provided a useful backdrop for further study of the Avila site to refine the potentially significant biological resources that may need to be considered during the Avila site planning and environmental review process. David Wolff Environmental (DWE) conducted additional review of background information and conducted extensive field reconnaissance of the Avila site in 2004 to prepare the *Ecological Evaluation Supplement I* (2004 study) that further refined the biological resources issues remaining for the Avila site planning process.

The primary purpose of this *Ecological Evaluation Supplement II* (2004/2005 study) is to use extensive field reconnaissance of the Avila site for conducting focused surveys to resolve the remaining potential biological and wetland resources issues that were identified in the 2004 study. Specific studies conducted for the 2004/2005 Ecological Evaluation Supplement II included:

- Floristic inventory and rare plant survey during the spring/summer 2005
- Protocol dry and wet season fairy shrimp surveys of the six identified wetland areas during the 2004-2005 dry and wet seasons.
- Given the extensive aquatic sampling for the fairy shrimp surveys, the six wetland areas were incidentally surveyed and evaluated for special-status aquatic vertebrate species.
- Regular observations during the winter aquatic surveys throughout the tree and woodland habitats on site were recorded to determine winter use of the Avila site by monarch butterflies.
- Wetland assessment for potential federal and state jurisdiction using available background information and field observations.

This *Ecological Evaluation Supplement II* report details the methods and results of the 2004-2005 field reconnaissance and focused surveys conducted to further refine the potential versus actual observed species for the Avila site planning process. Given the extensive background information provided in the Jordan Environmental 2003 *Ecological Evaluation* and DWE 2004 *Ecological Evaluation Supplement I*, in order to use that information and not

repeat it, they are hereby incorporated by reference into this report. These reports are referred to collectively below as the 2003/2004 studies.

2.0 METHODS

2.1 Botanical Resources Survey

David Wolff, DWE Principal Ecologist, conducted a floristic inventory and rare plant survey using meandering transects through the annual grassland, coastal scrub, and oak woodland habitats on the Avila site. The focused rare plant survey was conducted on the Avila site on February 16, March 16, May 3, and July 22, 2005. In addition, plant species observed were also recorded during July 7 and August 25, 2004 field reconnaissance for the 2004 study. Based on the results of the 2003/2004 studies, the 2005 effort focused primarily on the grassland areas that have the potential to support clay or sandy soil special-status plant species. Areas of impenetrable coastal scrub were surveyed from the habitat edge with binoculars to identify any manzanita shrubs that may be mixed with the other coastal scrub shrub species. In order to identify to species the manzanita observed during the 2004 study in the coastal scrub habitat in the northern portion of the Avila site along Avila drive, flowers, fruits, and leaves were collected on February 16, 2005 for identification and comparison with voucher specimens at the Cal Poly Hoover Herbarium. All plant species observed were identified to the level necessary to determine if they were rare, threatened, or endangered species.

2.2 Aquatic and Wildlife Resources Surveys

Dry and wet season fairy shrimp protocol surveys were conducted during 2004 and 2005 to determine the presence/absence of listed vernal pool branchiopods (fairy shrimp). Soils for the dry season survey fairy shrimp cyst analysis were collected by EcoAnlaysts on October 7, 2004 and findings reported in an October 19, 2004 letter to Unocal. David Wolff, DWE Principal Ecologist, conducted the wet season survey protocol every two weeks from December 17, 2004 to April 12, 2005 under his Recovery Permit #TE090849-0 in accordance with the U.S. Fish and Wildlife Service (USFWS) 1996 survey guidelines. The fairy shrimp wet season survey was conducted in the six artificial wetland features where storage tanks or other facilities have been removed on the Former Avila Terminal site. Surveys were conducted by wading through the ponded features with a pool skimmer net that covers approximately one square foot of area. These nets are ideal for providing good coverage sweeping through the water column and allowing for readily observing aquatic life in the net. Aquatic life observed was identified to the extent necessary to distinguish and record the major groups of aquatic life present for inclusion on a fairy shrimp survey data sheet.

Field surveys during the fairy shrimp study also focused on observations to resolve the remaining wildlife issues identified in the 2003/2004 studies. Aquatic surveys included observations for amphibian egg masses, larvae, and/or adults of California newt, California red-legged frog, western spadefoot toad, and the California tiger salamander. In conjunction with the aquatic survey field reconnaissance, the on-site trees were surveyed for monarch butterfly use and other observations of wildlife in the various areas and habitat types on the Avila site were recorded.

2.3 Wetland Resources Assessment

Wetland resources were assessed using the review of historical and current background information and field observations during the summer 2004 and 2004-2005 winter, spring, and summer seasons in concert with the aquatic and botanical resources surveys described above. Observations of hydrology and vegetation were recorded during the 2004/2005 wet season in the six wetland features identified in the 2003 study. Historic aerial photographs included in the England Associates 1998, *Site Characterization, Unocal Avila Station, Avila Beach, California*, study report provided visual evidence of the above ground storage tanks over the long period of time the Avila site was in use. Evaluation of the federal and state jurisdictional status of the observed wetland features is based on the application of the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual (Corps 1987 Manual) to define the presence of wetland vegetation, wetland hydrology, and hydric soils.

3.0 Results

The results of the 2004 study include a brief summary of the 2003 study and the findings from the research and field reconnaissance conducted during the summer of 2004. The field surveys conducted for the 2004 study provided a valuable refinement of the data presented in the 2003 study to focus the need for additional biological and wetland resources field surveys to identify potentially significant resources for consideration during the Avila site planning process. This 2004/2005 study completed the refinement of the biological and wetland resources issues using the field reconnaissance and species-specific protocol surveys conducted during 2004 dry season, and the 2004-2005 winter, spring, and summer months as described above. Data collection during the 2004/2005 study addressed the following biological and wetland resources issues:

- Potential occurrence of rare, threatened, or endangered plant species.
- Potential occurrence of special-status fairy shrimp.
- Potential occurrence of the California tiger salamander, California red-legged frog, coast range newt, and western spadefoot toad.
- Wetland jurisdictional assessment.

3.1 Botanical Resources

The 2005 floristic inventory and rare plant survey focused on the potential occurrence of clay, sandy, and shale soil special-status plant species. The 2004 study refined the search to include Jone's layia, adobe sanicle, Hoover's bentgrass, black-flowered figwort, and Well's manzanita that are known form clay, sandy or shale soils, and San Luis Obispo sedge, Congdon's tarplant, and saline clover known from wetland habitats. The 2005 floristic inventory and rare plant survey also accounted for the determination of the presence or absence of any special-status plant species.

The 2004 study identified a large manzanita shrub in a sandy soil inclusion in the northern portion of the site along Avila Drive and was preliminarily identified as the special-status

Well's manzanita. Field reconnaissance in 2005 located two additional smaller manzanita shrubs of the same species in the immediate area of the large shrub. Plant material from this shrub that included fruits, flowers and leaves were collected on February 16, 2005 to identify the manzanita to species. Based on the use of plant identification keys in Hoover (1970) and Hickman (1993), and review of specimens at the Hoover Herbarium and consultation with the curator, it was determined to be Well's manzanita (*Archtostaphylos wellsii*) based the available plant material and geographic location. The Well's manzanita does not have any formal listing status under the federal or state Endangered Species Acts but is considered by the California Native Plant Society (CNPS) as a List 1B species to be rare, threatened, or endangered throughout its range.

No other special-status plant species were observed on the Avila site as a part of the 2003/2004 studies or during the 2005 floristic inventory and rare plant survey. A list of all plant species observed on the Avila site compiled from the 2003 study, 2004 study, and 2004/2005 study is included as Table EEII-1 in Exhibit 1 of this report.

3.2 AQUATIC AND WILDLIFE RESOURCES

The 2003/2004 studies refined the potential occurrence of special-status aquatic species to include the vernal pool fairy shrimp, California linderiella (a species of fairy shrimp), coast range newt, California red-legged frog, western spadefoot toad, California tiger salamander, and two-stripped garter snake. The field reconnaissance conducted for the 2004/2005 study included intensive surveys of both wetland and upland areas to determine the presence or absence of special-status aquatic and terrestrial wildlife species. Representative wet and dry season photographs of the former tank bottom detention ponds are included as Exhibit 2 to the report.

Fairy Shrimp – The wetland habitats surveyed include six former tank sites or facilities that pond seasonally from localized on-site drainage; some of which are connected by pipes as a sequence of detention basins to manage onsite stormwater runoff (see section 3.3 below for further detail). No fairy shrimp cysts were observed as a result of the dry season soils collection and analysis conducted by EcoAnalysts in October 2004. No listed or any vernal pool branchiopods were observed during the DWE 2004-2005 wet season protocol fairy shrimp survey. A copy of the wet and dry season survey 90-day reports are included as Exhibit 3 to this report. Based on the negative results from both the dry and wet season protocol surveys, it can be concluded that the seasonally ponded areas of former tanks on the Avila site do not support listed or other vernal pool branchiopods.

Other Aquatic Species – The fairy shrimp surveys also focused on observations of any egg masses, larvae, and/or adults of the coast range newt, California red-legged frog, California tiger salamander, and two-stripped garter snake. No life forms of any of these species were observed during the aquatic sampling fairy shrimp surveys conducted every two weeks from December 17, 2004 to April 12, 2005. Most of the wetland features were relative shallow (generally less than 18 inches) during the peak wet season and were rapidly drying by the April 12, 2005 survey. The shallow nature of the seasonal ponded areas made for a thorough coverage with the dip nets and visually during the surveys. The data sheets included with the

wet season 90-day report in Exhibit 2 show the water depth and aquatic species observed at the time of the surveys. Wetland 1 remained ponded the longest as this is the last detention basin in the system before discharging to the outfall on the cliff. This seasonally ponded area was dry by the July 22, 2005 survey conducted on the Avila site. Given that no egg masses, larvae, and/or adults of any of the special status aquatic vertebrate species were observed during the intensive aquatic sampling survey conducted during the 2004-2005 wet season, it can be concluded that the Avila site does not support habitat for special-status aquatic species. The only amphibians observed on the Avila site during the studies conducted from 2003 through 2005 are the tree frog and western toad.

Monarch Butterfly – The 2003 study described the low potential for the Avila site to support a monarch butterfly winter roost site. No monarch butterflies were observed on the Avila site during the December 2004 and January 2005 surveys of the site. The first observation of monarch butterflies occurred on February 16, 2005 when one patrolling individual was observed in the main former tank area and one patrolling individual was observed on the Avila Drive side of the site. Based on the field observations during the winter 2004-2005, lack of anecdotal records of monarch use of the site, and overall low suitability of the site (single line of pine trees and oak woodland), it can be concluded that the Avila site does not support a winter aggregation of monarch butterflies.

Other Wildlife Species – Waterfowl such as the American bittern, least bittern, snow egret, white faced ibis, and California black rail were suggested in the 2003 study as potentially infrequent and brief visitors to the Avila site primarily pointing to the marsh habitat in the detention basin. None of these species were observed during the multifaceted 2004 or 2005 surveys conducted on the Avila site. The only waterfowl use identified during DWE field reconnaissance was two mallards observed in the wetland 4 detention basin on January 18, 2005.

Based on extensive field reconnaissance of the Avila site and review of available background information, only five special-status wildlife species have been observed on the Avila site. This includes the brown pelican and double-crested cormorant (coastal bluff and ocean species), the long standing nesting peregrine falcons, the localized occurrence of the silver legless lizard, and the brief observed use of a transient foraging Cooper's hawk. Other wildlife use of note includes the expansion of the coastal bluff nesting colony of cliff swallows to the store room/lab buildings in the main tank area of the Avila site. A list of wildlife species observed compiled from the 2003 study, 2004 study, and this 2004/2005 study is included as Table EEII-2 in Exhibit 1 of this report.

3.3 WETLAND RESOURCES

The 2003 study identified and characterized six wetland areas within man-made detention basins on the Avila site. Two areas were called freshwater marsh because they supported robust emergent wetland plants such as bulrush and cattail suggesting a longer duration of ponding or saturation. The four other areas were described as seasonal wetlands supporting mostly annual species associated with a more temporary ponding or saturation subject to regular drying in the late spring or early summer. The higher in elevation on the site you go

the wetland vegetation becomes more sparse and seasonal in nature. Based on field observations during 2004 study and the 2004/2005 study, and the Avocet Environmental May 10, 2005 draft, *Results of Surface Water and Sediment Sampling, Unocal Avila Tank Farm*, the following characterizes the six wetland areas on the Avila site. The series of historic and recent aerial photographs and a tank removal date schematic in Exhibit 4 of this report show the mapped extent of wetland habitats and support these wetland habitat characterizations. The historic aerial photographs document the existence of the tank locations and facilities that now support the detention basin wetlands. Plant species wetland indicator status indicated below in order of most likely to least likely to occur in wetlands based on Reed 1988 are obligate wetland (OBL), facultative wetland (FACW), and facultative (FAC) species. Observed water depths are recorded on the fairy shrimp wet season survey data sheets included as Exhibit 3 of this report.

Wetland 1 – This area is the lowest detention basin on the Avila site and a former tank location that was removed in the 1940's. This area functions as an actively managed detention basin receiving surface runoff and from drainage from the upper detention basin (wetland 3). This basin was observed ponded at depths from 10 inches to 36 inches from December 17, 2004 through at least April 12, 2005. The fluctuations in depth were based on stormwater management requirements of the site. The basin was dry by July 2005. Dominant plant species observed in wetland 1 were cattail (*Typha* sp.; OBL) and bulrush (*Scirpus* sp.; OBL). Given that this is a former tank site a natural soil profile would not be expected and soils and soils test pits were not used to determine hydric soil conditions. Based on the dominance by hydrophytic vegetation and observation of continuous ponding for a very long duration (defined in the Corps 1987 Manual as inundation for greater than 30 days), this site meets the hydric soils definition and criteria as established in the Corps wetland delineation methods. Avocet Environmental has mapped the extent of wetland habitat in this area as 0.13 acre.

Wetland 2 – This is a small depression located along the bluff in an area of a former catch basin that was likely removed/modified with the adjacent tank in 1950. This area receives localized runoff and was observed ponded with water at a depth of two inches to 12 inches from December 17, 2004 through at least April 12, 2005. This area was dry by July 2005. Fluctuations were likely the result of seasonal rainfall patterns and evapotranspiration. Dominant plant species observed in wetland 2 were nut sedge (*Cyperus esculentus*; FACW) and rabbit-foot grass (*Polypogon monspeliensis*; FACW+). Given that this is a former tank site a natural soil profile would not be expected and soils and soils test pits were not used to determine hydric soil conditions. Based on the dominance by hydrophytic vegetation and observation of continuous ponding for a very long duration (defined in the Corps 1987 Manual as inundation for greater than 30 days), this site meets the hydric soils definition and criteria as established by the Corps wetland delineation methods. Avocet Environmental has mapped the extent of wetland habitat in this area as 0.04 acre.

Wetland 3 – This area is considered the upper detention basin on the Avila site and a former tank location that was removed in 1950. This area functions as an actively managed detention basin receiving surface runoff draining to the lower detention basin (wetland 1). This basin was observed saturated and ponded at depths from six inches to 24 inches from December 17,

2004 through at least April 12, 2005. The fluctuations in depth were based on stormwater management requirements of the site. For the most part, the majority of this basin was saturated and not ponded with a small (15-foot diameter) pond at the drainage inlet leading to the lower basin. The basin was dry by July 2005. Dominant plant species observed in wetland 3 were nut sedge (*Cyperus* esculentus.; FACW) with a fringe of rabbit-foot grass (*Polypogon monspeliensis*; FACW+). Given that this is a former tank site a natural soil profile would not be expected and soils and soils test pits were not used to determine hydric soil conditions. Based on the dominance by hydrophytic vegetation and observation of continuous ponding and saturation for a very long duration (defined in the 1987 Corps Manual as inundation for greater than 30 days), this site meets the hydric soils definition and criteria as established by the Corps wetland delineation methods. Avocet Environmental has mapped the extent of wetland habitat in this area as 0.29 acre covering most of the basin bottom.

Wetland 4 – This area is a basin from a former tank location that was removed in 1998 and receives localized surface runoff. This basin was observed ponded at depths from three to 18 inches from December 17, 2004 through at least April 12, 2005. Fluctuations were likely the result of seasonal rainfall patterns and evapotranspiration. For the most part, the majority of this basin was ponded with a perimeter (donut shape) of wetland vegetation as the center of the basin was highly compacted and asphalt like. The basin was dry by July 2005. Dominant plant species observed in wetland 4 were toad rush (*Juncus bufonius*; FACW+), rabbit-foot grass (*Polypogon monspeliensis*; FACW+), and brass buttons (*Cotula coronopifolia*; FACW+). Given that this is a former tank site a natural soil profile would not be expected, soils and soils test pits were not used to determine hydric soil conditions. Based on the dominance by hydrophytic vegetation and observation of continuous ponding for a very long duration (defined in the Corps 1987 Manual as inundation for greater than 30 days), this site meets the hydric soils definition and criteria as established by the Corps wetland delineation methods. Avocet Environmental has mapped the extent of wetland habitat in this area as 0.12 acre around the perimeter of the basin bottom.

Wetland 5 – This area is a basin from a former tank location that was removed in 1998 and receives localized surface runoff with an inlet basin presumably connected to the next basin down hill. The localized drainage creates braided rivulets through the basin that was observed flowing at depths up to two inches or dry intermittently from December 17, 2004 through at least April 12, 2005. Fluctuations were likely the result of seasonal rainfall patterns. The basin did not become ponded but a fringe of saturation along the eastern half of the basin supported seasonal wetland vegetation. The area of observed flow was sloped and did not provide suitable inundation for the development of wetland plants. The basin was dry by July 2005. Dominant plant species observed in wetland 5 were toad rush (*Juncus bufonius*; FACW+), rabbit-foot grass (*Polypogon monspeliensis*; FACW+), and ryegrass (*Lolium perrene*; FAC). Given that this is a former tank site a natural soil profile would not be expected and soils and soils test pits were not used to determine hydric soils conditions. Based on the dominance by hydrophytic vegetation and observation of continuous saturation for a very long duration (defined in the Corps 1987 Manual as inundation/saturation for greater than 30 days), this site meets the hydric soils definition and criteria as established by the

Corps wetland delineation methods. Avocet Environmental has mapped the extent of wetland habitat in this area as 0.07 acre along the eastern fringe of the basin bottom.

Wetland 6 – This area is a basin from a former tank location that was removed in 1995 and receives localized surface runoff with no inlet or outlet. This basin was observed ponded at depths from two to 10 inches from January 5, 2005 through at least March 30, 2005. Fluctuations were likely the result of seasonal rainfall patterns and evapotranspiration. For the most part, the majority of this basin was ponded with a perimeter of wetland vegetation as the center of the basin remained unvegetated. The basin was dry by April 12, 2005. Dominant plant species observed in wetland 6 were toad rush (*Juncus bufonius*; FACW+), rabbit-foot grass (*Polypogon monspeliensis*; FACW+), ryegrass (*Lolium perrene*; FAC), hyssop loostrife (*Lythrum hyssopifolia;* FACW), and brass buttons (*Cotula coronopifolia*; FACW+). Given that this is a former tank site a natural soil profile would not be expected and soils and soils test pits were not used to determine hydric soil conditions. Based on the dominance by hydrophytic vegetation and observation of continuous ponding for a very long duration (defined in the Corps 1987 Manual as inundation for greater than 30 days), this site meets the hydric soils definition and criteria as established by the Corps wetland delineation methods. Avocet Environmental has mapped the extent of wetland habitat in this area as 0.07 acre.

Wetland Jurisdictional Determination – The six wetland areas identified on the Avila site are a result of artificial detention basins created from the removal of above ground storage tanks and a catch basin (wetland 2). These former facility sites currently collect rainfall and localized runoff with some managed for onsite conveyance of onsite stormwater. The four middle wetland areas have inlets and outlets that presumably drain down slope ultimately to the lowest tank site that has a discharge pipe down to the beach. While these areas support a dominance of wetland plants, they do not represent any type of historic wetland areas as they are a result of artificial impoundment of rainwater and stormwater surface runoff. In addition, while some of the basins are connected by pipes with the ability to open and close water control structures, they essentially are isolated wetland areas.

From the federal wetland definition standpoint, each of the six wetland areas meets the three parameter wetland criteria for wetland vegetation, wetland hydrology, and hydric soils. However, they are artificially created and essentially isolated wetlands which may exempt them from federal regulation. To be considered a wetland under the State of California definition of waters of the State, they only need to satisfy one of the three federal wetland criteria of wetland vegetation, wetland hydrology, or hydric soils established under Corps 1987 Manual. Under this one parameter definition, given the presence of all three wetland parameters, the extent of wetlands in the basins would also be considered waters of the State to the same extent of the federal limits as calculated and mapped by Avocet Environmental. The total extent of wetland vegetation recorded in the six wetland areas is 0.72 acre that would meet both the federal and state wetland definitions.

Wetland Functions and Values – The overall functions and values of the Avila site wetland basins are generally low as they are surrounded by disturbed and developed areas, and are relatively small and isolated from a more natural wetland context such as a larger marsh, river floodplain or riparian habitat, or vernal pool grassland. Extensive field surveys at various

times of year have not observed even common wetland dependent wildlife using the ponded basins further suggesting their limited functions and values. No special-status wetland or aquatic species have been observed either. The wetland basins do provide a way to manage stormwater runoff water quality before being discharged to the beach.

4.0 Analysis and Conclusions

The Avila site supports a mosaic of disturbed and developed former tank farm facilities among stands of native plant communities and wildlife habitat. While the 2003 *Ecological Evaluation* identified a great number of sensitive plant and wildlife resources as potentially occurring on the Avila site, further investigation of background information and extensive field reconnaissance during 2004 and 2005 has determined the presence of only five special-status species on the Avila site. Three species (brown pelican, double-crested cormorant, and peregrine falcon) are mostly depended on the coastal bluff portion of the Avila site that is likely not subject to development or reuse as there is a stand of coastal scrub vegetation separating the bluffs from the former Avila Terminal facilities. The only special-status species observed that may need consideration in site planning environmental analysis are the limited occurrence and distribution of silvery legless lizard and well's manzanita on the northern portion of the site. Neither of these species is formally listed under either the federal or state Endangered Species Acts so would only need to be considered under California Environmental Quality Act review and analysis for substantial effects on the species from site development and reuse. The Avila site does not represent the only location of the Well's manzanita as it is found in other areas of south San Luis Obispo County. The silvery legless lizard has a more extensive range that is found commonly is sandy soils in the coastal range from San Francisco Bay to Baja California.

From a qualitative habitat perspective and based on field observations, the remaining oak woodland and coastal scrub habitats still provide good habitat values for native plant and wildlife species. The developed and disturbed areas support overall low value to wildlife as they provide poor substrate for plants and minimal food and cover resources for wildlife. Site planning should consider preserving the coastal scrub habitat along the bluffs above the beach and the oak woodland habitat running along the slope through the middle of the site.

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EXHIBIT 1 – TABLES

TABLE EEII-1: PLANT SPECIES OBSERVED

TABLE EEII-2: WILDLIFE SPECIES OBSERVED

Table EEII-1
Unocal Former Avila Terminal Plant Species Observed

Scientific Name	Common Name
Agave sp.	Agave
Albizia lophantha	Plume acacia
Archtostaphylos wellsii	Well's manzanita
Artemisia californica	California sagebrush
Artemisia douglasiana	Mugwort
Avena sp.	Oats
Baccharis pilularis	Coyote brush
Briza major	Rattlesnake grass
Bromus diandrus	Rip gut brome
Bromus hordeaceus	Soft chess
Bromus madritensis ssp. *rubens*	Red brome
Calystegia macrostegia ssp. *cyclostegia*	Morning-glory
Carduus pycnocepalus	Italian thistle
Carpobrotus edulis	Sea fig
Ceanothus sp.	Ceanothus
Claytonia perfoliata	Miner's lettuce
Conicosia pugioniformis	Ice plant
Conium maculatum	Poison hemlock
Cotula coronopifolia	Brass buttons
Crassula aquatica	Water pygmy weed
Cyperus esculentus	Nut sedge
Dichelostemma capitatum	Blue dicks
Distichlis spicata	Salt grass
Eleocharis macrostachya	Creeping spikerush
Erodium cicutarium	Redstem filaree
Eschscholzia californica	California poppy
Foeniculum vulgare	Fennel
Galium sp.	Bedstraw
Geranium sp.	Geranium
Gnaphalium luteo-album	Cudweed
Heteromeles arbutifolia	Toyon
Hirschefeldia incana	Shortpod mustard
Hordeum murinum ssp. *leporinum*	Foxtail barley
Hypochaeris glabra	Smooth cat's-ear

Scientific Name	Common Name
Iris dougalsiana	Iris
Isocoma sp.	Goldenbush
Juncus bufonius	Toad rush
Lamarckia aurea	Goldentop grass
Leymus condensatus	Giant rye grass
Lolium perrenne	Rye grass
Lotus scoparius	California broom
Lupinus arboreus	Yellow bush lupine
Lupinus bicolor	Miniature lupine
Lupinus nanus	Lupine
Lythrum hyssopifolia	Hyssop loosestrife
Lythyrus odoratus	Sweet pea
Marah fabaceus	California man-root
Medicago polymorpha	Bur-clover
Melilotus sp.	Sweetclover
Mimulus aurantiacus	Sticky-monkey flower
Myoporum laetum	Myoporum
Oxalis pes-caprae	Bermuda buttercup
Pinus radiata	Montery pine
Polypogon monspeliensis	Rabbits foot grass
Pteridium aquilinum	Bracken fern
Quercus agrifolia	Coast live oak
Ranunculus californicus	Butter cup
Raphanus sativus	Wild radish
Ricinus communis	Castore bean
Rubus sp.	Blackberry
Rumex acetosella	Sheep sorrel
Rumex crispus	Curly dock
Salix lasiolepis	Arroyo willow
Salvia mellifera	Black sage
Sambucus mexicana	Blue elderberry
Sanicula crassicaulis	Sanicle
Schinus molle	Pepper
Silene gallica	Catchfly
Silybum marianum	Milk thistle

Scientific Name	Common Name
Sisyrinchium sp.	Blue-eyed grass
Sonchus oleraceus	Sowthistle
Spergula arvensis	Corn Spurry
Stachys bullata	Hedge nettle
Stellaria sp.	Chickweed
Toxicodendron diversilobum	Poison oak
Trifolium oliganthum	Clover
Tropaeolum majus	Nasturtium
Typha angustifolia	Narrow leaved cattail
Typha latifolia	Cattails
Urtica dioica	Stinging nettle
Valeriana sp.	Valerian
Vicia sativa	Vetch
Vinca major	Periwinkle
Vulpia microstachys	Fescue

Source:
David Wolff Environmental 2004 & 2005
Jordan Environmental 2003

Table EEII-2
2003-2005 Field Reconnaissance Wildlife Species Observed

	Habitat Association				
Species	**Oaks**	**Scrub**	**Shore**	**Disturbed**	**Ponds**
Amphibians					
Pacific tree frog					X
California toad*					
Reptiles					
Rattlesnake				X	
Ring-necked snake	X				
Silvery legless lizard	X				
Western fence lizard	X	X		X	
Birds					
Anna's hummingbird	X	X		X	
American crow	X	X	X	X	
American robin	X				
Barn swallow			X		
Bewick's wren	X	X			
Black oystercatcher			X		
Black phoebe	X	X		X	
Blue gray gnatcatcher		X		X	
Brant's cormorant			X		
Brown pelican			X		
Bushtit	X	X		X	
California quail	X	X		X	
California thrasher		X		X	
California tohee	X	X			
Caspian tern			X		
Chestnut-backed chickadee	X				
Cliff swallow				X	
Common yellowthroat*					
Costa's hummingbird*					
Dark-eyed junco	X	X		X	
Double-crested cormorant			X		
European starling	X	X		X	
Great blue heron			X		
Great-horned owl	X				
Heerman's gull			X		
House finch				X	
Hutton's vireo	X				
Mallard*					
Mourning dove	X	X		X	
Northern mockingbird	X	X		X	
Nuttail's woodpecker	X				
Olive-sided flycatcher	X	X			
Pacific slope flycatcher	X				

	Habitat Association				
Species	**Oaks**	**Scrub**	**Shore**	**Disturbed**	**Ponds**
Pelagic cormorant*					
Peregrine falcon		X	X	X	
Pigeon guillemot			X		
Red-shouldered hawk*					
Red-tailed hawk	X				
Red-winged blackbird*					
Scrub jay	X	X		X	
Song sparrow		X			
Spotted tohee	X	X		x	
Townsend's warbler	X				
Turkey vulture	X				
Western gull			X		
White-breated nuthatch	X				
White-crowned sparrow*					
Wrentit		X			
Mammals					
Black-tailed deer	X	X		X	
Bobcat scat	X				
Brush rabbit*					
California ground squirrel	X	X		X	
California sea otter			X		
Coyote scat	X				
Dusky-footed woodrat nests	X				
Fox scat & tracks	X				
Harbor seal			X		
Mountain lion scat	X				
Pocket gopher burrows				X	
Racoon tracks	X				
Striped skunk tracks	X				
Western gray squirrel	X				

Source:
David Wolff Environmental 2004 & 2005
Jordan Environmental 2003

Exhibit 2

Wet and Dry Season Wetland Habitat Photographs

Photo 1 - Wetland 1 January 5, 2005

Photo 2 - Wetland 1 August 25, 2004

Photo 3 - Wetland 2 January 5, 2005

Photo 4 - Wetland 2 August 25, 2004

Photo 5 - Wetland 3 January 5, 2005.

Photo 6 - Wetland 3 August 25, 2004

Photo 7 - Wetland 4 January 5, 2005.

Photo 8 - Wetland 4 August 25, 2005.

Photo 9 - Wetland 5 January 5, 2005.

Photo 10 - Wetland 5 August 25, 2005.

Photo 11 - Wetland 6 January 5, 2005.

Photo 12 - Wetland 6 August 25, 2004.

EXHIBIT 3

Wet and Dry Season Fairy Shrimp Survey 90-Day Reports

David Wolff Environmental
P.O. 6552, Los Osos, CA 93412
(805) 235-5223
(805) 528-3504 FAX

December 16, 2005

Ms. Diane Noda, Field Supervisor
USFWS Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003

SUBJECT: 90-DAY VERNAL POOL BRANCHIOPOD WET SEASON SURVEY REPORT FOR THE UNOCAL FORMER AVILA TERMINAL SITE, AVILA BEACH, CALIFORNIA

Dear Ms. Noda:

On behalf of Unocal, a subsidiary of Chevron Corporation, David Wolff Environmental (DWE) completed the wet season vernal pool branchiopod (fairy shrimp) survey for the Unocal Former Avila Terminal site located immediately south and above of the town of Avila Beach, California (see attached Figure 1). DWE has prepared this vernal pool branchiopod 90-day wet season survey report in accordance with terms and conditions of Recovery Permit TE-090849-0. This report provides the details from the surveys conducted in accordance with the United States Fish and Wildlife Service (USFWS) April 19, 1996 Interim Survey Guidelines (survey guidelines).

1.0 INTRODUCTION AND PURPOSE

The survey was conducted in six former tank site locations that are currently used for onsite detention of localized runoff and pond water during the wet season. The purpose of the study was to complete the wet season survey protocol as detailed in the survey guidelines to determine presence or absence of listed fairy shrimp in the artificial wetland habitats on site. This wet season survey followed a fairy shrimp dry season survey protocol soils collection and analysis conducted by and reported to the USFWS by EcoAnalysts in 2004. This letter report fulfills the 90-day reporting requirements for the 2004-2005 wet season survey conducted by DWE. In summary, the wet and dry season fairy shrimp surveys conducted for the Unocal Former Avila Terminal during the 2004 dry season and 2004-2005 wet season did not result in any observations of listed vernal pool brachiopods or any other listed aquatic species.

2.0 METHODS

The wet season fairy shrimp survey request was submitted by DWE on November 17, 2004 and authorized by Steve Kirkland of the USFWS via e-mail on December 13, 2004. Copies of the wet season survey approval request and authorization are included as attachments to this letter. David Wolff, DWE Principal Ecologist, conducted the wet season survey protocol under Recovery Permit TE-090849-0 From December 17, 2004 to April 12, 2005. The fairy shrimp wet season survey was conducted in the six artificial wetland features where storage tanks were recently removed on the Former Avila Terminal site. The attached Figure 1 from the Avocet Environmental water quality sampling report prepared for Unocal shows the location and extent of the six wetland areas that were surveyed for fairy shrimp.

Surveys were conducted by wading through the ponded features with a pool skimmer net that covers approximately one square foot of area. These nets are ideal for providing good coverage sweeping through the water column and allowing for readily observing aquatic life in the net. Aquatic life observed was identified to the extent necessary to distinguish and record the major groups of aquatic life present for inclusion on the data sheet.

1.0 Results

The wetland habitats surveyed include six former tank sites that pond from localized on-site drainage. No listed or any vernal pool branchiopods were observed during the 2005 wet season protocol fairy shrimp survey conducted on the Unocal Former Avila Terminal site. The wet season survey data sheets completed during this survey are attached to this letter report. The data sheets shows the dates surveyed, species observed, air temperature, water temperature, and water depth recorded on each survey date. No vernal pool branchiopods were recorded during the 2004 dry season survey and analysis. A copy of the EcoAnalyst dry season report is included as Attachment 2 to this letter. Based on the negative results from both the dry and wet season protocol surveys, it can be concluded that the ponded areas of former tanks on the Unocal Avila site do not support listed or other vernal pool branchiopods.

SSSSS

Thank you for your continued assistance, and that of your staff, in reviewing and approving these important vernal pool branchiopod surveys in the San Luis Obispo County region. Please call me directly if you have any questions or need any additional information so I can ensure permit compliance and keep my permit in good standing.

Very truly yours,

David K. Wolff
Principal Ecologist
Certified Professional Wetland Scientist

ATTACHMENTS

Wet Season Survey Request and Approval Correspondences
Figure 1: Location and Wetland Map
Figures 2A-2C: Wet and Dry Season Representative Photographs
Attachment 1: Wet Season Survey Data Sheets
Attachment 2: EcoAnalyst Dry Season Survey Report

C: Rick Rittenberg, Chevron Corporation
Julie Vanderwier, USFWS

David Wolff Environmental

From: Steve_Kirkland@r1.fws.gov
Sent: Monday, December 13, 2004 2:56 PM
To: david@dkwenvironmental.com
Cc: Steve_Henry@r1.fws.gov
Subject: vernal pool branchiopod wet season survey request (TE-090849-0)

David,

We have reviewed your request, dated November 17, 2004, and received in our office on November 19, 2004, for approval to conduct wet season surveys
for vernal pool branchiopods, You requested to conduct wet season
surveys at 3 locations in San Luis Obispo County, California: The 365-acre former Unocal Tank Farm site in San Luis Obispo, Unocal's Martinelli property, located in San Luis Obispo, south of Prado Road, and Unocal's Avila Terminal in Avila Beach.

We hearby approve the requested surveys for federally-listed vernal pool branchiopods in the above mentioned locations for the remainder of the
2004-2005 wet season. The surveys must be conducted in accordance with the Interim Survey Guidelines to Permittees under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods, dated April 19, 1996. The surveys must also be conducted following the conditions of your recovery permit (TE-090849-0). Please report any observations of listed branchiopods to us by letter or phone within 10 days of an observation. Please refer to your permit for other requirements and any special conditions that must be met.

Sincerely,

Steve Kirkland
Fish & Wildlife Biologist
Ventura Fish & Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003

805-644-1766

steve_kirkland@r1.fws.gov

David Wolff Environmental
P.O. 6552, Los Osos, CA 93412
(805) 235-5223
(805) 528-3504 FAX

November 17, 2004

Ms. Diane Noda
USFWS Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003

SUBJECT: Proposal request for approval to conduct listed vernal pool banchiopod (fairy shrimp) wet season surveys for the Unocal Former Avila Terminal under Recovery Permit TE-090849-0.

Dear Ms. Noda:

On behalf of Unocal Corporation, David Wolff Environmental (DWE) is submitting this proposal request for approval to conduct a wet season fairy shrimp survey for the Unocal Former Avila Terminal at Avila Beach, California. The study area includes man-made wetland features where storage tanks were recently removed on the Former Avila Terminal site. The attached Figure 2 and Figure 5 from a 2003 Ecological Evaluation prepared for Unocal by Jordan Environmental shows the project location on the USGS Pismo Beach 7.5 minute quadrangle map and six wetland areas to be surveyed respectively. David Wolff, DWE Principal Ecologist, will conduct the study under Recovery Permit TE-090849-0 issued on November 5, 2004. I have attached the permit cover sheet and authorized individuals sheet for your reference.

The purpose of the study is to complete the wet season survey protocol as detailed in the currently accepted April 19, 1996 Interim Survey Guidelines to determine presence or absence of listed fairy shrimp in the site wetland habitats. Given the early rains, this study is proposed to commence the week of November 29, 2004 and continue every two weeks until listed fairy shrimp are discovered or until March 31, 2005 presuming continuous ponding throughout the study period. Previously approved dry season protocol surveys have been completed in 2004 with negative results. The dry season report and map is being finalized and should be submitted to your office shortly.

The wetland habitats to be surveyed include six former tank sites that pond from localized on-site drainage. No more that 20 individuals or 10 percent of the subpopulation, whichever is less, of each listed species discovered will be collected as voucher specimens from each wetland feature as allowed under the 1996 Interim Survey Guidelines. All other conditions of the permit and guidelines will be implemented.

Thank you for your consideration of this request. Please call me if you have any questions or need any additional information to complete your approval process.

Very truly yours,

David K. Wolff, Principal Ecologist
Certified Professional Wetland Scientist

Attachments: Location and Wetland Map, Permit

C: Rick Rittenberg, Unocal

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

3-201
(1/97)

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

DAVID K. WOLFF
1637 9TH STREET
LOS OSOS, CA 93402
U.S.A.

2. AUTHORITY-STATUTES
16 USC 1539(a)
16 USC 1533(d)

REGULATIONS *(Attached)*
50 CFR 17.22
50 CFR 17.32

50 CFR 13

3. NUMBER
TE090849-0

4. RENEWABLE
☒ YES
☐ NO

5. MAY COPY
☒ YES
☐ NO

6. EFFECTIVE
11/05/2004

7. EXPIRES
11/04/2008

8. NAME AND TITLE OF PRINCIPAL OFFICER *(If #1 is a business)*

9. TYPE OF PERMIT
THREATENED AND ENDANGERED SPECIES

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. Further conditions of authorization are contained in the attached Special Terms and Conditions.

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS
ANNUAL REPORTS DUE: 1/31
See permit conditions for further reporting requirements.

ISSUED BY

TITLE
CHIEF - ENDANGERED SPECIES

DATE
11/05/2004

United States Department of the Interior

FISH AND WILDLIFE SERVICE
911 NE. 11th Avenue
Portland, Oregon 97232-4181

IN REPLY REFER TO:

LIST OF AUTHORIZED INDIVIDUALS
TE-090849-0

1. Individual authorized to independently conduct activities pursuant to this permit:

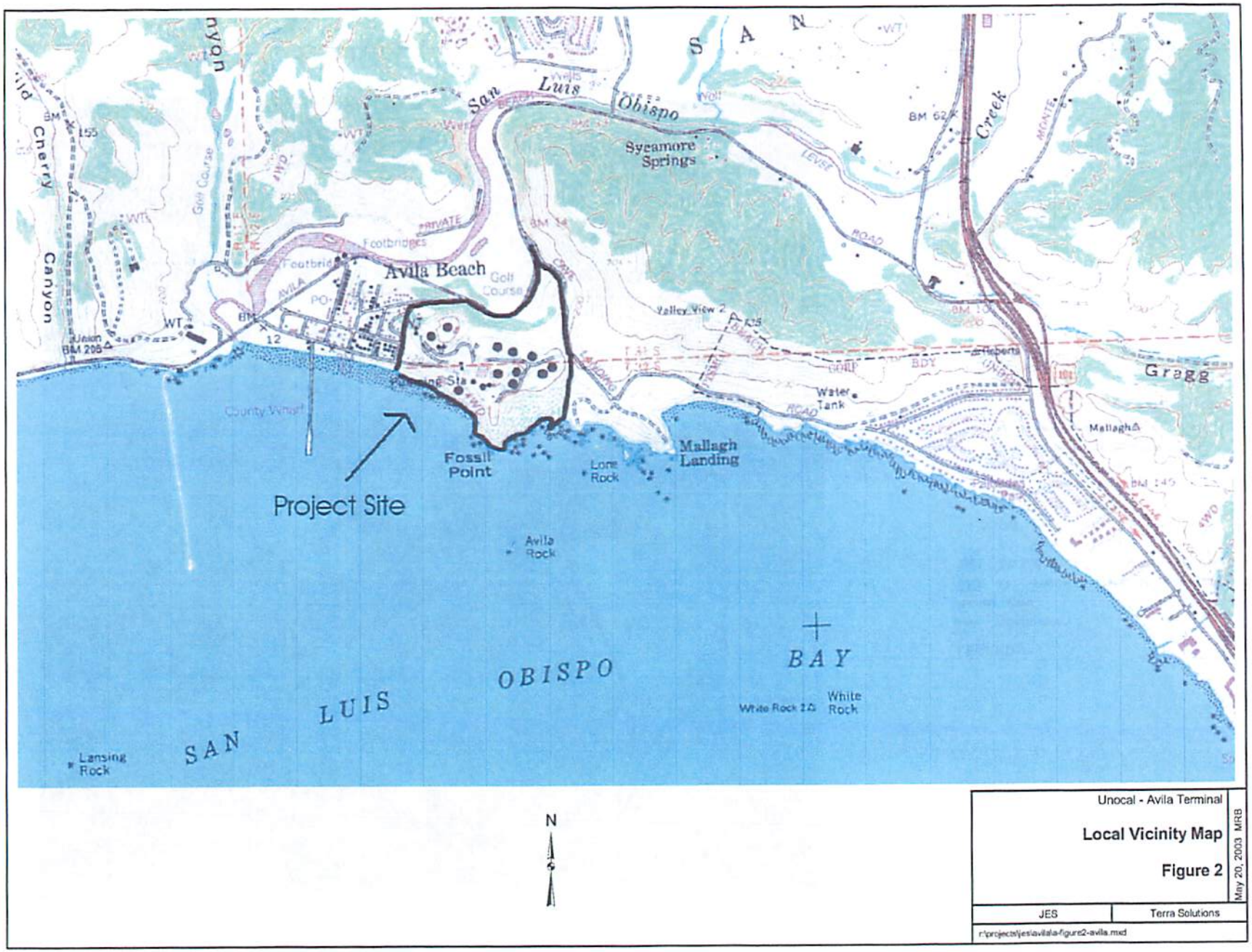
   David K. Wolff.

   Supervised individuals may conduct activities pursuant to this permit only under the direct, on-site supervision of Mr. Wolff.

11/5/04
Date

Sarah R Hall
for Chief, Endangered Species

This List is only valid if it is dated on or after the permit issuance date.


Cherry Canyon
San Luis Obispo
Sycamore Springs
Creek
Avila Beach
Golf Course
Footbridges
Valley View 2
Water Tank
Gragg
Mallagh
Project Site
Fossil Point
Lone Rock
Mallagh Landing
Avila Rock
BAY
OBISPO
LUIS
SAN
White Rock
Lansing Rock
N
Unocal - Avila Terminal
Local Vicinity Map
Figure 2
May 20, 2003 MRB
JES
Terra Solutions
r:\projects\jes\avilala-figure2-avila.mxd

LEGEND:

Site Boundary

Habitat Types

	FM	Freshwater Marsh/Man-Made Retention Basins
	SW	Seasonal Wetlands/Man-Made Retention Basins
	B	Beach
	OW	Coast Live Oak Woodland
	CB	Coastal Bluff/Cliff
	CS	Coastal Scrub
	D	Previously Disturbed
	MP	Monterey Pine Tree Rows
	G	Non-Native Grassland

N

Unocal - Avila Terminal

Habitat Map

Figure 5

May 20, 2003 MRB

JES	Terra Solutions

r:\projects\jes\avila\b-figure5-avila.mxd

Fairy Shrimp 90-Day Survey Report Figures 2A-2C

Wet and Dry Season Wetland Habitat Photographs

Included as Exhibit 2

U.S. Fish and Wildlife Service Vernal Pool Branchiopod Wet Season Survey Data Sheet

Survey Site/Name: Unocal Former Avila Terminal			County: San Luis Obispo				Vernal Pool #: W-1			
USGS 7.5 min Quad: Pismo Beach		Township: 32 S.	Range: 12 E.		Section:		Lat/Lon: 35N. 15' / 120W. 45'			
Surveyor: David Wolff		Permit #: TE090849-0			Photo Date(s): 1/5/05					
Land Use/Habitat: Former Tank					Max Area:			Max Depth:		
	Survey Date:	12/14/04	1/6/05	1/18/05	2/3/05	2/16/05	3/2/05	3/16/05	3/30/05	4/14/05
	Air Temperature			64°F	60°F	68°F	68°F	75°F	70°F	78°F
	Water Temperature		49°F	54°F	50°F	58°F	60°F	60°F	63°F	76°F
	Water Depth	10"	24" +	12"-14"	12"	12"-36"	12"	12"-36"	12"	< 12"
Species Observed										
Branchinecta lynchi	vernal pool fairy sh.									
Linderiella occidentalis	linderiella									
Notostraca	tadpole shrimp									
Platyhelminthes	flatworms									
Erpobdellidae	leeches									
Mollusca	snails									
Amphipoda	scuds	✓		✓			✓			✓
Cladocera	water fleas							✓	✓	✓
Conchostraca	clam shrimp									
Copepoda	copepods									
Decapoda	cray fish									
Ostracoda	seed shrimp	✓	✓	✓	✓	✓	✓	✓	✓	✓
Arachnida	mites									
Anisoptera	dragon flies								✓	✓
Belostomatidae	giant water bug									
Corixidae	water boatmen		✓	✓			✓	✓	✓	✓
Culicidae	mosquitoes	✓	✓	✓	✓	✓	✓	✓		✓
Diptera	midges		✓	✓	✓	✓				✓
Dytiscidae	pred. diving beetles									
Ephemeroptera	mayflies	✓						✓		
Gerridae	water striders									
Hydrophilidae	water scav. beetles	✓			✓		✓	✓	✓ 10" Adult	✓
Notonectidae	backswimmers									
Zygoptera	damsel flies									
Frogs	Hyla			Tad ✓	Tadpoles ✓	Tads	Tads Eggs	Tads	Tads - Tads	Tads - Eggs
Fish										
Salamanders										
Water Fowl										
Other Species										

Voucher Specimens:

Notes: 12/14 - Choked w/ Cattail & Typha 1/6 Same 1/18 - Less depth than 1/6 2/3 - less depth & Algae 3/2 Water often reduced to ponding to 12" - Clear 3/30 - Extensive Dry down to 12" 4/12 - Dry & down substantially

David Wolff Environmental
www.dkwenvironmental.com

U.S. Fish and Wildlife Service Vernal Pool branchiopod Wet Season Survey Data Sheet

Survey Site/Name: Unocal Former Avila Terminal			County: San Luis Obispo				Vernal Pool #: VP-2			
USGS 7.5 min Quad: Pismo Beach	Township: 32 S.		Range: 12 E.		Section:		Lat/Lon: 35N. 15' / 120W. 45'			
Surveyor: David Wolff	Permit #: TE090849-0				Photo Date(s): 1/5/05					
Land Use/Habitat: Former Tank					Max Area:			Max Depth:		
Survey Date:	12/17/04	1/5/05	1/18/05	2/3/05	2/16/05	3/2/05	3/16/05	3/30/05	4/12/05	
Air Temperature			64°F	60F	68°F	68°F	75°F	76°F	78°F	
Water Temperature		54°F	54°F	56°F	68°F	60°F	66°F	62°F	78°F	
Water Depth	2"	9"-12"	8"-10"	4"	3"	3"-12"	4"	12"	3"	
Species Observed										
Branchinecta lynchi	vernal pool fairy sh.									
Linderiella occidentalis	linderiella									
Notostraca	tadpole shrimp									
Platyhelminthes	flatworms									
Erpobdellidae	leeches									
Mollusca	snails									
Amphipoda	scuds									
Cladocera	water fleas								✓	✓
Conchostraca	clam shrimp									
Copepoda	copepods									
Decapoda	cray fish									
Ostracoda	seed shrimp	✓	✓	✓	✓	✓	✓	✓	✓	
Arachnida	mites									
Anisoptera	dragon flies									
Belostomatidae	giant water bug									
Corixidae	water boatmen									
Culicidae	mosquitoes	✓		✓	✓	✓	✓	✓	✓	
Diptera	midges								✓	
Dytiscidae	pred. diving beetles									
Ephemeroptera	mayflies									
Gerridae	water striders						✓	✓		
Hydrophilidae	water scav. beetles						✓	✓		
Notonectidae	backswimmers									
Zygoptera	damsel flies									
Frogs	Hyla			eggs ✓	Tads ✓	tads	✓ tads	tads	tads tads	tads
Fish										
Salamanders										
Water Fowl										
Other Species										

Voucher Specimens:

Notes: 2/16 - Drying down even after recent rains

3/2 flooded up from recent rains

David Wolff Environmental
www.dkwenvironmental.com

U.S. Fish and Wildlife Service Vernal Pool Branchiopod Wet Season Survey Data Sheet

Survey Site/Name: Unocal Former Avila Terminal		County: San Luis Obispo	Vernal Pool #: UJ-3
USGS 7.5 min Quad: Pismo Beach	Township: 32 S.	Range: 12 E.	Section:	Lat/Lon: 35N. 15' / 120W. 45'
Surveyor: David Wolff	Permit #: TE090849-0	Photo Date(s): 1/5/05	
Land Use/Habitat:		Max Area:	Max Depth:

	Survey Date:	12/17/04	1/5/05	1/18/05	2/3/05	2/16/05	3/2/05	3/16/05	3/30/05	4/12/05
	Air Temperature			64°F	60°F	68°F	68°F	75°F	76°F	78°F
	Water Temperature			54°F		56°F	60°F	62°F	72°F	60°F
	Water Depth	6"	1"-2"	<5"	<3"	<3"-5"	6"-8"	12"-24"	<6"	<2"
Species Observed										
Branchinecta lynchi	vernal pool fairy sh.									
Linderiella occidentalis	linderiella									
Notostraca	tadpole shrimp									
Platyhelminthes	flatworms									
Erpobdellidae	leeches									
Mollusca	snails									
Amphipoda	scuds									
Cladocera	water fleas									
Conchostraca	clam shrimp									
Copepoda	copepods									
Decapoda	cray fish									
Ostracoda	seed shrimp	✓	✓	✓	✓	✓	✓	✓	✓	✓
Arachnida	mites									
Anisoptera	dragon flies									
Belostomatidae	giant water bug									
Corixidae	water boatmen	✓	✓	✓		✓	✓	✓	✓	✓
Culicidae	mosquitoes	✓							✓	
Diptera	midges							✓		✓
Dytiscidae	pred. diving beetles									
Ephemeroptera	mayflies	✓	✓		✓	✓	✓	✓		✓
Gerridae	water striders									
Hydrophilidae	water scav. beetles									
Notonectidae	backswimmers									
Zygoptera	damsel flies									
Frogs	Hyla				Eggs Tads	Eggs+Tads	Tads	Tads+eggs	tads	✓
Fish										
Salamanders										
Water Fowl										
Other Species										

Voucher Specimens:

Notes: 12/17-only ponded around culvert inlet to [illegible] basin 1/5-same as 12/17 w/ same [illegible] + 1"-2" [illegible]; 15" diameter @ inlet
1/18-only @ inlet 2/3-shallow only @ inlet 2/16-drainage in + out of basin 18" hole @ outlet 3/2/05 18" hole @ outlet inlet 6" 3/16/05 valve closed ponding [illegible] 3/30-basin saturated w/ ponding only @ outlet 3" + inlet 6"

David Wolff Environmental
www.dkwenvironmental.com

U.S. Fish and Wildlife Service Vernal Pool Branchiopod Wet Season Survey Data Sheet

Survey Site/Name: Unocal Former Avila Terminal			County: San Luis Obispo				Vernal Pool #: [illegible]		
USGS 7.5 min Quad: Pismo Beach	Township: 32 S.		Range: 12 E.		Section:		Lat/Lon: 35N. 15' / 120W. 45'		
Surveyor: David Wolff	Permit #: TE090849-0				Photo Date(s): 1/5/05				
Land Use/Habitat: Former Tank					Max Area:			Max Depth:	
Survey Date:	12/17/04	1/5/05	1/18/05	2/3/05	2/16/05	3/2/05	3/16/05	3/30/05	4/12/05
Air Temperature			64°F	60°F	68°F	66°F	75°F	76°F	78°F
Water Temperature		52°F	47°F	48°F	58°F	66°F	62°F	65°F	80°F
Water Depth	6"-10"	6"-18"	6"-18"	3"-12"	3"-12"	3"-12"	2"-12"	2"-12"	2"-8"
Species Observed									
Branchinecta lynchi	vernal pool fairy sh.								
Linderiella occidentalis	linderiella								
Notostraca	tadpole shrimp								
Platyhelminthes	flatworms								
Erpobdellidae	leeches								
Mollusca	snails								
Amphipoda	scuds								
Cladocera	water fleas								
Conchostraca	clam shrimp								
Copepoda	copepods								
Decapoda	cray fish								
Ostracoda	seed shrimp	✓	✓	✓	✓	✓	✓	✓	✓	✓
Arachnida	mites								
Anisoptera	dragon flies						✓	✓	adult fly	✓
Belostomatidae	giant water bug									
Corixidae	water boatmen	✓	✓	✓	✓	✓	✓	✓	✓	✓
Culicidae	mosquitoes	✓	✓	✓	✓	✓	✓	✓	✓	
Diptera	midges	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dytiscidae	pred. diving beetles									
Ephemeroptera	mayflies	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gerridae	water striders									
Hydrophilidae	water scav. beetles			✓			✓ large			✓
Notonectidae	backswimmers									
Zygoptera	damsel flies									
Frogs	Hyla		✓	tad ✓	tads ✓	tads ✓	Tads Lg.	Tads Lg.	Tads w/ legs	Tads w/ legs
Fish										
Salamanders										
Water Fowl				MALL-2						
Other Species									Diving Beetles	Diving Beetles

Voucher Specimens:

Notes: 1/5 - mostly 26° depth 2/16 - Flow in + out local drainage 3/16 - Drying Down 3/30 lots of vernal shrimp + tadpoles + legs 4/12 - Drying down substantially

David Wolff Environmental
www.dkwenvironmental.com

U.S. Fish and Wildlife Service Vernal Pool Branchiopod Wet Season Survey Data Sheet

Survey Site/Name: Unocal Former Avila Terminal		County: San Luis Obispo		Vernal Pool #: W-5
USGS 7.5 min Quad: Pismo Beach	Township: 32 S.	Range: 12 E.	Section:	Lat/Lon: 35N. 15' / 120W. 45'
Surveyor: David Wolff	Permit #: TE090849-0		Photo Date(s): 1/5/05	
Land Use/Habitat: Former Tank			Max Area:	Max Depth:

Survey Date:	12/17/04	1/5/05	1/18/05	2/3/05	2/16/05	3/2/05	3/16/05	3/30/05	4/12/05
Air Temperature			60°F	60°F	62°F	62°F	73°F	76°F	78°F
Water Temperature									
Water Depth	Dry	1"-2"	1"-2"	Dry	Dry	Dry	Dry	12"	14

Species Observed										
Branchinecta lynchi	vernal pool fairy sh.									
Linderiella occidentalis	linderiella									
Notostraca	tadpole shrimp									
Platyhelminthes	flatworms									
Erpobdellidae	leeches									
Mollusca	snails									
Amphipoda	scuds									
Cladocera	water fleas									
Conchostraca	clam shrimp									
Copepoda	copepods									
Decapoda	cray fish									
Ostracoda	seed shrimp									✓
Arachnida	mites									
Anisoptera	dragon flies									
Belostomatidae	giant water bug									
Corixidae	water boatmen									✓
Culicidae	mosquitoes								✓	✓
Diptera	midges									
Dytiscidae	pred. diving beetles									
Ephemeroptera	mayflies									
Gerridae	water striders									
Hydrophilidae	water scav. beetles									✓
Notonectidae	backswimmers									
Zygoptera	damsel flies									
Frogs									Hyla adult	
Fish										
Salamanders										
Water Fowl										
Other Species										

Voucher Specimens:

Notes: 1/5/05 – rilled drainage to culvert inlet NO fw. life obs 1/18 – same as 1/5 2/16 – Flowing drainage in rivulets 1" 3/2 – dry w/ some drainage NO fw. life 1½" 3/16 – No tricycle 3/30 – small puddles in erosion cut less than 1 sq ft. several NO fw. life @ inlet 4/12 – Dry only one area 1'x2' w/ water

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U.S. Fish and Wildlife Service Vernal Pool Branchiopod Wet Season Survey Data Sheet

Survey Site/Name: Unocal Former Avila Terminal		County: San Luis Obispo		Vernal Pool #: W-6	
USGS 7.5 min Quad: Pismo Beach	Township: 32 S.	Range: 12 E.	Section:	Lat/Lon: 35N. 15' / 120W. 45'	
Surveyor: David Wolff	Permit #: TE090849-0		Photo Date(s): 1/5/05		
Land Use/Habitat: Former Tank			Max Area:	Max Depth:	

		Survey Date:	12/17/04	1/5/05	1/18/05	2/3/05	2/16/05	3/2/05	3/16/05	3/30/05	4/12/05
		Air Temperature			60°F	58°F	62°F	68°F	75°F	76°F	78°F
		Water Temperature		54°F	50°F	54°F	70°F	66°F	72°F	66°F	
		Water Depth	Dry	10"	6"-8"	4.3"	4.3"	3"-8"	2-4"	2"-6"	Dry
Species Observed											
Branchinecta lynchi	vernal pool fairy sh.										
Linderiella occidentalis	linderiella										
Notostraca	tadpole shrimp										
Platyhelminthes	flatworms										
Erpobdellidae	leeches										
Mollusca	snails										
Amphipoda	scuds										
Cladocera	water fleas										
Conchostraca	clam shrimp										
Copepoda	copepods										
Decapoda	cray fish										
Ostracoda	seed shrimp				✓	✓	✓	✓	✓	✓	
Arachnida	mites										
Anisoptera	dragon flies									Red Flying	
Belostomatidae	giant water bug								✓		
Corixidae	water boatmen				✓	✓		✓	✓	✓	
Culicidae	mosquitoes							✓	✓	✓	
Diptera	midges					✓	✓	✓	✓	✓	
Dytiscidae	pred. diving beetles										
Ephemeroptera	mayflies								✓		
Gerridae	water striders										
Hydrophilidae	water scav. beetles					✓		✓	V.big		
Notonectidae	backswimmers										
Zygoptera	damsel flies										
Frogs	Hyla				eggs	Tads ✓		Tads	tads	tads	
Fish											
Salamanders											
Water Fowl											
Other Species											

Voucher Specimens:

Notes: 1/5 First ponding since last survey
From > 5" rainfall; NO Ag Life 2/3/05 - only center ponded 2/16 center & small area ponded

David Wolff Environmental
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ECOANALYSTS, INC.

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19 October 2004

Mr. John Ljung
Senior Geologist
Central Coast Group
Unocal Corporation
276 Tank Farm Road
PO Box 1069
San Luis Obispo, CA 93406

Dear Mr. Ljung,

EcoAnalysts, Inc. conducted an analysis of soil samples collected from potential special-status shrimp habitats at Unocal's Avila Beach facility, in San Luis Obispo County, California. No special-status shrimp cysts were collected from the Avila Beach.

EcoAnalysts, Inc. will submit this report and all other pertinent materials and information to the U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (DFG), as required by the USFWS guidelines for a protocol-level survey.

Definitions

For the purpose of this report, special status shrimp are defined to include shrimp species listed as threatened or endangered under the federal Endangered Species Act (ESA) (50 CFR 17.11 for listed animals and various Federal Register notices for proposed species). One special-status fairy shrimp species (*Branchinecta lynchi*) and one non – listed species (*Linderiella occidentalis*) have the potential to occur at the proposed project site.

Methods

Soil samples were collected from potential special-status shrimp habitats on 7 October 2004 according to USFWS guidelines (1996). Soil samples were collected from all habitats labeled "FM" or "SW" on Figure 5 in the Unocal Avila Terminal report (Jordan Environmental Services, 2003). No other potential special – status shrimp habitats were observed. Soil samples were prepared for examination in the EcoAnalysts, Inc. laboratory by dissolving the clumps of soil in water and sieving the material through 300- and 150- µm pore size screens. The small size of these screens ensures that the cysts from the shrimp species will be retained. The portion of

each sample retained in the screens was dissolved in a brine solution to separate the organic material from the inorganic material. The organic fraction was then examined under a microscope.

Results

No special-status vernal pool crustacean cysts were recovered from any of the sampled habitats at the project site.

If you have any questions please call me.

Sincerely,

D. Christopher Rogers
Invertebrate Ecologist and Taxonomist
EcoAnalysts, Inc.
166 Buckeye Street
Woodland, CA 95695, USA

Literature Cited

Federal Register.1994. 19 September: Fish & Wildlife Service, Interior. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status and Withdrawal of Proposal to Give Endangered Status; Final Rule and Proposed Rule; Determination of Endangered Status for the Conservancy Fairy Shrimp, Longhorn Fairy Shrimp, and the Vernal Pool Tadpole Shrimp; and Threatened Status for the Vernal Pool Fairy Shrimp. 59 CFR (17): 48153-48185.

Jordan Environmental Services. 20 May 2003. Unocal Former Avila Terminal, San Luis Obispo, California Ecological Evaluation.

U. S. Fish & Wildlife Service. 1996. Interim Survey Guidelines to Permittees for Recovery Permits under the Endangered Species Act for the Listed Vernal Pool Branchiopods. Sacramento, CA.

EXHIBIT 4

Avila Terminal Wetlands Map, Tank Removal Schematic & Historic Aerial Photographs

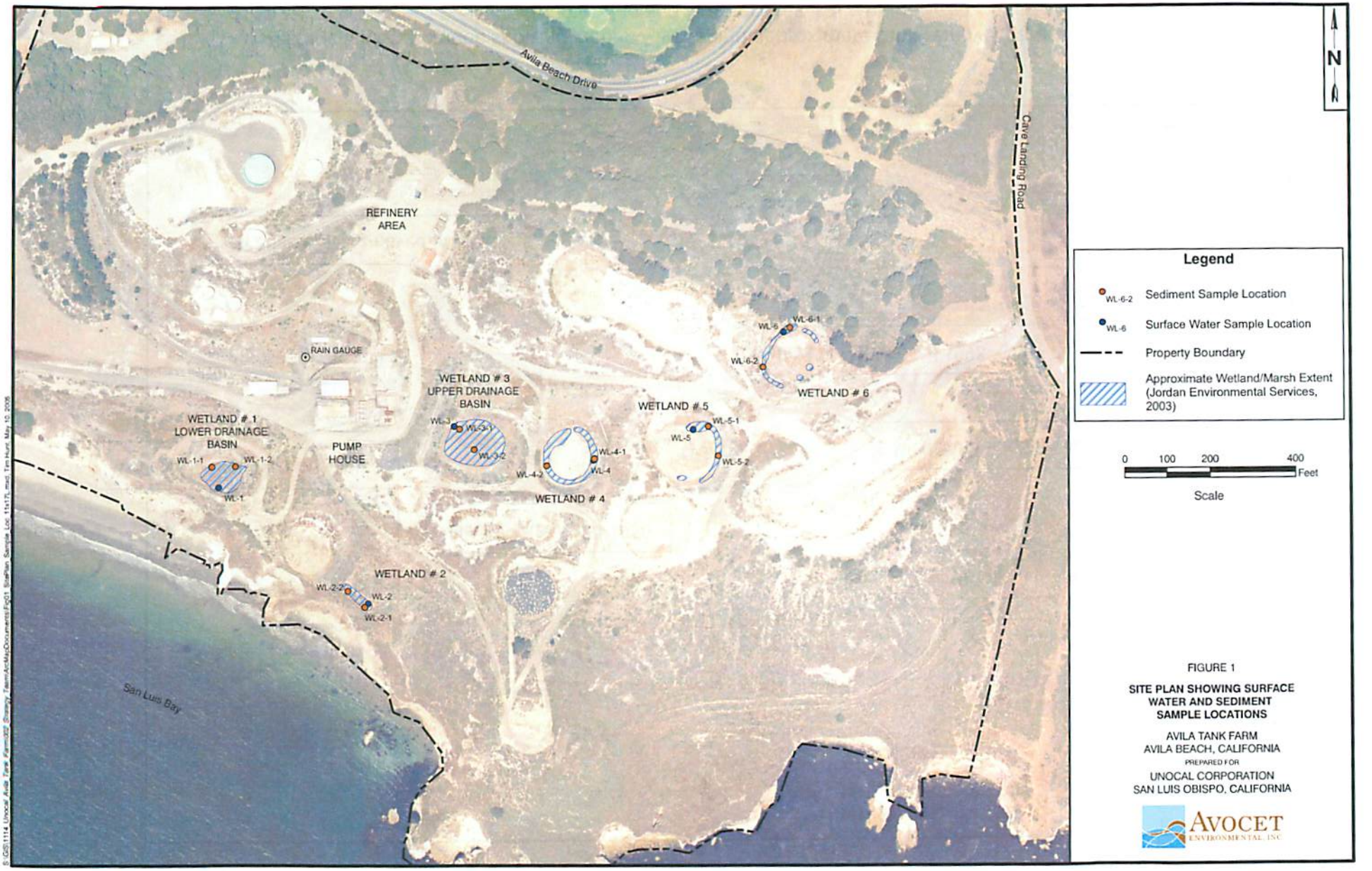


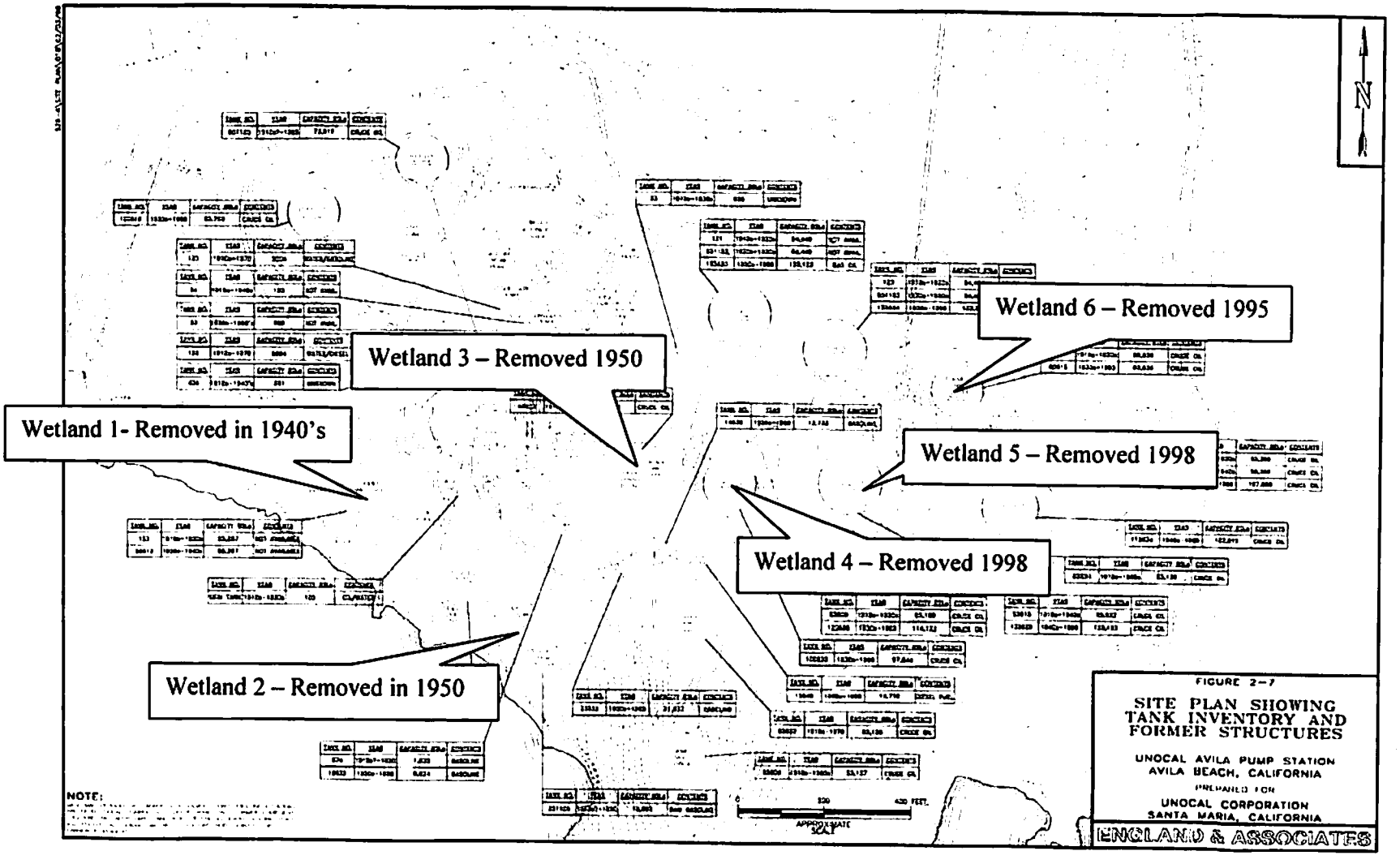
FIGURE 1

SITE PLAN SHOWING SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS

AVILA TANK FARM
AVILA BEACH, CALIFORNIA
PREPARED FOR
UNOCAL CORPORATION
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1114 Unocal Avila Tank Farm\202 Survey Team\ArcMap\Documents\Fig01 SitePlan Sample Loc 11x17L.mxd, Tim Hunt, May 10, 2006



Historic tank schematic showing wetland areas and approximate tank removal dates.
Source: England & Associates

526-A\PHOTOS\0C2\01/26/98

FIGURE 2-6
05/03/26
AERIAL PHOTOGRAPH
ENGLAND & ASSOCIATES

526-A\PHOTOS\001\01/26/98

FIGURE 2-8
07/28/54
AERIAL PHOTOGRAPH

ENGLAND & ASSOCIATES

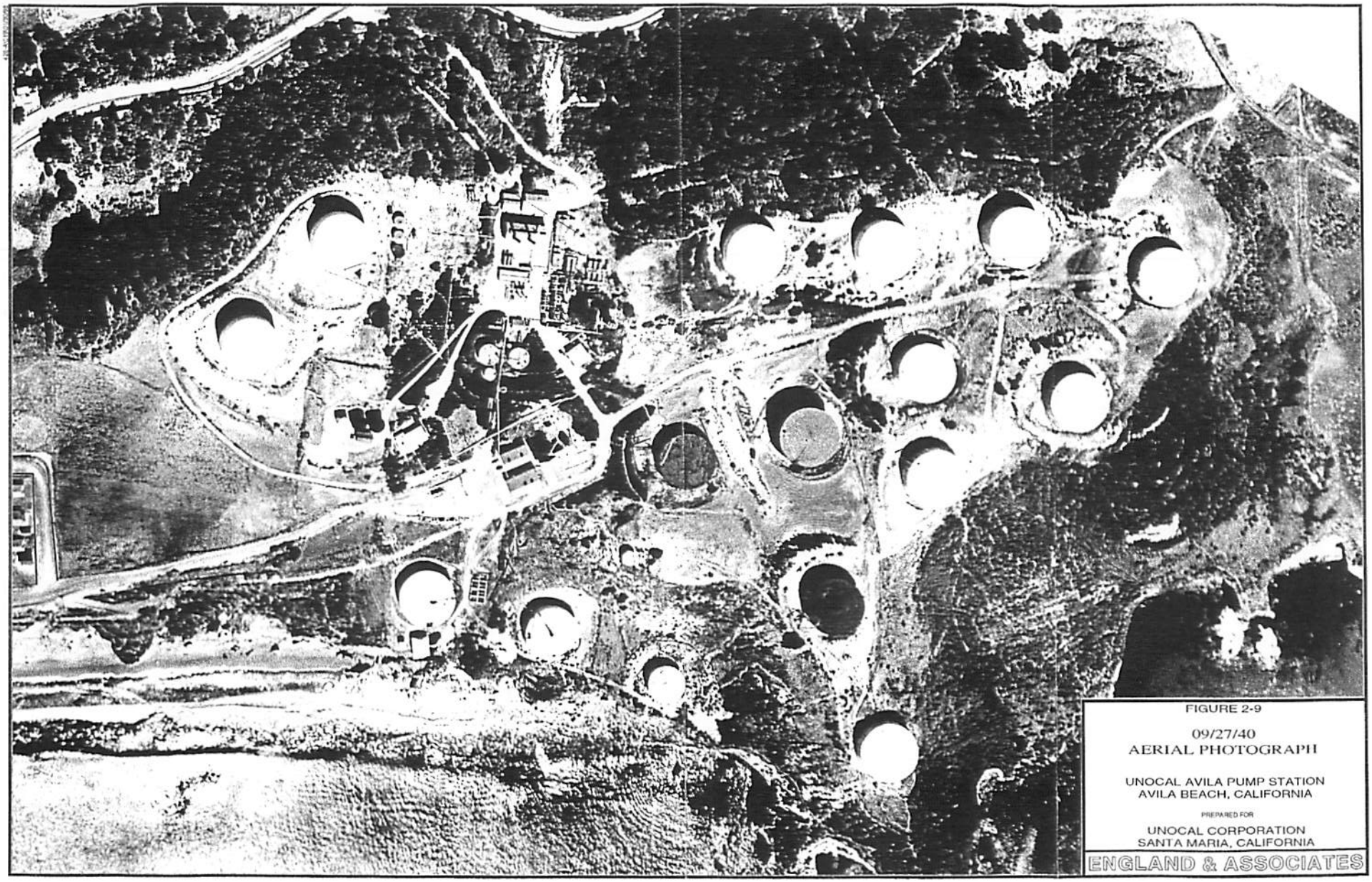


FIGURE 2-9

09/27/40
AERIAL PHOTOGRAPH

UNOCAL AVILA PUMP STATION
AVILA BEACH, CALIFORNIA

PREPARED FOR

UNOCAL CORPORATION
SANTA MARIA, CALIFORNIA

ENGLAND & ASSOCIATES