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Appendices to the Proponent's Environmental Assessment
for the

MIRA SORRENTO DISTRIBUTION SUBSTATION

Docket Number:



OCTOBER 2011

APPENDICES TO THE

Proponent's Environmental Assessment

Mira Sorrento Distribution Substation

Docket Number:

Prepared For:

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October 2011

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APPENDIX A

MIRA MESA COMMUNITY PLANNING GROUP MEETING MINUTES

MIRA MESA COMMUNITY PLANNING GROUP - MONTHLY MEETING
7:00 PM, Monday, October 18, 2010
Gen-Probe Headquarters, Main Auditorium
10210 Genetic Center Drive
San Diego CA 92121

7:00 p.m. Call to Order: In attendance: Michael Linton; Pat O'Donohoe; Joe Frichtel; Bruce Brown; Linda Geldner; Erwin Rose; Phil Lisotta; Mark Kornheiser; Ian Firth; John Horst.

1. Adopt draft agenda: Motion made/seconded by Phil Lisotta/Joe Frichtel to accept the draft agenda as the official agenda.

2. Approval of Minutes: Approval of minutes for September 2010 held in abeyance until the next meeting.

3. Staff Reports - Information items

    a. MCAS Miramar - Juan Lias: No report other than expressing the Marine Corp appreciation for community support with the Air Show.

    b. Council District 5 Update – John Ly: Mira Mesa Blvd. repaving is under way and improving travel on Mira Mesa Blvd. City Council voted to increase their portion of their pension. Councilmen DeMaio and Faulkner, as well as the mayor, do not take pensions. Update on identifying waste in government. Councilman DeMaio opposes the legislation raising the Center City Redevelopment spending cap.

    c. Sterling McHale: New staff representative for Nathan Fletcher introduced himself. Mr. McHale Spoke to the controversy over the redevelopment cap and indicated that it was done primarily to make sure money was kept in the local governments rather than sent to Sacramento or other areas.

    d. Office of Duncan Hunter – Ellen Malin: No information.

    e. I-15 Public Information Officer- Kara Palmer: No information.

4. Public Comment and Announcements – Information items

    a. Non- Agenda Public Comment – 2 minutes per speaker: None offered.

    b. Announcements- 2 minutes per speaker

        i. Joe Frichtel asked that future opportunities permit 3 minutes rather than 2.

        ii. Mike Linton announced geology day on October 23rd at Vulcan.

5. Old Business

    a. Public Facilities Finance Plan (PFFP) update for Mira Mesa- Presentation by Angela Abeyta from the city of San Diego on the scenarios for builder fees and build-out of Mira Mesa. Scenarios and spreadsheets are posted at http://miramesatowncouncil.org/planning_group.htm. Three options were developed: Keep FBA per-single-family rate at current rate through 2025; keep FBA at current rate through 2015 and then increase by 4% for inflation for each subsequent year until 2025; and reduce the fee 15% for 2011, increasing by 4% each subsequent year until 2025.

    Bruce Brown chaired the FBA Subcommittee and reported that the first option was the preferred option. The third option has been tried and did not spur development quite as was intended by lowering the fee. Option one is the preferred choice, but the Community Planning Group should revisit the matter at least every two years to respond to inflation. This provides developers with a stable cost basis and at the same time allows the community to get the most benefit of the monies available.

    Jeff Stevens demonstrated that not accounting to inflation, and supposing a one-year delay on each project, the 2025 balance would be at a deficit. On that basis he argues for Scenario 2, keeping it the same until 2015 and then increasing it by 4% per year until 2025.

    Stuart Posnock from the Casa Mira View developer is trying to get financing for the project, but the difficulties with getting credit makes the increase in fees a very difficult situation. The third option of lowering the fees is attractive for this reason.

    John Leppert, civil engineer for the Casa Mira View development, complimented the advice provided by Bruce Brown and Jeff Stevens to the CPG. He spoke in favor of the third option as well, but with the understanding that the matter can be revisited annually to make sure the FBA remains viable. This will allow development to proceed more quickly, resulting in funds being made available to the FBA more quickly.

General questions as to how the option numbers were developed were asked and answers. Bruce made motion to recommend the city plan with the first scenario. Joe Frichtel seconded the motion. Discussion commenced with concerns expressed about the suspension of the inflation factor. Pat O'Donohoe called the question. Motion failed 3/6/2. Michael Linton and Ian Firth abstained due to their belief that they have a possible financial interest in the outcome. Subsequent motion made/seconded by John Horst/Phil Lisotta to recommend the City plan with option #3. Motion carried 5/4/2. Michael Linton and Ian Firth abstained for the same reasons as the first motion.

b. SDG&E Substation – Presentation by Mary Turley, Project Manager for SDG&E, made final presentation on substation project. The project had been delayed due to a change in the estimated power demands. The project is being requested at this time due to an updated five-year forecast for power demand. Service date is expected to be March 2013 depending on PUC permit approval. Design has incorporated signage and design requests made by the Sorrento Mesa Substation Subcommittee. Phil Lisotta, the subcommittee chair, indicated satisfaction with the overall response of SDG&E to the concerns of the CPG.

   SDG&E is asking for a position statement from the CPG in support of the project. Joe Frichtel moved that the CPG take a position supporting the project only as long as the project is presented again when ministerial permit for grading has been pulled. Motion seconded by Bruce Brown. Motion carried 10/0/1. Ms. Turley requested these meeting minutes reflect that further questions can be sent to mturley@semprautilities.com.

6. New Business: None.

7. Reports (information items):

   a. Report of Chair/correspondence – Linda Geldner: Sandi Smith has resigned her business owner seat on the CPG. Linda announced requirements for upcoming election. Otherwise see Appendix 1.

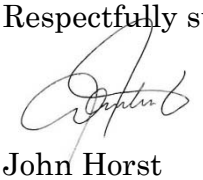
   b. Transportation Center Subcommittee – No information.

   c. CPC- Pat O'Donohoe: Action item for all planning groups. Todd Gloria presented a proposal making processes more difficult for stores like Wal Mart to the Planning Commission. Motion (before Planning Commission) to support failed 14/12/2. Affordable/sustainable development proposal also came before the CPC, who decided to refer the matter to the various CPGs (22/5/1).

d. Los Peñasquitos Canyon Citizen's Advisory Committee Report – Pam Stevens: No information.

8. Motion to adjourn made/seconded by Linda/Phil. Motion carried unanimously.

Respectfully submitted,



John Horst
Secretary, Mira Mesa Community Planning Group

APPENDIX B

AIR QUALITY ASSESSMENT

AIR QUALITY ASSESSMENT

PROPOSED MIRA SORRENTO SUBSTATION PROJECT

City of San Diego, County of San Diego, State of California

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July 2010
Updated October 2011

RBF JN 25-103691.001

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EXECUTIVE SUMMARY

The purpose of this Air Quality Assessment is to evaluate potential short and long-term air quality impacts resulting from implementation of the proposed San Diego Gas and Electric (SDG&E) Mira Sorrento Substation Project. The proposed Mira Sorrento Substation Project would be located within an established commercial area. The Proposed Project site is located east of Interstate 5 (I-5) and north of Mira Mesa Boulevard. The Proposed Project and its associated components would be located primarily within existing SDG&E right-of-ways.

The main Project component is the construction of a new substation. The electrical facilities to be installed include 69/12kV air-insulated electrical buses, steel support structures, transformers, capacitors, reactors, circuit breakers, disconnect switches, communication equipment, control equipment, and protective relays. The Substation equipment will be fully contained within the walled area. In its ultimate configuration, the 120 MVA 69/12kV distribution Substation will be designed to include the following components: Four standard profile, low sound 28 MVA transformers; Four one-quarter sections of switch gear to accommodate sixteen 12kV circuits; Four 12kV metal enclosed capacitors; Four 69kV transmission lines entering the substation underground; Four bays of standard steel rack approximately 30 feet tall consisting of the 69kV bus, 69kV potential transformer, and nine 69kV circuit breakers; One 40-foot x 20-foot wide long masonry block control shelter. Distribution conduit duct packages for the 12kV circuits and telecommunication and telephone will be installed on Mira Sorrento Place along with intercepting existing conduit along Vista Sorrento Parkway. The proposed loop-in is the process of connecting the proposed Substation with the existing transmission line. The Proposed Project will loop-in TL665 into the proposed 69kV/12kV Mira Sorrento Substation. As part of the Proposed Project, TL665 will split and proceed underground via two new parallel trench alignments along Vista Sorrento to the proposed Mira Sorrento Substation at a distance of approximately 600 feet each of single circuit 69kV duct package infrastructure.

This air quality assessment analyzes air quality impacts for the Proposed Project and all associated components. Based on the results of the analysis conducted during the course of this air quality assessment, Project implementation would not result in exceedances of established thresholds governed by the San Diego Air Pollution Control District for short-term construction, long-term operational, including Greenhouse Gas emissions, plan consistency, or cumulative impacts. Implementation of SDG&E's Applicant Proposed Measures would reduce construction emissions. Therefore, impacts would be less than significant.

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1.0 INTRODUCTION

The Project site lies within the San Diego Air Basin (Basin), which is under the jurisdiction of the San Diego County Air Pollution Control District (SDAPCD) and the California Air Resources Board (CARB). The SDAPCD sets and enforces air pollutant regulations for stationary sources in the Basin while CARB is charged with controlling motor vehicle emissions. The Basin includes all of San Diego County, which consists of eighteen municipalities and spans 4,200 square miles.

1.1 PROJECT LOCATION

The proposed Mira Sorrento Substation Project (Proposed Project) would be located within an established commercial area. The Proposed Project site is located east of Interstate 5 (I-5) and north of Mira Mesa Boulevard; refer to Exhibit 1, *Regional Vicinity Map* and Exhibit 2, *Site Vicinity Map*.

The Proposed Project site is located in the City of San Diego. The Proposed Project would be located primarily within existing San Diego Gas and Electric (SDG&E) rights-of-way; refer to Exhibit 3, *Site Plan*.

1.2 PROPOSAL SUMMARY

1.2.1 MIRA SORRENTO SUBSTATION

The main Project component is the construction of a new substation. Ultimately, the Substation perimeter security/screen wall/gates will enclose an area approximately 62,420 square feet, for a total of 1.43 acres. A 10-foot high security/screen wall will be constructed around the perimeter of the substation. All entrance gates will be locked and monitored remotely to limit access to only qualified personnel. Access to the Substation will be provided at two locations along Mira Sorrento Place.

The total disturbed area needed for construction of the substation is approximately 2.7 acres, which includes both temporary and permanent disturbed area. This area includes the following: the construction lay-down yard, remedial grading, cut and fill slopes, the substation pad, driveways, and landscape/irrigation. Site development of the new Substation will consist of construction work including site clearing and grubbing, remedial grading, dewatering (if necessary), mass grading, retaining walls, storm water system, electrical underground conduits, finish grading, perimeter security screen wall/gates and paving of internal and external operational and maintenance driveways. The landscaping and irrigation system will be installed in conjunction with the Substation construction and after the site development construction activities are complete.

The electrical facilities to be installed include 69/12 kilovolt (kV) air-insulated electrical buses, steel support structures, transformers, capacitors, reactors, circuit breakers, disconnect switches, communication equipment, control equipment, and protective relays.

Additional facilities located inside the control shelter will include metering, Supervisory Control and Data Acquisition (SCADA) security, and communications equipment. The Substation equipment will be fully contained within the walled area. In its ultimate configuration, the 120 MVA 69/12kV distribution Substation will be designed to include the following components:

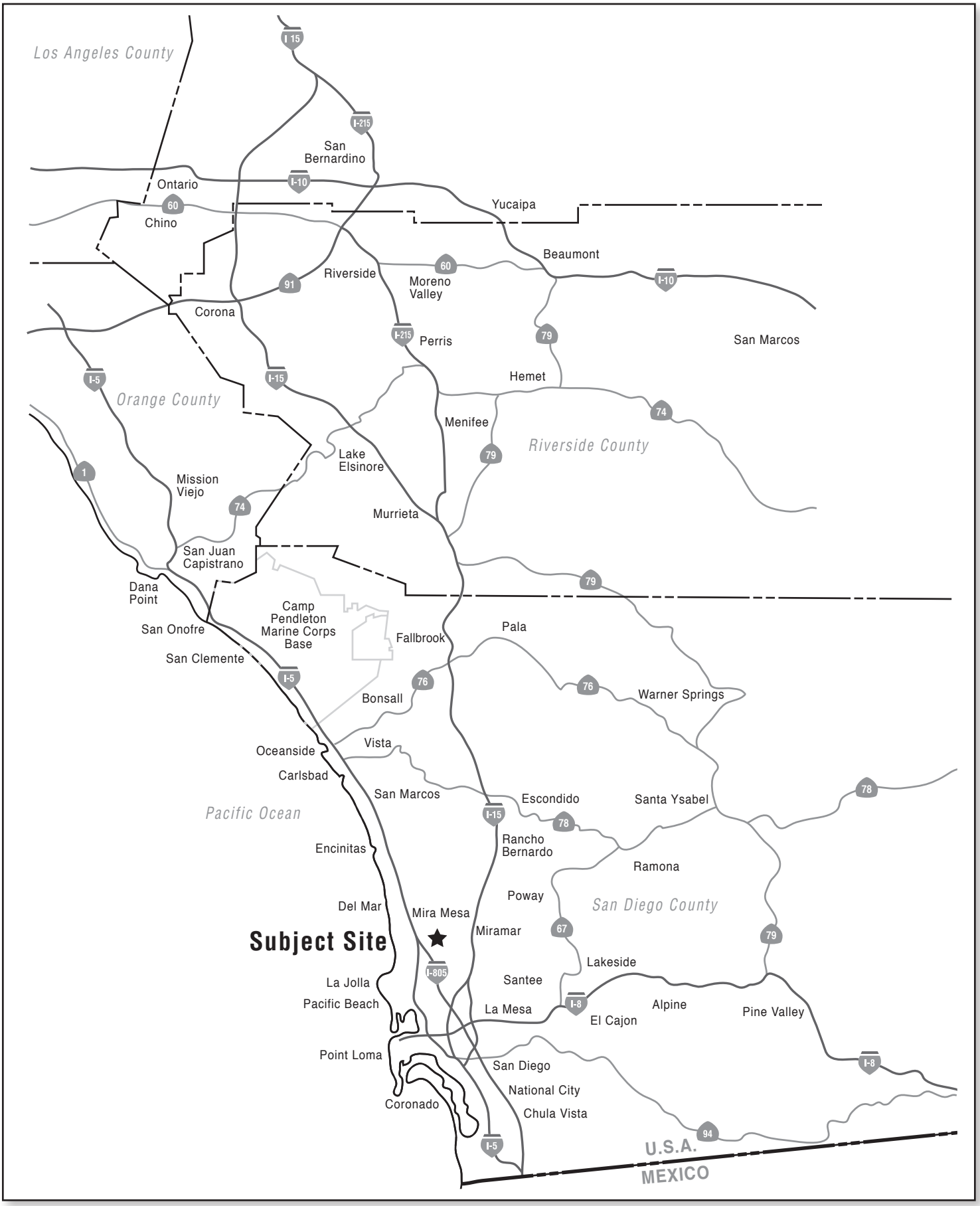
- Four standard profile, low sound 28 megavolt-amperes (MVA) transformers
- Four one-quarter sections of switch gear to accommodate sixteen 12kV circuits
- Sixteen 12kV circuits
- Four 12kV metal enclosed capacitors
- Four 69kV transmission lines entering the substation underground
- Nine 69kV circuit breakers
- Four bays of standard steel rack approximately 30 feet tall consisting of the 69kV bus, 69kV potential transformer, and nine 69kV circuit breakers
- One 40-foot by 20-foot wide long masonry block control shelter

1.2.2 DISTRIBUTION

Distribution conduit duct packages for the 12kV circuits and telecommunication and telephone will be installed on Mira Sorrento Place along with intercepting existing conduit along Vista Sorrento Parkway. Two new manholes will be installed on Mira Sorrento Place at the Mira Sorrento Substation. All distribution circuits will be installed underground outside of the Substation within franchise position.

1.2.3 TRANSMISSION LINE (TL) 665 LOOP-IN

The proposed loop-in is the process of connecting the proposed Substation with the existing transmission line. The Proposed Project will loop-in TL665 into the proposed 69kV/12kV Mira Sorrento Substation. As part of the Proposed Project, TL665 will split and proceed underground via two new parallel trench alignments along Vista Sorrento to the proposed Mira Sorrento Substation at a distance of approximately 600 feet each of single circuit 69kV duct package infrastructure. Trench installation will total approximately 1,200 feet between the two parallel trench alignments. In addition, installation of approximately two 69kV vaults along this trench alignment will be required, as well as associated vault racking, installation of approximately 4,000 circuit-feet of 69kV 3000KCMIL CU underground cable, telecommunications cable, 69kV cable joints, and terminations.



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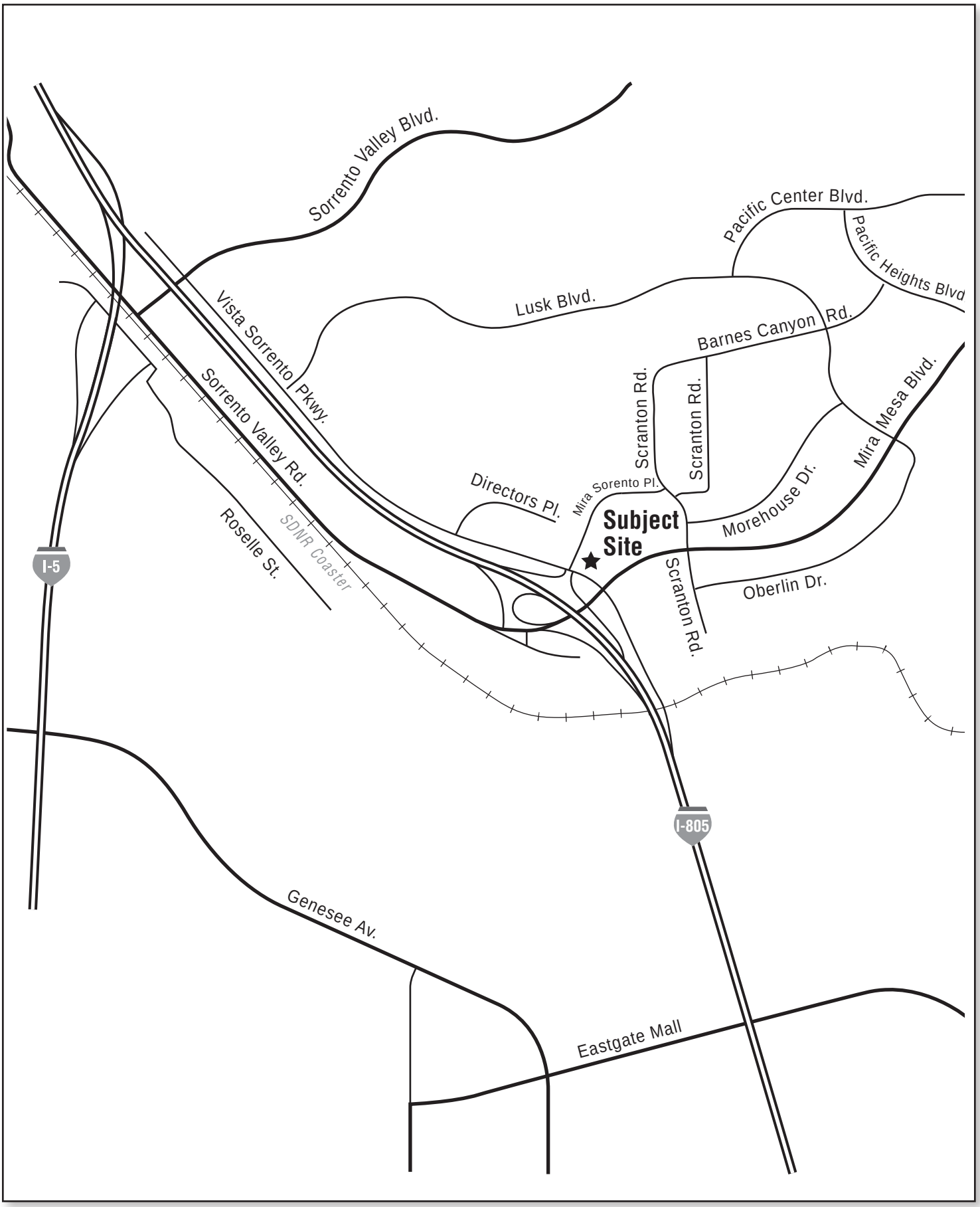
Not to Scale

Mira Sorrento Road Substation
Air Quality Assessment

REGIONAL VICINITY MAP

Exhibit 1

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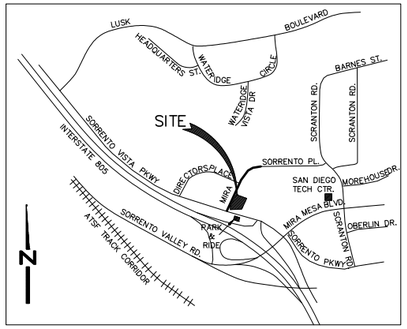
Not to Scale

Mira Sorrento Road Substation
Air Quality Assessment

SITE VICINITY MAP

Exhibit 2

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VICINITY MAP
NO SCALE

SITE SUMMARY

APN: 340-090-65, 340-090-67
PORTION OF 304-090-64

GROSS AREA: 3.74 AC

SUBSTATION AREA: 1.43 AC
(WITHIN SCREEN WALL)

PRESENT USE: VACANT

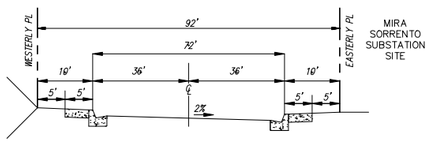
EXISTING ZONING: IP-1-1

FOR EASEMENTS AND PROPERTY LINE DATA, SEE: MTO-S-905

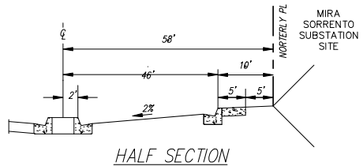
FOR DETAILED GRADING & DRAINAGE, SEE: MTO-S-901

NOTE: ALL PROPERTY LINE AND AREA DATA TO BE VERIFIED BY BOUNDARY SURVEY.

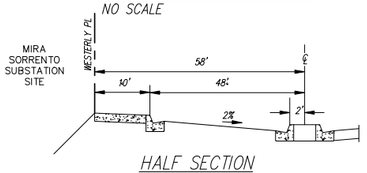
TYPICAL SECTIONS:



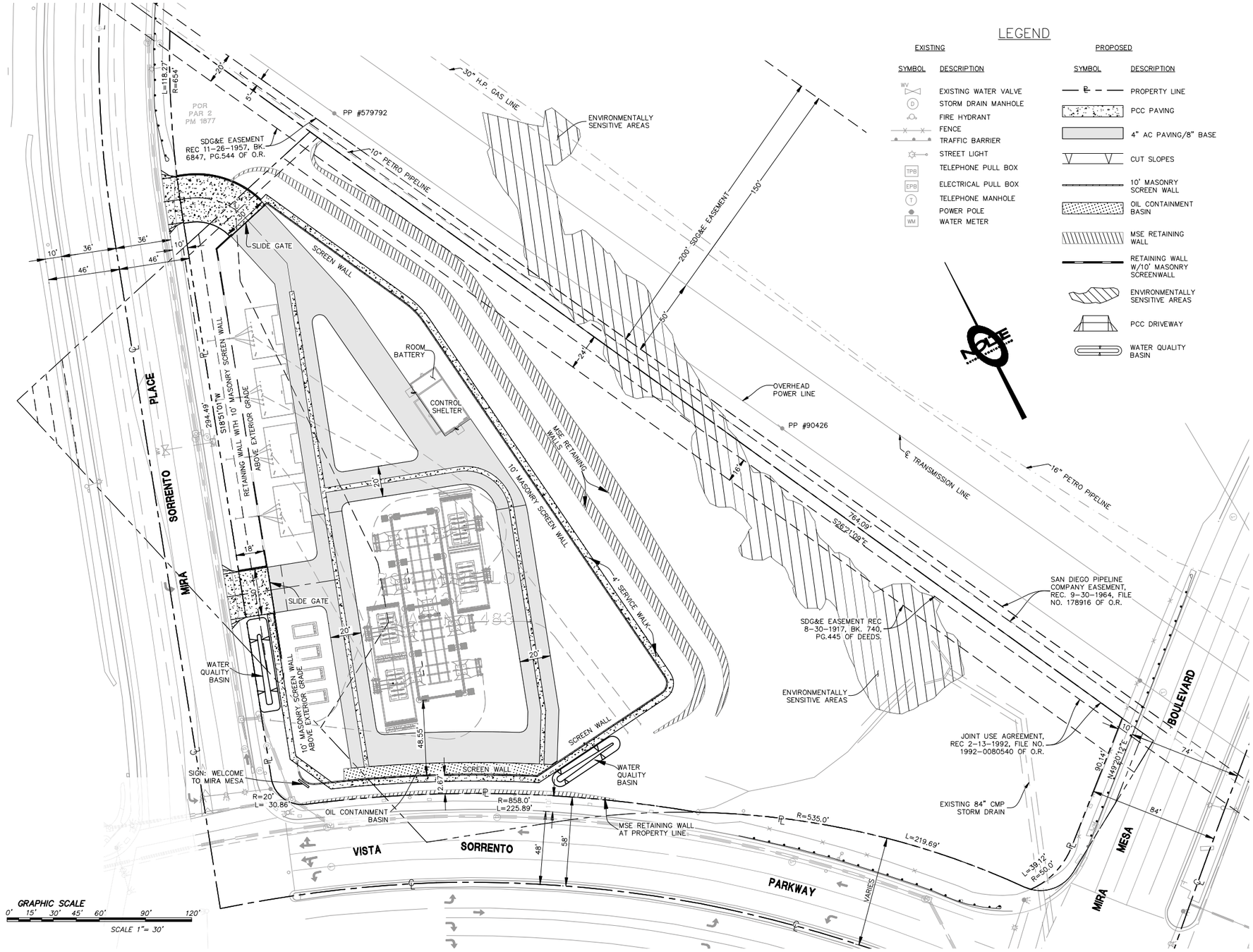
MIRA SORRENTO PLACE
NO SCALE



HALF SECTION
VISTA SORRENTO PARKWAY
NO SCALE



HALF SECTION
MIRA MESA BOULEVARD
NO SCALE



Source: Nolte Engineering, 2011

SD Mac: 25103691EIRTabloidLandscape.indd

Mira Sorrento Substation
Air Quality Analysis

PRELIMINARY SITE PLAN

Exhibit 3

2.0 ENVIRONMENTAL SETTING

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (land development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants throughout the Basin.

2.1 CLIMATE AND METEOROLOGY

2.1.1 BASIN CHARACTERISTICS

One of the main determinants of Basin climatology is the Pacific High, a semi-permanent high-pressure center over the Pacific Ocean. In the summer, this pressure center is located well to the north, causing storm tracks to be directed north of California. This high-pressure cell maintains clear skies for much of the year. However, when the Pacific High moves southward during the winter, this pattern changes, and low-pressure storms are brought into the region, causing widespread precipitation.

2.1.2 BASIN CLIMATE

The climate of the Basin is characterized by warm, dry summers and mild, wet winters. The climate of San Diego, as with all of Southern California, is largely controlled by the strength and position of the Pacific High. This high-pressure ridge over the West Coast creates a repetitive pattern of frequent early morning cloudiness, hazy afternoon shine, clean daytime onshore breezes and little temperature change throughout the year. Limited rainfall occurs in winter when the oceanic high pressure center is weakest and farthest south as the fringes of mid-latitude storms occasionally move through the area. The average temperatures in January range from 47 degrees Fahrenheit (°F) at night to 63°F during the day. The warmest month is August, when the high temperatures average 74°F. The annual rainfall is approximately 10 inches.

2.1.3 GENERATION OF AIR POLLUTANTS

The same atmospheric conditions that create a desirable living climate, combine to limit the ability of the atmosphere to disperse the air pollution generated by the large population attracted to the pleasant climate. The onshore winds across the coastline diminish quickly when they reach the foothill communities east of San Diego, and the sinking air within the offshore high-pressure system forms a massive temperature inversion that traps all the air pollutants near the ground. The resulting horizontal and vertical stagnation, in conjunction with ample sunshine, causes a number of reactive pollutants to undergo photochemical reactions and form smog, which degrades visibility and irritates the tear ducts and nasal membranes of humans. While programs

to control emission air pollutants have substantially improved regional air quality within the last several decades, often parts of the Basin still do not meet clean air standards.

2.1.4 LOCAL CLIMATE

Local meteorological conditions in the Project vicinity conforms to the regional pattern of strong onshore winds by day (especially in summer) and weak offshore winds at night (particularly during the winter). These local wind patterns are driven by the temperature difference between the ocean and the warm interior topography. In summer, moderate breezes of 8 to 12 miles per hour blow onshore and up through the valley from the southwest by day. Light onshore breezes may continue throughout the night when the land remains warmer than the ocean. In winter, the onshore flow is weaker and the wind flow reverses to blow from the northeast in the evening as the land becomes cooler than the ocean.

2.1.5 TEMPERATURE INVERSIONS

Both the onshore flow of marine air and the nocturnal winds are accompanied by two characteristic temperature inversion conditions that control the rate of air pollution dispersal throughout the Basin. The daytime cool onshore flow is capped by a deep layer of warm, sinking air. Along the coastline, the marine air layer beneath the inversion cap is deep enough to accommodate any locally generated emissions. However, as the layer moves inland, pollution sources (especially automobiles) add pollutants from below without any dilution from above through the inversion interface. When this polluted layer approaches foothill communities east of coastal developments, it becomes shallower and exposes residents in those areas to the concentrated by-products of coastal area sources.

2.2 SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and carbon monoxide are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Table 1, *Sensitive Receptors*, lists the distances and locations of sensitive receptors within a mile of the areas that would be affected by the improvements at the proposed Mira Sorrento Substation. The closest sensitive receptors would be the residential units located southwest of the proposed Mira Sorrento Project site.

TABLE 1
SENSITIVE RECEPTORS

Type	Name	Distance from Project Site (miles)[1]	Direction from Project Site
Mira Sorrento Substation			
Residential	Water Ridge Condominium Complex	0.3	North
Hotels	Marriott Courtyard	0.1	North
	Country Inn and Suites	0.7	East
	Woodfin Hotel	0.9	East
	Homestead San Diego	1.0	East
	Holiday Inn Express	0.7	East
Schools	San Diego College of Ayurveda	0.3	West
	Children's World Living Center	1.0	Northeast
	San Diego Chinese Institute	0.7	East
	Star Specialties	0.6	Northeast
Hospitals	Scripps Medical Offices	0.3	West
Places of Worship	Bread of Life Christian Church	0.6	Northwest
	The Celebration Center for Spiritual Living	0.6	East
Parks	San Diego Wildlife Refuge	1.0	South

Note:
Sensitive receptor population utilized in this analysis are those within a one-mile radius of the project site.
Source: http://maps.google.com

3.0 REGULATORY FRAMEWORK

3.1 U.S. ENVIRONMENTAL PROTECTION AGENCY

The U.S. Environmental Protection Agency (EPA) is responsible for implementing the Federal Clean Air Act (FCAA), which was first enacted in 1955 and amended numerous times after. The FCAA established Federal air quality standards known as the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2, which is a form of nitrogen oxides [NO_X]), sulfur dioxide (SO_2, which is a form of sulfur oxides [SO_X]), particulate matter less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$, respectively), and lead (Pb); refer to Table 2, *National and California Ambient Air Quality Standards*.

3.2 CALIFORNIA AIR RESOURCES BOARD

The California Air Resources Board (CARB) administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 2, *National and California Ambient Air Quality Standards*, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility-reducing particulates, hydrogen sulfide, and sulfates.

The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan to achieve compliance with the CAAQS. These Air Quality Management Plans (AQMPs) also serve as the basis for preparation of the State Implementation Plan (SIP) for the State of California.

3.3 SAN DIEGO AIR POLLUTION CONTROL DISTRICT

CARB has designated San Diego County as a discrete air basin under the jurisdiction of the SDAPCD. In addressing its planning role with respect to NAAQS, the SDAPCD has most recently developed an Ozone Redesignation Request and Maintenance Plan, which served as the basis for the Environmental Protection Agency redesignating the Basin as an attainment zone for the one-hour ozone standard on July 28, 2003. The basis for that request was the demonstration that over a three-year period, the Basin had fewer than four instances of one-hour ozone concentrations exceeding the 0.09 parts per million threshold at any single monitoring station.

The Regional Air Quality Strategy (RAQS) was established by the SDAPCD in 1991 to address state air quality planning requirements (focusing on ozone). The latest revision was published in April 22, 2009. The SDAPCD is responsible for the overall development and implementation of

TABLE 2
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	**Nonattainment**	NA[5]	NA[5]
	8 Hours	0.07 ppm (137 μg/m³)	**Nonattainment**	0.075 ppm (147 μg/m³)	**Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 μg/m³	**Nonattainment**	150 μg/m³	Attainment
	Annual Arithmetic Mean	20 μg/m³	**Nonattainment**	NA[6]	Attainment
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard		35 μg/m³	Attainment
	Annual Arithmetic Mean	12 μg/m³	**Nonattainment**	15 μg/m³	Unclassified
Carbon Monoxide (CO)	8 Hours	9.0 ppm (10 mg/m³)	Attainment	9 ppm (10 mg/m³)	Attainment
	1 Hour	20 ppm (23 mg/m³)	Attainment	35 ppm (40 mg/m³)	Attainment
Nitrogen Dioxide (NO_2)[7]	Annual Arithmetic Mean	0.030 ppm (56 μg/m³)	NA	0.053 ppm (100 μg/m³)	Attainment
	1 Hour	0.18 ppm (338 μg/m³)	Attainment	0.100 ppm	NA
Lead (Pb)	30 days average	1.5 μg/m³	Attainment	N/A	NA
	Calendar Quarter	N/A	NA	1.5 μg/m³	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	N/A	NA	0.030 ppm (80 μg/m³)	Attainment
	24 Hours	0.04 ppm (105 μg/m³)	Attainment	0.14 ppm (365 μg/m³)	Attainment
	3 Hours	N/A	NA	N/A	NA
	1 Hour	0.25 ppm (655 μg/m³)	Attainment	N/A	NA
Visibility-Reducing Particles	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m³	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Unclassified		
Vinyl Chloride	24 Hour	0.01 ppm (26 μg/m³)	Unclassified		

μg/m³ = micrograms per cubic meter; ppm = parts per million; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time. N/A = Not Applicable

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter-PM10 and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, the California Air Resources Board (CARB) identified vinyl chloride as a toxic air contaminant, but determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 parts per million ambient concentration specified in the 1978 standard.
2. National standards (other than ozone, particulate matter and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as attainment/unclassifiable, if: (1) it has monitored air quality data that show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 g/m3 is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. The Federal 1-hour ozone standard was revoked on June 15, 2005 in all areas except the 14 8-hour ozone nonattainment Early Action Compact (EAC) areas.
6. The Environmental Protection Agency revoked the annual PM10 standard in 2006 (effective December 16, 2006).
7. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

Source: California Air Resources Board and U.S. Environmental Protection Agency, February 16, 2010.

the RAQS. The RAQS control measures focus on emission sources under SDAPCD's authority, specifically, stationary emission sources and some area-wide sources; however, the emission inventories and emission projections in the RAQS reflect the impact of all emission sources and all control measures, including those under the jurisdiction of CARB (e.g., on-road motor vehicles, off-road vehicles and equipment, and consumer products) and the EPA(e.g., aircraft, ships, trains, and pre- empted off-road equipment). Thus, while legal authority to control different pollution sources is separated, the SDAPCD is responsible for reflecting Federal, State, and local measures in a single plan to achieve ambient air quality standards in San Diego County.

Each local air quality management or air pollution control district establishes criteria to assess a project's impacts on air quality. The SDAPCD has established annual significance thresholds for oxides of nitrogen and reactive organic gases for stationary sources; however, the SDAPCD has not established rules for characterizing impacts from construction. Absent formal CEQA guidelines on construction thresholds from the SDAPCD, the SDAPCD informally recommends quantifying construction emissions and comparing them to significance thresholds found in the SDAPCD regulations for stationary sources (pursuant to Rule 20.1, et seq.) and shown in Table 3, *Air Pollution Control District's Screening Level Thresholds*. If construction-phase emissions exceed these thresholds for a stationary source air quality impact analysis, then construction has the potential to violate air quality standards or to contribute substantially to existing violations. The significance thresholds are shown in Table 3.

TABLE 3
SDAPCD THRESHOLDS

Pollutant	Pounds/Day	Tons/Year
Carbon Monoxide (CO)	550	100
Oxides of Sulfur (SO_X)	250	40
Volatile Organic Compounds (VOCs)	75[1]	40
Oxides of Nitrogen (NO_X)	250	40
Particulate Matter (PM_{10})	100	15
Particulate Matter ($PM_{2.5}$)[2]	55	Not Applicable

1. County of San Diego Land Use and Environment Group, Department of Planning and Land Use, Draft Guidelines for Determining Significance and Report Format and Content Guidance Requirements Air Quality, March 19, 2007.
2. The San Diego Air Pollution Control District does not have thresholds of significant for $PM_{2.5}$. As Such, the $PM_{2.5}$ Threshold from the South Coast Air Quality Management District (SCAQMD) was utilized[1]

Source: San Diego Air Pollution Control District Rule 1501, 20.2(d)(2), 1995.

3.3.1 CALIFORNIA GLOBAL CLIMATE CHANGE REGULATORY PROGRAMS

EXECUTIVE ORDER S-3-05

In June 2005, Governor Schwarzenegger established California's greenhouse gas emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: greenhouse gas emissions should be reduced to 2000 levels by 2010; greenhouse gas

[1] Phone conversation with Carl Selnick, Air Quality Specialist, from the San Diego Air Pollution Control District (SDAPCD) on July 17, 2009.

emissions should be reduced to 1990 levels by 2020; and greenhouse gas emissions should be reduced to 80 percent below 1990 levels by 2050. The Secretary of the California Environmental Protection Agency (the Secretary) is required to coordinate efforts of various agencies in order to collectively and efficiently reduce greenhouse gases. Some of the agencies involved in the greenhouse gas reduction plan include Secretary of Business, Transportation, and Housing Agency, Secretary of Department of Food and Agriculture, Secretary of Resources Agency, Chairperson of the California Air Resources Board, Chairperson of the Energy Commission, and the President of the Public Utilities Commission. The Secretary is required to submit a biannual progress report to the Governor and State Legislature disclosing the progress made toward greenhouse gas emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, and the coastline and forestry, and reporting possible mitigation and adaptation plans to combat these impacts.

EXECUTIVE ORDER S-1-07

On January 18, 2007, California further solidified its dedication to reducing greenhouse gases by setting a new Low Carbon Fuel Standard for transportation fuels sold within the State. Executive Order S-1-07 sets a declining standard for greenhouse gas emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least ten percent by 2020. The Low Carbon Fuel Standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods. The Executive Order requires the Secretary of the California Environmental Protection Agency to coordinate with actions of the California Energy Commission, California Air Resources Board, the University of California, and other agencies to develop a protocol to measure the "life cycle carbon intensity" of transportation fuels

EXECUTIVE ORDER S-13-08

Issued on November 14, 2008, Executive Order S-13-08 intends to enhance the State's management of climate impacts from sea level rise, increased temperatures, shifting precipitation, and extreme weather events. There are four key actions in this Executive Order, including: (1) initiate California's first state-wide climate change adaptation strategy that assesses the State's expected climate change impacts, identifies where California is most vulnerable, and recommends climate adaptation policies; (2) request the National Academy of Science establish an expert panel to report on sea level rise impacts in California to inform State planning and development efforts; (3) issue interim guidance to State agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects; and (4) initiate a report on critical existing and planned infrastructure projects vulnerable to sea level rise.

Executive Order S-13-08 aims to facilitate California's first comprehensive climate adaptation strategy. This effort improves coordination within State government and adapts the way State

agencies work so that better planning can more effectively address climate impacts to human health, the environment, the State's water supply, and the economy. Additionally, this effort provides consistency and clarity to State agencies on how to address sea level rise in current planning efforts, reducing time and resources unnecessarily spent on developing different policies using different scientific information. In response to Executive Order S-13-08, the California Natural Resources Agency prepared the 2009 California Adaptation Strategy in December 2009.

ASSEMBLY BILL 1493

In response to the transportation sector accounting for more than half of California's carbon dioxide emissions, Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002. Assembly Bill 1493 required the California Air Resources Board to set greenhouse gas emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is noncommercial personal transportation in the State. The bill required that the California Air Resources Board set the greenhouse gas emission standards for motor vehicles manufactured in 2009 and all subsequent model years. In setting these standards, the California Air Resources Board must consider cost effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. The California Air Resources Board adopted the standards in September 2004. These standards are intended to reduce emissions of carbon dioxide and other greenhouse gases (e.g., nitrous oxide and methane).

ASSEMBLY BILL 32

The Legislature enacted Assembly Bill 32 (AB 32, Nuñez), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006 to further the goals of Executive Order S-3-05. Assembly Bill 32 represents the first enforceable statewide program to limit greenhouse gas emissions from all major industries, with penalties for noncompliance. The California Air Resources Board has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of Assembly Bill 32. The foremost objective of the California Air Resources Board is to adopt regulations that require the reporting and verification of statewide greenhouse gas emissions. This program would be used to monitor and enforce compliance with the established standards. The first greenhouse gas emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020. The California Air Resources Board is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions. Assembly Bill 32 allows the California Air Resources Board to adopt market-based compliance mechanisms to meet the specified requirements. Finally, the California Air Resources Board is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted. In order to advise the California Air Resources Board, it must convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee. In December 2008, the California Air Resources Board adopted a scoping plan to achieve reductions in greenhouse gas

emissions in California. The plan indicates how reductions in significant greenhouse gas sources would be achieved through regulations, market mechanisms, and other actions.

AB 32 – EARLY ACTION C17, 2-8: REDUCE SULFUR HEXAFLUORIDE FROM ELECTRICAL GENERATION

The primary user of SF_6 is the electric power industry. As the Proposed Project's main emission of GHGs is SF_6, this Early Action Strategy is directly applicable to the operational improvements and equipment upgrades associated with the Proposed Project. The most cost effective way to implement this strategy and reduce SF_6 emissions, as reported by the EPA, is leak detection and repair, the use of recycling equipment, and employee education and training. Although CARB staff has not yet determined the total emission reduction potential of Early Action C17, 2-8, U.S. EPA has determined that the SF_6 emissions can be reduce by approximately 10 percent by using recycled equipment and 20 percent through leak detection and repair.

SENATE BILL 97

Senate Bill 97 of 2007 requires the California Office of Planning and Research to develop California Environmental Quality Act guidelines for analysis and, if necessary, the mitigation of effects of greenhouse emissions to the Resources Agency. These guidelines for analysis and mitigation must address, but are not limited to, greenhouse gas emissions effects associated with transportation or energy consumption. On December 30, 2009, the Natural Resources Agency adopted the California Environmental Quality Act Guidelines Amendments prepared by the California Office of Planning and Research, as directed by Senate Bill 97. On February 16, 2010, the Office of Administration Law approved the California Environmental Quality Act Guidelines Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The California Environmental Quality Act Guidelines Amendments became effective on March 18, 2010. These new guidelines require a survey of existing climate change analyses performed by various lead agencies under the California Environmental Quality Act. In his signing statement, Governor Arnold Schwarzenegger noted:

> *Current uncertainty as to what type of analysis of greenhouse gas emissions is required under the California Environmental Quality Act has led to legal claims being asserted, which would stop these important infrastructure projects. Litigation under California Environmental Quality Act is not the best approach to reduce greenhouse gas emissions and maintain a sound and vibrant economy. To achieve these goals, we need a coordinated policy, not a piecemeal approach dictated by litigation.*

SENATE BILL 375

Senate Bill 375 requires metropolitan planning organizations to include Sustainable Community Strategies in their regional transportation plans. The purpose of Senate Bill 375 is to reduce greenhouse gas emissions from automobiles and light trucks, require the California Air Resources Board to provide greenhouse gas emission reduction targets from the automobile and light truck

sector for 2020 and 2035, and update the regional targets until 2050. Senate Bill 375 would require certain transportation planning and programming activities to be consistent with the sustainable communities strategies contained in the regional transportation plan. The bill also requires affected regional agencies to prepare an alternative planning strategy to the Sustainable Communities Strategies if the Sustainable Communities Strategy is unable to achieve the greenhouse gas emissions reduction targets. Governor Schwarzenegger signed and approved Senate Bill 375 on September 30, 2008.

Senator Steinberg, author of Senate Bill 375, is also making efforts to clean up the bill. Steinberg authored the new Senate Bill 575 as the clean-up bill for Senate Bill 375. The clean-up efforts include California Environmental Quality Act streamlining changes for projects that are consistent with the Sustainable Communities Strategies. Currently, Senate Bill 375 applies those streamlining provisions to residential and mixed-use projects. The Governor and many interest groups are also lobbying to extend those provisions to Proposition 1B Transportation projects, State highway projects, and infrastructure, retail, and commercial development. A timetable to eliminate schedule conflicts with the new eight-year housing element and the four-year Regional Transportation Plans is also being considered. In addition to Senate Bill 575, there will continue to be ongoing discussions with the California Air Resources Board to coordinate Assembly Bill 32 local land use implementation strategies with Senate Bill 375, including new proposed California Air Resources Board California Environmental Quality Act thresholds of significance to determine which projects will be subject to Assembly Bill 32 requirements.

4.0 MONITORED AIR QUALITY

4.1 CRITERIA POLLUTANTS

CARB sets State air quality standards and monitors ambient air quality at approximately 250 air-monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Ambient air pollutant concentrations in the Basin are measured at ten air quality-monitoring stations operated by the SDAPCD.

The Overland Avenue Monitoring Station located at 5555 Overland Avenue, San Diego, California 92123, was chosen to gather data for the following criteria pollutants (ozone [O_3], NO_2, PM_{10} and fine particulate matter up to 2.5 microns in diameter [$PM_{2.5}$]). As the Overland Avenue Monitoring Station does not monitor for CO, the Union Monitoring Station located at 1133 Union Street, San Diego, California, 92101 is the next closest monitoring station to the proposed Project site, and was chosen to gather data for CO. The data collected at these monitoring stations is representative of the air quality experienced on-site from 2007 through 2009; refer to Table 4, *Local Air Quality Levels*. The following air quality information briefly describes the various types of pollutants.

OZONE

Ozone (O_3) occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately ten miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone) layer extends upward from about ten to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B). "Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOCs), Nitrogen Oxides (NO_X) and sunlight to form; therefore, VOCs and NO_X are ozone precursors. VOCs and NO_X are emitted from various sources throughout the City. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems (such as forests and foothill plant communities), damages agricultural crops, and some man-made materials (such as rubber, paint, and plastics). Societal costs from ozone damage include increased healthcare costs, the loss of human and animal life, accelerated replacement of industrial equipment and reduced crop yields.

TABLE 4
LOCAL AIR QUALITY LEVELS

Pollutant	Standard (Maximum Allowable Amount)		Year	Maximum Concentration[2]	Number of Days State/Federal Std. Exceeded
	California	Federal Primary			
1-hour Ozone (O_3)[1]	0.09 ppm for 1 hour	NA[6]	2007 2008 2009	0.088 ppm 0.100 0.105	0/0 4/0 2/0
8-hour Ozone (O_3)[1]	0.07 ppm for 8 hours	0.075 ppm for 8 hours	2007 2008 2009	0.076 ppm 0.093 0.082	5/2 12/5 1/3
1-hour Carbon Monoxide (CO)[3]	20 ppm for 1 hour	35 ppm for 1 hour	2007 2008 2009	5.18 ppm 2.24 NM	NM/NM NM/NM NM/NM
8-hour Carbon Monoxide (CO)[3]	9.0 ppm for 8 hour	9.0 ppm for 8 hour	2007 2008 2009	5.18 ppm 2.24 NM	0/0 0/0 0/0
Nitrogen Dioxide (NO_2)[1]	0.18 ppm for 1 hour	0.100 ppm For 1 hour	2007 2008 2009	0.087 ppm 0.077 0.060	0/NA 0/NA 0/NA
Fine Particulate Matter ($PM_{2.5}$)[1, 5]	No Separate Standard	35µg/m^3 for 24 hours	2007 2008 2009	30.6 µg/m 27.2 25.1	NA/NM NA/NM NA/0.0
Particulate Matter (PM_{10})[1, 4,5]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	2007 2008 2009	65.0 µg/m 41.0 50.0	1/0 0/0 0/0

Source: Aerometric Data Analysis and Measurement System (ADAM), summaries from 2005 to2009, http://www.arb.ca.gov/adam.

ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; NM = not measured; µg/m^3 = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; NA = not applicable; * There was insufficient (or no) data available to determine this value.

Notes:

1. Data collected from the Overland Monitoring Station- 5555 Overland Avenue, San Diego CA 92123.
2. Maximum concentration is measured over the same period as the California Standards.
3. Data collected from the Union Monitoring Station-1133 Union Street, San Diego CA 92101.
4. PM10 exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
5. PM10 and PM2.5 exceedances are derived from the number of samples exceeded, not days.
6. The Federal standard was revoked in June 2005.

CARBON MONOXIDE

Carbon monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause headaches, dizziness, and unconsciousness.

NITROGEN DIOXIDE

Nitrogen oxides (NO_X) are a family of highly reactive gases that are a primary precursor to the formation of ground-level O_3, and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at high

levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_2 can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

COARSE PARTICULATE MATTER (PM_{10})

PM_{10} refers to suspended particulate matter, which is smaller than ten microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate the lungs and can potentially damage the respiratory tract. On June 19, 2003, CARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (SB 25).

FINE PARTICULATE MATTER ($PM_{2.5}$)

Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the EPA announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the U.S. Supreme Court reversed this decision and upheld the EPA's new standards.

On January 5, 2005, the EPA published a Final Rule in the Federal Register that designates the Basin as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

REACTIVE ORGANIC GASES AND VOLATILE ORGANIC COMPOUNDS

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including reactive organic gases (ROGs) and volatile organic compounds (VOCs). Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil

refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

TOXIC AIR CONTAMINANTS (TACS)

According to Section 39655 of the California Health and Safety Code, a toxic air contaminant is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." In addition, 189 substances that have been listed as Federal hazardous air pollutants (HAPs), pursuant to Section 7412 of Title 42 of the United States Code are TACs under the State's air toxics program pursuant to Section 39657 (b) of the California Health and Safety Code.

TACs can cause various cancers, depending on the particular chemicals, their type, and the duration of exposure. Additionally, some of the TACs may cause other health effects over the short or long term. The ten TACs posing the greatest health risk in California are acetaldehyde, benzene, 1-3 butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchlorethylene, and diesel particulate matter.

5.0 SIGNIFICANCE CRITERIA AND METHODOLOGIES

5.1 SIGNIFICANCE CRITERIA

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in a significant impact on the environment. The criteria (standards) used to determine the significance of impacts might vary depending on the nature of the Proposed Project. Air quality impacts resulting from the implementation of the Proposed Project could be considered significant if they would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people;
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or,
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

5.1.1 SDAPCD THRESHOLDS

Per the SDAPCD, a project is significant if it generates total emissions (direct and indirect) that exceed their adopted thresholds; refer to Table 5, *Pollutant Thresholds per SDAPCD*. A significant project must incorporate sufficient measures to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible measures. Note that the emission thresholds are given as a daily value and an annual value, so that a multiphased project (such as a project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

TABLE 5
POLLUTANT THRESHOLDS PER SDAPCD

Pollutant	SDAPCD Thresholds (lbs/day)[1]	SDAPCD Thresholds (tons/year)[1]
Carbon Monoxide (CO)	550	100
Oxides of Sulfur (SO_x)	250	40
Volatile Organic Compounds (VOCs)	75	13.7
Oxides of Nitrogen (NO_x)	250	40
Particulate Matter (PM_{10})	100	15
Particulate Matter ($PM_{2.5}$)	55	10

1. County of San Diego Land Use and Environment Group, Department of Planning and Land Use, Draft Guidelines for Determining Significance and Report Format and Content Guidance Requirements Air Quality, 2007.

Source: SDAPCD Rule 1501, 20.2(d)(2), 1995.

6.0 POTENTIAL AIR QUALITY IMPACTS

Determination of significance considers short-term impacts, long-term impacts, and cumulative impacts. In the event that any criteria pollutant exceeds the SDAPCD threshold levels, the proposed action's impact on air quality are considered significant and mitigation measures would be required. It should be noted that the State and local standards (i.e., SDAPCD thresholds) are equal or more stringent than the Federal Clean Air standards. Therefore, the Proposed Project emissions will be evaluated using the stricter SDAPCD thresholds.

6.1 SHORT-TERM EMISSIONS

Short-term air quality impacts would occur during site preparation and project construction. Analysis has concluded that impacts would be less than significant.

Construction of the SDG&E proposed Mira Sorrento Substation and other associated substation components are anticipated to occur for approximately 24 months. Table 6, *Preliminary Construction Schedule*, includes a preliminary schedule for the Proposed Project. Construction of the Proposed Project is anticipated to begin in Year 2011 with completion by Year 2012.

TABLE 6
PRELIMINARY CONSTRUCTION SCHEDULE

Project Segment	Months (Estimated)
CPUC approves PTC	0
Obtain Construction Permits	2
Obtain Grading Permits from City of San Diego	2
Verdura Retaining Wall Construction (concurrent with site grading)	1.5
Site Development and Grading Construction	6
CMU Retaining Wall, CMU Screen Wall, and Gate Construction (concurrent with site grading)	1.5
Substation Below Grade	6
Substation Construction	13
Total Transmission Construction	2-4

Note: The above information was provided by SDG&E and is subject to change upon final project design.

All construction equipment, vehicles, personnel, and material staging areas would be accommodated within the property lines of the Project site or within SDG&E and public right-of-ways. Construction equipment would include bulldozers, excavators, loaders, and trucks for compacting, hauling, and final grading. Any soil export or import would be transported on or off the site with street-legal haul trucks. Portable cranes and heavy hauling trucks would be employed for the equipment delivery and installation. Concrete trucks, backhoes, crew trucks, and pick-up trucks would arrive and depart the Project site during the installation of the foundations, ground grid, and underground ducts. Crew trucks, boom trucks, and pick-up trucks

would arrive and depart from the site daily for the balance of the construction activities, testing and check-out, final transmission tie-ins, and circuit cabling until the station is energized.

It is anticipated that approximately 12 workers could be employed for the Verdura Retaining Wall Construction phase of the Proposed Project. Eight to fifteen workers could be on-site during the balance of construction of the transmission, substation, and distribution infrastructure until just prior to control wiring checkout and testing. At this stage of construction, approximately four to six electricians would be on-site. Final activities, including final tie-ins and energizing the station, would utilize about six to eight electricians and two to four engineers. Daily transportation of construction workers is not expected to cause a significant effect since this traffic would not be a substantial percentage of current daily volumes in the area.

Future construction of the Proposed Project site would generate short-term air quality impacts during grading and construction operations. The short-term air quality analysis considers the following temporary impacts from the Proposed Project.

- Clearing, grading, excavating and using heavy equipment or trucks creating large quantities of fugitive dust, and thus PM_{10};
- Heavy equipment required for grading and construction generates and emits diesel exhaust emissions; and,
- The vehicles of commuting construction workers and trucks hauling equipment would generate and emit exhaust emissions.

Construction activities at the proposed Mira Sorrento Substation were modeled based upon the schedule provided in Table 6. The Proposed Project was modeled using the URBEMIS 2007 program.

The Mira Sorrento construction emissions findings are presented in Table 7, *Mira Sorrento Construction Air Emissions*. Exhaust emission factors for typical diesel-powered heavy equipment are based on the URBEMIS 2007 program defaults. Variables factored into estimating the total construction emissions include the level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported on-site or off-site. A listing of mobile and stationary construction equipment is included in the air quality modeling; refer to Appendix A, *Air Quality Analysis Data*.

TABLE 7
MIRA SORRENTO CONSTRUCTION AIR EMISSIONS

Emissions Source	Pollutant (pounds/day)[1]					
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_x
2011						
Unmitigated Emissions	18.12	154.45	90.53	130.87	32.48	0.05
Mitigated Emissions[2]	18.12	154.45	90.53	62.06	18.11	0.05
SDAPCD Thresholds	75	250	550	100	55	250
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

TABLE 7
MIRA SORRENTO CONSTRUCTION AIR EMISSIONS, CONTINUED

Emissions Source	Pollutant (pounds/day)[1]					
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_x
2012						
Unmitigated Emissions	4.33	38.11	31.79	1.87	1.61	0.04
Mitigated Emissions[2]	4.33	38.11	31.79	1.87	1.61	0.04
SDAPCD Thresholds	75	250	550	100	55	250
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter; up to 10 microns

Notes:

1. Emissions were calculated using the URBEMIS 2007 Computer Model, as recommended by the SDAPCD.
2. The reduction/credits for construction emission mitigations are based on mitigation included in the URBEMIS 2007 computer model and as typically required by the SDAPCD. The mitigation includes the following: properly maintain of mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces twice daily; cover stock piles with tarps.
3. Refer to Appendix A, Air Quality Analysis Data, for assumptions used in this analysis, including quantified emissions reduction by mitigation measures.

FUGITIVE DUST EMISSIONS

Construction activities are a source of fugitive dust (PM_{10}) emissions that may have a substantial, although temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the Project area. Fugitive dust emissions are associated with land clearing, excavation, cut and fill, and truck travel on unpaved roadways. Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from grading and construction is expected to be short-term and would cease upon Project completion. Additionally, most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

The URBEMIS 2007 computer model calculates PM_{10} and $PM_{2.5}$ fugitive dust as part of the site grading emissions; refer to Table 7. However, with implementation of SDG&E's APMs, the Proposed Project would not exceed the SDAPCD standards for PM_{10} or $PM_{2.5}$. Standard measures include adherence to standard construction practices (watering of inactive and perimeter areas, track-out requirements, and containing dirt and dust within the Project area).

CONSTRUCTION EQUIPMENT AND WORKER VEHICLE EXHAUST

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the Project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. Emitted pollutants would include CO, ROG, NO_X, PM_{10}, and $PM_{2.5}$. As presented in Table 7, the individual components of the Proposed Project would not cause exceedances of SDAPCD standards. These emissions are a direct result of the heavy-duty machinery that would operate on the construction site. Therefore, impacts associated with construction would be less than significant.

TOXIC AIR CONTAMINANTS (TACs)

The proposed project site is approximately 2.7 acres. Table 6 provides the duration of estimated construction activities. Analysts assumed that the project will disturb a maximum of 0.50 acres per day.

Construction vehicle pollutant emission generators primarily include haul truck activities, graders, pavers, contractor vehicles, and diesel-electric lifts. Construction emissions utilized within the SCREEN3 model were derived from URBEMIS2007 construction outputs for the Project; refer to Table 8, *SCREEN 3 Predicted Emission Concentrations*. Note that, for cancer-risk potential, only PM_{10} from diesel exhaust (not the inert silicates from dust) is the single most contributing factor.

According to the URBEMIS2007 modeling that was performed, the greatest PM_{10} emissions would total 35.58 pounds per day of PM_{10}, which includes 8.73 pounds per day of diesel exhaust; refer to Appendix A, *Air Quality Analysis Data*, for modeling output information. Typically, the greatest amount of diesel engine particulate matter is generated during grading and earthwork activities. Based upon the on-site emission levels, the aggregate emission rate was input into the SCREEN3 model. This methodology essentially applies all of the diesel emissions over this working area and provides a worst-case assessment of the impacts to sensitive receptors.

The expected diesel construction emission concentrations from the SCREEN3 model are depicted below in Table 8, *SCREEN 3 Predicted Emission Concentrations*. Based upon the model results, the particulate matter concentrations are below the inhalation Chronic Risk Factor of 1.0 and the Cancer Risk Threshold of 10 in one million. Therefore, impacts for cancer risks from toxic air emissions during construction activities will be less than significant.

TABLE 8
SCREEN 3 PREDICTED EMISSION CONCENTRATIONS

Construction Year	Pollutant Concentration (pounds per day)	Calculated Cancer Risk (in a million)	Inhalation Chronic Risk Factor	Significant?
2013	37.69	6.016	0.080	***No***

Notes:

1. SCREEN3 inputs were calculated by converting the diesel engine particulate matter emissions in lbs/day for 2010 construction activities to grams per second per meters squared. The following conversion factors were utilized: 1 day = 86,400 seconds; 1 pound = 453.592 grams; 1 acre = 4,046.873 square meters
2. Pollutant concentrations based upon SCREEN3 modeling results.
3. The calculated cancer risk was based upon the following equation:

$$Risk = \frac{F_{wind} \times EMFAC \times URF_{70\ year\ exposure}}{Dilution}$$

Risk = is the excess cancer risk (probability in one-million); F_{wind} = the frequency of the wind blowing from the exhaust source to the receptor (the default value is 1.0); EMFAC = the exhaust particulate emission factor (the level from the screening model); $URF_{70\ year\ exposure}$ = the CARB unit risk probability factor (300 x 10^{-6}, or 300 in a million cancer risk per $\mu g/m^3$ of diesel combustion generated PM_{10} inhaled in a 70-year lifetime based upon the California Air Resources Board (CARB) *1999 Staff Report from the Scientific Review Panel [SRP] on Diesel Toxics*); and, *Dilution* = the atmospheric dilution ratio during source-to-receptor transport (the default value of 1.0 assumes no dilution).

4. The inhalation chronic risk was based upon the following equation:

Inhalation cancer risk = ((Cair*DBR*A*EF*ED*1x10^{-6})/AT)*Inhalation Cancer Potency Factor)

Cair = concentration in the air of DPM; DBR = daily breathing rate (303 L/kg-day); A = inhalation absorption factor (1); EF = exposure frequency (250 days/year); AT = average time period of exposure (25,550 days); Inhalation Cancer Potency Factor = 1.1 $mg/kg\text{-}d)^{-1}$

Source: Refer to Appendix A, *Air Quality Analysis Data*.

ROG EMISSIONS

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by the SDAPCD, the ROG emissions associated with paving have been quantified with the URBEMIS 2007 model. All architectural coatings for Proposed Project structures would comply with SDAPCD Regulation IV, Rule 67 (Architectural Coatings). Rule 67 provides specifications on painting practices as well as regulates the ROG content of paint. ROG emissions would be less than significant.

ODORS

Construction activity associated with the Proposed Project may generate detectable odors from heavy-duty equipment exhaust. Potential odors generated during construction operations would be temporary in nature and are concluded to result in less than significant impacts. Note that emissions produced during grading and construction activities are short-term occurring only during construction.

6.2 LONG-TERM EMISSIONS

The project would increase local and regional pollutants because of direct impacts from vehicle emissions and indirect impacts from electricity and natural gas consumption. However, the project would not exceed the established SDAPCD thresholds of significance. Thus, the impact would be less than significant.

Operation of the Proposed Project would have no impact on air quality in the area, because none of the project facilities or components would have permanent air emissions. There is no proposed use of gas or diesel-powered generators during operation or maintenance of the Proposed Project. The number of vehicles (light utility trucks) required for maintenance activities would be minimal, resulting in a negligible increase in vehicle emissions in the area. Therefore, the impact on air quality as a result of operation and maintenance of the Project would be less than significant.

6.3 PLAN CONSISTENCY

The project would not conflict with the SDAPCD Regional Air Quality Strategy (RAQS). Analysis has concluded that the proposed project is consistent with the criteria and that such impacts would be less than significant.

A potentially significant impact on air quality would occur if the Proposed Project would conflict with or obstruct the implementation of the applicable air quality plan. Although the Proposed Project would negatively impact air quality in the Basin, of primary concern is that Project-related impacts have been properly anticipated in the regional air quality planning process and reduced whenever feasible. Therefore, it is necessary to assess the Project's consistency with the

RAQS. Project consistency with the RAQS is determined in terms of whether the Proposed Project exceeds the criteria pollutant threshold levels established by the SDPACD and whether the Proposed Project would result in growth that has been anticipated in a given subregion.

As indicated in the long-term operational discussion, the Proposed Project would not result in any air quality emissions. Additionally, the Proposed Project is not a trip-generating project such as a residential or commercial development. Once construction of the proposed Project is in place, emissions would be relatively low resulting from scheduled maintenance. Therefore, impacts associated with the project would have a less than significant impacts in regards to plan consistency.

6.3.1 GLOBAL CLIMATE CHANGE

Potential Impact: ***Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

Less than Significant Impact.

DIRECT PROJECT-RELATED SOURCES OF GREENHOUSE GASES

CONSTRUCTION

Direct Project-related greenhouse gas emissions from construction activities are provided in Table 9, *Total Estimated Greenhouse Gas Emissions (Construction and Operations and Maintenance)*. The main GHGs that would be emitted during construction activities include carbon dioxide, nitrous oxide, and methane emissions of the Project. Other construction related GHGs would not be emitted in quantities that would warrant an analysis for the construction phase of the project and have therefore not been included in this analysis. The URBEMIS 2007 version 9.2.4 computer model was used to calculate carbon dioxide emissions. The remaining GHGs were calculated using emission factors provided by SCAQMD. The detailed calculations for the GHG emissions are provided in Appendix A, *Air Quality Analysis Data*.

TABLE 9
TOTAL ESTIMATED GREENHOUSE GAS EMISSIONS
(CONSTRUCTION AND OPERATIONS AND MAINTENANCE)

Source	Carbon Dioxide (Metric tons/year)	Nitrogen Dioxide (Metric tons/year)	Nitrogen Dioxide (Metric Tons of Carbon Dioxide Eq/yr)[4]	Methane (Metric tons/year)	Methane (Metric Tons of Carbon Dioxide Equiv./yr)[4]	Sulfur Hexafluoride (Metric tons of Carbon Dioxide Equivalent/yr)	Total Metric Tons of Carbon Dioxide Equiv./yr[4]
Construction Emissions[1]							
2013	1250.19	0.04	0.80	0.17	53.64	0.00	1,304.59
2014	624.93	0.01	0.12	0.03	8.15	0.00	633.20
Total Construction Emissions (Metric Tons of Carbon Dioxide Equivalents/year)[6]	**1,937.79**						

TABLE 9, TOTAL ESTIMATED GREENHOUSE GAS EMISSIONS (CONSTRUCTION AND OPERATIONS AND MAINTENANCE), CONTINUED

Source	Carbon Dioxide (Metric tons/year)	Nitrogen Dioxide (Metric tons/year)	Nitrogen Dioxide (Metric Tons of Carbon Dioxide Eq/yr)[4]	Methane (Metric tons/year)	Methane (Metric Tons of Carbon Dioxide Equiv./yr)[4]	Sulfur Hexafluoride (Metric tons of Carbon Dioxide Equivalent/yr)	Total Metric Tons of Carbon Dioxide Equiv./yr[4]
Total Amortized Construction Emissions over 30 years (Metric Tons of Carbon Dioxide Equivalents/year)[6]	62.50	0.00	0.03	0.00	2.06	*0.00*	*64.58*
Operational Emissions							
Mobile Source[2, 3]	26.09	0.00	0.49	0.00	0.03	*0.00*	*26.61*
Circuit Breakers	0.00	0.00	0.00	0.00	0.00	*131.2*	*131.2*
Total Operational Emissions[5]	**26.09**	**0.00**	**0.49**	**0.00**	**0.03**	***131.2***	***157.81***
Total Project-Related Operational Emissions (Annualized Construction Emissions + Operational Emissions)	*222.39 $MTCO_2eq/year$[5]*						
Total Project-Related Operational Emissions (Annualized Construction Emissions + Operational Emissions) ***WITH** 29% Reduction*	*157.90 $MTCO_2eq/year$[5]*						
Consistent with AB 32?	***Yes***						

Notes:

1. Emissions calculated using Air Resources Board's Construction Equipment Emissions Table and the URBEMIS 2007 computer model.
2. Emissions calculated using URBEMIS 2007 computer model and the SCAQMD's *CEQA Handbook* (note that SCAQMD has the most comprehensive demand factors available).
3. Emissions calculated using URBEMIS 2007 computer model and EMFAC 2007, *Highest (Most Conservative) Emission Factors for On-Road Passenger Vehicles and Delivery Trucks*.
4. CO_2 Equivalent values calculated using the U.S. Environmental Protection Agency Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/cleanenergy/energy-resources/calculator.html, accessed March 2010.
5. Totals may be slightly off due to rounding.
6. Refer to Appendix A, *Air Quality Analysis Data*, for detailed model input/output data.

Construction of the Project would result in direct emissions of 1,304.59 metric tons of carbon dioxide equivalent in 2011 and 633.20 metric tons of carbon dioxide equivalent in 2012. Construction emissions were amortized over the lifetime of the Project (30 years) and added the emissions to the total Project-related operational greenhouse gas emissions to determine consistency with AB 32 by reducing total project GHG emissions by at least 29%.The Proposed Project will be consistent with the approved LTPP and CARB Scoping Plan (see discussion below) adopted by the CARB because it will support the delivery of additional renewable energy generation. Substantial system-wide reductions, including efficiency programs and RPS, are also being achieved by SDG&E. Standard SDG&E construction practices described in Section 1.0 include minimizing fugitive dust and minimizing construction vehicle idling time. As a result, the impact of GHG emissions due to construction will be less than significant.

OPERATIONS AND MAINTENANCE

Similar to the construction phase of the Proposed Project, GHG emissions during operation and maintenance would be the result of burning fuel during vehicle and equipment operation and electrical generation used to power the Mira Sorrento Substation. Greenhouse gas estimations are based on energy emissions from natural gas usage, as well as automobile emissions. The project would not result in a substantial amount of mobile source GHG emissions, as the operation activities associated with the proposed project would only require six trips per year consisting of two to four employees traveling to and from the project site. Therefore, operational GHG emissions would be nominal.

The proposed project would provide a new substation to meet existing and anticipated customer-driven electrical load growth and to prevent potential long outages or disruption of service to existing customers in SDG&E's service territory in the vicinity of Sorrento Mesa. The electricity that would be delivered to this substation would be a non-fossil fuel-based energy source, which would have the indirect effect of displacing emissions otherwise occurring at natural gas and coal fired power plants. The project would result in a nominal increase in demand for electricity for night lighting and activities associated with routine maintenance. In addition, water use on the site would only be used for maintenance and landscaping activities. These uses would result in a nominal increase in operational and maintenance GHG emissions and therefore were not included in the quantitative analysis.

SULFUR HEXAFLUORIDE (SF_6)

One other GHG that is used in the construction of electric facilities is sulfur hexafluoride (SF_6). As stated in Section 4.2, above, it is a colorless, odorless, non-flammable gas that has a Global Warming Potential (GWP) that is 23,900 times that of carbon dioxide. SF_6 is an inert, non-toxic gas that has excellent cooling, insulating, and arc-quenching capabilities for potentially high temperature applications such as electrical circuit breakers.

The California Climate Action Registry (CCAR) lists SF_6 as a potential source of fugitive emissions from electrical transmission and distribution equipment (Power/Utility Reporting Protocol, Version 1.0, April 2005). Fugitive emissions are unintentional leaks of GHGs from equipment such as joints, seals, and gaskets. The CCAR recommends that fugitive SF_6 emissions from electricity transmission and distribution operations be calculated using the Mass Balance Approach outlined in the EPA SF_6 Emission Reduction Partnership for Electric Power Systems.[2] However, this method is based on accounting the company-wide inventory of SF_6 throughout the year. Therefore, it is not possible to use this method to estimate fugitive emissions from any particular substation or transmission line.

[2] U.S. EPA, SF_6 Emission Reduction Partnership for Electric Power Systems, 2009. http://www.epa.gov/electricpower-sf6/index.html

The project substation would be used to connect the 69 kV lines from the existing Genesee Substation and Peñasquitos Substation. This operation would typically utilize five circuit breakers, each with a canister containing 242 pounds of SF_6. The allowable manufacturer leakage limit for each canister is 1 percent per year. Therefore, the anticipated emission rate from the circuit breaker would be approximately 2.42 pounds of SF_6 per year per canister (26.23 metric tons CO2e) totaling approximately 12.1 pounds of SF_6 per year for all five canisters (57,838 metric tons CO2e). SF_6 has a global warming potential of 23,900, which is the highest of any GHG identified by the Intergovernmental Panel on Climate Change (IPCC). Therefore, long-term GHG emissions associated with the project's substation would be approximately 131.2 metric tons CO2e per year. A method of estimating leakage from a particular substation or transmission line are not currently known. The changes in emissions due to the electrical consumption required to operate the substation and the on-site SF6-containing equipment have been calculated and are presented in Table 9, *Total Estimated Greenhouse Gas Emissions (Construction and Operations and Maintenance)*. Detailed calculations are provided in Appendix A, *Air Quality Analysis Data*.

As indicated in Table 9, *Total Estimated Greenhouse Gas Emissions (Construction and Operations and Maintenance)*, total operational and maintenance metric tons of CO_2E are estimated to be 157.81 metric tons of CO_2e, which when combined with the annualized construction emissions, would total 222.39 metric tons of CO_2e and would be reduced by at least 29 percent through the implementation of Renewables Portfolio Standard (RPS), the Million Solar Roofs Program, and energy efficiency for nighttime lighting and other minimal electricity uses onsite. As such, the proposed project would therefore for be consistent with AB 32. Therefore, a less than significant impact would occur.

6.3.2 GREENHOUSE GAS EMISSION REDUCTION PLAN

Potential Impact: ***Conflict with an applicable plan, or policy, or regulation adopted for the purpose if reducing the emissions of greenhouse gases?***

Less than Significant.

CONSISTENCY WITH THE CALIFORNIA AIR RESOURCES BOARD SCOPING PLAN

The following analysis determines whether the proposed project is consistent with the Recommended Actions set forth in the *Climate Change Proposed Scoping Plan*, prepared by the California Air Resources Board, October 2008 (*CARB Scoping Plan*). As the *CARB Scoping Plan* provides goals and standards that can be used to measure the performance of the project, it is appropriate to use consistency with these strategies as the basis for this qualitative analysis. The project's compliance with the *CARB Scoping Plan* would indicate if project emissions could conflict with the State's AB 32 goals for reducing GHG emissions.

The Scoping Plan Measures/Recommended Actions needed to obtain AB 32 goals, as well as the Governor's Executive Order which are applicable to the project are listed in Table 10, *Recommended Actions for Climate Change Proposed Scoping Plan*. Of the 39 measures identified in

the *CARB Scoping Plan*, those that would be considered to be applicable to the proposed project would primarily be those actions related to energy efficiency. Consistency of the proposed project with these measures is evaluated by each source-type measure below. Table 10 identifies which CARB Recommended Actions applies to the proposed project, and of those, whether the proposed project is consistent therewith.

AB 32 requires California to reduce its GHG emissions by approximately 28 to 33 percent below business as usual. CARB identified reduction measures to achieve this goal as set forth in the *CARB Scoping Plan*. Thus, projects that are consistent with the *CARB Scoping Plan* are also consistent with the reduction below business as usual required by AB 32. A detailed discussion of each applicable measure and if the proposed project conflicts with its implementation is provided below.

TABLE 10
RECOMMENDED ACTIONS FOR CLIMATE CHANGE PROPOSED SCOPING PLAN

ID #	Sector	Strategy Name	Applicable to Project?	Will Project Conflict With Implementation?
E-3	Electricity and Natural Gas	Renewable Portfolio Standard	**Yes**	No
E-4	Electricity and Natural Gas	Million Solar Roofs	**Yes**	No
CR-1	Electricity and Natural Gas	Energy Efficiency	**Yes**	No

Source: California Air Resources Board, *Assembly Bill 32 Scoping Plan*, 2008.

ELECTRICITY AND NATURAL GAS

- Action E-3 relates to renewable energy and the RPS which is intended to increase California's renewable energy production to 20 percent by 2010, and to 33 percent by 2020. The California Energy Commission estimates that this percentage is currently at 12. A key prerequisite to reaching a target of 33 percent renewables would be to provide sufficient electric transmission lines to renewable resource zones and system changes to allow integration of large quantities of intermittent wind and solar generation. The construction of the substation would is one component of the overall SDG&E electrical system in the area and contributes to the overall electrical portfolio of SDG&E. SDG&E's goal is to serve 20 percent of its retail load with RPS-eligible renewable energy by 2010. As part of SDG&E's energy plan, an additional goal is to provide 33percent of customers' electricity needs from renewable sources by 2020. SDG&E's need for renewable energy fluctuates as actual As the Mira Sorrento Substation would result in the transfer of SDG&E electricity that is consistent with the Renewables Portfolio Standard, therefore, the proposed project would be consistent with Action E-3.

- Action E-4 aims to install 3,000 MW of solar energy capacity under the Million Solar Roofs Program. This measure would offset electricity from the grid, thereby reducing GHG emissions. Building owners or developers would need to meet certain efficiency requirements: specifically, that new construction projects exceed Title 24 requirements and existing commercial buildings would undergo an energy audit. By requiring greater energy efficiency for projects that seek solar incentives, the State would be able to reduce

both electricity and natural gas needs and their associated GHG emissions. The proposed project would result in an increase electric power capacity of approximately in the Sorrento Mesa area, thereby providing a mechanism to transport electricity produced off the grid. Therefore, the project would help implement and not conflict with Action E-4.

- Action CR-1 relates to energy efficiency in commercial and residential buildings. Also, Action CR-1 notes the need for more aggressive utility programs to achieve long-term energy savings. As the proposed project would generate electricity and the substation would include a small demand of electricity for nighttime lighting, the proposed project design would implement energy efficient measures to the maximum extent possible Therefore, the proposed project is consistent with and would not obstruct Recommended Action CR-1.

In addition to being compliant with many of the Attorney General's recommended design features and Recommended Actions within the CARB Scoping Plan, the proposed project is also consistent with the California Environmental Protection Agency Climate Action Team proposed early action measures to mitigate climate change. These early action measures are designed to ensure that projects meet the Governor's climate reduction targets, and are documented in the Climate Action Team Report to Governor Schwarzenegger at the Legislature, March 2006.

As shown in Table 8, the proposed project would result in 237.23 $MTCO_2eq$ during construction and operations and maintenance activities associated with the proposed project, and would reduce GHG emissions exceeding the 29% reduction goal established by AB 32. As such, the project would be consistent with AB 32. The project would also comply with Attorney General's Mitigation Measure regarding renewable energy. Additionally, the project would also be consistent with the CARB Scoping Plan Recommended Actions related to energy efficiency. Therefore, a less than significant impact would occur in this regard and no mitigation is required.

CONSISTENCY WITH THE CITY OF SAN DIEGO PROGRAM AND POLICIES

CITY OF SAN DIEGO GENERAL PLAN – CONSERVATION ELEMENT

The Conservation Element reflects key goals contained in many other City and regional plans and programs and will help guide their future updates. The Conservation Element ties various natural resource-based plans and programs together using a village strategy of growth and development. It contains policies for sustainable development, preservation of open space and wildlife, management of resources, and other initiatives to protect the public health, safety, and welfare.

Policies which address local GHG mitigation strategies in San Diego are integrated within the City of San Diego General Plan. Together, this collection of policies support and promote the adopted recommendations outlined in the City's Climate Protection Action Plan (describe in further detail below). The City is continuing to investigate additional steps that can be taken to help reduce greenhouse gas emissions, identify adaptation goals, and curb the impact of climate change at the local level.

SAN DIEGO SUSTAINABLE COMMUNITY PROGRAM

The City of San Diego has taken steps to address climate change impacts at a local level. In 2002, the City Council adopted the San Diego Sustainable Community Program. This program established the partnership with the Cities for Climate Protection (CCP) Campaign, which is a program administered by the International Council for Local Environmental Initiatives (ICLEI). To date, more than 800 local governments worldwide participate in the campaign, including 30 cities and counties located in California. The campaign is based on a performance framework structured around five milestones that local governments commit to undertake. Local governments identify the source of greenhouse gas emissions, calculate the volume contributed from energy use, transportation, and waste management, and then develop an action plan to reduce those emissions. The Sustainable Community Program also established San Diego's Greenhouse Gas (GHG) reduction goal of 15 percent below 1990 levels by the year 2010. As the proposed project would be consistent with AB 32, the Project would be consistent with the GHG reduction goad of 15 percent established by the Sustainable Community Program.

CITY OF SAN DIEGO CLIMATE ACTION PLAN

The City has a Climate Protection Action Plan that addresses both the GHG emissions from the community (residential, commercial, and industrial sectors) and the GHG emissions specifically from the operations provided by City government. Each category is broken down into the three major sources: Energy, Waste, and Transportation. The GHG emissions are tracked using a standardized computer software program, and the comparison between 1990 and 2004 reveal an interesting trend. The City organization has continued to reduce its share of greenhouse gas emissions through fuel efficiency, energy conservation and the use of renewable energy, and the use of methane gas (biogas) to generate electricity. While this is a good step forward, the larger community has increased the per capita fuel, energy, and water use. As the proposed project design will result in the construction of a renewable energy source, the proposed project will be consistent with the City's goal of reducing greenhouse gas emissions through fuel efficiency, energy conservation and the use of renewable energy, no significant impacts were identified in this regard.

Mitigation Measures: Implementation of the design measures identified above would ensure the Project's consistency with applicable greenhouse emission reduction plans and therefore, no mitigation measures are required in this regard.

6.3.3 EFFECTS OF CLIMATE CHANGE ON THE PROJECT

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2 degrees Celsius (ºC) per decade, determined from meteorological

measurements worldwide between 1990 and 2005.[3] Climate change modeling using year 2000 emission rates shows that further warming would occur, which would include further changes in the global climate system during the current century.[4] Changes to the global climate system and ecosystems and to California would include, but would not be limited to:

- The loss of sea ice and mountain snow pack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;[5]
- Rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps and the Greenland and Antarctic ice sheets;[6]
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;[7]
- Decline of the Sierra snow pack (which accounts for approximately half of the surface water storage in California) by 70 percent to as much as 90 percent over the next 100 years;[8]
- Increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21st century;[9] and
- High potential for erosion of California's coastlines and sea water intrusion into the Delta and levee systems due to the rise in sea level.[10]

While there is broad agreement on the causative role of GHGs to climate change, there is considerably less information or consensus on how climate change would affect any particular location, operation, or activity. The IPCC has published numerous reports on potential impacts of climate change on the human environment. These reports provide a comprehensive and up-to-date assessment of the current state of knowledge on climate change. Despite the extensive peer review of reports and literature on the impacts of global climate change, the IPCC notes the

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3 U.S. EPA, SF_6 Emission Reduction Partnership for Electric Power Systems, 2009. http://www.epa.gov/electricpower-sf6/index.html

4 Ibid.

5 Ibid.

6 Ibid.

7 Ibid.

8 California Environmental Protection Agency, *Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature (Executive Summary)*, March, 2006.

9 Ibid.

10 Ibid.

fact that there is little consensus as to the ultimate impact of human interference with the climate system and its causal connection to global warming trends.

The following climate change effects could affect the proposed project. However, the type and degree of the impacts that climate change would have on humans and the environment is difficult to predict at the local scale.

- Sea Level Rise. According to the IPCC, climate change is expected to raise sea levels by up to four feet. The project area is approximately 3 miles from the Pacific Ocean and approximately 183 feet above mean sea level. Therefore, sea level rise of this magnitude would be unlikely to inundate the project area. Additionally, the effects related to sea level rise are speculative at this time. If determined to be a significant threat, protective measures such as levees would likely be installed by regional and local governments to protect urbanized areas.

- Natural Disasters. Climate change could result in increased flooding and weather-related disasters. The proposed project is located approximately 3 miles from the Pacific Ocean and would not be exposed to intense coastal storms. The frequency of large floods on rivers and streams could also increase. There are three creeks located within the project area; therefore, flooding could be potentially hazardous in the event of a natural disaster. The proposed project does not include habitable structures and would not impede flood flows or be susceptible to increased flooding; thus, flood-related impacts would be less than significant even under an intensified flooding scenario.

- Wildfires. Climate change could result in increased occurrences and duration of wildfire events. The project is located in the moderate fire severity zone, as delineated by the California Department of Forestry and Fire Protection, potentially exposing the project site and vicinity to wildfire hazards. The warming climate could cause these areas of the County and the project site to experience more frequent wildfires of great intensity. Therefore, wildfire risks as a result of global climate change would be potentially significant.

- Air Quality. Climate change would compound negative air quality impacts in the SDAB, resulting in respiratory health impacts.[11] However, this would be a regional, not a project-specific effect.

Other predicted physical and environmental impacts associated with climate change include heat waves, alteration of disease vectors, biome shifts, impacts on agriculture and the food supply, reduced reliability in the water supply, and strain on the existing capacity of sanitation and water-treatment facilities. While these issues are a concern for society at large, none of these impacts would have a disproportionate effect on the implementation of the proposed project.

[11] California Environmental Protection Agency, *AB 1493 Briefing Package,* 2008.

6.4 CUMULATIVE

6.4.1 CUMULATIVE SHORT-TERM IMPACTS

Impacts on regional air quality resulting from the proposed project and cumulative projects may impact existing regional air quality levels on a cumulative basis. Analysis has concluded that a less than significant impact would occur.

With respect to the Project's construction related air quality emissions and cumulative Basin-wide conditions, the SDAPCD has developed strategies to reduce criteria pollutant emissions outlined in the RAQS pursuant to FCAA mandates. Measures in compliance with the RAQS have been recommended to help reduce air quality impacts associated with construction activities. As such, the proposed project would comply with SDAPCD strategies, and implement all feasible measures. Per SDAPCD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements would also be imposed on construction projects Basin-wide.

Implementation of the Proposed Project would not result in an exceedance of daily emissions thresholds established by the SDAPCD for criteria pollutants from Project-related construction emissions. Therefore, a less than significant cumulative construction air quality impact would result.

6.4.2 CUMULATIVE LONG-TERM IMPACTS

Impacts on regional air quality resulting from the proposed project and cumulative projects may impact existing regional air quality levels on a cumulative basis. Analysis has concluded that a less than significant impact would occur.

Cumulative impacts include local development as well as general growth within the Project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local project and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for a project's air quality analysis must be regional by nature. As indicated in the analysis above, the Proposed Project would not result in significant long-term impacts to air quality within the region. Therefore, long-term cumulative emissions associated with the Proposed Project are anticipated to be less than significant.

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7.0 APPLICANT PROPOSED MEASURES

The following section details the Applicant Proposed Measures (APMs) proposed to avoid, minimize, and/or mitigate impacts with regard to air quality.

7.1 SHORT-TERM (CONSTRUCTION) IMPACTS

No.	Applicant Proposed Measures	Reason	Project Component
AQ-1	SDG&E would implement their existing sulfur hexafluoride (SF_6) mitigation strategies during the operation and maintenance of SF_6-containing equipment installed as part of the Proposed Project. These strategies include: ▪ Recording company-wide SF_6 purchases for use in reporting annual GHG emissions under the CCAR Power Utilities Protocol and as a member of the Environmental Protection Agency's EPA SF_6 Partnership ▪ Implementing SDG&E's SF_6 leak detection and repair program. This program includes monthly visual inspections of each GCB, which includes checking pressure levels within the breaker and recording these readings in SDG&E's Substation Management System. During the installation or major overhaul of any GCB, the unit is tested over a 24-hour period to ensure no leaks are present. Minor overhauls of each GCB are conducted every 36 to 40 months to check overall equipment health. This process includes checking gas pressure, moisture ingress, and SF_6 decomposition. If the GCB fails any of these checks, the unit is checked for leaks and repaired. In addition, all GCBs are equipped with a gas monitoring device and alarm that automatically alert SDG&E's Grid Operations Center. If gas pressure approaches minimum operating levels, an alarm is immediately reported to SDG&E's Substation Construction and Maintenance Department. The GCB is usually inspected for leaks within 24 hours of such an alarm. SDG&E's leak detection practice includes the following three methodologies: o Spraying a leak-detection agent onto common leak points—including O-rings, gaskets, and fittings o Using a field-monitoring device (sniffer) to detect the presence of SF_6 gas o Using a laser-detection camera to detect the presence of SF_6 gas when the above two methods are unsuccessful in finding a leak ▪ Implementing a SF_6 recycling program ▪ Training employees on the safety and proper handling of SF_6 ▪ Continuing voluntary reporting of GHG emissions with the CCAR or The Climate Registry	Minimize SF_6 emissions during operation activities to reduce air quality impacts.	Mira Sorrento Substation during operation activities.

7.2 LONG-TERM (OPERATIONAL) IMPACTS

7.2-1 No mitigation measures are recommended.

7.3 PLAN CONSISTENCY

7.3-1 No mitigation measures are recommended.

7.4 CUMULATIVE IMPACTS

7.4-1 No mitigation measures are recommended.

8.0 REFERENCES

8.1 LIST OF PREPARERS

RBF Consulting
9755 Clairemont Mesa Boulevard, Suite 100

San Diego, California 92124

(858) 614-5000

Monica Kling, Environment Analyst

8.2 DOCUMENTS

1. City of San Diego, *City of San Diego General Plan*, adopted March 10, 2008.

2. County of San Diego Land Use and Environment Group, Department of Planning and Land Use, *Guidelines for Determining Significance and Report Format and Content Guidance Requirements Air Quality*, March 19, 2007.

3. San Diego County Air Pollution Control District, *Rules and Regulations*, January 1997.

4. San Diego County Air Pollution Control District, *Regional Air Quality Strategy Revision*, April 22, 2009.

8.3 WEB SITES/PROGRAMS

Rimpo and Associates, URBEMIS 2007 – Air Emissions from Land Development (version 9.2.0), June 2007.

California Air Resources Board, www.arb.ca.gov.

San Diego Air Pollution Control District, www.sdapcd.org.

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APPENDIX A – AIR QUALITY ANALYSIS DATA

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PDATA\Urbemis\25103691\Mira Sorrento Substation.urb924

Project Name: Mira Sorrento Substation

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	1.27	10.88	6.58	0.00	7.98	0.51	8.49	1.67	0.47	2.13	1,378.10
2011 TOTALS (tons/year mitigated)	1.27	10.88	6.58	0.00	3.54	0.51	4.05	0.74	0.47	1.21	1,378.10
Percent Reduction	0.00	0.00	0.00	0.00	55.62	0.00	52.30	55.55	0.00	43.44	0.00
2012 TOTALS (tons/year unmitigated)	0.40	3.53	2.94	0.00	0.02	0.16	0.17	0.01	0.14	0.15	688.87
2012 TOTALS (tons/year mitigated)	0.40	3.53	2.94	0.00	0.02	0.16	0.17	0.01	0.14	0.15	688.87
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.11	0.00	0.28	0.00	0.00	0.00	0.51
TOTALS (tons/year, mitigated)	0.10	0.00	0.28	0.00	0.00	0.00	0.51
Percent Reduction	9.09	NaN	0.00	NaN	NaN	NaN	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.02	0.03	0.22	0.00	0.04	0.01	24.10

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.13	0.03	0.50	0.00	0.04	0.01	24.61

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	1.27	10.88	6.58	0.00	7.98	0.51	8.49	1.67	0.47	2.13	1,378.10
Building 01/01/2011-02/15/2011	0.04	0.33	0.27	0.00	0.00	0.01	0.02	0.00	0.01	0.01	59.58
Building Off Road Diesel	0.02	0.21	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	23.71
Building Vendor Trips	0.01	0.11	0.08	0.00	0.00	0.00	0.01	0.00	0.00	0.00	22.40
Building Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.47
Mass Grading 01/01/2011-06/30/2011	1.02	8.62	4.75	0.00	7.97	0.40	8.38	1.67	0.37	2.04	974.08
Mass Grading Dust	0.00	0.00	0.00	0.00	7.96	0.00	7.96	1.66	0.00	1.66	0.00
Mass Grading Off Road Diesel	0.97	8.26	3.79	0.00	0.00	0.39	0.39	0.00	0.36	0.36	820.26
Mass Grading On Road Diesel	0.02	0.31	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	47.53
Mass Grading Worker Trips	0.03	0.05	0.83	0.00	0.01	0.00	0.01	0.00	0.00	0.00	106.29
Building 07/01/2011-08/15/2011	0.04	0.33	0.27	0.00	0.00	0.01	0.02	0.00	0.01	0.01	59.58
Building Off Road Diesel	0.02	0.21	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	23.71
Building Vendor Trips	0.01	0.11	0.08	0.00	0.00	0.00	0.01	0.00	0.00	0.00	22.40
Building Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.47
Building 07/01/2011-12/31/2011	0.15	1.36	1.11	0.00	0.01	0.06	0.07	0.00	0.06	0.06	243.91
Building Off Road Diesel	0.10	0.87	0.34	0.00	0.00	0.04	0.04	0.00	0.04	0.04	97.08
Building Vendor Trips	0.04	0.47	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	91.69
Building Worker Trips	0.01	0.03	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.14

Building 12/01/2011-12/31/2012	0.03	0.23	0.19	0.00	0.00	0.01	0.01	0.00	0.01	0.01	40.96
Building Off Road Diesel	0.02	0.15	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	16.30
Building Vendor Trips	0.01	0.08	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.40
Building Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.26
2012	0.40	3.53	2.94	0.00	0.02	0.16	0.17	0.01	0.14	0.15	688.87
Building 12/01/2011-12/31/2012	0.28	2.49	2.07	0.00	0.01	0.11	0.12	0.00	0.10	0.11	485.93
Building Off Road Diesel	0.18	1.61	0.65	0.00	0.00	0.07	0.07	0.00	0.07	0.07	193.41
Building Vendor Trips	0.07	0.83	0.62	0.00	0.01	0.03	0.04	0.00	0.03	0.03	182.67
Building Worker Trips	0.02	0.05	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.85
Building 08/01/2012-12/31/2012	0.12	1.04	0.87	0.00	0.00	0.05	0.05	0.00	0.04	0.04	202.94
Building Off Road Diesel	0.08	0.67	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	80.77
Building Vendor Trips	0.03	0.35	0.26	0.00	0.00	0.01	0.02	0.00	0.01	0.01	76.29
Building Worker Trips	0.01	0.02	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 6/30/2011 - Site Development and Grading Consturction

Total Acres Disturbed: 2.7

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1004 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 173.85

Off-Road Equipment:

25 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 7 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 7 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

10 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

4 Scrapers (313 hp) operating at a 0.72 load factor for 7 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 3 hours per day

4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 1/1/2011 - 2/15/2011 - Verdura Retaining Wall Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 7/1/2011 - 8/15/2011 - CMU Retaining Wall, CMU Screen Wall, and Gate Consturction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 7/1/2011 - 12/31/2011 - Substation Below Grade

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 12/1/2011 - 12/31/2012 - Substation Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 8/1/2012 - 12/31/2012 - Total Transmission Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

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1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2011	1.27	10.88	6.58	0.00	3.54	0.51	4.05	0.74	0.47	1.21	1,378.10
Building 01/01/2011-02/15/2011	0.04	0.33	0.27	0.00	0.00	0.01	0.02	0.00	0.01	0.01	59.58
Building Off Road Diesel	0.02	0.21	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	23.71
Building Vendor Trips	0.01	0.11	0.08	0.00	0.00	0.00	0.01	0.00	0.00	0.00	22.40
Building Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.47
Mass Grading 01/01/2011-06/30/2011	1.02	8.62	4.75	0.00	3.53	0.40	3.94	0.74	0.37	1.11	974.08
Mass Grading Dust	0.00	0.00	0.00	0.00	3.53	0.00	3.53	0.74	0.00	0.74	0.00
Mass Grading Off Road Diesel	0.97	8.26	3.79	0.00	0.00	0.39	0.39	0.00	0.36	0.36	820.26
Mass Grading On Road Diesel	0.02	0.31	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	47.53
Mass Grading Worker Trips	0.03	0.05	0.83	0.00	0.01	0.00	0.01	0.00	0.00	0.00	106.29
Building 07/01/2011-08/15/2011	0.04	0.33	0.27	0.00	0.00	0.01	0.02	0.00	0.01	0.01	59.58
Building Off Road Diesel	0.02	0.21	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	23.71
Building Vendor Trips	0.01	0.11	0.08	0.00	0.00	0.00	0.01	0.00	0.00	0.00	22.40
Building Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.47
Building 07/01/2011-12/31/2011	0.15	1.36	1.11	0.00	0.01	0.06	0.07	0.00	0.06	0.06	243.91
Building Off Road Diesel	0.10	0.87	0.34	0.00	0.00	0.04	0.04	0.00	0.04	0.04	97.08
Building Vendor Trips	0.04	0.47	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	91.69
Building Worker Trips	0.01	0.03	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.14
Building 12/01/2011-12/31/2012	0.03	0.23	0.19	0.00	0.00	0.01	0.01	0.00	0.01	0.01	40.96
Building Off Road Diesel	0.02	0.15	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	16.30
Building Vendor Trips	0.01	0.08	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.40
Building Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.26

2012	0.40	3.53	2.94	0.00	0.02	0.16	0.17	0.01	0.14	0.15	688.87
Building 12/01/2011-12/31/2012	0.28	2.49	2.07	0.00	0.01	0.11	0.12	0.00	0.10	0.11	485.93
Building Off Road Diesel	0.18	1.61	0.65	0.00	0.00	0.07	0.07	0.00	0.07	0.07	193.41
Building Vendor Trips	0.07	0.83	0.62	0.00	0.01	0.03	0.04	0.00	0.03	0.03	182.67
Building Worker Trips	0.02	0.05	0.80	0.00	0.01	0.00	0.01	0.00	0.00	0.00	109.85
Building 08/01/2012-12/31/2012	0.12	1.04	0.87	0.00	0.00	0.05	0.05	0.00	0.04	0.04	202.94
Building Off Road Diesel	0.08	0.67	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	80.77
Building Vendor Trips	0.03	0.35	0.26	0.00	0.00	0.01	0.02	0.00	0.01	0.01	76.29
Building Worker Trips	0.01	0.02	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2011 - 6/30/2011 - Site Development and Grading Consturction

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.02	0.00	0.28	0.00	0.00	0.00	0.51
Consumer Products	0.00						
Architectural Coatings	0.09						
TOTALS (tons/year, unmitigated)	0.11	0.00	0.28	0.00	0.00	0.00	0.51

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.02	0.00	0.28	0.00	0.00	0.00	0.51
Consumer Products	0.00						
Architectural Coatings	0.08						
TOTALS (tons/year, mitigated)	0.10	0.00	0.28	0.00	0.00	0.00	0.51

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction
For Nonresidential Interior Use Low VOC Coating	10.00
For Nonresidential Exterior Use Low VOC Coating	10.00

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Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Blank (Edit this description)	0.02	0.03	0.22	0.00	0.04	0.01	24.10
TOTALS (tons/year, unmitigated)	0.02	0.03	0.22	0.00	0.04	0.01	24.10

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Blank (Edit this description)		4.00	acres	3.70	14.80	132.80
					14.80	132.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Blank (Edit this description)				2.0	1.0	97.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: H:\PDATA\Urbemis\25103691\Mira Sorrento Substation.urb924

Project Name: Mira Sorrento Substation

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	18.12	154.45	90.53	0.05	123.66	7.21	130.87	25.85	6.63	32.48	18,825.73
2011 TOTALS (lbs/day mitigated)	18.12	154.45	90.53	0.05	54.85	7.21	62.06	11.48	6.63	18.11	18,825.73
2012 TOTALS (lbs/day unmitigated)	4.33	38.11	31.79	0.04	0.18	1.69	1.87	0.06	1.55	1.61	7,447.23
2012 TOTALS (lbs/day mitigated)	4.33	38.11	31.79	0.04	0.18	1.69	1.87	0.06	1.55	1.61	7,447.23

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.59	0.02	1.55	0.00	0.01	0.01	2.81
TOTALS (lbs/day, mitigated)	0.54	0.02	1.55	0.00	0.01	0.01	2.81
Percent Reduction	8.47	0.00	0.00	NaN	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.12	0.14	1.24	0.00	0.23	0.04	136.37

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.71	0.16	2.79	0.00	0.24	0.05	139.18

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/15/2011 Active Days: 32	**18.12**	**154.45**	**90.53**	**0.05**	**123.66**	**7.21**	**130.87**	**25.85**	**6.63**	**32.48**	**18,825.73**
Building 01/01/2011-02/15/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Mass Grading 01/01/2011-06/30/2011	15.78	133.61	73.61	0.02	123.57	6.28	129.85	25.82	5.77	31.59	15,101.97
Mass Grading Dust	0.00	0.00	0.00	0.00	123.47	0.00	123.47	25.79	0.00	25.79	0.00
Mass Grading Off Road Diesel	15.00	127.99	58.81	0.00	0.00	6.04	6.04	0.00	5.55	5.55	12,717.27
Mass Grading On Road Diesel	0.38	4.87	1.87	0.01	0.02	0.20	0.22	0.01	0.18	0.19	736.83
Mass Grading Worker Trips	0.40	0.75	12.93	0.02	0.08	0.04	0.12	0.03	0.04	0.07	1,647.87
Time Slice 2/16/2011-6/30/2011 Active Days: 97	15.78	133.61	73.61	0.02	123.57	6.28	129.85	25.82	5.77	31.59	15,101.97
Mass Grading 01/01/2011-06/30/2011	15.78	133.61	73.61	0.02	123.57	6.28	129.85	25.82	5.77	31.59	15,101.97
Mass Grading Dust	0.00	0.00	0.00	0.00	123.47	0.00	123.47	25.79	0.00	25.79	0.00
Mass Grading Off Road Diesel	15.00	127.99	58.81	0.00	0.00	6.04	6.04	0.00	5.55	5.55	12,717.27
Mass Grading On Road Diesel	0.38	4.87	1.87	0.01	0.02	0.20	0.22	0.01	0.18	0.19	736.83
Mass Grading Worker Trips	0.40	0.75	12.93	0.02	0.08	0.04	0.12	0.03	0.04	0.07	1,647.87

Time Slice 7/1/2011-8/15/2011 Active Days: 32	4.69	41.68	33.84	0.04	0.18	1.87	2.04	0.06	1.71	1.77	7,447.51
Building 07/01/2011-08/15/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Time Slice 8/16/2011-11/30/2011 Active Days: 77	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Time Slice 12/1/2011-12/30/2011 Active Days: 22	4.69	41.68	33.84	0.04	0.18	1.87	2.04	0.06	1.71	1.77	7,447.51
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Building 12/01/2011-12/31/2012	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87

Time Slice 1/2/2012-7/31/2012 Active Days: 152	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building 12/01/2011-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73
Time Slice 8/1/2012-12/31/2012 Active Days: 109	4.33	38.11	31.79	0.04	0.18	1.69	1.87	0.06	1.55	1.61	7,447.23
Building 08/01/2012-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73
Building 12/01/2011-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 6/30/2011 - Site Development and Grading Consturction

Total Acres Disturbed: 2.7

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1004 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 173.85

Off-Road Equipment:

25 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 7 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 7 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

10 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

4 Scrapers (313 hp) operating at a 0.72 load factor for 7 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 3 hours per day

4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 1/1/2011 - 2/15/2011 - Verdura Retaining Wall Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 7/1/2011 - 8/15/2011 - CMU Retaining Wall, CMU Screen Wall, and Gate Consturction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

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Phase: Building Construction 7/1/2011 - 12/31/2011 - Substation Below Grade

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 12/1/2011 - 12/31/2012 - Substation Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 8/1/2012 - 12/31/2012 - Total Transmission Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

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1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/15/2011 Active Days: 32	**18.12**	**154.45**	**90.53**	**0.05**	54.85	**7.21**	62.06	11.48	**6.63**	18.11	**18,825.73**
Building 01/01/2011-02/15/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Mass Grading 01/01/2011-06/30/2011	15.78	133.61	73.61	0.02	54.76	6.28	61.04	11.45	5.77	17.22	15,101.97
Mass Grading Dust	0.00	0.00	0.00	0.00	54.66	0.00	54.66	11.41	0.00	11.41	0.00
Mass Grading Off Road Diesel	15.00	127.99	58.81	0.00	0.00	6.04	6.04	0.00	5.55	5.55	12,717.27
Mass Grading On Road Diesel	0.38	4.87	1.87	0.01	0.02	0.20	0.22	0.01	0.18	0.19	736.83
Mass Grading Worker Trips	0.40	0.75	12.93	0.02	0.08	0.04	0.12	0.03	0.04	0.07	1,647.87
Time Slice 2/16/2011-6/30/2011 Active Days: 97	15.78	133.61	73.61	0.02	54.76	6.28	61.04	11.45	5.77	17.22	15,101.97
Mass Grading 01/01/2011-06/30/2011	15.78	133.61	73.61	0.02	54.76	6.28	61.04	11.45	5.77	17.22	15,101.97
Mass Grading Dust	0.00	0.00	0.00	0.00	54.66	0.00	54.66	11.41	0.00	11.41	0.00
Mass Grading Off Road Diesel	15.00	127.99	58.81	0.00	0.00	6.04	6.04	0.00	5.55	5.55	12,717.27
Mass Grading On Road Diesel	0.38	4.87	1.87	0.01	0.02	0.20	0.22	0.01	0.18	0.19	736.83
Mass Grading Worker Trips	0.40	0.75	12.93	0.02	0.08	0.04	0.12	0.03	0.04	0.07	1,647.87

Time Slice 7/1/2011-8/15/2011 Active Days: 32	4.69	41.68	33.84	0.04	0.18	1.87	2.04	0.06	1.71	1.77	7,447.51
Building 07/01/2011-08/15/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Time Slice 8/16/2011-11/30/2011 Active Days: 77	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Time Slice 12/1/2011-12/30/2011 Active Days: 22	4.69	41.68	33.84	0.04	0.18	1.87	2.04	0.06	1.71	1.77	7,447.51
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Building 12/01/2011-12/31/2012	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87

Time Slice 1/2/2012-7/31/2012 Active Days: 152	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building 12/01/2011-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73
Time Slice 8/1/2012-12/31/2012 Active Days: 109	4.33	38.11	31.79	0.04	0.18	1.69	1.87	0.06	1.55	1.61	7,447.23
Building 08/01/2012-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73
Building 12/01/2011-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2011 - 6/30/2011 - Site Development and Grading Consturction

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	0.47						
TOTALS (lbs/day, unmitigated)	0.59	0.02	1.55	0.00	0.01	0.01	2.81

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	0.42						
TOTALS (lbs/day, mitigated)	0.54	0.02	1.55	0.00	0.01	0.01	2.81

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction
For Nonresidential Interior Use Low VOC Coating	10.00
For Nonresidential Exterior Use Low VOC Coating	10.00

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Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Blank (Edit this description)	0.12	0.14	1.24	0.00	0.23	0.04	136.37
TOTALS (lbs/day, unmitigated)	0.12	0.14	1.24	0.00	0.23	0.04	136.37

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Blank (Edit this description)		4.00	acres	3.70	14.80	132.80
					14.80	132.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Blank (Edit this description)				2.0	1.0	97.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: H:\PDATA\Urbemis\25103691\Mira Sorrento Substation.urb924

Project Name: Mira Sorrento Substation

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	18.12	154.45	90.53	0.05	123.66	7.21	130.87	25.85	6.63	32.48	18,825.73
2011 TOTALS (lbs/day mitigated)	18.12	154.45	90.53	0.05	54.85	7.21	62.06	11.48	6.63	18.11	18,825.73
2012 TOTALS (lbs/day unmitigated)	4.33	38.11	31.79	0.04	0.18	1.69	1.87	0.06	1.55	1.61	7,447.23
2012 TOTALS (lbs/day mitigated)	4.33	38.11	31.79	0.04	0.18	1.69	1.87	0.06	1.55	1.61	7,447.23

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.47	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS (lbs/day, mitigated)	0.42	0.00	0.00	0.00	0.00	0.00	0.00
Percent Reduction	10.64	NaN	NaN	NaN	NaN	NaN	NaN

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.12	0.17	1.20	0.00	0.23	0.04	123.44

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.59	0.17	1.20	0.00	0.23	0.04	123.44

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/15/2011 Active Days: 32	**18.12**	**154.45**	**90.53**	**0.05**	**123.66**	**7.21**	**130.87**	**25.85**	**6.63**	**32.48**	**18,825.73**
Building 01/01/2011-02/15/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Mass Grading 01/01/2011-06/30/2011	15.78	133.61	73.61	0.02	123.57	6.28	129.85	25.82	5.77	31.59	15,101.97
Mass Grading Dust	0.00	0.00	0.00	0.00	123.47	0.00	123.47	25.79	0.00	25.79	0.00
Mass Grading Off Road Diesel	15.00	127.99	58.81	0.00	0.00	6.04	6.04	0.00	5.55	5.55	12,717.27
Mass Grading On Road Diesel	0.38	4.87	1.87	0.01	0.02	0.20	0.22	0.01	0.18	0.19	736.83
Mass Grading Worker Trips	0.40	0.75	12.93	0.02	0.08	0.04	0.12	0.03	0.04	0.07	1,647.87
Time Slice 2/16/2011-6/30/2011 Active Days: 97	15.78	133.61	73.61	0.02	123.57	6.28	129.85	25.82	5.77	31.59	15,101.97
Mass Grading 01/01/2011-06/30/2011	15.78	133.61	73.61	0.02	123.57	6.28	129.85	25.82	5.77	31.59	15,101.97
Mass Grading Dust	0.00	0.00	0.00	0.00	123.47	0.00	123.47	25.79	0.00	25.79	0.00
Mass Grading Off Road Diesel	15.00	127.99	58.81	0.00	0.00	6.04	6.04	0.00	5.55	5.55	12,717.27
Mass Grading On Road Diesel	0.38	4.87	1.87	0.01	0.02	0.20	0.22	0.01	0.18	0.19	736.83
Mass Grading Worker Trips	0.40	0.75	12.93	0.02	0.08	0.04	0.12	0.03	0.04	0.07	1,647.87

Time Slice 7/1/2011-8/15/2011 Active Days: 32	4.69	41.68	33.84	0.04	0.18	1.87	2.04	0.06	1.71	1.77	7,447.51
Building 07/01/2011-08/15/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Time Slice 8/16/2011-11/30/2011 Active Days: 77	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Time Slice 12/1/2011-12/30/2011 Active Days: 22	4.69	41.68	33.84	0.04	0.18	1.87	2.04	0.06	1.71	1.77	7,447.51
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Building 12/01/2011-12/31/2012	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87

Time Slice 1/2/2012-7/31/2012 Active Days: 152	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building 12/01/2011-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73
Time Slice 8/1/2012-12/31/2012 Active Days: 109	4.33	38.11	31.79	0.04	0.18	1.69	1.87	0.06	1.55	1.61	7,447.23
Building 08/01/2012-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73
Building 12/01/2011-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 6/30/2011 - Site Development and Grading Consturction

Total Acres Disturbed: 2.7

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1004 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 173.85

Off-Road Equipment:

25 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 7 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 7 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

10 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

4 Scrapers (313 hp) operating at a 0.72 load factor for 7 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 3 hours per day

4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 1/1/2011 - 2/15/2011 - Verdura Retaining Wall Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 7/1/2011 - 8/15/2011 - CMU Retaining Wall, CMU Screen Wall, and Gate Consturction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

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Phase: Building Construction 7/1/2011 - 12/31/2011 - Substation Below Grade

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 12/1/2011 - 12/31/2012 - Substation Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Building Construction 8/1/2012 - 12/31/2012 - Total Transmission Construction

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 0.5 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 0.5 hours per day

1 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 4 hours per day

2 Other Equipment (190 hp) operating at a 0.62 load factor for 2 hours per day

2 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 2 hours per day

4 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 1 hours per day

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1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 4 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/15/2011 Active Days: 32	**18.12**	**154.45**	**90.53**	**0.05**	54.85	**7.21**	62.06	11.48	**6.63**	18.11	**18,825.73**
Building 01/01/2011-02/15/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Mass Grading 01/01/2011-06/30/2011	15.78	133.61	73.61	0.02	54.76	6.28	61.04	11.45	5.77	17.22	15,101.97
Mass Grading Dust	0.00	0.00	0.00	0.00	54.66	0.00	54.66	11.41	0.00	11.41	0.00
Mass Grading Off Road Diesel	15.00	127.99	58.81	0.00	0.00	6.04	6.04	0.00	5.55	5.55	12,717.27
Mass Grading On Road Diesel	0.38	4.87	1.87	0.01	0.02	0.20	0.22	0.01	0.18	0.19	736.83
Mass Grading Worker Trips	0.40	0.75	12.93	0.02	0.08	0.04	0.12	0.03	0.04	0.07	1,647.87
Time Slice 2/16/2011-6/30/2011 Active Days: 97	15.78	133.61	73.61	0.02	54.76	6.28	61.04	11.45	5.77	17.22	15,101.97
Mass Grading 01/01/2011-06/30/2011	15.78	133.61	73.61	0.02	54.76	6.28	61.04	11.45	5.77	17.22	15,101.97
Mass Grading Dust	0.00	0.00	0.00	0.00	54.66	0.00	54.66	11.41	0.00	11.41	0.00
Mass Grading Off Road Diesel	15.00	127.99	58.81	0.00	0.00	6.04	6.04	0.00	5.55	5.55	12,717.27
Mass Grading On Road Diesel	0.38	4.87	1.87	0.01	0.02	0.20	0.22	0.01	0.18	0.19	736.83
Mass Grading Worker Trips	0.40	0.75	12.93	0.02	0.08	0.04	0.12	0.03	0.04	0.07	1,647.87

Time Slice 7/1/2011-8/15/2011 Active Days: 32	4.69	41.68	33.84	0.04	0.18	1.87	2.04	0.06	1.71	1.77	7,447.51
Building 07/01/2011-08/15/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Time Slice 8/16/2011-11/30/2011 Active Days: 77	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Time Slice 12/1/2011-12/30/2011 Active Days: 22	4.69	41.68	33.84	0.04	0.18	1.87	2.04	0.06	1.71	1.77	7,447.51
Building 07/01/2011-12/31/2011	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87
Building 12/01/2011-12/31/2012	2.35	20.84	16.92	0.02	0.09	0.93	1.02	0.03	0.86	0.89	3,723.76
Building Off Road Diesel	1.52	13.32	5.16	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,482.09
Building Vendor Trips	0.62	7.13	5.16	0.01	0.05	0.29	0.34	0.02	0.27	0.29	1,399.79
Building Worker Trips	0.20	0.38	6.60	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.87

Time Slice 1/2/2012-7/31/2012 Active Days: 152	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building 12/01/2011-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73
Time Slice 8/1/2012-12/31/2012 Active Days: 109	4.33	38.11	31.79	0.04	0.18	1.69	1.87	0.06	1.55	1.61	7,447.23
Building 08/01/2012-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73
Building 12/01/2011-12/31/2012	2.17	19.06	15.89	0.02	0.09	0.85	0.93	0.03	0.78	0.81	3,723.61
Building Off Road Diesel	1.41	12.34	5.00	0.00	0.00	0.56	0.56	0.00	0.52	0.52	1,482.09
Building Vendor Trips	0.57	6.36	4.75	0.01	0.05	0.26	0.31	0.02	0.24	0.25	1,399.80
Building Worker Trips	0.19	0.35	6.14	0.01	0.04	0.02	0.06	0.01	0.02	0.03	841.73

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2011 - 6/30/2011 - Site Development and Grading Consturction

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	0.42						
TOTALS (lbs/day, mitigated)	0.42	0.00	0.00	0.00	0.00	0.00	0.00

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction
For Nonresidential Interior Use Low VOC Coating	10.00
For Nonresidential Exterior Use Low VOC Coating	10.00

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Blank (Edit this description)	0.12	0.17	1.20	0.00	0.23	0.04	123.44
TOTALS (lbs/day, unmitigated)	0.12	0.17	1.20	0.00	0.23	0.04	123.44

Operational Settings:

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Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Blank (Edit this description)		4.00	acres	3.70	14.80	132.80
					14.80	132.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Blank (Edit this description)				2.0	1.0	97.0

Operational Changes to Defaults

Construction Emissions

Year 2011

Building - Verdura Wall Construction
Duration (days): 32

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Bore/Drill Rigs	164.9	0.0095	0.0043	0.5	1	164.9	0.0095	0.0043	1.3192	0.0001	0.0000
Cranes	128.7	0.0144	0.0033	0.5	1	128.7	0.0144	0.0033	1.0296	0.0001	0.0000
Dumpers/Tenders	7.6	0.0010	0.0002	4	1	7.6	0.0010	0.0002	0.4864	0.0001	0.0000
Other Construction Equipment	122.8	0.0095	0.0032	2	2	245.6	0.0190	0.0064	7.8592	0.0006	0.0002
Other General Industrial Equipment	152.2	0.0166	0.0040	2	2	304.4	0.0332	0.0080	9.7408	0.0011	0.0003
Other Material Handling Equipment	141.2	0.0160	0.0037	1	4	564.8	0.0640	0.0148	9.0368	0.0010	0.0002
Skid Steer Loaders	30.3	0.0062	0.0008	4	1	30.3	0.0062	0.0008	1.9392	0.0004	0.0001
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	6	1	66.8	0.0092	0.0017	6.4128	0.0009	0.0002
								Total Emissions for Mass Grading	37.8240	0.0042	0.0010

Mass Grading - Site Development
Duration (days): 129

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Dumpers/Tenders	7.6	0.0010	0.0002	7	25	190.0	0.0250	0.0050	85.7850	0.0113	0.0023
Other Construction Equipment	122.8	0.0095	0.0032	7	2	245.6	0.0190	0.0064	110.8884	0.0086	0.0029
Other General Industrial Equipment	152.2	0.0166	0.0040	8	1	152.2	0.0166	0.0040	78.5352	0.0086	0.0021
Other Material Handling Equipment	141.2	0.0160	0.0037	1	10	1412.0	0.1600	0.0370	91.0740	0.0103	0.0024
Pavers	77.9	0.0160	0.0020	8	1	77.9	0.0160	0.0020	40.1964	0.0083	0.0010
Rollers	67.1	0.0106	0.0018	6	2	134.2	0.0212	0.0036	51.9354	0.0082	0.0014
Rubber Tired Dozers	239.1	0.0305	0.0062	6	2	478.2	0.0610	0.0124	185.0634	0.0236	0.0048
Scrapers	262.5	0.0289	0.0068	7	4	1050.0	0.1156	0.0272	474.0750	0.0522	0.0123
Skid Steer Loaders	30.3	0.0062	0.0008	3	2	60.6	0.0124	0.0016	11.7261	0.0024	0.0003
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	6	4	267.2	0.0368	0.0068	103.4064	0.0142	0.0026
								Total Emissions for Mass Grading	1232.6853	0.1477	0.0320

Building - CMU Retaining Wall, CMU Screeen Wall, and Gate Construction
Duration (days): 32

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Bore/Drill Rigs	164.9	0.0095	0.0043	0.5	1	164.9	0.0095	0.0043	1.3192	0.0001	0.0000
Cranes	128.7	0.0144	0.0033	0.5	1	128.7	0.0144	0.0033	1.0296	0.0001	0.0000
Dumpers/Tenders	7.6	0.0010	0.0002	4	1	7.6	0.0010	0.0002	0.4864	0.0001	0.0000
Other Construction Equipment	122.8	0.0095	0.0032	2	2	245.6	0.0190	0.0064	7.8592	0.0006	0.0002
Other General Industrial Equipment	152.2	0.0166	0.0040	2	2	304.4	0.0332	0.0080	9.7408	0.0011	0.0003
Other Material Handling Equipment	141.2	0.0160	0.0037	1	4	564.8	0.0640	0.0148	9.0368	0.0010	0.0002
Skid Steer Loaders	30.3	0.0062	0.0008	4	1	30.3	0.0062	0.0008	1.9392	0.0004	0.0001
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	6	1	66.8	0.0092	0.0017	6.4128	0.0009	0.0002
NA	0.0	0.0000	0.0000	0	0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
NA	0.0	0.0000	0.0000	0	0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
								Total Emissions for Mass Grading	37.8240	0.0042	0.0010

Building - Substation Below Grade
Duration (days): 131

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Bore/Drill Rigs	164.9	0.0095	0.0043	0.5	1	164.9	0.0095	0.0043	5.4005	0.0003	0.0001
Cranes	128.7	0.0144	0.0033	0.5	1	128.7	0.0144	0.0033	4.2149	0.0005	0.0001
Dumpers/Tenders	7.6	0.0010	0.0002	4	1	7.6	0.0010	0.0002	1.9912	0.0003	0.0001
Other Construction Equipment	122.8	0.0095	0.0032	2	2	245.6	0.0190	0.0064	32.1736	0.0025	0.0008
Other General Industrial Equipment	152.2	0.0166	0.0040	2	2	304.4	0.0332	0.0080	39.8764	0.0043	0.0010
Other Material Handling Equipment	141.2	0.0160	0.0037	1	4	564.8	0.0640	0.0148	36.9944	0.0042	0.0010
Skid Steer Loaders	30.3	0.0062	0.0008	4	1	30.3	0.0062	0.0008	7.9386	0.0016	0.0002
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	6	1	66.8	0.0092	0.0017	26.2524	0.0036	0.0007
								Total Emissions for Mass Grading	154.8420	0.0173	0.0040

Building - Substation
Duration (days): 22

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Bore/Drill Rigs	164.9	0.0095	0.0043	0.5	1	164.9	0.0095	0.0043	5.4005	0.0003	0.0001
Cranes	128.7	0.0144	0.0033	0.5	1	128.7	0.0144	0.0033	4.2149	0.0005	0.0001
Dumpers/Tenders	7.6	0.0010	0.0002	4	1	7.6	0.0010	0.0002	1.9912	0.0003	0.0001
Other Construction Equipment	122.8	0.0095	0.0032	2	2	245.6	0.0190	0.0064	32.1736	0.0025	0.0008
Other General Industrial Equipment	152.2	0.0166	0.0040	2	2	304.4	0.0332	0.0080	39.8764	0.0043	0.0010
Other Material Handling Equipment	141.2	0.0160	0.0037	1	4	564.8	0.0640	0.0148	36.9944	0.0042	0.0010
Skid Steer Loaders	30.3	0.0062	0.0008	4	1	30.3	0.0062	0.0008	7.9386	0.0016	0.0002
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	6	1	66.8	0.0092	0.0017	26.2524	0.0036	0.0007
								Total Emissions for Mass Grading	154.8420	0.0173	0.0040

Total Construction Emissions - Year 2011

tons/year	1618.02	0.19	0.04
metric tons/year	1,467.84	0.17	0.04
metric tons CO_2 eq/year	1,467.84	53.64	0.80

Notes:
Construction Equipment Emission Factor Source: Provided by SCAQMD.
Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Emissions From Natural Gas Consumed By Land Uses

Land Use	*Amount*	Cubic feet per unit/square feet/customer per month	*CO* 2.00E+01	*ROG* 5.30E+00	*NO_X* *Residential* 8.00E+01	*NO_X* *Non-Residential* 1.20E+02	*SO_X* negligible	*PM_{10}* 2.00E-01	*CO_2* 0.12	*N_2O* 2.20E-06	*CH_4* 2.30E-06
Residential											
Single Family Units		6,665	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Multi-Family Units		4,011.5	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
NonResidential											
Indutsrial		241,611	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Hotel/Motel		4.8	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Retail/Shopping Center		2.9	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Office	0	2.0	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Blank		5.0	0.00	0.00	0.00		--	0.00	0.00	0.00	0.00
TOTAL - pounds per day	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**--**	**0.00E+00**	**0.00**	**0.00**	**0.00**
TOTAL - tons per year	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**--**	**0.00E+00**	**0.0000**	**0.0000**	**0.0000**
TOTAL - metric tons per year	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

	CO_2	N_2O	CH_4
metric tons per year	0.00	0.00	0.00
metric tons CO_2eq per year	0.00	0.00	0.00

Notes:

1. Usage rate; average for SCE and LADWP.

Source:

South Coast Air Quality Management District, *CEQA Air Quality Handbook* , November 1993, Table A9-12.

Emissions From Electricity Consumed By Land Uses

Land Use	*Amount*	kilowatt-hours per year[1]	*CO* 2.00E-04	*ROG* 1.00E-05	*NO_X* 1.15E-03	*SO_X* 1.20E-04	*PM_{10}* 4.00E-05	*CO_2* 0.772	*N_2O* 6.59E-06	*CH_4* 4.04E-05
Residential (Dwelling Units)		5626.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food Store (SF)		53.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restaurant (SF)		47.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hospitals (SF)		21.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail (SF)		13.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
College/University (SF)		11.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High School (SF)		10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elementary School (SF)		5.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Office (SF)	0	12.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hotel/Motel (SF)		9.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehouse (SF)		4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous (SF)		10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blank			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL - pounds per day	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00**	**0.00**	**0.00**
TOTAL - tons per year	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00**	**0.00**	**0.00**
TOTAL - metric tons per year	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00**	**0.00**	**0.00**

	CO_2	N_2O	CH_4
metric tons per year	0.00	0.00	0.00
metric tons CO_2eq per year	0.00	0.00	0.00

Notes:

1. Usage rate; average for SCE and LADWP.

Source:

South Coast Air Quality Management District, *CEQA Air Quality Handbook* , November 1993, Table A9-11.

Source for greenhouse gas emissions rates:

U.S. Energy Information Administration, *Domestic Electricity Emissions Factors 1999-2002* , October 2007. http://www.eia.doe.gov/oiaf/1605/techassist.html

Water Consumption Indirect Emissions

	Acre Feet per year	Electricity Usage kWh/year	Units	*CO*	*ROG*	*NO_X*	*SO_X*	*PM_{10}*	*CO_2*	*N_2O*	*CH_4*
				2.00E-04	**1.00E-05**	**1.15E-03**	**1.20E-04**	**4.00E-05**	**0.772**	**6.59E-06**	**4.04E-05**
Project Demand	0	0	pounds/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
			tons/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
			mt/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
								$MTCO_2EQ$	0.00	0.00	0.00

Energy Factor 1,666 kWh/acre-foot

Based on energy usage factors for water conveyance from the California Energy Commission, Water Energy Use in California, Accessed May 2009.
http://www.energy.ca.gov/research/iaw/industry/water.html

Mobile Source Emissions Calculations

	Total	Breakdown		Emission Factor		Total Emis Passenger	Total Emis Delivery	Passnger	Delivery	Total Emissions	
	VMT	Passnger	Delivery	Passnger	Delivery	pounds/day		tons/year	tons/year	tons/year	metric tons/year
CO	133	126.35	6.65	0.00709228	0.01407778	0.90	0.09	0.16	0.02	0.18	0.16
NO_X	133	126.35	6.65	0.00071158	0.01577311	0.09	0.10	0.02	0.02	0.04	0.03
N_2O[1]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.00
ROG	133	126.35	6.65	0.00074567	0.00206295	0.09	0.01	0.02	0.00	0.02	0.02
SO_X	133	126.35	6.65	0.00001072	0.00002682	0.00	0.00	0.00	0.00	0.00	0.00
PM_{10}	133	126.35	6.65	0.00009067	0.00059956	0.01	0.00	0.00	0.00	0.00	0.00
$PM_{2.5}$	133	126.35	6.65	0.00005834	0.00050174	0.01	0.00	0.00	0.00	0.00	0.00
CH_4	133	126.35	6.65	0.00006707	0.00009703	0.01	0.00	0.00	0.00	0.00	0.00
CO_2	133	126.35	6.65	1.10087435	2.78163459	139.10	18.50	25.38	3.38	28.76	26.09

	CO_2	N_2O	CH_4
metric tons per year	26.09	0.00	0.00
metric tons CO_2eq per year	26.09	0.49	0.03

Notes:

1. VMT based upon URBEMIS 2007 model output.
2. Emission Factor based upon EMFAC 2007 (version 2.3), *Highest (Most Conservative) Emission Factors fo On-Road Passenger Vehicles and Delivery Trucks* .
3. Breakdown of Passenger and Delivery Trucks assumes 95% auto and 5% truck.
4. Emission Factor for N_2O based upon a conversion ratio of 0.04873 from NO_X to N_2O. Based upon California Air Resources Board: *Estimates of Nitrous Oxide*

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Aerial Lifts	15	8.7	0.0009	0.0002
	25	11.0	0.0019	0.0003
	50	19.6	0.0068	0.0005
	120	38.1	0.0063	0.0010
	500	212.9	0.0136	0.0055
	750	384.8	0.0530	0.0100
Aerial Lifts Composite		34.7	0.0060	0.0009
Air Compressors	15	7.2	0.0013	0.0002
	25	14.4	0.0029	0.0004
	50	22.3	0.0105	0.0006
	120	47.0	0.0091	0.0012
	175	88.5	0.0115	0.0023
	250	131.2	0.0110	0.0034
	500	231.7	0.0175	0.0060
	750	358.1	0.0275	0.0093
	1000	486.4	0.0469	0.0126
Air Compressors Composite		63.6	0.0101	0.0017
Bore/Drill Rigs	15	10.3	0.0011	0.0003
	25	16.0	0.0018	0.0004
	50	31.0	0.0049	0.0008
	120	77.1	0.0065	0.0020
	175	141.1	0.0084	0.0037
	250	188.1	0.0086	0.0049
	500	311.3	0.0134	0.0080
	750	615.1	0.0270	0.0159
	1000	928.3	0.0483	0.0240
Bore/Drill Rigs Composite		164.9	0.0095	0.0043
Cement and Mortar Mixers	15	6.3	0.0007	0.0002
	25	17.6	0.0031	0.0005
Cement and Mortar Mixers Composite		7.2	0.0009	0.0002
Concrete/Industrial Saws	25	16.5	0.0018	0.0004
	50	30.2	0.0111	0.0008
	120	74.1	0.0121	0.0019
	175	160.2	0.0174	0.0042
Concrete/Industrial Saws Composite		58.5	0.0114	0.0015
Cranes	50	23.2	0.0116	0.0006
	120	50.1	0.0101	0.0013
	175	80.3	0.0109	0.0021
	250	112.2	0.0112	0.0029
	500	180.1	0.0164	0.0047
	750	303.0	0.0278	0.0079
	9999	970.6	0.0982	0.0253
Cranes Composite		128.7	0.0144	0.0033
CrawlerTractors	50	24.9	0.0130	0.0007
	120	65.8	0.0140	0.0017
	175	121.2	0.0175	0.0032
	250	166.1	0.0185	0.0043
	500	259.2	0.0263	0.0067
	750	464.7	0.0472	0.0121
	1000	658.1	0.0719	0.0172
Crawler Tractors Composite		114.0	0.0168	0.0030
Crushing/Proc. Equipment	50	44.0	0.0205	0.0012
	120	83.1	0.0159	0.0022
	175	167.3	0.0213	0.0044
	250	244.5	0.0202	0.0063
	500	373.6	0.0279	0.0097
	750	588.8	0.0447	0.0153
	99999	1308.8	0.1246	0.0340
Crushing/Proc. Equipment Composite		132.3	0.0194	0.0035

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Dumpers/Tenders	25	7.6	0.0010	0.0002
Dumpers/TendersComposite		7.6	0.0010	0.0002
Excavators	25	16.4	0.0018	0.0004
	50	25.0	0.0102	0.0007
	120	73.6	0.0126	0.0019
	175	112.2	0.0132	0.0029
	250	158.7	0.0131	0.0041
	500	233.7	0.0179	0.0061
	750	387.4	0.0299	0.0100
Excavators Composite		119.6	0.0134	0.0031
Forklifts	50	14.7	0.0060	0.0004
	120	31.2	0.0054	0.0008
	175	56.1	0.0067	0.0015
	250	77.1	0.0059	0.0020
	500	111.0	0.0078	0.0029
Forklifts Composite		54.4	0.0062	0.0014
Generator Sets	15	10.2	0.0016	0.0003
	25	17.6	0.0027	0.0005
	50	30.6	0.0101	0.0008
	120	77.9	0.0126	0.0020
	175	142.0	0.0151	0.0037
	250	212.5	0.0146	0.0055
	500	336.9	0.0208	0.0087
	750	543.8	0.0346	0.0141
	9999	1048.6	0.0909	0.0272
Generator Sets Composite		61.0	0.0087	0.0016
Graders	50	27.5	0.0126	0.0007
	120	75.0	0.0140	0.0020
	175	123.9	0.0157	0.0032
	250	172.1	0.0159	0.0045
	500	229.5	0.0194	0.0060
	750	485.7	0.0413	0.0126
Graders Composite		132.7	0.0155	0.0035
Off-Highway Tractors	120	93.7	0.0222	0.0025
	175	130.4	0.0210	0.0034
	250	130.4	0.0170	0.0034
	750	568.1	0.0667	0.0148
	1000	814.3	0.1009	0.0213
Off-Highway Tractors Composite		151.4	0.0213	0.0040
Off-Highway Trucks	175	125.1	0.0156	0.0033
	250	166.5	0.0148	0.0043
	500	272.3	0.0225	0.0071
	750	441.7	0.0367	0.0115
	1000	624.7	0.0581	0.0162
Off-Highway Trucks Composite		260.1	0.0224	0.0067
Other Construction Equipment	15	6.4	0.0006	0.0002
	25	15.3	0.0017	0.0004
	50	21.7	0.0116	0.0006
	120	62.0	0.0132	0.0016
	175	95.9	0.0137	0.0025
	500	265.4	0.0225	0.0069
Other Construction Equipment Composite		122.8	0.0095	0.0032

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Other General Industrial Equipment	15	6.4	0.0006	0.0002
	25	15.3	0.0017	0.0004
	50	21.7	0.0116	0.0006
	120	62.0	0.0132	0.0016
	175	95.9	0.0137	0.0025
	250	135.6	0.0126	0.0035
	500	265.4	0.0225	0.0069
	750	437.4	0.0374	0.0114
	1000	559.6	0.0575	0.0146
Other General Industrial Equipment Composite		152.2	0.0166	0.0040
Other Material Handling Equipment	50	30.3	0.0160	0.0008
	120	60.7	0.0128	0.0016
	175	122.1	0.0173	0.0032
	250	145.0	0.0134	0.0038
	500	191.6	0.0161	0.0050
	9999	741.3	0.0756	0.0193
Other Material Handling Equipment Composite		141.2	0.0160	0.0037
Pavers	25	18.7	0.0025	0.0005
	50	28.0	0.0146	0.0008
	120	69.2	0.0148	0.0018
	175	128.3	0.0185	0.0034
	250	194.4	0.0219	0.0051
	500	233.2	0.0236	0.0061
Pavers Composite		77.9	0.0160	0.0020
Paving Equipment	25	12.6	0.0014	0.0003
	50	23.9	0.0125	0.0006
	120	54.5	0.0116	0.0014
	175	101.0	0.0144	0.0026
	250	122.3	0.0136	0.0032
Paving Equipment Composite		68.9	0.0120	0.0018
Plate Compactors	15	4.3	0.0005	0.0001
Plate Compactors Composite		4.3	0.0005	0.0001
Pressure Washers	15	4.9	0.0007	0.0001
	25	7.1	0.0011	0.0002
	50	14.3	0.0037	0.0004
	120	24.1	0.0035	0.0006
Pressure Washers Composite		9.4	0.0018	0.0002
Pumps	15	7.4	0.0013	0.0002
	25	19.5	0.0040	0.0005
	50	34.3	0.0121	0.0009
	120	77.9	0.0130	0.0030
	175	140.1	0.0154	0.0037
	250	201.4	0.0144	0.0052
	500	345.2	0.0221	0.0089
	750	570.7	0.0376	0.0148
	9999	1354.8	0.1196	0.0352
Pumps Composite		49.6	0.0084	0.0013
Rollers	15	6.3	0.0007	0.0002
	25	13.3	0.0015	0.0003
	50	26.0	0.0114	0.0007
	120	59.0	0.0108	0.0015
	175	108.1	0.0133	0.0028
	250	153.1	0.0139	0.0040
	500	219.1	0.0179	0.0057
Rollers Composite		67.1	0.0106	0.0018

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Rough Terrain Forklifts	50	33.9	0.0143	0.0009
	120	62.4	0.0109	0.0016
	175	124.9	0.0148	0.0033
	250	170.8	0.0137	0.0044
	500	256.6	0.0189	0.0067
Rough Terrain Forklifts Composite		70.3	0.0115	0.0018
Rubber Tired Dozers	175	129.5	0.0216	0.0035
	250	183.5	0.0250	0.0048
	500	264.9	0.0326	0.0069
	750	398.8	0.0492	0.0104
	1000	591.9	0.0763	0.0155
Rubber Tired Dozers Composite		239.1	0.0305	0.0062
Rubber Tired Loaders	25	16.9	0.0019	0.0004
	50	31.1	0.0141	0.0008
	120	58.9	0.0109	0.0015
	175	106.3	0.0133	0.0028
	250	149.0	0.0135	0.0039
	500	237.0	0.0196	0.0062
	750	485.5	0.0404	0.0126
	1000	593.9	0.0555	0.0154
Rubber Tired Loaders Composite		108.6	0.0130	0.0028
Scrapers	120	93.9	0.0202	0.0025
	175	148.1	0.0216	0.0039
	250	209.5	0.0236	0.0054
	500	321.4	0.0329	0.0084
	750	555.3	0.0570	0.0145
Scrapers Composite		262.5	0.0289	0.0068
Signal Boards	15	6.2	0.0006	0.0002
	50	36.2	0.0135	0.0010
	120	80.2	0.0135	0.0021
	175	154.5	0.0172	0.0040
	250	255.3	0.0185	0.0066
Signal Boards Composite		16.7	0.0020	0.0004
Skid Steer Loaders	25	13.8	0.0022	0.0004
	50	25.5	0.0071	0.0007
	120	42.8	0.0055	0.0011
Skid Steer Loaders Composite		30.3	0.0062	0.0008
Surfacing Equipment	50	14.1	0.0053	0.0004
	120	63.8	0.0107	0.0017
	175	85.8	0.0097	0.0022
	250	134.9	0.0113	0.0035
	500	221.2	0.0167	0.0057
	750	347.0	0.0267	0.0090
Surfacing Equipment Composite		166.0	0.0140	0.0043
Sweepers/Scrubbers	15	11.9	0.0011	0.0003
	25	19.6	0.0022	0.0005
	50	31.6	0.0136	0.0008
	120	75.0	0.0134	0.0020
	175	139.0	0.0167	0.0036
	250	162.0	0.0121	0.0042
Sweepers/Scrubbers Composite		78.5	0.0140	0.0021
Tractors/Loaders/Backhoes	25	15.9	0.0019	0.0004
	50	30.3	0.0113	0.0008
	120	51.7	0.0082	0.0014
	175	101.4	0.0110	0.0026
	250	171.7	0.0128	0.0045
	500	344.9	0.0237	0.0089
	750	517.3	0.0359	0.0134
Tractors/Loaders/Backhoes Composite		66.8	0.0092	0.0017

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Trenchers	15	8.5	0.0009	0.0002
	25	32.9	0.0036	0.0009
	50	32.9	0.0166	0.0009
	120	64.9	0.0136	0.0017
	175	143.9	0.0293	0.0038
	250	222.9	0.0250	0.0058
	500	311.3	0.0313	0.0081
	750	586.9	0.0594	0.0153
Trenchers Composite		58.7	0.0151	0.0015
Welders	15	6.2	0.0011	0.0002
	25	11.2	0.0023	0.0003
	50	26.0	0.0111	0.0007
	120	39.5	0.0073	0.0010
	175	98.2	0.0120	0.0026
	250	119.1	0.0095	0.0031
	500	167.6	0.0120	0.0043
Welders Composite		25.6	0.0073	0.0007

Emission factors sent by ARB on December 7, 2006 in grams per hour. EF converted by SCAQMD to pounds per hour.

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Aerial Lifts	15	8.7	0.0009	0.0002
	25	11.0	0.0013	0.0003
	50	19.6	0.0034	0.0005
	120	38.1	0.0033	0.0010
	500	212.9	0.0080	0.0055
	750	384.8	0.0149	0.0099
Aerial Lifts Composite		34.7	0.0032	0.0009
Air Compressors	15	7.2	0.0009	0.0002
	25	14.4	0.0019	0.0004
	50	22.3	0.0053	0.0006
	120	47.0	0.0051	0.0012
	175	88.5	0.0068	0.0023
	250	131.2	0.0071	0.0034
	500	231.7	0.0119	0.0060
	750	358.1	0.0186	0.0093
	1000	486.4	0.0282	0.0126
Air Compressors Composite		63.6	0.0058	0.0017
Bore/Drill Rigs	15	10.3	0.0011	0.0003
	25	16.0	0.0017	0.0004
	50	31.0	0.0019	0.0008
	120	77.1	0.0029	0.0020
	175	141.1	0.0047	0.0037
	250	188.1	0.0052	0.0049
	500	311.3	0.0086	0.0080
	750	615.1	0.0171	0.0159
	1000	928.3	0.0272	0.0240
Bore/Drill Rigs Composite		164.9	0.0052	0.0043
Cement and Mortar Mixers	15	6.3	0.0007	0.0002
	25	17.6	0.0021	0.0005
Cement and Mortar Mixers Composite		7.2	0.0008	0.0002
Concrete/Industrial Saws	25	16.5	0.0018	0.0004
	50	30.2	0.0056	0.0008
	120	74.1	0.0066	0.0019
	175	160.2	0.0101	0.0042
Concrete/Industrial Saws Composite		58.5	0.0061	0.0015
Cranes	50	23.2	0.0064	0.0006
	120	50.1	0.0062	0.0013
	175	80.3	0.0073	0.0021
	250	112.2	0.0075	0.0029
	500	180.1	0.0114	0.0047
	750	303.0	0.0193	0.0078
	9999	970.6	0.0706	0.0252
Cranes Composite		24.9	0.0079	0.0033
CrawlerTractors	50	24.9	0.0079	0.0007
	120	65.8	0.0091	0.0017
	175	121.2	0.0122	0.0032
	250	166.1	0.0127	0.0043
	500	259.2	0.0187	0.0067
	750	464.7	0.0336	0.0121
	1000	658.1	0.0512	0.0171
Crawler Tractors Composite		114.0	0.0114	0.0030

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Crushing/Proc. Equipment	50	44.0	0.0098	0.0012
	120	83.1	0.0086	0.0022
	175	167.3	0.0124	0.6300
	250	244.5	0.0132	0.0097
	500	373.6	0.0193	0.0152
	750	588.8	0.0302	0.0339
	99999	1308.8	0.0785	0.0339
Crushing/Proc. Equipment Composite		132.3	0.0110	0.0034
Dumpers/Tenders	25	7.6	0.0008	0.0002
Dumpers/TendersComposite		7.6	0.0008	0.0002
Excavators	25	16.4	0.0019	0.0004
	50	25.0	0.0047	0.0007
	120	73.6	0.0069	0.0019
	175	112.2	0.0081	0.0029
	250	158.7	0.0090	0.0041
	500	233.7	0.0128	0.0060
	750	387.4	0.0213	0.0100
Excavators Composite		119.6	0.0083	0.0031
Forklifts	50	14.7	0.0023	0.0040
	120	31.2	0.0026	0.0008
	175	56.1	0.0038	0.0015
	250	77.1	0.0042	0.0020
	500	111.0	0.0059	0.0029
Forklifts Composite		54.4	0.0036	0.0014
Generator Sets	15	10.2	0.0011	0.0003
	25	17.6	0.0021	0.0005
	50	30.6	0.0050	0.0008
	120	77.9	0.0065	0.0020
	175	142.0	0.0081	0.0037
	250	212.5	0.0084	0.0055
	500	336.9	0.0121	0.0087
	750	543.8	0.0201	0.0141
	9999	1048.6	0.0507	0.0271
Generator Sets Composite		6.1	0.0048	0.0016
Graders	50	27.5	0.0067	0.0007
	120	75.0	0.0084	0.0020
	175	123.9	0.0102	0.0032
	250	172.1	0.0106	0.0045
	500	229.5	0.0135	0.0059
	750	485.7	0.0288	0.0126
Graders Composite		132.7	0.0101	0.0035
Off-Highway Tractors	120	93.7	0.0154	0.0025
	175	130.4	0.0153	0.0034
	250	130.4	0.0121	0.0034
	750	568.1	0.0490	0.0148
	1000	814.3	0.0742	0.0212
Off-Highway Tractors Composite		151.4	0.0155	0.0039
Off-Highway Trucks	175	125.1	0.0097	0.0033
	250	166.5	0.0100	0.0043
	500	272.3	0.0158	0.0070
	750	441.7	0.0258	0.0114
	1000	624.7	0.0389	0.0162
Off-Highway Trucks Composite		260.1	0.0154	0.0067

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Other Construction Equipment	15	10.1	0.0011	0.0003
	25	13.2	0.0014	0.0003
	50	28.0	0.0042	0.0007
	120	80.9	0.0061	0.0021
	175	106.5	0.0060	0.0028
	500	254.2	0.0107	0.0066
Other Construction Equipment Composite		122.5	0.0061	0.0032
Other General Industrial Equipment	15	6.4	0.0006	0.0002
	25	15.3	0.0017	0.0004
	50	21.7	0.0056	0.0006
	120	62.0	0.0073	0.0016
	175	95.9	0.0082	0.0025
	250	135.6	0.0084	0.0035
	500	265.4	0.0157	0.0069
	750	437.4	0.0261	0.0113
	1000	559.6	0.0367	0.0145
Other General Industrial Equipment Composite		152.2	0.0107	0.0039
Other Material Handling Equipment	50	30.3	0.0078	0.0008
	120	60.7	0.0071	0.0016
	175	122.1	0.0103	0.0032
	250	145.0	0.0089	0.0038
	500	191.6	0.0112	0.0050
	9999	741.3	0.0507	0.0192
Other Material Handling Equipment Composite		141.2	0.0101	0.0037
Pavers	25	18.7	0.0021	0.0005
	50	28.0	0.0094	0.0007
	120	69.2	0.0099	0.0018
	175	128.3	0.0130	0.0033
	250	194.4	0.0150	0.0050
	500	233.2	0.0168	0.0061
Pavers Composite		77.9	0.0108	0.0020
Paving Equipment	25	12.6	0.0014	0.0003
	50	23.9	0.0080	0.0006
	120	54.5	0.0077	0.0014
	175	101.0	0.0101	0.0026
	250	122.3	0.0092	0.0032
Paving Equipment Composite		68.9	0.0082	0.0018
Plate Compactors	15	4.3	0.0005	0.0001
Plate Compactors Composite		4.3	0.0005	0.0001
Pressure Washers	15	4.9	0.0005	0.0010
	25	7.1	0.0009	0.0002
	50	14.3	0.0018	0.0004
	120	24.1	0.0017	0.0006
Pressure Washers Composite		9.4	0.0010	0.0002
Pumps	15	7.4	0.0009	0.0002
	25	19.5	0.0026	0.0005
	50	34.3	0.0061	0.0009
	120	77.9	0.0069	0.0020
	175	140.1	0.0085	0.0036
	250	201.4	0.0084	0.0052
	500	345.2	0.0132	0.0089
	750	570.7	0.0224	0.0148
	9999	1,354.8	0.0681	0.0351
Pumps Composite		49.6	0.0046	0.0013

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Rollers	15	6.3	0.0007	0.0002
	25	13.3	0.0015	0.0003
	50	26.0	0.0066	0.0007
	120	59.0	0.0066	0.0015
	175	108.1	0.0087	0.0028
	250	153.1	0.0089	0.0040
	500	219.1	0.0119	0.0057
Rollers Composite		67.0	0.0066	0.0017
Rough Terrain Forklifts	50	33.9	0.0067	0.0009
	120	62.4	0.0060	0.0016
	175	124.9	0.0090	0.0033
	250	170.8	0.0094	0.0044
	500	256.6	0.0137	0.0066
Rough Terrain Forklifts Composite		70.3	0.0064	0.0018
Rubber Tired Dozers	175	129.5	0.0159	0.0034
	250	183.5	0.0180	0.0048
	500	264.9	0.0240	0.0069
	750	398.8	0.0362	0.0104
	1000	591.9	0.0566	0.0154
Rubber Tired Dozers Composite		239.1	0.0222	0.0062
Rubber Tired Loaders	25	16.9	0.0018	0.0004
	50	31.1	0.0074	0.0008
	120	58.9	0.0064	0.0015
	175	106.3	0.0086	0.0028
	250	149.0	0.0090	0.0039
	500	237.0	0.0137	0.0061
	750	485.5	0.0282	0.0126
	1000	593.9	0.0374	0.0154
Rubber Tired Loaders Composite		108.6	0.0083	0.0028
Scrapers	120	93.9	0.0133	0.0025
	175	148.1	0.0151	0.0039
	250	209.5	0.0163	0.0054
	500	321.4	0.0234	0.0083
	750	555.3	0.0406	0.0144
Scrapers Composite		262.5	0.0204	0.0068
Signal Boards	15	6.2	0.0006	0.0002
	50	36.2	0.0067	0.0010
	120	80.2	0.0070	0.0021
	175	154.5	0.0095	0.0040
	250	255.3	0.0111	0.0066
Signal Boards Composite		16.7	0.0014	0.0004
Skid Steer Loaders	25	13.8	0.0016	0.0004
	50	25.5	0.0026	0.0007
	120	42.8	0.0024	0.0011
Skid Steer Loaders Composite		30.3	0.0025	0.0008
Surfacing Equipment	50	14.1	0.0031	0.0004
	120	63.8	0.0065	0.0017
	175	85.8	0.0062	0.0022
	250	134.9	0.0070	0.0035
	500	221.2	0.0107	0.0057
	750	347.0	0.0170	0.0090
Surfacing Equipment Composite		166.0	0.0088	0.0043

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Sweepers/Scrubbers	15	11.9	0.0011	0.0003
	25	19.6	0.0021	0.0005
	50	31.6	0.0052	0.0008
	120	75.0	0.0063	0.0020
	175	139.0	0.0093	0.0036
	250	162.0	0.0084	0.0042
Sweepers/Scrubbers Composite		78.5	0.0067	0.0020
Tractors/Loaders/Backhoes	25	15.9	0.0017	0.0004
	50	30.3	0.0050	0.0008
	120	51.7	0.0043	0.0014
	175	101.4	0.0066	0.0026
	250	171.7	0.0087	0.0044
	500	344.9	0.0170	0.0089
	750	517.3	0.0256	0.0134
Tractors/Loaders/Backhoes Composite		66.8	0.0050	0.0017
Trenchers	15	8.5	0.0009	0.0002
	25	32.9	0.0036	0.0009
	50	32.9	0.0110	0.0009
	120	64.9	0.0092	0.0017
	175	143.9	0.0143	0.0038
	250	222.9	0.0170	0.0058
	500	311.3	0.0220	0.0081
	750	586.9	0.0416	0.0152
Trenchers Composite		58.7	0.0102	0.0015
Welders	15	6.2	0.0008	0.0002
	25	11.3	0.0015	0.0003
	50	26.0	0.0058	0.0007
	120	39.5	0.0040	0.0010
	175	98.2	0.0070	0.0026
	250	119.1	0.0059	0.0031
	500	167.6	0.0078	0.0043
Welders Composite		25.6	0.0039	0.0007

Emission factors sent by ARB on December 7, 2006 in grams per hour. EF converted by SCAQMD to pounds per hour.

Construction Emissions

Year 2012

Building - Total Transmission Construction

Duration (days): 109

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Bore/Drill Rigs	164.9	0.0095	0.0043	0.5	1	164.9	0.0095	0.0043	4.4935	0.0003	0.0001
Cranes	128.7	0.0144	0.0033	0.5	1	128.7	0.0144	0.0033	3.5071	0.0004	0.0001
Dumpers/Tenders	7.6	0.0010	0.0002	4	1	7.6	0.0010	0.0002	1.6568	0.0002	0.0000
Other Construction Equipment	122.8	0.0095	0.0032	2	2	245.6	0.0190	0.0064	26.7704	0.0021	0.0007
Other General Industrial Equipment	152.2	0.0166	0.0040	2	2	304.4	0.0332	0.0080	33.1796	0.0036	0.0009
Other Material Handling Equipment	141.2	0.0160	0.0037	1	4	564.8	0.0640	0.0148	30.7816	0.0035	0.0008
Skid Steer Loaders	30.3	0.0062	0.0008	4	1	30.3	0.0062	0.0008	6.6054	0.0014	0.0002
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	6	1	66.8	0.0092	0.0017	21.8436	0.0030	0.0006
								Total Emissions for Mass Grading	128.8380	0.0144	0.0034

Building - Substation

Duration (days): 261

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Bore/Drill Rigs	164.9	0.0095	0.0043	2	1	164.9	0.0095	0.0043	17.9741	0.0010	0.0005
Cranes	128.7	0.0144	0.0033	2	1	128.7	0.0144	0.0033	14.0283	0.0016	0.0004
Dumpers/Tenders	7.6	0.0010	0.0002	2	1	7.6	0.0010	0.0002	0.8284	0.0001	0.0000
Other Construction Equipment	122.8	0.0095	0.0032	2	1	122.8	0.0095	0.0032	13.3852	0.0010	0.0003
Other General Industrial Equipment	152.2	0.0166	0.0040	2	1	152.2	0.0166	0.0040	16.5898	0.0018	0.0004
Other Material Handling Equipment	141.2	0.0160	0.0037	2	1	141.2	0.0160	0.0037	15.3908	0.0017	0.0004
Skid Steer Loaders	30.3	0.0062	0.0008	2	10	303.0	0.0620	0.0080	33.0270	0.0068	0.0009
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	1	1	66.8	0.0092	0.0017	3.6406	0.0005	0.0001
								Total Emissions for Mass Grading	114.8642	0.0146	0.0030

Total Construction Emissions - Year 2012

tons/year	243.70	0.03	0.01
metric tons/year	221.08	0.03	0.01
metric tons CO_2 eq/year	221.08	8.15	0.12

Notes:
Construction Equipment Emission Factor Source: Provided by SCAQMD.
Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Emissions From Natural Gas Consumed By Land Uses

Land Use	*Amount*	Cubic feet per unit/square feet/customer per month	*CO* 2.00E+01	*ROG* 5.30E+00	*NO_X* *Residential* 8.00E+01	*NO_X* *Non-Residential* 1.20E+02	*SO_X* negligible	*PM_{10}* 2.00E-01	*CO_2* 0.12	*N_2O* 2.20E-06	*CH_4* 2.30E-06
Residential											
Single Family Units		6,665	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Multi-Family Units		4,011.5	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
NonResidential											
Indutsrial		241,611	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Hotel/Motel		4.8	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Retail/Shopping Center		2.9	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Office	0	2.0	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Blank		5.0	0.00	0.00	0.00		--	0.00	0.00	0.00	0.00
TOTAL - pounds per day	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**--**	**0.00E+00**	**0.00**	**0.00**	**0.00**
TOTAL - tons per year	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**--**	**0.00E+00**	**0.0000**	**0.0000**	**0.0000**
TOTAL - metric tons per year	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

	CO_2	N_2O	CH_4
metric tons per year	0.00	0.00	0.00
metric tons CO_2eq per year	0.00	0.00	0.00

Notes:

1. Usage rate; average for SCE and LADWP.

Source:

South Coast Air Quality Management District, *CEQA Air Quality Handbook* , November 1993, Table A9-12.

Emissions From Electricity Consumed By Land Uses

Land Use	*Amount*	kilowatt-hours per year[1]	*CO* 2.00E-04	*ROG* 1.00E-05	*NO_X* 1.15E-03	*SO_X* 1.20E-04	*PM_{10}* 4.00E-05	*CO_2* 0.772	*N_2O* 6.59E-06	*CH_4* 4.04E-05
Residential (Dwelling Units)		5626.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food Store (SF)		53.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restaurant (SF)		47.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hospitals (SF)		21.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail (SF)		13.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
College/University (SF)		11.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High School (SF)		10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elementary School (SF)		5.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Office (SF)	0	12.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hotel/Motel (SF)		9.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehouse (SF)		4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous (SF)		10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blank			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL - pounds per day	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00**	**0.00**	**0.00**
TOTAL - tons per year	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00**	**0.00**	**0.00**
TOTAL - metric tons per year	**--**	**--**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00**	**0.00**	**0.00**

	CO_2	N_2O	CH_4
metric tons per year	0.00	0.00	0.00
metric tons CO_2eq per year	0.00	0.00	0.00

Notes:

1. Usage rate; average for SCE and LADWP.

Source:

South Coast Air Quality Management District, *CEQA Air Quality Handbook* , November 1993, Table A9-11.

Source for greenhouse gas emissions rates:

U.S. Energy Information Administration, *Domestic Electricity Emissions Factors 1999-2002* , October 2007. http://www.eia.doe.gov/oiaf/1605/techassist.html

Water Consumption Indirect Emissions

	Acre Feet per year	Electricity Usage kWh/year	Units	*CO*	*ROG*	*NO_X*	*SO_X*	*PM_{10}*	*CO_2*	*N_2O*	*CH_4*
				2.00E-04	**1.00E-05**	**1.15E-03**	**1.20E-04**	**4.00E-05**	**0.772**	**6.59E-06**	**4.04E-05**
Project Demand	0	0	pounds/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
			tons/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
			mt/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
								$MTCO_2EQ$	0.00	0.00	0.00

Energy Factor 1,666 kWh/acre-foot

Based on energy usage factors for water conveyance from the California Energy Commission, Water Energy Use in California, Accessed May 2009.
http://www.energy.ca.gov/research/iaw/industry/water.html

Mobile Source Emissions Calculations

	Total	Breakdown		Emission Factor		Total Emis Passenger	Total Emis Delivery	Passnger	Delivery	Total Emissions	
	VMT	Passnger	Delivery	Passnger	Delivery	pounds/day		tons/year	tons/year	tons/year	metric tons/year
CO	133	126.35	6.65	0.00709228	0.01407778	0.90	0.09	0.16	0.02	0.18	0.16
NO_X	133	126.35	6.65	0.00071158	0.01577311	0.09	0.10	0.02	0.02	0.04	0.03
N_2O[1]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00	0.00
ROG	133	126.35	6.65	0.00074567	0.00206295	0.09	0.01	0.02	0.00	0.02	0.02
SO_X	133	126.35	6.65	0.00001072	0.00002682	0.00	0.00	0.00	0.00	0.00	0.00
PM_{10}	133	126.35	6.65	0.00009067	0.00059956	0.01	0.00	0.00	0.00	0.00	0.00
$PM_{2.5}$	133	126.35	6.65	0.00005834	0.00050174	0.01	0.00	0.00	0.00	0.00	0.00
CH_4	133	126.35	6.65	0.00006707	0.00009703	0.01	0.00	0.00	0.00	0.00	0.00
CO_2	133	126.35	6.65	1.10087435	2.78163459	139.10	18.50	25.38	3.38	28.76	26.09

	CO_2	N_2O	CH_4
metric tons per year	26.09	0.00	0.00
metric tons CO_2eq per year	26.09	0.49	0.03

Notes:

1. VMT based upon URBEMIS 2007 model output.
2. Emission Factor based upon EMFAC 2007 (version 2.3), *Highest (Most Conservative) Emission Factors fo On-Road Passenger Vehicles and Delivery Trucks* .
3. Breakdown of Passenger and Delivery Trucks assumes 95% auto and 5% truck.
4. Emission Factor for N_2O based upon a conversion ratio of 0.04873 from NO_X to N_2O. Based upon California Air Resources Board: *Estimates of Nitrous Oxide*

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Aerial Lifts	15	8.7	0.0009	0.0002
	25	11.0	0.0019	0.0003
	50	19.6	0.0068	0.0005
	120	38.1	0.0063	0.0010
	500	212.9	0.0136	0.0055
	750	384.8	0.0530	0.0100
Aerial Lifts Composite		34.7	0.0060	0.0009
Air Compressors	15	7.2	0.0013	0.0002
	25	14.4	0.0029	0.0004
	50	22.3	0.0105	0.0006
	120	47.0	0.0091	0.0012
	175	88.5	0.0115	0.0023
	250	131.2	0.0110	0.0034
	500	231.7	0.0175	0.0060
	750	358.1	0.0275	0.0093
	1000	486.4	0.0469	0.0126
Air Compressors Composite		63.6	0.0101	0.0017
Bore/Drill Rigs	15	10.3	0.0011	0.0003
	25	16.0	0.0018	0.0004
	50	31.0	0.0049	0.0008
	120	77.1	0.0065	0.0020
	175	141.1	0.0084	0.0037
	250	188.1	0.0086	0.0049
	500	311.3	0.0134	0.0080
	750	615.1	0.0270	0.0159
	1000	928.3	0.0483	0.0240
Bore/Drill Rigs Composite		164.9	0.0095	0.0043
Cement and Mortar Mixers	15	6.3	0.0007	0.0002
	25	17.6	0.0031	0.0005
Cement and Mortar Mixers Composite		7.2	0.0009	0.0002
Concrete/Industrial Saws	25	16.5	0.0018	0.0004
	50	30.2	0.0111	0.0008
	120	74.1	0.0121	0.0019
	175	160.2	0.0174	0.0042
Concrete/Industrial Saws Composite		58.5	0.0114	0.0015
Cranes	50	23.2	0.0116	0.0006
	120	50.1	0.0101	0.0013
	175	80.3	0.0109	0.0021
	250	112.2	0.0112	0.0029
	500	180.1	0.0164	0.0047
	750	303.0	0.0278	0.0079
	9999	970.6	0.0982	0.0253
Cranes Composite		128.7	0.0144	0.0033
CrawlerTractors	50	24.9	0.0130	0.0007
	120	65.8	0.0140	0.0017
	175	121.2	0.0175	0.0032
	250	166.1	0.0185	0.0043
	500	259.2	0.0263	0.0067
	750	464.7	0.0472	0.0121
	1000	658.1	0.0719	0.0172
Crawler Tractors Composite		114.0	0.0168	0.0030
Crushing/Proc. Equipment	50	44.0	0.0205	0.0012
	120	83.1	0.0159	0.0022
	175	167.3	0.0213	0.0044
	250	244.5	0.0202	0.0063
	500	373.6	0.0279	0.0097
	750	588.8	0.0447	0.0153
	99999	1308.8	0.1246	0.0340
Crushing/Proc. Equipment Composite		132.3	0.0194	0.0035
Dumpers/Tenders	25	7.6	0.0010	0.0002
Dumpers/TendersComposite		7.6	0.0010	0.0002

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Excavators	25	16.4	0.0018	0.0004
	50	25.0	0.0102	0.0007
	120	73.6	0.0126	0.0019
	175	112.2	0.0132	0.0029
	250	158.7	0.0131	0.0041
	500	233.7	0.0179	0.0061
	750	387.4	0.0299	0.0100
Excavators Composite		119.6	0.0134	0.0031
Forklifts	50	14.7	0.0060	0.0004
	120	31.2	0.0054	0.0008
	175	56.1	0.0067	0.0015
	250	77.1	0.0059	0.0020
	500	111.0	0.0078	0.0029
Forklifts Composite		54.4	0.0062	0.0014
Generator Sets	15	10.2	0.0016	0.0003
	25	17.6	0.0027	0.0005
	50	30.6	0.0101	0.0008
	120	77.9	0.0126	0.0020
	175	142.0	0.0151	0.0037
	250	212.5	0.0146	0.0055
	500	336.9	0.0208	0.0087
	750	543.8	0.0346	0.0141
	9999	1048.6	0.0909	0.0272
Generator Sets Composite		61.0	0.0087	0.0016
Graders	50	27.5	0.0126	0.0007
	120	75.0	0.0140	0.0020
	175	123.9	0.0157	0.0032
	250	172.1	0.0159	0.0045
	500	229.5	0.0194	0.0060
	750	485.7	0.0413	0.0126
Graders Composite		132.7	0.0155	0.0035
Off-Highway Tractors	120	93.7	0.0222	0.0025
	175	130.4	0.0210	0.0034
	250	130.4	0.0170	0.0034
	750	568.1	0.0667	0.0148
	1000	814.3	0.1009	0.0213
Off-Highway Tractors Composite		151.4	0.0213	0.0040
Off-Highway Trucks	175	125.1	0.0156	0.0033
	250	166.5	0.0148	0.0043
	500	272.3	0.0225	0.0071
	750	441.7	0.0367	0.0115
	1000	624.7	0.0581	0.0162
Off-Highway Trucks Composite		260.1	0.0224	0.0067
Other Construction Equipment	15	6.4	0.0006	0.0002
	25	15.3	0.0017	0.0004
	50	21.7	0.0116	0.0006
	120	62.0	0.0132	0.0016
	175	95.9	0.0137	0.0025
	500	265.4	0.0225	0.0069
Other Construction Equipment Composite		122.8	0.0095	0.0032
Other General Industrial Equipment	15	6.4	0.0006	0.0002
	25	15.3	0.0017	0.0004
	50	21.7	0.0116	0.0006
	120	62.0	0.0132	0.0016
	175	95.9	0.0137	0.0025
	250	135.6	0.0126	0.0035
	500	265.4	0.0225	0.0069
	750	437.4	0.0374	0.0114
	1000	559.6	0.0575	0.0146
Other General Industrial Equipment Composite		152.2	0.0166	0.0040

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Other Material Handling Equipment	50	30.3	0.0160	0.0008
	120	60.7	0.0128	0.0016
	175	122.1	0.0173	0.0032
	250	145.0	0.0134	0.0038
	500	191.6	0.0161	0.0050
	9999	741.3	0.0756	0.0193
Other Material Handling Equipment Composite		141.2	0.0160	0.0037
Pavers	25	18.7	0.0025	0.0005
	50	28.0	0.0146	0.0008
	120	69.2	0.0148	0.0018
	175	128.3	0.0185	0.0034
	250	194.4	0.0219	0.0051
	500	233.2	0.0236	0.0061
Pavers Composite		77.9	0.0160	0.0020
Paving Equipment	25	12.6	0.0014	0.0003
	50	23.9	0.0125	0.0006
	120	54.5	0.0116	0.0014
	175	101.0	0.0144	0.0026
	250	122.3	0.0136	0.0032
Paving Equipment Composite		68.9	0.0120	0.0018
Plate Compactors	15	4.3	0.0005	0.0001
Plate Compactors Composite		4.3	0.0005	0.0001
Pressure Washers	15	4.9	0.0007	0.0001
	25	7.1	0.0011	0.0002
	50	14.3	0.0037	0.0004
	120	24.1	0.0035	0.0006
Pressure Washers Composite		9.4	0.0018	0.0002
Pumps	15	7.4	0.0013	0.0002
	25	19.5	0.0040	0.0005
	50	34.3	0.0121	0.0009
	120	77.9	0.0130	0.0030
	175	140.1	0.0154	0.0037
	250	201.4	0.0144	0.0052
	500	345.2	0.0221	0.0089
	750	570.7	0.0376	0.0148
	9999	1354.8	0.1196	0.0352
Pumps Composite		49.6	0.0084	0.0013
Rollers	15	6.3	0.0007	0.0002
	25	13.3	0.0015	0.0003
	50	26.0	0.0114	0.0007
	120	59.0	0.0108	0.0015
	175	108.1	0.0133	0.0028
	250	153.1	0.0139	0.0040
	500	219.1	0.0179	0.0057
Rollers Composite		67.1	0.0106	0.0018
Rough Terrain Forklifts	50	33.9	0.0143	0.0009
	120	62.4	0.0109	0.0016
	175	124.9	0.0148	0.0033
	250	170.8	0.0137	0.0044
	500	256.6	0.0189	0.0067
Rough Terrain Forklifts Composite		70.3	0.0115	0.0018
Rubber Tired Dozers	175	129.5	0.0216	0.0035
	250	183.5	0.0250	0.0048
	500	264.9	0.0326	0.0069
	750	398.8	0.0492	0.0104
	1000	591.9	0.0763	0.0155
Rubber Tired Dozers Composite		239.1	0.0305	0.0062

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Rubber Tired Loaders	25	16.9	0.0019	0.0004
	50	31.1	0.0141	0.0008
	120	58.9	0.0109	0.0015
	175	106.3	0.0133	0.0028
	250	149.0	0.0135	0.0039
	500	237.0	0.0196	0.0062
	750	485.5	0.0404	0.0126
	1000	593.9	0.0555	0.0154
Rubber Tired Loaders Composite		108.6	0.0130	0.0028
Scrapers	120	93.9	0.0202	0.0025
	175	148.1	0.0216	0.0039
	250	209.5	0.0236	0.0054
	500	321.4	0.0329	0.0084
	750	555.3	0.0570	0.0145
Scrapers Composite		262.5	0.0289	0.0068
Signal Boards	15	6.2	0.0006	0.0002
	50	36.2	0.0135	0.0010
	120	80.2	0.0135	0.0021
	175	154.5	0.0172	0.0040
	250	255.3	0.0185	0.0066
Signal Boards Composite		16.7	0.0020	0.0004
Skid Steer Loaders	25	13.8	0.0022	0.0004
	50	25.5	0.0071	0.0007
	120	42.8	0.0055	0.0011
Skid Steer Loaders Composite		30.3	0.0062	0.0008
Surfacing Equipment	50	14.1	0.0053	0.0004
	120	63.8	0.0107	0.0017
	175	85.8	0.0097	0.0022
	250	134.9	0.0113	0.0035
	500	221.2	0.0167	0.0057
	750	347.0	0.0267	0.0090
Surfacing Equipment Composite		166.0	0.0140	0.0043
Sweepers/Scrubbers	15	11.9	0.0011	0.0003
	25	19.6	0.0022	0.0005
	50	31.6	0.0136	0.0008
	120	75.0	0.0134	0.0020
	175	139.0	0.0167	0.0036
	250	162.0	0.0121	0.0042
Sweepers/Scrubbers Composite		78.5	0.0140	0.0021
Tractors/Loaders/Backhoes	25	15.9	0.0019	0.0004
	50	30.3	0.0113	0.0008
	120	51.7	0.0082	0.0014
	175	101.4	0.0110	0.0026
	250	171.7	0.0128	0.0045
	500	344.9	0.0237	0.0089
	750	517.3	0.0359	0.0134
Tractors/Loaders/Backhoes Composite		66.8	0.0092	0.0017
Trenchers	15	8.5	0.0009	0.0002
	25	32.9	0.0036	0.0009
	50	32.9	0.0166	0.0009
	120	64.9	0.0136	0.0017
	175	143.9	0.0293	0.0038
	250	222.9	0.0250	0.0058
	500	311.3	0.0313	0.0081
	750	586.9	0.0594	0.0153
Trenchers Composite		58.7	0.0151	0.0015
Welders	15	6.2	0.0011	0.0002
	25	11.2	0.0023	0.0003
	50	26.0	0.0111	0.0007
	120	39.5	0.0073	0.0010
	175	98.2	0.0120	0.0026
	250	119.1	0.0095	0.0031
	500	167.6	0.0120	0.0043
Welders Composite		25.6	0.0073	0.0007

Emission factors sent by ARB on December 7, 2006 in grams per hour. EF converted by SCAQMD to pounds per hour.

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Aerial Lifts	15	8.7	0.0009	0.0002
	25	11.0	0.0013	0.0003
	50	19.6	0.0034	0.0005
	120	38.1	0.0033	0.0010
	500	212.9	0.0080	0.0055
	750	384.8	0.0149	0.0099
Aerial Lifts Composite		34.7	0.0032	0.0009
Air Compressors	15	7.2	0.0009	0.0002
	25	14.4	0.0019	0.0004
	50	22.3	0.0053	0.0006
	120	47.0	0.0051	0.0012
	175	88.5	0.0068	0.0023
	250	131.2	0.0071	0.0034
	500	231.7	0.0119	0.0060
	750	358.1	0.0186	0.0093
	1000	486.4	0.0282	0.0126
Air Compressors Composite		63.6	0.0058	0.0017
Bore/Drill Rigs	15	10.3	0.0011	0.0003
	25	16.0	0.0017	0.0004
	50	31.0	0.0019	0.0008
	120	77.1	0.0029	0.0020
	175	141.1	0.0047	0.0037
	250	188.1	0.0052	0.0049
	500	311.3	0.0086	0.0080
	750	615.1	0.0171	0.0159
	1000	928.3	0.0272	0.0240
Bore/Drill Rigs Composite		164.9	0.0052	0.0043
Cement and Mortar Mixers	15	6.3	0.0007	0.0002
	25	17.6	0.0021	0.0005
Cement and Mortar Mixers Composite		7.2	0.0008	0.0002
Concrete/Industrial Saws	25	16.5	0.0018	0.0004
	50	30.2	0.0056	0.0008
	120	74.1	0.0066	0.0019
	175	160.2	0.0101	0.0042
Concrete/Industrial Saws Composite		58.5	0.0061	0.0015
Cranes	50	23.2	0.0064	0.0006
	120	50.1	0.0062	0.0013
	175	80.3	0.0073	0.0021
	250	112.2	0.0075	0.0029
	500	180.1	0.0114	0.0047
	750	303.0	0.0193	0.0078
	9999	970.6	0.0706	0.0252
Cranes Composite		24.9	0.0079	0.0033
CrawlerTractors	50	24.9	0.0079	0.0007
	120	65.8	0.0091	0.0017
	175	121.2	0.0122	0.0032
	250	166.1	0.0127	0.0043
	500	259.2	0.0187	0.0067
	750	464.7	0.0336	0.0121
	1000	658.1	0.0512	0.0171
Crawler Tractors Composite		114.0	0.0114	0.0030

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Crushing/Proc. Equipment	50	44.0	0.0098	0.0012
	120	83.1	0.0086	0.0022
	175	167.3	0.0124	0.6300
	250	244.5	0.0132	0.0097
	500	373.6	0.0193	0.0152
	750	588.8	0.0302	0.0339
	99999	1308.8	0.0785	0.0339
Crushing/Proc. Equipment Composite		132.3	0.0110	0.0034
Dumpers/Tenders	25	7.6	0.0008	0.0002
Dumpers/TendersComposite		7.6	0.0008	0.0002
Excavators	25	16.4	0.0019	0.0004
	50	25.0	0.0047	0.0007
	120	73.6	0.0069	0.0019
	175	112.2	0.0081	0.0029
	250	158.7	0.0090	0.0041
	500	233.7	0.0128	0.0060
	750	387.4	0.0213	0.0100
Excavators Composite		119.6	0.0083	0.0031
Forklifts	50	14.7	0.0023	0.0040
	120	31.2	0.0026	0.0008
	175	56.1	0.0038	0.0015
	250	77.1	0.0042	0.0020
	500	111.0	0.0059	0.0029
Forklifts Composite		54.4	0.0036	0.0014
Generator Sets	15	10.2	0.0011	0.0003
	25	17.6	0.0021	0.0005
	50	30.6	0.0050	0.0008
	120	77.9	0.0065	0.0020
	175	142.0	0.0081	0.0037
	250	212.5	0.0084	0.0055
	500	336.9	0.0121	0.0087
	750	543.8	0.0201	0.0141
	9999	1048.6	0.0507	0.0271
Generator Sets Composite		6.1	0.0048	0.0016
Graders	50	27.5	0.0067	0.0007
	120	75.0	0.0084	0.0020
	175	123.9	0.0102	0.0032
	250	172.1	0.0106	0.0045
	500	229.5	0.0135	0.0059
	750	485.7	0.0288	0.0126
Graders Composite		132.7	0.0101	0.0035
Off-Highway Tractors	120	93.7	0.0154	0.0025
	175	130.4	0.0153	0.0034
	250	130.4	0.0121	0.0034
	750	568.1	0.0490	0.0148
	1000	814.3	0.0742	0.0212
Off-Highway Tractors Composite		151.4	0.0155	0.0039
Off-Highway Trucks	175	125.1	0.0097	0.0033
	250	166.5	0.0100	0.0043
	500	272.3	0.0158	0.0070
	750	441.7	0.0258	0.0114
	1000	624.7	0.0389	0.0162
Off-Highway Trucks Composite		260.1	0.0154	0.0067

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Other Construction Equipment	15	10.1	0.0011	0.0003
	25	13.2	0.0014	0.0003
	50	28.0	0.0042	0.0007
	120	80.9	0.0061	0.0021
	175	106.5	0.0060	0.0028
	500	254.2	0.0107	0.0066
Other Construction Equipment Composite		122.5	0.0061	0.0032
Other General Industrial Equipment	15	6.4	0.0006	0.0002
	25	15.3	0.0017	0.0004
	50	21.7	0.0056	0.0006
	120	62.0	0.0073	0.0016
	175	95.9	0.0082	0.0025
	250	135.6	0.0084	0.0035
	500	265.4	0.0157	0.0069
	750	437.4	0.0261	0.0113
	1000	559.6	0.0367	0.0145
Other General Industrial Equipment Composite		152.2	0.0107	0.0039
Other Material Handling Equipment	50	30.3	0.0078	0.0008
	120	60.7	0.0071	0.0016
	175	122.1	0.0103	0.0032
	250	145.0	0.0089	0.0038
	500	191.6	0.0112	0.0050
	9999	741.3	0.0507	0.0192
Other Material Handling Equipment Composite		141.2	0.0101	0.0037
Pavers	25	18.7	0.0021	0.0005
	50	28.0	0.0094	0.0007
	120	69.2	0.0099	0.0018
	175	128.3	0.0130	0.0033
	250	194.4	0.0150	0.0050
	500	233.2	0.0168	0.0061
Pavers Composite		77.9	0.0108	0.0020
Paving Equipment	25	12.6	0.0014	0.0003
	50	23.9	0.0080	0.0006
	120	54.5	0.0077	0.0014
	175	101.0	0.0101	0.0026
	250	122.3	0.0092	0.0032
Paving Equipment Composite		68.9	0.0082	0.0018
Plate Compactors	15	4.3	0.0005	0.0001
Plate Compactors Composite		4.3	0.0005	0.0001
Pressure Washers	15	4.9	0.0005	0.0010
	25	7.1	0.0009	0.0002
	50	14.3	0.0018	0.0004
	120	24.1	0.0017	0.0006
Pressure Washers Composite		9.4	0.0010	0.0002
Pumps	15	7.4	0.0009	0.0002
	25	19.5	0.0026	0.0005
	50	34.3	0.0061	0.0009
	120	77.9	0.0069	0.0020
	175	140.1	0.0085	0.0036
	250	201.4	0.0084	0.0052
	500	345.2	0.0132	0.0089
	750	570.7	0.0224	0.0148
	9999	1,354.8	0.0681	0.0351
Pumps Composite		49.6	0.0046	0.0013

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Rollers	15	6.3	0.0007	0.0002
	25	13.3	0.0015	0.0003
	50	26.0	0.0066	0.0007
	120	59.0	0.0066	0.0015
	175	108.1	0.0087	0.0028
	250	153.1	0.0089	0.0040
	500	219.1	0.0119	0.0057
Rollers Composite		67.0	0.0066	0.0017
Rough Terrain Forklifts	50	33.9	0.0067	0.0009
	120	62.4	0.0060	0.0016
	175	124.9	0.0090	0.0033
	250	170.8	0.0094	0.0044
	500	256.6	0.0137	0.0066
Rough Terrain Forklifts Composite		70.3	0.0064	0.0018
Rubber Tired Dozers	175	129.5	0.0159	0.0034
	250	183.5	0.0180	0.0048
	500	264.9	0.0240	0.0069
	750	398.8	0.0362	0.0104
	1000	591.9	0.0566	0.0154
Rubber Tired Dozers Composite		239.1	0.0222	0.0062
Rubber Tired Loaders	25	16.9	0.0018	0.0004
	50	31.1	0.0074	0.0008
	120	58.9	0.0064	0.0015
	175	106.3	0.0086	0.0028
	250	149.0	0.0090	0.0039
	500	237.0	0.0137	0.0061
	750	485.5	0.0282	0.0126
	1000	593.9	0.0374	0.0154
Rubber Tired Loaders Composite		108.6	0.0083	0.0028
Scrapers	120	93.9	0.0133	0.0025
	175	148.1	0.0151	0.0039
	250	209.5	0.0163	0.0054
	500	321.4	0.0234	0.0083
	750	555.3	0.0406	0.0144
Scrapers Composite		262.5	0.0204	0.0068
Signal Boards	15	6.2	0.0006	0.0002
	50	36.2	0.0067	0.0010
	120	80.2	0.0070	0.0021
	175	154.5	0.0095	0.0040
	250	255.3	0.0111	0.0066
Signal Boards Composite		16.7	0.0014	0.0004
Skid Steer Loaders	25	13.8	0.0016	0.0004
	50	25.5	0.0026	0.0007
	120	42.8	0.0024	0.0011
Skid Steer Loaders Composite		30.3	0.0025	0.0008
Surfacing Equipment	50	14.1	0.0031	0.0004
	120	63.8	0.0065	0.0017
	175	85.8	0.0062	0.0022
	250	134.9	0.0070	0.0035
	500	221.2	0.0107	0.0057
	750	347.0	0.0170	0.0090
Surfacing Equipment Composite		166.0	0.0088	0.0043

		(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**Max HP**	**CO2**	**CH4**	**N2O**
Sweepers/Scrubbers	15	11.9	0.0011	0.0003
	25	19.6	0.0021	0.0005
	50	31.6	0.0052	0.0008
	120	75.0	0.0063	0.0020
	175	139.0	0.0093	0.0036
	250	162.0	0.0084	0.0042
Sweepers/Scrubbers Composite		78.5	0.0067	0.0020
Tractors/Loaders/Backhoes	25	15.9	0.0017	0.0004
	50	30.3	0.0050	0.0008
	120	51.7	0.0043	0.0014
	175	101.4	0.0066	0.0026
	250	171.7	0.0087	0.0044
	500	344.9	0.0170	0.0089
	750	517.3	0.0256	0.0134
Tractors/Loaders/Backhoes Composite		66.8	0.0050	0.0017
Trenchers	15	8.5	0.0009	0.0002
	25	32.9	0.0036	0.0009
	50	32.9	0.0110	0.0009
	120	64.9	0.0092	0.0017
	175	143.9	0.0143	0.0038
	250	222.9	0.0170	0.0058
	500	311.3	0.0220	0.0081
	750	586.9	0.0416	0.0152
Trenchers Composite		58.7	0.0102	0.0015
Welders	15	6.2	0.0008	0.0002
	25	11.3	0.0015	0.0003
	50	26.0	0.0058	0.0007
	120	39.5	0.0040	0.0010
	175	98.2	0.0070	0.0026
	250	119.1	0.0059	0.0031
	500	167.6	0.0078	0.0043
Welders Composite		25.6	0.0039	0.0007

Emission factors sent by ARB on December 7, 2006 in grams per hour. EF converted by SCAQMD to pounds per hour.

GHGs from SF_6 Leakage

GHG	Emission Factor	Circuit Breaker SF_6 Capacity (pounds)	SF_6 CO_2e	CO_2e (pounds/year)	CO_2e (metric tons per year)
SF_6	1	242	23900	57838	26.23

APPENDIX C

BIOLOGICAL RESOURCES REPORT

Draft Biological Technical Report for the Mira Sorrento Substation Project, City of San Diego, California

Prepared for

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1.0 Summary of Findings

This report describes the existing biological resources, proposed impacts, applicant proposed measures (APMs), and associated mitigation requirements for San Diego Gas & Electric's (SDG&E) Mira Sorrento Substation Project, located in the city of San Diego, San Diego County. SDG&E proposes construction of the new Mira Sorrento Substation located entirely on land owned and acquired by SDG&E.

Five sensitive vegetation communities—freshwater marsh, southern willow scrub, mule fat scrub (undisturbed and disturbed), Diegan coastal sage scrub (remnant, restored, and disturbed), and native grassland—are present within the survey area. One sensitive reptile species, coastal whiptail (*Aspidoscelis tigris stejnegeri*), has been observed within the survey area. One sensitive avian species, coastal California gnatcatcher (*Polioptila californica californica*), has a moderate potential to occur within the survey area.

U.S. Army Corps of Engineers (USACE), California Department of Fish and Game (CDFG), California Regional Water Quality Control Board (RWQCB), and City of San Diego's jurisdictional resources were all delineated within the Mira Sorrento Substation site. USACE jurisdictional resources total 0.23 acre on site, including 0.19 acre of USACE wetlands and 0.04 acre of USACE non-wetland waters. CDFG and RWQCB jurisdictional resources total 0.38 acre on-site. This acreage primarily consists of riparian habitat and the unvegetated streambed associated with the unnamed creek within the survey area. A total of 0.38 acre of wetland habitat falls within the City of San Diego's jurisdiction. The 0.38-acre area consists of riparian habitat (CDFG and RWQCB jurisdiction also). Each of the agencies will verify this delineation during the permitting process.

The SDG&E Natural Community Conservation Program (NCCP) identifies 61 protocols to avoid, minimize, and mitigate impacts. These protocols have become part of the SDG&E Environmental Standards for natural resources. The NCCP protocols will be applied to the Proposed Project. The NCCP protocols will avoid and minimize many of the potential impacts. In addition, SDG&E is proposing Applicant Proposed Measures (APMs) as part of the Proposed Project to further reduce all potential impacts to sensitive biological resources, including sensitive vegetation communities and sensitive wildlife species, to a level of less than significant.

2.0 Introduction

This report describes the existing biological resources, proposed impacts, APMs, and mitigation required for the 2.8-acre Mira Sorrento Substation Project, located in the community of Mira Mesa in the city of San Diego, San Diego County (Figure 1). The site is shown on the U.S. Geological Survey (USGS) Del Mar quadrangle, within the Pueblo Lands of San Diego and Section 5 of Township 15 South, Range 3 West (USGS 1975; Figure 2). The proposed Mira Sorrento Substation is located east of Interstate 805 (I-805) and is bordered to the north, south, and west by Mira Sorrento Place, Vista Sorrento Parkway, and Mira Mesa Boulevard (Figure 3).

This report is intended to satisfy biological review requirements in accordance with SDG&E's Subregional NCCP (SDG&E 1995).

2.1 Proposed Project

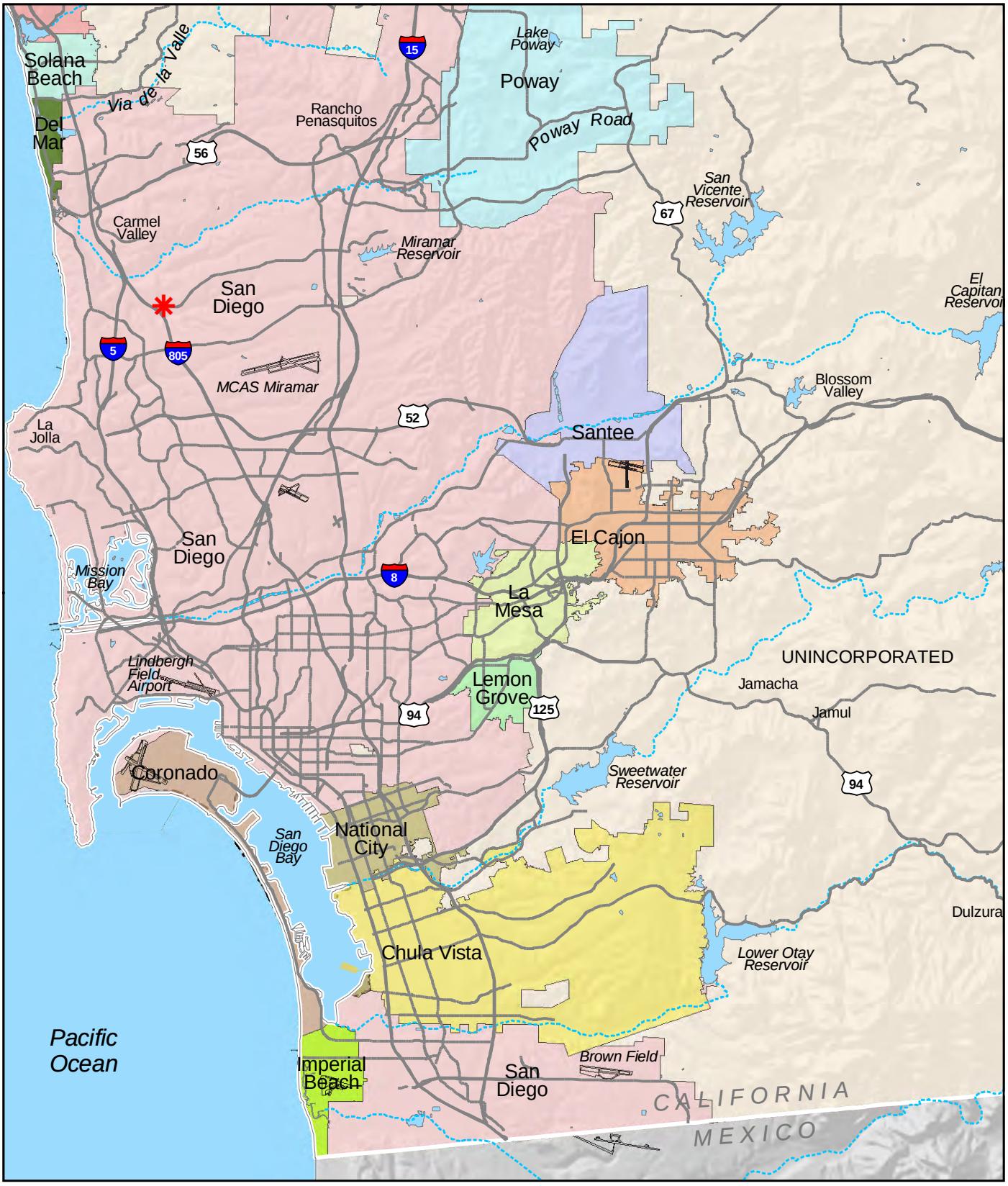
SDG&E proposes construction of a new facility, the Mira Sorrento Substation (Substation), in order to meet existing and anticipated customer-driven electrical load growth and to improve distribution equipment reliability that would prevent potential long outages or disruption of service to existing customers in SDG&E's service territory in the vicinity of Sorrento Mesa. The Substation will be located entirely on land owned and acquired by SDG&E. For the purposes of this document, the Proposed Project is divided into the following primary components:

- 120MVA 69/12 kilovolt (kV) Mira Sorrento Substation
- TL665 Loop-in

2.1.1 Mira Sorrento Substation

The main component of the Proposed Project is the construction of a new substation. Ultimately, the Substation perimeter wall/fence will enclose an area approximately 62,420 square feet in size, for a total of 1.43 acres. A 10-foot-high wall will be constructed around the perimeter of the Substation.

Construction will require permanent cut and fill slopes in areas to the south and east of the Substation. Site development of the new Substation will consist of vegetation clearing and grubbing, remedial grading, drainage structures, and construction of retaining walls. Following this, the perimeter wall will be constructed. During or prior to the perimeter wall construction, the underground ducts beneath the wall footings will be installed. Once these items are complete, the final grading will be accomplished on the



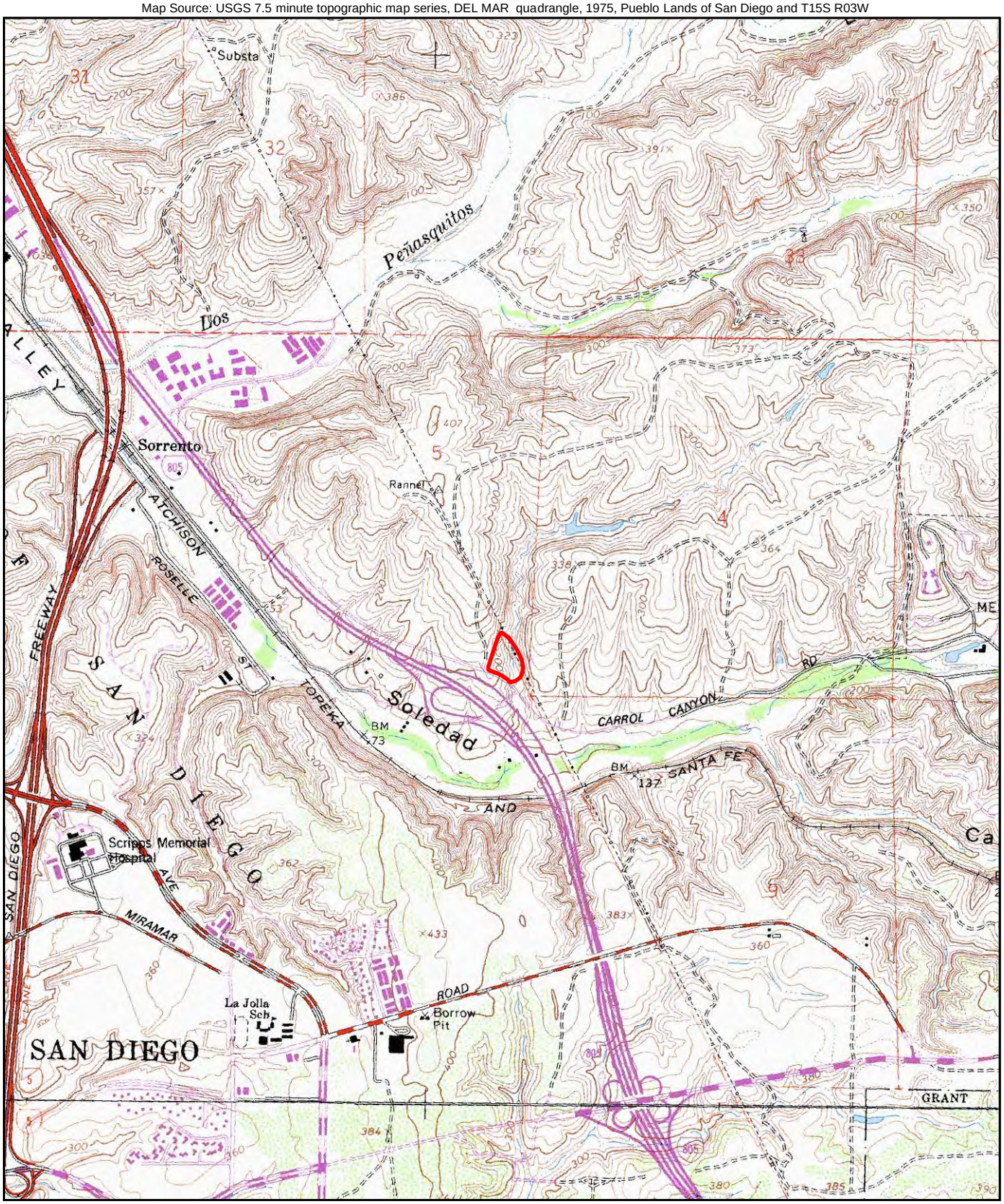
Project Location

FIGURE 1
Regional Location of the
Mira Sorrento Substation Project

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Map Source: USGS 7.5 minute topographic map series, DEL MAR quadrangle, 1975, Pueblo Lands of San Diego and T15S R03W



0 Feet 2,000

Survey Area

FIGURE 2
Mira Sorrento Substation Project
Survey Area Location on USGS Map

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Image Source: Courtesy of Microsoft Virtual Earth



FIGURE 3
Mira Sorrento Substation Project
Survey Area Location on Aerial Photograph

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Substation pad. Landscaping will be installed in conjunction with the Substation construction and after the site development construction activities are complete.

The electrical facilities to be installed include 69/12kV air-insulated electrical buses, steel support structures, transformers, capacitors, reactors, circuit breakers, disconnect switches, communication equipment, control equipment, and protective relays.

Additional facilities will include metering, Supervisory Control and Data Acquisition (SCADA) security, and communications equipment. The Substation equipment will be fully contained within the walled area. The tallest structure on the Substation site will be the standard steel rack. The maximum height for this structure will be approximately 30 feet. Additional underground work will take place outside the Substation footprint within existing roads, Mira Sorrento Place, Vista Sorrento Parkway, Scranton Road, and Mira Mesa Boulevard.

An existing SDG&E power transmission corridor is adjacent to the project site to the east. The transmission corridor, with a general north-south alignment, will serve as the initial power supply into the proposed Substation.

Six 300-watt tungsten-quarts lamps will provide lighting for the Substation. Four of these lamps will be installed on the inside of the perimeter walls approximately 6 to 8 feet above finished grade, with one lamp per wall. The remaining lamps will be installed on the control shelter, located just below the roofline at about 10 feet above the grade. One 100-watt yellow floodlight will be installed inside the Substation at the entry gate on a pole, seven feet above grade. The floodlight will have shielding to orient the light downward and may remain on during night hours. Interior lighting inside of the Substation is intended for safety during emergency repair work.

The proposed Substation will require construction of retaining walls and screening walls around the perimeter of the building pad. The retaining walls and screening walls will be constructed of a concrete keystone block to give the walls an articulated surface and increase the visual quality.

Two asphalt-paved driveways will be constructed extending southeast from Mira Sorrento Place to provide access to the site. A graded and asphalt-paved access road will extend around the perimeter of the Substation building pad.

The majority of construction equipment, vehicles, personnel, and material staging areas will be accommodated within the property lines of the proposed Substation site. Equipment staging will also occur at existing substation storage yards, including Kearny, Miguel, Peñasquitos Substation, and Clairemont storage facilities. Temporary parking of some vehicles along Mira Sorrento Place may be required depending on the construction activities being accomplished at the time. Access to the Project site during construction will be along Mira Sorrento Place.

2.1.2 TL665 Loop-In

The TL665 loop-in will be constructed in the same general location as the Mira Sorrento Substation. This loop will be located on land acquired for the new Substation and within SDG&E's existing right-of-way (ROW). TL665 is an existing 69kV circuit with terminal points at Peñasquitos and Genesee Substations. Currently, TL665 proceeds northward on existing overhead facilities from Genesee Substation and transitions underground on an existing 69kV cable pole located along Vista Sorrento Place. The existing underground segment then progresses southward along Vista Sorrento Place for approximately 2,100 feet before transitioning back overhead on another existing 69kV cable pole located near a business park just north of Mira Sorrento Parkway. TL665 then continues northward on existing overhead facilities and terminates at Peñasquitos Substation.

As part of the Proposed Project, TL665 will split and proceed underground via two new parallel trench alignments along Vista Sorrento Parkway to the proposed Mira Sorrento Substation at a distance of approximately 1,000 feet each of single circuit 69kV duct package infrastructure. These new trench alignments will be established from an interception point from an existing underground duct package (TL665) as described above. This new underground alignment will proceed south along Vista Sorrento Parkway then cross Mira Sorrento Place to the new Mira Sorrento Substation.

Staging for the TL665 loop-in component would occur at the existing SDG&E-owned Peñasquitos Substation. This staging area would be used primarily for the storage of transmission material and related construction equipment.

3.0 Survey Methods

Data regarding biological resources within the Mira Sorrento Substation Project survey area were obtained through field reconnaissance and a literature review of applicable reference materials and reports. The primary objective of the field surveys was to assess the existing conditions of the on-site biological resources, focusing on three primary objectives: (1) vegetation mapping, (2) plant and wildlife species inventory and assessment of the potential occurrence of sensitive species, and (3) delineating jurisdictional resources. A summary of survey dates, personnel, activities, times, and weather conditions are provided in Table 1.

TABLE 1
SURVEY DATE, PERSONNEL, TIMES, AND WEATHER CONDITIONS
FOR SURVEY CONDUCTED IN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA

Date	Survey Type	Surveyor	Beginning Conditions	Ending Conditions
9/2/2009	General biological survey and jurisdictional delineation	Brenna Ogg Michael Nieto	8:00 A.M.; 71ºF; winds 0–2 mph; 0% cloud cover	11:45 P.M.; 93ºF; winds 0–5 mph; 0% cloud cover

ºF = degrees Fahrenheit; mph = miles per hour; % = percent

3.1 Literature Review

Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for the species (Jennings and Hayes 1994; Unitt 2004; State of California 2009a-d; California Native Plant Society [CNPS] 2001; Reiser 2001), species occurrence records from the California Natural Diversity Database (CNDDB; State of California 2009e) and the All Species Occurrences Database (U.S. Fish and Wildlife Service [USFWS] 2009), and species occurrence records from other sites in the vicinity of the survey area.

Additional literature reviewed includes:

- *Habitat Assessment for the San Diego Gas and Electric Mira Sorrento Substation Project (Essex 2003).*

3.2 Habitat Assessment Surveys

RECON biologists Brenna Ogg and Michael Nieto mapped vegetation within the 6.6-acre survey area on September 2, 2009 (see Table 1). The survey area includes the proposed project site and a 100-foot buffer. Vegetation communities were mapped on a one-inch-equals-200-feet aerial photograph flown in 2008. The biologists covered all portions of the survey area on foot. Vegetation community classifications follow Holland (1986) as modified by Oberbauer (2005).

3.3 Species Inventory and Assessment

All plant species observed on the property were noted, and plants that could not be identified in the field were identified later using taxonomic keys. The survey included a directed search for sensitive plants that would have been apparent at the time of the survey. Limitations to the compilation of a comprehensive floral checklist were imposed by seasonal factors, such as blooming period and emergence of some annual species, and record low precipitation. Floral nomenclature for common plants follows

Hickman (1993) as updated by the Jepson Online Interchange (Jepson Flora Project 2009), for ornamental plants Brenzel (2001), and for sensitive plants CNPS (2001).

Animal species observed directly or detected from calls, tracks, scat, nests, or other sign were noted. The wildlife surveys were limited by seasonal and temporal factors. For example, as the survey was performed during summer, species that are only present during the winter (e.g., avian winter migrants) may not have been detected. Surveys were performed during the day; therefore, nocturnal animals were identified by sign that was apparent at the time of the surveys. Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (1998) and Unitt (2004); for mammals with Baker et al. (2003) and Hall (1981); for amphibians and reptiles with Crother (2001) and Crother et al. (2003); and for invertebrates with Mattoni (1990) and Opler and Wright (1999).

3.4 Jurisdictional Delineation

A routine jurisdictional delineation, following the guidelines set forth by USACE (1987, 2006), was performed by Michael Nieto to gather field data at potential jurisdictional wetland sites in the survey area on September 2, 2009. Prior to conducting the delineation, aerial photographs and USGS topographic maps of the site were examined. Once on-site, the potential jurisdictional areas were evaluated to determine the presence of any jurisdictional areas or drainage channels. The remainder of the survey area was also examined in the field for the presence of potential waters of the U.S. The jurisdictional delineation report was prepared as a separate document (RECON 2010).

Wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. According to USACE, indicators for all three parameters must be present to qualify as a wetland. Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation or hydric soil characteristics. Hydric soil indicators may be missing because topographic position precludes ponding and subsequent development of hydric soils. Absence of wetland vegetation can result from frequent scouring due to rapid water flow. These types of jurisdictional waters are delineated by the lateral and upstream/downstream extent of the ordinary high water mark of the particular drainage or depression. Areas meeting the criteria for jurisdiction under CDFG and RWQCB were also evaluated and mapped.

4.0 Existing Conditions

4.1 Topography and Soils

The Proposed Project consists of a small hilltop with steep, northwest- and southwest-facing manufactured slopes and a steep, east-facing slope of an isolated, urban canyon. The canyon is intersected by roads to the north and south and is ultimately surrounded by industrial and commercial development (see Figure 3). The drainage, which runs north to south along the canyon bottom, is culverted under Mira Sorrento Place and Vista Sorrento Parkway.

The elevation for the survey area ranges from approximately 115 feet to 220 feet above mean sea level (MSL) with the lowest elevation in the southernmost canyon bottom and the highest elevation atop the hill in the western portion of the survey area.

Two soil series—Altamont and Huerhuero—have been mapped within this survey area (U.S. Department of Agriculture [USDA] 1973). Characteristics of these soils are summarized below from the Soil Survey of San Diego Area, California (USDA 1973).

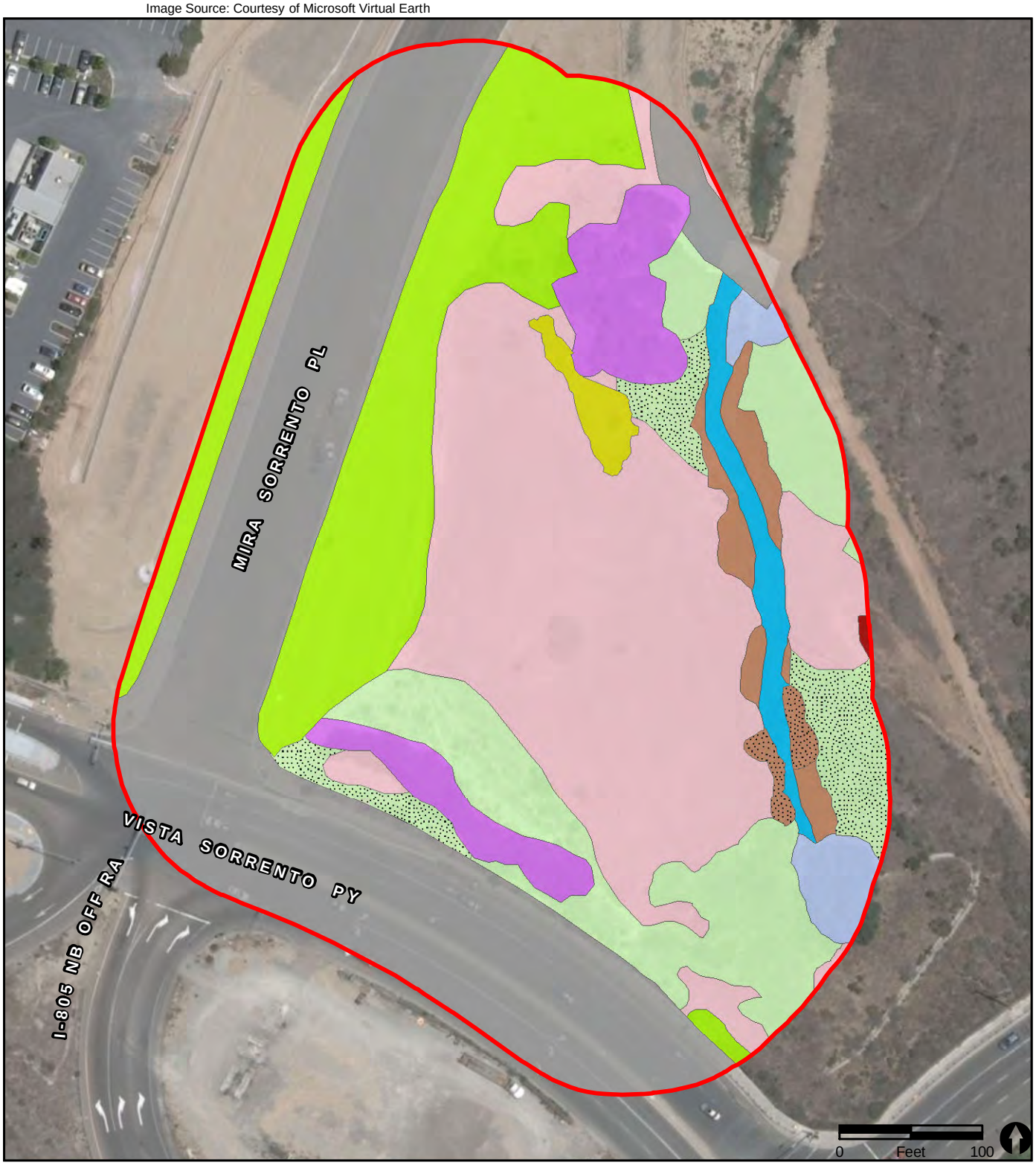
One soil type of the Altamont series is present within the majority of the survey area. This series developed in material weathered from calcareous shale and consists of well-drained clays. Altamont clay, 30 to 50 percent slopes (AtF), is steep with rapid runoff and a high erosion hazard. The soil is typically 20 to 32 inches deep over shale.

One soil type of the Huerhuero series is present within this survey area. This series developed in sandy marine sediments and consists of moderately well drained loams with a clay subsoil. Huerhuero loam, 15 to 30 percent slopes, eroded (HrE2), comprises a very small portion of the westernmost survey area. This soil type is moderately steep with medium to rapid runoff and a moderate to high erosion hazard. The soil is typically 20 to 36 inches deep.

4.2 Vegetation Communities

Seven vegetation communities were mapped within the survey area, including freshwater marsh, southern willow scrub, mule fat scrub (undisturbed and disturbed), Diegan coastal sage scrub (remnant, restored, and disturbed), native grassland, disturbed habitat, and ornamental vegetation (Table 2). Disturbed land and developed land are also present within the survey area. Figure 4 provides locations of each vegetation community or land cover type in the survey area. A total of 82 plant species have been identified within the survey area during 2009 surveys by RECON and

Image Source: Courtesy of Microsoft Virtual Earth



Survey Area

VEGETATION COMMUNITI

- Coastal Sage Scrub
- Restored Coastal Sage Scrub
- Disturbed Coastal Sage Scrub
- Native Grassland
- Developed
- Disturbed Land
- Freshwater Marsh
- Mule Fat Scrub
- Disturbed Mule Fat Scrub
- Disturbed Habitat
- Ornamental
- Southern Willow Scrub

FIGURE 4
Existing Biological Resources within the
Mira Sorrento Substation Project Survey Area

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2003 surveys by Essex (Attachment 1). Of this total, 47 species (57 percent) are native to southern California, and 35 species (43 percent) are introduced.

TABLE 2
VEGETATION COMMUNITIES/LAND COVER TYPES
WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA

Vegetation Communities/ Land Cover Types (Holland Code as modified by Oberbauer)	Survey Area (acres)
Freshwater marsh (52410)	0.1
Southern willow scrub (63320)	0.1
Mule fat scrub (63310)	
Undisturbed mule fat scrub	0.1
Disturbed mule fat scrub	<0.1 (1,759 square feet)
Diegan coastal sage scrub (32510)	
Remnant Diegan coastal sage scrub	0.7
Restored Diegan coastal sage scrub	1.0
Disturbed Diegan coastal sage scrub	0.3
Native grassland (42100)	0.1
Disturbed habitat (11300)	1.8
Ornamental vegetation (11000)	0.3
Disturbed land (13000)	<0.1 (210 square feet)
Developed land (12000)	2.0
TOTAL	6.6

4.2.1 Freshwater Marsh (52410)

Freshwater marsh is a community that consists of perennial emergent monocots such as cattails (*Typha* sp.) and bulrush (*Scirpus* sp.) that typically form a closed canopy that is 4-5 meters tall (Holland 1986). Freshwater marsh vegetation occurs in open bodies of fresh water with little current flow, such as ponds, and to a lesser extent around seeps and springs. Freshwater marsh communities, as with all wetland habitats, have been greatly reduced throughout their entire range and continue to decline as a result of urbanization.

Freshwater marsh occurs along the extent of the drainage where there is perennial water inundation, and a dense tree canopy is absent (Photograph 1). The freshwater marsh vegetation is dominated by southern cattail (*Typha domingensis*) with scattered bulrush (*Schoenoplectus* sp.).

4.2.2 Southern Willow Scrub (63320)

Southern willow scrub is a dense riparian community dominated by broad-leaved, winter-deciduous willow trees (*Salix* spp.). This vegetation community is typically found along major drainages but also occurs in smaller drainages. The density of the willows



PHOTOGRAPH 1
Vegetation Communities within the Mira Sorrento Substation Project
Survey Area, Facing North (September 2009)



PHOTOGRAPH 2
Vegetation Communities within the Mira Sorrento Substation Project
Survey Area, Facing Northeast (September 2009)

typically prevents a dense understory of smaller plants from growing. The representative species typically grows in loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. This community requires repeated flooding to prevent succession to community dominated by sycamores and/or cottonwoods (Holland 1986).

A small stand of southern willow scrub occurs at the southernmost extent of the drainage (Photograph 2). Arroyo willow (*Salix lasiolepis*) forms the canopy, and the understory vegetation is open with a few low-lying herbaceous species such as watercress (*Nasturtium officinale*) and brass-buttons (*Cotula* sp.) within and alongside the creekbed.

4.2.3 Mule Fat Scrub (63310)

Mule fat scrub is a tall, herbaceous riparian scrub strongly dominated by mule fat (*Baccharis salicifolia*). It occurs along drainages with a fairly coarse substrate and a moderately deep water table. Mule fat scrub is developed and maintained by flooding or other disturbances but, in the absence of disturbance, may change, through successional processes, to willow-cottonwood or sycamore-dominated riparian forest/woodland. Mule fat scrub typically occurs at elevations below 2,000 feet (Holland 1986).

Mule fat scrub borders the majority of the drainage (see Photograph 1). The vegetation is dense and dominated by mule fat with native herbaceous species such as chinese pusley (*Heliotropium curassavicum*) and saltgrass (*Distichlis spicata*) scattered along the edges.

Disturbed mule fat scrub occurs adjacent the southern portion of the drainage (see Photograph 2). The vegetation still largely consists of mule fat but has been disturbed by the introduction of a non-native, invasive plant species, selloa pampas grass (*Cortaderia selloana*), which dominates portions of the drainage.

4.2.4 Diegan Coastal Sage Scrub (32510)

Diegan coastal sage scrub is the southern form of coastal sage scrub, a vegetation community composed of low-growing, aromatic, drought-deciduous soft-woody shrubs that have an average height of approximately three to four feet. This community is typically found on sites with low moisture-availability, steep, xeric slopes, or clay rich soils that are slow to release stored water. Diegan coastal sage scrub is found in coastal areas from Los Angeles County south into Baja California, Mexico (Holland 1986).

Diegan coastal sage scrub occurs throughout much of the survey area and is composed of a mosaic of remnant, restored, and disturbed coastal sage scrub. The coastal sage scrub that occurs on the north-facing slope in the southern portion of the survey area, on a portion of the west-facing slope just upslope of the drainage, and along the hilltop

within the western portion of the survey area appear to be remnant, or naturally occurring, stands (Photograph 3). The vegetation on the north-facing slope is dense and dominated by coyote bush (*Baccharis pilularis*) and black sage (*Salvia mellifera*). The vegetation on the west-facing slope, east of the drainage, is dense as well, but dominated by California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and big saltbush (*Atriplex lentiformis*). The vegetation along the hilltop is more open and is dominated by California buckwheat toyon (*Heteromeles arbutifolia*). The soil within this last patch contains many patches of intact cryptogammic crust.

The restored coastal sage scrub occurs on the slopes adjacent to Mira Sorrento Place. The northwest-facing, cut slope contains very dense vegetation with over 80 percent cover that is dominated by California sagebrush and broom baccharis (*Baccharis sarothroides*) (Photograph 4). Five torrey pines (*Pinus torreyana*) have also been planted on this slope. The southeast-facing slope, which occurs between the dirt access road and Mira Sorrento Place, is more open and dominated by laurel sumac (*Malosma laurina*) and lemonadeberry (*Rhus integrifolia*), with an understory of native grasses such as needlegrass (*Nassella* sp.) (see Photographs 1 and 5).

Finally, disturbed coastal sage scrub occurs in small patches on either side of the drainage, as well as on the cut slope that is adjacent to Vista Sorrento Parkway (see Photograph 2). Dominant native species include shrubs such as coyote bush and black sage, but due to human-caused soil disturbance, non-native ruderal species such as short-pod mustard (*Hirschfeldia incana*) comprise the majority of the ground cover.

4.2.5 Native Grassland (42100)

Native grassland is generally composed of native perennial bunch grasses. Native and introduced annuals occur between the perennials, often actually exceeding the bunch grasses in percent cover. Native grasslands often have a large component of non-native grasses but are distinguished as native grasslands when the percent cover by native grass species is 10 percent or greater. This community typically occurs on fine-textured (often clay) soils that are moist or even waterlogged during winter, but very dry in summer. In most regions, this community has been mainly converted to non-native annual grasslands due to the invasion of exotic annual grasses (Holland 1986).

A small patch of native grassland was observed within the larger expanse of disturbed habitat on the east-facing slope of the survey area (see Photograph 1). The native grassland is dominated by non-native grass species such as wild oat (*Avena* sp.) and foxtail chess (*Bromus madritensis* ssp. *rubens*). However, native grasses and wildflowers, including needlegrass and blue-eyed grass (*Sisyrinchium bellum*), comprise over 10 percent of the ground cover.



PHOTOGRAPH 3
Remnant Coastal Sage Scrub along the Hilltop within the Western Portion of the Mira Sorrento Substation Project Survey Area (September 2009)



PHOTOGRAPH 4
Restored Coastal Sage Scrub on Northwest-facing Slope adjacent to Mira Sorrento Place (September 2009)



PHOTOGRAPH 5
Restored Coastal Sage Scrub on Southeast-facing Slope adjacent to Mira Sorrento Place (September 2009)

4.2.6 Disturbed habitat (11300)

Disturbed habitat occurs throughout the majority of the central portion of the survey area (see Photographs 1, 2, and 5). This habitat consists of ruderal vegetation dominated by non-native species such as black mustard (*Brassica nigra*), short-pod mustard, tocalote (*Centaurea melitensis*), and various non-native grasses.

4.2.7 Ornamental Vegetation (11000)

Two patches of ornamental vegetation occur within the survey area. A stand of Peruvian pepper trees (*Schinus molle*) occurs adjacent to the northern portion of the drainage (see Photograph 1). Landscaped vegetation, dominated by acacia (*Acacia* sp.), is also present along the west-facing slope adjacent to Vista Sorrento Parkway.

4.2.8 Disturbed Land (13000)

An existing dirt access road that is completely unvegetated is classified as disturbed land.

4.2.9 Developed Land (12000)

Paved or graveled roadways are classified as developed land. These include the city roads within the buffer and a gravel access road in the northeast portion of the survey area (see Figure 4 and Photograph 5).

4.3 Zoology

The wildlife observed within the survey area is typical of urban, scrub, and riparian communities in San Diego County and is discussed below. Sensitive species observed or potentially occurring within the survey area are discussed in the Sensitive Biological Resources section of this report.

4.3.1 Butterflies

The distribution of butterflies is generally defined by the distribution of their larval food plants. Species common to urban, scrub, and riparian communities are expected to be the most common butterfly species within the survey area.

Five butterflies, western pygmy blue (*Brephidium exile*), Lorquin's admiral (*Limenitis lorquini lorquini*), an unidentified sulphur, and cabbage white (*Pieris rapae*), were observed within the survey area. Common butterfly species such as common white (*Pontia protodice*) are also expected to occur.

4.3.2 Fish

Perennial freshwater streams can support a variety of fish species. Stream courses and vegetative habitat along their banks provide cover and forage for fish in addition to breeding locations. Western mosquitofish (*Gambusia afinis*) were observed within the freshwater of the drainage.

4.3.3 Amphibians

Amphibians require moisture for at least a portion of their lifecycle, with many requiring a permanent water source for habitat and reproduction. Terrestrial amphibians have adapted to conditions that are more arid and are not completely dependent on a perennial or standing source of water. These species avoid desiccation by burrowing beneath the soil or leaf litter during the day and during the dry season.

Water flows perennially within the survey area. No amphibian species were observed during 2009 surveys. However, Pacific tree frog (*Pseudacris regilla*) has previously been detected within the survey area and is anticipated to occur (Essex 2003).

4.3.4 Reptiles

The diversity and abundance of reptile species varies with habitat type. Many reptiles are restricted to certain vegetation communities and soil types, although some of these species will also forage in adjacent communities. Other species are more ubiquitous, using a variety of vegetation types for foraging and shelter.

Four reptile species—western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), coastal whiptail, and California kingsnake (*Lampropeltis getula californiae*)—were observed within the survey area. As coastal whiptail is a sensitive species, it is discussed further in Section 4.4.4 below.

4.3.5 Birds

The diversity of bird species varies with respect to the character, quality, and diversity of vegetation communities present on a site. The survey area is dominated by disturbed, scrub, and riparian habitats and is adjacent to development.

The most commonly observed species are typical of urban communities and include Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), house finch (*Carpodacus mexicanus frontalis*), and lesser goldfinch (*Carduelis psaltria hesperophilus*). Common scrub or riparian species were also commonly observed and include California towhee (*Pipilo crissalis*), Bewick's wren (*Thryomanes bewickii*), and common yellowthroat (*Geothlypis trichas*)

4.3.6 Mammals

Mammal species observed are those that are typically found in urban communities or rural areas within San Diego County. Species observed include California ground squirrel (*Spermophilus beecheyi*) and coyote (*Canis latrans*). Southern mule deer (*Odocoileus hemionus fuliginata*) has previously been detected within the survey area but is no longer anticipated to occur, as discussed below in Section 4.4.4.1 (Essex 2003). The construction of Mira Sorrento Place has isolated the survey area from any larger expanse of habitat.

4.4 Sensitive Biological Resources

4.4.1 Sensitivity Criteria

For purposes of this report, sensitive habitat types are those identified by the CNDDB (State of California 2009e) or Holland (1986). Reasons for the sensitive status of vegetation communities include restricted range, cumulative losses throughout the region, and a high number of endemic sensitive plant and wildlife species that occur in the vegetation communities. These communities are considered sensitive whether or not they have been disturbed.

Plant and wildlife species will be considered to be sensitive if they are (1) SDG&E NCCP covered species (SDG&E 1995); (2) listed by state or federal agencies as threatened or endangered or are proposed for such listing; (3) on List 1B (considered endangered throughout its range) or List 2 (considered endangered in California but more common elsewhere) of the CNPS *Inventory of Rare and Endangered Plants of California* (*Inventory*; 2001); (4) considered rare, endangered, or threatened in the CNDDB (State of California 2009a, 2009b); and (5) considered sensitive by local conservation organizations or specialists. Noteworthy plant species are those that are on List 3 (more information about the plant's distribution and rarity needed) and List 4 (plants of limited distribution) of the CNPS *Inventory* (2001). Assessments for the potential occurrence of sensitive or noteworthy species are based upon known ranges and habitat preferences for the species, species occurrence records from the CNDDB, and species occurrence records from other sites in the vicinity of the survey area.

The proposed project is within the SDG&E Subregional NCCP area. The SDG&E NCCP was approved in 1995 by USFWS and CDFG in accordance with the California NCCP Act. The SDG&E NCCP addresses potential impacts to sensitive resources associated with SDG&E's ongoing installation, use, maintenance, and repair of its gas and electric systems and typical expansion to those systems throughout SDG&E's existing service area. The NCCP includes mitigation measures and operational protocols designed to avoid potential impacts to biological resources and to provide appropriate mitigation

where impacts are unavoidable to ensure the protection and conservation of covered species. Actions on lands outside of the SDG&E NCCP area are subject to assessment under the California Environmental Quality Act (CEQA).

Raptors (birds of prey) and active raptor nests are protected by the California Fish and Game Code 3503.5, which states that it is “unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird” unless authorized (CDFG 1991).

All wetland areas, wetland buffer areas, and non-wetland waters of the U.S are considered sensitive. USACE regulates the discharge of dredged or fill material into waters of the U.S. (wetland and non-wetland jurisdictional waters) according to Section 404 of the Clean Water Act [33 CFR Part 328]. Streambeds and associated riparian vegetation are under the jurisdiction of CDFG.

Assessments for the potential occurrence of sensitive species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, and species occurrence records from other sites in the vicinity of the project site.

4.4.2 Sensitive Vegetation Communities

The following vegetation communities identified within the survey area are considered sensitive by the State of California (2009e), the SDG&E NCCP (SDG&E 1995), and Holland (1986): freshwater marsh, southern willow scrub, mule fat scrub, Diegan coastal sage scrub, and native grassland. Table 2 shows the acreage of these vegetation communities.

4.4.3 Sensitive Plants

One sensitive plant species, torrey pine, was observed within the proposed project site. However, the individuals are not part of a naturally occurring population. Five torrey pines have been planted along the cut slope immediately south of Mira Sorrento Place and are located within the restored vegetation. No other sensitive plant species are expected to occur within the survey area. Attachment 3 summarizes the status, habitats, and potential for sensitive plants to occur based on their ranges and habitat requirements.

4.4.4 Sensitive Wildlife

One sensitive reptile species, coastal whiptail, was observed during the 2009 survey, and one sensitive mammal species, southern mule deer, has previously been detected within the survey area (Essex 2003). These species are discussed in detail below. One

sensitive avian species, coastal California gnatcatcher, has a moderate potential to occur within the survey area and is also discussed below. Attachment 4 provides a list of sensitive species that were observed within the survey area or have a potential to occur based on the ranges and habitat requirements of these species, and includes the likelihood of occurrence for these species.

4.4.4.1 Observed

Coastal whiptail (*Aspidoscelis tigris stejnegeri*). The coastal subspecies of the western whiptail has no official state or federal status but was formerly a federal candidate for listing and is likely rare or endangered within California according to its CNDDB rank (State of California 2009b). The coastal whiptail ranges from Santa Barbara County south into western Baja California, Mexico, predominantly on the coastal slope. Habitat consists of coastal sage scrub and chaparral communities, woodlands, and streamsides where plants are sparsely distributed (Stebbins 1985). Its diet consists of insects, spiders, scorpions, and other lizards. The decline of populations of coastal whiptail is also attributed to habitat loss and fragmentation.

One coastal whiptail was observed during the 2009 survey alongside the dirt access road within disturbed coastal sage scrub habitat. This species is expected to occur within the proposed project site due to the presence of open coastal sage scrub habitat and isolation of the survey area within development.

Southern mule deer (*Odocoileus hemionus*). The southern mule deer is an SDG&E NCCP covered species. Southern mule deer are presently widespread throughout undeveloped portions of San Diego County, ranging from Camp Pendleton to the Laguna Mountains, Sweetwater River, and Otay Lakes at elevations of 400 to 3,600 feet (Bleich and Holl 1982). Resident and migratory populations are present throughout California. This species requires relatively large, undisturbed tracts of chaparral, coastal sage scrub, and mixed grassland/shrub habitats. Breeding usually occurs between November and February, with the fawning period between June and August. The diet of the southern mule deer consists of forbs, grasses, and nuts. Although the species is not threatened with extinction within its range, urbanization and habitat fragmentation could result in local extirpation without appropriate conservation measures.

Southern mule deer was previously detected within the survey area by Essex (2003). However, due to the recent isolation of the survey area, following construction of Mira Sorrento Place, this species is no longer expected to occur within the survey area.

4.4.4.2 Not Observed with Potential to Occur

Coastal California gnatcatcher (*Polioptila californica californica*). The coastal California gnatcatcher is federally listed as threatened, is a CDFG species of special

concern, and is an SDG&E NCCP covered species. The coastal California gnatcatcher is a non-migratory, resident species found on the coastal slopes of southern California, ranging from Ventura County southward through Los Angeles, Orange, Riverside, and San Diego Counties into Baja California, Mexico (Atwood and Bontrager 2001). Coastal California gnatcatchers typically occur in or near sage scrub habitat, although chaparral, grassland, and riparian woodland habitats are used where they occur adjacent to sage scrub. Breeding occurs from February through August, and nests are constructed most often in California sagebrush. The coastal California gnatcatcher diet consists mainly of sessile small arthropods, such as leafhoppers, spiders, beetles, and true bugs (Atwood and Bontrager 2001). The primary cause of decline in the coastal California gnatcatcher is due to habitat loss and degradation.

Coastal California gnatcatcher has a moderate potential to nest within the survey area due to the presence of suitable coastal sage scrub habitat and the high number of recorded occurrences in the vicinity of the survey area. However, the coastal sage scrub that occurs within the proposed project footprint provides less suitable habitat for nesting due to low shrub height or unsuitable plant species composition within restored areas, or open structure of the remnant scrub vegetation.

4.4.5 Preserve Areas

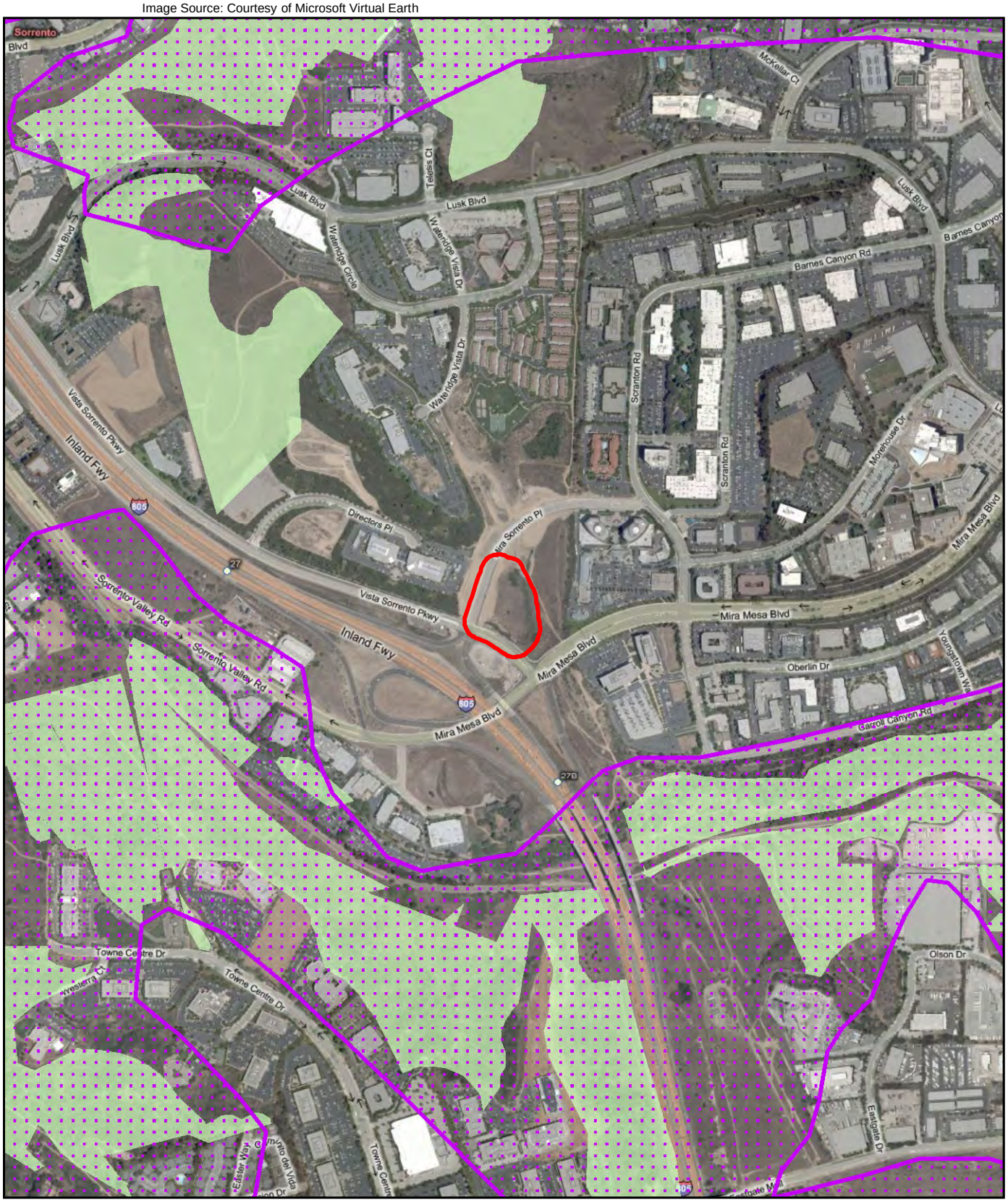
Under the NCCP, Preserves are considered sensitive. Within western San Diego County, Preserves are defined and delineated using existing preserve areas from local and regional planning documents such as the City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan (City of San Diego 1997), County of San Diego MSCP Subarea Plan (County of San Diego 1997), and the North County Final Multiple Habitat Conservation Plan (MHCP) (San Diego Association of Governments [SANDAG] 2003). Preserve areas in these planning documents include the Multi-Habitat Planning Area (MHPA; City of San Diego 1997), Pre-approved Mitigation Areas (PAMA; County of San Diego 1997), Biological Resource Core Areas (BRCA; County of San Diego 1997), and the Focused Planning Areas (FPA; SANDAG 2003).

The survey area falls within the boundaries of the City of San Diego MSCP Subarea Plan. However, the survey area falls outside land designated as a Preserve (Figure 5).

4.4.6 USACE, CDFG, RWQCB, and City of San Diego Jurisdictional Resources

USACE jurisdictional area on-site totals 0.23 acre. A total of 0.38 acre of CDFG and RWQCB jurisdictional resources occur within the survey area. City of San Diego wetland resources total 0.38 acre. Jurisdictional resources on-site are listed in Table 3 and shown on Figure 6.

Image Source: Courtesy of Microsoft Virtual Earth



Survey Area

City of San Diego MHPA

Biological Core Resources Areas

0 Feet 1,000

FIGURE 5
Mira Sorrento Substation Project Survey Area in Relation to MSCP Preserve Areas

RECON

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Image Source: Courtesy of Microsoft Virtual Earth



FIGURE 6
Jurisdictional Resources within the Mira Sorrento Substation Project Survey Area

RECON

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TABLE 3
EXISTING JURISDICTIONAL RESOURCES WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA (acres)

Jurisdictional Resource	Acres
USACE	
Wetlands	0.19 acre
Non-wetland waters of the US	0.04 acre
Total USACE	**0.23 acre**
CDFG	
Streambed	0.04 acre
Riparian	0.34 acre
Total CDFG	**0.38 acre**
City of San Diego Wetland	**0.38 acre**
RWQCB	**0.38 acre**

USACE jurisdiction area on-site totals 0.23 acre, which includes 0.19 acre of USACE wetlands and 0.04 acre of USACE non-wetland waters of the U.S. Non-wetland waters are composed of the unvegetated, unnamed drainage channel within the survey area.

A total of 0.38 acre of CDFG jurisdictional areas occur within the survey area, which includes 0.04 acre of CDFG streambed and 0.34 acre of CDFG riparian. This acreage consists of riparian habitat associated with the unnamed drainage. Within the survey area, CDFG streambed is equal to USACE non-wetland waters. CDFG riparian includes all riparian habitat within the survey area in addition to USACE wetlands.

The RWQCB takes jurisdiction over all waters of the state and all waters of the United States as mandated by both the federal Clean Water Act and the California Porter-Cologne Water Quality Control Act. A total of 0.38 acre is within the RWQCB jurisdiction, which is equal to the CDFG jurisdiction.

The City of San Diego takes jurisdiction over all naturally occurring wetland vegetation. A total of 0.38 acre falls within the City of San Diego's jurisdiction, which is equal to the CDFG and RWQCB jurisdiction.

5.0 Applicant Proposed Measures and Environmental Standards

5.1 General Impact Avoidance and Minimization Measures

The SDG&E NCCP identifies 61 protocols to avoid, minimize, and mitigate impacts. These protocols have become part of the SDG&E Environmental Standards for natural

resources. The NCCP protocols would be applied to the Proposed Project. The NCCP protocols would avoid and minimize many of the potential impacts. In addition, SDG&E is proposing APMs as part of the Proposed Project to reduce further all potential impacts to sensitive biological resources to a level of less than significant (Table 4).

5.2 Vegetation Communities

For the Proposed Project, temporary impacts exceeding 500 square feet would be revegetated via natural revegetation or enhancement methods such as planting, hydroseeding, or hand-broadcasting seed. If temporary impact areas do not meet success criteria outlined in the NCCP, a deduction of credits from the SDG&E NCCP mitigation bank would apply.

As set forth in the NCCP, credits would be deducted for mitigation of permanent impacts at the ratios specified in Table 5 (see also Table 7.4 of the SDG&E NCCP).

5.3 Sensitive Plants

SDG&E will comply with the NCCP to avoid, minimize, or mitigate impacts to sensitive or special status plant species. As no naturally occurring sensitive plant species were observed or have a high potential to occur within the survey area, no APMs specific to plant species are proposed for the Mira Sorrento Substation Project.

5.4 Sensitive Wildlife

In addition to the species-specific APMs listed below, SDG&E will implement the NCCP Protocols to avoid, minimize, or mitigate impacts to sensitive or special status wildlife species.

5.4.1 NCCP Covered Wildlife Species

One NCCP covered wildlife species, coastal California gnatcatcher, has a moderate potential to nest within the survey area. APM BIO-2 provides avoidance and impact minimization measures to prevent impacts to active nesting birds.

5.4.2 Narrow Endemic Wildlife Species

The NCCP requires SDG&E to consult informally with the USFWS and CDFG when impacts to narrow endemic species may occur. SDG&E complies with its Narrow Endemic guidelines to avoid, minimize, or mitigate impacts to narrow

TABLE 4
APPLICANT PROPOSED MEASURES FOR BIOLOGICAL RESOURCES ON THE MIRA SORRENTO SUBSTATION PROJECT

No.	Impact	Applicant Proposed Measures	Implementation Actions
BIO-1	Direct or indirect adverse effects on sensitive or special status species or their habitats	SDG&E will conduct activities in accordance with NCCP Operational Protocols to avoid, minimize, or mitigate impacts to biological resources. See APMs BIO-2 and -3.	SDG&E will implement the protocols in the NCCP as they apply to the Proposed Project. APMs BIO-2 and -3 detail how the NCCP protocols will be applied to the Proposed Project.
BIO-2	Direct or indirect adverse effects on coastal California gnatcatcher (CAGN)	In accordance with the NCCP, SDG&E will conduct the following: 1) Whenever practicable, all grading or brushing occurring within occupied CAGN habitat shall be conducted from September 1 through February 28, which is outside of the CAGN breeding season. 2) When conducting all other project construction activities during the CAGN breeding season of March 1 through August 31 within habitat in which CAGN are known to or have a high potential to occur, the following avoidance measures shall apply: a) A qualified biologist will conduct a preconstruction survey for CAGN within one week prior to initiating project construction activities in an area. If CAGN are present but not nesting, a qualified biologist will survey for nesting CAGN approximately once per week in the vicinity of project activities for the duration of the activity in that area.	1) During the coastal California gnatcatcher (CAGN) breeding season (March 1 through August 31), known or potentially occupied habitat adjacent to construction activities within the Project survey area will be surveyed within one week prior to initiation of construction activities. 2) Where CAGN are present but not nesting, weekly surveys will continue for the duration of the activity. 3) For habitat where CAGN nests are identified, daily nest monitoring will continue for the duration of the activity, or until fledglings are independent of the nest.

TABLE 4
APPLICANT PROPOSED MEASURES FOR BIOLOGICAL RESOURCES ON THE MIRA SORRENTO SUBSTATION PROJECT (continued)

No.	Impact	Applicant Proposed Measures	Implementation Actions
		b) If an active CAGN nest is located in the vicinity of project activities, a biologist qualified for CAGN nest monitoring will monitor the nest daily until: (1) project activities are no longer in the vicinity of the nest, or (2) the fledglings become independent of their nest. c) If the CAGN nest monitor determines that the project activities are disturbing or disrupting the nesting activities, the monitor will make practicable recommendations to reduce the noise or disturbance in the vicinity. This may include recommendations such as (1) turning off vehicle engines and other equipment when ever possible to reduce noise, and (2) working in other areas until the young have fledged. With these avoidance and minimization measures in place, any incidental take of coastal California gnatcatcher is covered by the SDG&E NCCP.	
BIO-3	Direct adverse effects on wetlands and jurisdictional waters	SDG&E project activities will avoid wetlands and jurisdictional waters where practicable. Where impacts to wetlands and jurisdictional waters are unavoidable, the following permits and authorizations may be required: • Compliance with the City of San Diego Resource Protection Ordinance. • A 404 Nationwide Permit from the USACE. Typically, the threshold for impacts authorized under the Section 404 Nationwide Permit Program is less than ½ acre or 300 linear feet. Impacts above this threshold may require an	1) Avoid wetlands and jurisdictional waters within the Mira Sorrento Substation Project survey area. 2) Revegetate temporarily impacted area adjacent to wetlands with native plant species.

TABLE 5
POTENTIAL IMPACTS TO VEGETATION COMMUNITIES AND PROPOSED MITIGATION UNDER APM BIO-1 FOR THE MIRA SORRENTO SUBSTATION PROJECT

Vegetation Community/ Land Cover Type	Inside Preserve?	Permanent Impacts (acres)†	Permanent Impacts Mitigation Ratio†	Permanent Impacts Credit (acres)	Temporary Impacts (acres)	Temporary Impacts Mitigation Ratio†	Enhancement
Freshwater marsh	No	-	1:1	-	-	1:1*	Plant, hand-broadcast seed, or hydroseed native species if necessary
Southern willow scrub	No	-	1:1	-	-	1:1*	Plant, hand-broadcast seed, or hydroseed native species if necessary
Mule fat scrub	No	-	1:1	-	-	1:1*	Plant, hand-broadcast seed, or hydroseed native species if necessary
Diegan coastal sage scrub	No	0.9	1:1	0.9	0.1	(a)	Plant, hand-broadcast seed, or hydroseed native species
Native grassland	No	0.1	1:1	0.1	-	(a)	Plant, hand-broadcast seed, or hydroseed native species if necessary
Disturbed habitat	No	1.2	N/A	-	0.3	N/A	N/A
Ornamental vegetation	No	0.2	N/A	-	<0.1 (1,709 square feet)	N/A	N/A
Disturbed land	No	-	N/A	-	-	N/A	N/A
Developed land	No	<0.1 (186 square feet)	N/A	-	-	N/A	N/A
TOTAL		2.4		1.0	0.4		

*Resource agencies require a 1:1 mitigation ratio in accordance with Federal and State “no-net-loss” policies;

†See Table 7.4 of the NCCP.

endemics (SDG&E 1995). However, no narrow endemic wildlife species were observed or have a high potential to occur within the survey area.

5.4.3 Sensitive Wildlife Species Not Covered by the NCCP

One sensitive wildlife species not covered by the NCCP, coastal whiptail, was observed within the survey area. Implementation of the NCCP Protocols during construction is expected to minimize impacts to this species.

5.5 Preserve Areas

Mitigation for impacts to Preserve Areas is defined in Table 7.4 of the SDG&E NCCP (1995). No Preserve Areas were identified within the survey area. Therefore, no additional mitigation would be required.

5.6 USACE, CDFG, RWQCB, and City of San Diego Jurisdictional Areas

In accordance with APMs BIO-1 and -3 and the “no net loss” wetland policy implemented by USACE, CDFG, RWQCB, and the City of San Diego, the Proposed Project would avoid direct impacts to jurisdictional resources (see Table 4). In addition, the Proposed Project is anticipated to provide a sufficient wetland buffer to protect adequately the functions and values of the existing wetlands within the survey area. The slope that lies between the proposed substation wall and the existing wetlands will be revegetated on the tiers between retaining walls. The area at the base of the slope that occurs immediately adjacent to the drainage will be revegetated with native plant species, and no invasive, non-native plant species will be included in the plant palette for the upper tiers.

6.0 Project Impacts

6.1 Significance Criteria

Standards of impact significance were derived from Appendix G of the CEQA Guidelines. Under these guidelines, the project could have a potentially significant impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFG or USFWS

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (CWA) (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), NCCP, or other approved local, regional, or state HCP

- Have a substantial adverse effect on sensitive species through habitat loss. Permanent habitat loss is not considered a significant impact to sensitive species (other than for listed or candidate species under the state and federal endangered species acts) unless extensive areas of suitable habitat are degraded or somehow made unsuitable, or areas supporting a large proportion of the species population are substantially and adversely impacted.

6.2 Proposed Project

SDG&E proposes construction of a new facility, the Mira Sorrento Substation, in order to meet existing and anticipated customer-driven electrical load growth and to improve distribution equipment reliability that would prevent potential long outages or disruption of service to existing customers in SDG&E's service territory in the vicinity of Sorrento Mesa.

6.3 Vegetation Community Impacts

Construction of the Mira Sorrento Substation would result in approximately 2.4 acres of permanent impacts and 0.4 acre of temporary impacts to five vegetation communities or land cover types (see Table 5). Permanent impacts would potentially occur to Diegan coastal sage scrub, native grassland, disturbed habitat, ornamental vegetation, and developed land. Temporary impacts would also potentially occur to Diegan coastal sage scrub, disturbed habitat, and ornamental vegetation.

Permanent impacts would result from installation of the new substation, driveways, and retaining walls, as well as within areas that may not have permanent structures, but will not be restored to native habitat following completion of the Proposed Project (Figure 7). The substation footprint and project plan were provided by SDG&E.

Temporary impacts would result from grading; root grubbing is expected to occur within these areas (see Figure 7). Temporarily impacted areas will be revegetated with native plant species following completion of construction activities.

6.4 Wildlife Impacts

Few small mammals, amphibians, or reptiles are expected to be impacted during the construction within the Proposed Project site. Vegetation removal would not be conducted from March through April without prior approval by the Environmental Surveyor (a qualified biologist assigned by SDG&E), and the Surveyor would make sure that the habitat contains no active nests, burrows, or dens prior to clearing. As most species are highly mobile and would be able to move out of the way of project-related activities, potential impacts to general wildlife are considered less than significant.

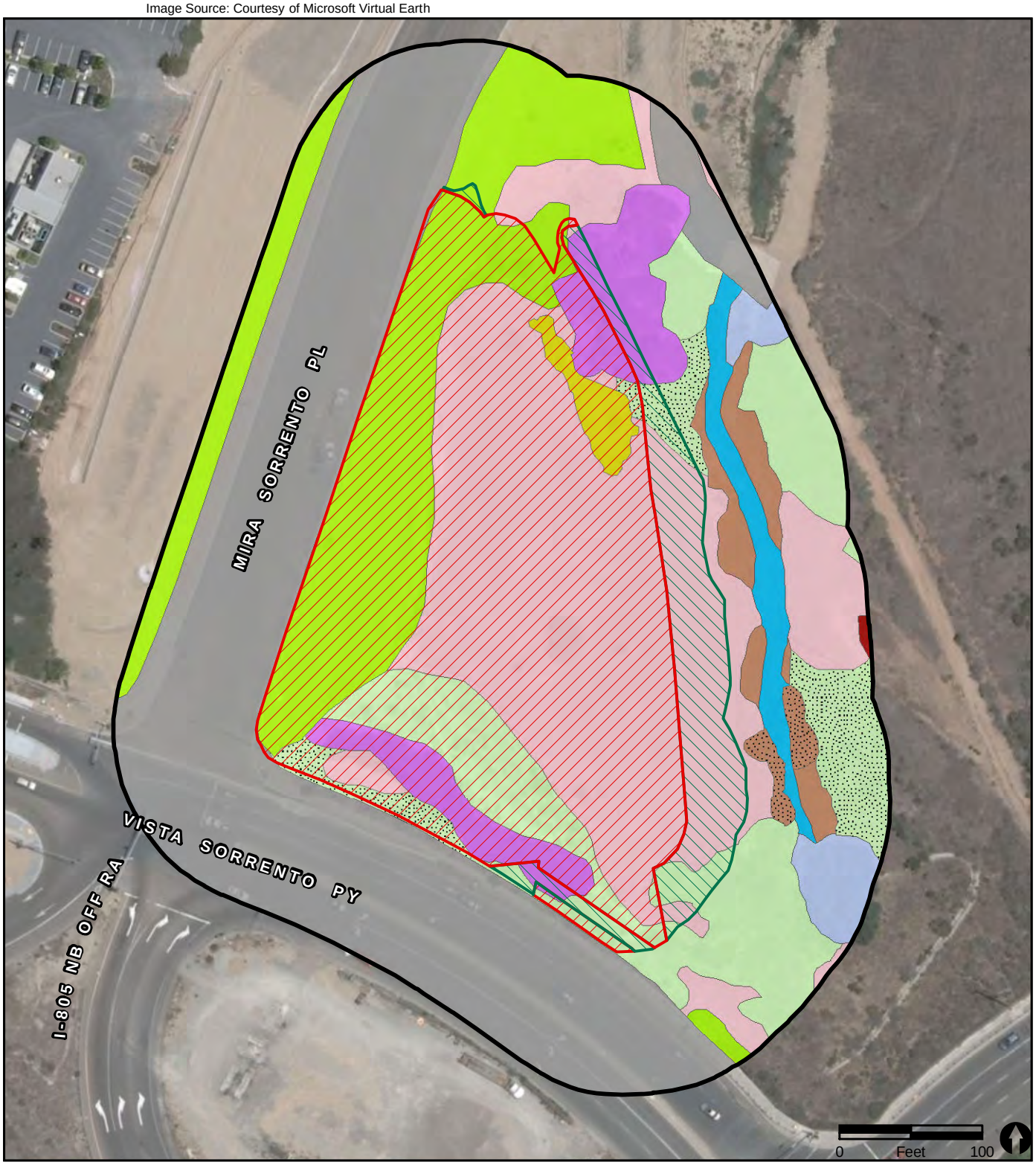
Indirect impacts associated with the Proposed Project would include a temporary increase in noise during vegetation clearing and construction activities. As the proposed project site is adjacent to development, these impacts are not expected to reduce the wildlife populations on adjacent lands below self-sustaining levels; therefore, these potential impacts are considered less than significant.

6.5 Sensitive Biological Resources Impacts

6.5.1 Sensitive Vegetation Community Impacts

Permanent impacts would potentially occur to two sensitive vegetation communities; including 0.9 acre of Diegan coastal sage scrub and 0.1 acre of native grassland (see Table 5). Temporary impacts would also potentially occur to one sensitive vegetation community; including 0.1 acre of Diegan coastal sage scrub (see Table 4). In accordance with APM BIO-1, implementation of the proposed mitigation presented in Table 5 would reduce impacts to sensitive vegetation communities to a level of less than significant.

Image Source: Courtesy of Microsoft Virtual Earth



Survey Area
Permanent Impact
Temporary Impact

VEGETATION COMMUNITIE

Coastal Sage Scrub
Restored Coastal Sage Scrub
Disturbed Coastal Sage Scrub
Native Grassland
Developed
Disturbed Land
Freshwater Marsh
Mule Fat Scrub
Disturbed Mule Fat Scrub
Disturbed Habitat
Ornamental
Southern Willow Scrub

FIGURE 7
Impacts to Existing Biological Resources within the Mira Sorrento Substation Project Survey Area

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6.5.2 Sensitive Plant Impacts

No naturally occurring sensitive plant species were observed or are expected to occur within the survey area. Therefore, no impacts are anticipated to occur to sensitive plant species.

6.5.3 Sensitive Wildlife Impacts

6.5.3.1 NCCP Covered Wildlife Species

Coastal California gnatcatcher has a moderate potential to occur within areas proposed for permanent and temporary impacts. Implementation of the following APMs would reduce potential impacts to this species to a level of less than significant: BIO-1 and BIO-2.

6.5.3.2 Narrow Endemic Wildlife Species

No Narrow Endemic wildlife species are expected to occur within the proposed project site. Therefore, no species-specific APMs are proposed for Narrow Endemic species, and no mitigation will be required.

6.5.3.3 Sensitive Wildlife Species Not Covered by the NCCP

Coastal whiptail was observed within the survey area and has a high potential to occur within areas proposed for permanent and temporary impacts. Implementation of the NCCP protocols would minimize potential impacts to this species to a level of less than significant.

6.5.4 Preserve Area Impacts

No Preserves were identified within the proposed project site. Therefore, no impacts will occur to Preserve Areas.

6.5.5 USACE, CDFG, RWQCB, and City of San Diego Jurisdictional Resource Impacts

In accordance with APMs BIO-1 and BIO-3 as well as applicable laws and regulation, including the “no net loss” wetland policy, SDG&E has designed the Mira Sorrento Substation Project to avoid impacts to jurisdictional resources (Figure 8). In addition, impacted areas that occur adjacent to the drainage will be revegetated with native plant species in order to provide a buffer between the development and the existing wetlands.

Image Source: Courtesy of Microsoft Virtual Earth

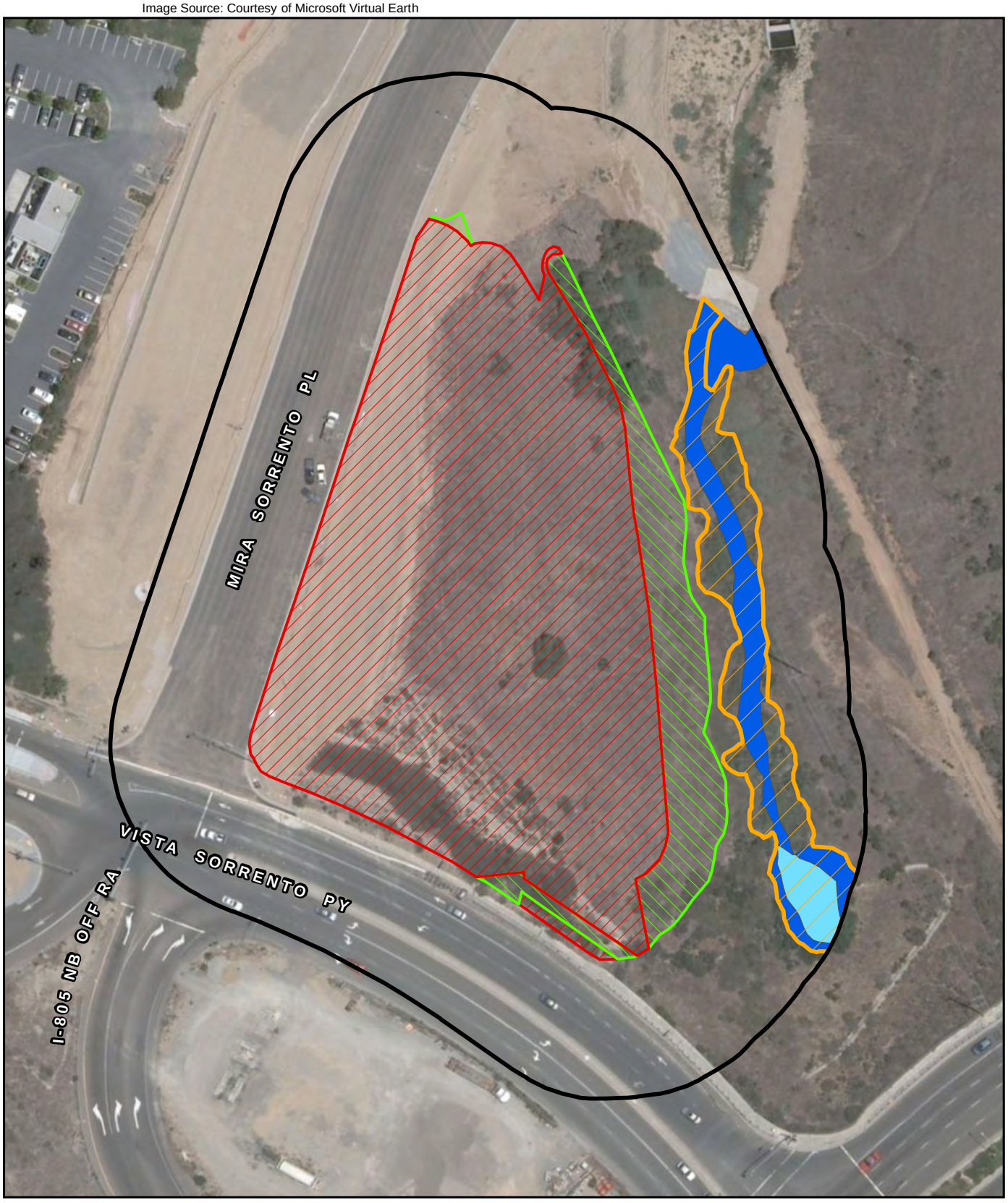


FIGURE 8
Impacts in Relation to Jurisdictional Resources
within the Mira Sorrento Substation Project Survey Area

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ATTACHMENTS

ATTACHMENT 1

ATTACHMENT 1
PLANT SPECIES OBSERVED WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA

Scientific Name	Common Name	Habitat	Origin
	GYMNOSPERMS		
PINACEAE	**PINE FAMILY**		
Pinus torreyana Carriere	torrey pine	CSS	N
	ANGIOSPERMS: DICOTS		
AMARANTHACEAE	**AMARANTH FAMILY**		
Atriplex lentiformis (Torrey) S. Watson ssp. *lentiformis*	big saltbush	CSS	N
Atriplex semibaccata R.Br.	Australian saltbush	*	I
Salsola tragus L.	Russian thistle, tumbleweed	DH	I
ANACARDIACEAE	**SUMAC OR CASHEW FAMILY**		
Malosma laurina (Nutt.) Abrams	Laurel sumac	CSS	N
Rhus integrifolia (Nutt.) Brewer & Watson	lemonadeberry	CSS	N
Schinus molle L.	Peruvian pepper tree	ORN	I
APIACEAE (UMBELLIFERAE)	**CARROT FAMILY**		
Conium maculatum L.	poison hemlock	*	I
Foeniculum vulgare Mill.	fennel	CSS, DH	I
ASTERACEAE	**SUNFLOWER FAMILY**		
Ambrosia psilostachya DC.	western ragweed	DH, FM	N
Artemisia californica Less.	California sagebrush	CSS	N
Baccharis pilularis DC.	coyote bush	CSS	N
Baccharis salicifolia (Ruiz Lopez & Pavón) Pers.	mule fat, seep-willow	CSS, DH, MFS	N
Baccharis sarothroides A. Gray	broom baccharis	CSS	N
Carduus pycnocephalus L.	Italian thistle	DH, NG, ORN	I
Centaurea melitensis L.	tocalote, star-thistle	DH	I
Conyza canadensis (L.) Cronq.	horseweed	DH	N
Corethrogyne filaginifolia [=*Lessingia filaginifolia* var. *filaginifolia*] (Hook. & Arn.) Nutt.	California-aster	CSS, DH	N
Cotula sp.	brass-buttons	SWS	I
Cynara cardunculus L.	cardoon	DH	I
Deinandra [=*Hemizonia*] *fasciculata* (DC.) Greene	golden tarplant	CSS	N
Encelia californica Nutt.	common encelia	CSS	N
Eriophyllum confertiflorum (DC.) A. Gray var. *confertiflorum*	golden-yarrow	CSS	N
Logfia [=*Filago*] *gallica* Coss. & Germ.	narrow-leaf herba impia	*	I
Gnaphalium californicum DC.	green everlasting	CSS	N

ATTACHMENT 1
PLANT SPECIES OBSERVED WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Scientific Name	Common Name	Habitat	Origin
Hedypnois cretica (L.) Dum. - Cours.	hedypnois	*	I
Heterotheca grandiflora Nutt.	telegraph weed	CSS, DH	N
Isocoma menziesii (Hook. & Arn.) G. Nesom	coast goldenbush	CSS	N
Lasthenia californica Lindley	goldfields	*	N
Picris echioides L.	bristly ox-tongue	CSS, DH, MFS	I
Pluchea odorata (L.) Cass.	salt marsh fleabane	CSS, DH	N
Silybum marianum (L.) Gaertner	milk thistle	*	I
Sonchus oleraceus L.	common sow thistle	*	I
Stephanomeria sp.	stephanomeria	CSS, DH	N
BORAGINACEAE	**BORAGE FAMILY**		
Heliotropium curassavicum L.	salt heliotrope	DH, MFS	N
BRASSICACEAE (CRUCIFERAE)	**MUSTARD FAMILY**		
Brassica nigra (L.) Koch.	Black mustard	CSS, DH, NG	I
Hirschfeldia incana (L.) Lagr.-Fossat	short-pod mustard	CSS	I
Nasturtium officinale [=*Rorippa nasturtium-aquaticum*] R. Br.	Water cress	SWS	I
CACTACEAE	**CACTUS FAMILY**		
Opuntia littoralis (Engelm.) Cockerell.	Shore cactus	CSS	N
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**		
Sambucus mexicana C. Presl	blue elderberry	DH	N
CARYOPHYLLACEAE	**PINK FAMILY**		
Silene gallica L.	windmill pink	*	I
CONVOLVULACEAE	**MORNING-GLORY FAMILY**		
Calystegia macrostegia ssp. *arida* (E. Greene) Brum.	Finger-leaf morning-glory	*	N
EUPHORBIACEAE	**SPURGE FAMILY**		
Chamaesyce sp.	prostrate spurge	CSS	N
FABACEAE (LEGUMINOSAE)	**LEGUME FAMILY**		
Acacia sp.	acacia	CSS, ORN	I
Lotus scoparius (Nutt. in Torrey & A. Gray) Ottley var. *scoparius*	California broom	CSS	N
Medicago polymorpha L.	California bur clover	DH	I
Melilotus indicus (L.) All.	sourclover	DH	I
Trifolium sp.	clover	DH	N

ATTACHMENT 1
PLANT SPECIES OBSERVED WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Scientific Name	Common Name	Habitat	Origin
GERANIACEAE	**GERANIUM FAMILY**		
Erodium cicutarium (L.) L'Hér. ex Aiton	white-stemmed filaree	DH	I
Erodium moschatum (L.) L'Hér. ex Aiton	green-stemmed filaree	DH	I
Geranium sp.	geranium	*	N
LAMIACEAE	**MINT FAMILY**		
Salvia apiana Jepson	white sage	CSS	N
Salvia mellifera E. Greene	black sage	CSS	N
MYRSINACEAE			
Anagallis arvensis L.	scarlet pimpernel	DH	I
PHRYMACEAE [=SCROPHULARIACEAE]*			
Mimulus aurantiacus Curtis	low bush monkeyflower	CSS	N
PLANTAGINACEAE	**PLANTAIN FAMILY**		
Plantago erecta Morris	dot-seed plantain	*	N
POLYGONACEAE	**BUCKWHEAT FAMILY**		
Eriogonum fasciculatum Benth. var. *fasciculatum*	California buckwheat	CSS, ORN	N
ROSACEAE	**ROSE FAMILY**		
Heteromeles arbutifolia (Lindley) Roemer	toyon	CSS, ORN	N
SALICACEAE	**WILLOW FAMILY**		
Salix lasiolepis Benth.	arroyo willow	SWS	N
SCROPHULARIACEAE	**FIGWORT FAMILY**		
Cordylanthus rigidus (Benth.) Jepson ssp. *setigerus* Chuang & Heckard	thread-leaved bird's-beak	CSS, DH	N
SOLANACEAE	**NIGHTSHADE FAMILY**		
Nicotiana glauca Grah.	tree tobacco	DH	I
Solanum sp.	nightshade	DH	I
TAMARICACEAE	**TAMARISK FAMILY**		
Tamarix sp.	tamarisk	CSS, ORN	I
URTICACEAE	**NETTLE FAMILY**		
Urtica dioica L. ssp. *holosericea* (Nutt.) Thorne	hoary nettle	*	N
ANGIOSPERMS: MONOCOTS			
CYPERACEAE	**SEDGE FAMILY**		
Schoenoplectus [=*Scirpus*] sp.	tule or bulrush	FM	N

ATTACHMENT 1
PLANT SPECIES OBSERVED WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Scientific Name	Common Name	Habitat	Origin
IRIDACEAE	**IRIS FAMILY**		
Sisyrinchium bellum Wats.	blue-eyed-grass	CSS, NG	N
POACEAE (GRAMINEAE)	**GRASS FAMILY**		
Avena sp.	wild oats	DH, NG	I
Bromus diandrus Roth.	ripgut grass	DH	I
Bromus hordeaceus L.	smooth brome	DH	I
Bromus madritensis L. ssp. *rubens* (L.) Husnot	foxtail chess	DH, NG	I
Cortaderia selloana (Schultes) Asch. & Graebner	selloa pampas grass	MFS	I
Distichlis spicata (L.) E. Greene	saltgrass	MFS	N
Festuca sp.	fescue	DH	N
Leymus condensatus (C. Presl) A. Love	giant ryegrass	CSS	N
Lolium multiflorum Lam.	Italian ryegrass	DH	I
Melica imperfecta Trin.	California melic	CSS	N
Nassella pulchra (A. Hitchc.) Barkworth	purple needlegrass	CSS, NG	N
Pennisetum setaceum Forsskal	fountain grass	*	I
Polypogon monspeliensis (L.) Desf.	annual beard grass	CSS	I
Vulpia microstachys (Nutt.) Benth.	fescue	*	N
THEMIDACEAE			
Dichelostemma capitatum Alph. Wood	blue dicks	*	N
TYPHACEAE	**CATTAIL FAMILY**		
Typha domingensis Pers.	southern cattail	FM	N

HABITATS
CSS = Diegan coastal sage scrub
DH = Disturbed habitat
FM = Freshwater marsh
MFS = Mule fat scrub
NG = Native grassland
ORN = Ornamental vegetation
SWS = Southern willow scrub

OTHER TERMS
N = Native to locality
I = Introduced species from outside locality
* Observed by Essex in 2003.

ATTACHMENT 2

ATTACHMENT 2
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
INVERTEBRATES (Nomenclature from Eriksen and Belk 1999; Mattoni 1990; and Opler and Wright 1999)				
PAPILIONIDAE	**PARNASSIANS & SWALLOWTAILS**			
Papilio rutulus	western tiger swallowtail	*		O
PIERIDAE	**WHITES & SULPHURS**			
Unknown	sulphur	CSS		O
Pieris rapae	cabbage white	*		O
LYCAENIDAE	**BLUES, COPPERS, & HAIRSTREAKS**			
Brephidium exile	western pygmy blue	CSS		O
NYMPHALIDAE	**BRUSH-FOOTED BUTTERFLIES**			
Limenitis lorquini lorquini	Lorquin's admiral	CSS		O
FISHES (Nomenclature from State of California 2000)				
POECILIIDAE	**LIVEBEARERS**			
Gambusia afinis	western mosquitofish (I)	FM		O
AMPHIBIANS (Nomenclature from Crother 2001 and Crother et al. 2003)				
HYLIDAE	**TREE FROGS**			
Pseudacris regilla	Pacific tree frog	*		O
REPTILES (Nomenclature from Crother 2001 and Crother et al. 2003)				
IGUANIDAE	**IGUANID LIZARDS**			
Sceloporus occidentalis	western fence lizard	CSS		O
Uta stansburiana	common side-blotched lizard	DH		O
TEIIDAE	**WHIPTAIL LIZARDS**			
Aspidoscelis tigris stejnegeri	coastal whiptail	CSS		O
COLUBRIDAE	**COLUBRID SNAKES**			
Lampropeltis getula californiae	California kingsnake	DL		C

ATTACHMENT 2
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
BIRDS (Nomenclature from American Ornithologists' Union 1998 and Unitt 2004)				
ACCIPITRIDAE	**HAWKS, KITES, & EAGLES**			
Buteo lineatus elegans	red-shouldered hawk	*	C / Y	Unknown
FALCONIDAE	**FALCONS & CARACARAS**			
Falco sparverius sparverius	American kestrel	*	F / Y	Unknown
COLUMBIDAE	**PIGEONS & DOVES**			
Zenaida macroura marginella	mourning dove	*	C / Y	Unknown
TROCHILIDAE	**HUMMINGBIRDS**			
Calypte anna	Anna's hummingbird	CSS	C / Y	O, V
PICIDAE	**WOODPECKERS & SAPSUCKERS**			
Picoides nuttallii	Nuttall's woodpecker	ORN	C / Y	V
TYRANNIDAE	**TYRANT FLYCATCHERS**			
Sayornis nigricans semiatra	black phoebe	CSS, ORN	C / Y	O, V
CORVIDAE	**CROWS, JAYS, & MAGPIES**			
Corvus brachyrhynchos hesperis	American crow	F	C / Y	O
Corvus corax clarionensis	common raven	F	C / Y	O
AEGITHALIDAE	**BUSHTIT**			
Psaltriparus minimus minimus	bushtit	MFS	C / Y	O, V
TROGLODYTIDAE	**WRENS**			
Thryomanes bewickii	Bewick's wren	CSS, MFS	C / Y	O, V
MIMIDAE	**MOCKINGBIRDS & THRASHERS**			
Mimus polyglottos polyglottos	northern mockingbird	*	C / Y	Unknown
PARULIDAE	**WOOD WARBLERS**			
Geothlypis trichas	common yellowthroat	MFS	C / Y	O, V

ATTACHMENT 2
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
EMBERIZIDAE	**EMBERIZIDS**			
Melospiza melodia	song sparrow	CSS, MFS	C / Y	O, V
Pipilo crissalis	California towhee	CSS, DH	C / Y	O, V
Zonotrichia leucophrys	white-crowned sparrow	*	C / W	Unknown
FRINGILLIDAE	**FINCHES**			
Carduelis psaltria hesperophilus	lesser goldfinch	CSS, ORN	C / Y	O, V
Carduelis tristis salicamans	American goldfinch	*	F / Y	Unknown
Carpodacus mexicanus frontalis	house finch	CSS, ORN	C / Y	O, V
MAMMALS (Nomenclature from Baker et al. 2003)				
SCIURIDAE	**SQUIRRELS & CHIPMUNKS**			
Spermophilus beecheyi	California ground squirrel	CSS		O
CANIDAE	**CANIDS**			
Canis latrans	coyote	ORN		C
CERVIDAE	**DEER**			
Odocoileus hemionus fuliginata	Southern mule deer	*		Unknown

(I) = Introduced species

* Detected by Essex in 2003.

HABITATS
CSS = Coastal sage scrub
DH = Disturbed habitat
DL = Disturbed land
F = Flying overhead
MFS = Mule fat scrub
ORN = Ornamental vegetation

EVIDENCE OF OCCURRENCE
C = Carcass/remains
V = Vocalization
O = Observed

ABUNDANCE (based on Garrett and Dunn 1981)
C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
F = Fairly common; usually encountered in proper habitat, generally not in large numbers

SEASONALITY (birds only)
W = Winter visitor; does not breed locally
Y = Year-round resident; probable breeder on-site or in vicinity

ATTACHMENT 3

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
			BRYOPHYTES		
SPHAEROCARPACEAE					
Geothallus tuberosus Campbell's liverwort	–/–	1B	–	Ephemeral liverwort; mesic coastal sage scrub, vernal pools; elevation below 2,000 feet. Recently reported from Camp Pendleton, likely extirpated elsewhere in urbanized San Diego County.	This species is not expected to occur due to the lack of suitable vernal pool habitat. The nearest recorded occurrence is approximately one mile southeast of the survey area (State of California 2009e).
Sphaerocarpus drewei Bottle liverwort	–/–	1B	–	Ephemeral liverwort; openings in chaparral and coastal sage scrub; elevation 300–2,000 feet.	This species has a low potential to occur due to the presence of marginally suitable scrub habitat. The nearest recorded occurrence is approximately one mile southeast of the survey area (State of California 2009e).
			GYMNOSPERMS		
PINACEAE	**PINE FAMILY**				
Pinus torreyana [ssp. *torreyana*] Torrey pine	–/–	1B	C, RSS	Evergreen tree; closed-cone coniferous forest, chaparral, sandstone; elevation 300–500 feet.	This species was observed within the proposed project site, but the individuals do not belong to a naturally occurring population. They have been planted within restored vegetation.

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
			ANGIOSPERMS: DICOTS		
APIACEAE	**CARROT FAMILY**				
Eryngium aristulatum var. *parishii* San Diego button-celery	CE/FE	1B	C	Annual/perennial herb; vernal pools, mesic areas of coastal sage scrub and grasslands, blooms April–June; elevation less than 2,000 feet.	This species is not expected to occur due to the lack of suitable vernal pool habitat. There are multiple recorded occurrences within two miles of the survey area. However, all are associated with vernal pool habitat, and one population is extirpated (State of California 2009e, USFWS 2009).
ASTERACEAE	**SUNFLOWER FAMILY**				
Ambrosia pumila San Diego ambrosia	–/FE	1B	C, NE, RSS	Perennial herb; chaparral, coastal sage scrub, valley and foothill grassland, creek beds, vernal pools, often in disturbed areas; blooms May–Sept.; elevation less than 1,400 feet. Many occurrences extirpated in San Diego County.	This species is not expected to occur within the survey area. It would have been apparent during the survey if present.

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
Artemisia palmeri San Diego sagewort	–/–	4	–	Deciduous shrub; coastal sage scrub, chaparral, riparian, mesic, sandy areas; blooms May–Sept.; elevation less than 3,000 feet.	There are multiple recorded occurrences of this species within two miles of the survey area, with the closest within one mile to the northwest (State of California 2009e). However, this species would have been apparent if present; it is not expected to occur within the survey area.
Corethrogyne filaginifolia var. *incana* [=*Lessingia filaginifolia* var. *filaginifolia*] San Diego sand aster	–/–	1B	–	Perennial herb; chaparral, coastal bluff scrub, coastal sage scrub; blooms June–Sept.; elevation less than 400 feet. Known in California from only six occurrences.	This species would have been apparent if present and is not expected to occur due to the lack of suitable sandy soils. The nearest recorded occurrence is approximately two miles west of the survey area (State of California 2009e).
Corethrogyne filaginifolia var. *linifolia* [=*Lessingia filaginifolia* var. *filaginifolia*] Del Mar Mesa sand aster	–/–	1B	C	Perennial herb; coastal bluff scrub, openings in southern maritime chaparral and coastal sage scrub, sandy soil; blooms May–Sept.; elevation less than 500 feet.	This species would have been apparent if present and is not expected to occur due to the lack of suitable sandy soils. The nearest recorded occurrence, which is possibly extirpated, is approximately two miles west of the survey area (State of California 2009e).

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
Holocarpha virgata ssp. *elongata* Graceful tarplant	–/–	4	–	Annual herb; coastal sage scrub, cismontane woodland, valley and foothill grassland, chaparral; blooms July–Nov.; elevation 200–3,600 feet.	This species has a low potential to occur due to the presence of marginally suitable scrub and grassland habitat.
Isocoma menziesii var. *menziesii* [=var. *decumbens*] Decumbent goldenbush	–/–	1B	–	Shrub; chaparral, coastal sage scrub, sandy soils, often in disturbed areas; blooms April–Nov.; elevation less than 500 feet.	This species is not expected to occur due to the lack of sandy soils. It would have been apparent during surveys if present.
Iva hayesiana San Diego marsh-elder	–/–	2	–	Perennial herb; marshes and swamps, playas, riparian areas; blooms April–Sept.; elevation below 1,700 feet.	This species would have been apparent if present during surveys; it is not expected to occur within the survey area. The nearest recorded occurrence is within two miles northwest of the survey area (State of California 2009e).
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	–/–	1B	–	Annual herb; coastal salt marsh, vernal pools, playas; blooms Feb.–June; elevation less than 4,000 feet.	This species is not expected to occur within the survey area due to the lack of suitable salt marsh or vernal pool habitat. The nearest recorded occurrences are within two miles of the survey area (State of California 2009e).

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
Viguiera laciniata San Diego County viguiera	–/–	4	–	Shrub; chaparral, coastal sage scrub; blooms Feb.–June; elevation less than 2,500 feet.	This species would have been apparent during surveys if present and was not observed. Therefore, it is not expected to occur within the survey area.
BORAGINACEAE	**BORAGE FAMILY**				
Harpagonella palmeri Palmer's grapplinghook	–/–	4	C, RSS	Annual herb; chaparral, coastal sage scrub, valley and foothill grassland; clay soils; blooms March–May; elevation less than 2,800 feet. Inconspicuous and easily overlooked.	This species has a low potential to occur within the survey area due to the presence of marginally suitable scrub habitat and clay soils. The nearest recorded occurrence is within one mile northwest of the survey area (State of California 2009e).
CACTACEAE	**CACTUS FAMILY**				
Cylindropuntia californica [=*Opuntia californica* var. *californica, O. parryi*] Snake cholla	–/–	1B	C, NE, RSS	Succulent shrub; chaparral, coastal sage scrub; blooms April–May; elevation 100–500 feet.	This species is not expected to occur within the survey area; it would have been apparent if present during surveys. The nearest recorded occurrence is approximately one mile west of the survey area (State of California 2009e).

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
Ferocactus viridescens San Diego barrel cactus	–/–	2	C, RSS	Succulent; chaparral, coastal sage scrub, valley and foothill grassland, vernal pools; blooms May–June; elevation less than 1,500 feet.	This species would have been apparent if present during surveys; it is not expected to occur. There are multiple recorded occurrences of this species in the vicinity of the survey area, with two within one mile (State of California 2009e).
CONVOLVULACEAE	**MORNING-GLORY FAMILY**				
Dichondra occidentalis Western dichondra	–/–	4	–	Perennial herb; chaparral, cismontane woodland, coastal sage scrub, valley and foothill grassland; blooms Mar.–July; elevation less than 1,650 feet.	This species has a low potential to occur due to the presence of marginally suitable scrub habitat, within an area that has experienced a high level of previous disturbance.
CRASSULACEAE	**STONECROP FAMILY**				
Dudleya brevifolia [=*D. blochmaniae* ssp. *brevifolia*] Short-leaved dudleya	CE/–	1B	C, NE	Perennial herb; southern maritime chaparral, coastal sage scrub on Torrey sandstone; blooms in April; elevation less than 1,000 feet. Known from fewer than five occurrences in the Del Mar and La Jolla areas of San Diego.	This species is not expected to occur due to the lack of suitable open habitat and soils. The nearest recorded occurrences, both of which are extirpated, are within one mile south of the survey area (State of California 2009e).

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
FAGACEAE	**OAK FAMILY**				
Quercus dumosa Nuttall's scrub oak	–/–	1B	–	Evergreen shrub; closed-cone coniferous forest, coastal chaparral, coastal sage scrub, sandy and clay loam soils; blooms Feb.–March; elevation less than 1,300 feet.	This species is not expected to occur within the survey area; it would have been apparent during surveys if present. The nearest recorded occurrences are within two miles of the survey area (State of California 2009e).
LAMIACEAE	**MINT FAMILY**				
Acanthomintha ilicifolia San Diego thorn-mint	CE/FT	1B	C, NE	Annual herb; chaparral, coastal sage scrub, and grasslands on friable or broken clay soils; blooms April–June; elevation less than 3,100 feet.	This species has a low potential to occur due to the presence of marginally suitable scrub habitat, within an area that has experienced a high level of previous disturbance. Broken clay soils were not observed within the remnant coastal sage scrub.

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
Monardella linoides ssp. *viminea* [=*M. viminea*] Willowy monardella	CE/FE	1B	C, NE	Perennial herb; closed-cone coniferous forest, chaparral, coastal sage scrub, riparian scrub, riparian woodlands, sandy seasonal dry washes; blooms June–Aug; elevation 160–1,300 feet. Known in California from fewer than 15 locations.	This species is not expected to occur within the survey area. It would have likely been apparent if present during the survey, and the survey area lacks suitable sandy soils. The nearest recorded occurrence is approximately two miles northeast of the survey area (State of California 2009e).
Pogogyne abramsii San Diego mesa mint	CE/FE	1B	C	Annual herb; vernal pools; blooms April–July; elevation 300–700 feet.	This species is not expected to occur due to the lack of suitable vernal pool habitat. The nearest recorded occurrence is approximately one mile southeast of the survey area and is associated with vernal pools (State of California 2009e).
Pogogyne nudiuscula Otay mesa mint	CE/FE	1B	C, NE	Annual herb; vernal pools; blooms May–July; elevation 300–800 feet. Known from six occurrences in Otay Mesa.	This species is not expected to occur due to the lack of suitable vernal pool habitat. The nearest recorded occurrence, which has not been located since 1968, is approximately two miles east of the survey area (State of California 2009e).

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
POLEMONIACEAE	**PHLOX FAMILY**				
Navarretia fossalis Spreading navarretia	–/FT	1B	C	Annual herb; vernal pools, marshes and swamps, chenopod scrub; blooms April–June; elevation 100–4,300 feet.	This species is not expected to occur due to the lack of suitable vernal pool habitat. The nearest recorded occurrences are within two miles of the survey area (State of California 2009e).
RHAMNACEAE	**BUCKTHORN FAMILY**				
Adolphia californica California adolphia	–/–	2	–	Deciduous shrub; Diegan coastal sage scrub and chaparral; clay soils; blooms Dec.–May; elevation 100–1,000 feet.	This species would have been observed during surveys; it is not expected to occur within the survey area. The nearest recorded occurrences are within two miles of the survey area (State of California 2009e).
Ceanothus verrucosus Wart-stemmed ceanothus	–/–	2	C, RSS	Evergreen shrub; chaparral; blooms Dec.–April; elevation less than 1,300 feet.	This species would have been apparent if present; it is not expected to occur within the survey area. The nearest recorded occurrence is within one mile of the survey area (State of California 2009e).

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
			ANGIOSPERMS: MONOCOTS		
JUNCACEAE	**RUSH FAMILY**				
Juncus acutus ssp. *leopoldii* Southwestern spiny rush	–/–	4	–	Perennial herb; coastal dunes, meadows and seeps, coastal salt marsh, riparian; blooms May–June; elevation less than 3,000 feet.	This species is not expected to occur; it would have been apparent during surveys if present.
POACEAE	**GRASS FAMILY**				
Orcuttia californica California Orcutt grass	CE/FE	1B	C	Annual herb; vernal pools; blooms April–August; elevation 50–2,200 feet.	This species is not expected to occur due to the lack of suitable vernal pool habitat. The nearest recorded occurrence, which is a reintroduced population, is approximately two miles northwest of the survey area (State of California 2009e, USFWS 2009).
THEMIDACEAE					
Brodiaea orcuttii Orcutt's brodiaea	–/–	1B	C, RSS	Perennial herb (bulbiferous); closed cone coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, vernal pools, mesic, clay soil; blooms May–July; elevation less than 5,300 feet.	This species has a low potential to occur along the drainage within the survey area due to the presence of marginally suitable habitat and suitable soils. The nearest recorded occurrences are within two miles of the survey area (State of California 2009e).

ATTACHMENT 3
SENSITIVE PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	State/ Federal Status	CNPS List	SDG&E NCCP	Habitat/Blooming Period	Potential to Occur/Comments
Muilla clevelandii San Diego goldenstar	–/–	1B	C, RSS	Perennial herb (bulbiferous); chaparral, coastal sage scrub, valley and foothill grassland, vernal pools, clay soils; blooms May; elevation 170–1,500 feet.	This species has a low potential to occur due to the presence of marginally suitable scrub and grassland habitat, within an area that has experienced a high level of previous disturbance. The nearest recorded occurrences are within two miles of the survey area (State of California 2009e).

FEDERAL CANDIDATES AND LISTED PLANTS
FE = Federally listed endangered
FT = Federally listed threatened

STATE LISTED PLANTS
CE = State listed endangered

SAN DIEGO GAS & ELECTRIC (SDG&E) NATURAL COMMUNITY CONSERVATION PLAN (NCCP)
C = Covered Species
NE = Narrow endemic
RSS = Regionally Sensitive Species

CALIFORNIA NATIVE PLANT SOCIETY LISTS
1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.
2 = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing.
4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.

ATTACHMENT 4

ATTACHMENT 4
SENSITIVE WILDLIFE SPECIES OBSERVED OR
WITH THE POTENTIAL TO OCCUR WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA

Species	Status	Habitat/Comments	Occurrence
INVERTEBRATES (Nomenclature from Eriksen and Belk 1999; Mattoni 1990; and Opler and Wright 1999)			
ANOSTRACA	**FAIRY SHRIMP**		
San Diego fairy shrimp *Branchinecta sandiegonensis*	FE, NCCP *	Vernal pools.	This species is not expected to occur within the survey area due to the lack of suitable vernal pool habitat. There are multiple recorded occurrences of this species within two miles of the survey area, all within vernal pools (State of California 2009e, USFWS 2009).
REPTILES (Nomenclature from Crother 2001 and Crother et al. 2003)			
IGUANIDAE	**IGUANID LIZARDS**		
San Diego horned lizard *Phrynosoma coronatum* (San Diego/blainvillii population)	CSC, FSS, NCCP, *	Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants for forage.	This species has a low potential to occur within the survey area due to the presence of marginally suitable scrub habitat and soils. No harvester ants (*Pogonomyrmex* sp.), a main component of this species' diet, were observed within the survey area. The nearest recorded occurrence is within two miles east of the survey area (State of California 2009e).
SCINCIDAE	**SKINKS**		
Coronado skink *Eumeces skiltonianus interparietalis*	CSC, FSS, NCCP, *	Grasslands, open woodlands and forest, coastal sage scrub, broken chaparral. Rocky habitats near streams.	This species has a low potential to occur within the survey area due to the presence of marginally suitable habitat. Although a water source is present, the survey area is isolated by development.

ATTACHMENT 4
SENSITIVE WILDLIFE SPECIES OBSERVED OR
WITH THE POTENTIAL TO OCCUR WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	Status	Habitat/Comments	Occurrence
TEIIDAE	**WHIPTAIL LIZARDS**		
Belding's orange-throated whiptail *Aspidoscelis* [=*Cnemidophorus*] *hyperythra beldingi*	CSC, NCCP, *	Chaparral, coastal sage scrub with coarse sandy soils and scattered brush.	This species has a low potential to occur due presence of marginally suitable, isolated coastal sage scrub habitat and soils. The nearest recorded occurrences are between one and two miles from the survey area (State of California 2009e).
Coastal whiptail *Aspidoscelis tigris stejnegeri*	*	Coastal sage scrub, chaparral, woodlands, and streamsides where plants are sparsely distributed.	This species was observed within disturbed coastal sage scrub in the survey area. There are two additional recorded occurrences within two miles of the survey area (State of California 2009e).
BOIDAE	**BOAS**		
Coastal rosy boa *Charina trivirgata roseofusca*	FSS, RSS, *	Coastal sage scrub, chaparral in inland and desert locales with rocky soils.	This species has a low potential to occur within the survey are due to the presence of marginally suitable, isolated scrub habitat.
BIRDS (Nomenclature from American Ornithologists' Union 1998, 7th ed. and Unitt 2004)			
ACCIPITRIDAE	**HAWKS, KITES, & EAGLES**		
Northern harrier (nesting) *Circus cyaneus hudsonius*	CSC, NCCP	Coastal lowland, marshes, grassland, agricultural fields. Migrant and winter resident, rare summer resident.	This species has a low potential to forage within the survey area but is not expected to nest due to a lack of suitable habitat.
Cooper's hawk (nesting) *Accipiter cooperi*	WL	Mature forest, open woodlands, wood edges, river groves. Parks and residential areas. Year-round resident.	This species has a moderate potential to forage within the survey area but is not expected to nest due to a lack of suitable habitat.

ATTACHMENT 4
SENSITIVE WILDLIFE SPECIES OBSERVED OR
WITH THE POTENTIAL TO OCCUR WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	Status	Habitat/Comments	Occurrence
RALLIDAE	**RAILS, GALLINULES, & COOTS**		
California black rail *Laterallus jamaicensis*	BCC, ST, CFP	Tidal marshes, grassy marshes. Resident populations extirpated.	This species is not expected to occur within the survey area due to the lack of suitable tidal marsh habitat. The nearest recorded occurrence, which is from 1952, is within two miles of the survey area (State of California 2009e).
Light-footed clapper rail *Rallus longirostris levipes*	FE, SE, CFP, NCCP	Salt marshes supporting *Spartina foliosa.* Localized resident.	This species is not expected to occur within the survey area due to the lack of suitable marsh habitat with *Spartina foliosa*. The nearest recorded occurrences are within two miles of the survey area along Los Peñasquitos Canyon Creek (USFWS 2009).
VIREONIDAE	**VIREOS**		
Least Bell's vireo (nesting) *Vireo bellii pusillus*	FE, SE, BCC, NCCP, *	Willow riparian woodlands. Migrant and summer resident.	This species is not expected to occur within the survey area due to the lack of suitable riparian habitat. The southern willow scrub on-site is very small and isolated and lacks a dense understory of vegetation that this species prefers. Multiple recorded occurrences are within two miles north of the survey area along Sorrento Creek and Los Peñasquitos Canyon Creek (State of California 2009e, USFWS 2009).

ATTACHMENT 4
SENSITIVE WILDLIFE SPECIES OBSERVED OR
WITH THE POTENTIAL TO OCCUR WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	Status	Habitat/Comments	Occurrence
TROGLODYTIDAE	**WRENS**		
Coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	CSC, FSS, BCC, NE	Maritime succulent scrub, coastal sage scrub and desert scrub with *Opuntia* thickets. Rare localized resident.	This species is not expected to occur due to the lack of substantial cactus patches.
SYLVIIDAE	**GNATCATCHERS**		
Coastal California gnatcatcher *Polioptila californica californica*	FT, CSC, NCCP, *	Coastal sage scrub, maritime succulent scrub. Resident.	This species has a moderate potential to nest within the coastal sage scrub in the survey area. There are many recorded occurrences of this species (at least six local populations) within two miles of the survey area, and at least three of these local populations occur within one mile (State of California 2009e, USFWS 2009).
TURDIDAE	**THRUSHES**		
Western bluebird *Sialia mexicana occidentalis*	RSS	Open woodlands, farmlands, orchards.	This species has a low potential to nest within the survey area due to the presence of small patches of mature trees within the ornamental and riparian vegetation.
EMBERIZIDAE	**EMBERIZIDS**		
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	WL, NCCP, *	Coastal sage scrub, chaparral, grassland; favors steep and rocky areas. Localized resident.	This species is not expected to occur within the survey area due to the fragmentation of the sage scrub habitat on-site.

ATTACHMENT 4
SENSITIVE WILDLIFE SPECIES OBSERVED OR
WITH THE POTENTIAL TO OCCUR WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

Species	Status	Habitat/Comments	Occurrence
MAMMALS (NOMENCLATURE FROM BAKER ET AL. 2003 AND HALL 1981)			
HETEROMYIDAE	**POCKET MICE & KANGAROO RATS**		
Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	CSC, NCCP, *	San Diego County west of mountains in sparse, disturbed coastal sage scrub or grasslands with sandy soils.	This species is not expected to occur within the survey area due to the lack of suitable sandy soils.
Pacific pocket mouse *Perognathus longimembris pacificus*	FE, CSC, NE	Open coastal sage scrub; fine, alluvial sands near ocean.	This species is not expected to occur within the survey area due to the lack of suitable sandy soils.
CRICETIDAE	**NEW WORLD MICE & RATS**		
San Diego desert woodrat *Neotoma lepida intermedia*	CSC, NCCP, *	Coastal sage scrub and chaparral.	No woodrat middens were observed within the survey area, and no substantial cactus patches (typically preferred for constructing middens) were observed. Therefore, this species is not expected to occur within the survey area. The nearest recorded occurrences are within two miles of the survey area (State of California 2009e).
CERVIDAE	**DEER**		
Southern mule deer *Odocoileus hemionus fuliginata*	NCCP	Many habitats.	This species has previously been detected within the survey area (Essex 2003). However, due to the isolation of the survey area following construction of Mira Sorrento Place, this species is not expected to occur.

ATTACHMENT 4
SENSITIVE WILDLIFE SPECIES OBSERVED OR
WITH THE POTENTIAL TO OCCUR WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA
(continued)

SAN DIEGO GAS & ELECTRIC NATURAL COMMUNITY CONSERVATION PLAN

NCCP = COVERED SPECIES

NE = Narrow endemic
RSS = Regionally sensitive species

FEDERAL/STATE LISTED
FE = Federally listed endangered
FSS = Federal (BLM or USFWS) sensitive species
FT = Federally listed threatened
SE = State listed endangered
ST = State listed threatened

OTHER
BCC = U.S. Fish and Wildlife Service Birds of Conservation Concern species
CFP = California fully protected species
CSC = California Department of Fish and Game Species of Special Concern
WL = California Department of Fish and Game Watch List
* = Taxa listed with an asterisk fall into one or more of the following categories:
- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands)

APPENDIX D

WETLAND DELINEATION REPORT

Draft Wetland Delineation for the Mira Sorrento Substation Project, City of San Diego, California

Prepared for

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ATTACHMENT

1: Wetland Delineation Data Sheets

1.0 Summary of Findings

RECON biologists performed a routine wetland delineation within the approximately 6.6-acre Mira Sorrento Substation survey area in the city of San Diego. Methods for delineating wetlands followed guidelines set forth by the U.S. Army Corps of Engineers (ACOE; 1987), including the recently published *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008).

The ACOE, California Department of Fish and Game (CDFG), California Regional Water Quality Control Board (RWQCB), and City of San Diego's jurisdictional waters were all delineated within the Mira Sorrento Substation site.

ACOE jurisdictional waters of the U.S. total 0.23 acre on-site, including 0.19 acre of ACOE wetlands and 0.04 of ACOE non-wetland waters.

CDFG and RWQCB jurisdictional waters of the State each total 0.38 acre on-site. This acreage primarily consists of riparian habitat and the unvegetated streambed associated with the unnamed creek within the survey area.

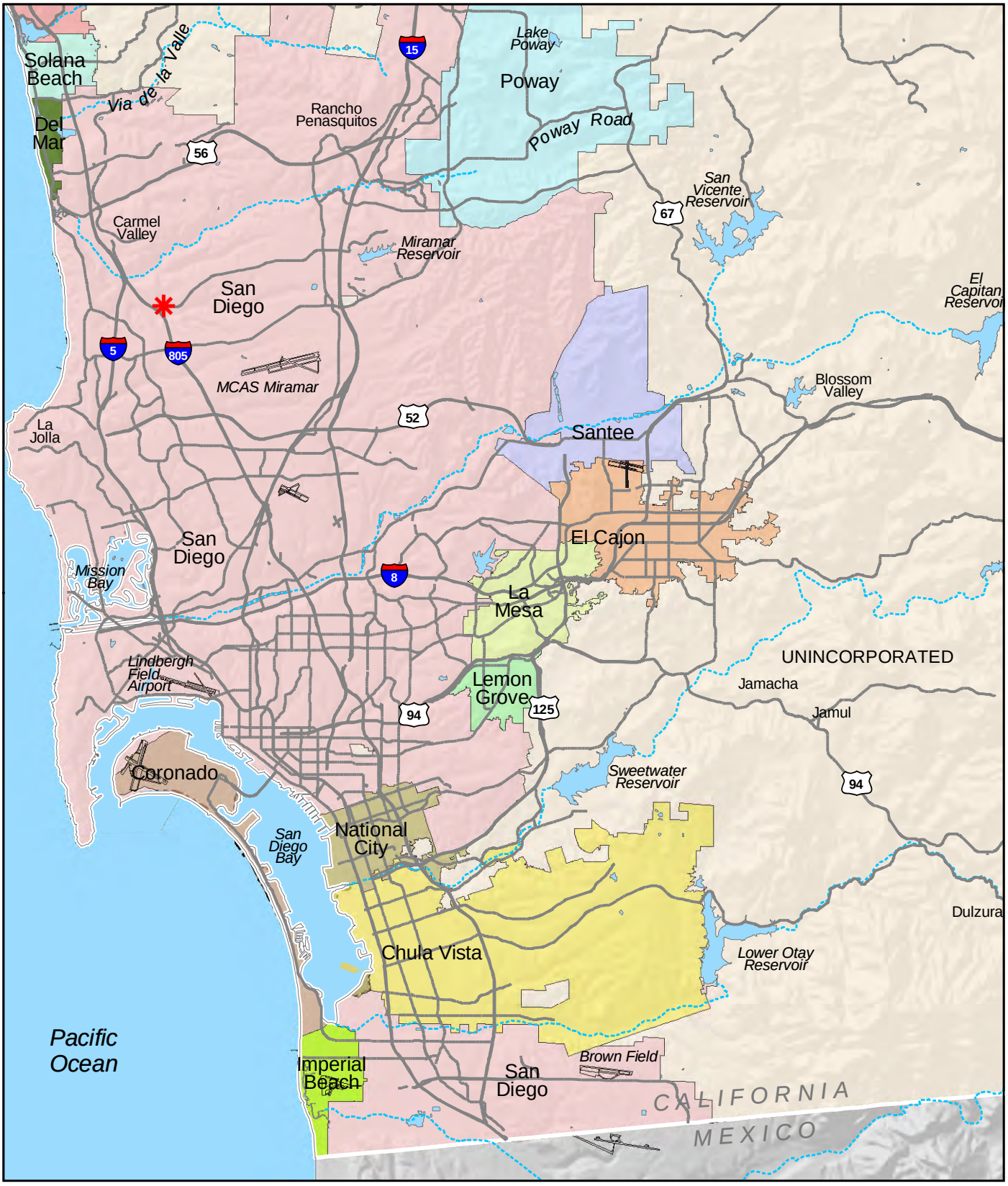
The City of San Diego takes jurisdiction over all naturally occurring wetland vegetation. A total of 0.38 acre of wetland habitat falls within the City of San Diego's jurisdiction.

Each of the agencies will verify this delineation during the permitting process. Under a no-net-loss to wetlands policy, the agencies will require that impacts be avoided and minimized to the greatest extent practicable and that any unavoidable impacts be mitigated.

Impacts to jurisdictional resources on-site would require a permit under Section 404 of the Clean Water Act (CWA) from ACOE and a Section 401 water quality certification from the RWQCB. Typically, the threshold for impacts authorized under the Section 404 Nationwide Permit Program is less than 0.1 acre or 300 linear feet. If the impact acreage exceeds this amount, an individual permit is required. In addition, a Section 1603 Streambed Alteration Agreement would also need to be authorized by CDFG.

2.0 Introduction

This report describes the results of a wetland delineation conducted within the approximately 6.6-acre Mira Sorrento Substation Project survey area. The site is located near the intersection of Mira Mesa Boulevard and Sorrento Parkway (Figure 1) in a canyon drainage near Sorrento Mesa in the city of San Diego in San Diego County. The project site is located in the U.S. Geological Survey (USGS) 7.5-minute topographical



Project Location

FIGURE 1
Regional Location of the
Mira Sorrento Substation Project

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map Del Mar Quadrangle, in an unsectioned portion of the Pueblo Lands of San Diego (Figure 2; USGS 1996).

The Mira Sorrento Substation Project survey area consists of a small hilltop with steep, northwest- and southwest-facing manufactured slopes and a steep, east-facing slope of an isolated urban canyon. The canyon is intersected by roads to the north and south and is surrounded by industrial and commercial development (Figure 3). A drainage, which runs north to south along the canyon bottom, is culverted under Mira Sorrento Place and Vista Sorrento Parkway. This unnamed drainage drains into a tributary of Los Penasquitos Creek and, ultimately, the Pacific Ocean.

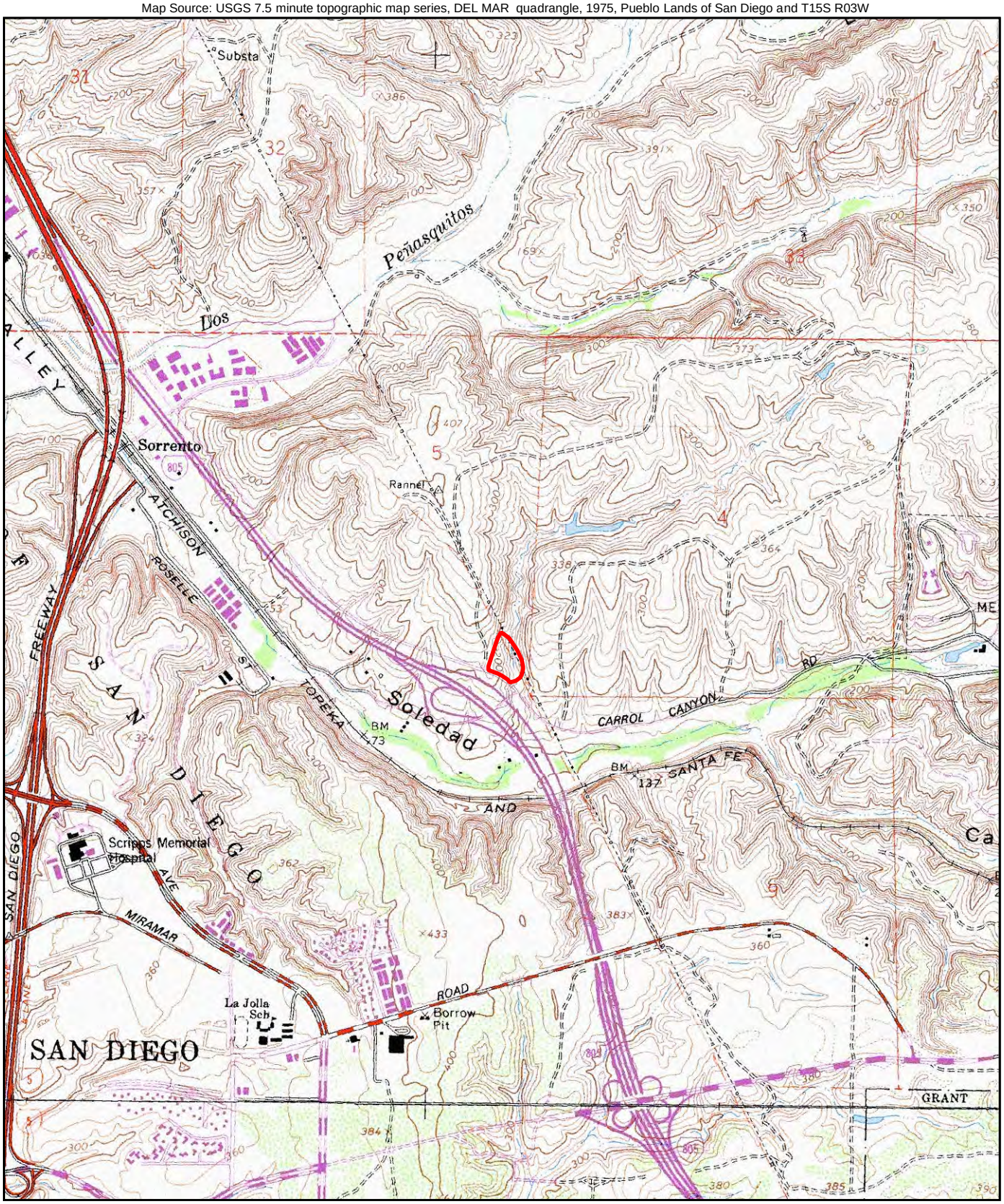
The elevation within the canyon ranges from approximately 116 to 226 feet above mean sea level, with the lowest elevation in the southernmost canyon bottom and the highest elevation atop the hill in the western portion of the survey area. Two soil series—Altamont and Huerhuero—have been mapped within this survey area (U.S. Department of Agriculture [USDA] 1973).

Included in this report are the wetland delineation data necessary for a jurisdictional determination by the ACOE and CDFG. This wetland delineation is also subject to review and approval by the RWQCB and the City of San Diego.

3.0 Methods

RECON biologist Michael Nieto performed a routine wetland delineation within the Mira Sorrento substation survey area on September 2, 2009. The wetland delineation was performed according to the guidelines set forth by ACOE (1987, 2008). A wetland delineation is used to identify and map the extent of the wetlands and waters of the U.S. and provide information regarding jurisdictional issues. Prior to conducting the delineation, an aerial photograph and the USGS Del Mar quadrangle were examined to aid in the determination of potential waters of the U.S. on-site. Once on-site, the parcel of land was examined to determine the presence of any indicators of wetlands, including wetland vegetation, hydric soils, and hydrology. Soil test pits were located: (1) within potential wetland areas and (2) in or adjacent to the spot where the boundary between wetland and upland was inferred (based on changes in the topography, hydrology, and composition of the vegetation). While in the field, the survey area was also examined for potential ACOE non-wetland waters of the U.S. and CDFG jurisdictional waters.

Map Source: USGS 7.5 minute topographic map series, DEL MAR quadrangle, 1975, Pueblo Lands of San Diego and T15S R03W



Survey Area

FIGURE 2
Mira Sorrento Substation Project
Survey Area Location on USGS Map

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Image Source: Courtesy of Microsoft Virtual Earth



Survey Area

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FIGURE 3
Mira Sorrento Substation Project
Survey Area Location on Aerial Photograph

3.1 ACOE Wetlands

According to the ACOE manual, wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions (ACOE 1987).”

Wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. According to ACOE, indicators for all three parameters must be present to qualify a wetland. The definition of a wetland includes the phrase “under normal circumstances,” because there are situations in which the vegetation of a wetland has been removed or altered as a result of a recent natural event or human activities (ACOE 1987).

Atypical situations and problem areas may lack one or more of the three criteria and still be considered wetlands. Background information on the previous condition of the area and/or field observations may indicate that the site meets the wetland criteria prior to disturbance. Additional delineation procedures would be employed if normal circumstances did not occur on a site. For the Mira Sorrento Substation Project survey area, atypical situations or problem areas do not occur; normal circumstances are considered present.

3.1.1 Regulatory Definition

In accordance with Section 404 of the CWA, ACOE regulates the discharge of dredged or fill material into waters of the United States. The term “waters of the United States” is defined as:

- All waters currently used, or used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds; the use, degradation, or destruction of which could affect foreign commerce including any such waters, (1) which could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are, or could be, taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industries in interstate commerce.

- All other impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified above;
- The territorial seas; and
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in the paragraphs above (33 Code of Federal Regulations [CFR] Part 328.3(a)).

3.1.2 Isolated Waters

Federal regulatory authority only extends to activities that affect interstate commerce pursuant to Article 1, Section 8 of the U.S. Constitution. Prior to 1985, in accordance with the interstate commerce requirement, ACOE restricted their jurisdiction on isolated (intrastate) waters, such as ponds or vernal pools lacking connection to waters of the U.S. On September 12, 1985, the Environmental Protection Agency issued a memorandum asserting ACOE jurisdiction over isolated waters that are used or could be used by migratory birds or endangered species. This assertion became known as the "Migratory Bird Rule." Consequently, the definition of "waters of the United States" in ACOE regulations was modified to include isolated waters that qualified under the Migratory Bird Rule.

3.1.3 Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (ACOE 1987). The potential wetland areas within the survey area were surveyed by walking through the project site and making observations of those areas exhibiting characteristics of jurisdictional waters or wetlands. Vegetation units with potential wetland areas were examined, and data for each vegetation stratum (i.e., tree, shrub, herb, and vine) were recorded on the datasheet provided in the 2008 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* [1](ACOE 2008). The percent absolute cover of each species present was visually estimated and recorded.

The wetland indicator status of each species recorded was determined by using the list of wetland plants for California provided by the USFWS (USFWS 1997). An obligate (OBL) indicator status refers to plants that have a 99-percent probability of occurring in

[1] Hereafter referred to as *Arid Supplement.*

wetlands under natural conditions. A facultative wet (FACW) indicator status refers to plants that occur in wetlands (67–99 percent probability), but are occasionally found in non-wetlands. A facultative (FAC) indicator status refers to plants that are equally likely to occur in wetlands or non-wetlands (estimated probability 34–66 percent). Facultative upland (FACU) species are more often found in upland sites. Upland (UPL) species have a high probability to occur in upland sites. A not indicated (NI) status refers to species that have insufficient data available to determine an indicator status at this time, for the local region.

Plant species nomenclature follows that contained in *The Jepson Manual* (Hickman 1993). Dominant species with an indicator status of NI or not listed in the 1997 list were evaluated as either wetland or upland indicator species based on local professional knowledge of where the species are most often observed in habitats characteristic of southern California.

There are three indicators or tests to determine hydrophytic vegetation on a site: the dominance test, prevalence index, and morphological adaptations. The 50/20 rule is a repeatable and objective procedure for selecting a dominant plant species and is recommended when data are available for all species in the community (ACOE 2006). Dominant species are those plants that individually or collectively contribute more than 50 percent of the total vegetative cover plus those species that, by themselves, comprise 20 percent or more of the total cover.

If the vegetation at a particular site passes the dominance test (using the 50/20 rule), the hydrophytic vegetation criterion is considered fulfilled. If it fails the dominance test and positive indicators of hydric soils and/or wetland hydrology are present, it is necessary to apply the prevalence index. The prevalence index is a weighted-average wetland indicator status of all plant species at a test site, where each indicator status category is given a numeric code and weighted by percent cover (ACOE 2006). If a prevalence index is 3.0 or less, the hydrophytic vegetation criterion is considered fulfilled.

If a site fails the prevalence index and positive indicators of hydric soils and/or wetland hydrology are present, it is necessary to assess the presence or absence of morphological adaptations. To apply this indicator, morphological features must be observed on more than 50 percent of the individuals of a FACU species living in an area where indicators of hydric soil and wetland hydrology are present (ACOE 2006). Once this indicator is applied, the dominance test and/or the prevalence index are/is recalculated using a FAC indicator status of this species (ACOE 2006).

3.1.4 Hydric Soils

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration

of hydrophytic vegetation (ACOE 1987). Hydric soil indicators are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds (ACOE 2008). The hydric soil criterion is considered fulfilled at a location; if soils in the area can be inferred to have a high groundwater table, evidence of prolonged soil saturation, or any indicators suggesting a long-term reducing environment in the upper 18 inches of the soil profile.

A sample point was selected within a potential wetland area where the apparent boundary between wetland and upland was inferred based on changes in the composition of the vegetation and topography. The soil pit was dug to a depth of at least 18 inches or to a depth necessary to determine soil color, evidence of soil saturation, depth to groundwater, and indicators of a reducing soil environment (e.g., mottling, gleying, and sulfidic odor).

Hydric soil indicators are presented in three groups in the *Arid Supplement* (ACOE 2008): “all soils, sandy soils, and loamy and clayey soils.” Indicators applicable to all soil textures are indicated as A1 through A10 on the datasheet and include histosols, histic epipedon, stratified layers, and muck, among others. Indicators of sandy soils are noted as S1 through S6 and include sandy gleyed matrix, sandy redox, and stripped matrix. F1 (loamy mucky mineral) through F9 (vernal pools) are indicators of hydric conditions within loamy and clayey soils. A complete description of each of the hydric soil indicators is provided in the 2008 *Arid Supplement* and should be referenced during each delineation.

3.1.5 Wetland Hydrology

The presence of wetland hydrology indicators confirm that inundation or saturation has occurred on a site, but may not provide information about the timing, duration, or frequency of the event. Hydrology features are generally the most ephemeral of the three wetland parameters (ACOE 2008).

In the 2008 *Arid Supplement*, wetland hydrology indicators are divided into four groups. Those that are determined based on direct observation are in Group A. These include the presence of surface water, a high-water table, and saturation. Water marks, drift deposits, surface soil cracks, and other indicators of flooding or ponding fall within Group B. Group C consists of indicators that provide indirect evidence that a site was saturated recently, such as the presence of sulfidic odors or oxidized rhizospheres along living roots. Group D consists of vegetation and soil features that indicate recent wet conditions, such as the FAC-neutral test or a shallow aquitard (ACOE 2008). These indicators are further classified as primary or secondary indicators.

Hydrologic information for the site was obtained by reviewing USGS topographic maps and by directly observing hydrology indicators in the field. The wetland hydrology

criterion is considered fulfilled at a location if, based upon the conclusions inferred from the field observations, an area has a high probability of being periodically inundated or has soils saturated to the surface at some time during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (ACOE 1987). If at least one primary indicator or at least two secondary indicators are found at a sample point, the wetland hydrology criterion is considered fulfilled.

3.2 ACOE Non-wetland Jurisdictional Waters

The ACOE also requires the delineation of non-wetland jurisdictional waters of the U.S. These waters must have strong hydrology indicators such as the presence of seasonal flows and an ordinary high watermark. An ordinary high watermark is defined as:

> . . . that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation or hydric-soil characteristics. Hydric-soil indicators may be missing because topographic position precludes ponding and subsequent development of hydric soils. Absence of wetland vegetation can result from frequent scouring due to rapid water flow. These types of jurisdictional waters are delineated by the lateral and upstream/downstream extent of the ordinary high watermark of the particular drainage or depression.

3.3 CDFG Jurisdictional Resources

Under sections 1600–1607 of the Fish and Game Code, CDFG regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFG has jurisdiction over riparian habitats (e.g., southern willow scrub) associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider.

3.4 RWQCB Jurisdictional Resources

RWQCB is the regional agency responsible for protecting water quality in California. The jurisdiction of this agency includes waters of the state as mandated by both the federal

Clean Water Act (CWA) Section 401 and the California Porter-Cologne Water Quality Control Act.

3.5 City of San Diego Wetlands

According to the City of San Diego's Municipal Code (City of San Diego 2002), wetlands are areas which are characterized by any of the following conditions: (1) all areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation; (2) areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed the historic wetland vegetation; (3) areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands.

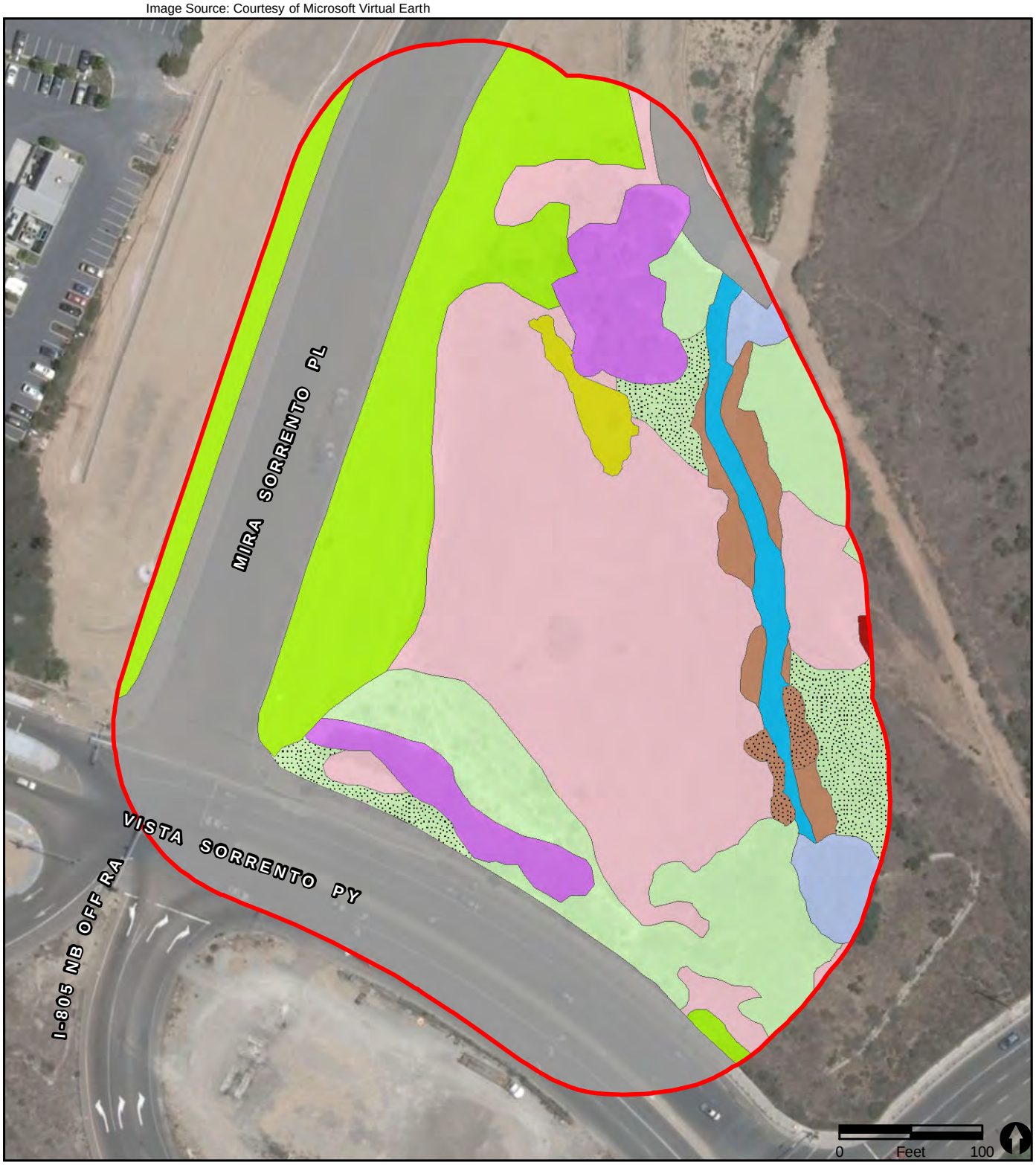
4.0 Results of Field Data

Seven vegetation communities/land cover types were documented within the survey area, including areas with and without hydrophytic vegetation. The data (including vegetation, soils, and hydrology) collected at each soil test pit were recorded on to a *Wetland Determination Data Form-Arid West Region*. The wetland data forms are provided in Attachment 1.

4.1 Vegetation

Seven vegetation communities were mapped within the approximately 6.6-acre survey area, including freshwater marsh, southern willow scrub, mule fat scrub (undisturbed and disturbed), Diegan coastal sage scrub (remnant, restored, and disturbed), native grassland, disturbed habitat, and ornamental vegetation (Table 1). Disturbed land and developed land are also present within the survey area. Figure 4 provides locations of each vegetation community or land cover type in the survey area.

Image Source: Courtesy of Microsoft Virtual Earth



Survey Area

VEGETATION COMMUNITI

- Coastal Sage Scrub
- Restored Coastal Sage Scrub
- Disturbed Coastal Sage Scrub
- Native Grassland
- Developed
- Disturbed Land
- Freshwater Marsh
- Mule Fat Scrub
- Disturbed Mule Fat Scrub
- Disturbed Habitat
- Ornamental
- Southern Willow Scrub

FIGURE 4
Existing Biological Resources within the
Mira Sorrento Substation Project Survey Area

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TABLE 1
VEGETATION COMMUNITIES/LAND COVER TYPES
WITHIN THE MIRA SORRENTO SUBSTATION PROJECT SURVEY AREA

Vegetation Communities/ Land Cover Types (Holland Code as modified by Oberbauer)	Survey Area (acres)
Freshwater marsh (52410)	0.1
Southern willow scrub (63320)	0.1
Mule fat scrub (63310)	
Undisturbed mule fat scrub	0.1
Disturbed mule fat scrub	<0.1 (1,759 square feet)
Diegan coastal sage scrub (32510)	
Remnant Diegan coastal sage scrub	0.7
Restored Diegan coastal sage scrub	1.0
Disturbed Diegan coastal sage scrub	0.3
Native grassland (42100)	0.1
Disturbed habitat (11300)	1.8
Ornamental vegetation (11000)	0.3
Disturbed land (13000)	<0.1 (210 square feet)
Developed land (12000)	2.0
TOTAL	6.6

The vegetation communities with hydrophytic vegetation are described in Section 4.1.1 of this report.

Areas with and without hydrophytic vegetation were observed on-site. Areas with hydrophytic vegetation, in general, were considered potential jurisdictional areas. Locations on-site without hydrophytic vegetation were considered upland unless evidence suggested that a wetland or other jurisdictional water might occur at the particular location. Areas dominated by obligate and facultative hydrophytic plant species satisfy the hydrophytic vegetation criteria, one of the three criteria necessary to be identified as an ACOE wetland.

4.1.1 Areas with Hydrophytic Vegetation

Areas with hydrophytic vegetation communities, totaling 0.3 acre within the survey area, included: freshwater marsh, mule fat scrub, and southern willow scrub.

4.1.1.1 Freshwater Marsh (52410)

Freshwater marsh is a community that consists of perennial emergent monocots such as cattails (*Typha* sp.) and bulrush (*Scirpus* sp.) that typically form a closed canopy that is four to five meters tall (Holland 1986). Freshwater marsh vegetation occurs in open bodies of fresh water with little current flow, such as ponds, and to a lesser extent around seeps and springs. Freshwater marsh communities, as with all wetland habitats,

have been greatly reduced throughout their entire range and continue to decline as a result of urbanization and are considered sensitive by state and federal resource agencies.

Freshwater marsh was observed along the extent of the drainage where there is perennial water inundation, and a dense tree canopy is absent. The freshwater marsh vegetation is dominated by southern cattail (*Typha domingensis*, OBL) with scattered bulrush (*Scirpus* sp., OBL).

4.1.1.2 Southern Willow Scrub (63320)

Southern willow scrub is a dense riparian community dominated by broad-leafed, winter-deciduous willow trees (*Salix* spp.). This vegetation community is typically found along major drainages, but also occurs in smaller drainages. The density of the willows typically prevents a dense understory of smaller plants from growing. The representative species typically grows in loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. This community requires repeated flooding to prevent succession to a community dominated by sycamores (*Platanus racemosa*) and/or cottonwoods (*Populus* sp.) (Holland 1986).

A small stand of southern willow scrub occurs at the southernmost and northernmost extent of the drainage within the survey area. The willows appear to be associated with culverts entering and exiting the site. It is likely that reduced water velocities and partial ponding associated with the culvert placement have created mesic conditions, allowing the willows to thrive. Arroyo willow (*Salix lasiolepis,* FACW) forms the canopy, and the understory vegetation is open with few low-lying herbaceous species such as watercress (*Nasturtium officinale,* OBL) and brass-buttons (*Cotula* sp., FACW) within and alongside the creek bed.

4.1.1.3 Mule Fat Scrub (63310)

Mule fat scrub is a tall, herbaceous riparian scrub strongly dominated by mule fat (*Baccharis salicifolia*). It occurs along drainages with a fairly coarse substrate and a moderately deep water table. Mule fat scrub is developed and maintained by flooding or other disturbances but, in the absence of disturbance, may change, through successional processes, to willow-cottonwood or sycamore-dominated riparian forest/woodland. Mule fat scrub typically occurs at elevations below 2,000 feet (Holland 1986).

Mule fat scrub borders the majority of the drainage. The vegetation is dense and dominated by mule fat (FACW) with native herbaceous species such as salt heliotrope (*Heliotropium curassavicum,* OBL) and saltgrass (*Distichlis spicata*, FACW) scattered along the edges.

Disturbed mule fat scrub occurs adjacent to the southern portion of the drainage. The habitat still contains mule fat, but is dominated by pampas grass (*Cortaderia selloana*), a non-native, invasive plant species.

4.1.2 Areas Lacking Hydrophytic Vegetation

Areas lacking hydrophytic vegetation include coastal sage scrub, native grassland, developed lands, and disturbed habitat. These areas are considered uplands.

4.2 Soils

Two soils types, Altmont and Huerhuero, were mapped on the site (Figure 5). Characteristics of these soils are summarized below from the Soil Survey of San Diego Area, California (USDA 1973).

One soil type of the Altamont series is present within the majority of the survey area. This series developed in material weathered from calcareous shale and consists of well-drained clays. Altamont clay, 30 to 50 percent slopes (AtF), is steep with rapid runoff and a high erosion hazard. The soil is typically 20 to 32 inches deep over shale.

One soil type of the Huerhuero series is present within this survey area. This series developed in sandy marine sediments and consists of moderately well-drained loams with a clay subsoil. Huerhuero loam, 15 to 30 percent slopes, eroded (HrE2), comprises a very small portion of the westernmost survey area. This soil type is moderately steep with medium to rapid runoff and a moderate to high erosion hazard. The soil is typically 20 to 36 inches deep.

4.3 Hydrology

The Mira Sorrento substation survey area contains an unnamed drainage that is part of an unnamed tributary of Los Penasquitos Creek in the Los Penasquitos watershed. The unnamed creek in the survey area runs north to south and transports drainage from western Sorrento Mesa into Carroll Canyon. Carroll Canyon feeds into Los Penasquitos Creek which ultimately discharges into the Los Penasquitos estuary and the Pacific Ocean. Other than the natural drainage of the canyon, the majority of the water that enters the canyon comes into the site as storm water during the wet season and from urban run-off from residential housing surrounding the canyon.

Image Source: Courtesy of Microsoft Virtual Earth



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FIGURE 5
Soils Present within the Mira Sorrento Substation Survey Area

5.0 Wetland Delineation

ACOE jurisdiction area on-site totals 0.23 acre, which includes 0.19 acre of ACOE wetlands and 0.04 acre of ACOE non-wetland waters of the U.S. (see Table 2). A total of 0.38 acre of CDFG and RWQCB jurisdictional waters occur within the survey area. City of San Diego wetland areas total 0.63 acre. Jurisdictional resources on-site are shown on Figure 6.

TABLE 2
EXISTING JURISDICTIONAL WATERS (acres)

Jurisdictional Waters	Acres
ACOE	
Wetlands	0.19 acre
Non-wetland waters of the US	0.04 acre
Total ACOE	**0.23 acre**
CDFG	
Riparian	0.04 acre
Streambed	0.34 acre
Total CDFG	**0.38 acre**
City of San Diego Wetland	**0.38 acre**
RWQCB	**0.38 acre**

5.1 ACOE Jurisdictional Waters of the U.S.

ACOE jurisdiction area on-site totals 0.23 acre, which includes 0.19 acre of ACOE wetlands and 0.04 acre of ACOE non-wetland waters of the U.S. Non-wetland waters within the survey are composed of the unvegetated channel of the unnamed drainage within the survey area.

5.2 CDFG Jurisdictional Waters of the State

A total of 0.38 acre of CDFG jurisdictional areas occur within the survey area, which includes 0.34 acre of CDFG streambed and 0.04 acre of CDFG riparian. This acreage consists of riparian habitat associated with the unnamed drainage within the survey area. Within the survey area, CDFG streambed is equal to ACOE non-wetland waters. CDFG riparian includes all riparian habitat within the survey area in addition to ACOE wetlands.

Image Source: Courtesy of Microsoft Virtual Earth



Survey Area
CDFG/City of San Diego Wetlands/RWQCB
USACE Waters of the U.S.
USACE Wetlands

0 Feet 100

FIGURE 6
Jurisdictional Resources within the Mira Sorrento Substation Project Survey Area

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5.3 RWQCB Jurisdictional Resources

The RWQCB takes jurisdiction over all waters of the state and all waters of the United States as mandated by both the federal CWA and the California Porter-Cologne Water Quality Control Act. A total of 0.38 acre is within the RWQCB jurisdiction. Impacts to jurisdictional resources would require consultation with RWQCB.

5.4 City of San Diego Wetlands

The City of San Diego takes jurisdiction over all naturally occurring wetland vegetation. A total of 0.38 acre falls within the City of San Diego's jurisdiction.

6.0 Regulatory Issues

ACOE, CDFG, RWQCB, and City jurisdictional resources are regulated by the federal, state, and local governments under a no-net-loss policy, and all impacts are considered significant and should be avoided to the greatest extent possible. Unavoidable and authorized impacts would require mitigation through habitat creation, enhancement, or preservation as determined by a qualified restoration biologist in consultation with the regulatory agencies during the permitting process. Any impacts to ACOE, CDFG, and RWQCB jurisdictional waters would require a Section 404 permit authorization from ACOE, a 1600 Streambed Alteration Agreement from CDFG, and a 401 State Water Quality Certification from RWQCB. Any impacts to ACOE jurisdictional waters within the survey area above 0.1 acre would require an individual permit.

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1996 La Mesa Quadrangle, 7.5-minute Topographical Map.

ATTACHMENT 1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mira Sorrento Substation City/County: San Diego Sampling Date: 9/2/09

Applicant/Owner: City of San Diego State: CA Sampling Point: SP-1

Investigator(s): Michael Nieto Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace above streambed Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): LRR-C Lat: 32.893144 Long: -117.205452 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?**	**Yes** **No** X
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Remarks: No wetland indicators present

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Shinus mole*	20	Y	UPL
2.			
3.			
4.			
Total Cover:	20	(50%=10	20%=4)
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:		(50%=	20%=)
Herb Stratum			
1. *Picris echioides*	40	Y	FAC
2. *Bromus madritensis*	60	Y	UPL
3. *Brassica nigra*	30	Y	UPL
4. *Carduus pycnocephalus*	10	N	UPL
5. *Centaurea melitensis*	5	N	UPL
6.			
7.			
8.			
Total Cover:	145	(50%=73	20%=29)
Woody Vine Stratum			
1.			
2.			
Total Cover:	0	(50%=0	20%=0)

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	1	x 3 =	3
FACU species		x 4 =	
UPL species	4	x 5 =	20
Column Totals:	5	(A)	23 (B)

Prevalence Index = B/A = 4.6

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No X

Remarks: Most annuals at this sample point were dead. Absolute cover estimates reflects the cover of plant remnants at the time of the survey. There was no woody vine stratum.

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 4/4	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes ____ No X

Remarks: No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No wetland hydrology indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mira Sorrento Substation City/County: San Diego Sampling Date: 9/2/09

Applicant/Owner: City of San Diego State: CA Sampling Point: SP-2

Investigator(s): Michael Nieto Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): LRR-C Lat: 32.892683 Long: -117.205277 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes** X **No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:		(50%=	20%=)
Sapling/Shrub Stratum			
1. *Typus domingensis*	60	Y	OBL
2. *Baccharis salicifolia*	20	N	FACW
3.			
4.			
5.			
Total Cover:	80	(50%=40	20%=16)
Herb Stratum			
1. *Rorippa nasturtium-aquaticum*	60	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	60	(50%=30	20%=12)
Woody Vine Stratum			
1.			
2.			
Total Cover:	0	(50%=0	20%=0)

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks: Hydrophytic vegetation is present within the sampling area

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/2	60	7.5 YR 2.5/1	37	D	M	Clay	
			5 YR 4/6	3	C	PL		
10-16	10 YR 4/3	60	10 YR 4/6	40	C	M	Sandy Loam	
10-16	2.5 YR 4/1	75	10 YR 2/1	25	C	M	Sandy Clay Loam	10 YR 2/1 clustered around rhizomes of Typha domingensis.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks: Hydric soil indicators present. Sample point was taken within a perrenially active stream bed fed by urban runoff.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): 5"

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mira Sorrento Substation City/County: San Diego Sampling Date: 9/2/09

Applicant/Owner: City of San Diego State: CA Sampling Point: SP-3

Investigator(s): Michael Nieto Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): LRR-C Lat: 32.892129 Long: -117.205028 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?**	**Yes** X **No**
Hydric Soil Present?	Yes X No		
Wetland Hydrology Present?	Yes X No		

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	100	Y	FACW
2.			
3.			
4.			
Total Cover:	100	(50%=50	20%=6)
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:		(50%=	20%=)
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	0	(50%=0	20%=0)
Woody Vine Stratum			
1.			
2.			
Total Cover:	0	(50%=0	20%=0)

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks: Hydrophutic vegetation indicators are present at the sampling location. Sample point is within Arroyo willow understory. No other vegetation observed.

SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 4/3	70	10 YR 5/6	30	D	M	Clay	
5-11	10 YR 4/2	50	5 Y 3/1	40	C	M	Clay loam	
			10 YR 5/8	10	C	PL		
11-15	10 YR 5/3	60	10 YR 5/8	20	C	PL	Sandy clay	
			5 Y 3/1	20	C	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks: Hydric soil inidcators are present at the sampling location. Insect burrows (Hymenoptera?) were present within first 5 inches of soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- X Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (**Riverine**)
- X Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): 14

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 11

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology secondary indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mira Sorrento Substation City/County: San Diego Sampling Date: 9/2/09

Applicant/Owner: City of San Diego State: CA Sampling Point: SP-4

Investigator(s): Michael Nieto Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): LRR-C Lat: 32.892667 Long: -117.205358 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?**	**Yes** **No** X
Hydric Soil Present?	Yes No X		
Wetland Hydrology Present?	Yes No X		

Remarks: Sampling point was taken in mulsfat scrub adjacent to unnamed drainage.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:		(50%=	20%=)
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	100	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:		(50%=	20%=)
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	0	(50%=0	20%=0)
Woody Vine Stratum			
1.			
2.			
Total Cover:	0	(50%=0	20%=0)

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks: Hydrophytic vegetation indicators are present at the sampling location. Sample point is within mule fat understory. No other vegetation observed.

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10 YR 4/6	80			D	M	Clay loam	
	10 YR 4/4	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes ___ No X

Remarks: Hydric soil inidcators are not present at the sampling location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (Riverine)
- ___ Sediment Deposits (B2) (**Riverine**)
- X Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: One wetland hydrology secondary indicator is present. Two secondary indicators are nessesary to indicate wetland hydrology. Wetland hydrology is not present at this sampling point.

APPENDIX E

CULTURAL AND PALEONTOLOGICAL REPORTS

ASM affiliates
archaeology
history
architectural history
ethnography

September 21, 2009

Dr. Susan M. Hector
SDG&E Environmental Services
8315 Century Park Court, CP21E
San Diego, California 92123

Re: Preliminary Report of Archaeological and Paleontological Monitoring for the SDG&E Mira Sorrento Substation Project, San Diego County, California (ETS 7768)

Dear Dr. Hector:

This preliminary letter report documents the results of archaeological monitoring conducted by ASM Affiliates, Inc. (ASM), for the SDG&E Mira Sorrento Substation Project in San Diego County, California (Figure 1). The purpose of this monitoring was to assist SDG&E in its compliance with the requirements of the California Environmental Quality Act (CEQA). In summary, no prehistoric or historic cultural resources were discovered during archaeological monitoring for this project. The ongoing paleontological monitoring is being conducted by the San Diego Natural History Museum (SDNHM) under a subcontract agreement with ASM. This is a preliminary report of the results of archaeological monitoring only. The complete results of the archaeological and paleontological monitoring activities will be submitted at a later date. This project was managed by ASM's Carlsbad office under the review of Jill K. Gardner (Ph.D., University of Nevada Las Vegas, Anthropology).

Description of Activity

The project area is located on the Del Mar, California, 7.5' USGS topographic quadrangle in Township 15 South, Range 3 West, Section 5, along Mira Sorrento Drive near Interstate 805. The excavation activities for the portion of the project that is currently under consideration involved geotechnical boring within the proposed location for the substation.

Reason for Review

SDG&E conducted their own records search, which indicated that there were two previously recorded prehistoric isolates (both subsumed under P-37-029948) near the project area. These isolates consisted of a bifacial mano and a chopping tool. Due to these records search results, as well as the known archaeological and paleontological sensitivity of the project area, SDG&E

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www.asmaffiliates.com

requested that ASM and SDNHM conduct monitoring during the installation activities to assess whether cultural and/or paleontological resources may be present that could be impacted by these activities.

Fieldwork Results

ASM Associate Archaeologist Chad Willis (B.A., California State University, Bakersfield, Anthropology) conducted archaeological monitoring for this project on September 15, 2009. An access road for the proposed substation had previously been graded to a depth of about two feet. SDG&E contract crews drilled a hole that was three feet in diameter and about 75 feet deep. No cultural resources were discovered during the drilling activities, and none were identified within the proposed area of installation for the substation. Based on the results of this geotechnical boring, it was determined unnecessary to continue archaeological monitoring of additional construction activities at this project location. Personnel from SDNHM have continued to monitor for paleontological resources, but had not discovered any resources as of the date of this report.

Recommendations

No prehistoric or historic cultural resources were identified during archaeological monitoring for the Mira Sorrento Substation Project, and it is not likely that significant subsurface archaeological deposits exist within the project area associated with this substation installation. Therefore, no further cultural resources work is recommended. It has not yet been determined whether continued paleontological monitoring will be recommended. In the event that any previously undetected cultural resources are encountered within the project area during the course of the project, however, all work should cease and a qualified archaeologist should be contacted to evaluate such discoveries.

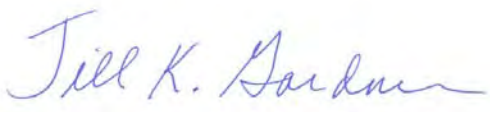
If you have any questions or require clarification of any of the information in this letter report, please do not hesitate to contact me at (760) 804-5757 or at cwillis@asmaffiliates.com.

Sincerely,



Chad A. Willis
Associate Archaeologist, Carlsbad Office

Approved by:



Jill K. Gardner, Ph.D., RPA
Principal Investigator, Carlsbad Office

cc: Mr. David Caterino, South Coastal Information Center

Attachments
Figure 1: Project vicinity map.
Figure 2: Project location map.

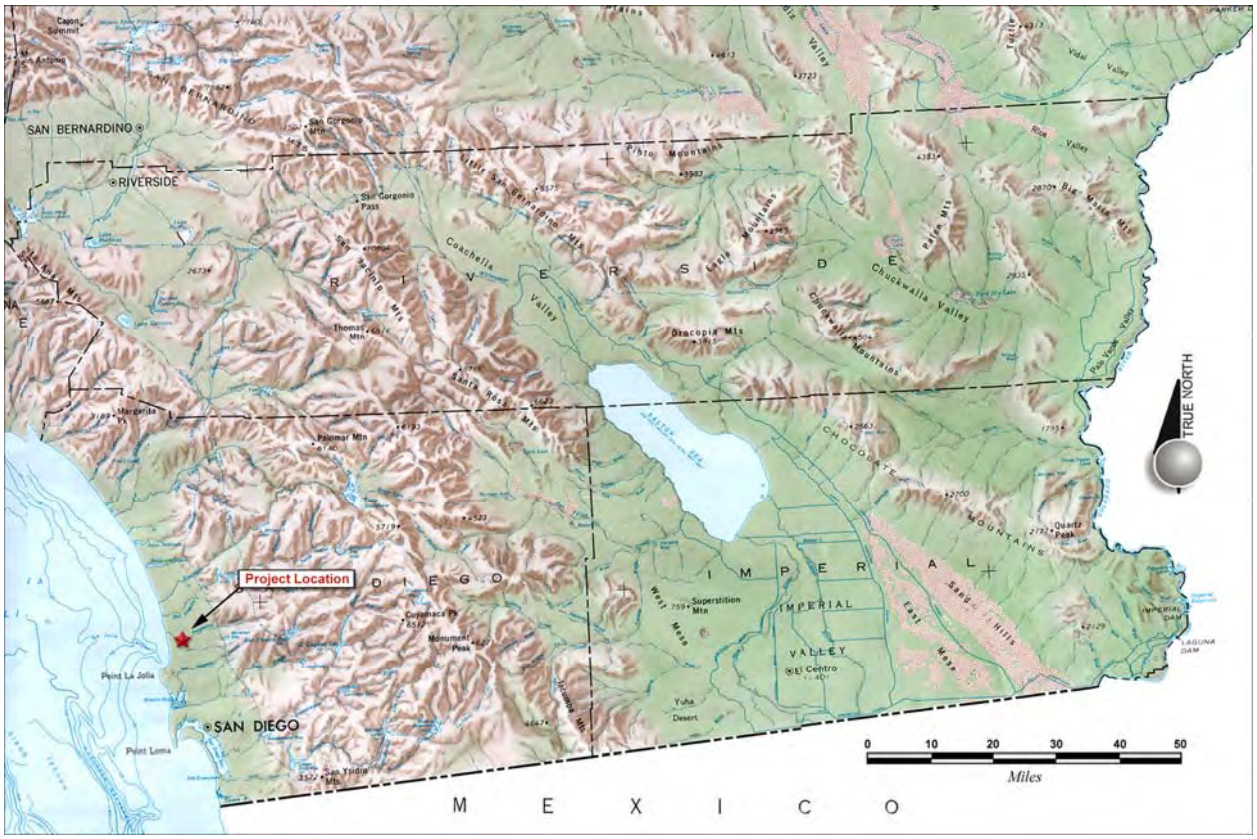


Figure 1. Project vicinity map.

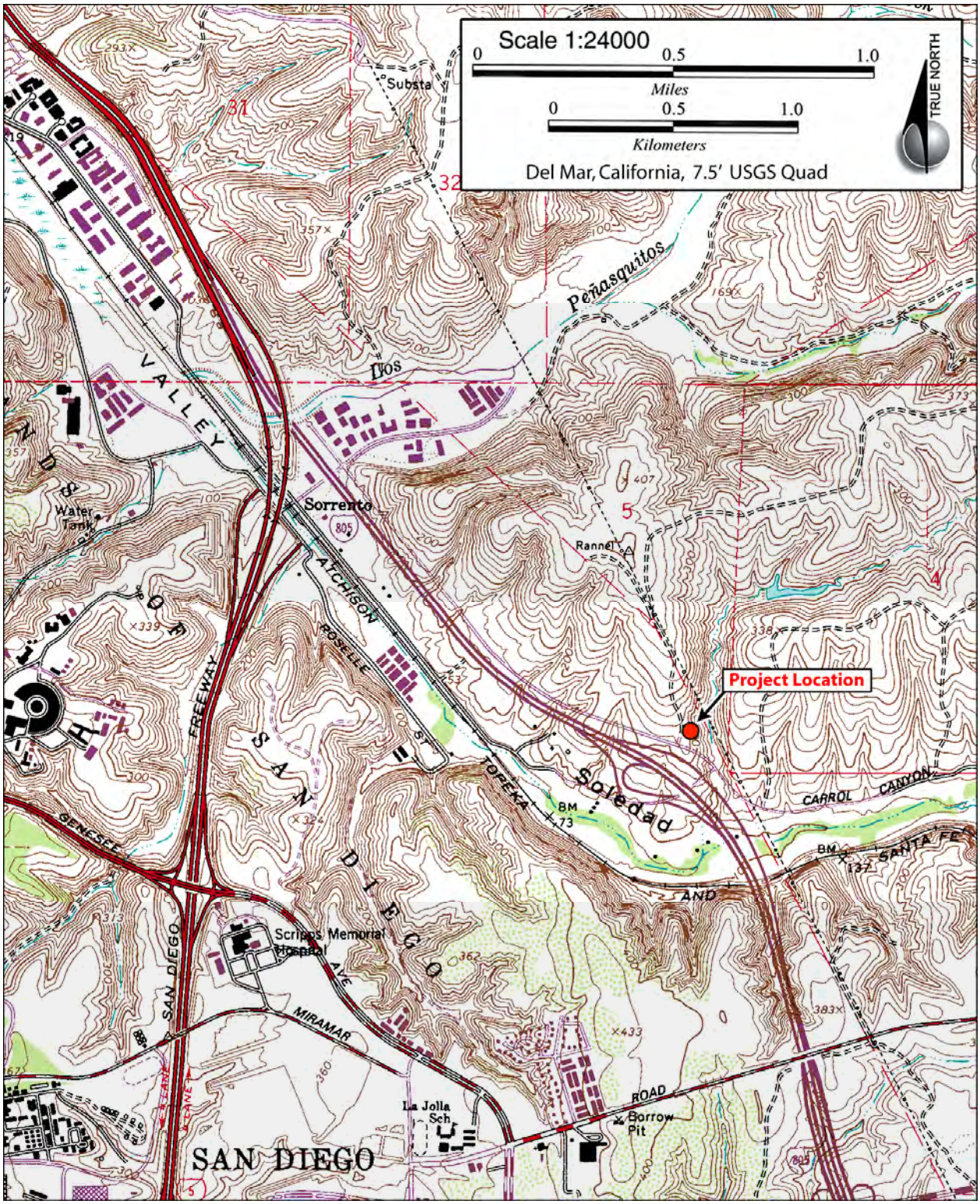


Figure 2. Project location map.

APPENDIX F

GEOTECHNICAL INVESTIGATION REPORT

UPDATE REPORT OF
GEOTECHNICAL INVESTIGATION
PROPOSED SDG&E
MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

October 1, 2010

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October 1, 2010
Project No. 105945

Mr. Tyler Lonsdale
San Diego Gas & Electric
8313 Century Park Court, Suite CP 52G
San Diego, California 92123-1582

Subject: Update Report of Geotechnical Investigation
Proposed SDG&E Mira Sorrento Substation
San Diego, California

Dear Mr. Lonsdale:

Kleinfelder is pleased to present this Update Report of Geotechnical Investigation for the proposed SDG&E Mira Sorrento Substation in San Diego, California. The project consists of developing a new substation which will include constructing a two tiered geogrid-reinforced MSE retaining wall along the eastern boundary of the site. This report provides geotechnical data and recommendations for design and construction of the proposed structures for the project.

We appreciate the opportunity to provide geotechnical design services for this project. If you have any questions regarding this report, please contact Kevin Crennan at 858-320-2209.

Very truly yours,

KLEINFELDER WEST, INC.

Eren Koprulu
Staff Engineer

Scott Rugg, CEG 1651
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EK:SR:KMC:mj

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EXECUTIVE SUMMARY

This report section is an executive summary and should not be relied upon without consulting the attached report for a more detailed description of the geotechnical evaluation performed by Kleinfelder. Based on our site studies, it is our opinion that the site is suitable for the proposed development provided the geotechnical recommendations presented in this report are incorporated into the project design. The key geotechnical and geologic items relating to development of the proposed Mira Sorrento Substation are summarized below.

- Site grading will result in a cut / fill transition crossing the substation and a two-tiered mechanically stabilized earth (MSE) retaining wall on the eastern side of the site with a height of approximately 55 feet. The walls will use geogrid reinforcing (geogrids) up to approximately 50 feet in length for the lower tier wall. The layout of the MSE walls was provided by Nolte Associates, Inc. and the wall design is being performed by Soil Retention Systems, Inc.
- Fine grained formational materials predominantly underlie the subject site and are proposed for use as fill soils. When mixed and recompacted for use as engineered fill, these materials exhibit a relatively low friction angle, and therefore require the use of longer geogrid reinforcement to achieve suitable factors of safety for global slope stability. If import of higher quality granular fill with a higher friction angle is provided, shorter lengths of geogrid reinforcement may be utilized provided they meet the minimum lengths required for pull-out resistance. Note that this report presents global stability analysis results assuming mixing of fine and coarse grained on-site formational materials will be performed and import soils will be used in portions of the foundation zone.
- There are no known faults crossing the site or known ancient deep-seated landslides present that would affect the proposed construction. The site is located in the seismically active southern California area. The potential for liquefaction and dynamic compaction is relatively low for this site, with the exception of a localized area in the lower elevations adjacent to the natural drainage channel. Mitigation of the limited area of potentially liquefiable soils will be performed by overexcavation and recompaction.

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- There is a relatively shallow landslide located within the central portion of the east facing steeply descending natural slope at the project site. Mitigation by complete removal of the landslide should occur in areas of proposed development. Remedial removal depths on the order of 18 feet are anticipated in the lower elevations adjacent to the drainage.
- Up to approximately 8 feet (typically 3 feet) of topsoil/colluvial materials are generally present across the majority of the natural slope areas. The majority of these materials will be removed by the proposed site grading; however, remedial removals of these materials in the lower elevations should occur in areas to receive engineered fill or other proposed improvements. Due to organic content, the upper portion of these soils are likely unsuitable for use as engineered fill.
- Perched groundwater at the project site was encountered at an elevation of approximately 120 feet above mean sea level (MSL), and is anticipated to be encountered in localized areas where remedial removals are recommended at the lower elevations of the subject site.
- Strongly cemented/indurated sandstone/siltstone and claystone concretions up to 3 feet in diameter are commonly encountered in the Scripps Formation which underlies the subject site. The concretions can be difficult to excavate, segregate and break up for disposal. Measures should be implemented to mitigate the potential for rolling downslope during excavation. Oversize rocks should not be incorporated into the proposed fill soils.
- Excavation of the on-site topsoil/colluvium and formational sandstone and claystone/siltstone can typically be achieved with heavy-duty excavation equipment, although local areas of cemented formation or concretions may be encountered which could require jack-hammering or heavy ripping. The on-site topsoil/colluvium and formation may be used as backfill or fill material provided it is prepared and placed in accordance with the recommendations contained in this report.
- Potentially expansive soils may be exposed at the surface in the western cut portion of the substation. These materials will be evaluated at the time of grading and may require either overexcavation and recompaction or removal in the upper 3 feet, if present.

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1 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed SDG&E Mira Sorrento Substation in the Sorrento Mesa area of San Diego, California. Specifically, the proposed Mira Sorrento Substation will be located at the northeast corner of Vista Sorrento Parkway and Mira Sorrento Place. A geotechnical and geologic "siting" study for the substation was previously performed by Kleinfelder in 2002, and presented in our report dated June 19, 2002, with an addendum including the subject site dated September 26, 2002. Previously, this site was referred to as Site 2 in the prior reports for the siting study. A geotechnical investigation was performed for the proposed SDG&E Mira Sorrento Substation facility in 2003 and the results presented in our report revision dated September 23, 2004. Project planning and design was suspended until the later portion of 2009.

The approximate site location is shown on Plate 1, Vicinity Map. A site plan showing approximate site limits and proposed substation layout is presented on Plate 2, Proposed Substation Plan. Plate 2 is based on civil drawings prepared by Nolte Associates, Inc., dated February 12, 2010.

This update report incorporates supplemental geotechnical borings recently performed and analyses resulting from changes in project plans subsequent to submittal of our previous geotechnical report in September 23, 2004. This report supercedes the 2004 report.

1.1 SITE DESCRIPTION

Site access is currently provided from Mira Sorrento Place to the west. As the majority of the site consists of sloping terrain, a temporary access road was constructed within the north and west sides of the site to allow access for the drill rig during our most recent phase of study in September, 2009. Since the time of our original investigation in 2003/ 2004, grading has occurred along the north and northwest sides of the site during the construction of Mira Sorrento Place. This grading, along with grading of Vista Sorrento Parkway on the west and the natural topography on the east side of the site, define the current ground surface configuration. In general, this consists of a ridge feature which wraps the northwest and west sides of the site with descending slopes all around. The largest slope descends downward to the east to a southwest flowing drainage feature. From the top of this ridge at an elevation of approximately 215 feet

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above mean sea-level (MSL), the slopes descend a total of approximately 90 feet at a maximum inclination of approximately 1½:1 (horizontal:vertical). The graded slopes along the northwest and southwest sides of the ridge descend to the adjacent roadways of Mira Sorrento Place and Vista Sorrento Parkway at a slope inclination of approximately 2:1. The latitude and longitude coordinates of the substation are 32.8938°N and 117.2055°W.

1.2 PROJECT DESCRIPTION

The proposed project will consist of the development of a new substation containing equipment such as transformers, switch stands, circuit breakers, capacitor banks, and switchgear. The proposed layout of the substation is shown on Plate 2. Based on our review of the site plans and discussions with SDG&E and the design team, the graded site will have approximately 1½ acres of level area and be accessed by two driveways from Mira Sorrento Place along the western side of the proposed substation. The upper approximate 12 inches of subgrade within the substation area will consist of Class II aggregate base and asphalt concrete (AC) driveways.

Final pad elevations are proposed at about 180 to 186 feet MSL, south to north, respectively. Grading of the site will consist of performing cuts and fills with a maximum thickness on the order of 30 and 60 feet, respectively. A wall system consisting of masonry retaining and screen walls are proposed along the northwestern driveway entrance and along the north side of Vista Sorrento Parkway. These walls typically range in height between 5 and 10 feet high. Along the eastern boundary of the pad area, the construction will include a two-tiered geogrid-reinforced Mechanically Stabilized Earth (MSE) retaining wall. The top tier of the MSE wall will be approximately 20 feet in height and 470 feet in length. The lower tier of the MSE wall will vary in height but is typically about 20 to 30 feet in height and 450 feet in length. An approximate 12 foot wide bench will be located between the walls. The lowest wall will be located west of the existing drainage and wetland area. The entire substation pad area will be secured with a perimeter masonry block screen wall approximately 10 feet tall. A brow ditch is planned above the upper MSE wall and the screen wall will be located about 15 feet laterally from the brow ditch.

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1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this update investigation was to evaluate the surface and subsurface soil and geologic conditions at the site in order to provide geotechnical information and recommendations to facilitate design of this phase of project development.

The scope of our services for this phase of the project included the following:

- Reviewing the preliminary layout plans provided by SDG&E;
- Reviewing our September 23, 2004 investigation;
- Performing additional investigation of the subsurface conditions by drilling two large diameter borings;
- Performing laboratory testing of selected samples of soil and geologic materials obtained from the borings;
- Performing engineering analysis with regard to the geotechnical aspects of site development; and
- Preparing this update report presenting our findings, conclusions, and recommendations.

Our scope of services was outlined in our agreement (Agreement No. 5660016201) dated August 7, 2009.

The recommendations contained within this report are subject to the limitations presented in Section 6.0. An information sheet prepared by ASFE (the Association of Engineering Firms Practicing in the Geosciences) is also included as Appendix F. We recommend that all individuals utilizing this report read the limitations along with the attached document.

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2 INVESTIGATIVE METHODS

2.1 GEOLOGIC EVALUATION

Our geologic evaluation consisted of reviewing aerial photographs, researching geologic reports and maps reasonably available to our office, and observing the geotechnical conditions in the field at the time of our subsurface investigation. Our interpretation of the site geology is shown on Plate 3, Boring Location Plan/Geologic Map, and seven geologic cross-sections through the site, Plates 4 through 6.

2.2 SUBSURFACE INVESTIGATION

Three separate phases of subsurface investigation have been performed at the site by Kleinfelder. The first two were performed in 2003, with a supplemental phase in September, 2009. The first field evaluation took place in April 2003 and included excavating twelve small-diameter borings at the approximate locations shown on Plate 3. We utilized various limited-access drilling methods due to sloping terrain and site access limitations, and to minimize disturbance to biologic resources. Four of the small diameter borings were excavated utilizing a limited access tripod drill rig, one boring utilized a limited access track mounted drill rig, and seven shallow borings were excavated with hand augers. One boring was proposed to be up to 50 feet in depth, requiring permitting with the County of San Diego Department of Environmental Health (DEH); however, refusal on cemented geologic material was encountered at a depth of approximately 8 feet and thus the hole could not be completed to the planned depth.

The second field evaluation was performed between August 6, 2003 and September 2, 2003 and included excavating eleven supplemental small-diameter borings to further evaluate the potential removal depth of compressible soil along the eastern portion of the proposed site and along the alignment of the easternmost (lower) proposed retaining wall. Six borings were excavated utilizing a limited access tripod rig and five borings were excavated with hand augers.

As part of the study in 2003, we reviewed a report for the adjacent roadway to the west entitled “Geotechnical Investigation, Mira Sorrento Place Road Extension, San Diego, California,” prepared by URS, dated February 14, 2002. Two hollow-stem auger borings (B-6 and B-7) were performed by URS within the proposed substation site and a large-diameter boring (LD-1) was performed northwest of the site. Borings B-6 and

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LD-1 were terminated at elevations above the proposed substation pad elevation and B-7 was completed to elevation 171 feet, which is about 9 feet below the pad elevation of 180 feet MSL. This report is relevant to the current project since it addresses characteristics of the formational materials related to slope stability.

The most recent field evaluation occurred between the dates of September 15 and September 22, 2009 with the objectives being to investigate for the potential presence of ancient deep seated landslide features and further characterize engineering properties of the soils. The work consisted of advancing two large diameter borings (LDB-1 and LDB-2) along the top of the western ridge to depths of 74 feet below ground surface (bgs). Prior to excavation of the borings, a temporary access road was graded to facilitate access to the boring locations and provide a pad for the drill rig set-up. The borings were excavated with a bucket auger rig fitted with a 30-inch diameter bucket. Bulk samples of the drill cuttings were obtained at approximate 5-foot depth intervals during the drilling operations. After the borings were excavated, they were visually logged by a certified engineering geologist from our firm. The operation consisted of shoring the upper five feet of the boring with a cylindrical shield, then the geologist was lowered into the excavation within a protective cage while cleaning and logging the sidewalls. This allowed observations of both in-place geologic materials and subsurface structures. After completion of the logging, the excavation was backfilled with both soil cuttings and bentonite chips placed every five feet in one-foot thick lifts. The final five feet of the hole was completely filled bentonite chips.

Logs of the twenty-five borings (thirteen drill-rig borings and twelve hand-auger borings) are presented in Appendix A along with the previous URS borings. The borings were backfilled using either bentonite chips or soil cuttings when the drilling and excavating were completed. Generally, the shallow hand auger borings were backfilled with soil cuttings. Remaining soil cuttings were spread out in the vicinity of the boring location. Additional details of the field investigation are provided in Appendix A.

2.3 LABORATORY TESTING

Geotechnical laboratory testing was performed on selected bulk and drive samples to substantiate field classifications and to provide engineering parameters for geotechnical design. Recent laboratory testing performed consisted of maximum dry density and optimum moisture content, sieve analyses, expansion index, plasticity index, and direct shear tests. Lab testing from our previous study also included moisture/density

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measurement, sieve analyses, direct shear, expansion index, plasticity index, pH, minimum electrical resistivity, soluble sulfates, soluble chlorides, and R-value. Previous and recent laboratory test results are provided in Appendix B.

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3 SITE CONDITIONS

3.1 GEOLOGIC SETTING

The project area is situated in the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California, and varies in width from approximately 30 to 100 miles (Norris and Webb, 1990). The province is characterized by mountainous terrain on the east composed mostly of Mesozoic igneous and metamorphic rocks, and relatively low-lying coastal terraces to the west underlain by late Cretaceous-, Tertiary-, and Quaternary-age sedimentary rocks. Most of the coastal region of the County of San Diego, including the general site area, occur within this coastal region and are underlain by sedimentary rock. Specifically, the project site in this portion of the Province is underlain by Quaternary-age and Tertiary-age (Eocene) sediments.

3.2 TECTONIC SETTING AND REGIONAL FAULTING

San Diego is situated within the tectonic regime of the San Andreas Fault System. This system delineates a broad boundary between two global tectonic plates consisting of the North American Plate on the east and the Pacific Plate on the west. The San Andreas fault stretches from the Gulf of California in Mexico along a northwest alignment through the desert region of southern California up to northern California, where it eventually trends offshore north of San Francisco. Right-lateral slip movement along the plate boundary of the San Andreas fault is by far the most dominant factor controlling the seismicity throughout northern and southern California (Wallace, 1990; Weldon and Sieh, 1985). Within southern California, the strain associated with the plate boundary movement extends far to the west up to 150 miles (241 kilometers) from the main San Andreas fault strand in the Imperial Valley to well offshore of San Diego at the San Clemente fault.

The major faults east of San Diego (from east to west) include the San Andreas fault, the San Jacinto fault and the Elsinore fault (see Plate 7, Regional Fault Map and Earthquake Epicenters). Major faults west of San Diego include the Palos Verdes-Coronado Bank fault, the San Diego Trough fault, and the San Clemente fault. The most dominant zone of faulting within the San Diego region is several faults associated with the Rose Canyon Fault Zone (RCFZ).

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Most of the seismic energy and associated fault displacement of this system occurs along the fault structures closest to the plate boundary on the Elsinore, San Jacinto, and San Andreas faults. Approximately 49 mm/yr (1.9 inches/yr) of overall lateral displacement has been measured geodetically as fault slip across the entire width of the plate boundary complex. The Elsinore, San Jacinto, and San Andreas faults combined, account for up to 41 mm/yr (1.6 inches/yr) of the total plate displacement (84%), meaning that the remaining 8 mm/yr (0.3 inches) is accommodated across the faults to the west (Bennett, et al, 1996). Recent GPS measurements from the offshore islands indicate about 5 to 7 mm/yr of plate movement is accommodated by the coastal and offshore system of faults, including the Rose Canyon.

Historically, San Diego County has long been considered to be a region of negligible seismic hazard. Over the last 20 years, it has been recognized that the potential for significant seismic events is much greater than earlier believed. This potential has been recognized by the discovery of many active fault traces associated with structures within the RCFZ. Studies within Rose Canyon (east of Mt. Soledad) have revealed fault strands that have clearly displaced Holocene soil horizons with slip rates from 1 to 2 mm/yr (Lindvall and Rockwell, 1995). Rockwell and Murbach (1999) indicate that earthquakes most probably occurred at A.D. 1650 ± 125. Two additional earthquakes indicated by local reports, an 1800 M6.5 and 1862 M5.9, may have also occurred in the Rose Canyon fault zone. However, no direct evidence of ground rupture has been identified for these events. This data indicated that at least the northern onshore portion of the RCFZ is active. Additional studies (Testing Engineers and other, 1985; Patterson and others, 1986; and Kleinfelder, 1998) within downtown San Diego revealed additional fault structures offsetting Holocene soil horizons, suggesting the possibility that the entire mapped onshore alignment of the RCFZ is likely active

The RCFZ consists of predominantly right-lateral strike-slip faults that extend south-southeast bisecting the San Diego metropolitan area. Various fault strands display strike-slip, normal, oblique, or reverse components of displacement. The fault zone extends offshore at La Jolla and continues north-northwest subparallel to the coastline. South of downtown, the fault zone splits into several splays that underlie San Diego Bay, Coronado, and the ocean floor south of Coronado (Treiman, 1993; Kennedy and Clarke, 1999). Portions of the fault zone in the Mount Soledad, Rose Canyon, and downtown San Diego areas have been designated by the State of California (CDMG, 1991) as being Earthquake Fault Zones.

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Review of the City of San Diego Seismic Safety Study (1995), the geologic map of the La Jolla Quadrangle (Kennedy, 1975), and fault maps by Treiman (1993) indicate the site is not underlain by active or potentially active faults (i.e., faults that exhibit evidence of ground displacement in the last 11,000 years and 2,000,000 years, respectively), nor does the site lie within an Alquist-Priolo Earthquake Fault Zone. The Rose Canyon fault is the closest mapped active fault and is located approximately 3.9 miles (6.3 km) west of the site.

3.3 SITE GEOLOGY AND SUBSURFACE CONDITIONS

Geologic units encountered in our borings, or mapped during our field evaluation include artificial fill soils, landslide debris, topsoil/colluvium, alluvium, and the Scripps Formation. The areal extent of geologic units that are more than 5 feet in thickness across the site is depicted on our Boring Location Plan/Geologic Map (Plate 3) and six geologic cross-sections through the site (Plates 4 through 6). Detailed descriptions of these units are provided in the boring logs in Appendix A, and generalized descriptions are provided in the subsequent sections below.

3.3.1 Artificial Fill Soils

Artificial fill soils are present along the southern portion of the site; however, these materials are located outside of the proposed substation improvements and therefore soil sampling of the fill soils was not performed. The fill soils were likely placed during the construction of Vista Sorrento Parkway to the southwest, and Mira Sorrento Place to the north.

3.3.2 Landslide Debris

Landslide debris was observed on the eastern slope with a width of approximately 60 to 80 feet with the top of the slide located at approximate elevation 185 feet MSL. The landslide debris consists generally of brown, loose to soft, dry to saturated, silty to clayey fine-grained sand, and clayey silt. The depth of the debris in the lower-central area is approximately 18 feet bgs (below ground surface) at Boring 4 and 14 feet bgs at Boring B-11. Penetration blow counts within the saturated portion of this unit were on the order of 4 blows per foot.

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3.3.3 Topsoil/Colluvium (Not Mapped)

Topsoil/Colluvium is a surficial accumulation related to in-place pedogenic soil development and/or build-up of detrital material from rainfall sheet flow down the slope face. It was encountered in several of our borings with the exception of Boring 3 and LDB-2 which were performed in an existing cut area associated with access roads, Borings 4, 8, 9, 11 and HA-5 which were performed in the area of the landslide, and in HA-11 and HA-12 where formational materials were encountered at the ground surface. The topsoil/colluvium materials generally have an average depth of approximately 3 feet. In general, the topsoil/colluvium consists of light brown to dark brown, dry to moist, loose or soft to firm, clayey silt and sandy clay, with some organics and pinhole porosity.

3.3.4 Alluvium

Alluvium is present along the lower eastern portion of the site within the natural drainage feature. This drainage feature however, is located outside of the proposed substation improvements and the alluvium was only encountered in Boring 12 and Boring 13. In general, the alluvium consists of brown, moist and saturated, loose, clayey sand.

3.3.5 Scripps Formation

The Eocene-age Scripps Formation underlies the entire site (Kennedy and Peterson, 1975), and was encountered in each of our exploratory borings performed during our subsurface evaluation. As encountered in our borings, the Scripps Formation consists of light brown, brown, yellow brown and light olive brown, weakly to moderately indurated siltstone and claystone, and weakly to highly cemented fine-grained sandstone. Recorded blow counts for the Scripps Formation at the subject site are considered relatively high; having a range of penetration of 1 to 3 inches for 50 blows using a 140 pound hammer dropped 30 inches with an attached California split-spoon sampler. Our laboratory testing indicates that portions of these materials are expected to be somewhat wet of optimum and may need to be dried or mixed prior to compaction as engineered fill.

Our review of geologic and geotechnical references as well as results of field study indicate that the Scripps Formation located near the subject site can possess occasional strongly cemented and very resistant concretionary zones and/or

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discontinuous layers, that generally require heavy ripping or excavation effort. Due to the moderately indurated nature of the Scripps Formation, we encountered shallow refusal at most of our boring locations in which we employed the limited access drill rigs fitted with small diameter auger bits. We were able to penetrate the Scripps Formation by use of large diameter bucket drilling equipment. Several concreted zones were encountered and required changing out the drill bit to a specialized hard rock coring bit during the 2009 field work. The thickest concretion (at boring location LDB-1) was approximately 3 feet thick and required several hours of coring to penetrate. We anticipate that numerous concreted zones and discontinuous layers will be encountered during grading operations.

Numerous structural attitudes were obtained on bedding and unit contact surfaces during our down-hole logging of borings LDB-1 and LDB-2. Most of the attitude readings have very low dips ranging from between 2 to 5 degrees to the southwest (see boring logs for all structural attitudes). This direction is mostly into the face of the east slope and is considered favorable with respect to slope stability. We did not observe any remolded shear zones or surfaces which are indicative of deep seated landsliding within either of the large diameter borings. Additionally, the Scripps Formation contained only minor discontinuous fractures and signs of disturbance such as rotated blocks or offset bedding were not observed.

3.3.6 Groundwater

Perched groundwater was encountered within borings located in the alluvium, and within the lower levels of the landslide deposits. The groundwater elevation of about 118 to 120 feet MSL at the time of our 2003/2004 investigation correlates to the adjacent stream and represents a perched condition overlying the relatively low permeability formational materials. It should be noted that seepage elevations could fluctuate due to seasonal variations, irrigation, and other factors. Groundwater or seepage is not expected to be a major constraint to the construction of the project; however seepage may be encountered during remedial grading in the lower portions of the subject site. For non-flood conditions (including normal conditions during construction), we anticipate a design groundwater level at elevation 120 feet MSL. For flood conditions, the groundwater level should be taken at the corresponding flood level. We have not been provided with 50- or 100-year storm flood elevation for the site. Supplemental water quality sampling and pump testing for temporary dewatering during

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remedial grading was performed by Kleinfelder and is detailed in a separate September 23, 2004 report (included in Appendix D of this report).

3.4 POTENTIAL GEOLOGIC HAZARDS

Potential geologic hazards considered in our study include fault surface rupture, seismic shaking, landslides and slope stability, liquefaction and seismically induced settlement, tsunamis and seiches, flooding, expansive soils, and compressible soils. According to the City of San Diego Seismic Safety Study, portions of the site are located in Geologic Hazard Category 53, 25, and 32. The majority of the site, including the proposed site improvements is located in Geologic Hazard Category 53. A Geologic Hazard Category of 53 characterizes the site area as having relatively level to sloping terrain with an unfavorable geologic structure and a low to moderate risk for slope instability; a Geologic Hazard Category of 25 characterizes the site area as having a slide prone formation present with a neutral or favorable geologic structure; and a Geologic Hazard Category of 32 characterizes the site area as having a low potential for liquefaction. Our study of the site was developed to address the above potential geologic hazards and the following sections discuss these hazards and their potential at this site in more detail.

3.4.1 Ground Surface Rupture

The project area is considered to be seismically active, as is most of southern California. As previously discussed, the site does not lie within an active Alquist-Priolo Special Studies Zone (DMG, 1991) and the subject site is not underlain by a known potentially active fault. During the course of site investigation, we surveyed the area for indication of faulting and did not observe features which would indicate a fault crosses the site. Based on this datum, it is our opinion that the hazard with respects to ground rupture would be low.

3.4.2 Ground Lurching

Ground lurching is defined as movement of low-density materials on a bluff, steep slope, or embankment due to earthquake shaking. Since there are slopes located on and adjacent to some of the project site, lurching or cracking of the ground surface as a result of nearby or distant seismic events is considered possible.

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3.4.3 Seismic Shaking

The site is located in a seismically active region of southern California that is subject to significant hazards from moderate to large earthquakes. Ground shaking due to nearby and distant earthquakes should be anticipated during the life of the structure. Based on the Caltrans (2009a) Seismic Hazard Map, the controlling fault for this project is the *Newport-Inglewood-Rose Canyon* fault, which is located at an approximate distance of 3.9 miles (6.3 km) west of the project site.

Section 4.1 of this report presents the development of design earthquake ground motions (2007 CBC Seismic Design Parameters) for the *Newport-Inglewood-Rose Canyon* fault.

3.4.4 Landslides and Slope Stability

Landslides can be relatively shallow or deep-seated ground failures (several tens to hundreds of feet deep) in which a large arcuate shaped section of a slope detaches and slides downhill. Landslides are not to be confused with minor slope failures (slumps), which are usually limited to the topsoil zone and can occur on slopes composed of almost any geologic material. Landslides can cause damage to structures both above and below the slide mass. Structures above the slide area are typically damaged by undermining of foundations. Areas below a slide mass can be damaged by being overridden and crushed by the failed slope material.

Several formations within the San Diego region are particularly prone to landsliding. These formations generally have high clay content and mobilize when they become saturated with water. Other factors, such as steeply dipping bedding that project out of the face of the slope and/or the presence of fracture planes, will also increase the potential for landsliding.

As previously discussed, a relatively shallow landslide was observed and mapped during our original field reconnaissance and subsequently investigated during our subsurface evaluation in 2003/2004. As mapped, the landslide is on the order of 170 feet in length (measured from east to west) and 90 feet in width, with a near-vertical head scarp across the upper western side. The toe (base) of the slide is difficult to delineate due to the presence of abundant tall vegetation, but is assumed to occur near the natural drainage channel located at the base of the slope. As encountered during our subsurface evaluation, the landslide debris consists of brown, soft, dry to saturated,

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silty fine-grained sand to clayey silt. The maximum anticipated thickness of the deposit is approximately 18 feet along the toe area of the slide with an average thickness of approximately 10 feet. Slope failures of this depth do not represent a deep seated type failure and are generally the result of down-slope translation of a loose and weathered surficial zone on the face of the slope.

No indications of deep-seated landsliding were noted at the site during our field study or our review of available geologic literature, topographic maps, and stereoscopic aerial photographs. However, based on our background review, a previously mapped bedding plane shear (BPS) zone was previously identified at an elevation of approximately 210 feet MSL along the western portion of the site (Hart, 2000) and URS (2002). This information along with the presence of a localized shallow landslide on the east slope necessitated a site specific landslide study. This was accomplished by penetrating two large diameter borings at the top of the western ridge in September 2009 to allow visual inspection of the in-place geologic structure below the proposed substation pad. These two borings were penetrated to 74 feet below the ground surface, were mechanically cleaned to expose the undisturbed geologic units and logged by a California licensed engineering geologist. The geology and soil conditions within each hole were carefully logged and neither remolded clay zones, nor shear zones indicative of landsliding were observed. The geologic materials consist of claystone and sandstone of the Scripps Formation with very low dipping structure of only several degrees to the southwest, which is into the face of the slope. We observed only minor discontinuous fractures at isolated locations and did not observe disturbance or brecciated textures typical of landslide terrain. Based on our subsurface investigation, it is our opinion that the site is not underlain by a deep seated landslide.

The previous BPS identified at the site was at an elevation of 210 feet MSL, near the existing elevation of only a small portion of highest point of the site, on the western ridge. Most, if not all, of the BPS has most likely been removed by the grading of the roadway of Mira Sorrento Place. Additionally, the current proposed grading will result in the reducing the western ridge to an elevation of approximately 185 feet MSL.

The global stability of the two tiered geogrid-reinforced MSE retaining walls was evaluated using limit equilibrium slope stability analyses. These analyses are presented in Section 4.10.

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3.4.5 Liquefaction and Seismic Settlement

The term liquefaction describes a phenomenon in which saturated, cohesionless soils temporarily lose shear strength (liquefy) due to increased pore water pressures induced by strong, cyclic ground motions during an earthquake. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements (both total and differential), and undergo lateral spreading. The factors known to influence liquefaction potential include soil type, relative density, grain size, confining pressure, depth to groundwater, and the intensity and duration of the seismic ground shaking. The cohesionless soils most susceptible to liquefaction are loose, saturated sands and some silts.

The majority of the subject site is underlain at depth by weakly to moderately cemented sandstones and weakly to strongly indurated siltstones and claystones. Based on the dense nature of the on-site formational deposits as well as the absence of a shallow groundwater in those areas, it is our opinion that the potential for liquefaction and seismic related settlement across the majority of the site is low. However, where the natural drainage channel is located adjacent to the southeastern portion of the site, unconsolidated and saturated landslide deposits were encountered during our subsurface evaluation along with alluvium mapped near the channel area. Therefore, the potential for liquefaction in the localized southeastern portion of the site is considered moderate. Mitigation of potential liquefaction is addressed in the following sections and basically consists of excavation and recompaction.

3.4.6 Tsunamis and Seiches

Tsunamis are long wavelength seismic sea waves (long compared to the ocean depth) generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity. A seiche is an oscillation (wave) of a body of water in an enclosed or semi-enclosed basin that varies in period, depending on the physical dimensions of the basin, from a few minutes to several hours, and in height from several inches to several feet. A seiche is caused chiefly by local changes in atmospheric pressure, aided by winds, tidal currents, and occasionally earthquakes. Based on the elevation and inland location of the site, the potential for damage due to either a tsunami or seiche is very low.

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3.4.7 Flood Hazard

The Federal Emergency and Management Administration (FEMA) maintains a collection of Flood Insurance Rate Maps (FIRM), which cover the entire United States. These maps identify those areas, which may be subjected to 100-year and 500-year cycle floods. A set of these maps for the County of San Diego are available for viewing on the SANGIS website (www.sangis.org). Based on our review of FEMA map panel 1339F, the site is located outside of 100-year or 500-year floodplains. Therefore, the risk of flooding from a 100-year and 500-year cycle event is considered low.

3.4.8 Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, concentrated drainage, perched groundwater, drought, or other factors and may result in unacceptable settlement or heave of structures or concrete slabs supported on grade.

A selected sample of the subgrade soil from Boring B-1, obtained during our April 2003 field exploration was tested for Expansion Index (UBC Standard 18-2). This test result indicated an expansion index of 83. Testing of a sample of claystone obtained during our September 2009 field exploration indicated an expansion index of 20.

The clayey soils tested for Expansion Index are classified in the medium expansion range based on Table 18A-I-B of the California Building Code (CBC). Isolated zones of more expansive soil could be encountered and mitigation measures such as segregation and disposal of highly expansive soils should be performed if encountered.

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3.4.9 Compressible Soils

Based on the results of our field exploration, the soil materials underlying the proposed eastern-most (lower) retaining wall consist of a combination of native unweathered to weathered formational materials, landslide deposits, and topsoil/colluvium. Colluvium is also present on the slope surface. The landslide deposits and topsoil/colluvium are considered compressible and unsuitable for the support of the proposed retaining structure. Section 4.4 presents recommendations for removal and recompaction of these materials. Plates 4, 5, and 6 present geologic profiles perpendicular and parallel to the retaining walls that graphically depict the estimated thickness of the compressible units.

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4 DISCUSSIONS, ANALYSIS, AND RECOMMENDATIONS

4.1 2007 CBC SEISMIC DESIGN PARAMETERS

The project site is located in a seismically active area of southern California and is likely to experience ground shaking as a result of earthquakes. The Rose Canyon fault zone dominates the seismicity of the area. The Rose Canyon fault zone (CDMG, 1998) is located approximately 3.9 miles west of the project site.

The following section presents our recommendations for seismic design parameters in accordance with the 2007 California Building Code (CBC) (CBSC 2007), which is based on the 2006 International Building Code (IBC). We classify the site as Site Class D using the 2007 CBC Table 1613.5.2, based on the anticipated fill thickness following the proposed site grading. The soils on this site can be defined as stiff with average shear wave velocities within the upper 30.5 m (100 feet) between 180 m/s (600 ft/s) and 360 /s (1,200 ft/s), average SPT $15 \leq N \leq 50$, or average S_u between 50 kPa (1,000 psf) and 100 kPa (2,000 psf).

The design response spectrum and the design short and long period spectral parameters, S_{DS} and S_{D1}, are based on the mapped values of S_S and S_1 from the code. Based on the Site Class D designation and on the site location with respect to mapped spectral acceleration parameters S_S and S_1, recommended seismic design parameters developed from our analyses are presented in Table 4.1 below.

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TABLE 4.1
Recommended 2007 CBC Seismic Design Parameters

Design Parameter	Symbol	Recommended Value	2007 CBC / (ASCE 7) Reference(s)
Site Class	--	D	Section 1613.5.5
Mapped spectral acceleration for short periods	S_s	1.35g	Section 1613.5.1
Mapped spectral acceleration for a 1-second period	S_1	0.50g	Section 1613.5.1
Site Coefficient	F_a	1.00	Table 1613.5.3(1)
Site Coefficient	F_v	1.50	Table 1613.5.3(2)
MCE(1) Peak Ground Acceleration (S_M at T=0)	PGA_M	0.54g	N/A
MCE(1) spectral response acceleration for short periods	S_{MS}	1.35g	Section 1613.5.3 / (Section 11.4.3)
MCE* spectral response acceleration at 1-second period	S_{M1}	0.75g	Section 1613.5.3 / (Section 11.4.3)
Design Peak Ground Acceleration (S_D at T=0)	PGA_D	0.36g	(Section 11.4.5)
Design spectral response acceleration (5% damped) at short periods	$S_{DS} = 2/3 \cdot S_{MS}$	0.90g	Section 1613.5.4 / (Section 11.4.4)
Design spectral response acceleration (5% damped) at 1-second period	$S_{D1} = 2/3 \cdot S_{M1}$	0.50g	Section 1613.5.4 / (Section 11.4.4)

Notes:

1. MCE: Maximum Considered Earthquake (2% probability of exceedance in 50 years)

4.2 STRENGTH PARAMETERS OF FILL SOILS

In order to develop strength parameters for project design, we have attempted to evaluate the characteristics of potential fill and where the material will be derived from. The materials to be excavated and potentially used as compacted fill for the project will be derived of the material above the pad elevation of 183 feet MSL (average) and from excavations into the eastern slope to accommodate geogrid lengths for MSE walls. There is limited space available on site for temporary stockpiling of the excavated materials and the circulation pattern of the trucks for hauling is highly restricted due to

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site topography. It is not currently known whether all of this material will be excavated prior to placement of the initial compacted fill below the MSE walls, or if the material above the final pad elevation will be excavated after construction of the MSE walls. It is also not known if excavated material can be temporarily stockpiled off-site or if it will be exported and replaced with import fill.

To limit the cost of export and import, we have evaluated the characteristics of on-site materials for use as fill. The vast majority of fill will be utilized in the reinforced zone of the MSE walls and then in the retained zone between the reinforced zone and the temporary backcut extending up at approximately 1:1 from the back of the reinforcing geogrids.

The two bucket auger borings (LDB-1 and LDB-2) provide the best visual information for our evaluation since down-hole logging was performed over a continuous profile and the borings were extended to depths of 74 feet. As discussed in Section 3.3, the materials encountered in our borings generally consisted of interbedded fine to medium grained silty sandstones and fine grained silty claystones with sand. The interbed thickness is typically on the order of several feet with only a few layers in excess of 7 feet. The sandstone and claystone beds encountered are primarily fine grained and generally contain only 10 to 20 percent of coarse to medium grained sand.

Evaluation of the soils encountered between approximate elevations 200 and 150 feet in borings LDB-1 and LDB-2 indicate that approximate 65 percent of total thickness consists of siltstone and claystone and 35 percent of sandstone at the two drilling locations. We performed laboratory direct shear testing of three samples recompacted to approximately 90 percent of the maximum dry density. Testing was performed on representative samples of the sandstone (32 percent fines) claystone (60 percent fines), and a blend of about 60 percent claystone to 40 percent sandstone. Direct shear test results indicate approximate friction angles of 35 degrees for sandy materials, 25 degrees for silty & clayey materials, and 32 degrees for the blended material.

Due to the limited thickness of the interbedded layers and similar visual appearance, it is our opinion that selective grading of the sandy layers is not feasible. It is also our opinion that the finer grained material is not suitable for use as fill in the foundation zone or reinforced zone without blending with the coarser grained material. As it is not feasible to blend the materials in direct proportion to their distribution, we recommend that a friction angle of 28 degrees be used for design of MSE walls for a target mix of

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approximately 60 to 65 percent fine grained materials and 35 to 40 percent coarse grained materials. Laboratory shear strength testing on the actual fill soils placed should be performed during placement to confirm the friction angle assumed in design.

4.3 MSE RETAINING WALL GLOBAL STABILITY

Kleinfelder performed static and pseudo-static (earthquake) global stability analysis of the proposed configurations and geologic conditions as depicted on cross-sections B-B' and D-D' (Plates 4 and 5) using the Spencer's method of slices as implemented in the limit equilibrium computer program SLOPE/W 2004 by Geo-Slope International. We evaluated two cross-sections of the wall considered representative and most critical. The analyses considered the post-construction geometry and soil conditions. In the static case, our analysis accounted for a 250 pound per square foot (psf) traffic surcharge at the ground surface behind the perimeter screen wall. In accordance with Section 3.10 of Caltrans (2009) we used a horizontal seismic coefficient of 0.12, which is 1/3 of the peak ground acceleration of 0.36g. The analyses and calculations are presented in Appendix E and summarized below.

The length of the geogrids in the reinforced zone was varied in our analysis until the required minimum safety factor was obtained. Based on our analyses of the highest combined wall height of 55 feet located over the landslide removal area (Cross-section D-D'), we recommend a minimum grid length of 50 feet for the bottom wall. Based on our analyses of an approximate combined wall height of 47 feet located over dense formational materials (Cross-section B-B'), we recommend a minimum grid length of 42 feet for the bottom wall. For other wall heights, we recommend using a minimum grid length of 90 percent of the combined wall height to satisfy global stability. Although we initially modeled the strength parameters of the soil and individual grid layers within the reinforced zone, this was later simplified for ease of analysis to a reinforced soil and geogrid mass with high strength which essentially forced the failure surfaces behind the reinforced zone.

For global stability within the localized area with complete removal of landslide debris and replacement with compacted fill, (Cross-section D-D' on Plate 5), we also recommend placing layers of geogrid reinforcement at 2-foot height intervals within the foundation zone.

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For the static case, a minimum factor of safety of 1.79 and 1.74 was obtained for Cross-sections B-B' and D-D' respectively. These values exceed the minimum factors of safety 1.50 required by most regulatory agencies and used in standard practice. For the pseudo-static earthquake case, our analysis resulted in minimum factor of safeties of 1.51 and 1.17 for Cross-sections B-B' and D-D' respectively. These values exceed the minimum factor of safety of 1.1 required by most regulatory agencies and used in standard practice.

4.4 SITE GRADING

4.4.1 General

Based on a review of the proposed site plan, grading for the substation will generally consist of excavations up to approximately 30 feet in depth of native soils within the western portions of the site and placing fill up to approximately 60 feet in thickness within the eastern portion of the site. Plans indicate that a two-tiered MSE geogrid-reinforced wall is proposed along the eastern boundary of the site pad area. A cut / fill transition passing through the substation will result from the grading. Therefore remedial grading will be required such that foundations are supported either entirely on fill or formation. Although not anticipated, the potential presence of high expansive clay soils at subgrade elevations may also dictate the extent of remedial grading in the western cut area.

A schematic remedial grading plan is presented as Plate 8. This plate includes approximate limits of several generalized zones. These zones include:

- The approximate limits of grading around the site, including the area of remedial grading downslope from the lower MSE wall. In general, this area is determined by a 1:1 projection from the bottom of wall to competent formational material and 1.5:1 projection up to existing ground surface. This zone is larger in the area of the landslide removal.
- The approximate limits of geogrid reinforcement from bottom of the MSE retaining wall.
- The approximate upper limits of the temporary excavation slope extending from the back of the lowest geogrid for the MSE wall up to daylight on existing slope.

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- The approximate limits of colluvium removal on the slope above the temporary excavation slope and the cut / fill line for the substation pad.
- The approximate limits of 3-foot minimum removal and recompaction for the substation pad and perimeter walls.

For discussion purposes, fill areas associated with the MSE walls may be considered foundation zone below the lowest geogrid layer, reinforced zone behind the segmental blocks to the lengths of the geogrids, and retained zone behind the reinforced zone. If on-site materials are to be used within the reinforced zone of the MSE wall, Section 4.2 presents a discussion of blending the coarser and finer grained materials to obtain suitable engineering characteristics.

All site preparation and earthwork operations should be performed in accordance with applicable codes. All reference to maximum dry density is established in accordance with American Society for Testing and Materials (ASTM) ASTM D 1557. We recommend that site earthwork and construction be performed in accordance with the following recommendations and the guidelines presented in the Guidelines for Earthwork Construction included in Appendix C. In case of conflict, the following recommendations supersede those outlined in Appendix C.

In general, these earthwork requirements should be applied to the structures, including an area extending at least 5 feet beyond their perimeters. Also, these earthwork recommendations should be applied to flatwork, except that the additional area being excavated and recompacted need only extend 1 foot beyond their perimeters.

4.4.2 Pre-construction Conference

We recommend that a pre-construction conference be held on-site with the Owner's representatives, the civil engineer, geotechnical consultant, and contractor in attendance to discuss the plans and the project.

4.4.3 Construction Observation

The recommendations presented in this report are based on our understanding of the proposed project and on our evaluation of the data collected. The interpreted subsurface conditions should be evaluated in the field during construction. Final project drawings and specifications should be reviewed by the project geotechnical consultant prior to the commencement of construction.

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A representative from our firm should be present during earthwork construction to evaluate the suitability of the various soils types exposed during excavation at the site for use as engineered fill. Also, all site preparation and fill placement should be observed and tested by a representative of our firm. This also applies to the remedial grading, removal of soils, and scarification process so that we can observe that required removals were performed and evaluate whether any undesirable material or conditions are encountered in the construction area.

4.4.4 Excavation Characteristics

The excavations performed at the site indicate that the site is underlain with loose to soft topsoil/colluvium, landslide deposits, and weakly to moderately cemented and indurated sandstones and siltstones/claystones of the Scripps Formation. Excavation into the on-site materials can likely be achieved with conventional heavy-duty excavation equipment working in good condition, though local areas of cemented formation and concretions will be encountered, which could require jack-hammering or heavy ripping. Segregation and disposal of some large concretions should be anticipated. These cemented concretions can become dislodged and roll downslope during hillside grading, particularly as cuts descend from the higher elevations. The grading contractor should implement preventative measures so that the concretions do not present a hazard to property and personnel safety, and do not roll past the limits of grading or property boundaries.

4.4.5 Site Preparation

Prior to site grading, existing trees, shrubs, debris fills, pavements, sidewalks, and landscaped areas may require removal. Existing underground structures and utilities, if any, should be completely removed as required to accommodate the proposed improvements. Excavations for removal of the above items should be dish-shaped and backfilled with properly compacted engineered fill. The actual locations of sanitary sewers, storm drains, water mains, and other utilities should be verified in the field at the time of construction. Abandoned utilities (if any) should be completely removed, and the loose backfill removed and replaced. We understand that a 10-inch diameter fuel pipeline owned by Kinder Morgan runs parallel to the northern portion of the proposed MSE retaining walls on the eastern portion of the project site. The line is reportedly not in service, however this should be verified. The owner of the pipeline should be provided sufficient prior notice of planned construction, to determine and

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resolve encroachment problems and provide protection to the existing line. The contractor should expose all pipelines prior to construction to determine the exact alignment and depth of the lines. The trench created by relocating any existing utilities should be backfilled with properly compacted fill.

All deleterious, organic, and inert materials exposed should be stripped and removed from the site. The stripping work should include the removal of soil that, in the judgment of the geotechnical engineer or geologist, is uncertified, compressible, collapsible, or contains significant voids. The stripping operation should expose a firm, non-yielding subgrade that is free of large voids, organics, and deleterious materials. The subgrade exposed at the bottom of each excavation should be observed by a qualified representative from our office prior to the placement of any fill to observe that potentially unsuitable soils have been removed. Additional removals may be required as a result of observation and testing of the exposed subgrade soils.

Based on our review of the preliminary grading plan and anticipated remedial grading for the retaining walls, cuts and fills up to 30 and 60 feet in depth, respectively, may be required. To avoid potential differential settlement at cut/fill transitions under structural areas, we recommend that remedial grading be performed so that the entire cut portion of the substation pad is underlain by at least 3 feet of compacted fill. The limits of the remedial grading for the substation should be the perimeter screen wall plus a minimum horizontal distance of 5 feet. Due to the potential for difficult trench excavation through cemented concretions, it may also be desirable to overexcavate the utility corridors with larger equipment during mass grading.

If required, final recommendations can be provided upon review of the substation layout and evaluation of differential settlement for specific improvements. The excavated soil should be moisture conditioned, replaced and compacted, as recommended below. We recommend that foundation components of the proposed structures be founded either entirely in undisturbed Scripps Formation or entirely in engineered fill materials; foundations of any given structure should not transition between native and fill support.

We anticipate that on-site native materials will be used as fill for portions of the proposed improvements. Based on our experience with similar projects in the site area, the formational materials of the Scripps Formation will generally break down but some oversize cemented sandstone/claystone/siltstone concretions will remain along with gravel and cobble sized chunks. Although well compacted fills with these soils normally

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provide adequate support of foundations, pavements, and flatwork, compaction of fills made with soils containing significant amount of gravelly sized material (generally in excess of 30 percent retained on a ¾-inch size sieve) are problematic to compaction testing by conventional soil verification practice, such as in-place nuclear or sand-cone density testing. For this reason, grading recommendations specifically intended for the use of the on-site soils containing oversized material are included in Section 4.2.11.

4.4.6 Recommendations for Treatment of Compressible Soils

As previously discussed, the site is covered with a variable thickness of potentially compressible topsoil/colluvium, highly weathered formational materials, shallow landslide deposits, and local alluvium that are not considered suitable for support of the proposed compacted fill soils and structures. Therefore, we recommend that existing potentially compressible soils within the limits of site grading be removed to undisturbed and competent formation prior to the placement of engineered fill materials. The compressible soils should be completely removed from the entire footprint and backfill zone of the proposed MSE retaining walls along the eastern portions of the site. In addition, the colluvium on the slopes above the top of the temporary slopes for MSE wall construction and below the substation pad elevation should be removed prior to placement of engineered fill.

The approximate vertical limits of proposed removals underlying the eastern retaining wall are depicted on the Geologic Cross-sections (Plates 4 through 6). Based on the results of our subsurface evaluation, we anticipate remedial removals to range in depth from a few feet along the majority of the lower wall, up to approximately 18 feet (near B-4) in depth within the limits of the landslide. Temporary dewatering may be required to depths of at least 3 to 5 feet below the lowest elevation of remedial excavation.

The thickness of the potentially compressible soils to be removed at each exploration point, the type of material to be removed, the need for dewatering, and the approximate depth of groundwater is estimated as follows:

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TABLE 2
Approximate Removal Depths of Compressible Soils

Borings	Approximate Removal Depth (feet)	Material Type	Dewater (yes/no)	Approximate Groundwater Depth (feet)
B-1	3	Topsoil/Colluvium	No	--
B-2	2	Topsoil/Colluvium	No	--
B-3	5.5	Topsoil/Colluvium	No	--
B-4	18	Landslide	Yes	12.5
B-5	3	Topsoil/Colluvium	No	--
B-6	7	Highly weathered	No	--
B-7	8	Highly weathered	No	12.5
B-8	8	Landslide	Yes	9
B-9	15.5	Landslide	Yes	8
B-10	3	Topsoil/Colluvium	No	--
B-11	14	Landslide	Yes	6
HA-1	1.5	Topsoil/Colluvium	No	--
HA-2	1.3	Topsoil/Colluvium	No	--
HA-3	2	Topsoil/Colluvium	No	--
HA-4	2	Topsoil/Colluvium	No	--
HA-5	8	Landslide	No	--
HA-6	2.5	Topsoil/Colluvium	No	--
HA-7	2	Topsoil/Colluvium	No	--
HA-8	7	Highly weathered	No	--
HA-9	7	Highly weathered	No	--
HA-10	7	Highly weathered	No	--
HA-11	0	Formation	No	--
HA-12	0	Formation	No	--

4.4.7 Engineered Fill

As discussed in Section 4.2, the majority of fill materials generated from the on-site excavations are fine grained with low shear strength and are only suitable for use in specified areas unless mixed or blended with the coarser grained soils. The finer grained materials are generally suitable for placement as compacted fill within the "retained" zone of MSE walls provided they are free of oversized rock, clay clods, organic materials, and deleterious debris. Based on our laboratory testing and stability analysis for the MSE wall design, the finer grained formational materials should be mixed with the coarser grained material if used within the relatively large "reinforced" zone behind the MSE walls. Import fill should be used in the foundation zone. Refer to Section 4.2 for additional details regarding use of on-site materials for fill.

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Rocks or cemented formation greater than 3 inches in diameter should not be placed within 2 feet of finished grade. Oversize material in excess of 6 inches in diameter should not be used in structural fill. Fill soil placed within the upper 3 feet of finished grade in structural areas should consist of granular material with a very low to low expansion index (expansion index of 50 or less) as evaluated by UBC Standard 18-2 (Expansion Index Test) or in general accordance with ASTM D4829. If required, selective grading may be performed to achieve the recommended 3-foot zone of very low to low expansive soils in structural areas. If present, medium to highly expansive soil may be placed in the non-structural areas on the site or at depths of 4 feet or more below finish grade.

Fill should be moisture conditioned to optimum or above optimum and be compacted to 90 percent or more relative compaction in accordance with ASTM D 1557. Expansive soils with an expansion index greater than 20 should be similarly compacted, but at a moisture content over 2 to 3 percent above optimum. Although the optimum lift thickness for fill soils will be dependent on the type of compaction equipment used, fill should generally be placed in uniform lifts not exceeding approximately 8 inches in loose thickness.

In an effort to minimize differential settlement between formational materials and engineered fill materials in areas of remedial removals underlying the MSE retaining walls, we recommend that recompacted soils be moisture conditioned to a moisture content of at least optimum and compacted to a minimum 95 percent of the maximum laboratory dry density, as evaluated by ASTM D 1557.

In pavement areas, the upper 12 inches of subgrade soils should be moisture conditioned to a moisture content of at least optimum and compacted to a minimum 95 percent of the maximum laboratory dry density, as evaluated by ASTM D 1557.

4.4.8 Import Materials

We recommend that import material consist of granular, very low to low expansive material (expansion index of 50 or less) as evaluated by UBC Standard 18-2 (Expansion Index Test) or ASTM D4829 and with low corrosivity characteristics. Low corrosivity material is defined as having a minimum resistivity of more than 2,000 ohm-cm when tested in accordance with California Test 643, unless defined otherwise by the corrosion consultant. Import fill for use with MSE wall construction will require a minimum friction

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angle of 30 degrees. Import material should be evaluated by the geotechnical consultant at the borrow site for its suitability as fill prior to importation to the project site. The length of the geogrid reinforcing and resulting temporary cut slope may be modified for other friction angles.

4.4.9 Temporary Slopes

Temporary cut slopes are primarily anticipated for removals of compressible materials at the toe of the slope in the footprint of the proposed MSE walls (approximately 18 feet at boring 4 and 10 feet hand auger HA-5) and into the western slope to accommodate potential geogrid lengths. Except as discussed with regard to utility trench excavation, temporary cut slopes in topsoil/colluvium/landslide materials should not be steeper than 1.5H:1V(horizontal to vertical). Cut slopes in underlying formational materials can be as steep as 1H:1V. Flatter inclinations may be required within saturated material in excavations for the landslide removal.

OSHA and Cal-OSHA requirements should be observed for all excavations. If trench excavations deeper than 20 feet below existing site grades will be made that are not going to be shored or braced, then slopes should be cut at a gradient of 2H:1V.

The contractor is responsible for the stability of temporary excavations and his "competent person" should perform regular inspections of any temporary excavations. On a case-by-case basis, the contractor should protect structures which fall on a wedge formed by a 2H:1V slope extending from the bottom of excavation, and on settlement-sensitive structures falling on a wedge 4H:1V slope extending from the bottom of the excavation. The protection systems proposed by the contractor should be reviewed by the client's geotechnical engineer prior to constructing these protective systems.

4.4.10 Permanent Slopes

Preliminary plans indicate that cut and fill slopes will have maximum height of approximately 10 feet. In general, both cut and fill slopes up to a maximum height of 40 feet can be as steep as 2H:1V.

New fill slopes should not be constructed above existing fill or colluvial soils. Where new fill slopes will be built, the existing colluvium fill (if present) should be excavated and a keyway constructed into the underlying formational materials. The dimensions

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and depth of the keyway will depend on final slope configurations and heights. For fill slopes constructed at 2H:1V, a keyway having a minimum width of 10 feet and a minimum depth of 3 feet into formational material would be appropriate. Plate 9 shows a typical keyway and benching detail.

New fill placed on existing slopes that are steeper than 5H:1V should be keyed and benched into the existing hillside. Keyway recommendations are presented in the preceding paragraph. Benches should be a minimum of 10 feet in width and spaced at no more than 4-foot vertical height intervals.

Sliver fills are locations where only several feet of new fill is placed on an existing slope surface. Depending on the specific site and geometric conditions such as subsurface conditions, slope height, thickness of new fill, and site constraints, the width of the key and extend of benching may be modified from those described above.

4.4.11 Bulking and Shrinkage Factors

Estimates of engineered fill bulking and shrinkage factors are based on comparison of laboratory compaction tests with the in-place density of the soil material as encountered during the subsurface evaluation. Due to limited data and variations in existing soil density, as well as in compacted soil densities indicate that bulking and shrinkage factors are to be considered very approximate. Based on the results of our laboratory testing, it is our opinion that the alluvium/colluvium and slopewash materials will have an approximate shrinkage factor on the order of 5 to 10 percent when excavated from their existing state and placed as compacted fills. A bulking of approximately 10 to 15 percent is anticipated for materials of the Scripps Formation. Evaluation of potential import or export quantities should also consider potential export of oversize material.

4.5 UTILITY TRENCH EXCAVATIONS

4.5.1 Temporary Trench Excavations

We recommend that trenches and excavations be designed and constructed in accordance with OSHA regulations. These regulations provide trench sloping and shoring design parameters for trenches up to 20 feet deep based on a description of the soil types encountered. Trenches over 20 feet deep should be designed by the Contractor's engineer based on-site-specific geotechnical analyses. For planning

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purposes, we recommend the following OSHA soil classifications be used in the table below:

TABLE 3
OSHA Soil Classifications

Soil Classification	OSHA Soil Type
Topsoil/Colluvium	Type C
Scripps Formation	Type A or B

Temporary excavations should be constructed in accordance with OSHA recommendations. Excavations deeper than 5 feet should be shored or laid back on a slope no steeper than 1.5H:1V (horizontal:vertical) above the Scripps Formation and 3/4H:1V within the Scripps Formation. Zones within the Scripps Formation with low cementation or cohesion may be classified as OSHA Soil Type B. In the case of trench excavations, OSHA requirements regarding personnel safety should be met using appropriate shoring (including trench boxes), or by laying back the slopes in accordance with OSHA requirements. Temporary excavations that encounter seepage may require shoring or may be stabilized by placing sandbags or gravel along the base of the seepage zone. Excavations encountering seepage should be evaluated on a case-by-case basis. On-site safety of personnel is the responsibility of the contractor, and their designated "competent person" should perform regular inspections of all temporary excavations.

4.5.2 Pipe Bedding and Trench Backfill

Pipe bedding should consist of sand or similar granular material having a sand equivalent value of 30 or less. The sand should be placed in a zone that extends a minimum of 4 inches below and 12 inches above the pipe for the full trench width. The bedding material should be compacted to a minimum of 90 percent of the maximum dry density. Trench backfill above pipe bedding may consist of approved, on-site or import soils placed in lifts no greater than 8 inches loose thickness and compacted to 90 percent of the maximum dry density.

Some of the soils resulting from on-site excavations are expected to contain oversize cemented materials or concretions. All utility trenches should be properly backfilled with soil and compacted or backfilled with a cement slurry. The on-site soil with oversize

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material (exceeding 30 percent passing the ¾-inch size sieve) should not be used as backfill beneath proposed structures or flatwork where future settlement may be a concern. Material particles in excess of 3 inches in diameter should not be incorporated in the trench backfill.

Backfill material placed beneath structures and pavements should be placed in loose horizontal lifts not exceeding 8 inches in thickness, moisture conditioned to within 1 percent below to 3 percent above optimum, and compacted with a mechanical tamper to at least 90 percent relative compaction per ASTM D 1557. Ponding or jetting should not be permitted.

It will be necessary to keep vibrations away from the immediate excavation area and provide adequate setback of stockpiled materials and construction equipment for a stable condition. It is recommended that the setback distance be one-half the excavation depth. Some minor sloughing may occur as the moisture content of the soils in the excavation walls dry out. Shoring and/or bracing of trenches may be required where construction personnel are working within excavations. Applicable governmental safety codes should be applied for safety of personnel.

4.6 SETTLEMENT OF DEEP FILLS

Long-term settlement of deep fills can occur from self weight of the fill. This settlement can occur slowly, even when subsurface and surface drainage is provided, and is a function of a number of variables including soil type, age of fill, degree of wetting and depth. Experience has shown that this consolidation may approach from 0.2 percent (for granular soils) to 0.5 percent (for clayey soils) of the fill thickness. Based on the anticipated native material from the Scripps Formation for the retaining wall backfill (reinforced soil zone) and anticipated fill depth, we estimate that the long-term total fill settlement would be on the order of 1-1/2 to 2-1/2 inches for fill depths of 30 to 60 feet, respectively. This settlement is in addition to the static settlements due to loading from structures as discussed in Section 4.6.2. Proposed foundations located above the descending 1:1 temporary cut slope may experience some tilting of the foundation proportional to the variation in fill depth. The perimeter screen wall should incorporate joints to accommodate potential differential settlement.

In order to reduce the magnitude of settlement under the proposed MSE retaining walls, we recommend that the fills be compacted to 95% of maximum density determined by

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ASTM D 1557. Consideration may also be given to compacting all fill to 95 percent to reduce the magnitude of potential settlement. A settlement waiting period is not required, however, could be implemented if the estimated settlements are determined to be excessive by SDG&E.

4.7 SHALLOW FOUNDATIONS AND SLABS

4.7.1 General

The proposed substation structures and relatively short and masonry block site perimeter retaining and screen walls may be supported on shallow spread and continuous footings founded on either engineered fill soils or undisturbed formational materials. The fill soils below the footprint of each improvement should be prepared as stated in Section 4.2.7.

Footings for the substation structures that will be founded on engineered fill soils can be designed using an allowable soil bearing pressure of 3,000 psf, for dead loads plus long-term live loads. Footings that are founded on undisturbed formational materials can be designed using an allowable soil bearing pressure of 5,000 psf, for dead loads plus long-term live loads. Due to the potential for variable locations of the estimated cut/fill transition or overexcavation and recompaction of expansive soils, we do not recommend designing for formational soils unless conditions can be verified during construction. These values can be increased by one-third for short term loads such as those due to wind and seismic forces.

All footings should be extended in depth as necessary so that no existing or proposed utility trenches will extend below a plane having a downward slope of 2H:1V from a line 9 inches above the bottom edge of the closest footing. In addition, no parallel trenches should be within 18 inches from the closest edge of the footing. New footings should not be excavated below the bottom of adjacently located existing foundations.

Continuous foundations should have a minimum width of 15 inches and be trenched at least 18 inches below the lowest adjacent grade. Continuous footings should be reinforced with a minimum of four No. 4 bars, two near the top, and two near the bottom. Additional reinforcement should be provided as directed by the structural engineer for load carrying purposes.

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We recommend a minimum width and depth of embedment of 12 inches for isolated spread or mat foundations. Reinforcement for isolated spread foundations should be designed by the project structural engineer.

Foundations for each individual structure should be supported on the same type of material, that is, either entirely supported by engineered fill or undisturbed Scripps Formation. Foundations should not be supported on a combination of both materials such as may occur where there is a transition between fill and formational material. All footing excavations should be observed by a representative of the geotechnical engineer prior to placing reinforcing or concrete to verify proper subgrade conditions.

4.7.2 Estimated Settlements

Estimated total settlements for the proposed improvements, constructed in accordance with the recommendations contained herein, are anticipated to be less than ½ inch. Estimated differential settlement between points 40 feet apart on continuous footings and/or isolated spread footings are anticipated to be less than ¼ inch. These settlements are in addition to settlement of the deep engineered fills discussed previously in Section 4.5.

4.7.3 Lateral Resistance

For passive resistance, we recommend using an equivalent fluid weight of 300 and 350 pcf for footings or grade beams poured neat against properly compacted select fill or Scripps Formation, respectively. This lateral pressure assumes a horizontal surface for the soil mass extending at least 10 feet from the face of the footing, or three times the height of the surface generating passive pressure, whichever is greater. The upper 12 inches of material in areas not protected by concrete slabs should not be included in design for passive resistance to lateral loads. The coefficient of friction between the bottom of the footings or grade beams and the prepared soil can be assumed as 0.35. Passive pressure and frictional resistance may be combined without reduction.

4.7.4 Concrete Slabs-On-Grade

Concrete slabs-on-grade can be used for light equipment pads or floors of support structures. These pads should be supported by a minimum of 6 inches of compacted aggregate base over undisturbed Scripps Formation (or approved engineered fills placed above the formation). The aggregate base should be compacted to at least

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90 percent of ASTM D 1557. As a minimum, these slabs should have a thickness of 6 inches and should be reinforced with No. 4 steel rebar placed mid-height and spaced at 12 inches on center in both directions. Additional reinforcement should be placed as required by the structural engineer.

4.8 DEEP FOUNDATIONS

We understand that SDG&E will utilize the computer program Moment Foundation Analysis Design (MFAD) to design deep foundations such as CIDH piers. We recommend utilizing the following soil parameters for compacted fill from on-site materials. Although piers may also be located within areas of formational materials or import fill, we recommend using the values below due to uncertainty of actual conditions at each pier location. These values are intended for use in the computer program MFAD only, values for other design analyses may be provided upon request.

TABLE 4
Recommended Soil Parameters for MFAD Analysis*

Soil Type	Unit Cohesion (psf)	Friction Angle (degrees)	Total Moist Unit Weight (pcf)	Moisture Content (%)	Total Saturated Unit Weight (pcf)	Deformation Modulus Ep (ksi)	Strength Reduction Factor
Silty Sand /Sandy Silt (SM/ML)	0	28	120	12	145	1.0	1.0

*The upper 1-foot of material should be ignored in design.

4.9 MASONRY BLOCK RETAINING WALLS

Retaining walls ranging between 5 and 10 feet high are proposed along portions of the western and southern sides of the substation. In addition, the entire substation pad area will be secured with a perimeter screen wall. We understand that these walls will be masonry block. Lateral pressures acting against retaining walls can be calculated assuming that the backfill soils act as a fluid. The equivalent fluid weight (efw) value would depend on allowable wall movement. Walls which are free to rotate at least 0.5 percent of the wall height can be designed for the active efw. Walls which are restrained at the top or are sensitive to movement and tilting should be designed for the at-rest efw. Specific information for MSE retaining walls is provided in Section 4.10.

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Our study indicates that some backfill soils available on-site may not be suitable for use as retaining wall backfill due to their expansive and non-draining properties. Therefore, the following values assume that imported, non- to low-expansive sandy soils (SP, SM, SC) will be used as backfill or that selective grading will be used to generate suitable material. Values given in the table below are in terms of equivalent fluid weight and assume a triangular distribution.

TABLE 5
Equivalent Fluid Weights (efw)
for Calculating Lateral Earth Pressures

Condition	Slope Inclination	Equivalent Fluid Weight (pcf)
Active	Level	40
	2:1	65
At-Rest	Level	60
	2:1	85

Fifty and thirty percent of any uniform aerial surcharge placed at the top of the wall may be assumed to act as a uniform horizontal pressure over the entire wall for the at-rest and active cases, respectively. As a minimum, we recommend that a traffic surcharge equivalent to 2 feet of soil backfill be assumed as a surcharge for the at-rest condition. For this condition a pressure of 125 psf may be assumed to act as a uniform horizontal pressure over the entire height of the wall, H. We should be contacted where point or line loads are expected so we can provide recommendations for additional wall stresses.

Walls should be provided with drains to reduce the potential for build-up of hydrostatic pressure. A typical drainage system could consist of a one- to two-foot-wide zone of Caltrans Class 2 permeable material immediately adjacent to the wall with a perforated pipe wrapped in filter fabric at the base of the permeable material. The pipe should be discharged to an appropriate outlet, which is protected against erosion. As an alternative, prefabricated drainage boards could also be used. The geotextile manufacturer's recommendations should be followed for installation of a drainage fabric system.

Allowable bearing pressure values described in previous sections of this report can be increased by one-third when calculating resistance caused by loads of short duration, such as earthquake loads. Restraining passive pressure and friction values should not

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be increased by this amount, but a lower factor of safety that is normally applied to static loads could be used. This factor of safety for dynamic load conditions should not be less than 1.2. Backfill for retaining walls should consist of predominately granular materials from on-site excavations, if any, or imported fill. All backfill should be placed in 8-inch loose lifts, moisture-conditioned to 1 to 3 percentage points above optimum moisture content, and compacted to at least 90 percent relative compaction in accordance with ASTM D 1557. For all retaining walls, we recommend a minimum horizontal distance from the outside base of the footing to daylight of 7 feet for slopes of less than 20 feet in height, and 10 feet for slopes of greater heights.

4.10 MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS

Due to the wall height and sensitivity of the substation equipment to lateral deflections of the wall, the proper design and construction of the two-tiered mechanically stabilized earth (MSE) wall is critical. MSE walls were selected for the project due to their ability to accommodate differential settlement, performance in fill conditions and aesthetic considerations. As discussed in Section 4.2, the fines content of the existing site soils is higher than conventional granular fill for MSE wall construction and is considered a marginal fill that requires special design considerations. We understand that proprietary wall design will be performed by Soil Retention Systems and utilize geotechnical recommendations contained herein. Drainage provisions are included in items 7 and 8 below.

The following are our geotechnical recommendations for the wall designer.

1. Recommended total stress and unit weight properties of the retained, foundation and reinforced soils for MSE wall designs are summarized below. Blending or excavated finer and coarser grained soils or import of granular import fill will be required for the reinforced zone of the MSE walls since the on-site silty and clayey materials have low strength with respect to global slope stability.

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TABLE 6
MSE Wall Soil Design Parameters

Soil Zone	Soil Unit Weight (pcf)	Internal Friction Angle	Cohesion (psf)
Retained – Formation	120	28°	1,000
Retained – Fill Wedge	120	26°	0
Foundation - Formation	120	28°	1,000
Foundation - Fill	120	30°	0
Reinforced Zone (Blended or Import Fill)	120	28°	0

Based on the uncertainty of predicting the availability, quality and cost of import fill at the time of construction, we recommend that the friction angle be limited to 30 degrees for design.

1. Allowable bearing capacity of the retaining wall foundation soils can be assumed as 4,500 pounds per square foot on engineered fill after removal of colluvium and landslide material and using import granular fill for MSE wall foundations.

2. A foundation leveling pad is recommended to provide a firm level surface on which to place the base course units at the design elevations. The designer may utilize a minimum of 6 inches of compacted aggregate base for a leveling pad. The compacted aggregate base should meet the following grading requirements:

TABLE 7
Aggregate Base Gradation for MSE Wall Foundation

Sieve Size	Percent Passing
1 inch	100
No. 4	35-80
No. 10	20-65
No. 40	10-35
No. 200	0-10

The top of the foundation leveling pad should be compacted by a minimum of three passes of a vibrating base plate compactor. The vibrating compactor should have a minimum weight of 200 pounds and a minimum vibration frequency of 1600 cycles per minute.

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3. The minimum embedment of retaining wall foundation should be either the exposed wall height in feet multiplied by a factor of 0.20, or 2 feet, whichever is greater.

4. The dry-stack mortarless construction method for MSE retaining walls bearing on an aggregate bearing pad is generally considered a flexible structure that can tolerate total settlements on the order of 3 to 6 inches with differential settlements on the order of 1 percent of the total wall height. Anticipated settlements for the foundation pressures provided are not expected to exceed one inch for a properly prepared fill and subgrade. The primary design issue is differential settlement for the lower wall where it transitions from support on formational soils to fill soils in the removal area for the landslide deposit.

5. Retaining walls should be designed for surcharge loading due to traffic. For the upper walls that may be subjected to vehicular surcharge loading, we recommend that a surcharge loading of 250 pounds per square foot be incorporated into the design.

6. MSE retaining walls supporting the substation should also be designed for seismic earth pressures acting on the wall. We recommend that Mononobe-Okabe lateral earth pressures be used for seismic loading, with a horizontal acceleration coefficient of 0.18 (one-half of the peak ground acceleration of 0.36 g). the dynamic active earth pressure force increment (Ebeling and Morrison 1992), which acts on the retaining walls, is $\Delta P_{AE} = 8.0*H^2$ (in pounds per linear foot of wall) where H in feet is the total retained soil mass height. We recommend that this resultant be applied as an inverted triangular pressure distribution.

7. The wall designer should incorporate a drainage system into all MSE walls. A minimum of 12 inches of drainage fill should extend behind the wall blocks to within 1 foot of final grade. Drainage fill should consist of free-draining, sound, durable particles of well graded gravel or crushed stone conforming to the following gradation:

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TABLE 8
Structural MSE Wall Backfill Gradation

Sieve size	Percent Passing
1 inch	35-100
No. 4	10-40
No. 10	5-25
No. 40	0-10
No. 200	0-5

8. Although seepage is not anticipated, we recommend that drainage measures be incorporated into the fill due to the potential use of the fine grained marginal fills. Rather than install a subdrain system along the backcut to collect potential seepage at the fill/formation interface, we recommend placing several continuous layers of Class II permeable base between the sloping backcut and face of wall. The layers should be placed at approximate 15-foot vertical intervals. We recommend that one of the layers be placed within the upper 5 feet of the lower wall so that it collects potential infiltration within the bench between the walls. The layers should also be sloped towards the face of the wall between geogrid layers to facilitate drainage rather than infiltration. This system is effective because it not only collects potential seepage at the backcut but also excess seepage within the fill mass. Kleinfelder should review or work with the wall designer on specific details of the design. Additional recommendations may be provided if seepage is observed or suspected in the temporary cut during grading.
9. Geogrid Reinforcement Installation:
    a. The geogrid reinforcement should be installed at the wall height, horizontal location, and to the extent as shown on the project construction plans, or as directed by the design engineer.
    b. The reinforcement should be laid horizontally on compacted fill and connected to the modular wall units.
    c. Correct orientation of the strip reinforcement should verified by the contractor.
10. Fill Placement Over Geogrid Reinforcement
    a. Reinforced wall fill material should be placed in maximum 8-inch compacted lifts on the reinforcing geogrid or as directed by the design engineer. Each lift should be compacted to a minimum density of 90 percent of ASTM D 1557.

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b. Hand-operated or lighter mechanical compaction equipment should be utilized within three feet of the front of wall face.

c. If possible, soil fill should be placed from the wall face outward. Soil should be placed in uniform lifts.

d. Only rubber-tired equipment may pass over the reinforcement at slow speeds (less than 10 mph), sudden braking and sharp turning should be avoided.

e. Positive surface drainage during, and after, construction of the wall should be provided to minimize water infiltration in the reinforced soil zone.

11. Common soil backfill placed in the retained zone behind the reinforced zone should be placed as engineered fill.

4.11 PAVEMENT SECTIONS

For purposes of preliminary analysis of pavement sections, we performed an R-value test on a soil sample considered typical of potential subgrade materials on-site. An R-value of 19 was obtained from this one test.

Due to the variation in soil types at the site, actual pavement recommendations should be based on R-value tests performed on bulk samples of the soils that are exposed at the finished subgrade elevations across the site at the completion of the mass grading operations.

4.11.1 Flexible Pavements

Flexible pavement sections have been evaluated in general accordance with Caltrans methods for pavement design. An R-value of 20 was assumed for subgrade and an R-value of 7 was used for aggregate base. Traffic indices of 4, 5 and 6 were used to calculate the design thickness of roadway and parking areas. Recommended flexible pavement sections for these conditions are given in the following table:

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TABLE 9
Flexible Pavement Sections

Traffic Index	Asphalt Concrete (inches)	Aggregate Base (inches)
4	3	5
5	3	7
6	4	8.5

Portland cement concrete pavement (PCCP) may be desirable at entry points and other locations where tight-turning heavy vehicles or sloping driveways are expected. We recommend a 7-inch thick rigid concrete pavement over subgrade compacted to at least 95 percent relative compaction (ASTM D 1557).

The recommended pavement sections assume the following conditions:

1. All aggregate base materials and the upper 12 inches of subgrade below aggregate base is to be compacted to a minimum of 95 percent of ASTM D 1557 maximum dry density;
2. The finished subgrade is in a stable, non-pumping condition at the time aggregate base is laid and compacted;
3. Asphalt concrete pavement and aggregate base materials should conform to Section 02510, Parts 2 and 3 of the Standard Specifications for Construction of Public Works (Greenbook), current edition;
4. Portland cement concrete pavement should conform to Subsections 201-1 and 302-6 of the Greenbook for Concrete Class 520-A-2500; and
5. All concrete curbs separating pavement from landscaped areas extend at least six inches into the subgrade to reduce movement of moisture into the aggregate base layer. This reduces the risk of pavement failures to subsurface water originating from landscaped areas.

The concrete pavement should be constructed in an approximate 15-foot square grid system. If a square system is impractical, rectangular panels can be used with the longitudinal distance a maximum of 20 feet.

All longitudinal or transverse control joints should be constructed by hand forming or placing a pre-molded filler such as “zip strips.” Longitudinal or transverse construction

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joints should be keyed. Expansion joints should be used to isolate fixed objects abutting or within the pavement area. The expansion joint should extend the full depth of the pavement. Joints should run continuously and extend through integral curbs and thickened edges. It is recommended that joint layout be adjusted to coincide with the corners of objects and structures.

In addition, the following is recommended for concrete pavements:

1. Slope pavement at least 1/2 percent to provide drainage;
2. Cure concrete with curing compound or keep continuously moist for a minimum of seven days; and
3. Keep all traffic off concrete until its compressive strength exceeds 2,000 pounds per square inch.

Consideration should be given to using slip dowels on 24-inch centers to strengthen control and construction joints.

4.12 FLATWORK

To reduce the potential manifestation of distress to exterior concrete flatwork due to movement of the underlying soil, we recommend that such flatwork be constructed with crack-control joints at appropriate spacing as designed by the structural engineer. Subgrade should be prepared in accordance with the earthwork recommendations presented earlier in this report. Positive drainage should be established and maintained adjacent to flatwork.

4.13 PRELIMINARY CORROSIVE SOIL SCREENING

A preliminary corrosive soil screening for representative on-site soil materials was completed to evaluate their potential effect on concrete and ferrous metals. The corrosion potential was evaluated using the results of laboratory testing on one representative soil sample obtained during our subsurface evaluation. Laboratory test results for pH, minimum electrical resistivity, and soluble chloride and sulfate content are provided below, and included in Appendix B.

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TABLE 10
Soil Corrosion Test Results

Boring	Depth (ft)	pH	Sulfate (ppm)	Chloride (ppm)	Minimum Resistivity (ohm-cm)
B-1	4-8	8.7	110	50	935

According to Caltrans' *Memo to Designers 3-1*, dated July 2008, a soil is considered corrosive when the following concentrations are present: pH value of 5.5 or less, resistivity value of less than 1,000 ohm-cm, chloride content greater than 500 ppm, and sulfate content greater than 2,000 ppm. The Portland Cement Association (PCA, 1988) defines concrete exposure to sulfate attack as negligible for soil with a water soluble sulfate content of 0.00 to 0.10 percent (by weight), moderate for a sulfate content of 0.10 to 0.20 percent, severe for a sulfate content of 0.2 to 2.00 percent, and very severe for a sulfate content over 2.00 percent.

Although Kleinfelder does not practice corrosion engineering, the resistivity value of 935 ohm-cm is less than 1,000 ohm-cm which is normally considered severely corrosive to buried ferrous metals. Based on the results of the sulfate testing described above, the exposure of concrete to sulfate attack from the on-site soils is considered to be negligible to moderate by the PCA standard.

We recommend that the corrosion test results be reviewed and evaluated by the project designers considering the proposed improvements and project lifespan requirements. A corrosion engineer can be contacted for detailed evaluation of corrosion potential and corrosion resistant design.

4.14 SURFACE DRAINAGE

Foundation performance depends greatly on how well the runoff waters drain from the site. This drainage should be maintained both during construction and over the entire life of the project. Final elevations at the site should be planned so that positive drainage is established around structures. Positive drainage is defined as a slope of 2 percent or more for a distance of 5 feet or more away from structure foundations.

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4.15 TEMPORARY DEWATERING

Remedial removal of the landslide deposit below the proposed retaining wall in the southeastern portion of the site will require temporary dewatering. During our initial field investigation, groundwater was encountered in Borings 4, 8, 9, and 11, and the required removals were estimated up to 18 to 20 feet. The source of groundwater appears to be from the adjacent creek and the water is perched within the more permeable alluvium and disturbed landslide deposits. Based on these results, Kleinfelder was requested to perform supplemental water quality testing for use in obtaining the required permits and an aquifer pump test to assist in evaluating discharge rates. Borings 12 and 13 were performed for those purposes.

The results of the testing program are contained in our September 23, 2004 report entitled "Summary Report of Limited Hydrogeologic Assessment" which is included in Appendix D of this report. The results of the water quality testing indicate trends that pumping quality will satisfy the water discharge criteria, and results of aquifer testing that indicate pumping rates less than the permit threshold. We recommend that SDG&E monitor for selected parameters and flow rate to document exemption conditions throughout dewatering activities.

We anticipate that discharge of the water will require permitting from the WDR 2001-96 from Regional Water Quality Control Board.

In order to avoid construction delays at this early stage of grading, we recommend that the general contractor utilize an experienced dewatering contractor.

4.16 SLOPE PROTECTION AND MAINTENANCE

Although graded slopes on this site are anticipated to be grossly stable, the soils may be somewhat erodible. For this reason, the finished slopes should be planted as soon as practical after the end of construction. Preferably, deep-rooted vegetation adapted to semi-arid climates should be used. In addition, runoff water should not be permitted to drain over the edges of slopes unless that water is confined to properly designed and constructed drainage facilities.

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5 ADDITIONAL STUDIES

The review of plans and specifications, and the observation and testing by Kleinfelder of earthwork related construction activities, are an integral part of the conclusions and recommendations made in this report. If Kleinfelder is not retained for these services, the client will be assuming our responsibility for any potential claims that may arise during or after construction. The required tests, observations, and consultation by Kleinfelder during construction includes, but is not limited to:

- A review of plans and specifications;
- Observation of site clearing;
- Construction observation and density testing of fill material placement, trench backfill and subgrade preparation; and
- Observation of foundation excavations and foundation construction.

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6 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by SDG&E and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

The work performed was based on project information provided by Client. If Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

The scope of services for the subsurface investigation was limited to performing the borings described in this report. It should be recognized that definition and evaluation of subsurface conditions are difficult. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service, which provide information for their purposes at acceptable levels of risk. The client and key members of the design team should discuss the issues covered in this report with Kleinfelder, so that the issues are

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understood and applied in a manner consistent with the owner's budget, tolerance of risk and expectations for future performance and maintenance.

Recommendations contained in this report are based on our field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed construction. It is possible that soil, rock or groundwater conditions could vary between or beyond the points explored. If soil, rock or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that Kleinfelder is notified immediately so that we may reevaluate the recommendations of this report. If the scope of the proposed construction, including the estimated building loads, and the design depths or locations of the foundations, changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions of this report are modified or approved in writing, by Kleinfelder.

As the geotechnical engineering firm that performed the geotechnical evaluation for this project, Kleinfelder should be retained to confirm that the recommendations of this report are properly incorporated in the design of this project, and properly implemented during construction. This may avoid misinterpretation of the information by other parties and will allow us to review and modify our recommendations if variations in the soil conditions are encountered.

The scope of services for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

Kleinfelder cannot be responsible for interpretation by others of this report or the conditions encountered in the field. Kleinfelder must be retained so that all geotechnical aspects of construction will be monitored on a full-time basis by a representative from Kleinfelder, including site preparation, preparation of foundations, and placement of engineered fill and trench backfill. These services provide Kleinfelder the opportunity to observe the actual soil, rock and groundwater conditions encountered during construction and to evaluate the applicability of the recommendations presented in this report to the site conditions. If Kleinfelder is not retained to provide these services, we will cease to be the engineer of record for this project and will assume no responsibility

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for any potential claim during or after construction on this project. If changed site conditions affect the recommendations presented herein, Kleinfelder must also be retained to perform a supplemental evaluation and to issue a revision to our original report.

This report, and any future addenda or reports regarding this site, may be made available to bidders to supply them with only the data contained in the report regarding subsurface conditions and laboratory test results at the point and time noted. Bidders may not rely on interpretations, opinion, recommendations, or conclusions contained in the report. Because of the limited nature of any subsurface study, the contractor may encounter conditions during construction which differ from those presented in this report. In such event, the contractor should promptly notify the owner so that Kleinfelder's geotechnical engineer can be contacted to confirm those conditions. We recommend the contractor describe the nature and extent of the differing conditions in writing and that the construction contract include provisions for dealing with differing conditions. Contingency funds should be reserved for potential problems during earthwork and foundation construction. Furthermore, the contractor should be prepared to handle contamination conditions encountered at this site, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers.

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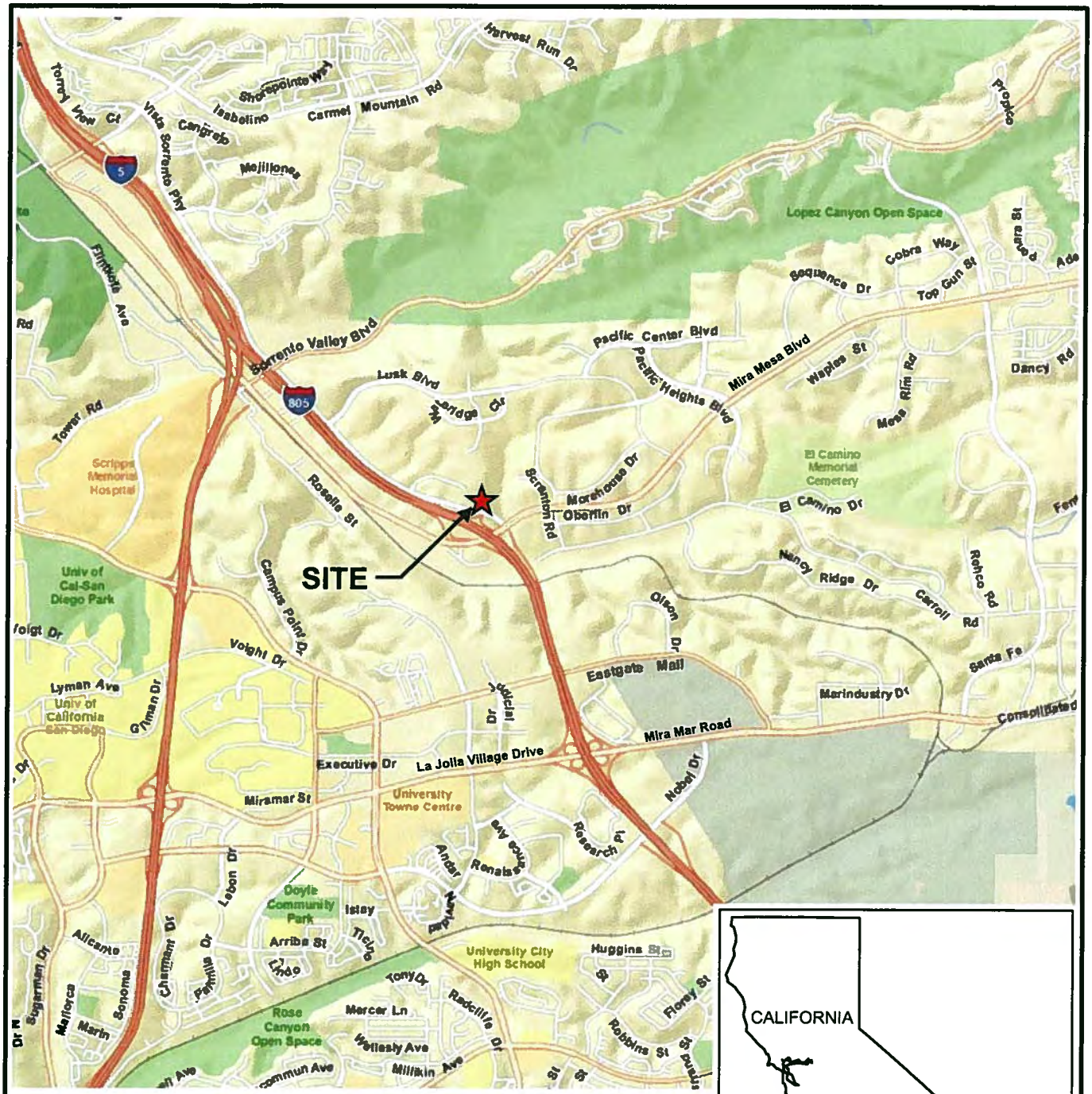
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PLATES



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FILE NAME:	105945vic.MXD

VICINITY MAP

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE
1

MIRA SORRENTO PLACE

POR PAR PM 18777

POR 2 ACRE LOT 34 MAP NO 483

POR 2 PAR PM 18777

SORRENTO VISTA PARKWAY

SDG&E EASEMENT REC 11-28-1957, BK. 5841, PG.544 OF O.R.

SDG&E EASEMENT REC 8-30-1917, BK. 740, PG.445 OF DEEDS.

OIL CONTAINMENT BASIN SCREEN WALL

CONTROL HOUSE FF=183.50 PAD=183.10

RIDGE LINE

VERDURA RETAINING WALL

R&R FOR SOIL STABILITY AT BASE OF WALLS

APPROXIMATE LOCATION OF R&R FOR SOIL STABILITY AT BASE OF WALLS

NOTE: PARCEL BOUNDARY UNRESOLVED

PP #579792

10" PETRO PIPELINE

30" H.P. GAS LINE

16" PETRO PIPELINE

℄ TRANSMISSION LINE

D-25 CURB OUTLET

SPLASH WALL PER DETAIL

HEADWALL PER SDRSD-32 MATCH EXIST. FF=185.99

LIMITS OF INUNDATION BY 100-YEAR STORM

GRAPHIC SCALE

0' 10' 20' 30' 40' 60' 80'

SCALE 1"= 20'

DIGALERT

DIAL TOLL FREE 1-800-422-4133 AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

CALIFORNIA COUNCIL OF CIVIL ENGINEERS & LAND SURVEYORS

℄ ELEV SHOWN ON PLAN

3' WIDE-6" PCC SWALE 560-C-3250

20.0' 8.5' 3.0' 8.5' 1% 2% 1%

3" ASPHALT CONC (TYP)

6" CL.2 AB @ 95%

SECTION A-A

SCALE: 1"=5' HORIZONTAL SCALE: 1"=2.5' VERTICAL

FL=181.30 3" WEEP HOELS WHERE SHOWN

10' SUBSTATION MASONRY SCREEN WALL

EXIST VISTA SORRENTO ℄ PKWY

10' EXIST 5' 5' 12' 7' 20' 2% 2:1 3" AC/9" BASE

4' WIDE, 4" PCC SIDEWALK

OIL CONTAINMENT BASIN SEE DETAIL A

TYPE B BROW DITCH PER RSD D-75

VERDURA RETAINING WALL

SECTION B-B

SCALE: 1"=10'

PERIMETER SCREEN WALL

15.00' 10.00' 4' WIDE, 4" PCC SIDEWALK

PROPOSED FENCE

2:1 4.00' 2.50'

PAD ELEV ON PLAN

TYPE B BROW DITCH PER RSD D-75.

20.00' 2% 12.50'

VERDURA RETAINING WALL

SECTION C-C

SCALE: 1"=10'

VARIES

EXISTING GROUND

6.5' 1.5' 0.5'

CLEAN, CRUSHED GRAVEL, TYP.

BASIN CAPACITY 9,458 GAL

DETAIL A

OIL CONTAINMENT BASIN

SCALE: 1"=5'

8" MOUND GROUT

3" 2' 3" CLR 18" 9"

8" CONC BLK SPLASH WALL GROUT CORES SOLID.

#4 BAR @ 24" OC MIN VERTICAL STEEL

#4 BARS FULL LENGTH 24"

EXIST. GRADE

MODIFIED CONCRETE LINED DITCH PER RSD D-75 AT SPLASH WALL

DETAIL B

TYPICAL SPLASH WALL DETAIL

NO SCALE

LENGTH AS SHOWN ON PLANS

9'-0" 6'-5" 6" 1'-4" 4'-3" 3'-8" 3'-10" 7'-2" MAX

SECTION E-E

NO SCALE

1"x8" V GROOVE ROUGH REDWOOD

MASONRY WALL (BEYOND)

GATE LOCKING HARDWARE

SUBSTATION SIDE

2-6" HANDLES

CANE BOLT

3" ASPHALT CONCRETE

FINISH GRADE

SECTION D-D

NO SCALE

NOLTE BEYOND ENGINEERING

REVISIONS

SAN DIEGO GAS & ELECTRIC COMPANY

SAN DIEGO, CALIFORNIA

50 0 50

APPROXIMATE SCALE (feet)

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REFERENCE:

"SITE PLAN, MIRA SORRENTO SUBSTATION", PREPARED BY NOLTE, DATED 2/12/10

LEGEND

EXISTING TOPOGRAPHIC CONTOURS (ELEVATION IN FEET)

PROPOSED TOPOGRAPHIC CONTOURS (ELEVATION IN FEET)

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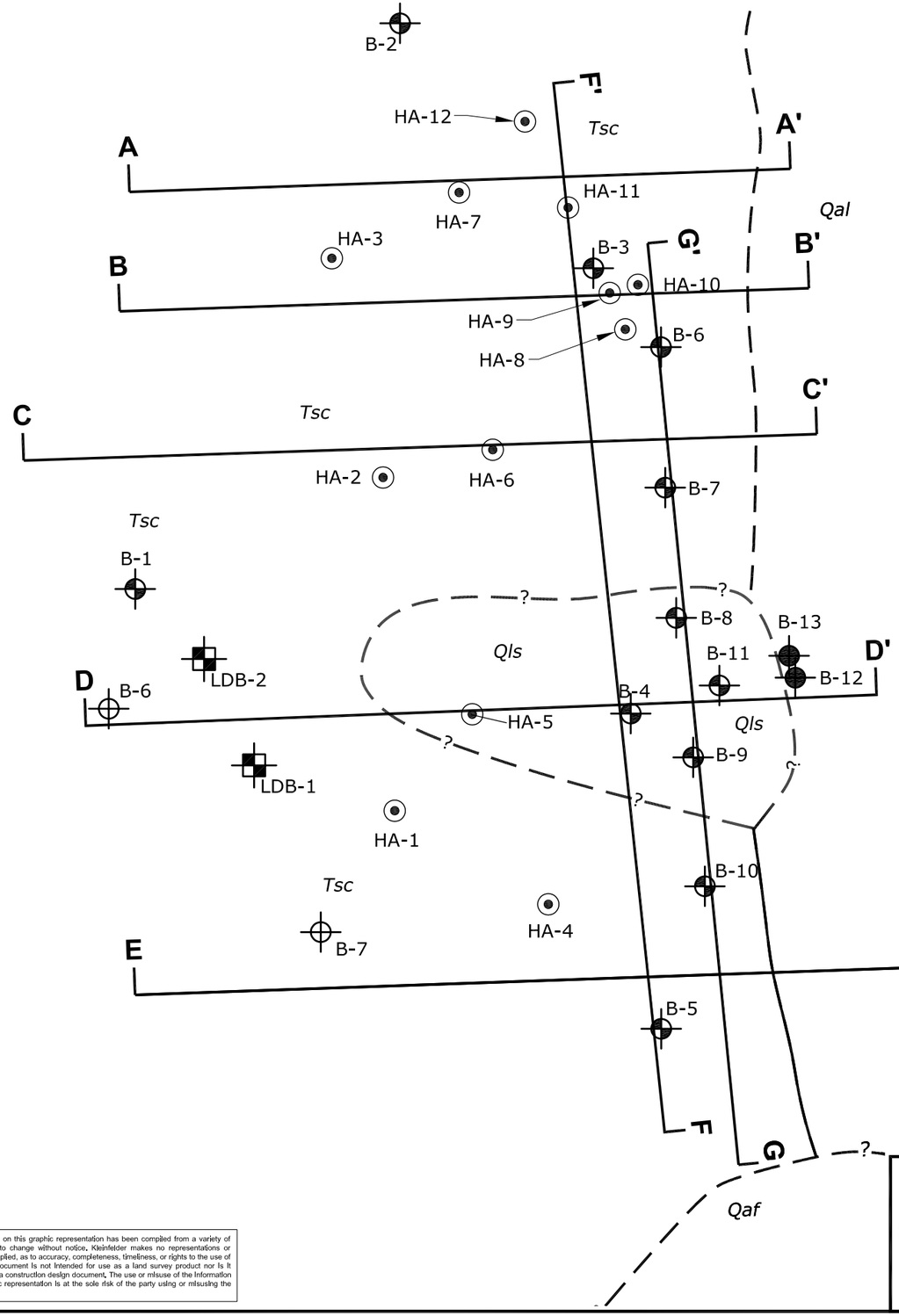
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PROPOSED SUBSTATION PLAN

SDG&E MIRA SORRENTO SUBSTATION SAN DIEGO, CALIFORNIA

PLATE 2



LEGEND

B-7	APPROXIMATE BORING LOCATION, (URS - 2002)
B-11	APPROXIMATE BORING LOCATION (KLEINFELDER - APRIL 2003)
HA-12	APPROXIMATE HAND AUGER LOCATION (KLEINFELDER BETWEEN AUGUST AND SEPTEMBER 2003)
B-13	APPROXIMATE LOCATION OF GROUNDWATER SAMPLING AND PUMP TEST (KLEINFELDER - MAY 2004)
LDB-2	APPROXIMATE LARGE DIAMETER BORING LOCATION (KLEINFELDER - SEPTEMBER 2009)
G G'	GEOLOGIC CROSS-SECTION
?	APPROXIMATE GEOLOGIC CONTACT
120	EXISTING TOPOGRAPHIC CONTOURS (ELEVATION IN FEET)
181	PROPOSED TOPOGRAPHIC CONTOURS (ELEVATION IN FEET)
Qaf	FILL
Qls	LANDSLIDE DEPOSIT
Qal	ALLLUVIUM
Tsc	SCRIPPS FORMATION

REFERENCE:

"SITE PLAN, MIRA SORRENTO SUBSTATION", PREPARED BY NOLTE, DATED 2/12/10

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50 0 50

APPROXIMATE SCALE (feet)

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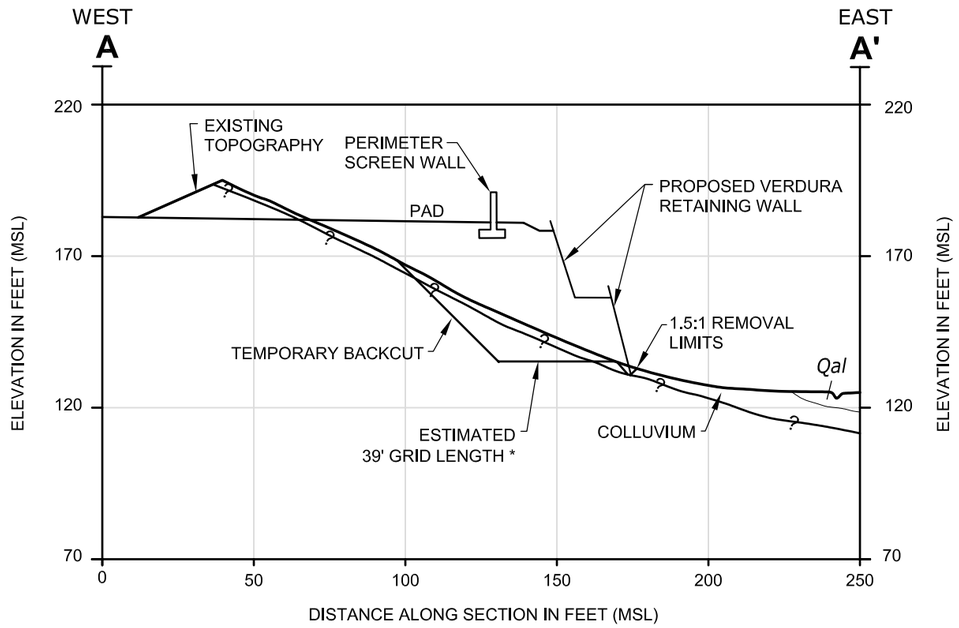
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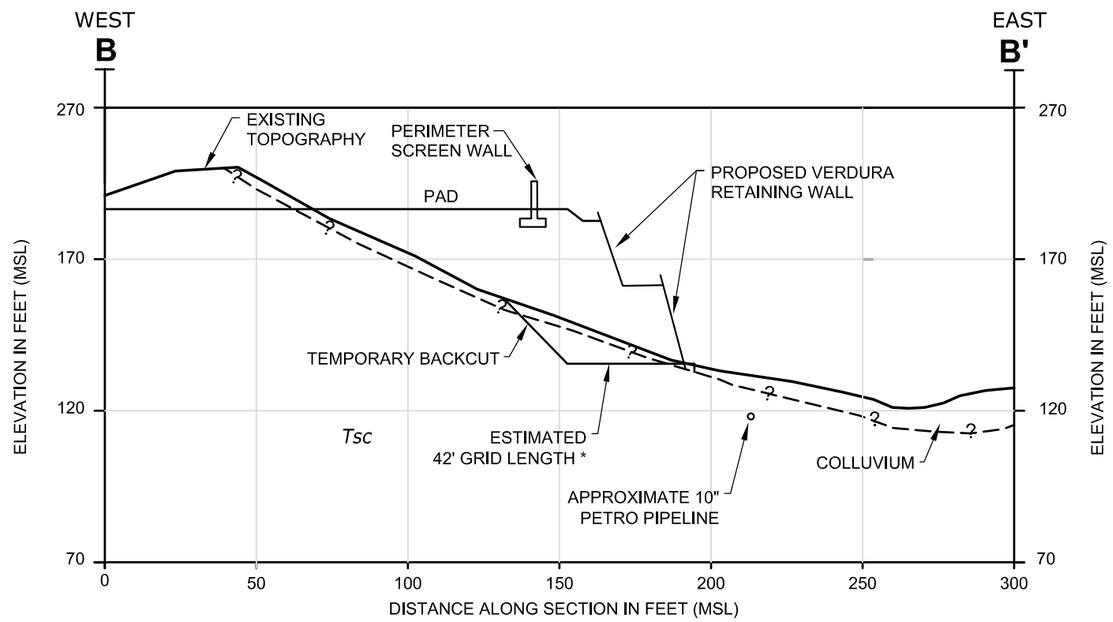
BORING LOCATION PLAN/ GEOLOGIC MAP

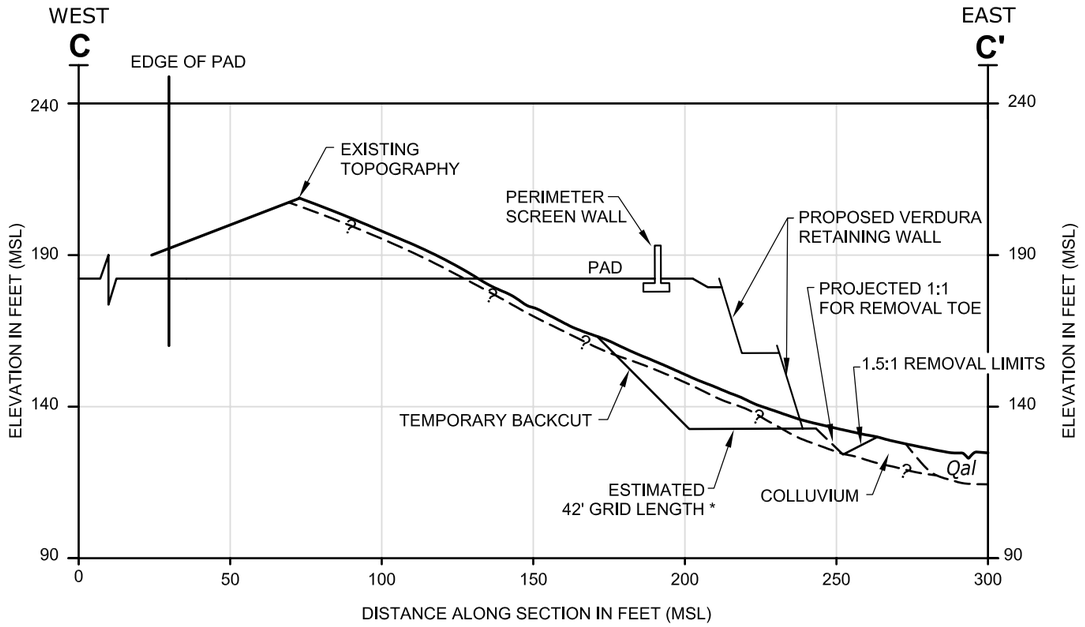
SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE

3







LEGEND

? ? ?	APPROXIMATE GEOLOGIC CONTACT, QUERIED WHERE UNCERTAIN
Qal	ALLUVIUM
Tsc	SCRIPPS FORMATION

NOTE:

* - ESTIMATED GRID LENGTH BASED ON GLOBAL STABILITY ANALYSES

50 0 50

APPROXIMATE SCALE (feet)

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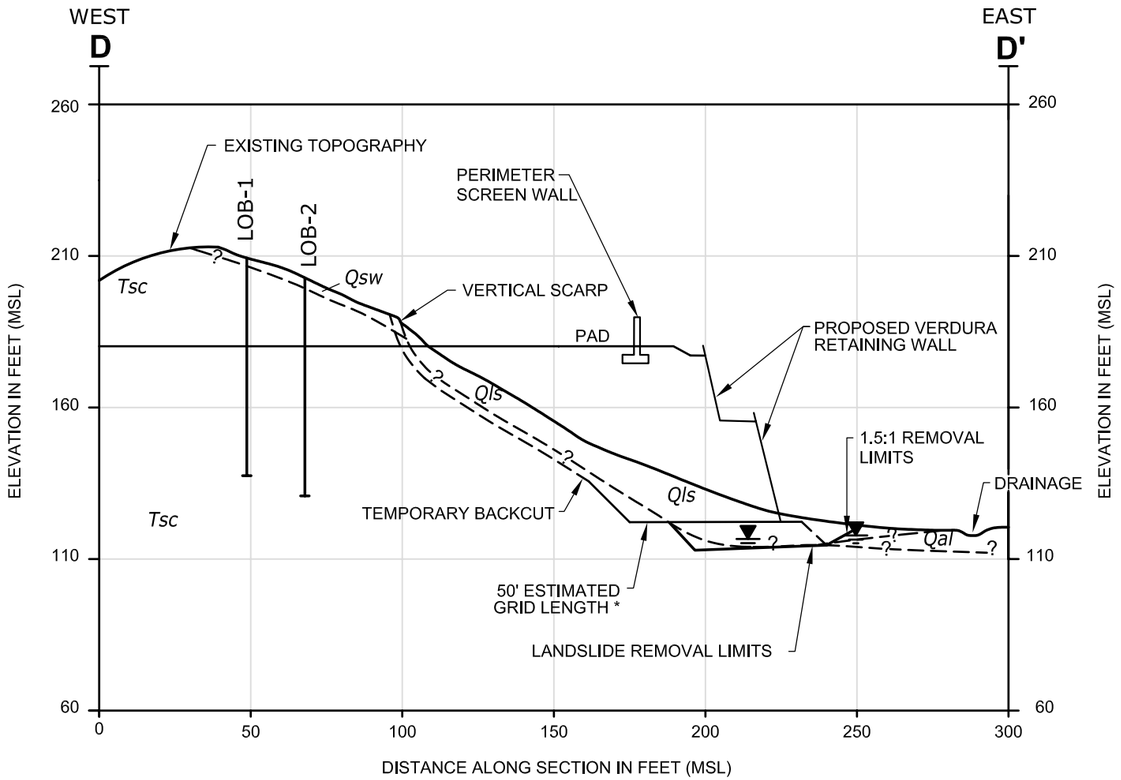
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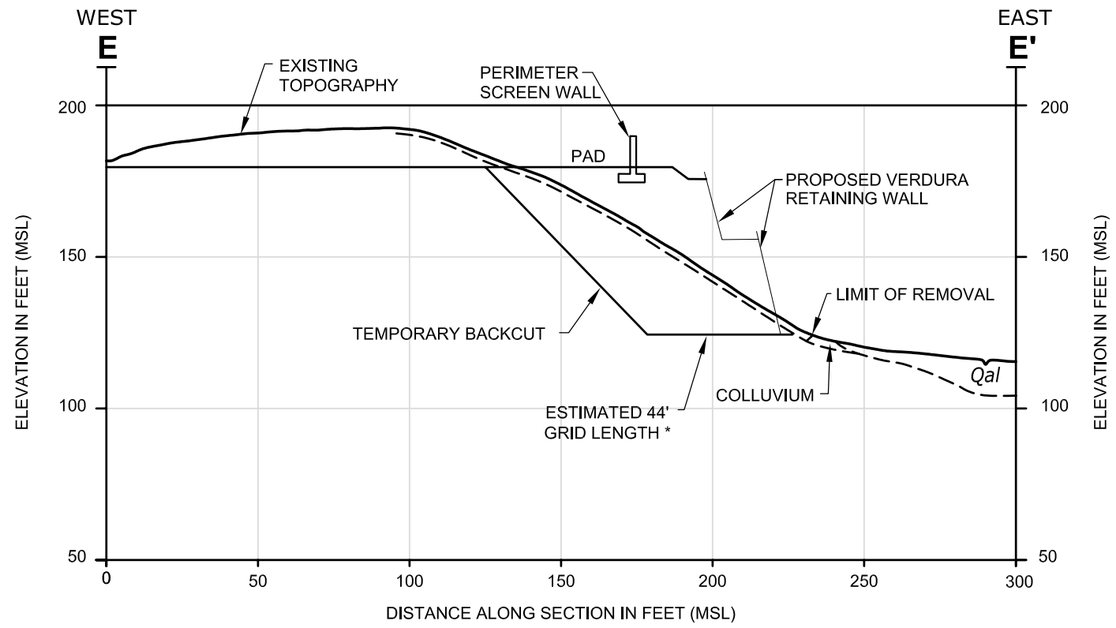
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GEOLOGIC CROSS SECTIONS A-A', B-B', AND C-C'

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE
4





LEGEND

- APPROXIMATE GEOLOGIC CONTACT, QUERIED WHERE UNCERTAIN
- APPROXIMATE GROUNDWATER
- LOB-2 — SOIL BORING
- *Qls* — LANDSLIDE DEBRIS
- *Qsw* — TOPSOIL/COLLUVIUM
- *Qal* — ALLUVIUM
- *Tsc* — SCRIPPS FORMATION

NOTE:

* - ESTIMATED GRID LENGTH BASED ON GLOBAL STABILITY ANALYSES

50 0 50
APPROXIMATE SCALE (feet)

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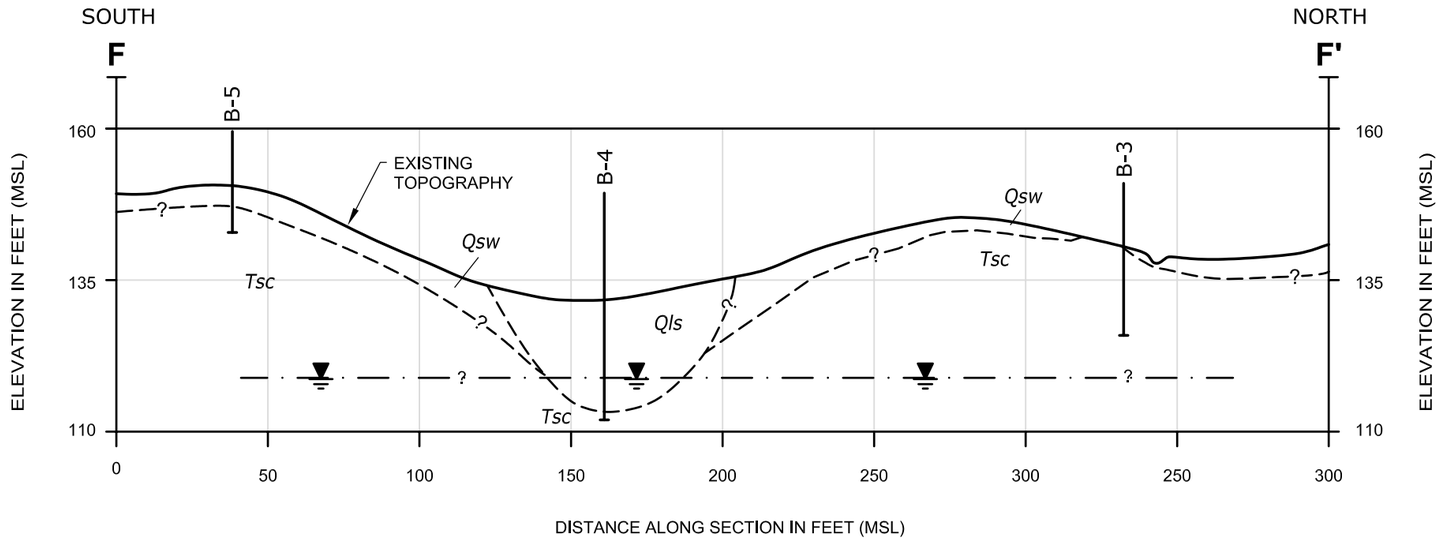
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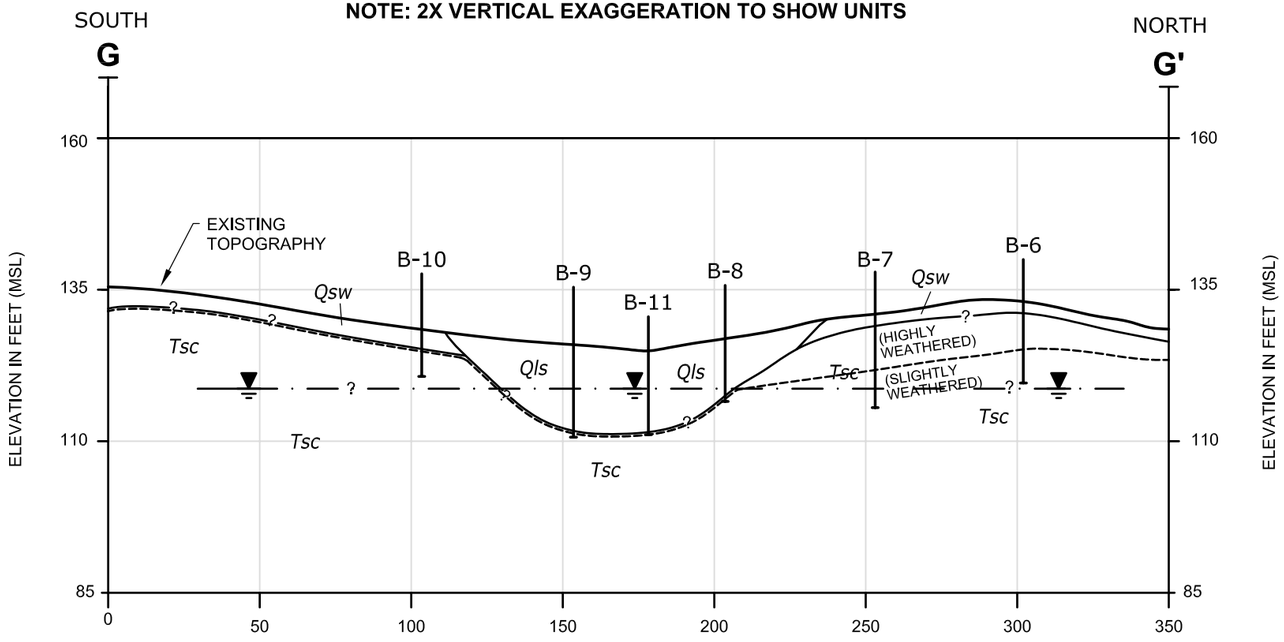
GEOLOGIC CROSS SECTIONS D-D' AND E-E'

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE
5



NOTE: 2X VERTICAL EXAGGERATION TO SHOW UNITS



LEGEND

- APPROXIMATE GEOLOGIC CONTACT, QUERIED WHERE UNCERTAIN
- APPROXIMATE GROUNDWATER
- B-5 SOIL BORING
- *Qls* LANDSLIDE DEBRIS
- *Qsw* TOPSOIL/COLLUVIUM
- *Qal* ALLUVIUM
- *Tsc* SCRIPPS FORMATION

NOTE: 2X VERTICAL EXAGGERATION TO SHOW UNITS

50 0 50
APPROXIMATE HORIZONTAL SCALE (feet)

25 0 25
APPROXIMATE VERTICAL SCALE (feet)

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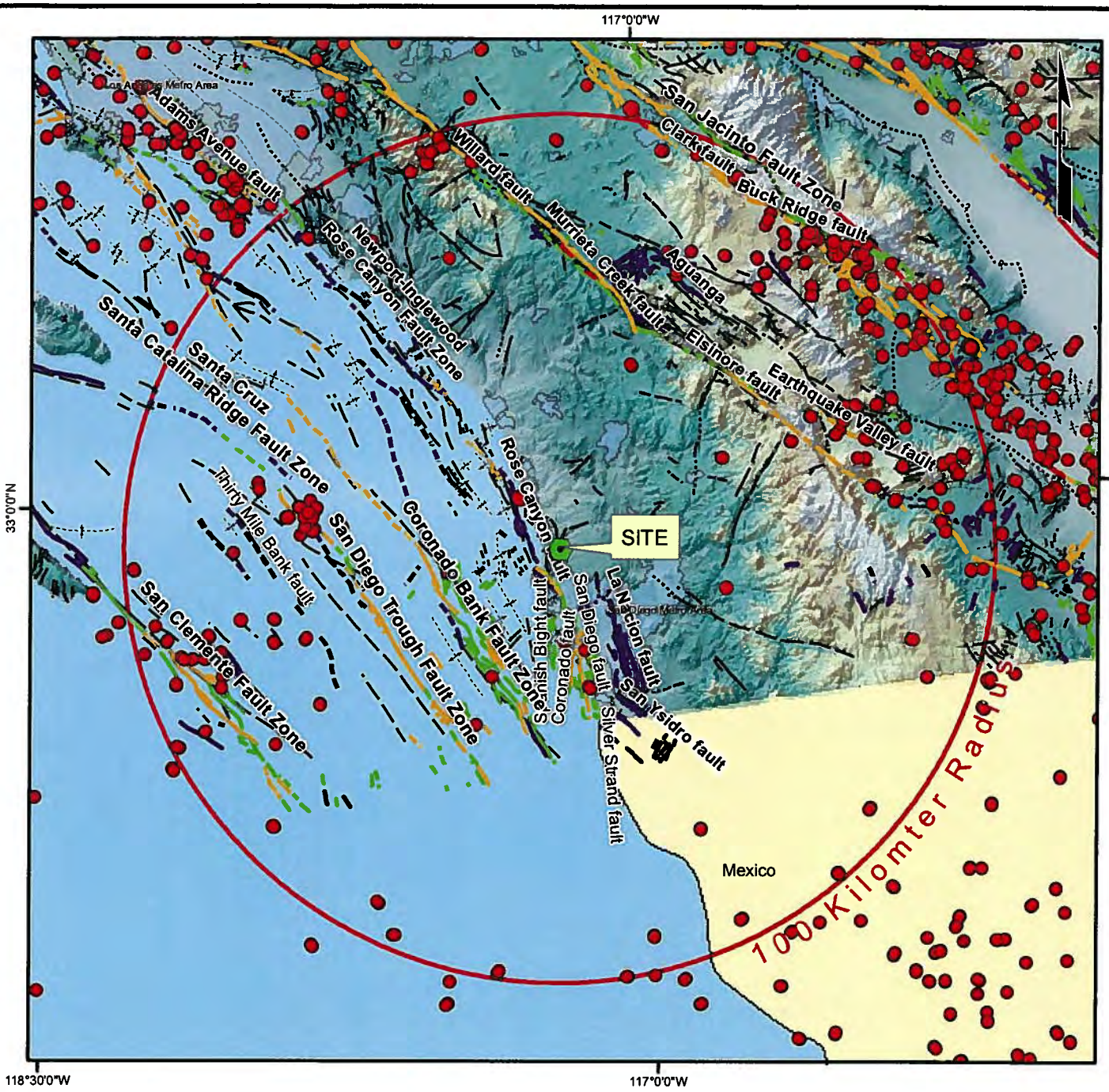
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GEOLOGIC CROSS SECTIONS F-F' AND G-G'

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE
6



Faulting Legend

Quaternary Faults (Bryant, 2005; USGS, 2007)

Historic displacement (< 200 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Late Quaternary displacement (< 750,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Holocene displacement (< 11,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Quaternary displacement (< 1,600,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Pre-Quaternary Geologic Structures (CGS, 2000)
- fault, approx. located
- fault, approx. located, queried
- fault, certain
- fault, concealed
- fault, concealed, queried
- fault, inferred, queried

ANSS Earthquakes

Magnitude
- 4.0 - 5.0
- 5.1 - 6.0
- 6.1 - 7.0
- 7.1 - 8.0
- 8.1 - 9.0

35 17.5 0 35 Kilometers

Source:
Seismicity - Compiled ANSS Database

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REGIONAL FAULT MAP AND EARTHQUAKE EPICENTERS 1898 - OCTOBER 2009

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE
7

LEGEND

- 120 — EXISTING TOPOGRAPHIC CONTOURS (ELEVATION IN FEET)
- 181 — PROPOSED TOPOGRAPHIC CONTOURS (ELEVATION IN FEET)
- G — G' — GEOLOGIC CROSS-SECTION
- APPROXIMATE LIMITS OF LANDSLIDE AREA
- APPROXIMATE LMITS OF TEMPORARY EXCAVATION SLOPE FOR MSE RETAINING WALL
- APPROXIMATE LOCATION OF BACK OF GEOGRID REINFORCEMENT FOR BOTTOM OF MSE RETAINING WALL (GRID LENGTH BASED ON GLOBAL STABILITY)
- APPROXIMATE LOCATION OF CUT/FILL LINE
- APPROXIMATE LIMITS OF GRADING
- ? — APPROXIMATE GEOLOGIC CONTACT

Qaf	FILL
Qls	LANDSLIDE DEPOSIT
Qal	ALLLUVIUM
Tsc	SCRIPPS FORMATION

- 3 FOOT MINIMUM REMOVAL AND RECOMPACTION BELOW SUBSTATION PAD GRADE
- COLLUVIAL REMOVAL ABOVE TEMPORARY EXCAVATION SLOPE AND BELOW SUBATATION PAD
- TEMPORARY EXCAVATION SLOPE
- APPROXIMATE LIMITS OF GEOGRID REINFORCEMENT FOR MSE WALLS

APPROXIMATE LIMITS OF GRADING

CUT/FILL LINE

MIRA SORRENTO PLACE

PARKWAY

SORRENTO

POR PAR 1877 PM 18771

EXISTING S.D. PER 30600-D

SDG&E EASEMENT REC 11-26-1957, BK. 6947, PG. 544 OF O.R.

SDG&E EASEMENT REC 8-30-1917, BK. 740, PG. 445 OF DEEDS.

TRANSMISSION LINE 3

16" PETRO PIPELINE

30" H.P. GAS LINE

NOTE: PARCEL BOUNDARY UNRESOLVED

LIMITS OF INUNDATION BY 100 YEAR STORM

MSE RETAINING WALL

CONTROL HOUSE FF=183.40 PAD=183.10

REFERENCE:

"SITE PLAN, MIRA SORRENTO SUBSTATION", PREPARED BY NOLTE, DATED 2/12/10

30 15 0 30

APPROXIMATE SCALE (feet)

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SCHEMATIC DESIGN ONLY NOT FOR CONSTRUCTION

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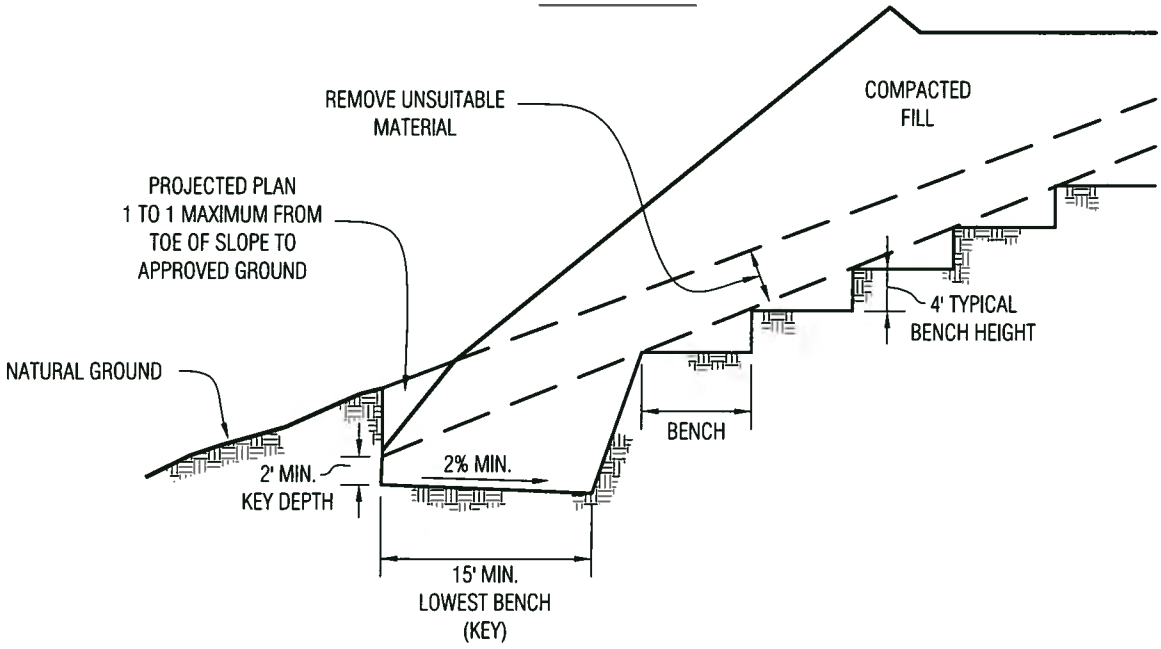
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SCHEMATIC REMEDIAL GRADING PLAN

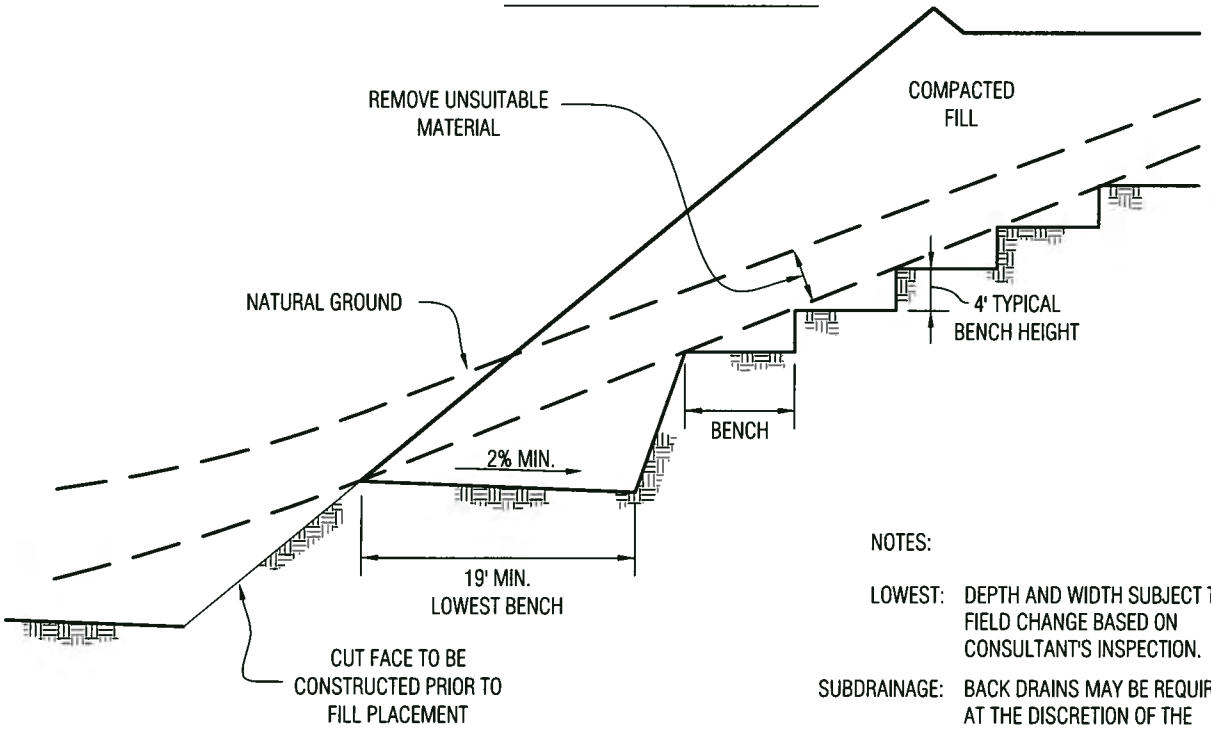
SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE 8

FILL SLOPE



FILL-OVER-CUT SLOPE



NOTES:

LOWEST: DEPTH AND WIDTH SUBJECT TO FIELD CHANGE BASED ON CONSULTANT'S INSPECTION.

SUBDRAINAGE: BACK DRAINS MAY BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL CONSULTANT.

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BENCHING DETAILS

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE
9

APPENDIX A

Boring Logs

APPENDIX A
BORING LOGS

Three separate efforts of field work have been performed at the site with the first two occurring 2003 and a recent field evaluation occurring in September of 2009. The first field evaluation took place in April 2003 and included excavating 12 small diameter borings at the site. Between August 6, 2003 and September 2, 2003 eleven supplemental small diameter borings were performed to further evaluate the potential removal depth of compressible soil along the eastern portion of the proposed site and along the alignment of the easternmost (lower) proposed retaining wall.

The Logs of Borings are presented as Figures A3 through A14, the 2003 and 2009 borings are separated by a divider. A Unified Soil Classification System (USCS) chart and a Boring Log Legend are presented as Figures A1 and A2, respectively. The Logs of Borings describe the earth materials encountered, samples obtained, and show field and laboratory tests performed. The logs also show the general location, boring number, drilling date, and the names of the logger and drilling subcontractor. The borings were logged by an engineer/geologist using the USCS. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Bulk and intact samples of representative earth materials were obtained from the borings.

In-place soil samples were obtained at the hollow stem auger boring locations using a California penetration sampler driven a total of 18-inches (or until practical refusal), into the undisturbed soil at the bottom of the boring. The soil sampled by the California sampler (3-inch O.D., 2.4 inches I.D.) was retained in 6-inch long brass tubes for laboratory testing. An additional 2-inches of soil from each drive remained in the cutting shoe and was usually discarded after visually classifying the soil. The samplers were driven using a 140 pound automatic hammer falling 30-inches. The total number of hammer blows required to drive the sampler the final 12-inches is termed the blow count and is recorded on the Logs of Borings. The blow counts presented on the Logs have not been adjusted for the effects of overburden pressure, input driving energy, rod length, sampler correction, or boring diameter correction.

In preparation for our 2009 field activities, Kleinfelder applied for and obtained a geotechnical boring permit from the County of San Diego Environmental Health Department for our fieldwork. Prior to excavation of the borings, a suitable roadway

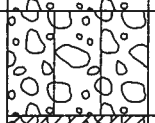
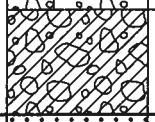
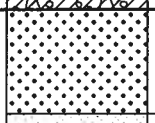
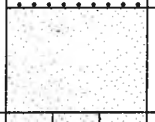
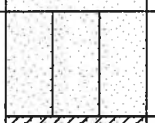
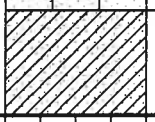
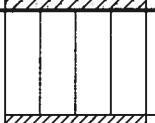
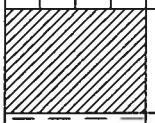
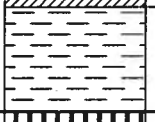
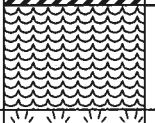
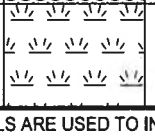
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was graded to allow access to the boring locations and provide a pad for the drill rig set-up. Prior to any subsurface exploration, Kleinfelder notified Underground Service Alert (USA) to clear proposed boring locations of conflicts with utilities.

Our most recent field evaluation was performed between September 15 and September 22, 2009 with the objective of determining the presence of ancient deep seated landslide features. The work consisted of the penetration of two large diameter borings (LDB-1 and LDB-2) along the top of the western ridge to depths of 74 feet below ground surface (bgs). Plate 3 presents the approximate locations of the borings.

The borings were excavated with a bucket auger rig fitted with a 30-inch diameter bucket. Bulk samples of the drill cuttings were obtained at approximate 5 foot depth intervals during the drilling operations. After the borings were excavated, they were visually logged by a certified engineering geologist from our firm. They operation consists of shoring the upper five of the boring with a cylindrical shield. The geologist is then lowered into the hole within a cage and cleans and logs the hole sidewalls starting from the top toward the bottom. This allows observations of both in-place geologic materials and subsurface structures. After completion of the logging the hole is backfilled with both soil cuttings and bentonite chips placed every five feet in one foot thick lifts. The final five feet of the hole is completely filled with bentonite chips.

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MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
		HIGHLY ORGANIC SOILS		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

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SOIL CLASSIFICATION CHART

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE **A1**

PLOTTED: 20 May 2010, 4:26pm, Jpatay
CAD FILE: G:\2010\105945 - sdg & e\ LAYOUT: Soil Classification Chart
ATTACHED IMAGES:
ATTACHED XREFS:

LOG SYMBOLS:



BULK/BAG SAMPLE



MODIFIED CALIFORNIA SAMPLER
(2-1/2 inch outside diameter)



CALIFORNIA SAMPLER
(3 inch outside diameter)



STANDARD PENETRATION
SPLIT SPOON SAMPLER
(2 inch outside diameter)



NO SAMPLE RECOVERY



SHELBY TUBE



WATER LEVEL (level after completion)



WATER LEVEL (level where first encountered)

ABBREVIATIONS:

SA - (38%) SIEVE ANALYSIS (PERCENT PASSING #200 SIEVE)
WA - (38%) - ONE POINT GRAIN SIZE ANALYSIS (PERCENT PASSING #200 SIEVE)
PI - PLASTICITY INDEX
LL - LIQUID LIMIT
DS - DIRECT SHEAR TEST
'R' - R-VALUE TEST
CORR - CORROSIVITY TEST
EI - UBC EXPANSION INDEX
LC - LABORATORY COMPACTION TEST
M&D - MOISTURE & DENSITY
PP - POCKET PENETROMETER
NR - NO SAMPLE RECOVERY
CONSOL - CONSOLIDATION TEST

GENERAL NOTES:

1. *Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.*
2. *No warranty is provided as to the continuity of soil conditions between individual sample locations.*
3. *Logs represent general soil conditions observed at the point of exploration on the date indicated.*
4. *In general, Unified Soil Classification designations presented on the logs were evaluated by visual methods only. Therefore, actual designations (based on laboratory tests) may vary.*

CONSISTENCY CRITERIA BASED ON FIELD TESTS

RELATIVE DENSITY	SPT* (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	0 - 15
Loose	4 - 10	15 - 35
Medium Dense	10 - 30	35 - 65
Dense	30 - 50	65 - 85
Very Dense	>50	85 - 100

		TORVANE	POCKET** PENETROMETER
CONSISTENCY	SPT (# blows/ft)	UNDRAINED SHEAR STRENGTH (tsf)	UNCONFINED COMPRESSIVE STRENGTH
Very Soft	<2	<0.13	<0.25
Soft	2 - 4	0.13 - 0.25	0.25 - 0.5
Medium Stiff	4 - 8	0.25 - 0.5	0.5 - 1.0
Stiff	8 - 15	0.5 - 1.0	1.0 - 2.0
Very Stiff	15 - 30	1.0 - 2.0	2.0 - 4.0
Hard	>30	>2.0	>4

* NUMBER OF BLOWS OF 140 POUNDS HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1 3/8 INCH I.D.) SPLIT BARREL SAMPLER (ASTM-1586 STANDARD PENETRATION TEST)

** UNCONFINED COMPRESSIVE STRENGTH IN TONS/SQ. FT. READ FROM POCKET PENETROMETER

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

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KEY TO LOGS

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE
A2

PLOTTED: 20 May 2010, 4:25pm, Jpatay
CAD FILE: G:\2010\105945 - sdg & e\ LAYOUT: Key to Logs
ATTACHED IMAGES:
ATTACHED XREFS:

APPENDIX A.1

Large Diameter Boring Logs (2009 Field Work)

DATE DRILLED:	9/15/09	WATER DEPTH:	Not Encountered
DRILLING COMPANY:	PACIFIC DRILLING	DATE OBSERVED:	9/15/08
DRILLING METHOD:	Large Diameter Bucket Auger	GROUND ELEVATION:	± 206 feet MSL*
		LOGGED BY:	EK
HOLE DIAMETER:	30 inches	REVIEWED BY:	SHR

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
205							**ARTIFICIAL FILL (Qaf):** Fill material derived from Scripps Formation for access road filling.			
							TOP SOIL: Sandy CLAY (CL), brown, moist, firm.			WA(32%) LC DS @ 5.5' 10/S65E Bedding @ 6' 2' 70/S65E 2 ' Fracture @ 8' 4/S50W Bedding @ 9' 80/S5W Fracture @ 10' 4/S55W Bedding @ 11' 80/S65E Fracture, 85/S80E Fracture @ 12.5' 6/S60W Bedding @ 14.5' 2" 4/S50W Sandstone bed @ 18.3' 5/N85W Bedding @ 20.1' 3/S60W Bedding @ 22.3' 4/S45W Contact WA(60%) LC DS @ 25' 6/N75W Bedding @ 27.2' 3/N25W
							SCRIPPS FORMATION (Tsc):			
200	5				1		Silty SANDSTONE, yellowish brown, moist, moderately cemented, fine grained sand.			
							Concreted SANDSTONE, light gray, highly cemented, fine grained sand.			
							Silty CLAYSTONE, light gray to yellow-brown, moist, indurated, medium plasticity, interbedded with thin sand laminations spaced between 3 to 6 inches.			
195	10				2					
							Silty SANDSTONE, yellowish brown, moist, moderately cemented, fine grained sand, low plasticity, Fe oxidation concentrated along thin laminations.			
							Silty CLAYSTONE, light gray to yellow-brown, moist, indurated, medium plasticity.			
190	15				3					
							Silty SANDSTONE, yellowish brown, moist, moderately cemented, fine grained sand.			
							Silty CLAYSTONE, light gray to yellow-brown, moist, indurated, medium plasticity, interbedded with 0.25" to 0.5" sandstone laminations every 3" to 6".			
185	20				4		Silty SANDSTONE, yellowish brown, moist, moderately cemented, fine grained sand, low plasticity.			
							Silty CLAYSTONE, light gray to yellow-brown, moist, indurated, medium plasticity, contains several short discontinuous fractures.			
180	25				5					
							Silty SANDSTONE, yellowish brown, moist, moderately cemented, fine grained sand, finely lamination with some cross-bedding.			
							Silty SANDSTONE, light reddish brown, moist, moderately cemented, fine to medium grained cross-bedded sand, contains thin			

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SAN DIEGO, CALIFORNIA

LOG OF BORING LDB-1

PLATE

A3

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
							(Continued From Previous Page)			
-175		X			6		laminations of calcite.			Contact with minor relief indicating erosion @ 33' 4/S55W Highly oxidized bed
	35	X								
-170		X			7					@ 36' 3/S85W Bedding
							Concreted SANDSTONE, light gray, highly cemented, fine grained sand, with silt.			
							Silty SANDSTONE, light reddish brown, moist, moderately cemented, fine to medium grained sand.			@ 39.3' 6/S85W Contact slight relief indicating erosion DS @ 42' Subhorizontal bedding
	40	X					Silty CLAYSTONE, medium gray to yellow brown, moist, indurated, medium plasticity, Interbedded with thin lamination of silty sandstone.			
-165					8					
	45	X								@ 45' 2/S85W Bedding @ 47' 2/N85W 1" Dark gray claystone bed @ 47 6' Becomes highly indurated, contains subhorizontal gypsum laminations @ 50.3' 2/N70W 2" Fine silty sandstone bed @ 53.2' 5/S60W 6" Fine silty sandstone bed @ 55.2' 4/N55W Bedding contact @ 61.2' 10/S5W contact @ 61.5' 14/N80E
-160					9					
	50	X								
-155					10					
	55	X								
-150					11		Silty SANDSTONE, medium brown, moist, moderately cemented, fine grained sand, low plasticity, massive.			
							Silty CLAYSTONE, light brown, moist, indurated, medium plasticity.			
							CLAYSTONE, dark gray, highly indurated, contains thin gypsum laminations, minor small marine fossils.			
	60	X								
-145					12		Silty CLAYSTONE, light brown, moist, indurated, medium plasticity.			
							Silty SANDSTONE, light reddish-brown, moist, moderately cemented, fine to medium cross bedded sand, low plasticity.			
							Concreted SANDSTONE, light gray, highly cemented.			

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LOG OF BORING LDB-1

PLATE

A4

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
							(Continued From Previous Page)			
140	65						CLAYSTONE, gray, moist, indurated.			Cross bedding
							Interbedded CLAYSTONES and SANDSTONES (1" to 6" in thickness).			@ 67.6' 5/N60W Bedding
		X			13		CLAYSTONE, light gray to yellow brown, moist, indurated, with 3" to 6" interbedded silty sandstone beds.			
135	70									
130	75						*Elevations obtained from topography shown on "Site Plan, Mira Sorrento Substation" dated 2/12/10, prepared by Nolte Engineering. -Total boring depth 74 feet bgs -Groundwater not encountered -Boring backfilled with soil cuttings and 1 foot lifts of bentonite chips every five feet. hole capped with 5 foot plug of bentonite chips.			
125	80									
120	85									
115	90									
110	95									

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LOG OF BORING LDB-1

PLATE

A5

DATE DRILLED:	9/15/09	WATER DEPTH:	Not Encountered
DRILLING COMPANY:	PACIFIC DRILLING	DATE OBSERVED:	9/15/09
DRILLING METHOD:	Large Diameter Bucket Auger	GROUND ELEVATION:	± 210 feet MSL*
		LOGGED BY:	EK
HOLE DIAMETER:	30 inches	REVIEWED BY:	SHR

ELEVATION (feet)	DEPTH (feet)	SAMPLES BULK	SAMPLES DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
							SCRIPPS FORMATION (Tsc):			
							Silty CLAYSTONE, light gray to yellow brown, moist, indurated, medium plasticity, interbedded with very fine laminated sandstone layers spaced 1" to 12".			
205	5				1					@ 5.2' 2/N80W Bedding SA(78%) PI
							Silty SANDSTONE, light gray to yellow brown, moist, moderately cemented, fine grained sand, reddish brown oxidation along bedding planes.			@ 8.3' 3/S25E Bedding @ 9.1' 4/S75W Erosion surface SA(34%)
200	10				2					@ 12.6' 10/S20E Cross bedding
195	15									@ 15.2' 4/S/15W 2" Silty claystone bed
							Sandy SILTSTONE, Yellow brown, moist, indurated.			@ 15.4' 4/S25W Bedding
					3		Silty CLAYSTONE, light gray to yellow brown, moist, indurated, medium plasticity, interbedded with very fine laminated sandstone.			@ 17.7' 6/S50W Contact SA(60%) PI
190	20						Silty SANDSTONE			@ 20.2' 6/S45W Bedding
							Silty CLAYSTONE with interbedded Silty SANDSTONE, light gray to yellow brown, moist, indurated, medium plasticity.			
185	25				4					@ 25.7' 4/S25W Bedding SA(22%) EI
							Silty SANDSTONE, Yellow brown, moist, moderately cemented, fine grained sand.			@ 27.5' 8/N25W
							Silty CLAYSTONE, light gray to yellow brown, moist, indurated, medium plasticity.			

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SAN DIEGO, CALIFORNIA

LOG OF BORING LDB-2

PLATE

A6

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
							(Continued From Previous Page)			
					5		Silty SANDSTONE, light gray, moist, moderated cemented, fine grained sand.			Bedding @ 28.1' 6/S25W
							Silty CLAYSTONE, light gray to yellow brown, moist, indurated, medium plasticity.			Contact @ 32' 8/S55W
					6					Bedding @ 33.4' 2" Sandstone bed
175	35						Silty SANDSTONE, light reddish brown, moist, moderately cemented, fine to coarse grained sand, low plasticity, well laminated.			@ 34.3' 78/S30E 3.5' Fracture
							-grain size increase to medium.			SA(54%)
					7					@ 35.7' 4/S45W Bedding
170	40						-becomes light gray with reddish brown mottling, massive, decrease in fines.			@ 37' 70/S25W 4' Fracture
							CLAYSTONE, light gray to yellow brown, moist, indurated, medium plasticity, oxidation along bedding surfaces.			
165	45				8					@ 46.1' 2/S55E Contact
							CLAYSTONE, dark gray, highly indurated, contains minor small marine fossils.			
							CLAYSTONE, light gray to yellow brown, moist, indurated, medium plasticity, oxidation along bedding surfaces.			@ 49.4' 3/S70E Bedding
160	50				9					SA(61%)
							CLAYSTONE, dark gray, highly indurated, silty, contains, minor small marine fossils, required coring			
							Silty CLAYSTONE: light gray to yellow brown, moist, indurated, medium plasticity, oxidation along bedding surfaces.			@ 55' 4/S75W Bedding
155	55						Silty SANDSTONE, light reddish brown, moist, moderated cemented, fine grained sand, well laminated.			@ 56' 10/S55W Bedding
					10		Silty CLAYSTONE, light gray to yellow brown, moist, indurated, medium plasticity, oxidation along bedding surfaces.			@ 58.9' 8/S70W 5" Sandstone bed
150	60									@ 61.6' 6/S70W 5" Sandstone bed

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LOG OF BORING LDB-2

PLATE

A7

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
							(Continued From Previous Page)			
145	65									@ 65.3' 8/S45W 10" Sandstone bed
		X			11		Silty SANDSTONE, light reddish brown, moist, moderately cemented, fine grained sand, well laminated.			
140	70									
135	75						*Elevations obtained from topography shown on "Site Plan, Mira Sorrento Substation" dated 2/12/10, prepared by Nolte Engineering. -Total boring depth 74 feet bgs -Groundwater not encountered -Boring backfilled with soil cuttings and 1 foot lifts of bentonite chips every five feet. hole capped with 5 foot plug of bentonite chips.			
130	80									
125	85									
120	90									
115	95									

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LOG OF BORING LDB-2

PLATE
A8

DATE DRILLED:	4/29/2003	WATER DEPTH:	None
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	4/29/2003
DRILLING METHOD:	Limited Access Mole drill rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±219 feet MSL
		LOGGED BY:	R. Stroh
HOLE DIAMETER:	6" Hollow Stem Auger	REVIEWED BY:	K. Crennan

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
215	5		■	77	1		**TOPSOIL/COLLUVIUM:** SANDY CLAY (CL), dark brown to brown, damp to moist, firm **SCRIPPS FORMATION:** SANDY CLAYSTONE, light yellow-brown to light brown, damp to moist, well indurated, slightly micaceous		18.7	
			⊠	50/1"	2					R=19 EI=83
210	10						High drilling effort, (refusal after 45 minutes of no forward progress) Total depth of boring 8.2 feet No groundwater observed No caving observed Boring backfilled with hydrated bentonite chips			
205	15									
200	20									
195										

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LOG OF BORING 1

FIGURE
A3

DATE DRILLED:	4/8/2003	WATER DEPTH:	None
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	4/08/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±173 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
170	0			50/6"	1		**TOPSOIL/COLLUVIUM:** CLAYEY SILTY SANDSTONE (SM), brown, dry to moist, soft Stiff; hard drilling			SA=52.6 PI=20
							SCRIPPS FORMATION:			
	5			50/3"	2		CLAYEY SILTSTONE, light yellow-brown mottled with orange, dry, fine grained, moderate cementation, moderately weathered Refusal			
165							Total depth of boring at 5 feet No groundwater observed No caving observed Boring backfilled with bentonite chips			
	10									
160										
	15									
155										
	20									
150										

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LOG OF BORING 2

FIGURE
A4

DATE DRILLED:	4/7/2003	WATER DEPTH:	None
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	4/07/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±138 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
135	0			56	1		**SCRIPPS FORMATION:** CLAYEY SILTSTONE, light brown, dry to moist, highly weathered, pinhole porosity SILTY SANDSTONE, light brown to red-brown mottled with olive gray, dry to moist, fine-grained, weakly cemented, moderately weathered	101.5	9.9	
	5			50/6"	2		Slight pinhole porosity CLAYEY SILTSTONE/SANDSTONE, olive gray to light brown, moist, weakly to moderately indurated, slightly weathered	115.5	15.0	
130										
	10			50/1"	3					
125										
	15			50/4"	4		Refusal Total depth of boring at 14.5 feet No groundwater observed No caving observed Boring backfilled with bentonite chips	90.9	18.9	
120										
	20									
115										

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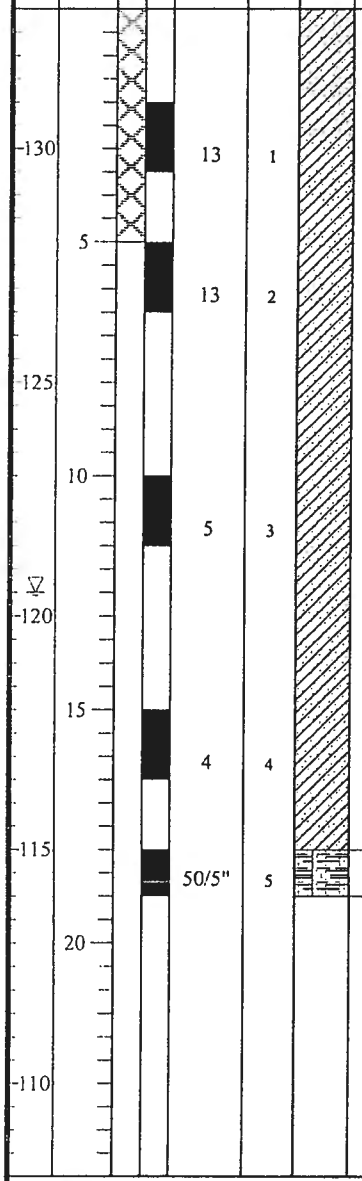
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SAN DIEGO, CALIFORNIA

LOG OF BORING 3

FIGURE
A5

DATE DRILLED:	4/7/2003	WATER DEPTH:	±12.5' MSL
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	4/07/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±133 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh



SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
LANDSLIDE DEPOSIT:			
CLAYEY SAND (SC), brown, dry to moist, loose		7.0	
Moist		9.0	
Wet to saturated		22.5	
SCRIPPS FORMATION:			
CLAYEY SILTSTONE/SANDSTONE, olive gray, dry, weak to moderate cementation, high drilling effort (little depth gain) Refusal Total depth of boring at 19 feet Groundwater observed at 12.5 feet No caving observed Boring backfilled with bentonite chips			

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SAN DIEGO, CALIFORNIA

LOG OF BORING 4

FIGURE
A6

DATE DRILLED:	4/7/2003	WATER DEPTH:	None
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	4/07/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±143 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
140	0			8	1C		**TOPSOIL/COLLUVIUM:** CLAYEY SANDY SILT (ML), brown, dry to moist, medium stiff, fine-grained sands			
	5			55	2B 2C		**SCRIPPS FORMATION:** SANDY SILTSTONE, light brown, dry, weak to moderate cementation, fine-grained, moderately weathered Light brown mottled with orange			
135				50/2"	3C		Refusal Total depth of boring at 8.3 feet No groundwater observed No caving observed Boring backfilled with bentonite chips			
	10									
130										
	15									
125										
	20									
120										

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LOG OF BORING 5

FIGURE
A7

DATE DRILLED:	8/29/2003	WATER DEPTH:	None
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	8/29/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±135 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
							TOPSOIL/COLLUVIUM:			
							SANDY CLAY (CL), brown to dark brown, moist, firm			
							SCRIPPS FORMATION:			
				65	1		CLAYEY SILTSTONE, light brown, mottled red-brown, moist, highly weathered, slightly porous, with iron staining			
130	5			53	2		Less porosity			
125	10			55/7"	3		Moderate drilling effort, becomes unweathered			
120	15			50/3"	4		Total depth 15.2 feet No groundwater observed No caving observed Boring backfilled with cuttings and bentonite chips			
115	20									

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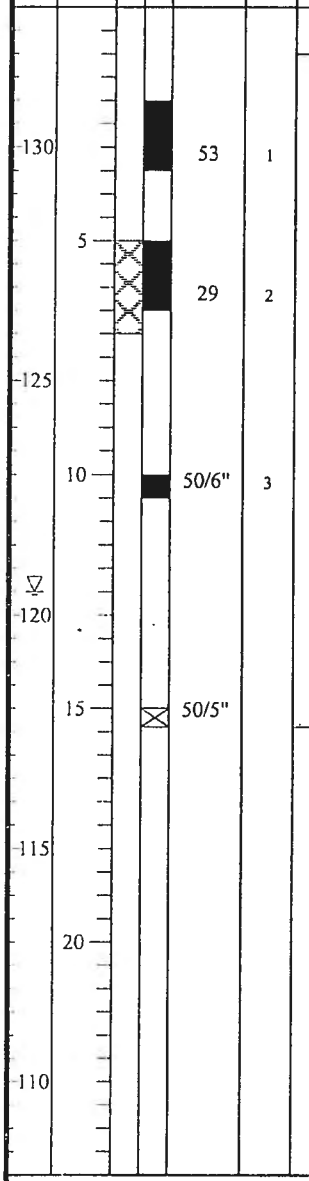
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SAN DIEGO, CALIFORNIA

LOG OF BORING 6

FIGURE
A8

DATE DRILLED:	8/29/2003	WATER DEPTH:	±12.5' MSL
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	8/29/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±133 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh



SOIL DESCRIPTION AND CLASSIFICATION

DRY UNIT WEIGHT (pcf) | MOISTURE CONTENT (%) | COMMENTS/ ADDITIONAL TESTS

TOPSOIL/COLLUVIUM:

CLAYEY SILT (ML), brown, dry to moist, firm

SCRIPPS FORMATION:

SILTY SANDSTONE with some CLAY, red-brown intermixed with light gray, moist, fine-grained, highly weathered, slightly porous

Moderate drilling effort

Becomes unweathered

Becomes saturated

Total depth 15.4 feet
Groundwater at 12.5 feet
No caving observed
Boring backfilled with cuttings and bentonite chips

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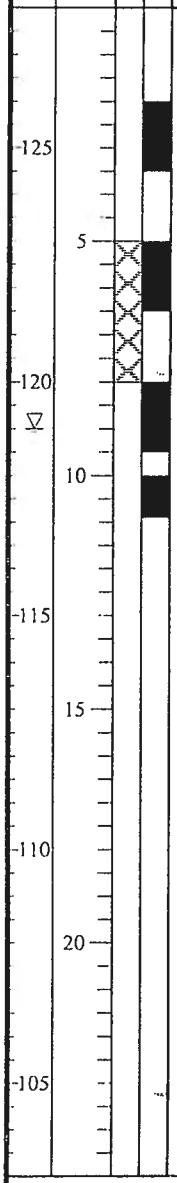
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LOG OF BORING 7

FIGURE
A9

DATE DRILLED:	8/29/2003	WATER DEPTH:	±9' MSL
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	8/29/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±128 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh



SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
LANDSLIDE DEPOSIT: CLAYEY SAND (SC), brown, moist, loose, fine-grained, slightly porous to porous Increase in moisture content, no visible porosity Increase in drilling effort			
SCRIPPS FORMATION: SILTSTONE/CLAYSTONE, olive-brown to brown, moist to saturated, weakly indurated, slightly micaceous, slightly fractured Becomes gray to olive gray			
Total depth 10.9 feet Groundwater at 9.0 feet No caving observed Boring backfilled with cuttings and bentonite chips			

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LOG OF BORING 8

FIGURE
A10

DATE DRILLED:	9/2/2003	WATER DEPTH:	±8' MSL
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	9/2/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±127 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
125	0			8	1		**LANDSLIDE DEPOSIT:** CLAYEY SAND (SC), brown, moist, loose, fine-grained, porous			
	5			7	2		Increase in moisture content, slightly porous			
120							Saturated			
	10			4						
115										
	15			50/4"						
				50/1"			**SCRIPPS FORMATION:** SILTSTONE/CLAYSTONE, olive gray mottled with brown, moist to wet, weakly indurated			
110							Refusal at 16 feet Total depth 16.1 feet Groundwater at 8.0 feet Some caving observed Boring backfilled with cuttings and bentonite chips			
	20									
105										

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SAN DIEGO, CALIFORNIA

LOG OF BORING 9

FIGURE
A11

DATE DRILLED:	9/2/2003	WATER DEPTH:	None
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	9/2/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±128 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
125	0						**TOPSOIL/COLLUVIUM:**			
							CLAYEY SILT (ML), brown with yellow-brown, moist, soft, with siltstone fragments			
				52	1		**SCRIPPS FORMATION:**			
	5						SILTSTONE/CLAYSTONE, reddish-brown to yellow-brown, dry to moist, moderately indurated, fractured			
				50/2"	2					
120										
				50/2"						
	10						Refusal at 9 feet Total depth 10.1 feet No groundwater observed No caving observed Boring backfilled with cuttings and bentonite chips			
115										
	15									
110										
	20									
105										

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

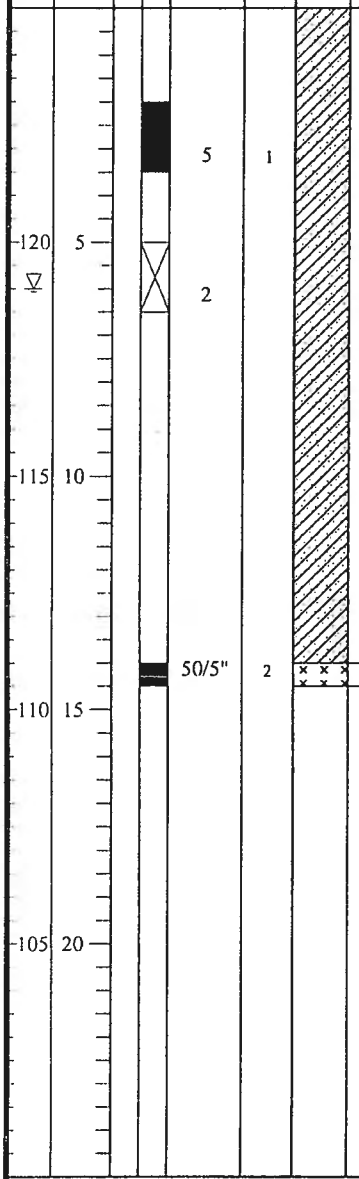
PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING 10

FIGURE
A12

DATE DRILLED:	9/2/2003	WATER DEPTH:	±6' MSL
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	9/2/2003
DRILLING METHOD:	Limited Access Tripod Rig, 140 lb hammer, 30" drop, Cathead and rod	GROUND ELEVATION:	±125 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	R. Stroh



SOIL DESCRIPTION AND CLASSIFICATION

LANDSLIDE DEPOSIT:

CLAYEY SAND (SC), brown, moist, very loose, fine-grained, slightly porous

Saturated

SCRIPPS FORMATION:

SILTSTONE/CLAYSTONE, reddish brown to yellow-brown intermixed with gray, dry to moist, moderately indurated, slightly fractured

Refusal at 14 feet
Total depth 14.4 feet
Groundwater at 6 feet
Some caving observed
Boring backfilled with cuttings and bentonite chips

DRY UNIT WEIGHT (pcf)

MOISTURE CONTENT (%)

COMMENTS/ ADDITIONAL TESTS

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING 11

FIGURE
A13

DATE DRILLED:	5/24/2004	WATER DEPTH:	4 feet
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	05/24/2004
DRILLING METHOD:	Limited Access Tri-pod Rig, 140 lb. hammer, 30" drop	GROUND ELEVATION:	±121.5 feet
		LOGGED BY:	JMK
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	KMC

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS	WELL DIAGRAM
121	1						**ALLUVIUM:**				Solid 2" dia. PVC pipe
							CLAYEY SAND (SC), brown, moist, fine to medium grained				
120	2										Bentonite Seal
119	3										
118											
	4						Groundwater at 4 feet				
117											
	5		■								
116			■								
	6		■	2	1						Slotted 2" dia. PVC Pipe
115	7										
114	8										Filter Sand
113											
	9						Increase in driling effort at 9 feet				
112							**SCRIPPS FORMATION:**				
	10										Solid 2" dia. PVC pipe
111							SILTSTONE, olive brown, wet, weakly indurated				
	11						Bottom of boring at 10.5 feet Groundwater obsereved at 4 feet No caving observed				
110											
	12										
109											
	13										
108											
	14										
107											

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING 12

FIGURE
A14

DATE DRILLED:	5/24/2004	WATER DEPTH:	4 feet
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	05/24/2004
DRILLING METHOD:	Limited Access Tri-pod Rig, 140 lb. hammer, 30" drop	GROUND ELEVATION:	±121.5 feet
		LOGGED BY:	JMK
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	KMC

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS	WELL DIAGRAM
121	1						**ALLUVIUM:** CLAYEY SAND (SC), brown, moist, fine to medium grained				Solid 2" dia. PVC pipe
120	2										Bentonite Seal
119	3										
118	4						Groundwater at 4 feet				
117	5										
116	6										Slotted 2" dia PVC Pipe
115	7										
114	8										Filter sand
113	9										
112	10						Very hard drilling **SCRIPPS FORMATION:** SILTSTONE, olive brown, wet, weakly indurated				
111	11										
110	12						Bottom of boring at 12 feet Groundwater observed at 4 feet No caving observed				Solid 2" dia. PVC pipe
109	13										
108	14										
107											

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING 13

FIGURE
A15

DATE DRILLED:	4/16/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	4/16/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±178 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
175	0	X			1		**TOPSOIL/COLLUVIUM:**			
		X			2		CLAYEY SILT (ML), dark brown, dry to moist, soft			
							SCRIPPS FORMATION:			
							CLAYEY SILTSTONE, yellow-brown, dry to moist, weakly to moderately indurated			
	5						Refusal			
							Total depth of hand auger at 2.5 feet			
							No groundwater observed			
							No caving observed			
170							Boring backfilled with cuttings			
	10									
165										
	15									
160										
	20									
155										

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA1

FIGURE
A16

DATE DRILLED:	4/16/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	4/16/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±180 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
		X			1		**TOPSOIL/COLLUVIUM:**			
		X			2		CLAYEY SILT with TORREY SANDSTONE (ML), dark yellow brown, dry to moist			
							SCRIPPS FORMATION:			
175	5						CLAYEY SILTSTONE, yellow brown, dry to moist, weak to moderate induration Refusal Total depth of hand auger at 2 feet No groundwater observed No caving observed Boring backfilled with cuttings			
170	10									
165	15									
160	20									

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA2

FIGURE
A17

DATE DRILLED:	4/16/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	04/16/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±180 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
					1		**TOPSOIL/COLLUVIUM:** CLAYEY SILT (ML), dark brown, moist, soft, with organics			
					2		**SCRIPPS FORMATION:** CLAYEY SILTSTONE, yellow brown, dry to moist, weakly indurated Refusal			
175	5						Total depth of hand auger at 3 feet No groundwater observed No caving observed Boring backfilled with cuttings			
170	10									
165	15									
160	20									

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA3

FIGURE
A18

DATE DRILLED:	4/9/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	04/9/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±160 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
					1		**TOPSOIL/COLLUVIUM:**			
							CLAYEY SILT (ML), brown with yellow-brown, moist, soft, with sandstone/siltstone fragments			
					2		**SCRIPPS FORMATION:**			
							CLAYEY SILTSTONE, reddish brown to yellow-brown, dry to moist, weakly indurated			
155	5						Refusal			
							Total depth of hand auger at 4 feet No groundwater observed No caving observed Boring backfilled with cuttings			
150	10									
145	15									
140	20									

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA4

FIGURE
A19

DATE DRILLED:	4/8/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	4/8/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±158 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
155	0				1		**LANDSLIDE DEPOSIT:** CLAYEY SILT (ML), brown, dry to moist, soft			
					2		CLAYEY SILT (ML), light brown, dry to moist, with sandstone fragments			
150	5				3		**SCRIPPS FORMATION:**			
	10				4		CLAYEY SILT (ML), yellow-brown, dry to moist, weakly indurated, moderately weathered Slightly weathered Refusal Total depth of hand auger at 10.3 feet No groundwater observed No caving observed Boring backfilled with cuttings			
145	15									
140	20									
135										

KLEINFELDER
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PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA5

FIGURE
A20

DATE DRILLED:	4/8/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	4/8/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±160 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
		X			1		**TOPSOIL/COLLUVIUM:** CLAYEY SILT (ML), brown to dark brown, dry to moist, soft, with some organics			
		X			2		**SCRIPPS FORMATION:** CLAYEY SILTSTONE, reddish brown to yellow-brown, dry to moist, weakly indurated			
155	5						Total depth of hand auger at 4.5 feet No groundwater observed No caving observed Boring backfilled with cuttings			
150	10									
145	15									
140	20									

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA6

FIGURE
A21

DATE DRILLED:	4/8/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	4/8/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±155 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
150	5				1		**COLLUVIUM:** CLAYEY SILT (ML), brown with olive gray mottling with orange moist, soft **SCRIPPS FORMATION:** CLAYEY SILTSTONE, yellow-brown, dry to moist, moderately indurated Refusal Total depth of hand auger at 2.1 feet No groundwater observed No caving observed Boring backfilled with cuttings			
145	10									
140	15									
135	20									

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA7

FIGURE
A22

DATE DRILLED:	8/6/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	8/6/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±137 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
135	0		X				**TOPSOIL/COLLUVIUM:**			
							CLAYEY SILT (ML), light brown to brown, dry to moist			
							SCRIPPS FORMATION:			
							CLAYEY SILTSTONE, light brown to red-brown, dry to moist, pinhole porosity, highly weathered			
	5		X				SILTY SANDSTONE, with some clay, light brown intermixed with orange-brown, moist, fine-grained, highly weathered			
130										
	10									
125										
	15						Refusal at 13.5 feet Total depth 13.5 feet No groundwater observed No caving observed Boring backfilled with cuttings			
120										
	20									
115										

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA-8

FIGURE
A23

DATE DRILLED:	8/6/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	8/6/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±138 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
135	0		☒				**TOPSOIL/COLLUVIUM:** CLAYEY SILT (ML), brown, dry to moist, loose			
							SCRIPPS FORMATION:			
			☒				CLAYEY SILTSTONE, brown intermixed with reddish brown, dry to moist, pinhole porosity, weathered			
	5						SILTY SANDSTONE, with clay, light brown to olive-gray intermixed with reddish-brown, slight porosity, highly weathered			
130										
	10						Refusal at 10 feet Total depth 10 feet No caving observed Boring backfilled with cuttings			
125										
	15									
120										
	20									
115										

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA-9

FIGURE
A24

DATE DRILLED:	8/6/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	8/6/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±135 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
							TOPSOIL/COLLUVIUM:			
							CLAYEY SILT (ML), brown, dry to moist			
							SCRIPPS FORMATION:			
			X				CLAYEY SILTSTONE, brown to reddish brown, dry to moist, pinhole porosity, highly weathered			
130	5									
							Becomes weathered			
125	10		X							
			X				SANDSTONE, slightly clayey, reddish brown to brown-olive gray, moist, weathered			
120	15						Refusal at 13.5 feet Total depth 13.5 feet No groundwater observed No caving observed Boring backfilled with cuttings			
115	20									

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA-10

FIGURE
A25

DATE DRILLED:	8/6/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	8/6/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±139 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
135	0		☒				**SCRIPPS FORMATION:**			
							SILTSTONE, light brown to reddish brown, dry to moist, slightly weathered			
	5		☒				Refusal at 3 feet Total depth 3 feet No groundwater observed No caving observed Boring backfilled with cuttings			
130	10									
125	15									
120	20									
115										

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA-11

FIGURE
A26

DATE DRILLED:	8/6/2003	WATER DEPTH:	None
DRILLING COMPANY:	Kleinfelder, Inc.	DATE OBSERVED:	8/6/2003
DRILLING METHOD:	Hand Excavated	GROUND ELEVATION:	±143 feet MSL
		LOGGED BY:	T. Grindstaff
HOLE DIAMETER:	3" dia. Auger	REVIEWED BY:	R. Stroh

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS
140	0		X				**SCRIPPS FORMATION:**			
							SILTSTONE, brown to reddish-brown, dry to moist, moderately indurated, slightly weathered			
							Refusal at 2 feet			
							Total depth 2 feet			
							No groundwater observed			
							No caving observed			
							Boring backfilled with cuttings			
135	5									
130	10									
125	15									
120	20									

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING HA-12

FIGURE
A27

APPENDIX A.2

Previous Boring Logs Relevant to Project
(2002 to 2004 Field Work)

REPORT

GEOTECHNICAL INVESTIGATION MIRA SORRENTO PLACE ROAD EXTENSION SAN DIEGO, CALIFORNIA

Prepared for

City of San Diego
Engineering and Capital Projects
1010 Second Avenue, MS 6I2
San Diego, CA 92101

URS Project No. 58-D0011042.01

August 29, 2001
Revised February 14, 2002

URS

1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108-4314
619-294-9400 Fax: 619-293-7920

Project: Mira Sorrento Place - Road Extension
Project Location: Sorrento Valley, San Diego, CA
Project Number: 58-D0011042.01

Log of Boring B-6

Sheet 1 of 1

Date(s) Drilled	12/4/00	Logged By	A. Harker	Checked By	S. Fitzwilliam
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8"	Total Depth Drilled (feet)	20.5
Drill Rig Type	CME 550 ATV	Drilling Contractor	Tri County Drilling	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Depth	None encountered at time of drilling	Sampler Type	Bulk/ModCal/SPT	Approx. Surface Elev. (feet, MSL)	220.0
Location	Station 11+80 (See Site Plan)			Borehole Backfill	Soil cuttings

Elevation, feet (MSL)	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Unit Weight, pcf	REMARKS/ LAB TESTS
220	0		6-1			TOPSOIL/COLLUVIUM Very stiff to hard, moist, brown becoming yellowish brown, lean CLAY (CL)			
			6-2	50/6"		SCRIPPS FORMATION Hard, moist, light yellowish brown, SILTSTONE/CLAYSTONE (ML/CL)			
215	5		6-3	50/5"					
						Hard, moist, gray SILTSTONE with orange staining becoming light brown SILTSTONE (ML)			
210	10		6-4	50/4"					
						Hard, moist, light grayish brown becoming olive brown, fat CLAYSTONE (CH)			
205	15		6-5	60/6"			22	105	SA(96), LL(61), PI(36), UC(15.28)
200	20		6-6	100/6"		Hard, moist, brown, sandy SILTSTONE (ML)			
						Refusal to drilling on concretion at 20.5 feet			
195	25								
190	30								
185	35								

1/25/01 TGL10P MIRA

URS

Figure A-7

Printed: 1/25/01

Project: Mira Sorrento Place - Road Extension
Project Location: Sorrento Valley, San Diego, CA
Project Number: 58-D0011042.01

Log of Boring B-7

Sheet 1 of 1

Date(s) Drilled	12/4/00	Logged By	A. Harker	Checked By	S. Fitzwilliam
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8"	Total Depth Drilled (feet)	25.8
Drill Rig Type	CME 550 ATV	Drilling Contractor	Tri County Drilling	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Depth	None encountered at time of drilling	Sampler Type	ModCal	Approx. Surface Elev. (feet, MSL)	197.0
Location	Station 10+30 (See Site Plan)			Borehole Backfill	Soil cuttings

Elevation, feet (MSL)	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Sampling Resistance	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Dry Unit Weight, pcf	REMARKS/ LAB TESTS
	0					SCRIPPS FORMATION Hard, dry to moist, light yellowish brown SILTSTONE (ML) becoming reddish brown, sandy SILTSTONE (ML)			
195									
	5		7-1	65/6"					
190									
						Hard, moist, gray to olive brown, fat CLAYSTONE (CH)			
	10		7-2	50/4.5"			20	109	SA(98), UC(19.49)
185						Becoming reddish brown			
	15		7-3	60/3"					
180									
						Very dense, moist, yellowish brown to reddish brown, silty fine SANDSTONE (SM), weakly cemented			
	20		7-4	77			9	105	SA(22), UC(3.08)
175									
						Hard, moist, yellowish brown, sandy SILTSTONE (ML)			
	25		7-5	50/4"					
170						Bottom of boring at 25.8 feet			
	30								
165									
	35								

APPENDIX B

Laboratory Test Results

APPENDIX B
LABORATORY TEST RESULTS

Kleinfelder performed laboratory testing on soil samples collected during our field exploration. The following sections describe the laboratory tests performed on soil samples.

GEOTECHNICAL SOIL TESTING

Laboratory tests were performed on selected, representative samples as an aid in classifying the soils and to evaluate physical properties of the soils that may affect foundation design and construction procedures. A description of our laboratory testing is presented below. Results of the 2009 testing are presented in Appendix A.1 and results of previous laboratory testing are presented in Appendix A.2.

CLASSIFICATION

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the Boring Logs in Appendix A.

SIEVE ANALYSIS

Six full range sieve analyses and two finer than 75 µm (No. 200) sieve analyses were performed on samples from the site to evaluate the gradation characteristics of the soil and to aid in its classification. The tests were performed in general accordance with ASTM Test Method D 422. The results of the tests are presented on Plates B1 through B7. Refer to the boring logs for descriptions of oversize particles.

ATTERBERG LIMITS

Atterberg limits tests consist of the evaluation of liquid limit, plastic limit, and plasticity index. Atterberg limit tests were performed on two soil samples from the site to evaluate the plasticity characteristics of the soil and to aid in its classification. The tests were performed in general accordance with ASTM Test Method D4318. The results are presented on Plate B8.

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DIRECT SHEAR TEST

Three remolded direct shear tests were performed on inundated soil samples to evaluate the shear strength of soils. The soil samples were tested at their natural water content under three different normal pressures in general accordance with ASTM Test Method D3080. The direct shear tests were performed at displacement rates that approximate undrained loading conditions. The test results are presented on Plates B9, B10, and B11.

EXPANSION INDEX TEST

One sample of the clayey Scripps Formation was tested for expansion index. The test was performed in accordance with Test Method ASTM D2949 and 2007 CBC 18-2, "Expansion Potential." The results are presented in Table B1 and may be compared to Table B2 presented below to qualitatively evaluate the expansion potential of the clayey site soils.

Table B1
Expansion Index Test Results

Boring Location	Sample Depth (ft)	Expansion Index	Soil Classification ASTM D 2488
LDB-2	25 – 25-1/2	20	Silty CLAYSTONE

Table B2
ASTM D 4829 Expansion Index and Potential

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
Above 130	Very High

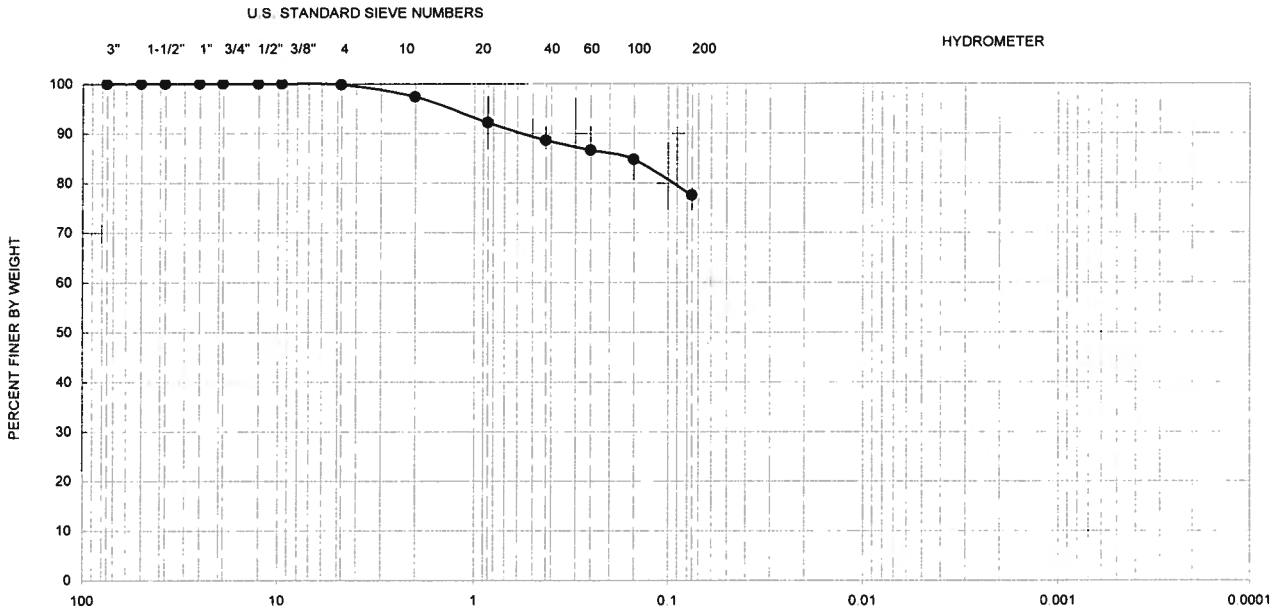
Copyright 2010 Kleinfelder

APPENDIX B.1

2009 Laboratory Test Results

Date Tested: 10/29/2009

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
1	LDB-2	5 - 5.5'	77.5	CL

Sample Description	Light gray to yellow brown, Silty CLAY

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

KLEINFELDER
Bright People. Right Solutions.

Checked by:	Uly	Tech:	Uly
Project No.	105945-001	Date:	14-Apr-10

GRADATION TEST RESULTS

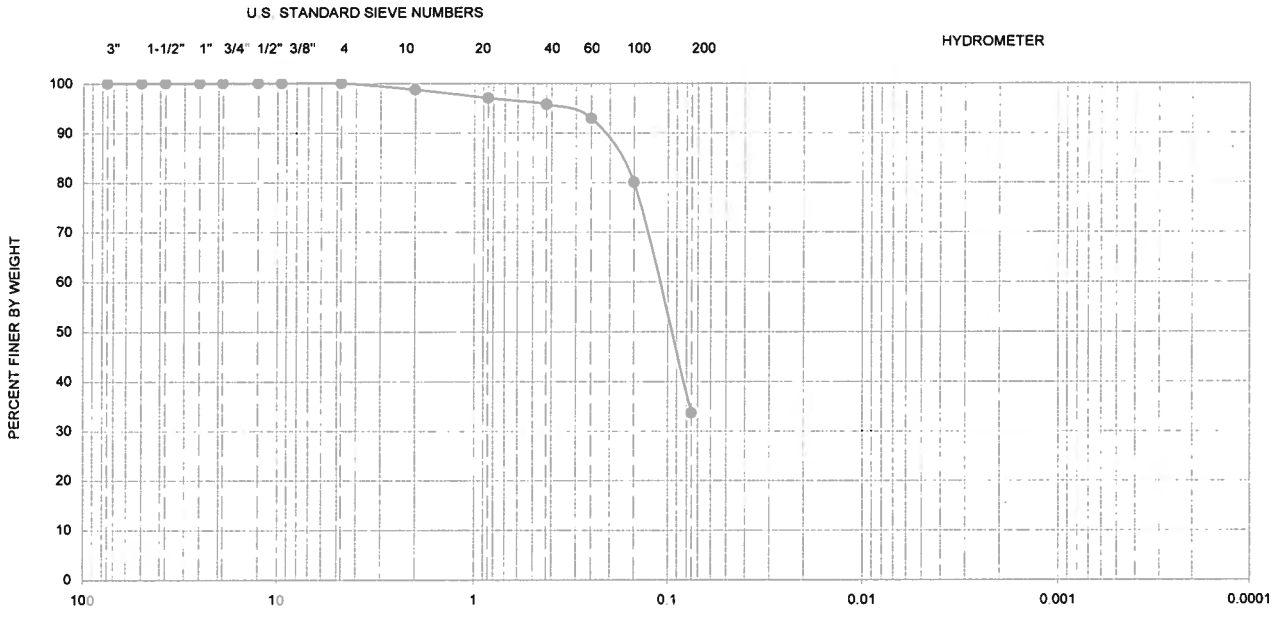
SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE

B1

Date Tested: 10/29/2009

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



GRAIN SIZE IN MILLIMETERS

Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
2	LDB-2	10 - 10.5'	33.6	SM

Sample Description	Light gray to yellow brown, Silty SAND

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

KLEINFELDER
Bright People. Right Solutions.

Checked by:	Uly	Tech:	Uly
Project No.	105945-001	Date:	14-Apr-10

GRADATION TEST RESULTS

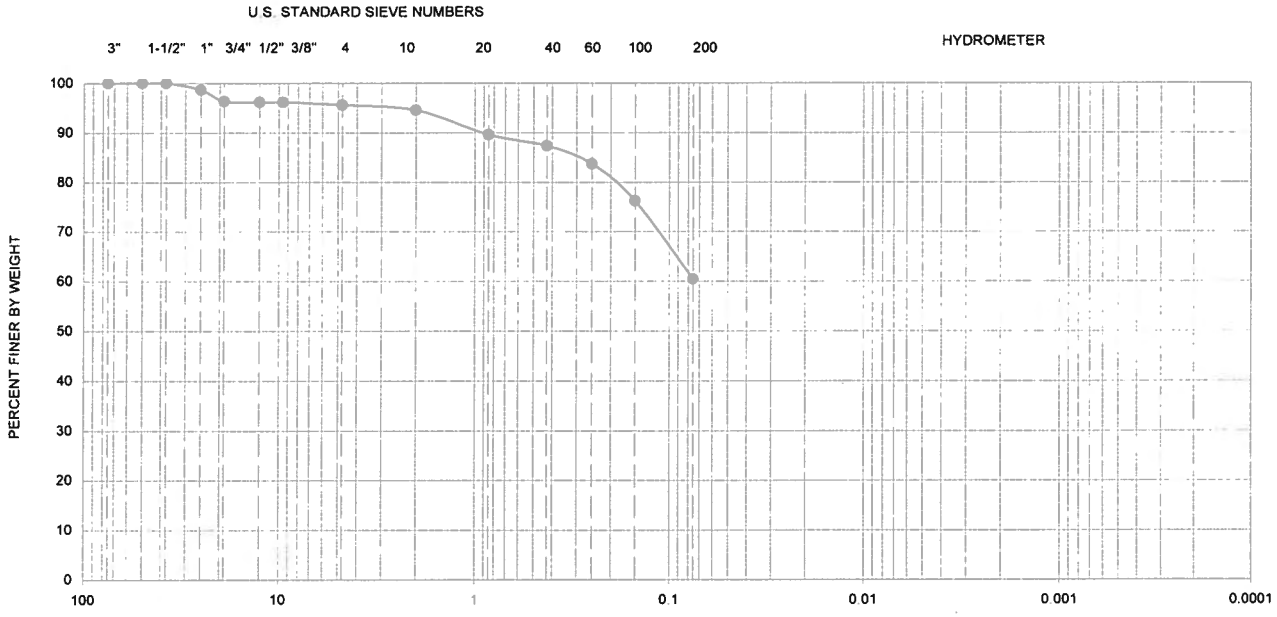
SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE

B2

Date Tested: 10/29/2009

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



GRAIN SIZE IN MILLIMETERS

Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
3	LDB-2	17 - 17.5'	60.4	CL

Sample Description	Light gray to yellow brown, Silty CLAY

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

KLEINFELDER
Bright People. Right Solutions.

Checked by:	Uly	Tech:	Uly
Project No.	105945-001	Date:	14-Apr-10

GRADATION TEST RESULTS

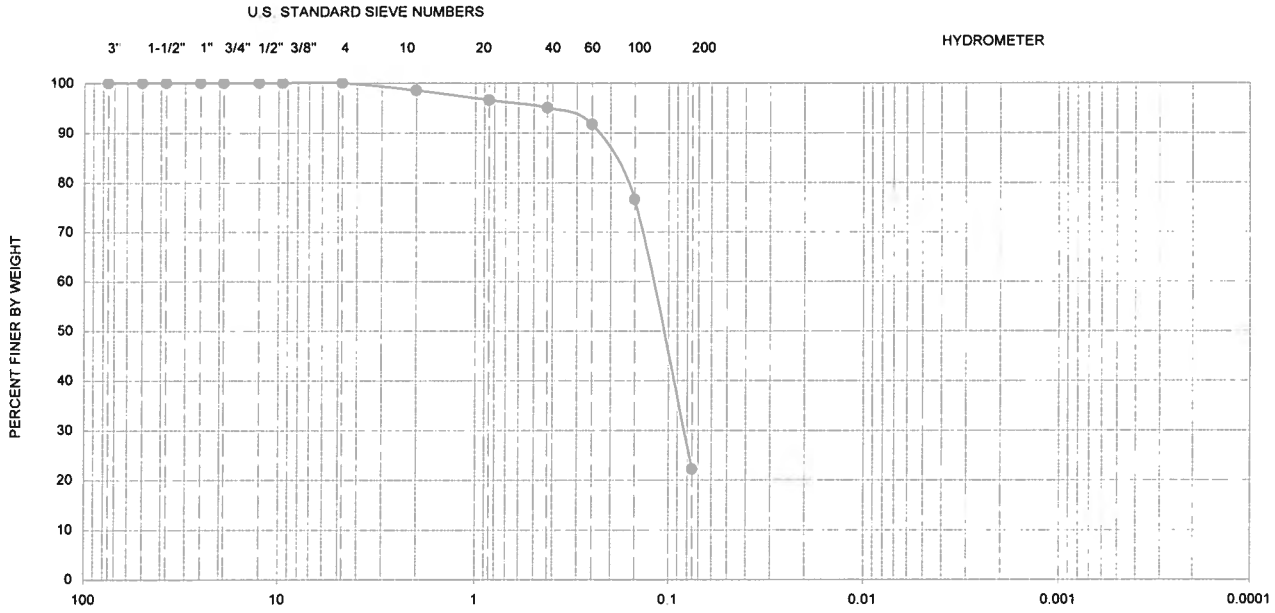
SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE

B3

Date Tested: 10/29/2009

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
4	LDB-2	25 - 25.5'	22.1	SC

Sample Description	Light gray to yellow brown, Clayey SAND

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

KLEINFELDER
Bright People. Right Solutions.

Checked by:	Uly	Tech:	Uly
Project No.	105945-001	Date:	14-Apr-10

GRADATION TEST RESULTS

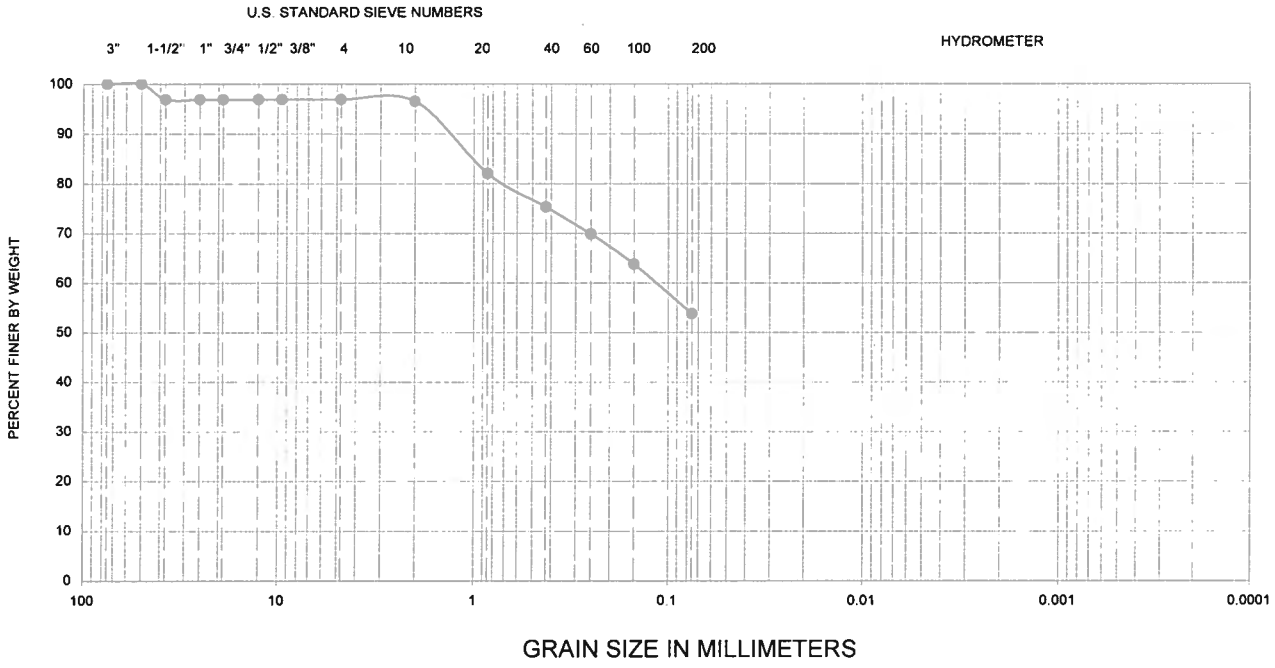
SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE

B4

Date Tested: 10/29/2009

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
6	LDB-2	35 - 35.5'	53.8	CL

Sample Description	Light gray to yellow brown, Silty CLAY

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

KLEINFELDER
Bright People. Right Solutions.

Checked by:	Uly	Tech:	Uly
Project No.	105945-001	Date:	14-Apr-10

GRADATION TEST RESULTS

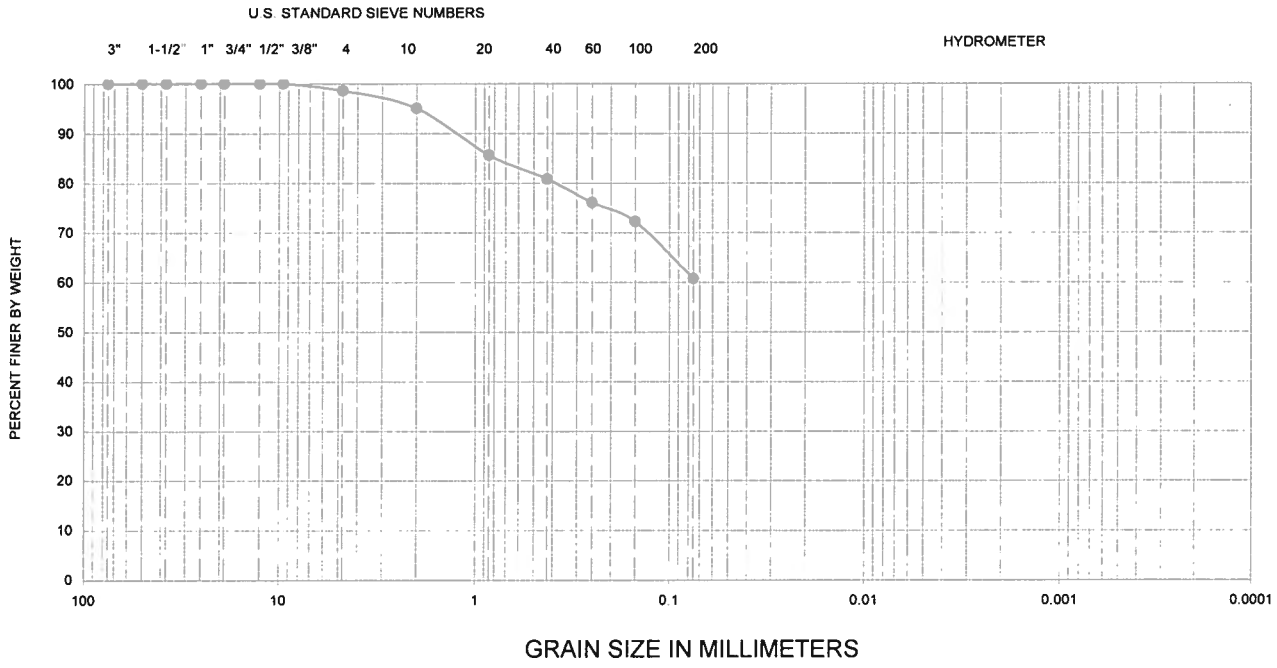
SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE

B5

Date Tested: 10/29/2009

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Sample Number	Location	Depth (ft)	Passing 200 (%)	USCS Classification
9	LDB-2	50 - 50.5'	60.8	CL

Sample Description	Light gray to yellow brown, Sandy CLAY

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

KLEINFELDER
Bright People. Right Solutions.

Checked by:	Uly	Tech:	Uly
Project No.	105945-001	Date:	14-Apr-10

GRADATION TEST RESULTS

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE

B6

Date Tested 11/3-4/2009

Boring No		LDB-1	LDB-1					
Sample No		1	5					
Depth, ft.		4.5-5.5	25-26					
Original Dry Mass of sample, g	B	473.0	432.5					
Dry Mass of Sample After Washing,g	C	321.9	173.6					
Material Finer than a 75 um (No 200), %	A	**32**	**60**					

A = [(B-C)/B] x 100

TEST PERFORMED IN ACCORDANCE WITH ASTM D 1140

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Materials Finer than 75 um (No 200) Sieve

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

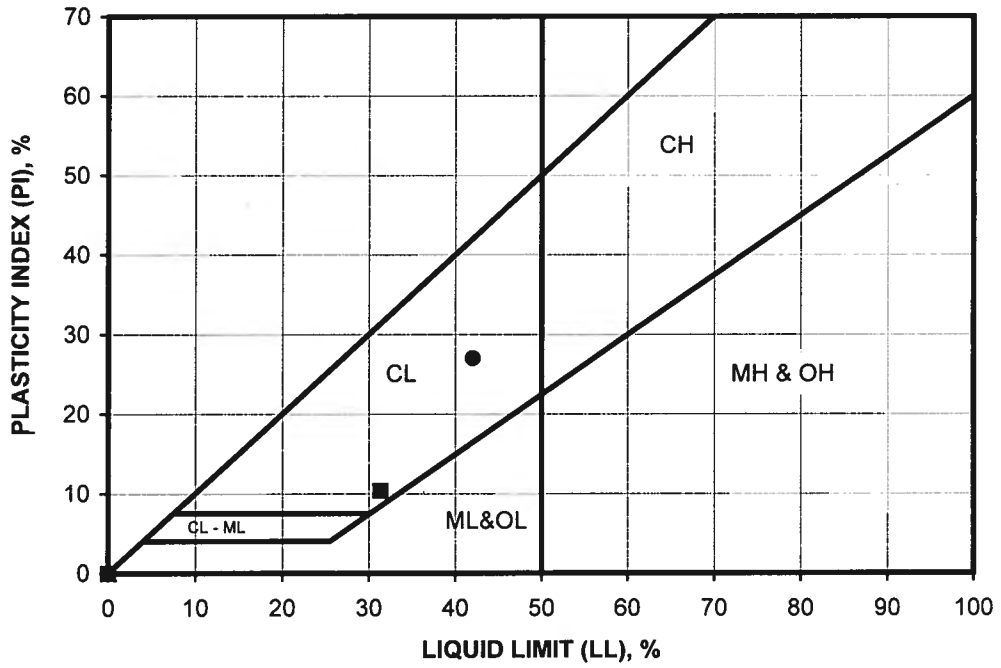
PLATE

B7

CHECKED BY Uly	Tech Ujwal
JOB NUMBER 105945	DATE: 20-May-10

Date Tested : 11/2-3/2009

SYMBOL	SAMPLE NAME	DEPTH (ft)	LL (%)	PL (%)	PI (%)	USCS CLASSIFICATION (Minus No. 40 Sieve Fraction)	USCS (Entire Sample)
●	B2-1	5 - 5.5	42	15	27	CL	CL
■	B2-3	17 - 17.5	31	21	10	CL	CL



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

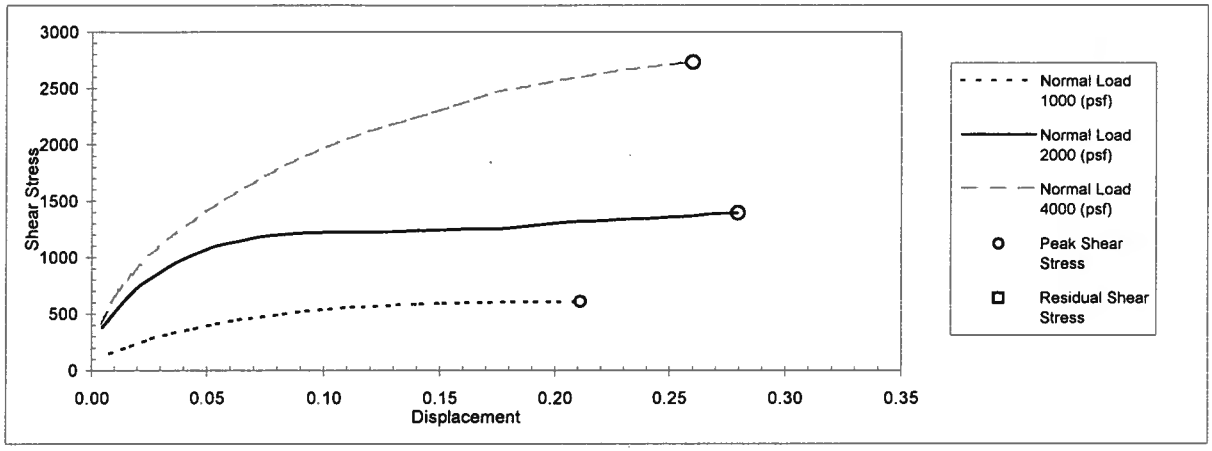
KLEINFELDER
Bright People. Right Solutions.

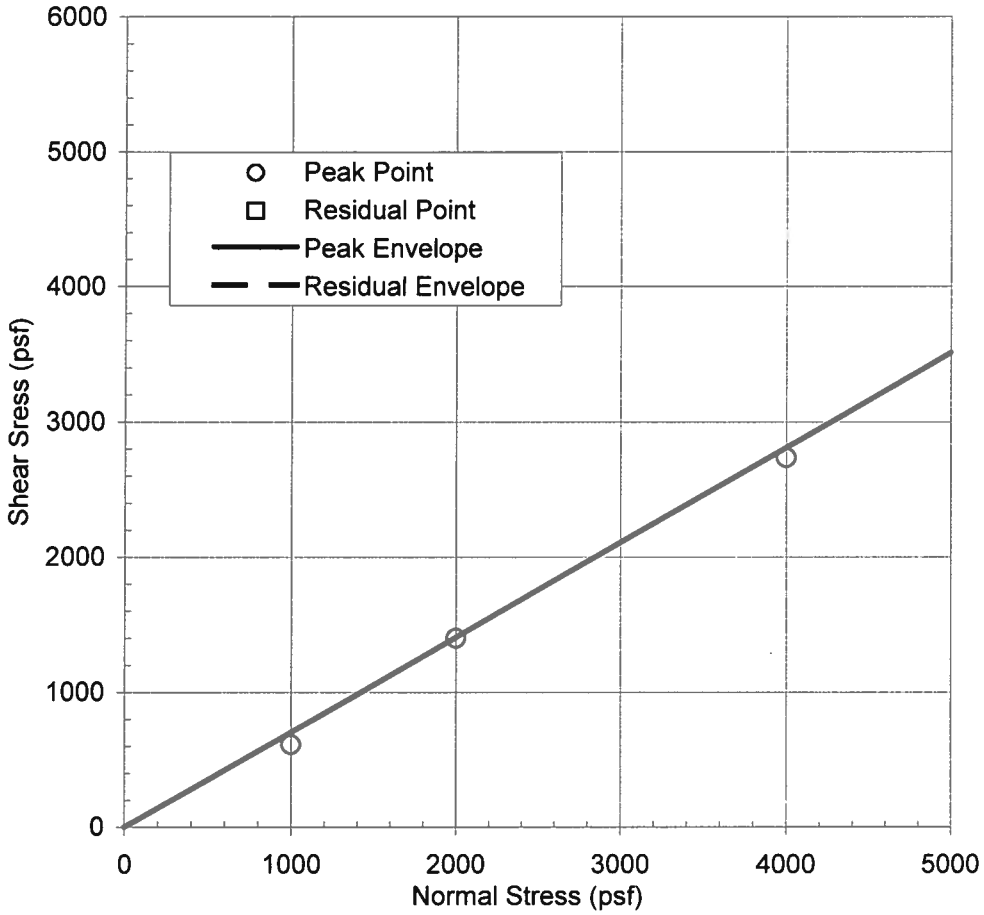
ATTERBERG LIMITS TEST RESULTS

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

PLATE
B8

CHECKED BY: Uly	TECH: Uly
PROJECT NO: 105945-001	20-May-10



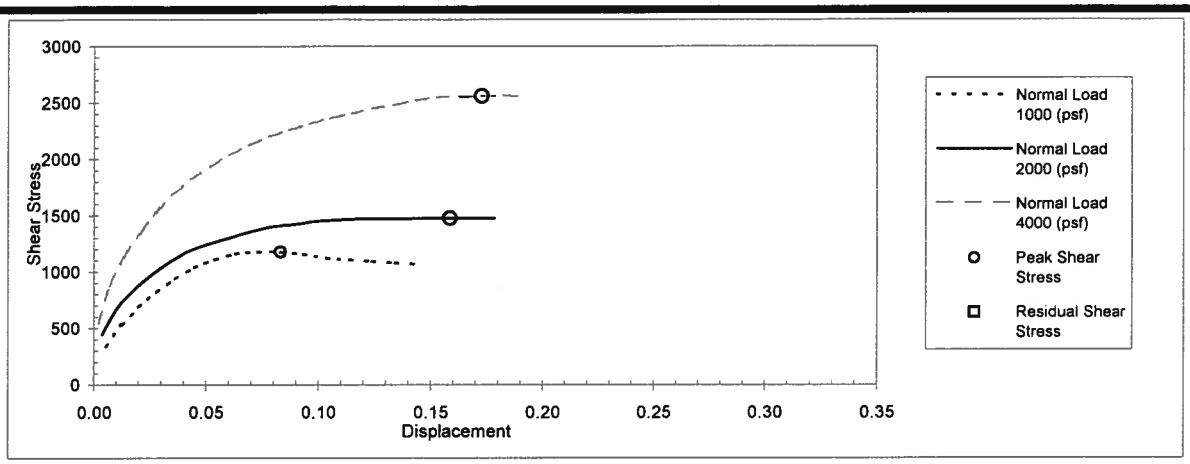


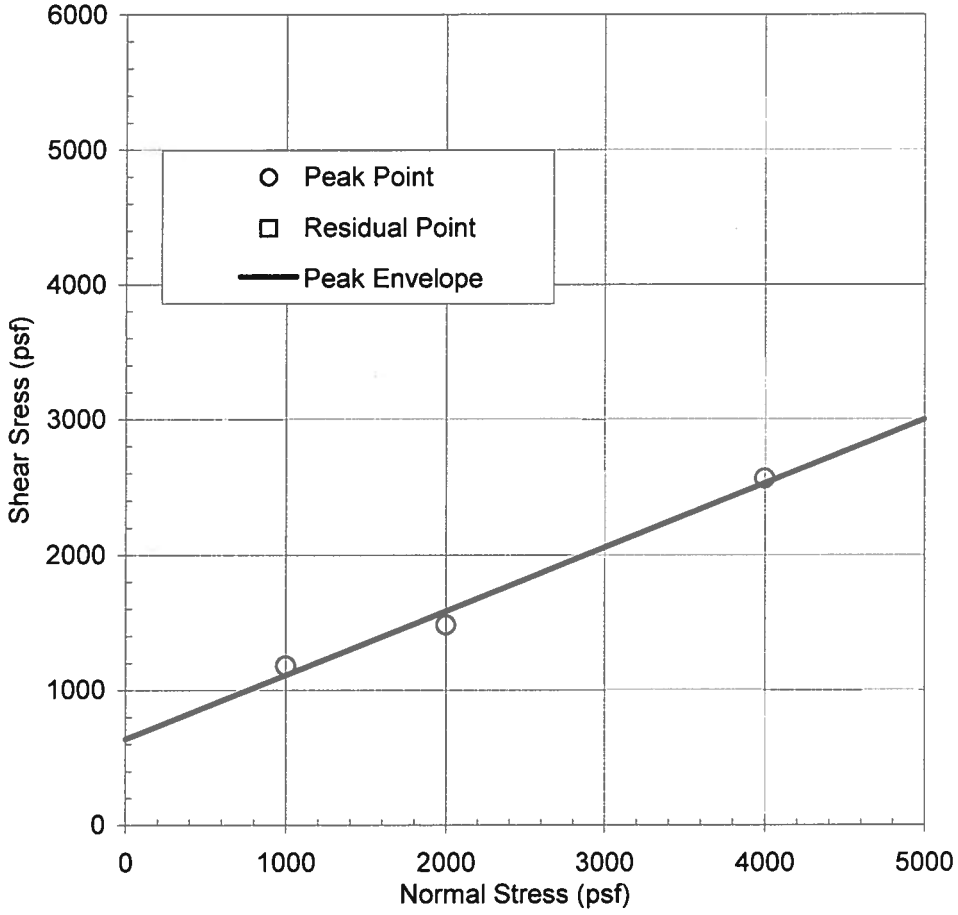
Strain Rate = 0.00945 inch/min

				Interpreted Shear Strength			
				Peak		Residual	
Boring No.	Sample No.	Depth, ft.	UCSC	Cohesion (psf)	Friction Angle (deg)	Cohesion (psf)	Friction Angle (deg)
LDB-1	1	4-1/2-5-1/2	SM	0	35.1		

Sample description: Yellowish brown silty fine SAND (remolded to 90% RC)

KLEINFELDER Bright People. Right Solutions.	**Remolded (90%) Direct Shear Test Results (ASTM D 3080)**	PLATE
	SDG&E MIRA SORRENTO SUBSTATION SAN DIEGO, CALIFORNIA	**B9**
Checked I Uly / FN: LAB		
Project # 105945 / 9-Nov-09		





Strain Rate = 0.00945 inch/min

				Interpreted Shear Strength			
				Peak		Residual	
Boring No.	Sample No.	Depth, ft.	UCSC	Cohesion (psf)	Friction Angle (deg)	Cohesion (psf)	Friction Angle (deg)
LDB-1	5	25-26	CL	637	25.3		

Sample description: Light gray to yellow-brown sandy CLAY (remolded to 90% RC)

KLEINFELDER
Bright People. Right Solutions.

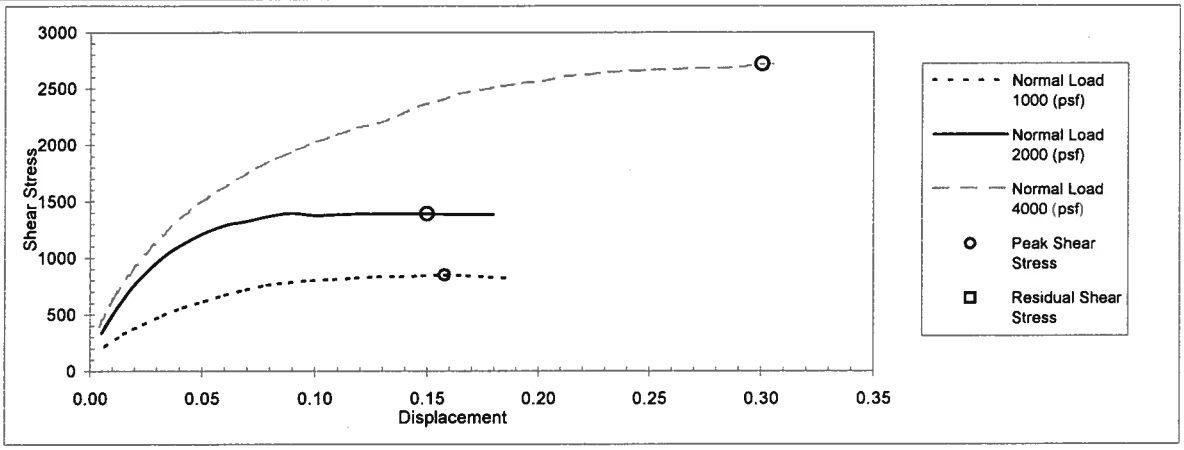
Checked I Uly	FN: LAB
Project # 105945	9-Nov-09

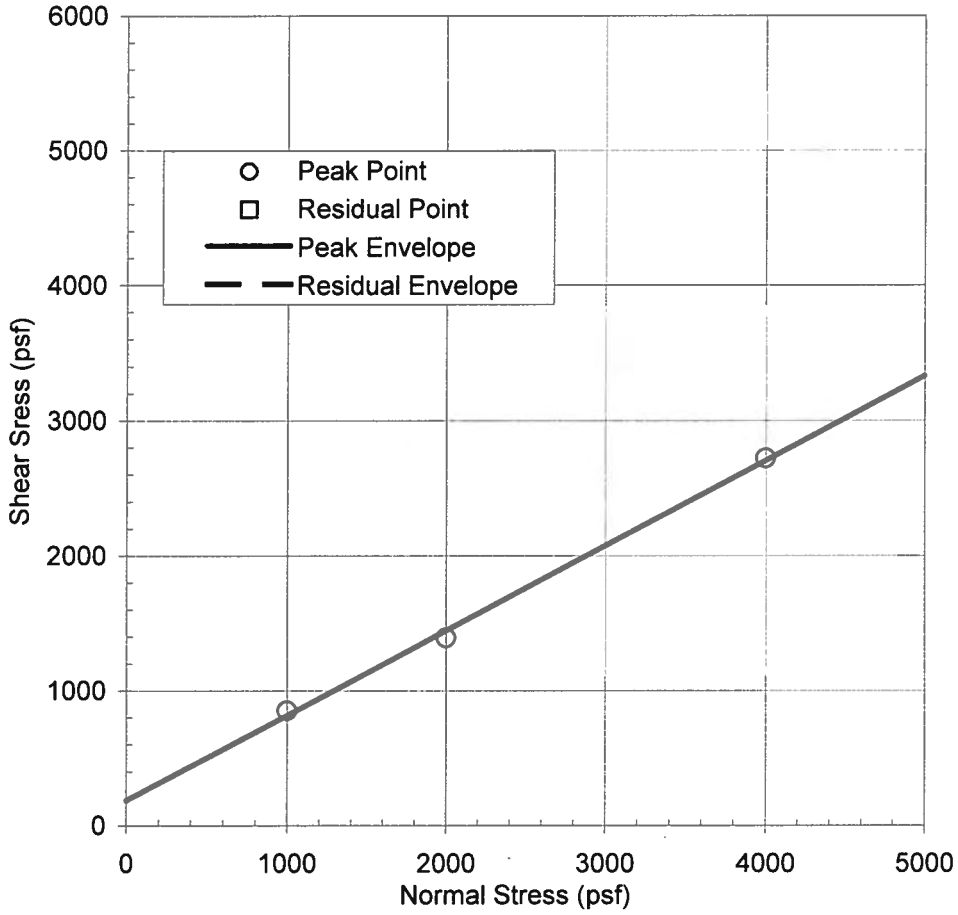
Remolded (90%) Direct Shear Test Results (ASTM D 3080)

SDG&E MIRA SORRENTO SUBSTATION SAN DIEGO, CALIFORNIA

PLATE

B10





Strain Rate = 0.00945 inch/min

Sample I.D.	Depth, ft.	UCSC	Interpreted Shear Strength			
			Peak		Residual	
			Cohesion (psf)	Friction Angle (deg)	Cohesion (psf)	Friction Angle (deg)
Blend of LDB-1/5 and LDB-1/8	25 & 40	SM & CL	185	32.2		

Sample description: Blend of Silty SAND and Sandy CLAY (remolded to 90% RC)

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Checked by: Uly	FN: LAB
Project # 105945	8-Dec-09

Remolded (90%) Direct Shear Test Results (ASTM D 3080)

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

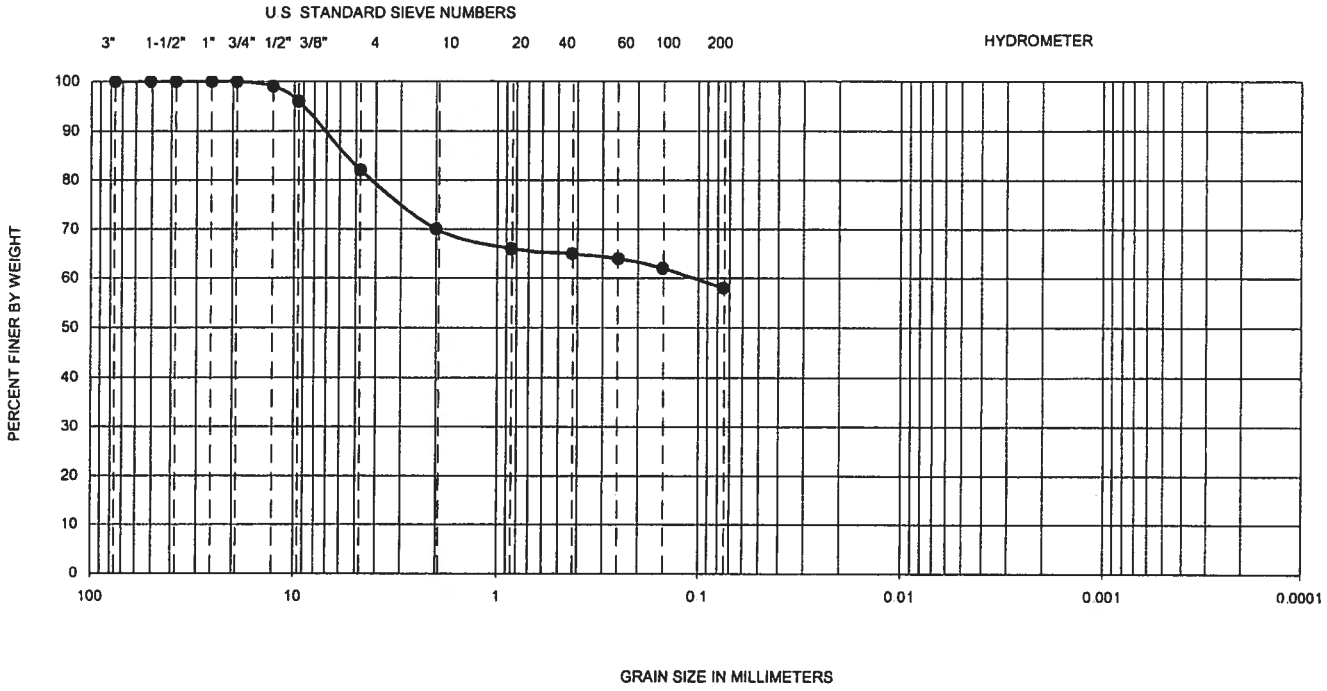
PLATE

B11

APPENDIX B.2

Previous Laboratory Test Results

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	U.S.C.S
●	B-2	2-4.5	--	--	--	--	--	--	--	--	58	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422-63

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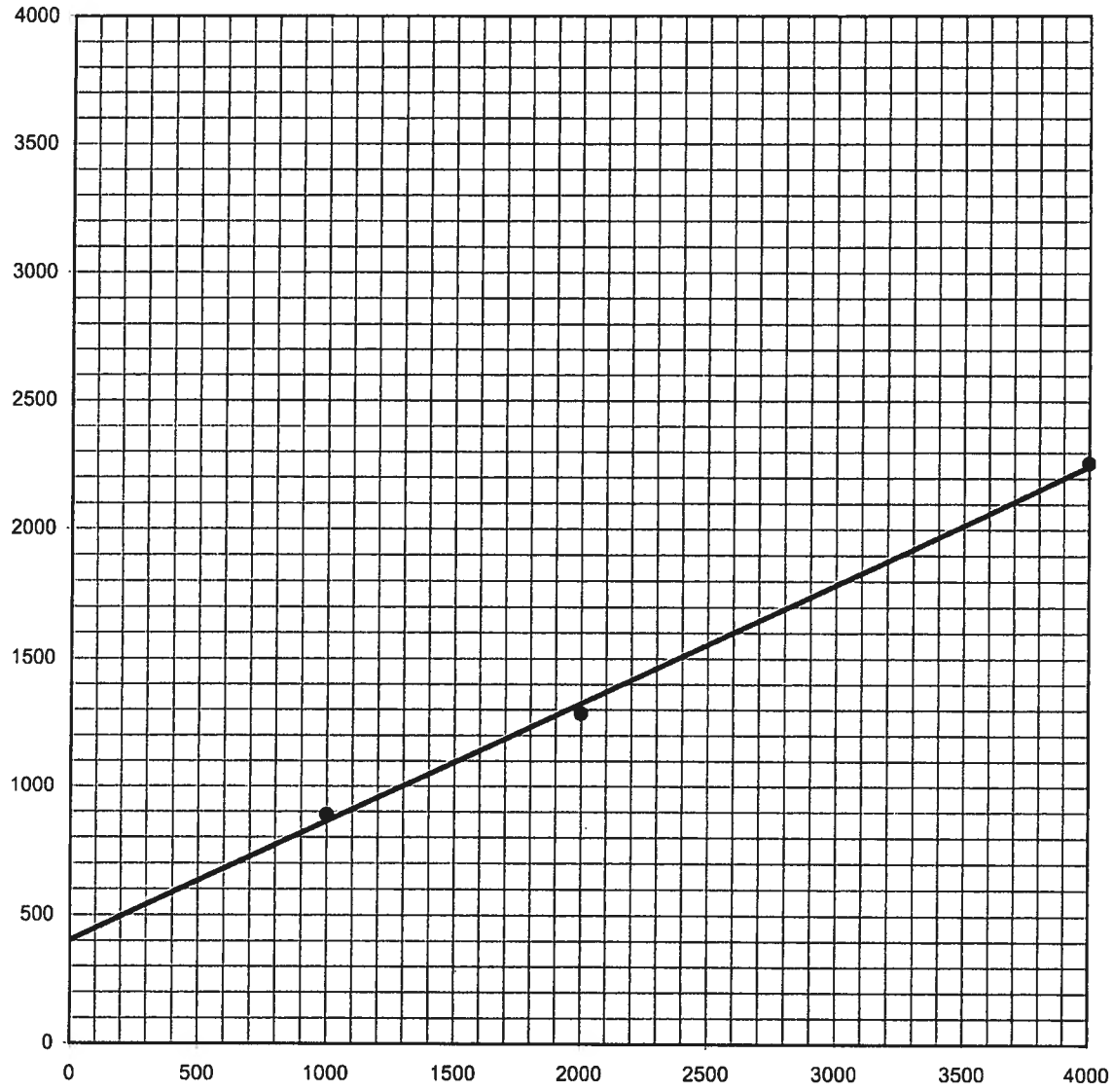
GRADATION TEST RESULTS

SDG&E SORRENTO MESA SUBSTATION SITE 2
SAN DIEGO, CALIFORNIA

FIGURE
B-1

CHECKED BY: RCS	FN: LAB
PROJECT NO. 28553	DATE 05/2003

28553seive1 xls



DESCRIPTION	SYMBOL	SAMPLE LOCATION	DEPTH (FT)	SHEAR STRENGTH	COHESION (PSF)	FRICTION ANGLE	SOIL TYPE (USCS)
BROWN SILTY FINE-GRAINED SAND	—●—	B-4	0-5	PEAK	402	25	SM

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CHECKED BY: RCS	FN: LAB
PROJECT NO. 28553	DATE: 05/2003

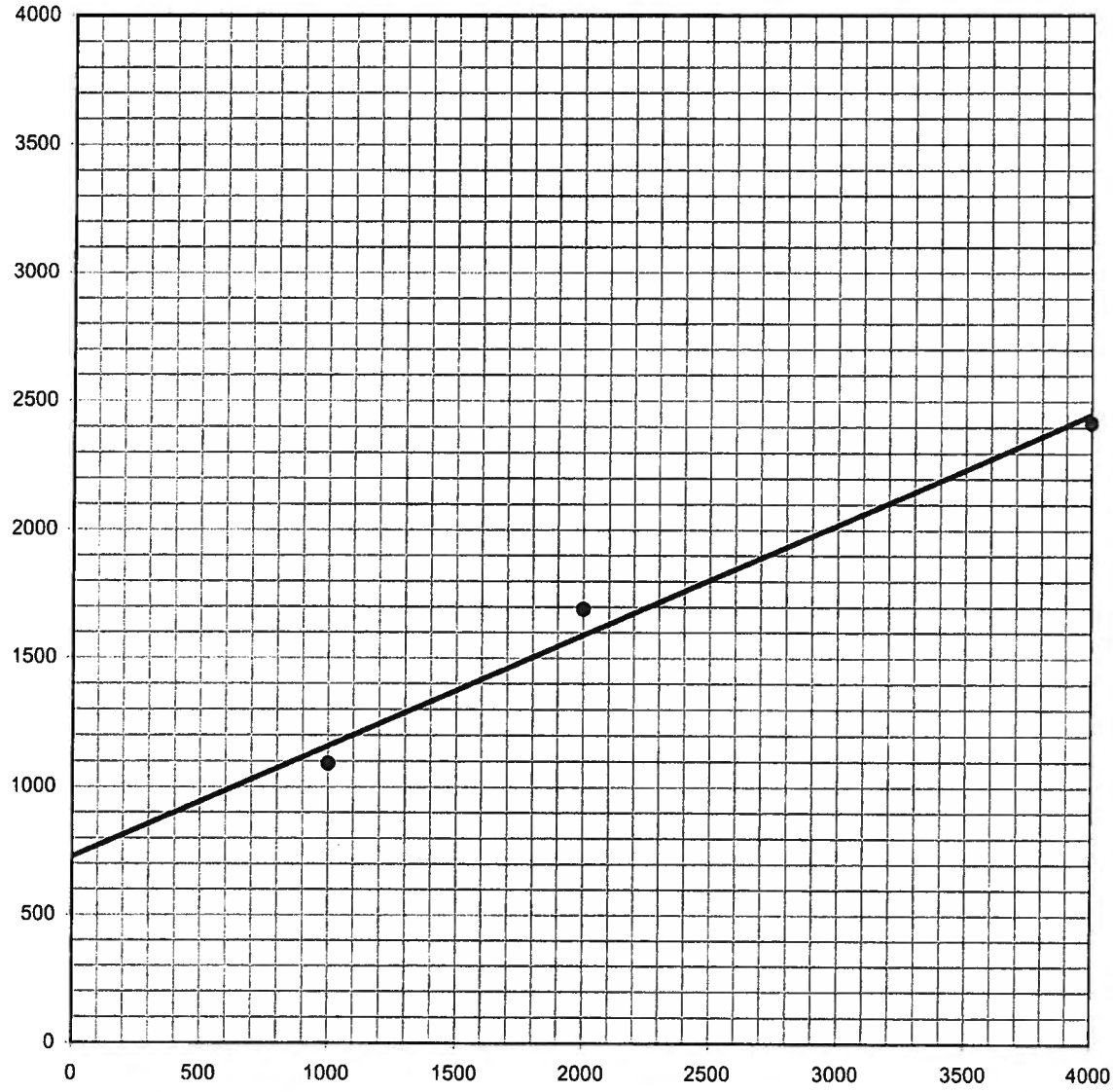
DIRECT SHEAR TEST RESULTS

SDG&E SORRENTO MESA
SUBSTATION SITE 2
SAN DIEGO, CALIFORNIA

FIGURE

B-2

28553shear1.xls



DESCRIPTION	SYMBOL	SAMPLE LOCATION	DEPTH (FT)	SHEAR STRENGTH	COHESION (PSF)	FRICTION ANGLE	SOIL TYPE (USCS)
LIGHT YELLOW-BROWN SANDY CLAY	—●—	B-1	4-8	PEAK	727	23	CL

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An employee owned company

CHECKED BY: RCS	FN: LAB
PROJECT NO. 28553	DATE: 05/2003

DIRECT SHEAR TEST RESULTS

SDG&E SORRENTO MESA
SUBSTATION SITE 2
SAN DIEGO, CALIFORNIA

FIGURE

B-3

28553shear2.xls

SAMPLE LOCATION	SAMPLE DEPTH (FT)	INITIAL MOISTURE (%)	COMPACTED DRY DENSITY (PCF)	FINAL MOISTURE (%)	VOLUMETRIC SWELL (IN)	EXPANSION INDEX	EXPANSION POTENTIAL
B-1	4-8	10.9	104.2	--	0.0833	83	MEDIUM

PERFORMED IN GENERAL ACCORDANCE WITH UBC STANDARD 18-2

KLEINFELDER
An employee owned company

CHECKED BY: RCS	FN: LAB
PROJECT NO.: 28553	DATE: 05/2003

EXPANSION INDEX TEST RESULTS

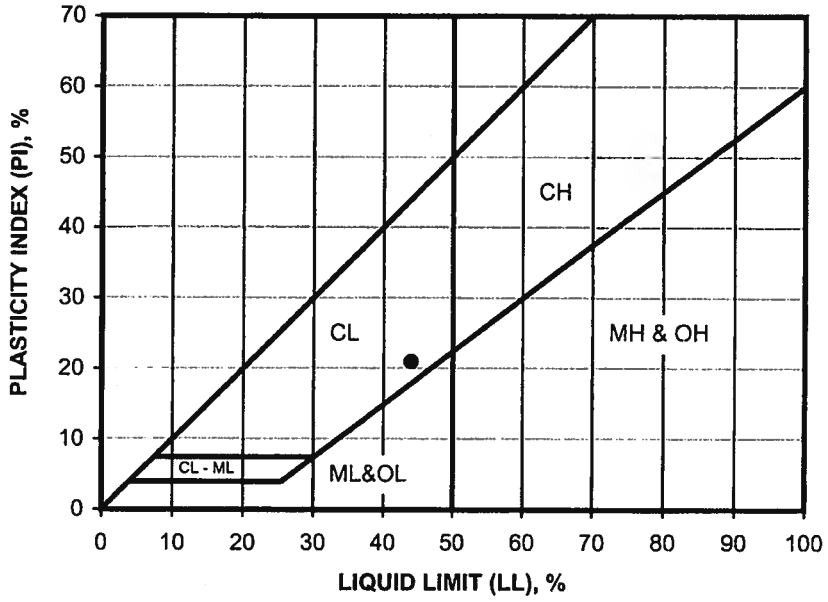
SDG&E SORRENTO MESA
SUBSTATION SITE 2
SAN DIEGO, CALIFORNIA

FIGURE

B-4

28553expansion1 xls

SYMBOL	LOCATION	DEPTH (FEET)	LL (%)	PL (%)	PI (%)	U.S.C.S. CLASSIFICATION (Minus No. 40 Sieve Fraction)	U.S.C.S. (Entire Sample)
●	B-2	2-4.5	44	23	21	CL	CL



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

KLEINFELDER
An employee owned company

CHECKED BY: RCS | FN: LAB
PROJECT NO. 28553 | DATE: 5/2003

ATTERBERG LIMITS TEST RESULTS

SDG&E SORRENTO MESA SUBSTATION SITE 2
SAN DIEGO, CALIFORNIA

FIGURE

B-5

LABORATORY REPORT

Telephone (619) 425-1993 Fax 425-7917 Established 1928

CLARKSON LABORATORY AND SUPPLY INC.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
ANALYTICAL AND CONSULTING CHEMISTS

Date: May 8, 2003
Purchase Order Number: Job# 28553
Sales Order Number: 70362
Account Number: KLE

To:

Kleinfelder INC.
5015 Shoreham Drive
San Diego, CA 92122
Attention: Dave Cliff

Laboratory Number: SO6326 Customers Phone: 858-320-2000
Fax: 858-320-2001
Sample Designation:

One soil sample received on 5/5/03, taken from Job# 28553 marked as Sample # B-1/2A @ 4-8'

Analysis By California Test 643, 1993, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 8.7

Water Added (ml)	Resistivity (ohm-cm)
100	8016
50	3474
50	1670
50	935
50	935
50	1069

30 years to perforation for a 16 gauge metal culvert.
39 years to perforation for a 14 gauge metal culvert.
54 years to perforation for a 12 gauge metal culvert.
68 years to perforation for a 10 gauge metal culvert.
83 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	0.005%
Water Soluble Chloride Calif. Test 422	0.011%

Jeff Shannon

Jeff Shannon
JS/sd

B-6

APPENDIX C

Suggested Guidelines for Earthwork Construction

APPENDIX C
SUGGESTED GUIDELINES FOR EARTHWORK CONSTRUCTION

1.0 GENERAL

1.1 **Scope** - The work done under theses specifications shall include clearing, stripping, removal of unsuitable material, excavation, preparation of natural soils, placement and compaction of on-site and imported fill material and placement and compaction of pavement materials.

1.2 **Contractor's Responsibility** - The Contractor shall attentively examine the site in such a manner that he can correlate existing surface conditions with those presented in the geotechnical evaluation report. He shall satisfy himself that the quality and quantity of exposed materials and subsurface soil or rock deposits have been satisfactorily represented by the Geotechnical Engineer's report and project drawings. Any discrepancy of prior knowledge to the Contractor to that is revealed through his evaluations shall be made known to the Owner. It is the Contractor's responsibility to review the report prior to construction. The selection of equipment for use on the project and the order of the work shall similarly be the Contractor's responsibility. The Contractor shall be responsible for providing equipment capable of completing the requirements included in the following sections.

1.3 **Geotechnical Engineer** - The work covered by these specifications shall be observed and tested by Kleinfelder, the Geotechnical Engineer, who shall be hired by the Owner. The Geotechnical Engineer will be present during the site preparation and grading to observe the work and to perform the tests necessary to evaluate material quality and compaction. The Geotechnical Engineer shall submit a report to the Owner, including a tabulation of tests performed. The costs of re-testing unsuitable work installed by the Contractors shall be deducted by the Owner from the payments to the Contractor.

1.4 **Standard Specifications** - Where referred to in these specifications, "Standard Specifications" shall mean the State of California Standard

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Specifications for Public Works Construction, with Regional Supplement Amendments for San Diego County, 2000 Edition.

1.5 **Compaction Test Method** - Where referred to herein, relative compaction shall mean the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, as determined by the ASTM D 1557 Compaction Test Procedure. Optimum moisture content shall mean the moisture content at the maximum dry density determined above.

2.0 SITE PREPARATION

2.1 **Clearing** - Areas to be graded shall be cleared and grubbed of all vegetation and debris. These materials shall be removed from the site by the Contractor.

2.2 **Stripping** - Surface soils containing roots and organic matter shall be stripped from areas to be graded and stockpiled or discarded as directed by the Owner. In general, the depth of stripping of the topsoil will be approximately 3 inches. Deeper stripping, where required to remove weak soils or accumulations of organic matter, shall be performed when determined necessary by the Geotechnical Engineer. Stripped material shall be removed from the site or stockpiled at a location designated by the Owner.

2.3 **Removal of Existing Fill** - Existing fill soils, trash and debris in the areas to be graded shall be removed prior to the placing of any compacted fill. Portions of any existing fills that are suitable for use in new compacted fill may be stockpiled for future use. All organic materials, topsoil, expansive soils, oversized rock or other unsuitable material shall be removed from the site by the Contractor or disposed of at a location on-site, if so designated by the Owner.

2.4 **Ground Surface** - The ground surface exposed by stripping shall be scarified to a depth of 6 inches, moisture conditioned to the proper moisture content for compaction and compacted as required for compacted fill. Ground surface preparation shall be approved by the Geotechnical Engineer prior to placing fill.

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3.0 EXCAVATION

3.1 **General** - Excavations shall be made to the lines and grades indicated on the plans. The data presented in the Geotechnical Engineer's report is for information only and the Contractor shall make his own interpretation with regard to the methods and equipment necessary to perform the excavation and to obtain material suitable for fill.

3.2 **Materials** - Soils which are removed and are unsuitable for fill shall be placed in nonstructural areas of the project, or in deeper fills at locations designated by the Geotechnical Engineer.

All oversize rocks and boulders that cannot be incorporated in the work by placing in embankments or used as rip-rap or for other purposes shall be removed from the site by the Contractor.

3.3 **Treatment of Exposed Surface** - The ground surface exposed by excavation shall be scarified to a depth of 6 inches, moisture conditioned to the proper moisture content for compaction and compacted as required for compacted fill. Compaction shall be approved by the Geotechnical Engineer prior to placing fill.

3.4 **Rock Excavation** - Where solid rock is encountered in areas to be excavated, it shall be loosened and broken up so that no solid ribs, projections or large fragments will be within 6 inches of the surface of the final subgrade.

4.0 COMPACTED FILL

4.1 **Materials** - Fill material shall consist of suitable on-site or imported soil. All materials used for structural fill shall be reasonably free of organic material, have a Expansion Index of 50 or less, 100% passing the 3 inch sieve and less than 30 percent passing the #200 sieve.

4.2 **Placement** - All fill materials shall be placed in layers of 8 inches or less in loose thickness and uniformly moisture conditioned. Each lift should then be compacted with a sheepsfoot roller or other approved compaction equipment to at least 90 percent relative compaction in areas under

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structures, utilities, roadways and parking areas. No fill material shall be placed, spread or rolled while it is frozen or thawing, or during unfavorable weather conditions.

4.3 **Compaction Equipment** - The Contractor shall provide and use sufficient equipment of a type and weight suitable for the conditions encountered in the field. The equipment shall be capable of obtaining the required compaction in all areas.

4.4 **Recompaction** - When, in the judgment of the Geotechnical Engineer, sufficient compactive effort has not been used, or where the field density tests indicate that the required compaction or moisture content has not been obtained, or if pumping or other indications of instability are noted, the fill shall be reworked and recompacted as needed to obtain a stable fill at the required density and moisture content before additional fill is placed.

4.5 **Responsibility** - The Contractor shall be responsible for the maintenance and protection of all embankments and fills made during the contract period and shall bear the expense of replacing any portion which has become displaced due to carelessness, negligent work or failure to take proper precautions.

5.0 UTILITY TRENCH BEDDING AND BACKFILL

5.1 **Material** - Pipe bedding shall be defined as all material within 4 inches of the perimeter and 12 inches over the top of the pipe. Material for use as bedding shall be clean sand, gravel, crushed aggregate or native free-draining material, having a Sand Equivalent of not less than 30.

Backfill should be classified as all material within the remainder of the trench. Backfill shall meet the requirements set forth in Section 4.2.7 for compacted fill.

5.2 **Placement and Compaction** - Pipe bedding shall be placed in layers not exceeding 8 inches in loose thickness, conditioned to the proper moisture content for compaction and compacted to at least 90 percent relative compaction. All other trench backfill shall be placed and compacted in accordance with Section 306-1.3.2 of the Standard Specifications for

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Mechanically Compacted Backfill. Backfill shall be compacted as required for adjacent fill. If not specified, backfill shall be compacted to at least 90 percent relative compaction in areas under structures, utilities, roadways, parking areas and concrete flatwork.

6.0 SUBSURFACE DRAINAGE

6.1 **General** - Subsurface drainage shall be constructed as shown on the plans. Drainage pipe shall meet the requirements set forth in the Standard Specifications.

6.2 **Materials** - Permeable drain rock used for subdrainage shall meet the following gradation requirements:

Sieve Size	Percentage Passing
3"	100
1-1/2"	90 - 100
3/4"	50 - 80
No. 4	24 - 40
No. 100	0 - 4
No. 200	0 - 2

6.3 **Geotextile Fabric** - Filter fabric shall be placed between the permeable drain rock and native soils. Filter cloth shall have an equivalent opening size greater than the No. 100 sieve and a grab strength not less than 100 pounds. Samples of filter fabric shall be submitted to the Geotechnical Engineer for approval before the material is brought to the site.

6.4 **Placement and Compaction** - Drain rock shall be placed in layers not exceeding 8 inches in loose thickness and compacted as required for adjacent fill, but in no case, to be less than 85 percent relative compaction. Placement of geotextile fabric shall be in accordance with the manufacturer's specifications and shall be checked by the Geotechnical Engineer.

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7.0 AGGREGATE BASE BENEATH CONCRETE SLABS

7.1 **Materials** - Aggregate base beneath concrete slabs shall consist of clean free-draining sand, gravel or crushed rock conforming to the following gradation requirements:

Sieve Size	Percent Passing
1"	100
3/8"	30 – 100
No. 20	0 – 10

7.2 **Placement** - Aggregate base shall be compacted and kept moist until placement of concrete. Compaction shall be by suitable vibrating compactors. Aggregate base shall be placed in layers not exceeding 8 inches in loose thickness. Each layer shall be compacted by at least four passes of the compaction equipment or until 95 percent relative compaction has been obtained.

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APPENDIX D

Summary Report of Limited Hydrogeologic Assessment

EnviroMatrix Analytical, Inc.

02 July 2004

Kleinfelder, Inc.
Attn: Jacques Lord
5015 Shoreham Place
San Diego, CA 92122

EMA Log #: 0406172

Project Name: SDGE/Sorrento Mesa

Enclosed are the results of analyses for samples received by the laboratory on 06/15/04 15:39. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that this data is in compliance both technically and for completeness.

for **Dan Verdon**
Laboratory Director

CA ELAP Certification #: 1931

Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Pre-Purge	0406172-01	Water	06/15/04 11:30	06/15/04 15:39
Post-Purge	0406172-02	Water	06/15/04 12:59	06/15/04 15:39

*Note: Acute Bioassay analysis was performed by a subcontract laboratory, results to follow in a separate report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Metals by EPA 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pre-Purge (0406172-01) Water Sampled: 06/15/04 11:30 Received: 06/15/04 15:39									
Antimony	ND	0.10	mg/l	1	4063006	06/30/04	07/01/04	EPA 6010	
Barium	ND	0.10	"	"	"	"	"	"	
Beryllium	ND	0.01	"	"	"	"	"	"	
Cadmium	ND	0.01	"	"	"	"	"	"	
Chromium	ND	0.05	"	"	"	"	"	"	
Cobalt	**0.08**	0.05	"	"	"	"	"	"	
Copper	ND	0.05	"	"	"	"	"	"	
Lead	**0.01**	0.01	"	"	"	"	"	"	
Molybdenum	ND	0.05	"	"	"	"	"	"	
Nickel	ND	0.05	"	"	"	"	"	"	
Vanadium	ND	0.05	"	"	"	"	"	"	
Zinc	ND	0.05	"	"	"	"	"	"	
Arsenic	ND	0.005	"	"	4063016	06/30/04	07/01/04	EPA 6020	
Selenium	ND	0.010	"	"	"	"	"	"	
Silver	ND	0.001	"	"	"	"	"	"	
Thallium	ND	0.005	"	"	"	"	"	"	
Mercury	ND	0.0001	"	"	4063003	06/30/04	06/30/04	EPA 7470	
Post-Purge (0406172-02) Water Sampled: 06/15/04 12:59 Received: 06/15/04 15:39									
Antimony	ND	0.10	mg/l	1	4063006	06/30/04	07/01/04	EPA 6010	
Barium	ND	0.10	"	"	"	"	"	"	
Beryllium	ND	0.01	"	"	"	"	"	"	
Cadmium	ND	0.01	"	"	"	"	"	"	
Chromium	ND	0.05	"	"	"	"	"	"	
Cobalt	**0.08**	0.05	"	"	"	"	"	"	
Copper	ND	0.05	"	"	"	"	"	"	
Lead	**0.03**	0.01	"	"	"	"	"	"	
Molybdenum	ND	0.05	"	"	"	"	"	"	
Nickel	ND	0.05	"	"	"	"	"	"	
Vanadium	ND	0.05	"	"	"	"	"	"	
Zinc	ND	0.05	"	"	"	"	"	"	
Arsenic	ND	0.005	"	"	4063016	06/30/04	07/01/04	EPA 6020	
Selenium	ND	0.010	"	"	"	"	"	"	
Silver	ND	0.001	"	"	"	"	"	"	
Thallium	ND	0.005	"	"	"	"	"	"	
Mercury	ND	0.0001	"	"	4063003	06/30/04	06/30/04	EPA 7470	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pre-Purge (0406172-01) Water Sampled: 06/15/04 11:30 Received: 06/15/04 15:39									
Acetone	ND	25.0	ug/l	1	4061601	06/16/04	06/16/04	EPA 8260B	
Acetonitrile	ND	50.0	"	"	"	"	"	"	
Acrolein	ND	100	"	"	"	"	"	"	
Acrylonitrile	ND	10.0	"	"	"	"	"	"	
Allyl chloride	ND	1.00	"	"	"	"	"	"	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	2.00	"	"	"	"	"	"	
2-Butanone	ND	25.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	2.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chlorodibromomethane	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	2.00	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	2.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	2.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.00	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
trans-1,4-Dichloro-2-butene	ND	2.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	2.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pre-Purge (0406172-01) Water	**Sampled: 06/15/04 11:30**	**Received: 06/15/04 15:39**							
trans-1,3-Dichloropropene	ND	1.00	ug/l	1	4061601	06/16/04	06/16/04	EPA 8260B	
Diethyl ether	ND	2.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
Hexachloroethane	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	5.00	"	"	"	"	"	"	
Iodomethane	ND	1.00	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	25.0	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	2.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	2.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	2.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	2.00	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane	ND	5.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl acetate	ND	5.00	"	"	"	"	"	"	
Vinyl chloride	ND	2.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*89 %*	*80-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*	*80-133*		"	"	"	"	
Surrogate: Toluene-d8		*107 %*	*80-120*		"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Post-Purge (0406172-02) Water Sampled: 06/15/04 12:59 Received: 06/15/04 15:39									
Acetone	ND	25.0	ug/l	1	4061601	06/16/04	06/16/04	EPA 8260B	
Acetonitrile	ND	50.0	"	"	"	"	"	"	
Acrolein	ND	100	"	"	"	"	"	"	
Acrylonitrile	ND	10.0	"	"	"	"	"	"	
Allyl chloride	ND	1.00	"	"	"	"	"	"	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	2.00	"	"	"	"	"	"	
2-Butanone	ND	25.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	2.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chlorodibromomethane	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	2.00	"	"	"	"	"	"	
2-Chloroethylvinyl ether	ND	2.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	2.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.00	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
trans-1,4-Dichloro-2-butene	ND	2.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	2.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Post-Purge (0406172-02) Water	**Sampled: 06/15/04 12:59**	**Received: 06/15/04 15:39**							
trans-1,3-Dichloropropene	ND	1.00	ug/l	1	4061601	06/16/04	06/16/04	EPA 8260B	
Diethyl ether	ND	2.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
Hexachloroethane	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	5.00	"	"	"	"	"	"	
Iodomethane	ND	1.00	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	25.0	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	2.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	2.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	2.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	2.00	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane	ND	5.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl acetate	ND	5.00	"	"	"	"	"	"	
Vinyl chloride	ND	2.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*91 %*	*80-130*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99 %*	*80-133*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*80-120*		"	"	"	"	

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pre-Purge (0406172-01) Water Sampled: 06/15/04 11:30 Received: 06/15/04 15:39									
Acenaphthene	ND	2.00	ug/l	1	4062103	06/21/04	06/23/04	EPA 8270C	
Acenaphthylene	ND	2.00	"	"	"	"	"	"	
Anthracene	ND	2.00	"	"	"	"	"	"	
Benzidine	ND	50.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	2.00	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	2.00	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	2.00	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.00	"	"	"	"	"	"	
Benzo (a) pyrene	ND	2.00	"	"	"	"	"	"	
Benzyl alcohol	ND	4.00	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	2.00	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	2.00	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	2.00	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	2.50	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	2.00	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	2.00	"	"	"	"	"	"	
Carbazole	ND	5.00	"	"	"	"	"	"	
4-Chloroaniline	ND	20.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	2.00	"	"	"	"	"	"	
2-Chloronaphthalene	ND	2.00	"	"	"	"	"	"	
2-Chlorophenol	ND	2.00	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	2.00	"	"	"	"	"	"	
Chrysene	ND	2.00	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.00	"	"	"	"	"	"	
Dibenzofuran	ND	2.00	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	2.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	2.00	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	10.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	2.00	"	"	"	"	"	"	
Diethyl phthalate	ND	2.00	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	2.50	"	"	"	"	"	"	
Dimethyl phthalate	ND	2.00	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	2.00	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	5.00	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	2.00	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	2.00	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	2.50	"	"	"	"	"	"	
1,2-Diphenylhydrazine	ND	10.0	"	"	"	"	"	"	
Fluoranthene	ND	2.00	"	"	"	"	"	"	
Fluorene	ND	2.00	"	"	"	"	"	"	
Hexachlorobenzene	ND	2.00	"	"	"	"	"	"	

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pre-Purge (0406172-01) Water Sampled: 06/15/04 11:30 Received: 06/15/04 15:39									
Hexachlorobutadiene	ND	2.00	ug/l	1	4062103	06/21/04	06/23/04	EPA 8270C	
Hexachlorocyclopentadiene	ND	2.50	"	"	"	"	"	"	
Hexachloroethane	ND	2.00	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	2.00	"	"	"	"	"	"	
Isophorone	ND	2.00	"	"	"	"	"	"	
2-Methylnaphthalene	ND	2.00	"	"	"	"	"	"	
2-Methylphenol	ND	2.00	"	"	"	"	"	"	
4-Methylphenol (3-Methylphenol)	ND	2.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
2-Nitroaniline	ND	5.00	"	"	"	"	"	"	
3-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4-Nitroaniline	ND	10.0	"	"	"	"	"	"	
Nitrobenzene	ND	2.00	"	"	"	"	"	"	
2-Nitrophenol	ND	4.00	"	"	"	"	"	"	
4-Nitrophenol	ND	5.00	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	5.00	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	2.00	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	2.00	"	"	"	"	"	"	
Pentachlorophenol	ND	5.00	"	"	"	"	"	"	
Phenanthrene	ND	2.00	"	"	"	"	"	"	
Phenol	ND	2.00	"	"	"	"	"	"	
Pyrene	ND	2.00	"	"	"	"	"	"	
Pyridine	ND	10.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	2.00	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	2.00	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	2.00	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		*19 %*	*22-124*		"	"	"	"	*S-04*
Surrogate: Phenol-d6		*45 %*	*41-135*		"	"	"	"	
Surrogate: Nitrobenzene-d5		*46 %*	*35-121*		"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*44 %*	*30-130*		"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*19 %*	*48-135*		"	"	"	"	*S-04*
Surrogate: Terphenyl-dl4		*46 %*	*30-140*		"	"	"	"	

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Post-Purge (0406172-02) Water Sampled: 06/15/04 12:59 Received: 06/15/04 15:39									
Acenaphthene	ND	2.00	ug/l	1	4062103	06/21/04	06/23/04	EPA 8270C	
Acenaphthylene	ND	2.00	"	"	"	"	"	"	
Anthracene	ND	2.00	"	"	"	"	"	"	
Benzidine	ND	50.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	2.00	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	2.00	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	2.00	"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	2.00	"	"	"	"	"	"	
Benzo (a) pyrene	ND	2.00	"	"	"	"	"	"	
Benzyl alcohol	ND	4.00	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	2.00	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	2.00	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	2.00	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	2.50	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	2.00	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	2.00	"	"	"	"	"	"	
Carbazole	ND	5.00	"	"	"	"	"	"	
4-Chloroaniline	ND	20.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	2.00	"	"	"	"	"	"	
2-Chloronaphthalene	ND	2.00	"	"	"	"	"	"	
2-Chlorophenol	ND	2.00	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	2.00	"	"	"	"	"	"	
Chrysene	ND	2.00	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	2.00	"	"	"	"	"	"	
Dibenzofuran	ND	2.00	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	2.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	2.00	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	10.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	2.00	"	"	"	"	"	"	
Diethyl phthalate	ND	2.00	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	2.50	"	"	"	"	"	"	
Dimethyl phthalate	ND	2.00	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	2.00	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	5.00	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	2.00	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	2.00	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	2.50	"	"	"	"	"	"	
1,2-Diphenylhydrazine	ND	10.0	"	"	"	"	"	"	
Fluoranthene	ND	2.00	"	"	"	"	"	"	
Fluorene	ND	2.00	"	"	"	"	"	"	
Hexachlorobenzene	ND	2.00	"	"	"	"	"	"	

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Semivolatile Organic Compounds by EPA Method 8270C

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Post-Purge (0406172-02) Water Sampled: 06/15/04 12:59 Received: 06/15/04 15:39									
Hexachlorobutadiene	ND	2.00	ug/l	1	4062103	06/21/04	06/23/04	EPA 8270C	
Hexachlorocyclopentadiene	ND	2.50	"	"	"	"	"	"	
Hexachloroethane	ND	2.00	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	2.00	"	"	"	"	"	"	
Isophorone	ND	2.00	"	"	"	"	"	"	
2-Methylnaphthalene	ND	2.00	"	"	"	"	"	"	
2-Methylphenol	ND	2.00	"	"	"	"	"	"	
4-Methylphenol (3-Methylphenol)	ND	2.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
2-Nitroaniline	ND	5.00	"	"	"	"	"	"	
3-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4-Nitroaniline	ND	10.0	"	"	"	"	"	"	
Nitrobenzene	ND	2.00	"	"	"	"	"	"	
2-Nitrophenol	ND	4.00	"	"	"	"	"	"	
4-Nitrophenol	ND	5.00	"	"	"	"	"	"	
N-Nitrosodimethylamine	ND	5.00	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	2.00	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	2.00	"	"	"	"	"	"	
Pentachlorophenol	ND	5.00	"	"	"	"	"	"	
Phenanthrene	ND	2.00	"	"	"	"	"	"	
Phenol	ND	2.00	"	"	"	"	"	"	
Pyrene	ND	2.00	"	"	"	"	"	"	
Pyridine	ND	10.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	2.00	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	2.00	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	2.00	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		*23 %*	*22-124*		"	"	"	"	
Surrogate: Phenol-d6		*38 %*	*41-135*		"	"	"	"	*S-04*
Surrogate: Nitrobenzene-d5		*44 %*	*35-121*		"	"	"	"	
Surrogate: 2-Fluorobiphenyl		*44 %*	*30-130*		"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		*35 %*	*48-135*		"	"	"	"	*S-04*
Surrogate: Terphenyl-dl4		*50 %*	*30-140*		"	"	"	"	

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Conventional Chemistry Parameters by Standard/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pre-Purge (0406172-01) Water Sampled: 06/15/04 11:30 Received: 06/15/04 15:39									
Residual Chlorine	ND	0.05	mg/l	1	4061609	06/15/04	06/15/04	SM4500 Cl G	
Nitrate/Nitrite as N	ND	0.05	"	"	4062410	06/24/04	06/24/04	SM4500 NO3 E	
Total Kjeldahl Nitrogen	**0.8**	0.5	"	"	4062119	06/21/04	06/21/04	SM4500 N C	
Total Nitrogen	**0.8**	0.5	"	"	4062208	06/21/04	06/22/04	Calculation	
Dissolved Oxygen	**0.25**	0.10	"	"	4062219	06/15/04	06/15/04	SM4500 O G	
pH	**6.77**	0.10	pH Units	"	4061608	06/15/04	06/15/04	EPA 150.1	
Phosphorus, Total	**0.77**	0.05	mg/l	"	4062117	06/21/04	06/21/04	SM4500 P B, E	
Total Settleable Solids	**10**	0.20	ml/l	"	4061507	06/15/04	06/15/04	SM2540 F	
Total Suspended Solids	**966**	20	mg/l	"	4061816	06/19/04	06/20/04	SM2540 D	
Hydrogen sulfide	ND	0.05	"	"	4062211	06/21/04	06/22/04	SM4500 S D	
Turbidity	**106**	0.05	NTU	"	4061509	06/15/04	06/15/04	SM2130 B	
Post-Purge (0406172-02) Water Sampled: 06/15/04 12:59 Received: 06/15/04 15:39									
Residual Chlorine	ND	0.05	mg/l	1	4061609	06/15/04	06/15/04	SM4500 Cl G	
Nitrate/Nitrite as N	ND	0.05	"	"	4061706	06/16/04	06/17/04	SM4500 NO3 E	
Total Kjeldahl Nitrogen	**0.8**	0.5	"	"	4062119	06/21/04	06/21/04	SM4500 N C	
Total Nitrogen	**0.8**	0.5	"	"	4062208	06/21/04	06/22/04	Calculation	
Dissolved Oxygen	**0.42**	0.10	"	"	4062219	06/15/04	06/15/04	SM4500 O G	
pH	**6.84**	0.10	pH Units	"	4061608	06/15/04	06/15/04	EPA 150.1	
Phosphorus, Total	**0.21**	0.05	mg/l	"	4062117	06/21/04	06/21/04	SM4500 P B, E	
Total Settleable Solids	ND	0.20	ml/l	"	4061507	06/15/04	06/15/04	SM2540 F	
Total Suspended Solids	ND	20	mg/l	"	4061816	06/19/04	06/20/04	SM2540 D	
Hydrogen sulfide	ND	0.05	"	"	4062211	06/21/04	06/22/04	SM4500 S D	
Turbidity	**4.74**	0.05	NTU	"	4061509	06/15/04	06/15/04	SM2130 B	

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Microbiological Parameters by Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pre-Purge (0406172-01) Water	**Sampled: 06/15/04 11:30**		**Received: 06/15/04 15:39**						
Total Coliforms	**50**	2	MPN/100 ml	1	4062217	06/15/04	06/19/04	SM 9221 B, E	
Fecal Coliforms	ND	2	"	"	"	"	06/18/04	"	
Post-Purge (0406172-02) Water	**Sampled: 06/15/04 12:59**		**Received: 06/15/04 15:39**						
Total Coliforms	**2**	2	MPN/100 ml	1	4062217	06/15/04	06/19/04	SM 9221 B, E	
Fecal Coliforms	ND	2	"	"	"	"	06/18/04	"	

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

TPH by EPA 8015B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pre-Purge (0406172-01) Water Sampled: 06/15/04 11:30 Received: 06/15/04 15:39									
Diesel (C10-C28)	ND	500	ug/l	1	4062106	06/21/04	06/23/04	EPA 8015 B	
Surrogate: 4-Bromofluorobenzene		*144 %*	*69-139*		"	"	"	"	*S-04*
Gasoline (C6-C10)	**21**	20	"	"	4062107	06/21/04	06/21/04	"	
Surrogate: 4-Bromofluorobenzene		*90 %*	*77-135*		"	"	"	"	
Post-Purge (0406172-02) Water Sampled: 06/15/04 12:59 Received: 06/15/04 15:39									
Diesel (C10-C28)	ND	500	ug/l	1	4062106	06/21/04	06/23/04	EPA 8015 B	
Surrogate: 4-Bromofluorobenzene		*136 %*	*69-139*		"	"	"	"	
Gasoline (C6-C10)	ND	20	"	"	4062107	06/21/04	06/21/04	"	
Surrogate: 4-Bromofluorobenzene		*90 %*	*77-135*		"	"	"	"	

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4063003										
Blank (4063003-BLK1)				Prepared & Analyzed: 06/30/04						
Mercury	ND	0.0001	mg/l							
LCS (4063003-BS1)				Prepared & Analyzed: 06/30/04						
Mercury	0.002	0.0001	mg/l	0.00200		100	75-125			
LCS Dup (4063003-BSD1)				Prepared & Analyzed: 06/30/04						
Mercury	0.002	0.0001	mg/l	0.00200		100	75-125	0	20	
Duplicate (4063003-DUP1)		**Source: 0406172-02**		Prepared & Analyzed: 06/30/04						
Mercury	ND	0.0001	mg/l		ND				20	
Matrix Spike (4063003-MS1)		**Source: 0406172-02**		Prepared & Analyzed: 06/30/04						
Mercury	0.0004	0.0001	mg/l	0.00200	ND	20	75-125			QM-01
Matrix Spike Dup (4063003-MSD1)		**Source: 0406172-02**		Prepared & Analyzed: 06/30/04						
Mercury	0.0003	0.0001	mg/l	0.00200	ND	15	75-125	29	20	QM-01
Batch 4063006										
Blank (4063006-BLK1)				Prepared: 06/30/04 Analyzed: 07/01/04						
Antimony	ND	0.10	mg/l							
Barium	ND	0.10	"							
Beryllium	ND	0.01	"							
Cadmium	ND	0.01	"							
Chromium	ND	0.05	"							
Cobalt	ND	0.05	"							
Copper	ND	0.05	"							
Lead	ND	0.01	"							
Molybdenum	ND	0.05	"							
Nickel	ND	0.05	"							
Vanadium	ND	0.05	"							
Zinc	ND	0.05	"							

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4063006										
LCS (4063006-BS1)				Prepared: 06/30/04 Analyzed: 07/01/04						
Antimony	5.10	0.10	mg/l	5.00		102	75-125			
Barium	5.27	0.10	"	5.00		105	75-125			
Beryllium	0.99	0.01	"	1.00		99	75-125			
Cadmium	5.17	0.01	"	5.00		103	75-125			
Chromium	5.08	0.05	"	5.00		102	75-125			
Cobalt	5.16	0.05	"	5.00		103	75-125			
Copper	4.90	0.05	"	5.00		98	75-125			
Lead	4.93	0.01	"	5.00		99	75-125			
Molybdenum	5.12	0.05	"	5.00		102	75-125			
Nickel	4.99	0.05	"	5.00		100	75-125			
Vanadium	5.18	0.05	"	5.00		104	75-125			
Zinc	5.07	0.05	"	5.00		101	75-125			
LCS Dup (4063006-BSD1)				Prepared: 06/30/04 Analyzed: 07/01/04						
Antimony	5.06	0.10	mg/l	5.00		101	75-125	0.8	20	
Barium	5.20	0.10	"	5.00		104	75-125	1	20	
Beryllium	0.98	0.01	"	1.00		98	75-125	1	20	
Cadmium	5.10	0.01	"	5.00		102	75-125	1	20	
Chromium	5.00	0.05	"	5.00		100	75-125	2	20	
Cobalt	5.09	0.05	"	5.00		102	75-125	1	20	
Copper	4.86	0.05	"	5.00		97	75-125	0.8	20	
Lead	4.89	0.01	"	5.00		98	75-125	0.8	20	
Molybdenum	5.08	0.05	"	5.00		102	75-125	0.8	20	
Nickel	4.94	0.05	"	5.00		99	75-125	1	20	
Vanadium	5.11	0.05	"	5.00		102	75-125	1	20	
Zinc	5.02	0.05	"	5.00		100	75-125	1	20	
Duplicate (4063006-DUP1)		**Source: 0406172-01**		Prepared: 06/30/04 Analyzed: 07/01/04						
Antimony	ND	0.10	mg/l		ND				20	
Barium	ND	0.10	"		0.06			15	20	
Beryllium	ND	0.01	"		0.0009			12	20	
Cadmium	ND	0.01	"		ND				20	
Chromium	ND	0.05	"		ND				20	
Cobalt	0.09	0.05	"		0.08			12	20	
Copper	ND	0.05	"		0.01			67	20	QR-04
Lead	0.02	0.01	"		0.01			67	20	QR-02
Molybdenum	ND	0.05	"		0.01			0	20	
Nickel	ND	0.05	"		0.02			40	20	QR-04

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4063006										
Duplicate (4063006-DUP1)		**Source: 0406172-01**		Prepared: 06/30/04 Analyzed: 07/01/04						
Vanadium	ND	0.05	mg/l		0.02			40	20	QR-04
Zinc	ND	0.05	"		0.03			0	20	
Matrix Spike (4063006-MS1)		**Source: 0406172-01**		Prepared: 06/30/04 Analyzed: 07/01/04						
Antimony	4.98	0.10	mg/l	5.00	ND	100	75-125			
Barium	5.09	0.10	"	5.00	0.06	101	75-125			
Beryllium	0.91	0.01	"	1.00	0.0009	91	75-125			
Cadmium	4.80	0.01	"	5.00	ND	96	75-125			
Chromium	4.72	0.05	"	5.00	ND	94	75-125			
Cobalt	4.93	0.05	"	5.00	0.08	97	75-125			
Copper	4.86	0.05	"	5.00	0.01	97	75-125			
Lead	4.74	0.01	"	5.00	0.01	95	75-125			
Molybdenum	4.72	0.05	"	5.00	0.01	94	75-125			
Nickel	4.54	0.05	"	5.00	0.02	90	75-125			
Vanadium	4.96	0.05	"	5.00	0.02	99	75-125			
Zinc	4.90	0.05	"	5.00	0.03	97	75-125			
Matrix Spike Dup (4063006-MSD1)		**Source: 0406172-01**		Prepared: 06/30/04 Analyzed: 07/01/04						
Antimony	5.09	0.10	mg/l	5.00	ND	102	75-125	2	20	
Barium	5.09	0.10	"	5.00	0.06	101	75-125	0	20	
Beryllium	0.91	0.01	"	1.00	0.0009	91	75-125	0	20	
Cadmium	4.79	0.01	"	5.00	ND	96	75-125	0.2	20	
Chromium	4.71	0.05	"	5.00	ND	94	75-125	0.2	20	
Cobalt	4.93	0.05	"	5.00	0.08	97	75-125	0	20	
Copper	4.95	0.05	"	5.00	0.01	99	75-125	2	20	
Lead	4.86	0.01	"	5.00	0.01	97	75-125	3	20	
Molybdenum	4.86	0.05	"	5.00	0.01	97	75-125	3	20	
Nickel	4.66	0.05	"	5.00	0.02	93	75-125	3	20	
Vanadium	4.96	0.05	"	5.00	0.02	99	75-125	0	20	
Zinc	4.97	0.05	"	5.00	0.03	99	75-125	1	20	

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4063016										
Blank (4063016-BLK1)				Prepared: 06/30/04 Analyzed: 07/01/04						
Arsenic	ND	0.005	mg/l							
Selenium	ND	0.010	"							
Silver	ND	0.001	"							
Thallium	ND	0.005	"							
LCS (4063016-BS1)				Prepared: 06/30/04 Analyzed: 07/01/04						
Arsenic	0.096	0.005	mg/l	0.100		96	75-125			
Selenium	0.095	0.010	"	0.100		95	75-125			
Silver	0.095	0.001	"	0.100		95	75-125			
Thallium	0.096	0.005	"	0.100		96	75-125			
LCS Dup (4063016-BSD1)				Prepared: 06/30/04 Analyzed: 07/01/04						
Arsenic	0.088	0.005	mg/l	0.100		88	75-125	9	20	
Selenium	0.089	0.010	"	0.100		89	75-125	7	20	
Silver	0.085	0.001	"	0.100		85	75-125	11	20	
Thallium	0.086	0.005	"	0.100		86	75-125	11	20	
Duplicate (4063016-DUP1)		**Source: 0406172-01**		Prepared: 06/30/04 Analyzed: 07/01/04						
Arsenic	ND	0.005	mg/l		0.002			67	20	QR-06
Selenium	ND	0.010	"		ND				20	
Silver	ND	0.001	"		ND				20	
Thallium	ND	0.005	"		ND				20	
Matrix Spike (4063016-MS1)		**Source: 0406172-01**		Prepared: 06/30/04 Analyzed: 07/01/04						
Arsenic	0.106	0.005	mg/l	0.100	0.002	104	75-125			
Selenium	0.100	0.010	"	0.100	ND	100	75-125			
Silver	0.100	0.001	"	0.100	ND	100	75-125			
Thallium	0.103	0.005	"	0.100	ND	103	75-125			

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Metals by EPA 6000/7000 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4063016										
Matrix Spike Dup (4063016-MSD1)		**Source: 0406172-01**		Prepared: 06/30/04 Analyzed: 07/01/04						
Arsenic	0.107	0.005	mg/l	0.100	0.002	105	75-125	0.9	20	
Selenium	0.096	0.010	"	0.100	ND	96	75-125	4	20	
Silver	0.092	0.001	"	0.100	ND	92	75-125	8	20	
Thallium	0.097	0.005	"	0.100	ND	97	75-125	6	20	

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4061601										
Blank (4061601-BLK1)				Prepared & Analyzed: 06/16/04						
Acetone	ND	25.0	ug/l							
Acetonitrile	ND	50.0	"							
Acrolein	ND	100	"							
Acrylonitrile	ND	10.0	"							
Allyl chloride	ND	1.00	"							
Benzene	ND	1.00	"							
Bromobenzene	ND	1.00	"							
Bromochloromethane	ND	1.00	"							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	2.00	"							
2-Butanone	ND	25.0	"							
n-Butylbenzene	ND	1.00	"							
sec-Butylbenzene	ND	1.00	"							
tert-Butylbenzene	ND	1.00	"							
Carbon disulfide	ND	1.00	"							
Carbon tetrachloride	ND	2.00	"							
Chlorobenzene	ND	1.00	"							
Chlorodibromomethane	ND	1.00	"							
Chloroethane	ND	2.00	"							
2-Chloroethylvinyl ether	ND	2.00	"							
Chloroform	ND	1.00	"							
Chloromethane	ND	2.00	"							
2-Chlorotoluene	ND	1.00	"							
4-Chlorotoluene	ND	1.00	"							
1,2-Dibromo-3-chloropropane	ND	2.00	"							
1,2-Dibromoethane (EDB)	ND	1.00	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	1.00	"							
1,3-Dichlorobenzene	ND	1.00	"							
1,4-Dichlorobenzene	ND	1.00	"							
trans-1,4-Dichloro-2-butene	ND	2.00	"							
Dichlorodifluoromethane	ND	2.00	"							
1,1-Dichloroethane	ND	1.00	"							
1,2-Dichloroethane	ND	1.00	"							
1,1-Dichloroethene	ND	1.00	"							
cis-1,2-Dichloroethene	ND	1.00	"							
trans-1,2-Dichloroethene	ND	1.00	"							

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4061601										
Blank (4061601-BLK1)				Prepared & Analyzed: 06/16/04						
1,2-Dichloropropane	ND	1.00	ug/l							
1,3-Dichloropropane	ND	1.00	"							
2,2-Dichloropropane	ND	1.00	"							
1,1-Dichloropropene	ND	1.00	"							
cis-1,3-Dichloropropene	ND	1.00	"							
trans-1,3-Dichloropropene	ND	1.00	"							
Diethyl ether	ND	2.00	"							
Ethylbenzene	ND	1.00	"							
Hexachlorobutadiene	ND	1.00	"							
Hexachloroethane	ND	1.00	"							
2-Hexanone	ND	5.00	"							
Iodomethane	ND	1.00	"							
Isopropylbenzene	ND	1.00	"							
Methylene chloride	ND	5.00	"							
Methyl tert-butyl ether	ND	1.00	"							
4-Methyl-2-pentanone	ND	25.0	"							
Naphthalene	ND	2.00	"							
n-Propylbenzene	ND	1.00	"							
Styrene	ND	1.00	"							
1,1,1,2-Tetrachloroethane	ND	1.00	"							
1,1,2,2-Tetrachloroethane	ND	2.00	"							
Tetrachloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
1,2,3-Trichlorobenzene	ND	1.00	"							
1,2,4-Trichlorobenzene	ND	1.00	"							
1,1,1-Trichloroethane	ND	2.00	"							
1,1,2-Trichloroethane	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Trichlorofluoromethane	ND	2.00	"							
1,2,3-Trichloropropane	ND	2.00	"							
1,1,2-Trichlorotrifluoroethane	ND	5.00	"							
1,2,4-Trimethylbenzene	ND	1.00	"							
1,3,5-Trimethylbenzene	ND	1.00	"							
Vinyl acetate	ND	5.00	"							
Vinyl chloride	ND	2.00	"							
m,p-Xylene	ND	2.00	"							
o-Xylene	ND	1.00	"							
Surrogate: Dibromofluoromethane	*43.7*		"	*50.0*		*87*	*80-130*			

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4061601										
Blank (4061601-BLK1)				Prepared & Analyzed: 06/16/04						
Surrogate: 4-Bromofluorobenzene	*44.5*		*ug/l*	*50.0*		*89*	*80-133*			
Surrogate: Toluene-d8	*49.0*		"	*50.0*		*98*	*80-120*			
LCS (4061601-BS1)				Prepared & Analyzed: 06/16/04						
Benzene	56.2	1.00	ug/l	50.0		112	68-123			
Chlorobenzene	51.2	1.00	"	50.0		102	72-114			
1,1-Dichloroethene	48.4	1.00	"	50.0		97	60-127			
Toluene	53.6	1.00	"	50.0		107	70-119			
Trichloroethene	48.2	1.00	"	50.0		96	73-113			
Surrogate: Dibromofluoromethane	*47.2*		"	*50.0*		*94*	*80-130*			
Surrogate: 4-Bromofluorobenzene	*53.0*		"	*50.0*		*106*	*80-133*			
Surrogate: Toluene-d8	*51.2*		"	*50.0*		*102*	*80-120*			
Duplicate (4061601-DUP1)		**Source: 0406172-01**		Prepared & Analyzed: 06/16/04						
Acetone	ND	25.0	ug/l		3.98				30	
Acetonitrile	ND	50.0	"		ND				30	
Acrolein	ND	100	"		ND				30	
Acrylonitrile	ND	10.0	"		ND				30	
Allyl chloride	ND	1.00	"		ND				30	
Benzene	ND	1.00	"		ND				30	
Bromobenzene	ND	1.00	"		ND				30	
Bromochloromethane	ND	1.00	"		ND				30	
Bromodichloromethane	ND	1.00	"		ND				30	
Bromoform	ND	1.00	"		ND				30	
Bromomethane	ND	2.00	"		ND				30	
2-Butanone	ND	25.0	"		ND				30	
n-Butylbenzene	ND	1.00	"		ND				30	
sec-Butylbenzene	ND	1.00	"		ND				30	
tert-Butylbenzene	ND	1.00	"		ND				30	
Carbon disulfide	ND	1.00	"		ND				30	
Carbon tetrachloride	ND	2.00	"		ND				30	
Chlorobenzene	ND	1.00	"		ND				30	
Chlorodibromomethane	ND	1.00	"		ND				30	
Chloroethane	ND	2.00	"		ND				30	
2-Chloroethylvinyl ether	ND	2.00	"		ND				30	
Chloroform	ND	1.00	"		ND				30	
Chloromethane	ND	2.00	"		ND				30	
2-Chlorotoluene	ND	1.00	"		ND				30	

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4061601										
Duplicate (4061601-DUP1)		**Source: 0406172-01**		Prepared & Analyzed: 06/16/04						
4-Chlorotoluene	ND	1.00	ug/l		ND				30	
1,2-Dibromo-3-chloropropane	ND	2.00	"		ND				30	
1,2-Dibromoethane (EDB)	ND	1.00	"		ND				30	
Dibromomethane	ND	1.00	"		ND				30	
1,2-Dichlorobenzene	ND	1.00	"		ND				30	
1,3-Dichlorobenzene	ND	1.00	"		ND				30	
1,4-Dichlorobenzene	ND	1.00	"		ND				30	
trans-1,4-Dichloro-2-butene	ND	2.00	"		ND				30	
Dichlorodifluoromethane	ND	2.00	"		ND				30	
1,1-Dichloroethane	ND	1.00	"		ND				30	
1,2-Dichloroethane	ND	1.00	"		ND				30	
1,1-Dichloroethene	ND	1.00	"		ND				30	
cis-1,2-Dichloroethene	ND	1.00	"		ND				30	
trans-1,2-Dichloroethene	ND	1.00	"		ND				30	
1,2-Dichloropropane	ND	1.00	"		ND				30	
1,3-Dichloropropane	ND	1.00	"		ND				30	
2,2-Dichloropropane	ND	1.00	"		ND				30	
1,1-Dichloropropene	ND	1.00	"		ND				30	
cis-1,3-Dichloropropene	ND	1.00	"		ND				30	
trans-1,3-Dichloropropene	ND	1.00	"		ND				30	
Diethyl ether	ND	2.00	"		ND				30	
Ethylbenzene	ND	1.00	"		0.31			0	30	
Hexachlorobutadiene	ND	1.00	"		ND				30	
Hexachloroethane	ND	1.00	"		ND				30	
2-Hexanone	ND	5.00	"		ND				30	
Iodomethane	ND	1.00	"		ND				30	
Isopropylbenzene	ND	1.00	"		ND				30	
Methylene chloride	ND	5.00	"		0.63			10	30	
Methyl tert-butyl ether	ND	1.00	"		ND				30	
4-Methyl-2-pentanone	ND	25.0	"		ND				30	
Naphthalene	ND	2.00	"		0.62			6	30	
n-Propylbenzene	ND	1.00	"		ND				30	
Styrene	ND	1.00	"		ND				30	
1,1,1,2-Tetrachloroethane	ND	1.00	"		ND				30	
1,1,2,2-Tetrachloroethane	ND	2.00	"		ND				30	
Tetrachloroethene	ND	1.00	"		ND				30	
Toluene	ND	1.00	"		0.32			6	30	
1,2,3-Trichlorobenzene	ND	1.00	"		ND				30	

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4061601										
Duplicate (4061601-DUP1)		**Source: 0406172-01**		Prepared & Analyzed: 06/16/04						
1,2,4-Trichlorobenzene	ND	1.00	ug/l		ND				30	
1,1,1-Trichloroethane	ND	2.00	"		ND				30	
1,1,2-Trichloroethane	ND	1.00	"		ND				30	
Trichloroethene	ND	1.00	"		ND				30	
Trichlorofluoromethane	ND	2.00	"		ND				30	
1,2,3-Trichloropropane	ND	2.00	"		ND				30	
1,1,2-Trichlorotrifluoroethane	ND	5.00	"		ND				30	
1,2,4-Trimethylbenzene	ND	1.00	"		0.73			3	30	
1,3,5-Trimethylbenzene	ND	1.00	"		ND				30	
Vinyl acetate	ND	5.00	"		ND				30	
Vinyl chloride	ND	2.00	"		ND				30	
m,p-Xylene	ND	2.00	"		1.22			0.8	30	
o-Xylene	ND	1.00	"		ND				30	
Surrogate: Dibromofluoromethane	*44.8*		"	*50.0*		*90*	*80-130*			
Surrogate: 4-Bromofluorobenzene	*47.4*		"	*50.0*		*95*	*80-133*			
Surrogate: Toluene-d8	*50.6*		"	*50.0*		*101*	*80-120*			
Matrix Spike (4061601-MS1)		**Source: 0406172-02**		Prepared & Analyzed: 06/16/04						
Benzene	48.8	1.00	ug/l	50.0	ND	98	70-128			
Chlorobenzene	50.4	1.00	"	50.0	ND	101	74-119			
1,1-Dichloroethene	49.5	1.00	"	50.0	ND	99	60-133			
Toluene	49.6	1.00	"	50.0	ND	99	72-125			
Trichloroethene	46.5	1.00	"	50.0	ND	93	73-119			
Surrogate: Dibromofluoromethane	*44.0*		"	*50.0*		*88*	*80-130*			
Surrogate: 4-Bromofluorobenzene	*51.4*		"	*50.0*		*103*	*80-133*			
Surrogate: Toluene-d8	*49.0*		"	*50.0*		*98*	*80-120*			
Matrix Spike Dup (4061601-MSD1)		**Source: 0406172-02**		Prepared & Analyzed: 06/16/04						
Benzene	49.8	1.00	ug/l	50.0	ND	100	70-128	2	30	
Chlorobenzene	51.0	1.00	"	50.0	ND	102	74-119	1	30	
1,1-Dichloroethene	47.8	1.00	"	50.0	ND	96	60-133	3	30	
Toluene	50.3	1.00	"	50.0	ND	101	72-125	1	30	
Trichloroethene	47.3	1.00	"	50.0	ND	95	73-119	2	30	
Surrogate: Dibromofluoromethane	*44.6*		"	*50.0*		*89*	*80-130*			
Surrogate: 4-Bromofluorobenzene	*47.2*		"	*50.0*		*94*	*80-133*			
Surrogate: Toluene-d8	*48.4*		"	*50.0*		*97*	*80-120*			

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4062103										
Blank (4062103-BLK1)				Prepared: 06/21/04 Analyzed: 06/23/04						
Acenaphthene	ND	2.00	ug/l							
Acenaphthylene	ND	2.00	"							
Anthracene	ND	2.00	"							
Benzidine	ND	50.0	"							
Benzo (a) anthracene	ND	2.00	"							
Benzo (b) fluoranthene	ND	2.00	"							
Benzo (k) fluoranthene	ND	2.00	"							
Benzo (g,h,i) perylene	ND	2.00	"							
Benzo (a) pyrene	ND	2.00	"							
Benzyl alcohol	ND	4.00	"							
Bis(2-chloroethoxy)methane	ND	2.00	"							
Bis(2-chloroethyl)ether	ND	2.00	"							
Bis(2-chloroisopropyl)ether	ND	2.00	"							
Bis(2-ethylhexyl)phthalate	ND	2.50	"							
4-Bromophenyl phenyl ether	ND	2.00	"							
Butyl benzyl phthalate	ND	2.00	"							
Carbazole	ND	5.00	"							
4-Chloroaniline	ND	20.0	"							
4-Chloro-3-methylphenol	ND	2.00	"							
2-Chloronaphthalene	ND	2.00	"							
2-Chlorophenol	ND	2.00	"							
4-Chlorophenyl phenyl ether	ND	2.00	"							
Chrysene	ND	2.00	"							
Dibenz (a,h) anthracene	ND	2.00	"							
Dibenzofuran	ND	2.00	"							
Di-n-butyl phthalate	ND	2.00	"							
1,2-Dichlorobenzene	ND	2.00	"							
1,3-Dichlorobenzene	ND	2.00	"							
1,4-Dichlorobenzene	ND	2.00	"							
3,3'-Dichlorobenzidine	ND	10.0	"							
2,4-Dichlorophenol	ND	2.00	"							
Diethyl phthalate	ND	2.00	"							
2,4-Dimethylphenol	ND	2.50	"							
Dimethyl phthalate	ND	2.00	"							
4,6-Dinitro-2-methylphenol	ND	2.00	"							
2,4-Dinitrophenol	ND	5.00	"							
2,4-Dinitrotoluene	ND	2.00	"							
2,6-Dinitrotoluene	ND	2.00	"							

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4062103										
Blank (4062103-BLK1)				Prepared: 06/21/04 Analyzed: 06/23/04						
Di-n-octyl phthalate	ND	2.50	ug/l							
1,2-Diphenylhydrazine	ND	10.0	"							
Fluoranthene	ND	2.00	"							
Fluorene	ND	2.00	"							
Hexachlorobenzene	ND	2.00	"							
Hexachlorobutadiene	ND	2.00	"							
Hexachlorocyclopentadiene	ND	2.50	"							
Hexachloroethane	ND	2.00	"							
Indeno (1,2,3-cd) pyrene	ND	2.00	"							
Isophorone	ND	2.00	"							
2-Methylnaphthalene	ND	2.00	"							
2-Methylphenol	ND	2.00	"							
4-Methylphenol (3-Methylphenol)	ND	2.00	"							
Naphthalene	ND	2.00	"							
2-Nitroaniline	ND	5.00	"							
3-Nitroaniline	ND	10.0	"							
4-Nitroaniline	ND	10.0	"							
Nitrobenzene	ND	2.00	"							
2-Nitrophenol	ND	4.00	"							
4-Nitrophenol	ND	5.00	"							
N-Nitrosodimethylamine	ND	5.00	"							
N-Nitrosodiphenylamine	ND	2.00	"							
N-Nitrosodi-n-propylamine	ND	2.00	"							
Pentachlorophenol	ND	5.00	"							
Phenanthrene	ND	2.00	"							
Phenol	ND	2.00	"							
Pyrene	ND	2.00	"							
Pyridine	ND	10.0	"							
1,2,4-Trichlorobenzene	ND	2.00	"							
2,4,5-Trichlorophenol	ND	2.00	"							
2,4,6-Trichlorophenol	ND	2.00	"							
Surrogate: 2-Fluorophenol	*6.17*		"	*25.0*		*25*	*22-124*			
Surrogate: Phenol-d6	*12.0*		"	*25.0*		*48*	*41-135*			
Surrogate: Nitrobenzene-d5	*19.1*		"	*25.0*		*76*	*35-121*			
Surrogate: 2-Fluorobiphenyl	*19.0*		"	*25.0*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*14.0*		"	*25.0*		*56*	*48-135*			
Surrogate: Terphenyl-dl4	*24.4*		"	*25.0*		*98*	*30-140*			

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4062103										
LCS (4062103-BS1)				Prepared: 06/21/04 Analyzed: 06/23/04						
Acenaphthene	23.1	2.00	ug/l	25.0		92	47-145			
4-Chloro-3-methylphenol	20.0	2.00	"	25.0		80	22-147			
2-Chlorophenol	15.4	2.00	"	25.0		62	23-134			
Di-n-butyl phthalate	29.6	2.00	"	25.0		118	1-141			
1,4-Dichlorobenzene	13.5	2.00	"	25.0		54	20-124			
2,4-Dinitrotoluene	26.9	2.00	"	25.0		108	39-139			
4-Nitrophenol	20.6	5.00	"	25.0		82	0-132			
N-Nitrosodi-n-propylamine	25.0	2.00	"	25.0		100	0-230			
Pentachlorophenol	26.7	5.00	"	25.0		107	14-175			
Phenol	13.8	2.00	"	25.0		55	5-112			
Pyrene	25.6	2.00	"	25.0		102	52-148			
1,2,4-Trichlorobenzene	16.7	2.00	"	25.0		67	44-142			
Surrogate: 2-Fluorophenol	*8.53*		"	*25.0*		*34*	*22-124*			
Surrogate: Phenol-d6	*15.0*		"	*25.0*		*60*	*41-135*			
Surrogate: Nitrobenzene-d5	*24.2*		"	*25.0*		*97*	*35-121*			
Surrogate: 2-Fluorobiphenyl	*22.2*		"	*25.0*		*89*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*18.5*		"	*25.0*		*74*	*48-135*			
Surrogate: Terphenyl-dl4	*23.8*		"	*25.0*		*95*	*30-140*			
LCS Dup (4062103-BSD1)				Prepared: 06/21/04 Analyzed: 06/23/04						
Acenaphthene	24.0	2.00	ug/l	25.0		96	47-145	4	30	
4-Chloro-3-methylphenol	20.6	2.00	"	25.0		82	22-147	3	30	
2-Chlorophenol	18.3	2.00	"	25.0		73	23-134	17	30	
Di-n-butyl phthalate	31.7	2.00	"	25.0		127	1-141	7	30	
1,4-Dichlorobenzene	14.6	2.00	"	25.0		58	20-124	8	30	
2,4-Dinitrotoluene	26.1	2.00	"	25.0		104	39-139	3	30	
4-Nitrophenol	20.2	5.00	"	25.0		81	0-132	2	30	
N-Nitrosodi-n-propylamine	25.5	2.00	"	25.0		102	0-230	2	30	
Pentachlorophenol	27.0	5.00	"	25.0		108	14-175	1	30	
Phenol	15.8	2.00	"	25.0		63	5-112	14	30	
Pyrene	27.2	2.00	"	25.0		109	52-148	6	30	
1,2,4-Trichlorobenzene	18.2	2.00	"	25.0		73	44-142	9	30	
Surrogate: 2-Fluorophenol	*10.7*		"	*25.0*		*43*	*22-124*			
Surrogate: Phenol-d6	*16.9*		"	*25.0*		*68*	*41-135*			
Surrogate: Nitrobenzene-d5	*23.0*		"	*25.0*		*92*	*35-121*			
Surrogate: 2-Fluorobiphenyl	*21.4*		"	*25.0*		*86*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*18.1*		"	*25.0*		*72*	*48-135*			
Surrogate: Terphenyl-dl4	*24.3*		"	*25.0*		*97*	*30-140*			

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4061509										
Duplicate (4061509-DUP1)		**Source: 0406172-01**		Prepared & Analyzed: 06/15/04						
Turbidity	105	0.05	NTU		106			0.9	20	
Reference (4061509-SRM1)				Prepared & Analyzed: 06/15/04						
Turbidity	1.18	0.05	NTU	1.43		83	80-115			
Batch 4061608										
Duplicate (4061608-DUP1)		**Source: 0406162-02**		Prepared & Analyzed: 06/15/04						
pH	8.27	0.10	pH Units		8.12			2	20	
Reference (4061608-SRM1)				Prepared & Analyzed: 06/15/04						
pH	9.01	0.10	pH Units	9.10		99	97-103			
Batch 4061609										
Duplicate (4061609-DUP1)		**Source: 0406167-02**		Prepared & Analyzed: 06/15/04						
Residual Chlorine	ND	0.05	mg/l		ND				20	
Reference (4061609-SRM1)				Prepared & Analyzed: 06/15/04						
Residual Chlorine	0.19	0.05	mg/l	0.190		100	76-130			
Batch 4061706										
Blank (4061706-BLK1)				Prepared & Analyzed: 06/16/04						
Nitrate/Nitrite as N	ND	0.05	mg/l							

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4061706										
LCS (4061706-BS1)				Prepared & Analyzed: 06/16/04						
Nitrate/Nitrite as N	0.48	0.05	mg/l	0.500		96	80-120			
LCS Dup (4061706-BSD1)				Prepared & Analyzed: 06/16/04						
Nitrate/Nitrite as N	0.47	0.05	mg/l	0.500		94	80-120	2	20	
Matrix Spike (4061706-MS1)		**Source: 0406134-02**		Prepared & Analyzed: 06/16/04						
Nitrate/Nitrite as N	0.40	0.05	mg/l	0.500	ND	80	80-120			
Matrix Spike Dup (4061706-MSD1)		**Source: 0406134-02**		Prepared & Analyzed: 06/16/04						
Nitrate/Nitrite as N	0.46	0.05	mg/l	0.500	ND	92	80-120	14	20	
Batch 4061816										
Blank (4061816-BLK1)				Prepared: 06/19/04 Analyzed: 06/20/04						
Total Suspended Solids	ND	20	mg/l							
Duplicate (4061816-DUP1)		**Source: 0406192-03**		Prepared: 06/19/04 Analyzed: 06/20/04						
Total Suspended Solids	ND	20	mg/l		3			50	20	QR-04
Reference (4061816-SRM1)				Prepared: 06/19/04 Analyzed: 06/20/04						
Total Suspended Solids	30	20	mg/l	29.7		101	81-110			
Batch 4062117										
Blank (4062117-BLK1)				Prepared & Analyzed: 06/21/04						
Phosphorus, Total	ND	0.05	mg/l							

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4062117										
LCS (4062117-BS1)				Prepared & Analyzed: 06/21/04						
Phosphorus, Total	0.52	0.05	mg/l	0.500		104	80-120			
LCS Dup (4062117-BSD1)				Prepared & Analyzed: 06/21/04						
Phosphorus, Total	0.48	0.05	mg/l	0.500		96	80-120	8	20	
Duplicate (4062117-DUP1)		**Source: 0406205-03**		Prepared & Analyzed: 06/21/04						
Phosphorus, Total	0.35	0.05	mg/l		0.42			18	20	
Matrix Spike (4062117-MS1)		**Source: 0406205-03**		Prepared & Analyzed: 06/21/04						
Phosphorus, Total	0.96	0.05	mg/l	0.500	0.42	108	80-120			
Matrix Spike Dup (4062117-MSD1)		**Source: 0406205-03**		Prepared & Analyzed: 06/21/04						
Phosphorus, Total	0.98	0.05	mg/l	0.500	0.42	112	80-120	2	20	
Batch 4062119										
Blank (4062119-BLK1)				Prepared & Analyzed: 06/21/04						
Total Kjeldahl Nitrogen	ND	0.5	mg/l							
LCS (4062119-BS1)				Prepared & Analyzed: 06/21/04						
Total Kjeldahl Nitrogen	3.3	0.5	mg/l	4.10		80	80-120			
LCS Dup (4062119-BSD1)				Prepared & Analyzed: 06/21/04						
Total Kjeldahl Nitrogen	3.4	0.5	mg/l	4.10		83	80-120	3	20	
Duplicate (4062119-DUP1)		**Source: 0406134-01**		Prepared & Analyzed: 06/21/04						
Total Kjeldahl Nitrogen	ND	0.5	mg/l		0.4			0	20	

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4062119										
Matrix Spike (4062119-MS1)		**Source: 0406134-01**		Prepared & Analyzed: 06/21/04						
Total Kjeldahl Nitrogen	3.8	0.5	mg/l	4.10	0.4	83	80-120			
Matrix Spike Dup (4062119-MSD1)		**Source: 0406134-01**		Prepared & Analyzed: 06/21/04						
Total Kjeldahl Nitrogen	3.8	0.5	mg/l	4.10	0.4	83	80-120	0	20	
Batch 4062211										
Blank (4062211-BLK1)				Prepared & Analyzed: 06/21/04						
Hydrogen sulfide	ND	0.05	mg/l							
LCS (4062211-BS1)				Prepared & Analyzed: 06/21/04						
Hydrogen sulfide	0.18	0.05	mg/l	0.200		90	80-120			
LCS Dup (4062211-BSD1)				Prepared & Analyzed: 06/21/04						
Hydrogen sulfide	0.20	0.05	mg/l	0.200		100	80-120	11	20	
Duplicate (4062211-DUP1)		**Source: 0406156-03**		Prepared & Analyzed: 06/21/04						
Hydrogen sulfide	ND	0.05	mg/l		ND				20	
Matrix Spike (4062211-MS1)		**Source: 0406156-03**		Prepared & Analyzed: 06/21/04						
Hydrogen sulfide	0.16	0.05	mg/l	0.200	ND	80	80-120			
Matrix Spike Dup (4062211-MSD1)		**Source: 0406156-03**		Prepared & Analyzed: 06/21/04						
Hydrogen sulfide	0.16	0.05	mg/l	0.200	ND	80	80-120	0	20	
Batch 4062219										
Duplicate (4062219-DUP1)		**Source: 0406172-01**		Prepared & Analyzed: 06/15/04						
Dissolved Oxygen	0.28	0.10	mg/l		0.25			11	20	

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

Conventional Chemistry Parameters by Standard/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4062219										
Duplicate (4062219-DUP2)		**Source: 0406172-02**		Prepared & Analyzed: 06/15/04						
Dissolved Oxygen	0.42	0.10	mg/l		0.42			0	20	
Batch 4062410										
Blank (4062410-BLK1)				Prepared & Analyzed: 06/24/04						
Nitrate/Nitrite as N	ND	0.05	mg/l							
LCS (4062410-BS1)				Prepared & Analyzed: 06/24/04						
Nitrate/Nitrite as N	0.44	0.05	mg/l	0.500		88	80-120			
LCS Dup (4062410-BSD1)				Prepared & Analyzed: 06/24/04						
Nitrate/Nitrite as N	0.45	0.05	mg/l	0.500		90	80-120	2	20	
Duplicate (4062410-DUP1)		**Source: 0406172-01**		Prepared & Analyzed: 06/24/04						
Nitrate/Nitrite as N	ND	0.05	mg/l		ND				20	
Matrix Spike (4062410-MS1)		**Source: 0406172-01**		Prepared & Analyzed: 06/24/04						
Nitrate/Nitrite as N	0.43	0.05	mg/l	0.500	ND	86	80-120			
Matrix Spike Dup (4062410-MSD1)		**Source: 0406172-01**		Prepared & Analyzed: 06/24/04						
Nitrate/Nitrite as N	0.48	0.05	mg/l	0.500	ND	96	80-120	11	20	
Reference (4062410-SRM1)				Prepared & Analyzed: 06/24/04						
Nitrate/Nitrite as N	6.71	0.50	mg/l	7.75		87	0-200			

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Client Name: Kleinfelder, Inc.
Project Name: SDGE/Sorrento Mesa

EMA Log #: 0406172

TPH by EPA 8015B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4062106										
Blank (4062106-BLK1)				Prepared: 06/21/04 Analyzed: 06/22/04						
Diesel (C10-C28)	ND	500	ug/l							
Surrogate: 4-Bromofluorobenzene	*2990*		"	*3330*		*90*	*69-139*			
LCS (4062106-BS1)				Prepared: 06/21/04 Analyzed: 06/22/04						
Diesel (C10-C28)	5600	500	ug/l	5040		111	75-125			
Surrogate: 4-Bromofluorobenzene	*2890*		"	*3330*		*87*	*69-139*			
LCS Dup (4062106-BSD1)				Prepared: 06/21/04 Analyzed: 06/22/04						
Diesel (C10-C28)	5800	500	ug/l	5040		115	75-125	4	30	
Surrogate: 4-Bromofluorobenzene	*3320*		"	*3330*		*100*	*69-139*			
Batch 4062107										
Blank (4062107-BLK1)				Prepared & Analyzed: 06/21/04						
Gasoline (C6-C10)	ND	20	ug/l							
Surrogate: 4-Bromofluorobenzene	*21.8*		"	*25.0*		*87*	*77-135*			
LCS (4062107-BS1)				Prepared & Analyzed: 06/21/04						
Gasoline (C6-C10)	216	20	ug/l	196		110	75-125			
Surrogate: 4-Bromofluorobenzene	*25.0*		"	*25.0*		*100*	*77-135*			
Duplicate (4062107-DUP1)		**Source: 0406172-02**		Prepared & Analyzed: 06/21/04						
Gasoline (C6-C10)	ND	20	ug/l		15			7	30	
Surrogate: 4-Bromofluorobenzene	*22.4*		"	*25.0*		*90*	*77-135*			
Matrix Spike (4062107-MS1)		**Source: 0406172-02**		Prepared: 06/21/04 Analyzed: 06/22/04						
Gasoline (C6-C10)	220	20	ug/l	196	15	105	75-125			
Surrogate: 4-Bromofluorobenzene	*25.4*		"	*25.0*		*102*	*77-135*			

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Client Name: Kleinfelder, Inc. **EMA Log #: 0406172**
Project Name: SDGE/Sorrento Mesa

TPH by EPA 8015B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4062107										
Matrix Spike Dup (4062107-MSD1)		**Source: 0406172-02**		Prepared & Analyzed: 06/21/04						
Gasoline (C6-C10)	193	20	ug/l	196	15	91	75-125	13	30	
Surrogate: 4-Bromofluorobenzene	*24.2*		"	*25.0*		*97*	*77-135*			

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Notes and Definitions

QL-09	Due to a digestion/spiking error the LCSD percent recovery was outside of the control limit. The LCS had acceptable recovery showing that the method is in control and the analytes are reportable. Data released without further qualification.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
QM-06	Due to noted non-homogeneity of the QC sample matrix, the MS/MSD did not provide reliable results for accuracy and precision. Sample results for the QC batch were accepted based on LCS/LCSD percent recoveries and RPD values.
QR-02	The RPD result exceeded the QC limits due to non-homogeneity of sample.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference.
QR-04	The RPD between the sample and sample duplicate is not valid since both results are below the reporting limit for this analyte.
QR-06	The RPD value was exceeded due to the sample concentration being less than 10 times the reporting limit. The QC batch was accepted based on the LCS or QCS results.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

CHAIN-OF-CUSTODY RECORD

EnviroMatrix Analytical, Inc.
4340 Viewridge Ave., Ste. A • San Diego, CA 92123 • Phone (858) 560-7717 • Fax (858) 560-7763

EMA LOG #: 0406172

EMA DATE/TIME STAMP

Client: KLEINFELDER

Address: SHOREHAM PL.
SAN DIEGO, CA

Attn: J. LORD Phone: 858 320 · 2000

Sampled by: D. CHAMBERS Fax: 858 541 · 1645

Billing Address:

Project: SDGE / SORRENTO MESA PO #:

EMA ID #	Client Sample ID	2004 Sample Date	Sample Time	Sample Matrix	Container(s) #	Container(s) Type*
1	PRE-PURGE	6/15	1130	W	16	G/P/V
2	POST-PURGE	↓	1259	W	16	↓
3						
4						
5						
6						
7						
8						
9						
10						

REQUESTED ANALYSIS

EMA ID #	418.1 (TRPH)	Oil & Grease 413.1 ___ 413.2 ___ 1664 ___	TPH (8015B) Gas ___ Diesel ___	TPH-Extended 8015B ___ ASTM D2887 ___	602 / 8021 BTXE ___ MTBE ___	601 / 8021 (Purgeable Halocarbons)	608 / 8081 (Pesticides)	608 / 8082 (PCB's)	624 / 8260 (Volatile Organics)	625 / 8270 (Semi Volatile Organics)	TTLC Metals (CAC Title 22) per Jacqueline on 6/24/04	STLC Metals (CAC Title 22)	TCLP (RCRA) Metals ___ Organics ___	Cd Cr Cu Pb Ni Ag Zn	pH EC TSS TDS	TSS, TDS, Ammonia Sulfide, Settleable Solids	TOM Nitrogen, TKN, Phosphorus,	Ac. Toxicity, D.O., pH	Gas. Chlorine, TPH gas	VOC by 8260B, Regular list	SVOL-VOL, 8270C,	TOTAL & Fecal Coliform
1											X					X	X	X	X	X	X	X
2											X					X	X	X	X	X	X	X
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

*Container Types: B=Brass Tube; V=VOA; G=Glass; P=Plastic; O=Other (list)

Tamper-Proof Seals Intact: Yes No N/A

Correct Containers: Yes No

Sample(s): Cold Ambient Warm

VOAs w/ZHS: Yes No N/A

All Samples Properly Preserved: Yes No N/A

Disposal: N/C (aqueous) *EMA (@$5.00/sample) Return Hold

Turnaround Time: 24 hr 48 hr 3 day 4 day 5 day Normal

Comments: See attached sheet for Analytical Details.

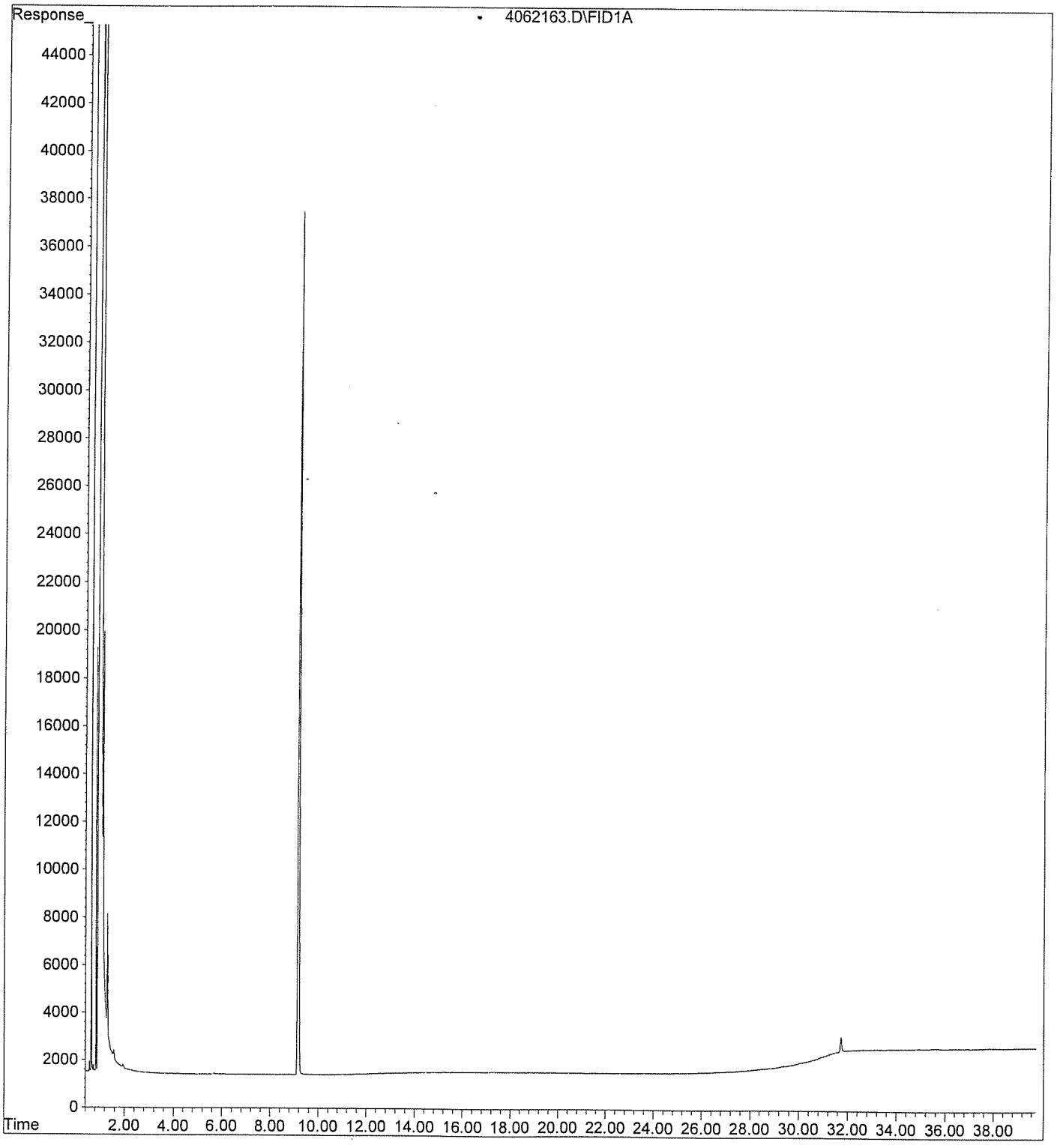
T = 17°C

	RELINQUISHED BY	DATE/TIME	RECEIVED BY
Signature	D.W. Chambers	6/15/04	
Print	D. CHAMBERS	15:39	
Company	Kleinfelder/CES		EMA/ESPINO
Signature			
Print			
Company:			
Signature			
Print			
Company:			

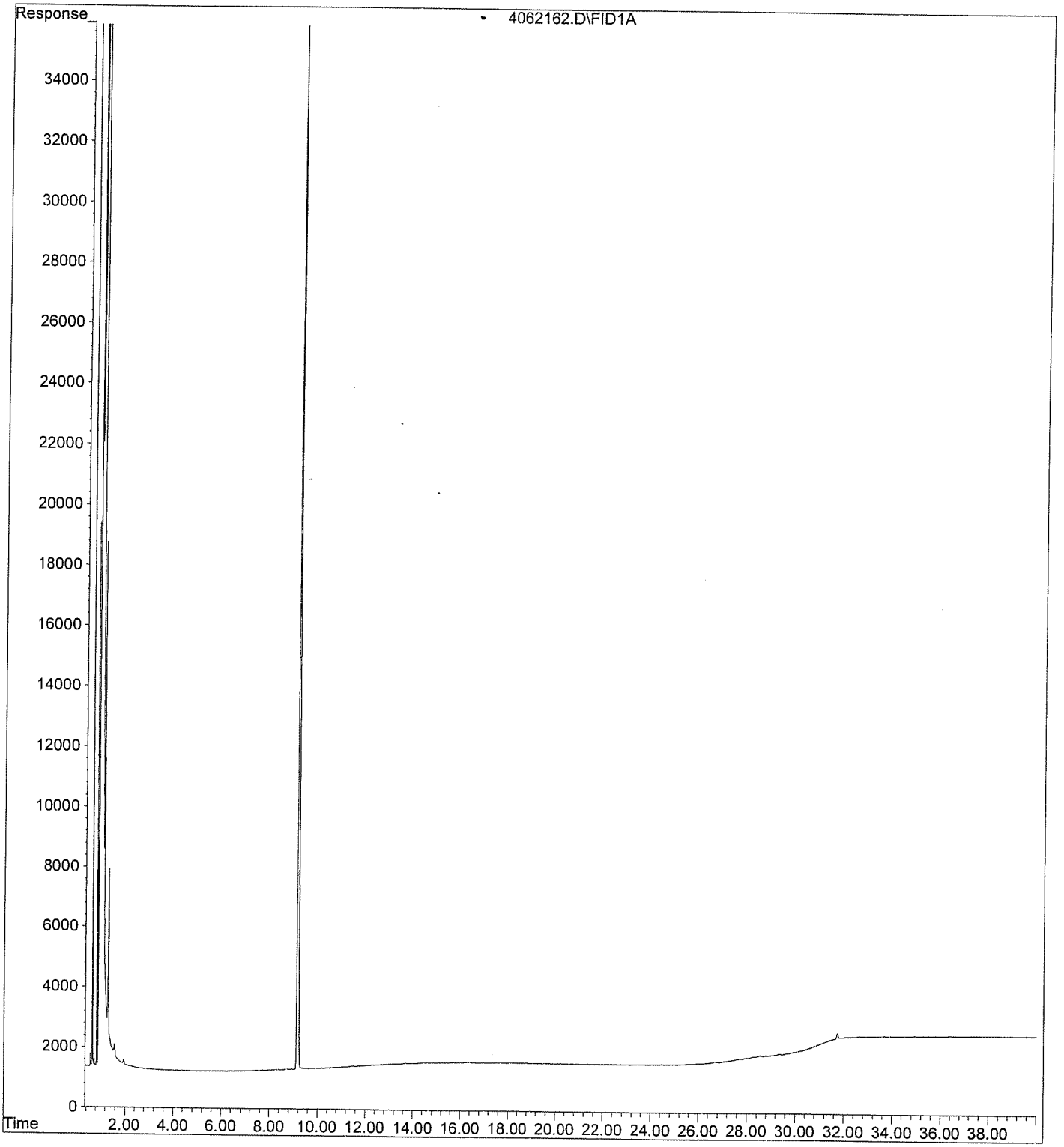
*EMA reserves the right to return samples that do not match our waste profile.

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

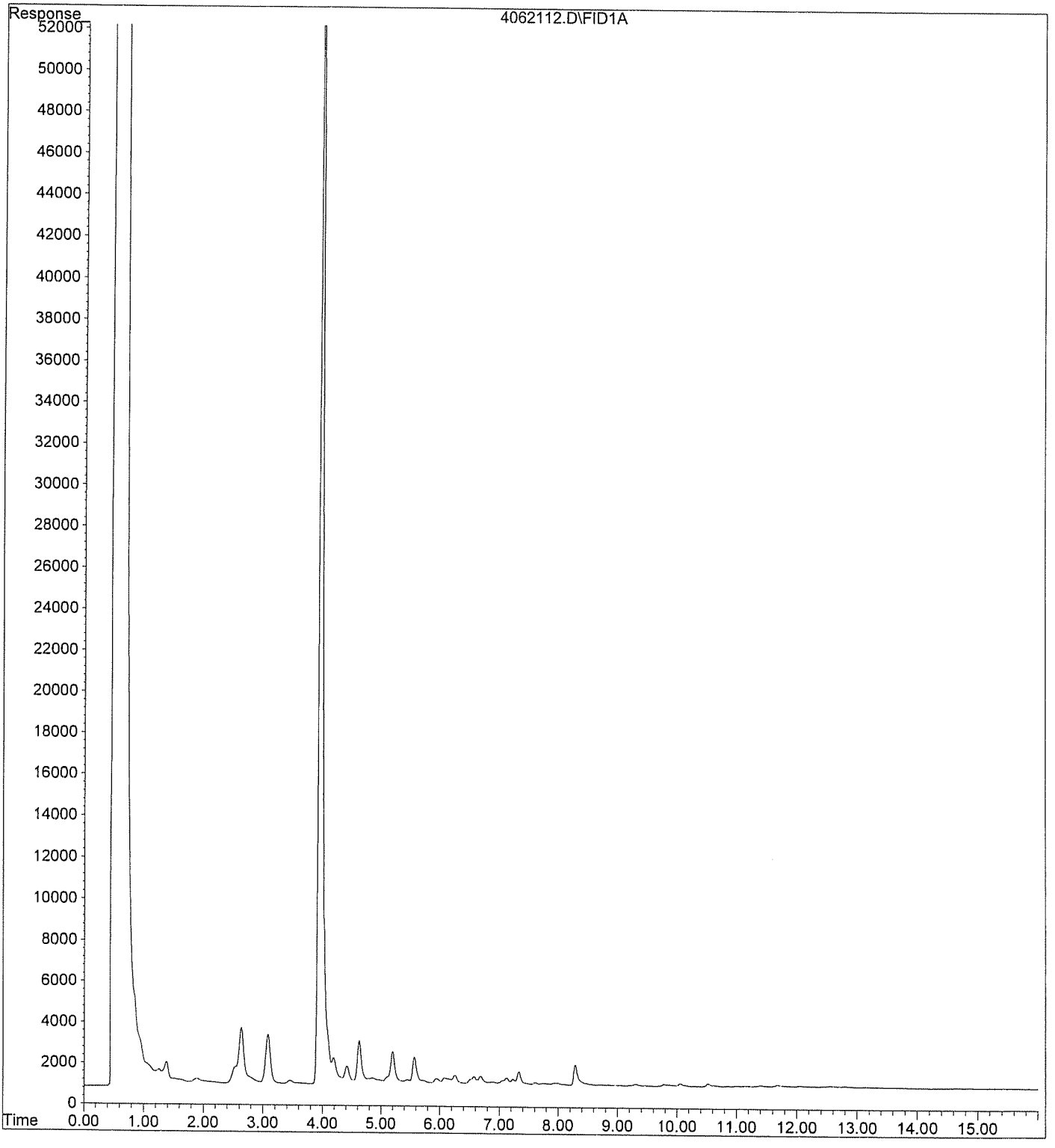
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Operator :
Acquired : 23 Jun 20104 1:41 pm using AcqMethod TPHFTEXT.M
Instrument : TPH
Sample Name: 0406172-02
Misc Info :
Vial Number: 63



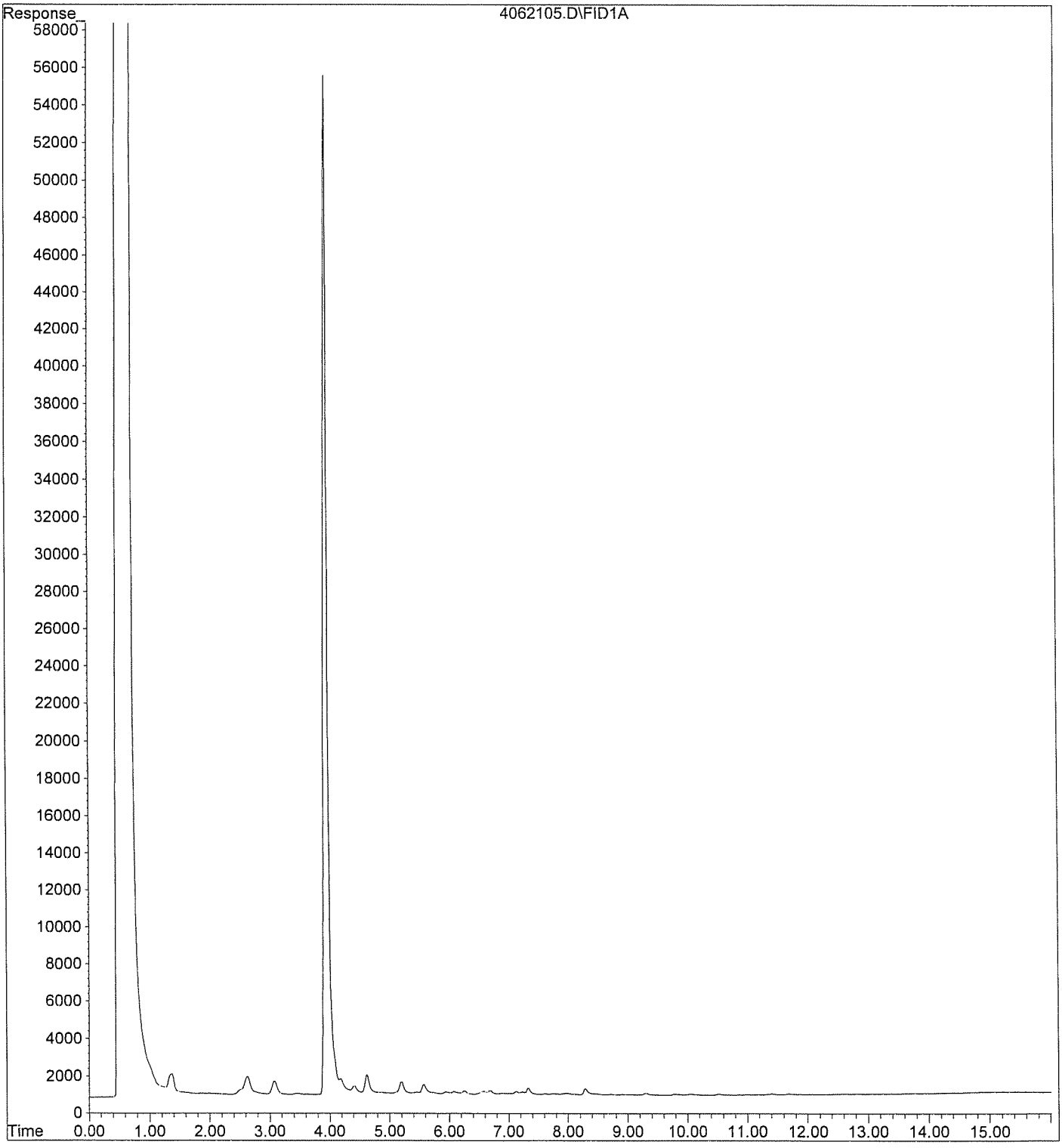
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Operator :
Acquired : 23 Jun 20104 12:47 pm using AcqMethod TPHFTEXT.M
Instrument : TPH
Sample Name: 0406172-01
Misc Info :
Vial Number: 62



File : C:\HPCHEM\2\DATA\4062107.S\4062112.D
Operator :
Acquired : 21 Jun 20104 5:41 pm using AcqMethod TPHPT.M
Instrument : VOLATILES
Sample Name: 0406172-01
Misc Info :
Vial Number: 12



File : C:\HPCHEM\2\DATA\4062107.S\4062105.D
Operator :
Acquired : 21 Jun 20104 2:27 pm using AcqMethod TPHPT.M
Instrument : VOLATILES
Sample Name: 0406172-02
Misc Info :
Vial Number: 5



EnviroMatrix Analytical, Inc.

26 July 2004

Kleinfelder, Inc.
Attn: Jacques Lord
5015 Shoreham Place
San Diego, California 92122

EMA Log# : 0406172

Project Name: SDGE/SORRENTO MESA

Enclosed with this letter are the test results performed by subcontract laboratory for the following analyses:

- 96 Hour Acute Toxicity Screening Test

The samples were received by EnviroMatrix Analytical, Inc. intact and with chain-of-custody documentation. The test results and pertinent quality assurance/quality control data are listed on the attached tables.

I certify that this data report is in compliance both technically and for completeness. Release of the data contained in this hard copy data report has been authorized by the following signature.

Dan Verdon
Laboratory Director

4340 Viewridge Avenue, Suite A • San Diego, California 92123 • (858) 560-7717 • Fax (858) 560-7763
Analytical Chemistry Laboratory

MEC
ANALYTICAL SYSTEMS
WESTON SOLUTIONS
2433 Impala Drive, Carlsbad, CA 92008 / (760) 931-8081 / (760) 931-1580 FAX

July 23, 2004
Mike Faulkner
EnviroMatrix Analytical, Inc.
4340 Viewridge Avenue, Suite A
San Diego, CA 92123

Re: Toxicity Testing Results – *Pimephales promelas* 96-hour Acute Survival

Dear Mr. Faulkner:

Enclosed, please find the reports for the *Pimephales promelas* acute toxicity screening tests performed on test substances Pre-Purge, and Post-Purge. The results are listed below.

***Pimephales promelas* Acute Toxicity Screen**		
Test Substance	% Survival in Control Water at 96-hours	% Survival in 100% Concentration 96-Hours
Pre-Purge	87.5	82.5
Post-Purge	87.5	75

Acute Toxicity Statement: Test substances Pre-Purge, and Post-Purge did not express a toxic effect on larval Fathead Minnow during a 96-hour exposure period. Survival in 100 percent effluent was 82.5 and 75 percent, respectively. Since survival in the 4 parts per thousand concentration of the Salinity Test was 95 percent, the elevated salinity of the sample likely did not influence the test results. Test animals were not fed in the holding time prior to test initiation due to unavailability of *Artemia nauplii.* The survival in the Controls for both the test and the Salinity test did not meet the test acceptability criterion of greater than or equal to 90 percent. This test should be considered for informational purposes only and retesting of the test substance is strongly recommended.

All testing was performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and MEC-Weston is not responsible for use of less than the complete report. Results apply only to the sample tested.

ACCREDITED IN ACCORDANCE WITH nelac
NELAP Accredited #01113CA

MEC
ANALYTICAL SYSTEMS
WESTON SOLUTIONS
2433 Impala Drive, Carlsbad, CA 92008 / (760) 931-8081 / (760) 931-1580 FAX

If you have any questions regarding these results, or require additional testing, please call me at (760) 931-8081. Thank you for using the aquatic testing services of MEC-Weston Solutions, Inc.

Sincerely,

Jay Word
Environmental Analyst
Jay.Word@westonsolutions.com

ACCREDITED IN ACCORDANCE WITH nelac
NELAP Accredited #01113CA

MEC Analytical Systems, Inc.- WESTON Solutions, Inc.

Analytical Report

Client	EnviroMatrix Analytical, Inc.	Date Received:	15 Jun 04
Project:	0406172	Date Test Started:	16 Jun 04
Client Sample ID:	Pre - Purge	Date Test Ended:	20 Jun 04
MEC Test ID:	C040615.0101	Matrix:	Liquid

96 Hour Acute Effluent Toxicity Bioassay
MEC Testing Protocol BIO 001C
EPA-821-R-02-012

Test Organism: ***Pimephales promelas***
Age: 8 day(s) old

Note: Due to the high salinity observed in this sample (3.5 ppt), a Salinity Test, with five salinities ranging from 2 to 32 ppt, was run concurrently with this test. This test was prepared by adding sodium chloride (NaCl) to laboratory dilution water (FW 788) to a salinity of 32 ppt, then creating the other test salinities by serial dilution.

Percent Test Solution	Number of Test Organisms at Start of Test	Number of Test Organisms at End of Test	Percent Survival
Control	40	35	87.5
100	40	33	82.5

Acute Toxicity Statement for Sample Pre - Purge

Acute Toxicity Statement: Test substance Pre - Purge did not express a toxic effect on larval Fathead Minnows during a 96-hour exposure period. Survival in 100 percent effluent was 82.5 percent after 96 hours. Since survival in the 4 parts per thousand concentration of the Salinity Test was 95 percent, the elevated salinity of the sample likely did not influence the test results.

Toxicity Units Acute (TUa) = 0.73

Protocol Deviations: Test animals were not fed in the holding time prior to test initiation due to unavailability of *Artemia* nauplii. The survival in the Controls for both the test and the Salinity Test did not meet the test acceptability criterion of greater than or equal to 90 percent. This test should be considered for informational purposes only and retesting of the test substance is strongly recommended.

QA Officer — Date: 7/23/04

Approved — Date: 7/23/04

MEC Analytical Systems, Inc.- WESTON Solutions, Inc.

Analytical Report

Client	EnviroMatrix Analytical, Inc.	Date Received:	15 Jun 04
Project:	0406172	Date Test Started:	16 Jun 04
Client Sample ID:	Pre - Purge	Date Test Ended:	20 Jun 04
MEC Test ID:	C040615.0101	Matrix:	Liquid

96 Hour Acute Effluent Toxicity Bioassay
MEC Testing Protocol BIO 001C
EPA-821-R-02-012

Test Organism: ***Pimephales promelas***

Test Solution Physical and Chemical Data

Analyte:	Alkalinity as $CaCO_3$	Conductivity	Dissolved Oxygen	Hardness as $CaCO_3$	pH	Chlorinity
EPA Method:	310.1	120.1	360.1	130.2	150.1	330.5
Method Reporting Limit:	2 mg/L	0.02 mS/cm	1% sat.	5 mg/L	---	0.2 mg/L

Concentration (%)	Hardness (mg/L $CaCO_3$)	Alkalinity (mg/L $CaCO_3$)
Control	84	64
100	>1200	348

Total Chlorine mg/L			
Concentration (%)	Initial	Renewal	Final
Control	0.01	0.01	0.03
100	0.00	- *	0.09

* initial = 0.00 mg/L, no need to measure

Concentration (percent)	Statistic	D.O. (% Sat)	Temp. (°C)	Cond. (mS/cm)	Salinity (ppt)	pH
Control	Mean	93	20.2	0.32	0.0	7.9
	Minimum	91	19.6	0.30	0.0	7.7
	Maximum	95	21.2	0.33	0.0	8.1
100	Mean	82	20.0	6.29	3.4	7.8
	Minimum	63	19.3	6.12	3.3	6.8
	Maximum	94	20.7	6.55	3.5	8.3

MEC Analytical Systems, Inc.- WESTON Solutions, Inc.

Analytical Report

Client:	EnviroMatrix Analytical, Inc.	Date Received:	15 Jun 04
Project:	0406172	Date Test Started:	16 Jun 04
Client Sample ID:	Pre - Purge	Date Test Ended:	20 Jun 04
MEC Test ID:	C040615.0101	Matrix:	Liquid

Appendix

Pertinent Test Data

TEST: 96 Hour Acute Effluent Toxicity Bioassay, MEC Testing Protocol BIO 001C, EPA-821-R-02-012

LAB CONTROL WATER: Synthetic moderately hard water

Dissolved Oxygen	92% Saturation
Temperature	19.6°C
pH	7.9
Hardness	84 mg/L $CaCO_3$
Alkalinity	64 mg/L $CaCO_3$

TEST ORGANISM: Fathead Minnow, *Pimephales promelas* Age: 8 day(s) old
Supplier: Aquatic BioSystems
Feeding: Fed *Artemia* nauplii *ad libitum* daily prior to testing.

TEST CHAMBER: 500-mL containers, four replicate samples and four replicate controls, brought to a 250-mL final volume.

EXPERIMENTAL DESIGN:

1. A sample was collected on June 15, 2004 at 1130 hours. MEC-WESTON personnel received 2 liters of the sample at 1756 hours on the same day. Temperatures upon arrival to the MEC-WESTON laboratory were 17.1 and 18.6 degrees Centigrade.
2. The temperature of the effluent was adjusted to 20 ± 1°C.
3. Ten test organisms were placed in each test container.
4. Test chambers were randomized and held at 20 ± 1 °C for 96 hours with a photoperiod of 16 hours light: 8 hours darkness.
5. Each test chamber was fed 1500 newly hatched *Artemia* at 48 hours.

MORTALITY CRITERIA: Lack of respiratory movement and lack of reaction to gentle prodding

ACCEPTIBILITY CRITERIA: ≥ 90%survival in controls
Evaluation of the concentration-response relationship indicated that the data presented in this report are reliable.

REFERENCE TOXICITY: (Control Chart Included)
Toxicant: CuSO4, Lot No.: 2351-09, Received: 3/14/03, Opened: 3/25/03, Expires: 12/17/04.

96 Hour LC50:	6.64 ppb	
Laboratory Mean:	30.86 ppb	
Test Date:	6/16/2004	Within 95 % Confidence Limits

STUDY DIRECTOR: T. Staker
INVESTIGATORS: B. Hester, T. Staker, R. Marshall, A. Margolis, C. Osuch, D. Sowersby

MEC Analytical Systems, Inc. - WESTON Solutions, Inc. BIO001A

96 Hour Acute Toxicity Test for Fathead Minnows

Client	EMA
Project:	040172
Client Sample ID:	pre-purge
MEC Sample ID:	C040615.01
MEC Protocol:	BIO001
Study Director:	TS

Date Received:	6/15/04
Date Test Started:	6.16.04
Date Test Ended:	6/20/04
Matrix:	L
Species:	P. promelas
# Organisms/Chamber:	10

	Conc.	Rep	Meter #	D.O. (%)	Meter #	Temp (°C)	Meter #	Cond. (mS/cm)	Meter #	pH	Hardness (mg/L $CaCO_3$)	Alkalinity (mg/L $CaCO_3$)	Total Chlorine mg/L	Salinity (ppt)
Day 0 (0 Hours) Date: 6/16/04 Time: 1310 Technician: am	Control	Stock	6	92	6	19.6	5	0.30	8	7.9	84	64	0.01	0.0
	100			63		19.3		6.55		6.8	>1200	348	0.00	3.5
24 Hours Date: 6/17/04 Time: 1015 Technician: RM	Control	1	6	91	6	19.8	5	0.33	8	7.8				0.0
	100			87		19.9		6.12		7.7				3.3
48 Hours Date: 6/18/04 WQ Time: 0825 Feed Time: 0745 Renewal Time: 0945 Technician: RM	Control	2	6	93	6	20.4	5	0.33	8	8.1			0.01	0.0
	100			90		20.1		6.13		8.2			—	3.3
72 Hours Date: 6/19/04 Time: 1035 Technician: am	Control	3	6	95	6	21.2	5	0.32	8	7.8				0.0
	100			74		20.2		6.32		8.3				3.4
96 Hours Date: 6/20/04 Time: 1140 Technician: am	Control	4	6	94	6	20.2	5	0.31	8	7.7			0.03	0.0
	100			94		20.7		6.33		8.1			0.09	3.4

TS①

Start Time:	1635 RM
End Time:	1525 am
Supplier:	Aquatic Biosystems
Organism Batch:	AB5 4069L Age: 8 days
Hobo Temp. No.:	543494
Test Location:	Rm. 3

Dilution Water Batch:	FW 788
pH: 7.9	DO: 92 Temp: 19.6
Ref Tox ID:	030814.193 Lot No.: 2351-09
LC50: 6.64	Test Date: 6.16.04
Lab Mean:	30.86
Test Acceptability: NO	≥ 90 % Survival in Controls

①Animals were not fed prior to test initiation 6/16.04 TS

MEC Analytical Systems, Inc. - WESTON Solutions, Inc. BIO001A

96 Hour Acute Toxicity Test for Fathead Minnow

Client	EMA
Project:	040617.2
Client Sample ID:	Pre-Purge
MEC Sample ID:	C040615.01
MEC Protocol:	BIO001
Study Director:	TS

Date Received:	6.15.04
Date Test Started:	6.16.04
Date Test Ended:	6/20/04
Matrix:	L
Species:	P. promelas
# Organisms/Chamber:	10

Conc.	Rep	24 Hours Date: 6/17/04 Time: 1305		48 Hours Date: 6/18/04 Time: 0945		72 Hours Date: 6/19/04 Time: 1420		96 Hours Date: 6/20/04 Time: 1525	
		# Alive	# Dead	# Alive	# Dead	# Alive	# Dead	# Alive	# Dead
Control	1	10	0	9	1	9	0	9	0
	2	10	0	10	0	10	0	10	0
	3	10	0	9	1	7	2	7	0
	4	10	0	10	0	10	0	9	1
100	1	8	2	8	0	8	0	8	0
	2	10	0	①RM		10	0	10	0
	3	9	1	9	0	②am		8	1 ③am
	4	8	2	7	1	7	0	7	0
Initials:		RM		RM		am		am	

① DC 6/18/04 RM

② DC 6/19/04 am

③ MB 6/20/04 am

Acute Fish Test-96 Hr Survival

Start Date:	6/16/2004 16:35	Test ID:	C040615.0101	Sample ID:	Pre-Purge
End Date:	6/20/2004 15:25	Lab ID:	CAMECW-MEC WESTON, C	Sample Type:	DMR-Discharge Monitoring Report
Sample Date:	6/15/2004 11:30	Protocol:	EPAA 02-EPA Acute	Test Species:	PP-Pimephales promelas

Comments:

Conc-%	1	2	3	4
Control	0.9000	1.0000	0.7000	0.9000
100	0.8000	1.0000	0.8000	0.7000

			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
Control	0.8750	1.0000	1.2253	0.9912	1.4120	14.199	4				0.8750	1.0000
100	0.8250	0.9429	1.1544	0.9912	1.4120	15.615	4	0.566	1.943	0.2434	0.8250	0.9429

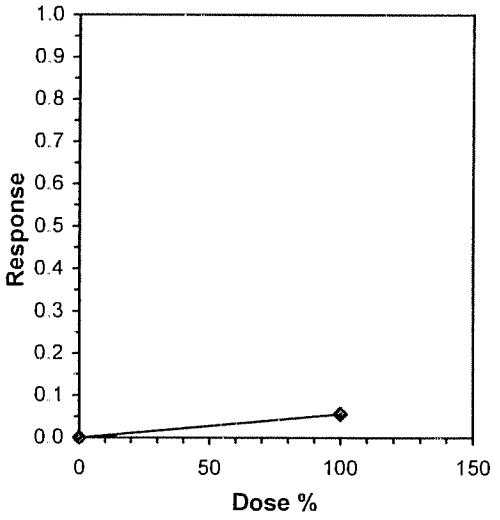
Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95792	0.749	0.26944	-0.4704
F-Test indicates equal variances (p = 0.95)	1.0734	47.4683		

Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.19383	0.21894	0.01007	0.03138	0.59167	1, 6

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)	Skew
IC05*	87.500			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			

* indicates IC estimate less than the lowest concentration



TUa = 0.73

Test: AC-Acute Fish Test
Species: PP-Pimephales promelas
Sample ID: Pre-Purge
Start Date: 6/16/2004 16:35
Test ID: C040615.01O1
Protocol: EPAA 02-EPA Acute
Sample Type: DMR-Discharge Monitoring Report
End Date: 6/20/2004 15:2 Lab ID: CAMECW-MEC WESTON, Carlsbad

Pos	ID	Rep	Group	Start	24 Hr	48 Hr	72 Hr	96 Hr	Notes
	1	1	Control	10				9	
	2	2	Control	10				10	
	3	3	Control	10				7	
	4	4	Control	10				9	
	5	1	100.000	10				8	
	6	2	100.000	10				10	
	7	3	100.000	10				8	
	8	4	100.000	10				7	

Comments:

MEC Analytical Systems, Inc.- WESTON Solutions, Inc.

Analytical Report

Client	EnviroMatrix Analytical, Inc.	Date Received:	15 Jun 04
Project:	0406172	Date Test Started:	16 Jun 04
Client Sample ID:	Post - Purge	Date Test Ended:	20 Jun 04
MEC Test ID:	C040615.0201	Matrix:	Liquid

96 Hour Acute Effluent Toxicity Bioassay
MEC Testing Protocol BIO 001C
EPA-821-R-02-012

Test Organism: ***Pimephales promelas***
Age: 8 day(s) old

Note: Due to the high salinity observed in this sample (3.5 ppt), a Salinity Test, with five salinities ranging from 2 to 32 ppt, was run concurrently with this test. This test was prepared by adding sodium chloride (NaCl) to laboratory dilution water (FW 788) to a salinity of 32 ppt, then creating the other test salinities by serial dilution.

Percent Test Solution	Number of Test Organisms at Start of Test	Number of Test Organisms at End of Test	Percent Survival
Control	40	35	87.5
100	40	30	75

Acute Toxicity Statement for Sample Post - Purge

Acute Toxicity Statement: Test substance Post - Purge did not express a toxic effect on larval Fathead Minnows during a 96-hour exposure period. Survival in 100 percent effluent was 75 percent after 96 hours.

Toxicity Units Acute (TUa) = 0.82

Protocol Deviations: Test animals were not fed in the holding time prior to test initiation due to unavailability of *Artemia* nauplii. The survival of the Controls for both the test and the Salinity Test did not meet the test acceptability criterion of greater than or equal to 90 percent. This test should be considered for informational purposes only and retesting of the test substance is strongly recommended.

Lyn Craft — QA Officer — 7/22/04 — Date

Approved — 7/23/04 — Date

MEC Analytical Systems, Inc.- WESTON Solutions, Inc.

Analytical Report

Client	EnviroMatrix Analytical, Inc.	Date Received:	15 Jun 04
Project:	0406172	Date Test Started:	16 Jun 04
Client Sample ID:	Post - Purge	Date Test Ended:	20 Jun 04
MEC Test ID:	C040615.0201	Matrix:	Liquid

96 Hour Acute Effluent Toxicity Bioassay
MEC Testing Protocol BIO 001C
EPA-821-R-02-012

Test Organism: ***Pimephales promelas***

Test Solution Physical and Chemical Data

Analyte:	Alkalinity as $CaCO_3$	Conductivity	Dissolved Oxygen	Hardness as $CaCO_3$	pH	Chlorinity
EPA Method:	310.1	120.1	360.1	130.2	150.1	330.5
Method Reporting Limit:	2 mg/L	0.02 mS/cm	1% sat.	5 mg/L	---	0.2 mg/L

Concentration (%)	Hardness (mg/L $CaCO_3$)	Alkalinity (mg/L $CaCO_3$)
Control	84	64
100	>1200	364

	Total Chlorine mg/L		
Concentration (%)	Initial	Renewal	Final
Control	0.01	0.01	0.03
100	0.00	- *	0.01

* initial = 0.00 mg/L, no need to measure

Concentration (percent)	Statistic	D.O. (% Sat)	Temp. (°C)	Cond. (mS/cm)	Salinity (ppt)	pH
Control	Mean	93	20.2	0.32	0.0	7.9
	Minimum	91	19.6	0.30	0.0	7.7
	Maximum	95	21.2	0.33	0.0	8.1
100	Mean	81	20.2	6.29	3.4	7.8
	Minimum	53	19.3	6.13	3.3	6.8
	Maximum	89	20.8	6.53	3.5	8.2

MEC Analytical Systems, Inc.- WESTON Solutions, Inc.

Analytical Report

Client:	EnviroMatrix Analytical, Inc.	Date Received:	15 Jun 04
Project:	0406172	Date Test Started:	16 Jun 04
Client Sample ID:	Post - Purge	Date Test Ended:	20 Jun 04
MEC Test ID:	C040615.0201	Matrix:	Liquid

Appendix

Pertinent Test Data

TEST: 96 Hour Acute Effluent Toxicity Bioassay, MEC Testing Protocol BIO 001C, EPA-821-R-02-012

LAB CONTROL WATER: Synthetic moderately hard water

Dissolved Oxygen	94% Saturation
Temperature	19.6°C
pH	8.0
Hardness	84 mg/L $CaCO_3$
Alkalinity	64 mg/L $CaCO_3$

TEST ORGANISM: Fathead Minnow, *Pimephales promelas* Age: 8 day(s) old
Supplier: Aquatic BioSystems
Feeding: Fed *Artemia* nauplii *ad libitum* daily prior to testing.

TEST CHAMBER: 500-mL containers, four replicate samples and four replicate controls, brought to a 250-mL final volume.

EXPERIMENTAL DESIGN:

1. A sample was collected on June 15, 2004 at 1259 hours. MEC-WESTON personnel received 2 liters of the sample at 1756 hours on the same day. Temperatures upon arrival to the MEC-WESTON laboratory were 16.8 and 16.3 degrees Centigrade.
2. The temperature of the effluent was adjusted to 20 ± 1°C.
3. Ten test organisms were placed in each test container.
4. Test chambers were randomized and held at 20 ± 1 °C for 96 hours with a photoperiod of 16 hours light: 8 hours darkness.
5. Each test chamber was fed 1500 newly hatched *Artemia* at 48 hours.

MORTALITY CRITERIA: Lack of respiratory movement and lack of reaction to gentle prodding

ACCEPTIBILITY CRITERIA: ≥ 90%survival in controls
Evaluation of the concentration-response relationship indicated that the data presented in this report are reliable.

REFERENCE TOXICITY: (Control Chart Included)
Toxicant: CuSO4, Lot No.: 2351-09, Received: 3/14/03, Opened: 3/25/03, Expires: 12/17/04.

96 Hour LC50:	6.64 ppb	
Laboratory Mean:	30.86 ppb	
Test Date:	6/16/2004	Within 95 % Confidence Limits

STUDY DIRECTOR: T. Staker
INVESTIGATORS: B. Hester, T. Staker, R. Marshall, A. Margolis, C. Osuch, D. Sowersby

MEC Analytical Systems, Inc. - WESTON Solutions, Inc. BIO001A

96 Hour Acute Toxicity Test for Fathead Minnows

Client	EMA
Project:	0406172
Client Sample ID:	Post-Purge
MEC Sample ID:	C040615.02
MEC Protocol:	BIO001
Study Director:	TS

Date Received:	6/15/04
Date Test Started:	6.16.04
Date Test Ended:	6/20/04
Matrix:	L
Species:	P. promelas
# Organisms/Chamber:	10

	Conc.	Rep	Meter #	D.O. (%)	Meter #	Temp (°C)	Meter #	Cond. (mS/cm)	Meter #	pH	Hardness (mg/L $CaCO_3$)	Alkalinity (mg/L $CaCO_3$)	Total Chlorine mg/L	Salinity (ppt)
Day 0 (0 Hours) Date: 6/16/04 Time: 1315 Technician: am	Control	Stock	6	94	6	19.6	5	0.30	8	8.0	84	64	0.01	0.0
	100			53		19.3		6.53		6.8	>1200	364	0.00	3.5
24 Hours Date: 6/17/04 Time: 1015 Technician: RM	Control	1	6	91	6	19.8	5	0.33	8	7.8				0.0
	100			87		19.9		6.13		7.8				3.3
48 Hours Date: 6/18/04 WQ Time: 0825 Feed Time: 0745 Renewal Time: 0945 Technician: RM	Control	2	6	93	6	20.4	5	0.33	8	8.1			0.01	0.0
	100			93		20.4		6.13		8.2			—	3.3
72 Hours Date: 6/19/04 Time: 1035 Technician: am	Control	3	6	95	6	21.2	5	0.32	8	7.8				0.0
	100			82		20.4		6.33		7.9				3.4
96 Hours Date: 6/20/04 Time: 1140 Technician: am	Control	4	6	94	6	20.2	5	0.31	8	7.7			am <0.03	0.0
	100			89		20.8		6.35		8.1			0.01	3.4

Start Time:	1640 RM
End Time:	1530 am
Supplier:	Aquatic Biosystems
Organism Batch:	ABS 40691 Age: 8 days
Hobo Temp. No.:	543494
Test Location:	RM.3

Dilution Water Batch:	FW 788
pH: 8.0	DO: 94 Temp: 19.6
Ref Tox ID:	030314.193 Lot No.: 2351-09
LC50: 6.64	Test Date: 6.16.04
Lab Mean: 3086	
Test Acceptability: NO	≥ 90 % Survival in Controls

(2) Animals were not fed prior to test initiation 6.20.04 TS

QWC 6/20/04 am

MEC Analytical Systems, Inc. - WESTON Solutions, Inc. BIO001A

96 Hour Acute Toxicity Test for Fathead Minnow

Client	EMA
Project:	0406172
Client Sample ID:	Post-purge
MEC Sample ID:	C040615-02
MEC Protocol:	BIO001
Study Director:	TS

Date Received:	6.15.04
Date Test Started:	6.16.04
Date Test Ended:	6/20/04
Matrix:	L
Species:	P. promelas
# Organisms/Chamber:	10

Conc.	Rep	24 Hours Date: 6/17/04 Time: 1305		48 Hours Date: 6/18/04 Time: 0945		72 Hours Date: 6/19/04 Time: 1420		96 Hours Date: 6/20/04 Time: 1530	
		# Alive	# Dead	# Alive	# Dead	# Alive	# Dead	# Alive	# Dead
Control	1	10	0	9	1	9	Ø	9	Ø
	2	10	0	10	0	10	Ø	10	Ø
	3	10	0	9	1	7	2	7	Ø
	4	10	0	10	0	10	Ø	9	1
100	1	10	0	10	0	10	Ø	10	Ø
	2	7	3	7	0	7	Ø	7	Ø
	3	6	4	6	0	6	Ø	6	Ø
	4	7	3	7	0	7	Ø	7	Ø
Initials:		RM		RM		AMM		AMM	

Acute Fish Test-96 Hr Survival

Start Date:	6/16/2004 16:40	Test ID:	C040615.0201	Sample ID:	Post-Purge
End Date:	6/20/2004 15:30	Lab ID:	CAMECW-MEC WESTON, C	Sample Type:	DMR-Discharge Monitoring Report
Sample Date:	6/15/2004 12:59	Protocol:	EPAA 02-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-%	1	2	3	4
Control	0.9000	1.0000	0.7000	0.9000
100	1.0000	0.7000	0.6000	0.7000

			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
Control	0.8750	1.0000	1.2253	0.9912	1.4120	14.199	4				0.8750	1.0000
100	0.7500	0.8571	1.0701	0.8861	1.4120	21.798	4	1.067	1.943	0.2827	0.7500	0.8571

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.94353	0.749	0.72871	0.07524
F-Test indicates equal variances (p = 0.64)	1.79747	47.4683		

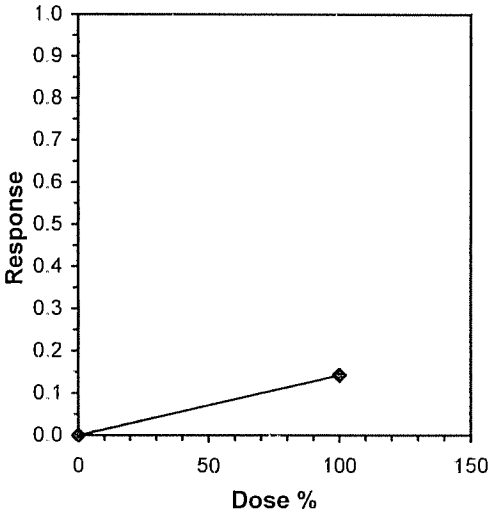
Hypothesis Test (1-tail, 0.05)	MSDu	MSDp	MSB	MSE	F-Prob	df
Homoscedastic t Test indicates no significant differences	0.23071	0.2606	0.04818	0.04234	0.32711	1, 6

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)	Skew
IC05*	35.000			
IC10*	70.000			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			

* indicates IC estimate less than the lowest concentration

$TU_a = 0.82$



ToxCalc v5.0.23

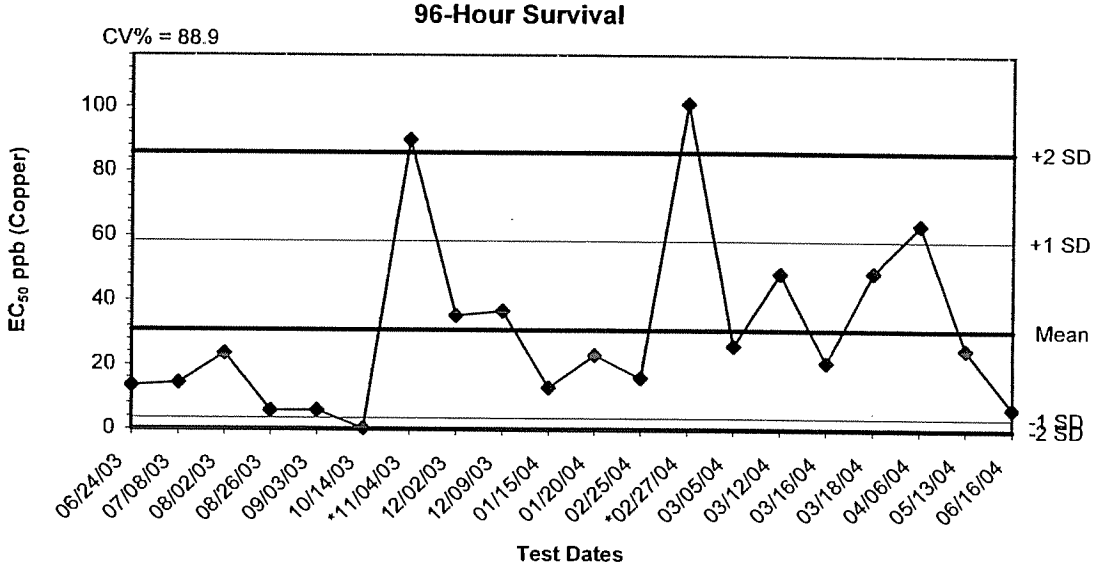
Reviewed by: _____

Test: AC-Acute Fish Test
Test ID: C040615.02D1
Species: PP-Pimephales promelas
Protocol: EPAA 02-EPA Acute
Sample ID: Post-Purge
Sample Type: DMR-Discharge Monitoring Report
Start Date: 6/16/2004 16:40
End Date: 6/20/2004 15:3[illegible]
Lab ID: CAMECW-MEC WESTON, Carlsbad

Pos	ID	Rep	Group	Start	24 Hr	48 Hr	72 Hr	96 Hr	Notes
	1	1	Control	10				9	
	2	2	Control	10				10	
	3	3	Control	10				7	
	4	4	Control	10				9	
	5	1	100.000	10				10	
	6	2	100.000	10				7	
	7	3	100.000	10				6	
	8	4	100.000	10				7	

Comments:

Pimephales promelas (L) Reference Toxicant Control Chart: 96-Hour Survival



Dates	Values	Mean	-1 SD	-2 SD	+1 SD	+2 SD
06/24/03	13.4206	30.8628	3.4106	0.0000	58.3150	85.7672
07/08/03	14.3146	30.8628	3.4106	0.0000	58.3150	85.7672
08/02/03	23.5285	30.8628	3.4106	0.0000	58.3150	85.7672
08/26/03	5.7212	30.8628	3.4106	0.0000	58.3150	85.7672
09/03/03	5.8578	30.8628	3.4106	0.0000	58.3150	85.7672
10/14/03	0.3306	30.8628	3.4106	0.0000	58.3150	85.7672
*11/04/03	89.8395	30.8628	3.4106	0.0000	58.3150	85.7672
12/02/03	35.3767	30.8628	3.4106	0.0000	58.3150	85.7672
12/09/03	36.7855	30.8628	3.4106	0.0000	58.3150	85.7672
01/15/04	12.9288	30.8628	3.4106	0.0000	58.3150	85.7672
01/20/04	23.0908	30.8628	3.4106	0.0000	58.3150	85.7672
02/25/04	16.0342	30.8628	3.4106	0.0000	58.3150	85.7672
*02/27/04	101.0900	30.8628	3.4106	0.0000	58.3150	85.7672
03/05/04	26.0300	30.8628	3.4106	0.0000	58.3150	85.7672
03/12/04	48.3298	30.8628	3.4106	0.0000	58.3150	85.7672
03/16/04	20.8330	30.8628	3.4106	0.0000	58.3150	85.7672
03/18/04	48.6615	30.8628	3.4106	0.0000	58.3150	85.7672
04/06/04	63.4635	30.8628	3.4106	0.0000	58.3150	85.7672
05/13/04	24.9779	30.8628	3.4106	0.0000	58.3150	85.7672
06/16/04	6.6418	30.8628	3.4106	0.0000	58.3150	85.7672

*Value was within 95% CI range at time of testing.
Updated 6/23/04 DS

Acute Fish Test-96 Hr Survival

Start Date:	6/16/2004 16:50	Test ID:	C030314.193	Sample ID:	REF-Ref Toxicant
End Date:	6/20/2004 15:35	Lab ID:	CAMECW-MEC WESTON, C	Sample Type:	CUSO-Copper sulfate
Sample Date:		Protocol:	EPAA 02-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-ppb	1	2	3	4
Control	0.8000	0.9000	1.0000	0.9000
31.25	0.2000	0.0000	0.3000	0.1000
62.5	0.0000	0.4000	0.1000	0.1000
125	0.2000	0.0000	0.1000	0.0000
250	0.0000	0.0000	0.0000	0.1000
500	0.0000	0.0000	0.0000	0.0000

			Transform: Arcsin Square Root						1-Tailed		Number	Total
Conc-ppb	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Resp	Number
Control	0.9000	1.0000	1.2543	1.1071	1.4120	9.935	4				4	40
*31.25	0.1500	0.1667	0.3810	0.1588	0.5796	47.729	4	7.773	2.360	0.2652	34	40
*62.5	0.1500	0.1667	0.3718	0.1588	0.6847	59.809	4	7.854	2.360	0.2652	34	40
*125	0.0750	0.0833	0.2757	0.1588	0.4636	53.294	4	8.709	2.360	0.2652	37	40
*250	0.0250	0.0278	0.1995	0.1588	0.3218	40.840	4	9.387	2.360	0.2652	39	40
500	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	4				40	40

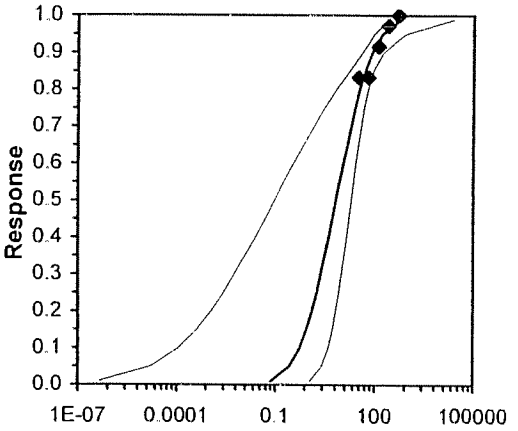
Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95803	0.868	0.49593	-0.147
Bartlett's Test indicates equal variances (p = 0.60)	2.74574	13.2767		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	<31.25	31.25			0.20499	0.22698	0.74013	0.02525	6.2E-07	4, 15

Maximum Likelihood-Probit

Parameter	Value	SE	95% Fiducial Limits		Control	Chi-Sq	Critical	P-value	Mu	Sigma	Iter
Slope	1.18714	0.3835	0.43547	1.9388	0.1	1.7119	7.81472	0.63	0.82229	0.84236	3
Intercept	4.02383	0.73311	2.58694	5.46072							
TSCR	0.10043	0.04752	0.00729	0.19358							

Point	Probits	ppb	95% Fiducial Limits	
EC01	2.674	0.07289	4.4E-07	1.11281
EC05	3.355	0.27335	1.6E-05	2.52022
EC10	3.718	0.55304	0.00011	3.90357
EC15	3.964	0.88969	0.0004	5.24972
EC20	4.158	1.29819	0.0011	6.64921
EC25	4.326	1.79524	0.00266	8.15005
EC40	4.747	4.06329	0.02423	13.6764
EC50	5.000	6.64183	0.09103	18.7742
EC60	5.253	10.8567	0.33944	25.9668
EC75	5.674	24.5727	2.91166	46.2751
EC80	5.842	33.9811	6.6128	60.131
EC85	6.036	49.5838	16.1775	86.7778
EC90	6.282	79.766	40.4765	169.598
EC95	6.645	161.38	91.6138	787.617
EC99	7.326	605.222	241.074	24693.2



Test: AC-Acute Fish Test
Species: PP-Pimephales promelas
Sample ID: REF-Ref Toxicant
Start Date: 6/16/2004 16:50
Test ID: C030314.193
Protocol: EPAA 02-EPA Acute
Sample Type: CUSO-Copper sulfate
End Date: 6/20/2004 15:3[illegible] Lab ID: CAMECW-MEC WESTON, Carlsbad

Pos	ID	Rep	Group	Start	24 Hr	48 Hr	72 Hr	96 Hr	Notes
	1	1	Control	10				8	
	2	2	Control	10				9	
	3	3	Control	10				10	
	4	4	Control	10				9	
	5	1	31.250	10				2	
	6	2	31.250	10				0	
	7	3	31.250	10				3	
	8	4	31.250	10				1	
	9	1	62.500	10				0	
	10	2	62.500	10				4	
	11	3	62.500	10				1	
	12	4	62.500	10				1	
	13	1	125.000	10				2	
	14	2	125.000	10				0	
	15	3	125.000	10				1	
	16	4	125.000	10				0	
	17	1	250.000	10				0	
	18	2	250.000	10				0	
	19	3	250.000	10				0	
	20	4	250.000	10				1	
	21	1	500.000	10				0	
	22	2	500.000	10				0	
	23	3	500.000	10				0	
	24	4	500.000	10				0	

Comments:

MEC ANALYTICAL SYSTEMS WESTON SOLUTIONS

96 Hour Fathead Minnow (Larvae) Reference Toxicant Test

Test ID: C030314.193	Replicates: 4	Study Director: DS	Location: rm.3
Dilution Water Batch: FW 788	Organism Batch: ABS 4069L	Associated Test(s): EMA	No. of Organisms: 10
Toxicant: Copper Sulfate ($0.509gCu/LCuSO_4$)	Toxicant Lot No. 235-09	Date Prepared: 6.16.04	Initials: TS

Target Concentrations: 500 ppb	Quantity of Stock: Target: 1.964 mL	Quantity of Diluent: Target: 2000 mL
500 ppb	Actual: 1.964 mL	Actual: 2000.0 mL

Serial Dilute by ½ to obtain concentrations of 250, 125, 62.5, and 31.25 ppb.

0 Hours Date: 6/16/04 WQ Time: 1305 AM (3)(24) Start Time: 1650 Initials: TS/RM

STOCK

	Control	31.25	62.5	125	250	500
D.O. (%)	92	92	93	92	93	92
Temperature	19.3	19.3	19.3	19.3	19.3	19.4
Conductivity	0.30	0.30	0.30	0.30	0.30	0.30
pH	7.8	7.9	7.9	7.8	7.8	7.8

24 Hours Date: 6/17/04 Time: 0900 Initials: RM

	Control	31.25	62.5	125	250	500
No. Alive Rep 1	10	10	10	10	3(7)	4(6)
No. Alive Rep 2	10	9(1)	8(2)	7(3)	3(7)	1(9)
No. Alive Rep 3	10	10	9(1)	9(1)	5(5)	2(8)
No. Alive Rep 4	10	10	9(1)	8(2)	7(3)	1(9)

48 Hours Date: 6/18/04 Time: 1005 Initials: RM

Renewal Information Toxicant Amount: 1.964 Diluent Amount: 2000.0 Initials: TS

	Control	31.25	62.5	125	250	500
No. Alive Rep 1	8(2)	7(3)	3(4)(2) RM	4(6)	1(2)	0(4)
No. Alive Rep 2	10	5(5)(1) RM (4)	6(2)	4(3)	0(3)	0(1)
No. Alive Rep 3	10	8(2)	5(4)	2(7)	0(5)	0(2)
No. Alive Rep 4	10	7(3)	3(6)	0(8)	2(5)	0(1)

(1) IE 6/18/04 RM

(2) 3NB 6/18/04 RM

(3) animals were not fed during holding time prior to test initiation. 6/18/04 EK

MEC ANALYTICAL SYSTEMS WESTON

96 Hour Fathead Minnow (Larvae)
Reference Toxicant Test

72 Hours	Date: 6/19/04	Time: 1355	Initials: am

	Control	31.25	62.5	125	250	500
No. Alive Rep 1	8	2(5)	10(2)	4	1	
No. Alive Rep 2	10	①am 0(5)(4)	4(2)	1(3)		
No. Alive Rep 3	10	6(2)	10(4)	10(1)		
No. Alive Rep 4	10	3(4)	10(2)	—	1(1)	

96 Hours	Date: 6/20/04	WQ Time: 1150	Replicate: 1	Initials: am

STOCK

	Control	31.25	62.5	125	250	500
D.O. (%)	97	97	97	98	98	
Temperature	20.7	20.1	20.3	20.4	20.4	
Conductivity	0.32	0.32	0.32	0.34	0.31	
pH	7.8	7.7	7.7	7.6	7.7	

96 Hour Survival Data	End Time:	1535	Initials: am

	Control	31.25	62.5	125	250	500
No. Alive Rep 1	8	2	0(1)	2(2)	0(1)	
No. Alive Rep 2	9(1)	0(1)	4	0(1)		
No. Alive Rep 3	10	3(3)	1	1		
No. Alive Rep 4	9(1)	1(2)	1	—	1	

☒ Pass ☐ Fail

Notes:

MC
① MC @am 6/19/04 am

②IW 7/13/04 am

Acute Fish Test-96 Hr Survival

Start Date:	6/16/2004 16:40	Test ID:	C040420.03	Sample ID:	REF-Ref Toxicant
End Date:	6/20/2004 15:40	Lab ID:	CAMECW-MEC WESTON,C	Sample Type:	NACL-Sodium chloride
Sample Date:		Protocol:	EPAA 02-EPA Acute	Test Species:	PP-Pimephales promelas
Comments:					

Conc-ppt	1	2	3	4
Control	1.0000	0.9000	1.0000	0.4000
2	1.0000	0.9000	1.0000	0.8000
4	0.8000	1.0000	1.0000	1.0000
8	0.3000	0.2000	0.3000	0.1000
16	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000

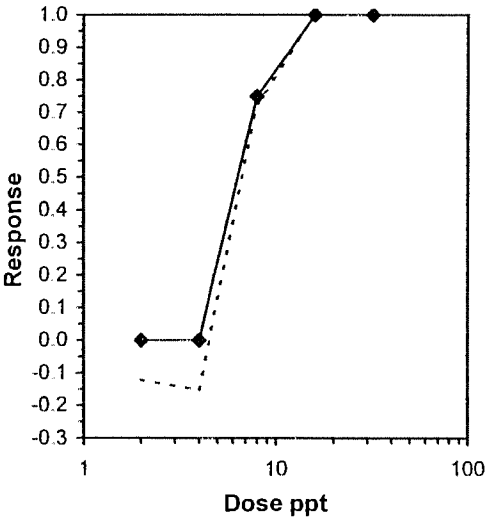
			Transform: Arcsin Square Root						1-Tailed		Number	Total
Conc-ppt	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Resp	Number
Control	0.8250	1.0000	1.1894	0.6847	1.4120	29.017	4				7	40
2	0.9250	1.1212	1.2951	1.1071	1.4120	11.347	4	-0.706	2.290	0.3425	3	40
4	0.9500	1.1515	1.3358	1.1071	1.4120	11.411	4	-0.978	2.290	0.3425	2	40
*8	0.2250	0.2727	0.4862	0.3218	0.5796	25.196	4	4.702	2.290	0.3425	31	40
16	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	4				40	40
32	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	4				40	40

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.86231	0.844	-1.3873	2.13684
Bartlett's Test indicates equal variances (p = 0.27)	3.94275	11.3449		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	4	8	5.65685		0.3001	0.34835	0.635	0.04474	3.0E-04	3, 12

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	6.7272	6.1180	7.3970
5.0%	6.6158	5.9648	7.3379
10.0%	6.5168	5.8368	7.2761
20.0%	6.3741	5.6919	7.1380
Auto-0.0%	6.7272	6.1180	7.3970



Test: AC-Acute Fish Test
Species: PP-Pimephales promelas
Sample ID: REF-Ref Toxicant
Start Date: 6/16/2004 16:40
Test ID: C040420.03
Protocol: EPAA 02-EPA Acute
Sample Type: NACL-Sodium chloride
End Date: 6/20/2004 15:49
Lab ID: CAMECW-MEC WESTON, Carlsbad

Pos	ID	Rep	Group	Start	24 Hr	48 Hr	72 Hr	96 Hr	Notes
	1	1	Control	10				10	
	2	2	Control	10				9	
	3	3	Control	10				10	
	4	4	Control	10				4	
	5	1	2.000	10				10	
	6	2	2.000	10				9	
	7	3	2.000	10				10	
	8	4	2.000	10				8	
	9	1	4.000	10				8	
	10	2	4.000	10				10	
	11	3	4.000	10				10	
	12	4	4.000	10				10	
	13	1	8.000	10				3	
	14	2	8.000	10				2	
	15	3	8.000	10				3	
	16	4	8.000	10				1	
	17	1	16.000	10				0	
	18	2	16.000	10				0	
	19	3	16.000	10				0	
	20	4	16.000	10				0	
	21	1	32.000	10				0	
	22	2	32.000	10				0	
	23	3	32.000	10				0	
	24	4	32.000	10				0	

Comments:

MEC ANALYTICAL SYSTEMS WESTON SOLUTIONS

96 Hour Fathead Minnow (Larvae)
Reference Toxicant Test

Test ID: C040420.03	Replicates: 4	Study Director: DS	Location: Rm. 3
Dilution Water Batch: FW 788	Organism Batch: ABS 4069L	Associated Test(s): EMA	No. of Organisms: 10
Toxicant: ~~Copper Sulfate~~ NaCl ~~(0.509gCu/LCuSO4)~~	Toxicant Lot No. 093K0110	Date Prepared: 6·16·04	Initials: TS

Target Concentrations: ~~500 ppb~~ 32ppt	Quantity of Stock: Target: ~~1.964 mL~~ 64.00 g	Quantity of Diluent: Target: 2000 mL
~~500 ppb~~ 32ppt	Actual: 64.00g	Actual: 2000.0 mL

Serial Dilute by ½ to obtain concentrations of ~~250, 125, 62.5, and 31.25 ppb~~.

0 Hours Date: 6·16·04 WQ Time: 1450 Start Time: 1640 Initials: TS

STOCK

	Control	~~31.25~~ 2	~~62.5~~ 4	~~125~~ 8	~~250~~ 16	~~500~~ 32
D.O. (%)	92	93	93	94	94	98
Temperature	20.4	20.3	20.1	20.1	20.1	19.9
~~Conductivity~~ Salinity	0.0	2.0	4.2	8.4	16.6	33.2
pH	8.1	8.1	8.1	8.1	8.1	8.1

24 Hours Date: 6·17·04 Time: 0930 Initials: RM

	Control	~~31.25~~ 2	~~62.5~~ 4	~~125~~ 8	~~250~~ 16	~~500~~ 32
No. Alive Rep 1	10	10	10	10	0(10)	0(10)
No. Alive Rep 2	9(1)	10	10	10	0(10)	0(10)
No. Alive Rep 3	10	10	10	10	0(10)	0(10)
No. Alive Rep 4	9(1)	10	10	8(2)	0(10)	0(10)

48 Hours Date: 6·18·04 Time: 1040 Initials: RM

Renewal Information Toxicant Amount: 16.00g Diluent Amount: 2000.0 Initials: TS

	Control	~~31.25~~ 2	~~62.5~~ 4	~~125~~ 8	~~250~~ 16	~~500~~ 32
No. Alive Rep 1	10	10	9(1)	3(7)		
No. Alive Rep 2	9	9(1)	10	3(7)		
No. Alive Rep 3	10	10	10	6(4)		
No. Alive Rep 4	6(3)	9(1)	10	2(6)		

MEC ANALYTICAL SYSTEMS WESTON

96 Hour Fathead Minnow (Larvae)
Reference Toxicant Test

72 Hours	Date: 6/19/04		Time: 1405		Initials: am	
	Control	~~31.25~~ 2	~~62.5~~ 4	~~125~~ 8	~~250~~ 16	~~500~~ 32
No. Alive Rep 1	10	10	8(1)	3		
No. Alive Rep 2	9	9	10	2(1)		
No. Alive Rep 3	10	10	10	6		
No. Alive Rep 4	5(1)	9	10	1(1)		

96 Hours	Date: 6/20/04	WQ Time: 1200		Replicate: 1	Initials: am	
STOCK						
	Control	~~31.25~~ 2	~~62.5~~ 4	~~125~~ 8	~~250~~ 16	~~500~~ 32
D.O. (%)	97	96	95	96		
Temperature	19.9	20.1	21.0	20.4		
~~Conductivity~~ Salinity	0.0	1.1	2.4	3.9		
pH	7.7	7.8	7.9	7.9		

96 Hour Survival Data	End Time:	1540	Initials: am

	Control	~~31.25~~ 2	~~62.5~~ 4	~~125~~ 8	~~250~~ 16	~~500~~ 32
No. Alive Rep 1	10	10	8	3		
No. Alive Rep 2	9	9	10	2		
No. Alive Rep 3	10	10	10	3(3)		
No. Alive Rep 4	4(1)	8(1)	10	1		

☐ Pass ☒ Fail

Notes:

SUBCONTRACT ORDER

EnviroMatrix Analytical, Inc.

0406172

SENDING LABORATORY:

EnviroMatrix Analytical, Inc.
4340 Viewridge Ave., Ste. A
San Diego, CA 92123
Phone: (858) 560-7717
Fax: (858) 560-7763
Project Manager: Mike Faulkner

RECEIVING LABORATORY:

MEC Analytical Systems [S]
2433 Impala Drive
Carlsbad, CA 92009-1514
Phone :760-931-8081
Fax: 760-931-1580

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: Pre - Purge	**Water**	**Sampled:06/15/04 11:30**	0406150 01	
Bioassay-Acute-Scrn.	06/24/04 16:00	12/12/04 11:30		
Containers Supplied:				
1L Poly - Unpres (C)	1L Poly - Unpres (D)			
Sample ID: Post - Purge	**Water**	**Sampled:06/15/04 12:59**	0406150 02	
Bioassay-Acute-Scrn.	06/24/04 16:00	12/12/04 12:59		
Containers Supplied:				
1L Poly - Unpres (C)	1L Poly - Unpres (D)			

Released By	Date	Received By	Date
	6/15/04 @ 1756	Brian Hester	6/15/04 1756
Released By	Date	Received By	Date

MEC ANALYTICAL SYSTEMS WESTON SOLUTIONS

SAMPLE RECEIPT

Client:	Client ID:	MEC ID:	Renewals:	
EMA	Pre-Purge	C040615.01		
Project:	Post-Purge	C040615.02		
0406172				
Date/Time Received:		6.15.04 1756		
Airbill #:		N/A		
Sample Tracking Information Kept for Records: (Y/N)		N/A		
Collection Date/Time:		6.15.04 1130 Pre 1259 Post		
Condition of Shipping Container:		GOOD		
Type and Capacity of Sample Container:		1 L Poly Bot.		
Total Sample Volume (L):		2 L each		
Condition of Sampling Container:		GOOD		
Sample Container Appropriate: (Y/N)		Y		
Custody Seals Intact: (Y/N)		N/A		

TAKE THE FOLLOWING MEASUREMENTS UPON ARRIVAL

MEC ID	Temp. (°C) (0-6°C) *	Dissolved Oxygen (% Saturation)	pH	Conductivity (mS/cm) or Salinity (ppt)	Hardness (mg $CaCO_3$/L)	Alkalinity (mg $CaCO_3$/L)	Total Chlorine (mg/L)	Technician
C040615.01	18.6 / 17.1	34 / 44	6.9 / 6.9	6.54 / 6.57 mS/cm 3.6 / 3.6 ppt	>1200	348	0.00	BH/KS
.02	16.8 / 16.3	22 / 22	6.8 / 6.9	6.53 / 6.55 mS/cm 3.5 / 3.5 ppt	>1200	364	0.00	↓

*Notify project manager or study director of temperatures above 6°C. Client must be notified ASAP.

If there are sample receipt problems, complete the following:

Reason for unacceptability:	
Name of Client Contact:	Contacted by:
Client Response and/or Action to be Taken:	Date Action Taken:

CHAIN-OF-CUSTODY RECORD

EnviroMatrix Analytical, Inc.
4340 Viewridge Ave., Ste. A • San Diego, CA 92123 • Phone (858) 560-7717 • Fax (858) 560-7763

EMA LOG #: 0406172

EMA DATE/TIME STAMP

Client: KLEINFELDER
Address: 5150 SHOREHAM PL.
SAN DIEGO, CA
Attn: J. LORD Phone: 858 320-2000
Sampled by: D. CHAMBERS Fax: 858 541-1645
Billing Address:

Project: SDGE/SORRENTO MESA PO #:

REQUESTED ANALYSIS

EMA ID #	Client Sample ID	2004 Sample Date	Sample Time	Sample Matrix	Container(s) #	Container(s) Type*	418.1 (TRPH)	Oil & Grease 413.1___ 413.2___ 1664___	TPH (8015B) Gas___ Diesel___	TPH-Extended 8015B___ ASTM D2887___	602 / 8021 BTXE___ MTBE___	601 / 8021 (Purgeable Halocarbons)	608 / 8081 (Pesticides)	608 / 8082 (PCB's)	624 / 8260 (Volatile Organics)	625 / 8270 (Semi Volatile Organics)	TTLC Metals (CAC Title 22) per Jacqueline on 6/24/04	STLC Metals (CAC Title 22)	TCLP (RCRA) Metals___ Organics___	Cd Cr Cu Pb Ni Ag Zn	pH EC TSS TDS	Settleable Solids, TSS, Turb, Hydrogen Sulfide	Total Nitrogen, TKN, Ammonia,	Ac. Toxicity, D.O., pH	Pes. Chlorine, TPH gas	VOC by 8260B, Reg. List	SVOC-Vol. 8270C,	Total & Fecal Coliform	
1	PRE-PURGE	6/15	1130	W	16	G/P/V											X	X				X	X	X	X	X	X	X	
2	POST-PURGE	↓	1259	W	16	↓											X					X	X	X	X	X	X	X	
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													

*Container Types: B=Brass Tube; V=VOA; G=Glass; P=Plastic; O=Other (list)

Tamper-Proof Seals Intact: Yes No N/A Correct Containers: Yes No

Sample(s): Cold Ambient Warm VOAs w/ZHS: Yes No N/A

All Samples Properly Preserved: Yes No N/A

Disposal: N/C (aqueous) *EMA (@$5.00/sample) Return Hold

Turnaround Time: 24 hr 48 hr 3 day 4 day 5 day Normal

Comments: See attached sheet for Analytical Details.

T=17°C

	RELINQUISHED BY	DATE/TIME	RECEIVED BY
Signature	D. Chambers	6/15/04	
Print	D. CHAMBERS	15:39	
Company:	Kleinfelder/CCS		EMA/ESPINO
Signature			
Print			
Company:			
Signature			
Print			
Company:			

*EMA reserves the right to return samples that do not match our waste profile.

White - EMA Canary - Accounting Pink - Client (w/Report) Goldenrod - Client (Relinquish Samples)

APPENDIX E

Pump Test Report and Data

Wiedlin & Associates, Inc.
P.O. Box 910462
San Diego, CA 92191-0462
858.259.6732 · fax 858.259.6094
Applications in Groundwater Science

Kleinfelder, Inc.
Attention: Kevin Crennan
5015 Shoreham Place
San Diego, CA 92122

September 20, 2004

Subject: Aquifer Parameters For Unconsolidated Soil;SDG&E Mira Mesa Substation

Dear Mr. Crennan:

The following provides the results of analyses conducted on aquifer test data collected by BBC Environmental, Inc at wells B-12 and B-13 at the San Diego Gas & Electric (SDG&E) Mira Mesa Substation near Mira Mesa Boulevard and Vista Sorrento Parkway.

Wells B-12 and B-13 are 3 feet apart and are located 30 feet west of a perennially flowing creek that runs north-south through the project site (Figure 1). Both borings encountered very loose clayey sand (SC) from ground surface to a depth of 10 feet where the Scripps Formation, a dense marine siltstone, was encountered (Attachment 1, Drilling Logs).

HYDROGEOLOGIC SETTING AND AQUIFER TEST METHODS

The borings were advanced using a limited access tripod rig equipped with 6-inch diameter, solid flight auger. The wells were logged and completed under the direction of Kleinfelder staff from the contact of the unconsolidated clayey sand and the Scripps Formation to above the water table with two-inch schedule 40 PVC casing with 0.020-inch machine cut perforations. The water table is approximately 5.5 feet below land surface. Hence, the saturated thickness of the unconsolidated soil at the time of testing was about 4.5 feet. Based on the project's topographic map and the unsurveyed locations for wells B-12 and B-13, the elevation of the water table is approximately 116 feet above mean sea level (msl). The elevation of the flowing creek 30 feet west of the borings is approximately 119 feet above msl. This indicates that creek is a "losing" stream and water from the creek is percolating into the underlying unconsolidated soil (Figure 2).

Four hours of constant discharge pumping was conducted at well B-13 on September 8, 2004 while drawdown was recorded at B-13 and well B-12. A flow rate of 1.9 gallons per minute was selected based on the step drawdown test conducted the previous day. The flow rate was measured using a calibrated container and stop watch and visually monitored with an orifice weir and manometer. Pumping was terminated when the pump motor became overheated. Overheating probably was a result of limited water circulation around the pump motor that occurred because of the short water column within the casing and the small annulus between the pump motor and the wall of the two-inch diameter casing. Though flow rates appeared to remain constant, there was probably some decline in pump discharge as the pump motor headed up as evidenced by the variation in water level in the pumping well at the end of the test.

Drawdown was recorded in both wells using a water level transducer and data logger. Peak drawdown was approximately 0.6 feet at the pumping well and about 0.2 feet in the observation well. Drawdown was limited because the aquifer thickness is only about 4.5 feet and because the well is not very efficient. Low well efficiency occurred because the limited access of the site resulted in completing the boring with small (6") diameter solid flight auger and precluded extensive development with a well development rig.

DATA ANALYSES AND AQUIFER PARAMETERS

Drawdown data were transferred from the data loggers to the aquifer test analysis software program, Aquifer Win32 Version 2 by Environmental Simulations, Inc. Aquifer test data from the pumping well were analyzed using the Theis Recovery Method. Aquifer test data from the observation well were analyzed using the Theis Method and the Theis Recovery Method (Attachment 2). Drawdown data fit the Theis curve well even though the aquifer is unconfined. This is attributable to the fact that water table drawdown was limited due to well efficiency restrictions and drainage in response to water table decline was not observed. As a consequence of the limited drawdown, specific yield was not calculated, though the storativity of the formation was calculated.

Drawdown and recovery curves do not appear to be influenced by these boundary conditions. The proximity of the recharge boundary condition represented by the perennial stream and the barrier boundary represented by the contact between unconsolidated saturated soil and the Scripps Formation to the test wells (Figure 2) have the potential for affecting drawdown and recovery data. An image well analysis of drawdown data in the observation well was conducted manually to confirm that boundary conditions were not affecting test results. Stallman's Method to assess bounded confined or unconfined transient groundwater flow was used to assess the boundary conditions (*Analysis and Evaluation of Pumping Test Data;* Kruseman and de Ridder, 1990). Seven image wells were accounted for to characterize the two boundary conditions. The transmissivity and storativity calculated using Stallman's method were essentially the same as the values calculated using the Theis and Theis Recovery Methods.

AQUIFER PARAMETERS

Well No.	T (ft^2/min)	K (ft/min)	Storativity (dimensionless)	Method of Analysis
B-12	0.70	0.16	0.00007	Theis Drawdown
B-12	0.57	0.13	not calculated	Theis Recovery
B-13	0.50	0.11	not calculated	Theis Recovery
Notes: T = Transmissivity; K = Hydraulic Conductivity				

Transmissivity values for the three analyses ranged from 0.70 feet squared per minute to 0.50 feet squared per minute. With an aquifer thickness of 4.5 feet, these transmissivities are equivalent to

hydraulic conductivities of 0.16 feet per minute to 0.11 feet per minute. These values are consistent with the upper end of the range of hydraulic conductivities reported for unconsolidated silty sands (*Groundwater;* Freeze and Cherry, 1979).

The well efficiency of pumping well B-12 was calculated by predicting the amount of drawdown expected at the production well calculated using the Theis analytical equation and the aquifer parameters derived from the test data. A predicted drawdown of 0.28 feet after 150 minutes of pumping compares to an actual measured drawdown of 0.7 feet at approximately 150 minutes. Well efficiency is defined as the ratio of theoretical or predicted drawdown to actual drawdown (*Aquifer Testing;* Dawson and Istok, 1991). Hence a well that is 100 percent efficient will have an actual drawdown equal to its predicted drawdown. In this case the efficiency of the test well is 40 percent. This is a relatively low efficiency attributable to the small diameter boring and the limited development work conducted on the well.

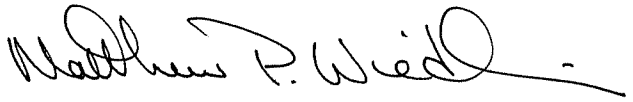
SUMMARY

The following hydrogeologic findings have been developed:

- Transmissivity is on the order of 0.5 feet^2 per minute;
- Saturated thickness of the unconsolidated soil at the test wells was approximately 4 to 5 feet at the time of testing;
- Hydraulic conductivity is on the order of 0.1 to 0.16 feet per minute and is consistent with soil texture reported in the boring log.
- Groundwater elevations in the test wells are about three feet lower than the elevation of perennial stream. These elevations are based on the site topographic map and are not surveyed. This information suggests that the stream is recharging the water table under that occurs in the unconsolidated soil below the stream.
- A recharge boundary condition occurs at the perennial stream, 30 feet from the test site.
- A barrier boundary condition occurs approximately 75 feet away from the test site where saturated unconsolidated soil comes in contact with the Scripps Formation.

Thank you for the opportunity to be of service. Please contact me if you have questions regarding this work.

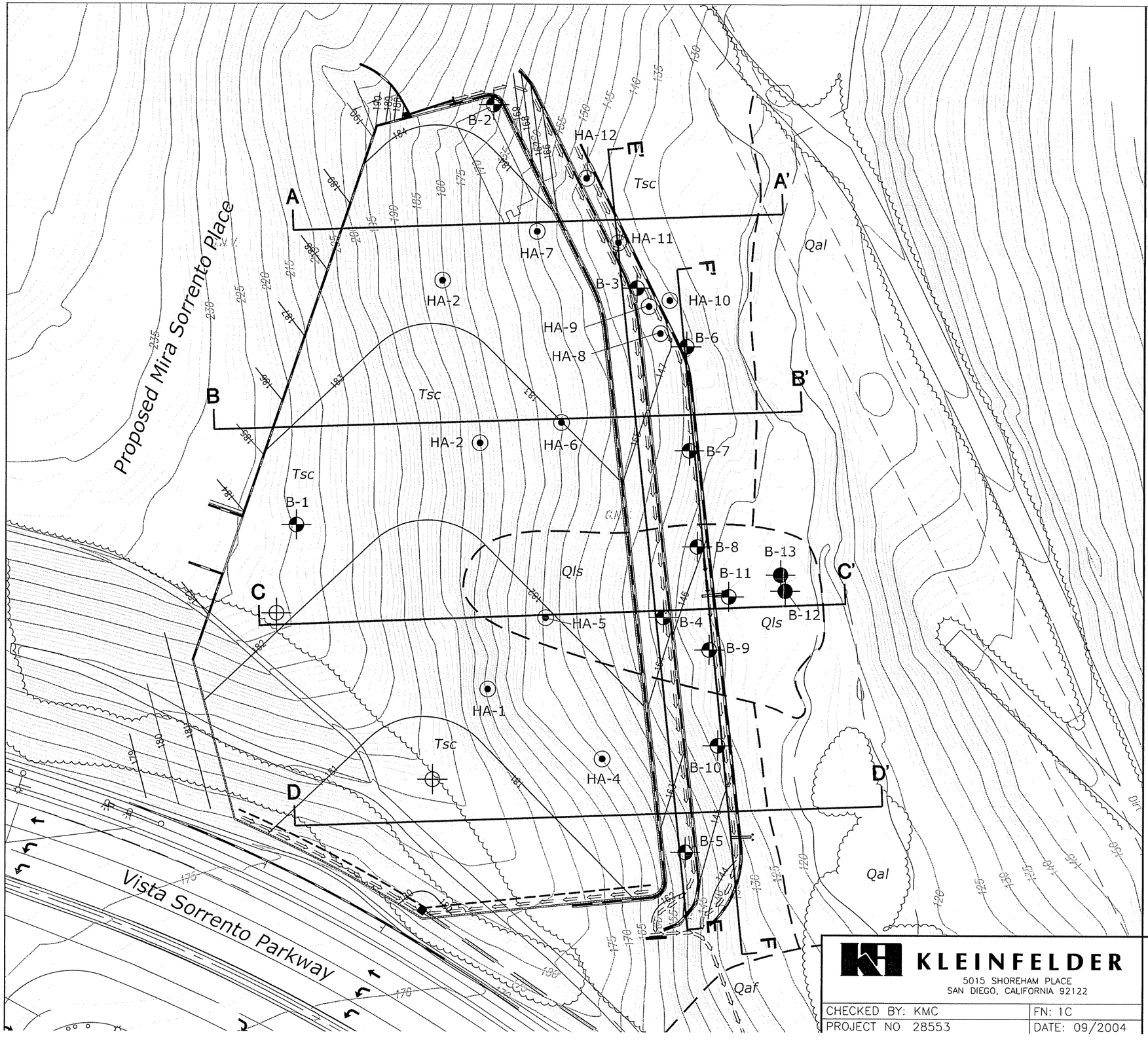
Sincerely,



Matthew P. Wiedlin
California Certified Hydrogeologist, No. 97

enclosures: Figures 1 and 2; Attachment 1 Boring Logs; Attachment 2 Aquifer Test Data

FIGURES



LEGEND:

- B-11 — APPROXIMATE BORING LOCATION (KLEINFELDER)
- B-7 — APPROXIMATE BORING LOCATION, (URS 2002)
- B-13 — APPROXIMATE LOCATION OF GROUNDWATER SAMPLING AND PUMP TEST (KLEINFELDER)
- HA-12 — APPROXIMATE HAND AUGER LOCATION (KLEINFELDER)
- F F' — GEOLOGIC CROSS–SECTION
- ? — APPROXIMATE GEOLOGIC CONTACT
- 120 — EXISTING TOPOGRAPHIC CONTOURS (ELEVATION IN FEET)
- 181 — PROPOSED TOPOGRAPHIC CONTOURS (ELEVATION IN FEET)
- *Qaf* — FILL
- *Qls* — LANDSLIDE DEPOSIT
- *Qal* — ALLLUVIUM
- *Tsc* — SCRIPPS FORMATION

REFERENCE:

"GRADING/DRAINAGE PLAN, MIRA SORRENTO SUBSTATION", PREPARED BY NOLTE ASSOCIATES, INC. DATED 9/13/04.

N

0 50 100

APPROXIMATE GRAPHIC SCALE (FEET)

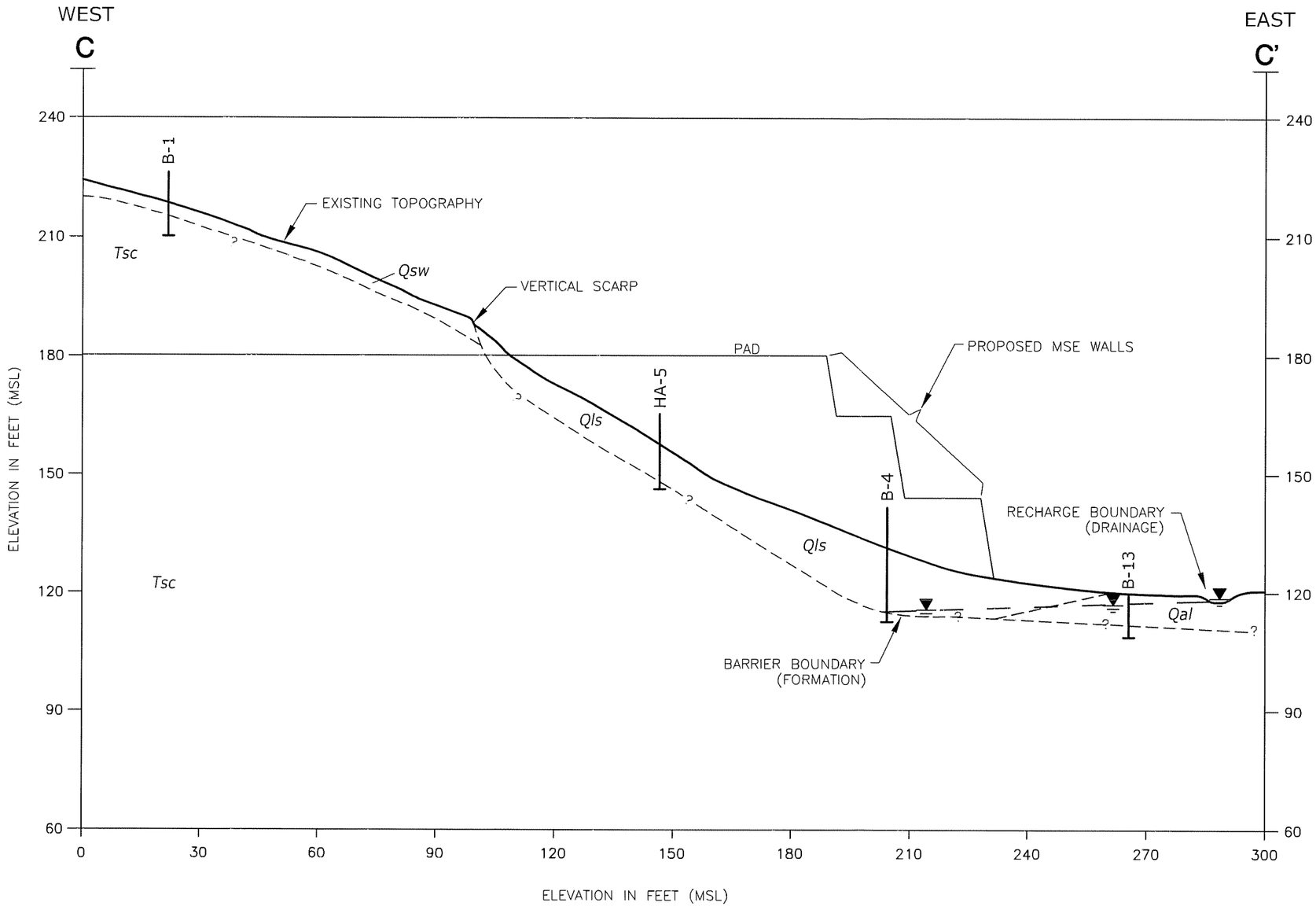
KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

CHECKED BY: KMC	FN: 1C
PROJECT NO. 28553	DATE: 09/2004

PLOT PLAN/GEOLOGIC MAP

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

FIGURE
1



LEGEND:

- APPROXIMATE GEOLOGIC CONTACT
- APPROXIMATE GROUNDWATER
- HA-5 / B-1: SOIL BORING/HAND AUGER
- *Qls* LANDSLIDE DEBRIS
- *Qsw* TOPSOIL/COLLUVIUM
- *Qal* ALLUVIUM
- *Tsc* SCRIPPS FORMATION

0 30 60
APPROXIMATE GRAPHIC SCALE
(FEET)

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

CHECKED BY: KMC	FN: 28553XSECTS92004
PROJECT NO. 28553	DATE: 09/2004

REVISED GEOLOGIC CROSS-SECTIONS C-C'

SDG&E MIRA SORRENTO SUBSTATION

SAN DIEGO, CALIFORNIA

FIGURE

2

ATTACHMENT 1
BORING LOGS B-12 AND B-13

DATE DRILLED:	5/24/2004	WATER DEPTH:	4 feet
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	05/24/2004
DRILLING METHOD:	Limited Access Tri-pod Rig, 140 lb. hammer, 30" drop	GROUND ELEVATION:	±121.5 feet
		LOGGED BY:	JMK
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	KMC

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS	WELL DIAGRAM
121	1						**ALLUVIUM:** CLAYEY SAND (SC), brown, moist, fine to medium grained				Solid 2" dia. PVC pipe
120	2										Bentonite Seal
119	3										
118	4						Groundwater at 4 feet				
117	5										
116	6			2	1						Slotted 2" dia. PVC Pipe
115	7										
114	8										Filter Sand
113	9						Increase in driling effort at 9 feet				
112	10						**SCRIPPS FORMATION:** SILTSTONE, olive brown, wet, weakly indurated				Solid 2" dia. PVC pipe
111	11						Bottom of boring at 10.5 feet Groundwater obsereved at 4 feet No caving observed				
110	12										
109	13										
108	14										
107											

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING 12

FIGURE
A14

DATE DRILLED:	5/24/2004	WATER DEPTH:	4 feet
DRILLING COMPANY:	Pacific Drilling	DATE OBSERVED:	05/24/2004
DRILLING METHOD:	Limited Access Tri-pod Rig, 140 lb. hammer, 30" drop	GROUND ELEVATION:	±121.5 feet
		LOGGED BY:	JMK
HOLE DIAMETER:	6" Solid Stem Auger	REVIEWED BY:	KMC

ELEVATION (feet)	DEPTH (feet)	SAMPLES: BULK	SAMPLES: DRIVEN	BLOW COUNTS (blows/foot)	SAMPLE NUMBER	GRAPHIC LOG	SOIL DESCRIPTION AND CLASSIFICATION	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	COMMENTS/ ADDITIONAL TESTS	WELL DIAGRAM
121	0						**ALLUVIUM:**				Solid 2" dia. PVC pipe
120	1						CLAYEY SAND (SC), brown, moist, fine to medium grained				
119	2										Bentonite Seal
118	3										
▽ 117	4						Groundwater at 4 feet				
116	5										
115	6										Slotted 2" dia PVC Pipe
114	7										
113	8										Filter sand
112	9										
111	10						Very hard drilling **SCRIPPS FORMATION:**				
110	11						SILTSTONE, olive brown, wet, weakly indurated				
109	12						Bottom of boring at 12 feet Groundwater observed at 4 feet No caving observed				Solid 2" dia. PVC pipe
108	13										
107	14										

KLEINFELDER
5015 SHOREHAM PLACE
SAN DIEGO, CALIFORNIA 92122

PROJECT NO. 28553

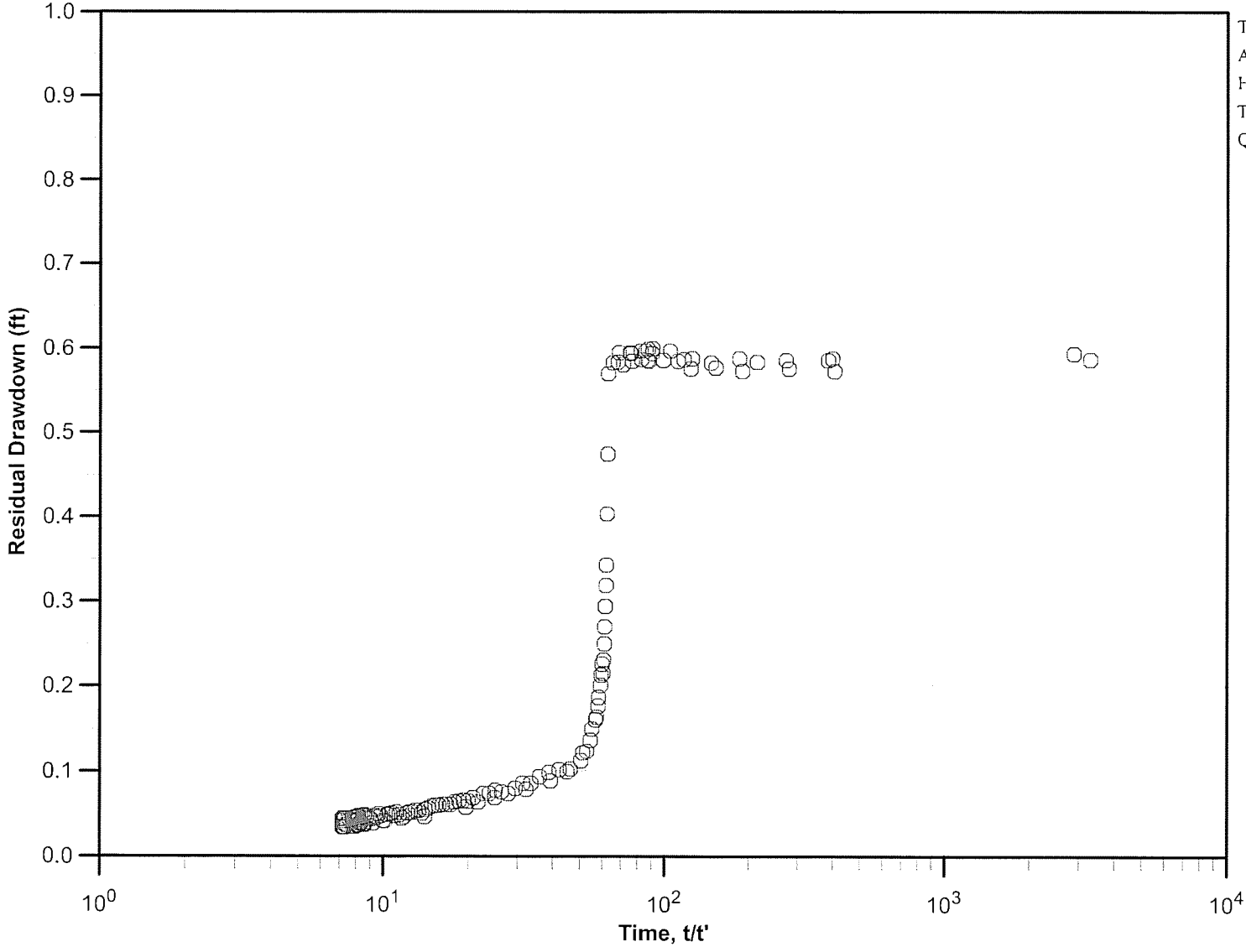
SDG&E MIRA SORRENTO SUBSTATION
SAN DIEGO, CALIFORNIA

LOG OF BORING 13

FIGURE
A15

ATTACHMENT 2
AQUIFER TEST DATA
PUMPING WELL B-13
OBSERVATION WELL B-12

Theis Recovery; Pumping Well B-13



Transmissivity=0.57 ft sq./min
Aquifer Thickness = 4.5 ft
Hydraulic Conductivity=0.13 ft/m
Time Pumping Ended=230 min
Q @ B-13=1.9 gpm

Wiedlin and Associates, Inc.
Applications in Groundwater Science

Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
Pumping Started at 9/8/04 at 8.12 am	
Pumping Well B-13 Q = 1.9 gpm	Static Water Level is 8.35 feet from TOC Casing Stickup is 2.8 feet above ground surface.
0.00	0
0.02	0
0.08	0
0.10	0
0.12	0
0.20	0.076
0.22	0.24
0.23	0.362
0.25	0.42
0.27	0.449
0.28	0.479
0.30	0.503
0.32	0.459
0.33	0.415
0.35	0.394
0.38	0.381
0.43	0.392
0.58	0.402
0.62	0.405
0.75	0.422
0.88	0.434
1.05	0.448
1.08	0.445
1.30	0.458
1.45	0.448
1.47	0.459
1.50	0.47
1.58	0.47
1.92	0.48
2.08	0.484
2.30	0.493
2.33	0.48
2.35	0.493
2.40	0.48
2.42	0.492
2.58	0.492
3.03	0.504
3.08	0.495
3.10	0.487
3.13	0.499
3.58	0.503
4.08	0.509
4.12	0.51
4.35	0.499
4.37	0.517
4.38	0.505
4.58	0.516
4.62	0.516
5.08	0.52
5.30	0.520
5.32	0.516
5.37	0.53
5.38	0.51
5.40	0.521
5.47	0.531
5.53	0.516
5.58	0.523
5.72	0.527
6.08	0.523
6.42	0.511
6.43	0.528
6.52	0.518
6.53	0.53
6.57	0.517
6.58	0.517
6.67	0.527
6.82	0.517
6.85	0.527
7.08	0.53
7.58	0.522
7.75	0.514
7.88	0.526
8.08	0.525
8.17	0.514
8.18	0.524
8.58	0.527
8.75	0.534
8.77	0.523
8.83	0.534
9.08	0.528
9.58	0.531
9.68	0.524
9.78	0.534
9.95	0.518
9.98	0.53
10.08	0.525
10.10	0.510
10.12	0.53
10.15	0.519
10.23	0.53
10.58	0.537
10.75	0.54
10.92	0.527
10.98	0.538
11.00	0.527
11.08	0.539
11.13	0.539
11.22	0.525
11.28	0.54
11.33	0.526
11.35	0.541
11.42	0.525
11.45	0.537
11.58	0.533
11.90	0.522
11.92	0.534
12.08	0.537
12.12	0.544
12.22	0.529
12.30	0.54
12.40	0.527
12.42	0.537
12.58	0.541
12.65	0.527
12.67	0.54
12.82	0.528
12.85	0.543
12.90	0.53
12.97	0.541
13.08	0.547
13.58	0.54
13.85	0.526

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Applications in Groundwater Science

Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
13.87	0.547
13.90	0.533
13.92	0.546
14.08	0.543
14.37	0.535
14.42	0.546
14.47	0.534
14.50	0.548
14.58	0.549
14.78	0.535
14.80	0.549
14.92	0.538
14.97	0.549
15.08	0.541
15.22	0.534
15.23	0.546
15.33	0.534
15.35	0.547
15.58	0.546
15.67	0.532
15.75	0.542
15.85	0.531
15.93	0.542
16.08	0.542
16.23	0.554
16.57	0.566
16.58	0.563
16.60	0.556
16.98	0.568
17.08	0.565
17.28	0.556
17.30	0.566
17.47	0.553
17.52	0.565
17.58	0.559
18.08	0.564
18.58	0.557
19.03	0.575
19.07	0.565
19.08	0.566
19.58	0.568
20.08	0.569
20.38	0.576
20.48	0.564
20.52	0.578
20.58	0.571
20.68	0.568
20.80	0.578
20.82	0.568
20.97	0.578
21.00	0.565
21.08	0.577
21.12	0.579
21.42	0.568
21.52	0.58
21.58	0.564
21.63	0.57
21.85	0.58
21.97	0.569
22.03	0.58
22.08	0.574
22.18	0.568
22.25	0.582
22.52	0.572
22.58	0.579
23.08	0.58
23.27	0.583
23.35	0.571
23.40	0.581
23.55	0.567
23.58	0.579
23.60	0.576
24.08	0.581
24.58	0.581
25.08	0.578
25.58	0.581
25.73	0.589
25.78	0.576
25.83	0.586
26.08	0.577
26.13	0.576
26.20	0.586
26.35	0.572
26.37	0.585
26.50	0.575
26.58	0.584
26.88	0.585
26.92	0.574
26.98	0.585
27.00	0.585
27.10	0.574
27.15	0.585
27.58	0.581
28.08	0.582
28.58	0.59
29.00	0.595
29.05	0.585
29.08	0.591
29.58	0.59
30.08	0.585
30.40	0.596
30.58	0.594
30.60	0.584
30.80	0.595
30.92	0.584
31.05	0.594
31.07	0.579
31.08	0.59
31.17	0.59
31.58	0.591
31.62	0.578
31.63	0.592
31.73	0.582
31.95	0.593
32.00	0.575
32.02	0.589
32.08	0.592
32.42	0.577
32.43	0.592
32.58	0.592
33.08	0.595
33.58	0.587
34.08	0.6
34.58	0.595
34.67	0.602
34.70	0.588
34.77	0.599

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Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
35.08	0.599
35.45	0.587
35.58	0.595
35.65	0.598
35.67	0.583
35.72	0.594
35.80	0.583
35.87	0.593
36.08	0.601
36.10	0.603
36.27	0.591
36.38	0.601
36.48	0.591
36.57	0.602
36.58	0.599
36.70	0.591
36.72	0.603
36.93	0.591
36.95	0.601
37.08	0.594
37.17	0.59
37.18	0.6
37.58	0.606
37.87	0.585
37.88	0.599
38.06	0.6
38.43	0.598
38.57	0.598
38.58	0.595
39.08	0.601
39.48	0.609
39.58	0.612
40.08	0.606
40.12	0.595
40.22	0.607
40.50	0.62
40.58	0.615
40.65	0.609
40.88	0.62
40.90	0.609
40.95	0.619
41.02	0.606
41.03	0.617
41.08	0.614
41.58	0.61
41.60	0.607
41.62	0.622
41.72	0.607
41.73	0.617
42.02	0.604
42.08	0.612
42.30	0.617
42.58	0.617
42.93	0.607
42.98	0.619
43.08	0.611
43.58	0.615
44.08	0.62
44.58	0.617
45.08	0.619
45.37	0.606
45.58	0.6
45.60	0.618
45.62	0.607
45.83	0.597
45.87	0.608
45.90	0.592
45.92	0.605
46.02	0.615
46.05	0.605
46.07	0.618
46.08	0.604
46.23	0.607
46.25	0.619
46.33	0.605
46.35	0.616
46.58	0.615
47.08	0.616
47.58	0.619
48.08	0.619
48.27	0.628
48.30	0.616
48.40	0.63
48.45	0.619
48.48	0.63
48.52	0.614
48.53	0.627
48.58	0.629
48.93	0.614
48.95	0.627
49.08	0.617
49.17	0.615
49.18	0.629
49.58	0.632
49.72	0.616
49.73	0.628
50.03	0.617
50.05	0.629
50.08	0.624
50.10	0.616
50.13	0.628
50.58	0.628
50.63	0.616
50.67	0.626
51.08	0.624
51.40	0.616
51.47	0.626
51.52	0.616
51.53	0.626
51.58	0.628
51.63	0.615
51.85	0.625
51.92	0.613
51.98	0.624
52.08	0.623
52.25	0.613
52.27	0.625
52.42	0.614
52.45	0.626
52.58	0.615
52.62	0.614
52.85	0.625
53.08	0.624
53.20	0.615
53.23	0.626
53.58	0.619
53.62	0.614

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Applications in Groundwater Sciences

Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
53 68	0 626
53 77	0 616
53 80	0 626
53 87	0 614
54 05	0 602
54 07	0 619
54 08	0 608
54 23	0 607
54 30	0 619
54 40	0 608
54 42	0 622
54 55	0 61
54 57	0.62
54 58	0 617
54 77	0 603
54 78	0 616
55 08	0 619
55 58	0 619
55 67	0.627
55 72	0 61
55 80	0 625
55 93	0 614
55 95	0 624
55 97	0 612
55 98	0 625
56 08	0 626
56 58	0 626
57 05	0 635
57 08	0 627
57 13	0 624
57 22	0 634
57 23	0 624
57 58	0 62
58 08	0 626
58 55	0 634
58 57	0 624
58 58	0 617
58 85	0 612
59 07	0 623
59 08	0 624
59 27	0 634
59 32	0 624
59 58	0 629
59 85	0 635
59 88	0 621
59 90	0 634
59 93	0 623
60 08	0 621
60 12	0 635
60 15	0 623
60 28	0 635
60 40	0 621
60 52	0 635
60 58	0 631
60 60	0 625
60 68	0 635
60 83	0 625
60 95	0.608
60 97	0.62
61 07	0 631
61 08	0.628
61 35	0.62
61 42	0 631
61 58	0 629
61 68	0 621
61 70	0 633
61 77	0 622
61 78	0 637
61 95	0 621
61 97	0 639
62 00	0 628
62 08	0 636
62 27	0 639
62 32	0 626
62 48	0 638
62 58	0 632
62 62	0 625
62 63	0 637
62 65	0 626
62 78	0 638
62 87	0 625
62 98	0 637
63 08	0 633
63 35	0 624
63 37	0 638
63 40	0 627
63 57	0 641
63 58	0 638
63 77	0 631
64 08	0 634
64 58	0 633
64 68	0 641
64 72	0 631
65 08	0 626
65 23	0 616
65 25	0 633
65 30	0 621
65 43	0 632
65 47	0 619
65 55	0 622
65 78	0 629
65 83	0 614
65 85	0 628
65 95	0 617
66 08	0 623
66 23	0 629
66 58	0 633
66 85	0.641
67 07	0.63
67 08	0 634
67 45	0.643
67 55	0.63
67 58	0 635
67 65	0 641
67 68	0 628
67 70	0 642
67 87	0.63
67 97	0 642
68 08	0 643
68 58	0 643
68 95	0 632
68 97	0 646
69 07	0 633
69 08	0 646
69 10	0 645
69 37	0 633
69 38	0 644

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Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
69.58	0.645
69.75	0.654
70.07	0.637
70.08	0.649
70.10	0.647
70.58	0.651
70.95	0.635
70.97	0.654
71.08	0.649
71.40	0.64
71.45	0.651
71.58	0.653
71.65	0.64
71.67	0.651
71.92	0.64
71.93	0.65
72.08	0.65
72.58	0.65
72.97	0.637
73.00	0.647
73.08	0.645
73.58	0.652
74.08	0.654
74.58	0.643
74.68	0.636
74.73	0.647
74.92	0.66
75.03	0.646
75.08	0.657
75.20	0.657
75.57	0.638
75.58	0.652
75.60	0.652
76.08	0.651
76.58	0.658
76.95	0.642
77.00	0.652
77.08	0.646
77.10	0.641
77.13	0.652
77.15	0.642
77.35	0.653
77.37	0.642
77.58	0.646
78.05	0.631
78.08	0.646
78.10	0.645
78.12	0.631
78.13	0.643
78.27	0.631
78.50	0.642
78.58	0.642
78.65	0.629
78.67	0.644
78.87	0.628
78.88	0.641
79.08	0.64
79.15	0.628
79.18	0.643
79.25	0.633
79.42	0.643
79.58	0.645
79.72	0.653
79.77	0.642
79.82	0.652
80.08	0.659
80.58	0.661
80.88	0.665
80.92	0.653
81.08	0.66
81.22	0.664
81.58	0.655
81.95	8.653
82.00	0.666
82.08	0.659
82.40	0.654
82.42	0.667
82.47	0.656
82.58	0.664
82.60	0.668
82.62	0.653
82.63	0.668
82.67	0.65
82.68	0.661
82.77	0.65
82.78	0.66
83.07	0.65
83.08	0.663
83.10	0.662
83.58	0.663
84.08	0.667
84.25	0.652
84.27	0.668
84.33	0.657
84.40	0.667
84.45	0.651
84.47	0.661
84.58	0.645
84.60	0.65
84.73	0.66
85.08	0.667
85.58	0.649
85.70	0.65
85.90	0.66
86.07	0.646
86.08	0.651
86.12	0.659
86.30	0.649
86.40	0.659
86.45	0.647
86.48	0.658
86.58	0.66
86.67	0.645
86.70	0.659
87.03	0.643
87.05	0.654
87.08	0.641
87.58	0.659
87.98	0.666
88.08	0.66
88.12	0.653
88.13	0.668
88.35	0.657
88.42	0.67
88.45	0.656
88.47	0.668
88.58	0.661

Wiedlin and Associates, Inc
Applicative Water Resource Science

Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
89.08	0.67
89.47	0.658
89.48	0.669
89.58	0.667
90.08	0.665
90.53	0.659
90.57	0.67
90.58	0.672
90.85	0.659
90.88	0.671
90.95	0.659
90.97	0.67
91.08	0.669
91.17	0.658
91.18	0.669
91.58	0.666
92.02	0.656
92.08	0.661
92.15	0.667
92.47	0.654
92.50	0.668
92.58	0.667
92.98	0.658
93.00	0.669
93.08	0.66
93.58	0.676
94.08	0.666
94.17	0.654
94.22	0.666
94.53	0.653
94.55	0.668
94.58	0.661
94.62	0.653
94.92	0.664
95.08	0.659
95.25	0.675
95.30	0.664
95.38	0.675
95.43	0.664
95.45	0.677
95.53	0.666
95.58	0.664
95.60	0.677
95.98	0.665
96.07	0.677
96.08	0.665
96.37	0.667
96.40	0.678
96.48	0.668
96.58	0.676
96.78	0.678
97.03	0.663
97.08	0.67
97.10	0.675
97.10	0.664
97.20	0.679
97.23	0.668
97.58	0.668
97.72	0.654
97.75	0.667
98.08	0.664
98.13	0.656
98.17	0.668
98.58	0.676
98.82	0.678
98.83	0.668
99.08	0.663
99.58	0.671
99.60	0.682
99.63	0.667
100.00	0.655
100.02	0.668
100.03	0.656
100.05	0.667
100.08	0.668
100.47	0.65
100.50	0.661
100.53	0.651
100.55	0.661
160.58	0.651
100.72	0.647
100.77	0.658
101.07	0.647
101.08	0.661
101.15	0.66
101.18	0.645
101.23	0.655
101.58	0.661
101.73	0.645
101.75	0.656
102.08	0.659
102.32	0.645
102.35	0.656
102.58	0.653
102.88	0.644
102.98	0.654
103.02	0.642
103.03	0.655
103.08	0.66
103.10	0.644
103.12	0.656
103.28	0.645
103.40	0.655
103.45	0.643
103.48	0.656
103.58	0.65
103.68	0.646
103.83	0.656
103.95	0.644
104.00	0.654
104.03	0.643
104.08	0.648
104.12	0.654
104.38	0.639
104.40	0.652
104.50	0.662
104.58	0.666
104.67	0.674
104.90	0.686
104.92	0.672
105.03	0.684
105.08	0.678
105.10	0.674
105.18	0.684
105.25	0.671
105.28	0.682
105.58	0.676

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Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
105 67	0 671
105 68	0 667
105 72	0 675
105 98	0 663
106 00	0 674
106 08	0.668
106 10	0 65
106 12	0 666
106 37	0 655
106 38	0 669
106 50	0 683
106 58	0 671
106 68	0 672
106 73	0 683
106 80	0 672
106 88	0 683
107 08	0 683
107 22	0 672
107 25	0.685
107 58	0.69
107 77	0 672
107 93	0 683
108 08	0 671
108 13	0.669
108 15	0.68
108.23	0.662
108.25	0 678
108.42	0.668
108.47	0 682
108.57	0.668
108.58	0 677
108.60	0 679
108.62	0.669
109 08	0 676
109 58	0 672
109 60	0 679
109 62	0 668
109 65	0 682
109 67	0.666
109 70	0.68
109 73	0 666
109 77	0 678
110 08	0 678
110 22	0 661
110 23	0 676
110 57	0 665
110 58	0 672
110 60	0 677
111 05	0 667
111 08	0 672
111 10	0 678
111 13	0 668
111 58	0 668
111 77	0 678
111 83	0.665
111 90	0 676
111 97	0.664
112.00	0 679
112 08	0 673
112.23	0 669
112.58	0 674
113.07	0 679
113 08	0 678
113.18	0 668
113.35	0 682
113.38	0 672
113.47	0 682
113.55	0 693
113.58	0 694
114 03	0 682
114 08	0 682
114 10	0.693
114 13	0.68
114 55	0 669
114 56	0 669
114 67	0 681
115 08	0 682
115 37	0 695
115 42	0 705
115 55	0 718
115 58	0 712
115 77	0 705
115 93	0 695
116 03	0 684
116 08	0 688
116 17	0 696
116.23	0.685
116.35	0.67
116.45	0.657
116.47	0.67
116.58	0 676
116.60	0 681
117 08	0.682
117 57	0.67
117 58	0 684
117 63	0 682
117 80	0 672
117 85	0 686
117 90	0 671
117 92	0 683
117 93	0 673
117 98	0 683
118 07	0 672
118 08	0 677
118 20	0 682
118 40	0 672
118 58	0 679
118 85	0 682
118 88	0.667
118 90	0 68
119 08	0.676
119 10	0 67
119 15	0 68
119 58	0 673
120 03	0 691
120 05	0 681
120 08	0 687
120 58	0 687
120 77	0.693
120 93	0 68
120 98	0 69
121 08	0.685
121 15	0 68
121 23	0.691
121 33	0 68
121 37	0 69
121 55	0 676

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Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
121 58	0 684
121 60	0 688
121 82	0 675
121 85	0 685
121 88	0 673
121 95	0 685
122 08	0 685
122 57	0 674
122 58	0.69
122 65	0 689
122 67	0 679
122 78	0 689
123 08	0 684
123 58	0 694
124 08	0 685
124 33	0 679
124 58	0 682
124 78	0 689
125 03	0 677
125 05	0 691
125 08	0 687
125 18	0 678
125 20	0 695
125 23	0 68
125 25	0.69
125 58	0 686
126 08	0.69
126 58	0 683
127 08	0 696
127 32	0.7
127 58	0 695
127 60	0 685
127 63	0 699
127 82	0 682
127 83	0 696
128 06	0 697
128 56	0 692
128 90	0 682
128 92	0 699
128 93	0 685
128 98	0 699
129 02	0 686
129 07	0 697
129 08	0 696
129 58	0 698
129 83	0 683
129 85	0 696
130 08	0 693
130 45	0 682
130 48	0 693
130 57	0 682
130 58	0 694
130 60	0 694
131 08	0 691
131 58	0 697
132 08	0 693
132 58	0 692
132 80	0 684
132 82	0 697
132 83	0 686
132 90	0 697
133 07	0 686
133 08	0 694
133 12	0 697
133 58	0 697
133 65	0 684
133 68	0 694
133 73	0 684
133 88	0 674
134 02	0 685
134 08	0 682
134 13	0 673
134 40	0 683
134 58	0 668
134 72	0 673
134 95	0 685
135 08	0 692
135 15	0 696
135 17	0 683
135 18	0 693
135 58	0 696
136 08	0 696
136 58	0 704
136 87	0 704
137 08	0.7
137 23	0 686
137 28	0 697
137 58	0 698
138 08	0 686
138 58	0 706
139 08	0.7
139 25	0 685
139 58	0 691
140 08	0 689
140 12	0 675
140 13	0 691
140 22	0 679
140 25	0 694
140 32	0 684
140 58	0 685
140 93	0 696
140 95	0 683
141 00	0 695
141 08	0 698
141 45	0 683
141 47	0 694
141 58	0 696
142 08	0 688
142 58	0 697
143 08	0 692
143 58	0 692
144 08	0 698
144 58	0 691
145 08	0 701
145 23	0.705
145 38	0.69
145 42	0.7
145 48	0.69
145 50	0.7
145 58	0.701
146 08	0.699
146 42	0.69
146 58	0.696
146 65	0.7
146 85	0.689
146 90	0.7
147 08	0 691

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Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
147.15	0.69
147.18	0.7
147.28	0.689
147.32	0.7
147.38	0.684
147.40	0.705
147.58	0.705
147.70	0.694
148.07	0.705
148.08	0.692
148.18	0.691
148.27	0.701
148.30	0.689
148.58	0.689
148.78	0.678
148.80	0.69
149.03	0.675
149.05	0.685
149.08	0.682
149.33	0.668
149.35	0.679
149.38	0.666
149.58	0.662
150.08	0.665
150.58	0.669
150.75	0.655
150.77	0.667
150.87	0.657
151.08	0.665
151.58	0.653
151.90	0.645
151.92	0.661
152.07	0.645
152.08	0.654
152.12	0.659
152.23	0.645
152.27	0.656
152.32	0.645
152.40	0.656
152.58	0.655
152.65	0.644
153.05	0.656
153.08	0.657
153.32	0.644
153.35	0.656
153.37	0.643
153.40	0.657
153.42	0.645
153.45	0.656
153.58	0.659
153.80	0.645
153.82	0.655
154.08	0.66
154.27	0.645
154.58	0.648
154.73	0.655
154.75	0.639
154.80	0.649
154.95	0.639
155.08	0.642
155.58	0.641
156.08	0.642
156.43	0.627
156.55	0.639
156.58	0.635
156.75	0.627
156.78	0.639
156.93	0.626
157.02	0.636
157.08	0.64
157.13	0.625
157.15	0.635
157.18	0.62
157.20	0.636
157.28	0.625
157.30	0.635
157.58	0.631
157.68	0.622
157.70	0.635
157.75	0.625
157.88	0.636
158.08	0.638
158.58	0.635
158.77	0.626
158.78	0.637
159.05	0.623
159.07	0.637
159.08	0.635
159.52	0.625
159.55	0.638
159.58	0.638
159.75	0.623
159.77	0.633
160.08	0.629
160.10	0.618
160.13	0.629
160.58	0.635
160.68	0.639
161.08	0.635
161.10	0.625
161.13	0.637
161.58	0.637
161.67	0.626
161.68	0.637
161.72	0.622
161.73	0.633
161.83	0.619
161.85	0.631
161.92	0.621
161.93	0.631
161.95	0.618
161.97	0.629
162.08	0.632
162.58	0.63
162.80	0.618
162.85	0.63
162.87	0.617
162.88	0.629
163.08	0.629
163.58	0.631
164.08	0.624
164.13	0.619
164.15	0.629
164.22	0.619
164.23	0.633
164.33	0.622
164.45	0.633

Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
164.50	0.617
164.52	0.631
164.58	0.63
165.08	0.634
165.35	0.619
165.58	0.621
165.63	0.63
165.70	0.617
165.73	0.63
166.05	0.618
166.08	0.624
166.17	0.631
166.30	0.62
166.58	0.628
167.08	0.628
167.22	0.63
167.23	0.62
167.32	0.63
167.58	0.63
167.65	0.62
167.67	0.631
167.77	0.621
168.05	0.631
168.07	0.621
168.08	0.63
168.10	0.631
168.13	0.62
168.27	0.631
168.47	0.621
168.58	0.625
169.08	0.626
169.58	0.623
170.08	0.623
170.58	0.61
170.83	0.609
171.03	0.621
171.08	0.613
171.35	0.609
171.37	0.623
171.58	0.621
171.67	0.612
171.72	0.624
172.00	0.612
172.05	0.624
172.08	0.618
172.30	0.614
172.37	0.624
172.50	0.614
172.58	0.615
172.82	0.624
172.90	0.609
172.92	8.622
173.08	0.624
173.33	0.61
173.37	0.622
173.58	0.621
173.60	0.612
174.08	0.616
174.58	0.609
174.85	0.599
174.87	0.61
175.08	0.609
175.15	0.599
175.27	0.613
175.58	0.616
176.08	0.62
176.58	0.613
177.08	0.613
177.27	0.623
177.32	0.613
177.58	0.607
178.08	0.615
178.58	0.604
179.08	0.617
179.37	0.602
179.40	0.614
179.42	0.602
179.50	0.616
179.58	0.613
179.70	0.605
180.08	0.607
180.18	0.595
180.20	0.607
180.23	0.592
180.28	0.603
180.32	0.592
180.33	0.603
180.58	0.603
180.95	0.591
180.98	0.604
181.08	0.597
181.22	0.591
181.23	0.605
181.58	0.614
181.60	0.616
182.08	0.621
182.58	0.616
183.05	0.606
183.08	0.614
183.10	0.619
183.36	0.607
183.40	0.62
183.58	0.615
183.80	0.605
183.82	0.615
184.08	0.61
184.58	0.621
184.90	0.604
184.92	0.617
185.08	0.613
185.10	0.606
185.22	0.618
185.25	0.604
185.33	0.615
185.58	0.612
186.08	0.613
186.53	0.605
186.58	0.61
186.62	0.615
186.78	0.605
186.80	0.615
186.90	0.602
186.92	0.618
187.08	0.617
187.53	0.606
187.58	0.619
187.83	0.619

Wiedlin and Associates, Inc
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Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
187.88	0.607
187.98	0.618
188.08	0.615
188.20	0.603
188.22	0.617
188.45	0.605
188.48	0.616
188.50	0.607
188.58	0.612
188.62	0.617
188.75	0.606
188.77	0.617
188.93	0.605
189.02	0.616
189.03	0.605
189.07	0.616
189.08	0.601
189.18	0.602
189.20	0.615
189.58	0.616
189.90	0.603
189.93	0.616
190.08	0.612
190.20	0.605
190.22	0.617
190.45	0.6
190.47	0.614
190.58	0.614
190.90	0.604
190.93	0.616
191.05	0.606
191.07	0.616
191.08	0.613
191.18	0.604
191.20	0.615
191.25	0.604
191.30	0.614
191.50	0.601
191.52	0.615
191.58	0.613
191.87	0.603
191.95	0.616
192.08	0.613
192.15	0.603
192.45	0.593
192.52	0.607
192.58	0.607
192.83	0.596
193.08	0.599
193.38	0.607
193.40	0.592
193.42	0.605
193.45	0.591
193.58	0.594
194.08	0.59
194.25	0.601
194.43	0.589
194.50	0.599
194.58	0.607
194.68	0.61
195.08	0.615
195.48	0.6
195.50	0.61
195.58	0.602
195.65	0.6
195.72	0.613
195.80	0.598
196.08	0.605
196.55	0.608
196.58	0.606
197.08	0.614
197.58	0.613
197.67	0.618
197.68	0.608
197.95	0.619
197.98	0.607
198.08	0.609
198.22	0.617
198.28	0.6
198.30	0.615
198.45	0.605
198.57	0.615
198.58	0.61
198.62	0.602
198.73	0.613
198.87	0.601
198.90	0.613
199.08	0.603
199.10	0.6
199.12	0.61
199.42	0.598
199.43	0.608
199.57	0.594
199.58	0.599
199.62	0.605
200.08	0.607
200.47	0.617
200.52	0.602
200.57	0.612
200.58	0.61
200.67	0.599
200.68	0.613
200.85	0.6
201.02	0.61
201.08	0.61
201.22	0.597
201.27	0.608
201.30	0.595
201.45	0.608
201.58	0.605
201.70	0.596
201.78	0.611
202.08	0.603
202.17	0.601
202.22	0.614
202.28	0.603
202.30	0.614
202.38	0.601
202.40	0.611
202.58	0.609
202.62	0.601
202.67	0.614
202.70	0.599
202.72	0.616
202.77	0.605
202.82	0.615
203.08	0.616

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Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
203.58	0.617
204.08	0.617
204.52	0.601
204.55	0.612
204.58	0.607
204.60	0.595
204.63	0.608
204.80	0.619
204.98	0.605
205.02	0.616
205.03	0.604
205.05	0.617
205.08	0.614
205.15	0.604
205.38	0.593
205.42	0.613
205.52	0.595
205.55	0.605
205.58	0.602
205.85	0.616
206.08	0.613
206.23	0.604
206.27	0.615
206.35	0.605
206.40	0.615
206.58	0.616
206.62	0.605
206.65	0.617
206.67	0.602
206.68	0.614
207.08	0.617
207.57	0.6
207.58	0.595
207.62	0.612
207.73	0.595
207.75	0.61
208.05	0.599
208.07	0.609
208.08	0.601
208.12	0.599
208.13	0.61
208.58	0.616
208.83	0.62
208.85	0.609
208.98	0.62
209.08	0.617
209.28	0.604
209.32	0.616
209.55	0.6
209.57	0.612
209.58	0.612
210.08	0.616
210.55	0.602
210.57	0.613
210.58	0.614
210.68	0.603
210.72	0.613
210.75	0.602
210.77	0.612
211.07	0.602
211.08	0.616
211.10	0.618
211.18	0.606
211.28	0.618
211.37	0.602
211.38	0.612
211.58	0.612
212.08	0.61
212.58	0.618
212.63	0.601
212.65	0.613
213.08	0.614
213.20	0.6
213.23	0.612
213.35	0.602
213.42	0.612
213.58	0.614
214.08	0.612
214.58	0.603
215.08	0.616
215.47	0.626
215.50	0.616
215.58	0.622
216.08	0.605
216.23	0.605
216.25	0.616
216.58	0.607
216.85	0.605
216.93	0.616
217.08	0.614
217.18	0.605
217.25	0.617
217.58	0.609
217.62	0.607
217.65	0.618
217.73	0.608
217.75	0.618
217.77	0.607
217.80	0.624
217.82	0.611
218.03	0.622
218.08	0.616
218.13	0.611
218.17	0.622
218.20	0.61
218.23	0.622
218.25	0.611
218.30	0.623
218.35	0.611
218.38	0.622
218.58	0.624
219.08	0.622
219.32	0.609
219.33	0.622
219.47	0.608
219.58	0.603
219.93	0.623
219.95	0.61
220.05	0.626
220.08	0.621
220.10	0.614
220.12	0.625
220.13	0.609
220.15	0.622
220.22	0.611
220.58	0.614
220.67	0.623

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Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
221.08	0.618
221.15	0.607
221.17	0.619
221.28	0.609
221.52	0.622
221.58	0.624
221.95	0.607
221.97	0.621
222.03	0.609
222.08	0.615
222.13	0.623
222.20	0.612
222.37	0.622
222.47	0.61
222.58	0.614
223.08	0.621
223.42	0.623
223.47	0.612
223.58	0.605
223.60	0.601
223.78	0.611
224.08	0.609
224.58	0.616
224.77	0.599
224.78	0.616
224.85	0.606
224.87	0.616
225.05	0.603
225.07	0.615
225.08	0.616
225.43	0.604
225.48	0.616
225.57	0.603
225.58	0.611
225.60	0.619
225.72	0.607
226.08	0.616
226.32	0.619
226.42	0.605
226.58	0.614
226.92	0.616
226.93	0.601
226.95	0.611
227.08	0.611
227.58	0.611
227.70	0.599
227.78	0.609
228.00	0.595
228.02	0.607
228.07	0.594
228.08	0.604
228.12	0.607
228.15	0.596
228.23	0.608
228.58	0.61
228.77	0.596
228.78	0.607
228.97	0.596
228.98	0.611
229.05	0.596
229.08	0.601
229.12	0.607
229.22	0.594
229.27	0.607
229.53	0.594
229.55	0.604
229.58	0.597
229.87	0.594
229.88	0.608
229.92	0.597
230.07	0.587
230.08	0.594
230.57	0.573
230.58	0.588
230.60	0.586
230.83	0.576
230.85	0.586
231.08	0.584
231.22	0.573
231.25	0.588
231.52	0.577
231.58	0.583
231.85	0.588
231.87	0.576
231.98	0.587
232.08	0.585
232.22	0.597
232.35	0.586
232.57	0.6
232.58	0.594
232.65	0.585
232.67	0.599
232.68	0.586
232.72	0.597
232.82	0.587
232.83	0.597
233.05	0.585
233.08	0.594
233.10	0.595
233.28	0.581
233.40	0.595
233.43	0.584
233.58	0.583
233.72	0.57
233.73	0.475
233.75	0.404
233.77	0.343
233.78	0.319
233.80	0.294
233.82	0.27
233.83	0.25
233.85	0.231
233.87	0.215
233.90	0.226
233.93	0.213
233.95	0.201
234.02	0.187
234.03	0.177
234.08	0.164
234.12	0.161
234.25	0.15
234.30	0.137
234.43	0.124
234.58	0.122
234.65	0.113
235.08	0.103
235.22	0.1

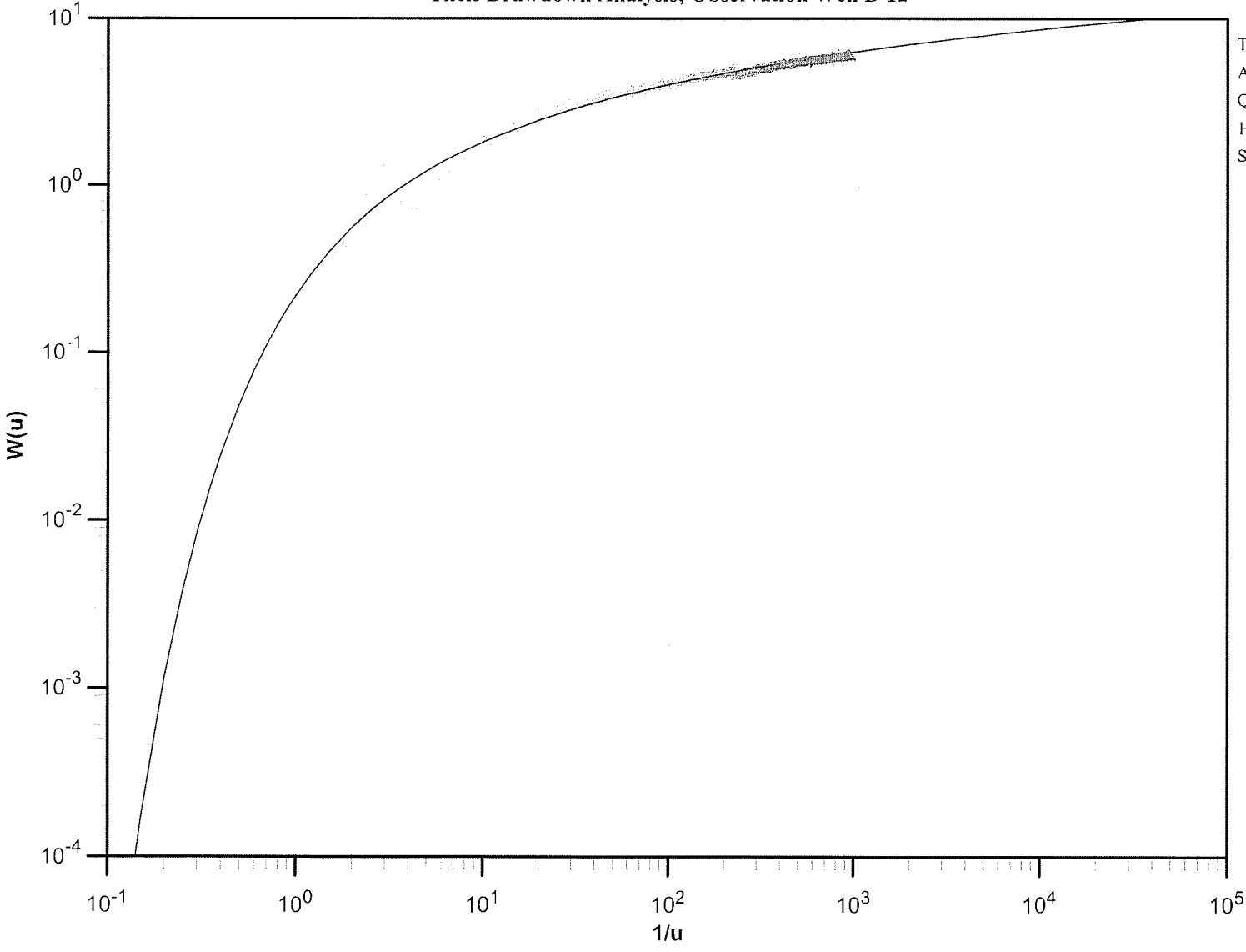
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Applications in Groundwater Science

Time-Drawdown Data
Pumping Well B-13
SDGE Mira Mesa Substation

Time Since Pumping Began (min)	Drawdown (ft)
235.58	0.102
236.00	0.089
236.08	0.099
236.58	0.094
237.08	0.086
237.37	0.079
237.58	0.086
238.08	0.08
238.58	0.074
239.08	0.076
239.58	0.078
239.63	0.069
240.08	0.074
240.58	0.074
241.08	0.064
241.58	0.069
242.08	0.065
242.32	0.058
242.58	0.066
243.08	0.065
243.58	0.064
244.08	0.061
244.58	0.061
245.08	0.061
245.58	0.06
246.08	0.06
246.58	0.059
247.08	0.057
247.58	0.055
247.67	0.047
248.08	0.051
248.58	0.054
249.08	0.054
249.58	0.052
250.08	0.052
250.58	0.051
251.08	0.047
251.58	0.045
252.08	0.049
252.58	0.052
253.08	0.048
253.58	0.051
254.08	0.05
254.58	0.049
255.08	0.042
255.58	0.042
256.08	0.048
256.58	0.05
257.08	0.046
257.58	0.048
258.08	0.039
258.58	0.044
259.08	0.045
259.58	0.047
260.08	0.048
260.32	0.037
260.33	0.049
260.58	0.038
260.80	0.038
260.82	0.048
261.08	0.04
261.58	0.039
261.67	0.037
261.92	0.048
261.95	0.037
262.08	0.043
262.20	0.047
262.30	0.037
262.33	0.047
262.50	0.036
262.58	0.041
262.63	0.046
262.93	0.035
263.05	0.046
263.08	0.042
263.15	0.035
263.17	0.046
263.30	0.035
263.33	0.045
263.58	0.043
263.72	0.035
263.77	0.045
264.08	0.045
264.58	0.044
265.08	0.045
265.58	0.037
266.08	0.037
266.42	0.034
266.43	0.044
266.58	0.044
266.72	0.034
266.73	0.044
267.08	0.042
267.12	0.034
267.13	0.045
267.33	0.035
267.35	0.045

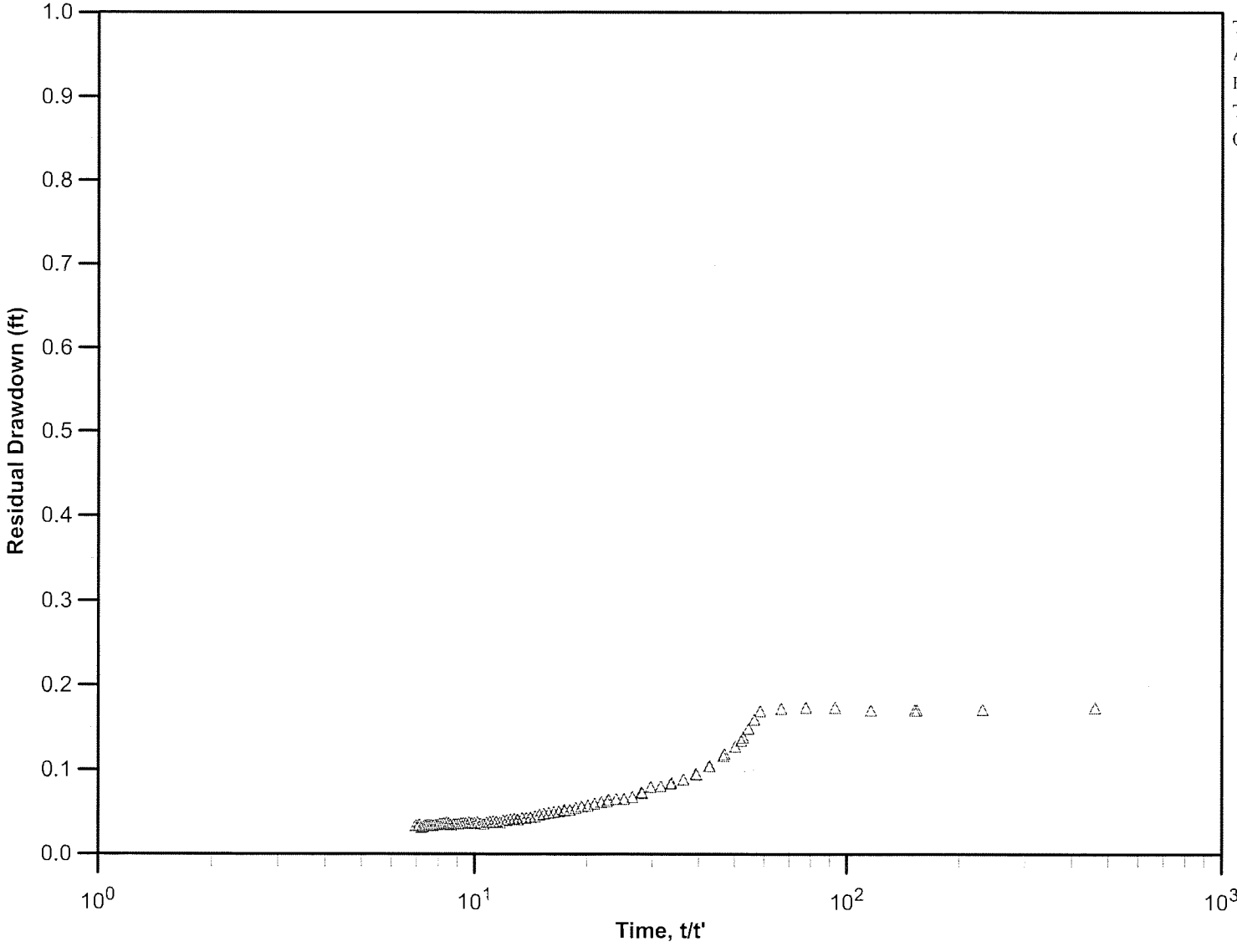
P.O. Box 910462 San Diego, CA 92191-0462 Ph 858.259.6732 Fax 858.259.6094

Theis Drawdown Analysis; Observation Well B-12



Transmissivity = 0.70 ft sq/min
Aquifer Thickness = 4.5 ft
Q @ B-13 = 1.9 gpm
Hydraulic Conductivity = 0.16 ft/
Storativity = 7 e -05

Theis Recovery; Pumping Well B-12



Transmissivity=0.50 ft sq./min
Aquifer Thickness = 4.5 ft
Hydraulic Conductivity=0.11 ft/m
Time Pumping Ended=230 min
Q @ B-13=1.9 gpm

Wedin

Wiedlin and Associates, Inc
Applications in Groundwater Science

Time-Drawdown Data
Observation Well B-12
SDGE Mira Mesa Substation

Time Since Pumping Began min	Drawdown feet
Pumping Started at 9/8/04 at 8 12 am	
Static Water Level is 6 37 feet from TOC Casing Stickup is 0 98 feet above ground surface.	
Pumping Well B-13 Q = 1 9 gpm	
Time Since Pumping Began (min)	Drawdown (ft)
0 42	0 013
0 50	0 018
0 57	0 024
0 70	0 036
0 87	0 022
1 00	0 022
1 33	0 033
1 50	0 037
1 82	0 043
2 00	0 047
2 43	0 054
2 50	0 054
3 00	0 06
3 47	0 065
3 50	0 065
4 00	0 069
4 50	0 073
4 73	0 076
5 00	0 078
5 50	0 08
6 00	0 083
6 33	0 086
6 50	0 086
7 00	0 09
7 50	0 09
8 00	0 092
8 50	0 095
9 00	0 096
9 50	0 093
9 67	0 098
10 00	0 097
10 50	0 1
11 00	0 102
11 50	0 102
12 00	0 101
12 50	0 103
13 00	0 101
13 50	0 102
14 00	0 106
14 50	0 105
15 00	0 108
15 22	0 109
15 50	0 108
16 00	0 109
16 50	0 11
17 00	0 109
17 50	0 112
18 00	0 114
18 50	0 116
19 00	0 112
19 50	0 112
20 00	0 114
20 50	0 115
21 00	0 116
21 50	0 117
21 75	0 122
22 00	0 121
22 50	0 117
23 00	0 12
23 50	0 117
24 00	0 110
24 50	0 12
25 00	0 117
25 50	0 12
26 00	0 12
26 50	0 122
27 00	0 122
27 50	0 123
28 00	0 124
28 50	0 124
29 00	0 125
29 50	0 126
30 00	0 126
30 50	0 126
31 00	0 127
31 50	0 128
32 00	0 128
32 50	0 129
33 00	0 129
33 50	0 131
34 00	0 13
34 26	0 132
34 50	0 13
35 00	0 131
35 50	0 131
36 00	0 132
36 50	0 131
37 00	0 132
37 50	0 132
38 00	0 132
38 50	0 132
39 00	0 132
39 50	0 132
40 00	0 133
40 50	0 133
41 00	0 133
41 50	0 135
42 00	0 136
42 50	0 136
43 00	0 135
43 50	0 136
44 00	0 137
44 50	0 138
45 00	0 137
45 50	0 138
46 00	0 137
46 50	0 137
47 00	0 137
47 50	0 138
48 00	0 139
48 50	0 14
49 00	0 14
49 50	0 14
50 00	0 14
50 50	0 14
51 00	0 141
51 50	0 141
52 00	0 14
52 50	0 141
53 00	0 141
53 50	0 141
53 65	0 145

P O Box 910462 San Diego, CA 92191-0462 Ph 858 259-8732 Fax 858 259-0812

Time-Drawdown Data
Observation Well B-12
SDGE Mira Mesa Substation

Time Since Pumping Began min	Drawdown feet
53.72	0.158
53.75	0.147
54.00	0.138
54.05	0.137
54.50	0.133
55.00	0.132
55.50	0.132
56.00	0.133
56.50	0.133
57.00	0.135
57.50	0.135
58.00	0.134
58.50	0.136
59.00	0.136
59.50	0.136
60.00	0.139
60.50	0.138
61.00	0.139
61.50	0.138
62.00	0.139
62.50	0.14
63.00	0.14
63.50	0.141
64.00	0.14
64.50	0.141
65.00	0.141
65.50	0.142
66.00	0.141
66.50	0.138
67.04	0.139
67.50	0.14
68.00	0.142
68.50	0.143
69.00	0.143
69.50	0.143
70.00	0.144
70.50	0.144
70.97	0.147
71.00	0.146
71.50	0.146
72.00	0.148
72.50	0.147
73.00	0.147
73.50	0.147
74.00	0.146
74.50	0.147
75.00	0.147
75.50	0.147
76.00	0.148
76.50	0.147
77.00	0.146
77.50	0.148
78.00	0.148
78.50	0.148
79.00	0.148
79.50	0.148
80.00	0.145
80.50	0.146
81.00	0.147
81.50	0.148
82.00	0.149
82.50	0.15
83.00	0.149
83.50	0.151
84.00	0.152
84.50	0.152
85.00	0.15
85.50	0.152
86.00	0.151
86.50	0.152
87.00	0.15
87.50	0.151
88.00	0.152
88.50	0.152
89.00	0.152
89.50	0.153
90.00	0.153
90.50	0.154
91.00	0.153
91.50	0.153
92.00	0.154
92.50	0.154
93.00	0.154
93.50	0.155
94.00	0.155
94.50	0.154
95.00	0.153
95.50	0.153
96.00	0.153
96.50	0.154
97.00	0.155
97.50	0.155
98.00	0.155
98.50	0.155
99.00	0.156
99.50	0.158
99.62	0.158
100.00	0.157
100.50	0.158
101.00	0.156
101.50	0.156
102.00	0.156
102.50	0.156
103.00	0.155
103.50	0.155
104.00	0.154
104.50	0.154
105.00	0.155
105.50	0.154
106.00	0.155
106.50	0.155
107.00	0.156
107.50	0.157
108.00	0.156
108.50	0.157
109.00	0.157
109.50	0.157
110.00	0.157
110.50	0.158
111.00	0.159
111.50	0.159
112.00	0.159
112.50	0.16
113.00	0.155
113.50	0.156
114.00	0.157
114.50	0.158

Time-Drawdown Data
Observation Well B-12
SDGE Mira Mesa Substation

Time Since Pumping Began min	Drawdown feet
115.00	0.159
115.50	0.159
116.00	0.16
116.50	0.161
117.00	0.159
117.50	0.16
118.00	0.16
118.50	0.161
119.00	0.16
119.50	0.161
120.00	0.161
120.50	0.161
121.00	0.161
121.23	0.171
121.48	0.16
121.50	0.16
122.00	0.16
122.50	0.16
123.00	0.161
123.50	0.161
124.00	0.161
124.50	0.162
125.00	0.162
125.50	0.161
126.00	0.162
126.50	0.162
127.00	0.162
127.50	0.162
128.00	0.163
128.50	0.163
129.00	0.163
129.50	0.163
130.00	0.163
130.50	0.163
131.00	0.163
131.50	0.163
132.00	0.165
132.50	0.163
133.00	0.158
133.50	0.159
134.00	0.161
134.50	0.16
135.00	0.161
135.50	0.162
136.00	0.163
136.50	0.163
137.00	0.163
137.50	0.164
138.00	0.164
138.50	0.164
139.00	0.164
139.50	0.164
140.00	0.164
140.50	0.164
141.00	0.163
141.50	0.164
142.00	0.164
142.50	0.165
143.00	0.164
143.50	0.165
144.00	0.164
144.50	0.165
145.00	0.165
145.50	0.165
146.00	0.165
146.50	0.165
147.00	0.165
147.50	0.165
148.00	0.165
148.50	0.165
149.00	0.165
149.50	0.165
150.00	0.165
150.50	0.165
151.00	0.164
151.50	0.164
152.00	0.165
152.50	0.164
153.00	0.165
153.50	0.165
154.00	0.167
154.50	0.167
155.00	0.167
155.50	0.167
156.00	0.167
156.50	0.165
157.00	0.165
157.50	0.165
158.00	0.165
158.50	0.167
159.00	0.167
159.50	0.167
160.00	0.167
160.50	0.167
161.00	0.168
161.50	0.167
162.00	0.167
162.50	0.167
163.00	0.168
163.50	0.168
164.00	0.167
164.50	0.169
165.00	0.168
165.50	0.168
166.00	0.167
166.50	0.168
167.00	0.167
167.50	0.168
168.00	0.168
168.50	0.168
169.00	0.167
169.50	0.168
170.00	0.168
170.50	0.168
171.00	0.168
171.50	0.168
172.00	0.168
172.50	0.169
173.00	0.169
173.50	0.168
174.00	0.167
174.50	0.165
175.00	0.169
175.20	0.171
175.50	0.167
176.00	0.167
176.50	0.162

Time-Drawdown Data
Observation Well B-12
SDGE Mira Mesa Substation

Time Since Pumping Began min	Drawdown feet
176.62	0.16
177.00	0.163
177.50	0.168
178.00	0.168
178.50	0.169
179.00	0.169
179.50	0.169
180.00	0.17
180.50	0.168
180.67	0.171
181.00	0.174
181.50	0.173
182.00	0.173
182.50	0.171
183.00	0.171
183.50	0.173
184.00	0.172
184.50	0.172
185.00	0.171
185.50	0.171
186.00	0.172
186.50	0.172
187.00	0.171
187.50	0.173
188.00	0.172
188.50	0.172
189.00	0.172
189.50	0.172
190.00	0.171
190.50	0.172
191.00	0.171
191.50	0.172
192.00	0.171
192.50	0.172
193.00	0.172
193.50	0.171
194.00	0.171
194.50	0.169
195.00	0.171
195.50	0.172
195.98	0.182
196.00	0.18
196.50	0.172
197.00	0.171
197.02	0.171
197.50	0.172
198.00	0.171
198.50	0.171
199.00	0.17
199.50	0.172
200.00	0.172
200.50	0.172
201.00	0.173
201.50	0.173
202.00	0.172
202.50	0.172
203.00	0.173
203.50	0.173
204.00	0.173
204.50	0.173
205.00	0.173
205.50	0.172
206.00	0.172
206.50	0.173
207.00	0.172
207.50	0.173
208.00	0.172
208.50	0.173
209.00	0.174
209.50	0.173
210.00	0.173
210.50	0.174
211.00	0.173
211.50	0.173
212.00	0.174
212.50	0.175
213.00	0.174
213.50	0.174
214.00	0.174
214.50	0.175
215.00	0.174
215.50	0.175
216.00	0.176
216.50	0.174
217.00	0.177
217.50	0.175
218.00	0.177
218.50	0.179
219.00	0.177
219.50	0.177
220.00	0.173
220.50	0.175
221.00	0.176
221.50	0.176
222.00	0.176
222.50	0.175
223.00	0.178
223.50	0.179
224.00	0.179
224.23	0.182
224.50	0.183
225.00	0.179
225.50	0.176
226.00	0.179
226.50	0.178
227.00	0.176
227.50	0.175
228.00	0.175
228.50	0.174
229.00	0.175
229.50	0.175
230.00	0.175
230.50	0.174
231.00	0.172
231.50	0.171
231.52	0.171
232.00	0.171
232.50	0.174
233.00	0.174
233.50	0.173
234.00	0.17
234.15	0.16
234.30	0.149
234.45	0.139
234.50	0.135
234.68	0.128
235.00	0.119

Time-Drawdown Data
Observation Well B-12
SDGE Mira Mesa Substation

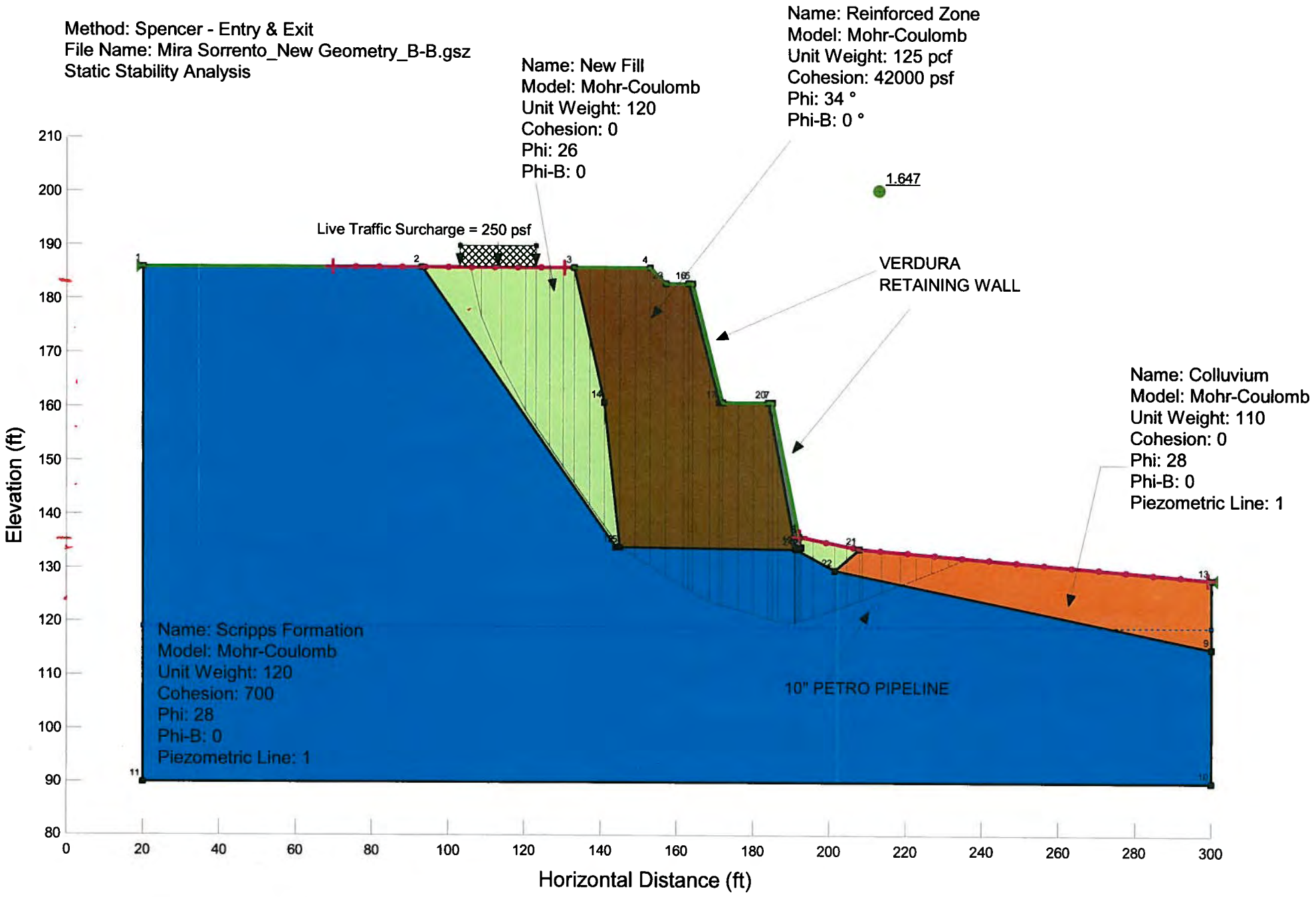
Time Since Pumping Began	Drawdown
min	feet
235.05	0.117
235.50	0.105
235.52	0.105
235.98	0.095
236.00	0.096
236.50	0.089
237.00	0.085
237.05	0.084
237.50	0.081
238.00	0.08
238.45	0.073
238.50	0.074
239.00	0.068
239.50	0.066
240.00	0.066
240.50	0.065
240.60	0.063
241.00	0.062
241.50	0.06
242.00	0.058
242.50	0.057
243.00	0.055
243.50	0.053
243.97	0.052
244.00	0.053
244.50	0.051
245.00	0.05
245.50	0.049
246.00	0.048
246.50	0.047
247.00	0.045
247.50	0.044
248.00	0.043
248.50	0.043
249.00	0.041
249.13	0.041
249.50	0.042
250.00	0.041
250.50	0.04
251.00	0.04
251.50	0.038
252.00	0.039
252.50	0.039
253.00	0.039
253.50	0.038
254.00	0.036
254.50	0.036
255.00	0.038
255.50	0.037
256.00	0.037
256.50	0.038
257.00	0.037
257.50	0.037
258.00	0.037
258.50	0.036
259.00	0.036
259.50	0.036
260.00	0.035
260.50	0.037
261.00	0.038
261.50	0.037
262.00	0.036
262.50	0.036
263.00	0.035
263.50	0.035
264.00	0.034
264.50	0.035
265.00	0.035
265.50	0.035
266.00	0.034
266.50	0.033
267.00	0.032
267.50	0.035
268.00	0.034
268.50	0.034

APPENDIX E

Slope Stability Analysis

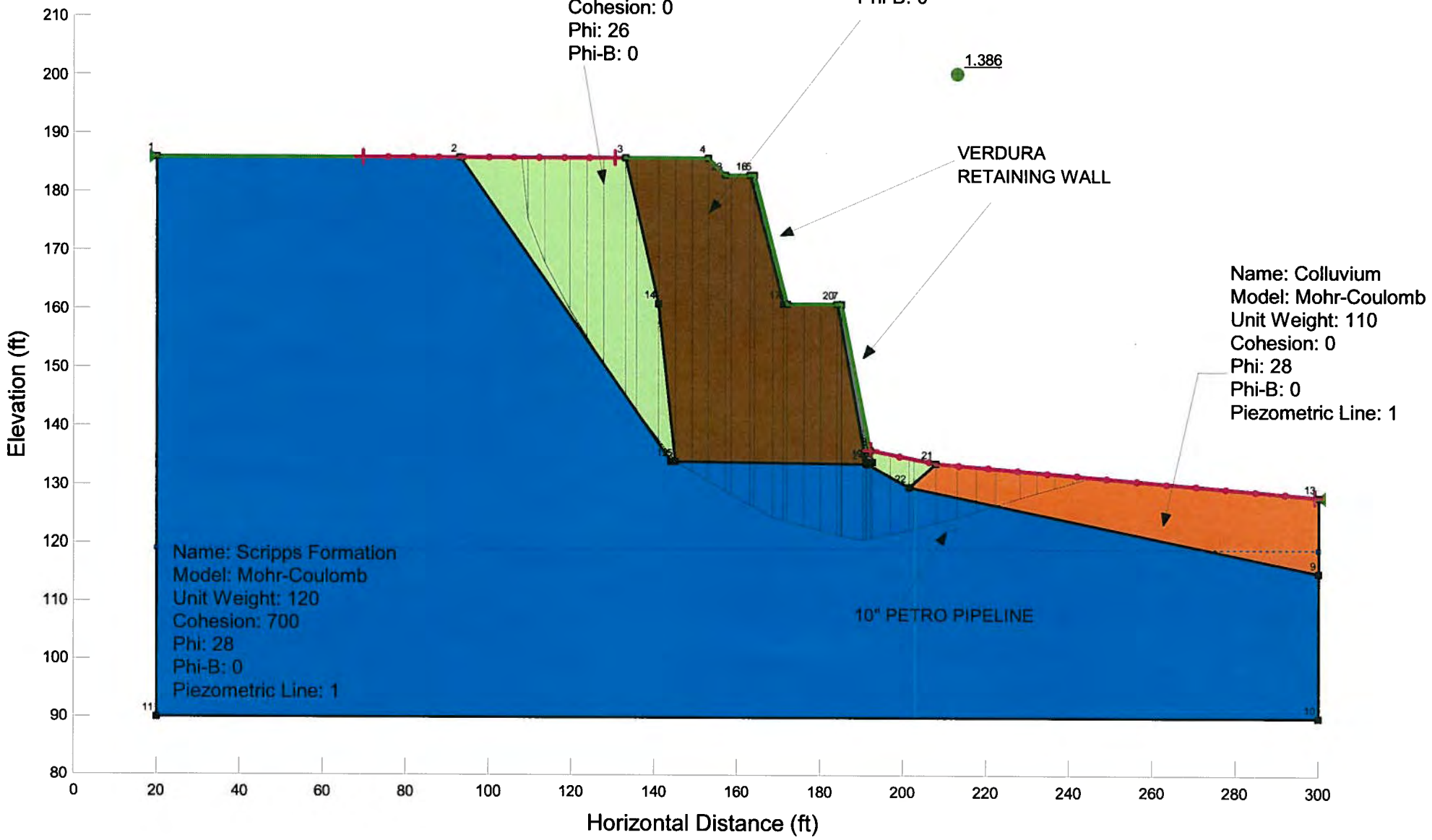
SDG&E MIRA SORRENTO SUBSTATION
Global Stability - Cross Section B-B'
Geogrid Length = 45 ft for lower wall & 30 ft for upper wall

Method: Spencer - Entry & Exit
File Name: Mira Sorrento_New Geometry_B-B.gsz
Static Stability Analysis



SDG&E MIRA SORRENTO SUBSTATION
Global Stability - Cross Section B-B'
Geogrid Length = 45 ft for lower wall & 30 ft for upper wall

Method: Spencer - Entry & Exit
File Name: Mira Sorrento_New Geometry_B-B.gsz
Seismic Pseudo-Static Analysis
Seismic Coef., kh = PGA/3 = 0.12



APPENDIX F

ASFE Insert

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE
THE BEST PEOPLE ON EARTH

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APPENDIX G

PHASE I ENVIRONMENTAL SITE ASSESSMENT

REPORT ON
ASTM PHASE I ENVIRONMENTAL SITE ASSESSMENT
MIRA SORRENTO SUBSTATION
VISTA SORRENTO PARKWAY
AND MIRA SORRENTO PLACE
SAN DIEGO, CALIFORNIA

by

Haley & Aldrich, Inc.
San Diego, California

for

RBF Consulting
San Diego, California

File No. 36352-000
5 August 2009

HALEY & ALDRICH

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5 August 2009
File No. 36352-000

RBF Consulting
9755 Clairemont Mesa Boulevard, Suite 100
San Diego, California 92124

Attention: Mr. Alex Jewel

Subject: ASTM Phase I Environmental Site Assessment
Mira Sorrento Substation
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, California 92121

Ladies and Gentlemen:

The enclosed report presents the results of a Phase I environmental site assessment (Phase I assessment) conducted at the above-referenced property, located at Vista Sorrento Parkway and Mira Sorrento Place, in San Diego, California (herein referred to as the "Site"). This work was performed by Haley & Aldrich, Inc. (Haley & Aldrich), in accordance with our proposal to RBF Consulting dated 12 March 2009 ("Agreement") as authorized by RBF Consulting on 25 March 2009. As indicated in our proposal, this Phase I assessment was conducted using practices consistent with the American Society of Testing and Materials (ASTM) E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527-05 Standard) as referenced in 40 Code of Federal Regulations (CFR) Part 312 (the All Appropriate Inquiries [AAI] Rule).

The objective of a Phase I assessment is to identify known and suspect "recognized environmental conditions" (RECs), historical RECs (HRECs), and *de minimis* conditions associated with the Site, as defined in the ASTM E 1527-05 Standard, by evaluating Site history, existing observable conditions, current Site use, and current and former uses of adjoining properties as well as potential releases at surrounding properties that may impact the Site.

Our conclusions regarding the presence and potential impact of RECs on the Site are intended to help the user evaluate the "business environmental risk" associated with the Site, as defined in the ASTM E 1527-05 Standard and discussed in section 1.1 of this report.

Thank you for the opportunity to perform these services for you. Please do not hesitate to contact us if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.



Kasra Nikkhah
Senior Scientist



Mehdi Miremadi
Senior Vice President

Enclosures

G:\36352_RBF_Sorrento Mesa Substation\Global\Deliverables\2009_0805_VistaSorrentoSubstation_ASTM Phase I_F.doc

REPORT ON
ASTM PHASE I ENVIRONMENTAL SITE ASSESSMENT
Mira Sorrento Substation
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, California

by

The undersigned declare the following:

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in 40 CFR Part 312, §312.10.

We have the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the Site and "develop opinions and conclusions regarding conditions indicative of releases or threatened releases." We have developed and performed the "all appropriate inquiries" (AAI) in conformance with the standards and practices set forth in 40 CFR Part 312.



Kasra Nikkhah, CAC
Project Manager



Mehdi Miremadi
Senior Vice President

for

RBF Consulting

File No. 36352-000

HALEY& ALDRICH

EXECUTIVE SUMMARY

Haley & Aldrich, Inc. (Haley & Aldrich) has performed a Phase I environmental site assessment (Phase I assessment) of the property located at Vista Sorrento Parkway and Mira Sorrento Place (herein referred to as the "Site") in San Diego, California. The scope of work is described and conditioned by our proposal dated 3 March 2009. As indicated in our proposal, this Phase I assessment was performed in conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527-05 Standard) as referenced in 40 Code of Federal Regulations (CFR) Part 312 [the All Appropriate Inquiries (AAI) Rule]. Deviations from this Standard, and/or data gaps and their significance are described in section 1.5 of this report. Our conclusions are intended to help the user evaluate the "business environmental risk" associated with the Site, as defined in the ASTM E 1527-05 Standard and discussed in section 1.1 of this report.

San Diego Gas & Electric (SDG&E) is conducting a land use feasibility study of the Site to evaluate the regulatory requirements to develop the Site as 69/12 Kilo Volt (kV) substation. The design of the future development will consist of two 60 kV banks, four 69 kV tie lines, a standard profile 138 kV bus, and two 12kV capacitors. The land use feasibility study will include the evaluation of Site constraints, Site development requirements, and specific regulations or permits necessary for project approval. The Site, approximately 3.7 acres, is currently vacant with no structures on it.

The Site is not listed in the EDR searched databases.

The objective of a Phase I assessment is to identify known and suspect "recognized environmental conditions" (RECs), historical RECs (HRECs), and *de minimis* conditions associated with the Site, as defined in the ASTM E 1527-05 Standard and in section 1.1 of this report.

No data gaps were identified during the performance of this Phase I assessment. Thus, it is our opinion that sufficient information was obtained to identify Site conditions indicative of releases or threatened releases of hazardous substances and petroleum hydrocarbons.

Based on the results of this Phase I Environmental Site Assessment, our findings are as follows:

KNOWN OR SUSPECT RECOGNIZED ENVIRONMENTAL CONDITIONS

The ASTM E 1527-05 Standard defines an REC as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property." A material threat is defined by the ASTM E 1527-05 Standard as "a physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the environmental professional, is threatening and might result in impact to public health or the environment." Consistent with ASTM E 1527-05 Section 12.5 (Report Format), and for the purposes of this assessment, those RECs that have been identified as being present with respect to the Site are referred to as Known Recognized Environmental Conditions (KRECs), and those RECs that have been identified as being likely present with respect to the Site are referred to as Suspect Recognized Environmental Conditions (SRECs).

This Phase I assessment has revealed no evidence of KRECs or SRECs in connection with the Site except for the following SREC listed below.

Our opinion of the potential impacts of the REC(s) identified in this Phase I assessment is as follows:

Suspect Recognized Environmental Conditions

SREC #1: Dry Cleaning Solvent Release from Cosmopolitan Cleaners
Explanation: This facility, located approximately 0.301 mile east northeast of the Site, has had two release cases under the San Diego County Department of Health (DEH) regulatory oversight. The review of DEH records by Haley & Aldrich indicated that the first case, involving the release of dry cleaning solvents, trichloroethene (TCE) and tetrachloroethene (PCE) to the soil, obtained regulatory closure in April 2000.

The second case, still open, involved the release of TCE and PCE to the soil only and is under assessment. According to the DEH records, in 2003, the Sorrento Towers LLC, the property owner, submitted a letter and identified Cosmopolitan Cleaner as the responsible party of a solvent release and requested assistance for oversight of the investigation. The letter indicated that concentrations of the solvents detected, TCE and PCE were comparable to those detected from the previous release which was granted closure in 2000. In November 2004, Sorrento Towers LLC submitted a signed Voluntary Cleanup Application (VAP) to the DEH. In March 2006, DEH approved permits for four vapor wells drilled to 10 feet below ground surface (bgs) and screened from 2 to 9 feet bgs. In November 2008, Enviroforensics, on behalf of the property owner, submitted a report titled "Request for Site Closure (Closure Report), dated 10/31/2008" to DEH. The Closure Report summarized the work that was conducted in this facility and indicted that:

- Vapor Extraction System (VES) was installed and started mid-December 2007, and the report documents the total mass of PCE removed as of 26 September 2008 (A table summarizing the VES operating data is attached in Appendix C)
- Enviroforensics begun pulse operation of VES since they were observing decreasing concentrations of Volatile Organic Compound's being removed.
- Confirmation soil samples were collected from 4 borings: two were installed in June 2008; and two were installed in September 2008. Based on the June results, the operation of the VES was continued.
- Based on September soil samples Enviroforensics requested closure, as TCE and PCE soil concentrations were below Preliminary Remediation Goal's (PRG's).

On December 2008, the DEH requested the new property owner to obtain a new VAP application, as the original VAP was outdated. During a telephone interview on 5 August 2009, Mr. Don Lipera of DEH indicated that the case remains open and he was in the process of asking for more evaluation on groundwater and soil at this facility.

Based on the database report, and the DEH file review and interview this facility is a suspect recognize environmental concern (SREC).

HISTORICAL RECs

The ASTM E 1527-05 Standard defines an HREC as an environmental condition "which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently."

This Phase I assessment has revealed no evidence of HRECs in connection with the Site.

DE MINIMIS CONDITIONS

The ASTM E 1527-05 Standard defines *de minimis* conditions as those conditions which "do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." The ASTM E 1527-05 Standard notes that "conditions determined to be *de minimis* are not recognized environmental conditions."

This Phase I assessment has revealed no evidence of *de minimis* conditions in connection with the Site.

SUMMARY AND RECOMMENDATIONS

In summary, one SREC was identified during this Phase I assessment.

The remainder of this report contains additional information regarding the Phase I assessment, the resulting findings summarized above, and limitations affecting this report.

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1 INTRODUCTION

This report presents the results of a Phase I environmental site assessment (Phase I assessment) conducted at Vista Sorrento Parkway and Mira Sorrento Place in San Diego, California (herein referred to as the "Site"). This work was performed by Haley & Aldrich, Inc. (Haley & Aldrich) in accordance with our proposal to RBF Consulting dated 20 October 2008 ("Agreement") as authorized by RBF Consulting on 25 March 2009, which Agreement is attached hereto as Appendix A. This Phase I assessment was performed in conformance with the scope and limitations of the American Society of Testing and Materials (ASTM) E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527-05 Standard) to comply with 40 Code of Federal Regulations (CFR) Part 312 (the All Appropriate Inquiries [AAI] Rule).

1.1 Objective

The objective of a Phase I assessment is to identify known and suspect "recognized environmental conditions" (RECs), historical RECs (HRECs), and *de minimis* conditions associated with the Site by evaluating Site history, existing observable conditions, current Site use, and current and former uses of adjoining properties as well as potential releases at surrounding properties that may impact the Site. RECs are defined in the ASTM E 1527-05 Standard as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water at the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." A material threat is defined by the ASTM E 1527-05 Standard as "a physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the environmental professional, is threatening and might result in impact to public health or the environment."

Consistent with ASTM E 1527-05 Section 12.5 (Report Format), and for the purposes of this assessment, those RECs that have been identified as being present with respect to the Site are referred to as Known Recognized Environmental Conditions (KRECs), and those RECs that have been identified as being likely present with respect to the Site are referred to as Suspect Recognized Environmental Conditions (SRECs). The ASTM E 1527-05 Standard defines HRECs as environmental conditions "which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently."

Our conclusions are intended to help the user evaluate the "business environmental risk" associated with the Site, defined in the ASTM E 1527-05 Standard as "a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of business environmental risk issues may involve addressing one or more non-scope considerations…"

The completion of this Phase I assessment is only one component of the process required to satisfy the AAI Rule. In addition, the user must adhere to a set of user responsibilities as defined by the ASTM E 1527-05 Standard and the AAI Rule. User responsibilities are discussed in section 5.3 of this

report. A user seeking protection from Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) liability as an innocent landowner, bona fide prospective purchaser, or contiguous property owner must complete all components of the AAI process in addition to meeting ongoing obligations. AAI components, CERCLA liability relief, and ongoing obligations are discussed in the AAI Rule and in Appendix XI of the ASTM E 1527-05 Standard.

1.2 Site Identification

The Site, comprised of approximately 3.7 acres, is located at Sorrento Parkway and Mira Sorrento Place, as shown on the Project Locus, Figure 1. The Site is currently owned by SDG&E and is vacant. Assessor Parcel Numbers (APNs) are 340-090-65 and 67.

1.3 Scope of Services

Haley & Aldrich performed the following scope of services to complete this Phase I assessment. These services were performed either by, or under the direct supervision of, an environmental professional as defined by the AAI Rule.

1. Conducted visual observations of Site conditions, and of abutting property use, to evaluate the nature and type of activities that have been or are being conducted at and adjoining to the Site, in terms of the potential for release or threat of release of hazardous substances or petroleum products.

2. Reviewed federal, state, tribal, and local environmental database information within the ASTM-specified distance from the Site using a database service to access records. Used 7.5-minute topographic maps to evaluate the Site's physical setting.

3. Reviewed federal and/or state environmental files pertaining to the Site and nearby sites with the potential to impact the Site.

4. Reviewed the following sources of historical use information: aerial photographs, previous reports, historical topographic maps, and municipal information.

5. Contacted state, county and city agencies regarding the Site and surrounding properties and structures.

6. Interviewed the key site manager. The Site is vacant, therefore no tenants were interviewed.

7. Interpreted the information and data assembled as a result of the above work tasks, and formulated conclusions regarding the potential presence and impact of RECs, including HRECs.

1.4 Non-Scope Considerations

The ASTM E 1527-05 Standard includes the following list of "additional issues" that are non scope considerations outside of the scope of the ASTM Phase I assessment practice: asbestos-containing materials, radon, lead-based paint, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species,

indoor air quality, bio-agents, and mold. These items were not included in this Phase I assessment of the Site.

A limited assessment of the presence of polychlorinated biphenyls (PCBs) is included in the ASTM work scope. Accordingly, our assessment of the presence of PCBs is limited to those potential sources specified in the ASTM E 1527-05 Standard as "electrical or hydraulic equipment known or likely to contain PCBs...to the extent visually and or physically observed or identified from the interview or records review."

1.5 Exceptions and Deviations

1.5.1 Deviations

Haley & Aldrich completed this Phase I assessment in substantial conformance with the ASTM E 1527-05 Standard. In our opinion, no additions were made to or deviations and deletions made from the ASTM work scope in completing this Phase I assessment.

1.5.2 Data Gaps

No data gaps were identified during the performance of this Phase I assessment. Thus, it is our opinion that sufficient information was obtained to identify Site conditions indicative of releases or threatened releases of hazardous substances and petroleum hydrocarbons. Our opinion is limited by the conditions prevailing at the time our work is performed and the applicable regulatory requirements in effect.

1.5.3 Limitations

Our work for this project was performed in accordance with the standards and practices set forth in 40 CFR Part 312 and is consistent with the ASTM E 1527-05 Standard for Phase I Environmental Site Assessments. Several organizations other than ASTM, such as professional associations ASFE and AGWSE, have also developed guidelines or standards for environmental site assessments. The Phase I assessment presented in this report may vary from the specific RBF Consulting and SDG&E guidelines or standards required by other organizations.

This Phase I assessment was prepared pursuant to an Agreement dated 12 March 2009 between RBF Consulting and Haley & Aldrich, which Agreement is attached hereto and is made a part of this report. All uses of this report are subject to, and deemed accepting of, the conditions and restrictions contained in the Agreement. The observations and conclusions described in this report are based solely on the Scope of Services provided pursuant to the Agreement. Haley & Aldrich has not performed any additional observations, investigations, studies, or other testing not specified in the Agreement. Haley & Aldrich shall not be liable for the existence of any condition the discovery of which would have required the performance of services not authorized under the Agreement.

This report is prepared for the exclusive use of RBF Consulting and SDG&E in connection with development of the Site as an electrical substation. There are no intended beneficiaries other than. Haley & Aldrich shall owe no duty whatsoever to any other person or entity on account of the Agreement or the report. Use of this report by any person or entity other than RBF Consulting and SDG&E for any purpose whatsoever is expressly forbidden unless such other

person or entity obtains written authorization from RBF Consulting and SDG&E Electric and from Haley & Aldrich. Use of this report by such other person or entity without the written authorization of RBF Consulting and SDG&E and Haley & Aldrich shall be at such other person's or entity's sole risk, and shall be without legal exposure or liability to Haley & Aldrich.

Use of this report by any person or entity, including by RBF Consulting and SDG&E, for a purpose other than for development of the Site as an electrical substation is expressly prohibited unless such person or entity obtains written authorization from Haley & Aldrich indicating that the report is adequate for such other use. Use of this report by any person or entity for such other purpose without written authorization by Haley & Aldrich shall be at such person's or entity's sole risk and shall be without legal exposure or liability to Haley & Aldrich.

This report reflects Site conditions observed and described by records available to Haley & Aldrich as of the date of report preparation. The passage of time may result in significant changes in Site conditions, technology, or economic conditions, which could alter the findings and/or recommendations of the report. Accordingly, RBF Consulting and SDG&E and any other party to whom the report is provided recognize and agree that Haley & Aldrich shall bear no liability for deviations from observed conditions or available records after the time of report preparation.

Use of this report by any person or entity in violation of the restrictions expressed in this report shall be deemed and accepted by the user as conclusive evidence that such use and the reliance placed on this report, or any portions thereof, is unreasonable, and that the user accepts full and exclusive responsibility and liability for any losses, damages, or other liability which may result.

2 SITE DESCRIPTION

2.1 Site Ownership and Location

2.1.1 Name of Site Owner

San Diego Gas & Electric
8315 Century Park CT, CT21E
San Diego, California

2.1.2 Name of Site Operator

The Site is vacant.

2.1.3 Project Locus Map

The United States Geologic Survey (USGS) topographic map for the Site is the Del Mar Quadrangle; dated 1994 (see Figure 1). The USGS topographic map was used as the source for Site setting information. The Site is located in San Diego County.

2.2 Site and Vicinity Description

Figure 2 is a Site Plan of the Site and shows relevant features of the Site and immediately adjoining properties, as described below.

- SDG&E is conducting a land use feasibility study of the Site to evaluate the regulatory requirements to develop the Site as 69/12 Kilo Volt (kV) substation. The design of the future development will be consist of two 60 kV banks, four 69 kV tie lines, a standard profile 138 kV bus, and two 12kV capacitors. The land use feasibility study will include the evaluation of Site constraints, Site development requirements, and specific regulations or permits necessary for project approval. The Site, approximately 3.7 acres, is currently vacant with no structures on it
- The area in the vicinity of the Site is generally characterized as commercial, high-tech pharmaceutical manufacturing, and residential.
- The Site is bordered to the west by Vista Sorrento Parkway and I-805, to the north by Mira Sorrento Place and office park, to the east by a vacant lot and office building and shopping center, to the south by Mire Mesa Boulevard and office buildings.

2.3 Physical Setting

Subsurface explorations were not performed for this Phase I assessment; therefore, Site geology and hydrology were evaluated on the basis of readily available public information or references, and/or based upon our experience and understanding of subsurface conditions in the Site area.

2.3.1 Topography

Topographically, the Site is located in a hilly area, with higher elevations to its western and northern sides, with dramatic sloping to its southern and eastern sides down into a valley. According to the Environmental Data Resources Inc. (EDR) the Site is at an elevation of approximately 214 feet above mean sea level.

2.3.2 Geology

The Site is located in the Del Mar Quadrangle of San Diego County. The Del Mar Formation is overlain by younger rocks. Most of the Delmar Formation is dusky yellowish-green sandy claystone interbedded with medium-gray coarse grained sandstone. Several resistant beds composed of Ostren idriaensis Gabb and other brackish-water mollusks indicate a lagoonal origin. The sandstone is typically composed of quartz (80-85 percent), potassium feldspar (10-15 percent), plagioclase (1-2 percent), biotite (2-3 percent), and a trace of hematite, topaz, glauconite, and pyroxene. The claystone is composed of montmorillonite and kaolinite. The base of the formation is not exposed but is presumed to rest unconformably on Upper Cretaceous or older rocks or conformably on the Mount Soledad Formation as do correlative formation to the north and south. In its type section near the town of Del Mar and throughout the area, it is overlain gradationally by the Torrey Sandstone, with which it is also partly equivalent. The Del Mar Fornnation is considered to be middle Eocene in age because it is correlative in part with the Mount Soledad Formation on the south, the Santiago Formation to the north, and contains a rich Domengine molluscian assemblage. The area is underlain primarily by sedimentary rock; however, occasional outcrops of plutonic and metamorphic rocks do occur. Very small surficial landslides associated with expansible clay deposits in the northern and eastern parts of the area are abundant. These landslides are closely associated with the outcrops of Friars and Del Mar Formations.

2.3.3 Hydrology

Based on surface topography, surface water at the Site appears to flow south and southwest. Also based on topography, regional groundwater flow is anticipated to be to the south and southwest, generally toward the Pacific Ocean, located approximately 2 miles from the Site. Hydrogeologic investigations were not performed on the Site during this Phase I assessment; therefore, it is unknown to what extent localized variations in groundwater depth and flow occur on the Site.

According to the EDR, the subject Site is not located within a floodplain. The subject Site is not connected to the municipal water supply. City of San Diego Water Department provides drinking water to the vicinity of the Site.

3 PREVIOUS REPORTS

As indicated by RBF no previous environmental assessment reports exist for the subject Site.

4 SITE HISTORY

4.1 Past Usage of the Site

Haley & Aldrich assessed past usage of the Site through a review of historical aerial photographs, historical topographic maps, street directories, and current property manager. Copies of historical references reviewed are included in Appendix B.

Historic topographic maps for the subject Site dated 1904, 1930, 1967, and 1994; and aerial photographs dated 1953, 1963, 1974, 1980, 1990, 1994, 2002 and 2005; were reviewed. The Site was vacant and undeveloped land in 1953, 1963, 1974, 1990, 1994, 2002 and 2005 photographs.

City directories do not list occupants of the Site in any year.

Sanborn maps were not available for the subject Site.

4.2 Past Usage of Adjoining Properties

The properties adjoining the Site were undeveloped in the 1953 and 1963 aerial photographs. In the 1974 aerial photograph Vista Sorrento Parkway appears to the west of the Site but properties adjoining the Site remain undeveloped. In the 1980 photograph an increased amount of grading and subdivisions appear to the east, northeast and south in the vicinity of Site but the adjoining properties remain undeveloped. In the 1990 and 1994 photograph properties adjoining the Site remain undeveloped. However, the shopping center and office buildings to the east and northeast of the Site are shown in 1990 and 1994 photographs, and Mira Mesa Boulevard appears as it is today. In the 2002 photograph two buildings to the west of the Site across from Mira Sorrento Place appear. The remaining adjoining properties are undeveloped. In the 2005 photograph the grading of Mira Sorrento Place to the north appears to have started.

The city directory abstract by EDR identified the occupants of nearby properties in 1960, 1975, 1980, 1984, 1985, 1989, 1991, 1992, 1995, 2000, and 2006. Occupants of neighboring properties appeared to be residential and businesses

5 ENVIRONMENTAL RECORDS REVIEW

5.1 Standard Environmental Records Review

Haley & Aldrich used the electronic database service EDR to complete the environmental records review. The database search was used to identify properties that may be listed in the referenced agency records, located within the ASTM-specified approximate minimum search distances as shown in the table below. Section 5.1.1 presents a description of each database searched.

Database Searched	Approximate Minimum Search Distance	Site Listed?	Number of Sites within Search Distance
NPL Sites	1 mile	No	0
Delisted NPL Sites	0.5 mile	No	0
CERCLIS Sites	0.5 mile	No	2
CERCLIS-NFRAP Sites	0.5 mile	No	0
Federal ERNS	Site only	No	0
RCRA non-CORRACTS TSD Facilities	0.5 mile	No	0
RCRA CORRACTS TSD Facilities	1 mile	No	0
RCRA Generators	Site & Adjoining	No	2
Federal Institutional Controls/Engineering Controls	Site Only	No	0
State and Tribal Equivalent NPL Sites	1 mile	No	0
State and Tribal Equivalent CERCLIS Sites	0.5 mile	No	0
State and Tribal Registered Storage Tanks	Site & Adjoining	No	0
State and Tribal Landfills and Solid Waste Disposal Sites	0.5 mile	No	0
State and Tribal Leaking Storage Tanks	0.5 mile	No	0
State and Tribal Institutional Controls/Engineering Controls	Site Only	No	0
State and Tribal Voluntary Cleanup Sites	0.5 mile	No	0
State and Tribal Brownfield Sites	0.5 mile	No	0
State Spills, Leaks, Investigation and Cleanup	0.5 mile	No	1
State CORTESE	0.5 mile	No	0
State DTSC (ENVIROSTOR)	1 mile	No	2
State Dry Cleaner Facilities	0.25 mile	No	0
State California Hazardous	Site Only	No	0

Database Searched	Approximate Minimum Search Distance	Site Listed?	Number of Sites within Search Distance
Materials Incident Report System (CHMIRS)			
State No Further Action Determination (NFA)	0.25 mile	No	0
State – Unconfirmed Properties Referred to Another Agency (REF)	0.25 mile	No	0
State – School Property Evaluation Program (SCH)	0.25 mile	No	0
State – Properties Needing Further Evaluation (NFE)	0.25 mile	No	0
Notify 65	1 mile	No	0
San Diego County HMMD	Site Only	No	
EMI	Site Only	No	
San Diego County SAM	0.5 mile	No	

The EDR report also contains search results of other State environmental databases that are relevant to the Site.

Haley & Aldrich also searched the Orphan Site List provided in the EDR report for the Site and sites adjoining the Site. Orphan sites are those that, due to incorrect or incomplete addresses, could not be mapped. Neither the Site nor the adjoining properties were identified on the Orphan Site List.

The complete environmental database report is provided in Appendix C.

5.1.1 Descriptions of Databases Searched

Numerous regulatory databases were searched during this Phase I assessment. Each database reviewed is described in the EDR report presented in Appendix C. Those databases required by the ASTM E 1527-05 Standard are identified below.

1. **NPL Sites:** The National Priorities List (NPL) is a list of contaminated sites that are considered the highest priority for cleanup by the U.S. Environmental Protection Agency (USEPA).

2. **Delisted NPL Sites:** The Delisted National Priorities List (NPL) is a list of formal NPL sites formerly considered the highest priority for cleanup by the USEPA that met the criteria of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) for deletion from the NPL because a no further response was appropriate.

3. **CERCLIS Sites:** The Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) list identifies sites which are suspected to have contamination and require additional investigation to assess whether they should be considered for inclusion on the NPL.

4. **CERCLIS-NFRAP Sites:** CERCLIS-NFRAP status indicates that a site was once on the CERCLIS List but has No Further Response Actions Planned (NFRAP). Sites on the CERCLIS-NFRAP List were removed from the CERCLIS List in February 1995 because, after an initial investigation was performed, no contamination was found, contamination was removed quickly, or the contamination was not significant enough to warrant NPL status.

5. **Federal ERNS:** The Federal Emergency Response Notification System (ERNS) list tracks information on reported releases of oil and hazardous materials.

6. **RCRA non-CORRACTS TSD facilities:** The Resource Conservation and Recovery Act (RCRA) non-CORRACTS TSD Facilities List tracks facilities which treat, store, or dispose of hazardous waste and are not associated with corrective action activity.

7. **RCRA CORRACTS TSD facilities:** The RCRA CORRACTS TSD Facilities list catalogues facilities that treat, store, or dispose of hazardous waste and have been associated with corrective action activity.

8. **RCRA Generators:** The RCRA Generator list is maintained by the USEPA to track facilities that generate hazardous waste.

9. **Federal Institutional Controls/Engineering Controls:** The Federal Institutional Control list and Engineering Control list are maintained by the USEPA. Some Institutional Control and Engineering Control information may not be made publicly available, and therefore will not be included on this registry.

10. **State and Tribal Equivalent NPL/CERCLIS Sites:** The ASTM E 1527-05 Standard requires searching "State and Tribal Equivalent CERCLIS Sites." In California, the equivalent CERCLIS is the Cal-Sites database, which is maintained by the California Department of Toxic Substances Control (DTSC).

11. **State and Tribal Registered Storage Tanks:** In California, local regulatory agencies (e.g., County health departments and fire departments) and the State Water Resources Control Board (SWRCB) maintain lists of aboveground and underground storage tanks registered with those agencies (e.g., County health departments). For tribal property, the USEPA Region 9 maintains a list of underground storage tanks on Indian land.

12. **State and Tribal Landfills and Solid Waste Disposal Sites:** In California, the SWRCB in coordination with the RWQCBs, and the Integrated Waste Management Board (IWMB) maintain lists of regulated waste disposal sites.

13. **State and Tribal Leaking Storage Tanks:** In California, the SWRCB in coordination with the RWQCBs maintains lists of Leaking Storage Tanks (LUST/LAST). The LUST/LAST lists are a listing of release sites that have an underground or aboveground storage tank listed as the source. For tribal property, the USEPA Region 9 maintains a list of leaking underground storage tanks on Indian land.

14. **State and Tribal Institutional Controls/Engineering Controls:** The USEPA maintains lists of sites with Institutional controls or Engineering controls in place. In addition, DTSC maintains a list of environmental deed restrictions.

15. **State and Tribal Voluntary Cleanup Sites:** In California, the DTSC, RWQCBs, and local regulatory agencies (e.g., County health departments) maintain lists of Voluntary Cleanup sites.

16. **State and Tribal Brownfield Sites:** In California, the DTSC maintains a list of Brownfield sites which includes any property where a redevelopment or re-use may be compromised by the presence or presumed presence of hazardous materials or petroleum.

17. **Other State Hazardous Waste Sites and Releases:** In California, the California Environmental Protection Agency (Cal/EPA) including DTSC, and the SWRCB including RWQCBs have created and/or maintain databases that identify hazardous waste sites and locations of hazardous substance releases/spills. These databases include:

    - **SLIC –** The Spills, Leaks, Investigation and Cleanup (SLIC) database maintained by the RWQCBs identifies sites that are being investigated and/or remediated for known releases other than those associated with leaking USTs.
    - **AWP** – The Annual Workplan Sites lists, formerly Bond Expenditure Plan (BEP) list, maintained by DTSC, identifies known hazardous **substance** sites targeted for cleanup.
    - **CORTESE** – The CORTESE Hazardous Waste and Substances Sites list includes a list of public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migration. The sites on this list were those included on the SWRCB Leaking Underground Storage Tank (LUST) list, the IWMB Solid Waste Information System (SWF/LF, also referred to as (SWIS), and the DTSC Cal-Sites. The CORTESE listing is no longer updated.
    - **NOTIFY 65 -** Notify 65 records contain facility notifications about any release that could impact drinking water and thereby expose the public to a potential health risk. The data comes from the SWRCB's Proposition 65 database.
    - **CHMIRS** - The California Hazardous Material Incident Report System (CHMIRS), maintained by the Cal/EPA Office of Emergency Services, contains information on reported hazardous material incidents (accidental releases or spills).
    - **NFA:** No Further Action Determination (NFA) sites are properties for which DTSC has made a clear determination that the property does not pose a problem to the environment or to public health.

- **REF:** Unconfirmed Properties Referred to Another Agency (REF) sites are properties where contamination has not been confirmed and which were determined as not requiring direct DTSC Site Mitigation Program action or oversight. Accordingly, these sites have been referred to another state or local regulatory agency.
- **SCH:** School Property Evaluation Program (SCH) sites are proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the Cal-Sites category depending on the level of threat to public health and safety or the environment they pose.
- **NFE:** Properties Needing Further Evaluation (NFE) are properties that are suspected of being contaminated. These are unconfirmed contaminated properties that need to be assessed using the Preliminary Endangerment Assessment (PEA) process. PEA in Progress indicates properties where DTSC is currently conducting a PEA. PEA Required indicates properties where DTSC has determined a PEA is required, but it is not currently underway.

5.1.2 Detailed Description of Relevant Site Listings

The Site is not listed in the EDR searched databases.

5.1.3 Detailed Descriptions of Relevant Nearby Site Listings

Information obtained from the EDR report for sites with releases listed as being potentially located hydraulically upgradient of the Site was evaluated to assess whether these sites may have potentially impacted the Site. Based on surface topography and review of EDR's historical topographic maps, the regional groundwater flow is anticipated to flow south, southwest generally toward the Pacific Ocean, located approximately 2 miles from the Site The information provided in the EDR report for these sites is summarized below.

ARDEA Biosciences, 4939 Directors Place (Map ID 2): This facility, located approximately 0.22 mile northwest of the Site, is listed in the RCRA-SQG, FINDS and HAZNET databases. EDR does not report violations for this Site. Based on the database report this facility is unlikely to impact the Site.

Phase Metrics, 10220 Sorrento Valley Road (Map ID 1): This facility, located approximately 0.22 mile southwest of the Site, is listed in the RCRA-SQG, FINDS and HAZNET databases. EDR does not report violations for this Site. Based on the database report this facility is unlikely to impact the Site.

Cosmopolitan Cleaners, 9450 Scranton Road (Map ID A4): This facility, located approximately 0.30 mile east northeast of the Site, is listed in the ENVIROSTOR, SLIC, San Diego County HMMD, San Diego County SAM and EMI databases. According to EDR this facility had two SLIC cases under the San Diego County Department of Health (DEH) regulatory oversight. The review of DEH records indicated that the first case, involving the release of dry-cleaning solvents, Trichloroethene (TCE) and Tetrachloroethene (PCE) to the soil, obtained regulatory closure in April 2000.

The second case, still open, involved the release of TCE and PCE to the soil only and is under assessment. According to the DEH records, in 2003, the Sorrento Towers LLC, the property owner, submitted a letter and identified Cosmopolitan Cleaner as the responsible party of a solvent release and requested assistance for oversight of the investigation. The letter indicated that concentrations of solvents detected, TCE and PCE, were comparable to those detected for previous release which was granted closure in 2000. In November 2004 Sorrento Towers LLC submitted a signed Voluntary Cleanup Application (VAP) to DEH. In March 2006, DEH approved permits for four vapor wells drilled to 10 feet below grade and screened from 2 to 9 feet. In November 2008, Enviroforensics, on behalf the property owner, submitted a report titled "Request for Site Closure (Closure Report), dated 10/31/2008" To DEH. The Closure Report summarized the work that was conducted in this facility and indicted that:

- The Vapor Extraction System (VES) was installed and started mid-December 2007, and the report documents the total mass of PCE removed as of 26 September 2008 (A table summarizing the VES operating data is attached in Appendix C) .
- Began Pulse operation of VES since they were observing decreasing concentrations of Volatile Organic Compound's being removed.
- Confirmation soil samples were collected from 4 borings, two of which were installed in June 2008, and two were installed in September 2008. Based on June results the operation of VES continued.
- Based on September soil samples Enviroforensics requested closure as TCE and PCE soil concentrations were below Preliminary Remediation Goal's (PRG's).

On December 2008, DEH requested the new property owner to obtain a new VAP application as the original VAP was outdated. During a telephone interview on 5 August 2009, Mr. Don Lipera of DEH indicated that the case remains open and he was in the process of asking more evaluation on groundwater and soil at this facility.

Based on the database report, close proximity to the Site, and the DEH file review and interview this facility is a suspect recognize environmental condition (SREC).

K-Tube Facility, 10581-75 Roselle Street (Map ID 5): This facility, located approximately 0.87 mile west northwest of the Site, is listed in the ENVIROSTOR databases. Based on the database report and the distance to the Site this facility is unlikely to impact the Site.

5.2 Additional Environmental Records Review

To supplement the (ASTM E 1527-05 Standard) environmental record sources, we contacted the following state and local government agencies, and/or reviewed the following additional sources:

5.2.1 State Environmental Agency

A Freedom of Information Act (FOIA) request was made to San Diego County Department of Health (DEH) and the Regional Water Quality Control Board (RWQCB) for the Site. Since the Site does not have a street address, RWQCB could not respond to our request. DEH did not have any files for the Site but their record for Cosmopolitan Cleaners was reviewed.

5.2.2 Tax Assessor

Haley & Aldrich reviewed information available on the County of San Diego assessor office website. The assessor parcel number (APN) for Site is 340-090-65 and 340-090-67.

5.3 User Responsibilities

The AAI Rule requires that the user of the report consider the following:

Whether the user has specialized knowledge about previous ownership or uses of the Site that may be material to identifying RECs;

whether the user has determined that the Site's Title contains environmental liens or other information related to the environmental condition of the property, including engineering and institutional controls and Activity and Use Limitations (AULs), as defined by ASTM;

whether the user is aware of commonly known or reasonably ascertainable information about the Site including whether or not the presence of contamination is likely on the Site and to what degree it can be detected; and

whether the user has prior knowledge that the price of the Site has been reduced for environmentally related reasons.

We requested such information for inclusion in this report. Though neither the AAI Rule nor the ASTM E 1527-05 Standard requires that this information be provided to the environmental professional(s), failure on the part of the user to obtain such information for their own records, should it be reasonably ascertainable, may invalidate the user's compliance with the AAI Rule for CERCLA liability protection in the future.

Mr. Jeff Sykes of SDG&E indicated that they do not have specialized knowledge about previous ownership or uses of the Site that may be material to identifying RECs; they have no knowledge of environmental liens or AULs in the Site Title; they are not aware of commonly known or reasonably ascertainable information about the Site regarding the presence of onsite impacts of hazardous substances and petroleum products; and they have no knowledge of the price of the Site being reduced for environmental related reasons.

6 SITE RECONNAISSANCE AND KEY PERSONNEL INTERVIEW(S)

A Site visit to observe Site conditions was conducted by Mr. Kasra Nikkhah of Haley & Aldrich, Inc. on 7 May 2009. Access to the Site was provided from SDG&E. Haley & Aldrich personnel observed accessible areas of the Site. Haley & Aldrich also observed the exterior portions of the Site, including the property boundaries, and observed adjoining property conditions from the Site boundaries and/or public thoroughfares. No weather-related conditions or other conditions that would limit our ability to observe the Site or adjoining properties occurred during our Site visit.

An interview with Jeff Sykes of SDG&E, the key site manager, was performed in conjunction with the Site visit on 30 July 2009. The Site is vacant and so no tenant interview was conducted as required by ASTM E 1527-05 Standard. The findings of the Site visit and interviews are discussed below. Site photographs are included in Appendix D; interview documentation is included in Appendix E.

ASTM E 1527-05 Standard Section 10.8 requires that, prior to the Site visit**,** the current Site owner or key site manager and user, if different from the current owner or key site manager, be asked if there are any helpful documents that can be made available for review. These consist of environmental site assessment reports, audits, permits, tank registrations, Material Safety Data Sheets, Community Right-to-Know plans, safety plans, hydrogeologic or geotechnical reports, or hazardous waste generator reports. We made such a request and were not provided with any previous documents:

6.1.1 Current Use of the Property

The Site is an undeveloped vacant lot. According to Mr. Sykes, the key site manager, the Site has never been developed.

6.1.2 General Description of Structures

The Site is an approximately 3.7 acre vacant lot covered by various types of vegetation. Topographically, the Site is a hill, with higher elevations to its western and northern sides and dramatic sloping to its southern and eastern sides down into a valley. Stormwater from the elevated portion of the Site drains down into valley below the Site via concrete stormwater channels, on the western and eastern of the Site, and from the vacant lot to the east. According to Mr. Sykes, the purpose of the stormwater channels is to stabilize the soil. The stormwater from the vacant lot to the east of the Site drains into a concrete holding area prior to draining into the valley below. The stormwater channels were dry and contained some trash debris during the Site visit. However, a pool of water was observed in the east side of the valley, below the Site, on the adjoining property. Oily sheen or other evidence of petroleum product release was not observed on the water surface.

An unpaved, dirt road is located to the east and separates the Site from the adjoining vacant lot. Evidence of staining was not observed on this road. According to Mr. Sykes, this road is right-of-away to maintain the electrical wires passing to the east of the Site.

6.1.3 Potable Water Supply and Sewage Disposal System or Septic Systems

The potable water is supplied to the Site by the City of San Diego. The Site uses city water to operate a sprinkler system to keep vegetations from drying. According to Mr. Sykes, there are no septic systems at the Site.

6.1.4 Use of Petroleum Products and Hazardous Materials

The Site is not listed in the regulatory databases and is vacant. The use of hazardous materials was not observed at the Site during the site reconnaissance. Mr. Sykes indicated that the Site is vacant and hazardous materials have not been used at the Site.

6.1.5 Storage of Petroleum Products and Hazardous Materials (Storage Tanks, Drums)

The storage of petroleum product and hazardous materials was not observed at the Site during the site reconnaissance. Mr. Sykes indicated that the Site is vacant and petroleum product and hazardous materials have not been used at the Site.

6.1.6 Disposal of Petroleum Products and Hazardous Materials

No evidence of disposal of petroleum products and hazardous materials were observed at the Site.

6.1.7 Storage Tanks

No evidence of storage tanks was observed during the Site reconnaissance. Mr. Sykes indicated that there are no storage tanks at the Site.

6.1.8 Odors

Evidence of unusual odors was not observed during the Site reconnaissance.

6.1.9 PCBs Associated with Electrical or Hydraulic Equipment

No electrical or hydraulic equipment, suspected of containing PCBs, were observed during the Site reconnaissance. Mr. Sykes indicated that there are no PCB containing electrical or hydraulic equipment at the Site.

6.1.10 Unidentified Substance Containers

Evidence of unidentified substance containers was not observed during the Site reconnaissance.

6.1.11 Heating and Cooling System

The Site is a vacant lot with no structures on it.

6.1.12 Stains or Corrosion on Floors, Walls, or Ceilings

Stains or corrosion were not observed on the grounds during the Site reconnaissance.

6.1.13 Floor Drains and Sumps

Floor drains and sumps were not observed on the grounds during the Site reconnaissance.
.

6.1.14 Hydraulic Elevators

The Site is a vacant lot with no structures on it.

6.1.15 Vehicle Maintenance Lifts

The Site is a vacant lot with no structures on it.
.

6.1.16 Emergency Generators and Sprinkler System Pumps

Evidence of emergency generators or sprinkler system pumps was not observed during the Site reconnaissance.

6.1.17 Catch Basins

Stormwater catch Basins are located on the north side of the exterior of the Site. One stormwater catch basin was observed. Catch basin appeared to be dry. Staining was not observed inside the stormwater catch basins.

6.1.18 Dry Wells

No evidence of dry wells were observed at the Site. Mr. Sykes was not aware of any dry wells.

6.1.19 Pits, Ponds, Lagoons, and Pools of Liquid

A stormwater pond was observed in the east side of the Site during the Site visit. According to Mr. Sykes the stormwater pond is located outside of the Site and is on the adjoining property. The water did not appear to have an oily sheen on it.

6.1.20 Stained Soil or Pavement

Stain soil was not observed during the Site reconnaissance.

6.1.21 Stressed Vegetation

Stressed vegetation was not observed during the Site reconnaissance.

6.1.22 Solid Waste and Evidence of Waste Filling

Evidence of solid waste or waste filling was not observed at the Site during the Site visit. Since the Site is vacant, there are no solid waste pick up.

6.1.23 Wastewater and Stormwater Discharge

The Site has higher elevation on the west and north side of it and slopes down towards the south and east to lower elevations. Stormwater from the elevated portion of the Site drains down into this lower elevation area via concrete stormwater channels, on the western and eastern of the Site. The stormwater channels were dry and contained some trash debris during the Site visit. However, a pool of water was observed in the east side of the Site. No sheen was observed on the pool water.

6.1.24 Monitoring, Water Supply, or Irrigation Wells

Evidence of monitoring, water supply, or irrigation wells was not observed at the Site during the Site visit, and according to Mr. Sykes, no wells are present. Potable water is supplied to the vicinity of the Site by the City of San Diego.

6.1.25 Sanitary Sewer and Septic Systems

Since the Site is vacant, there are sanitary wastewater discharge or sewer systems.

6.2 Adjoining Property Observations

The Site is bordered to the west by Vista Sorrento Parkway and I-805, to the north by Mira Sorrento Place and office park, to the east by a vacant lot and office building and shopping center, to the south by Mire Mesa Boulevard and office buildings. Based on observations made from the Site and public right-of-ways, no business activities or features were visible that would indicate the potential for a release of hazardous substances or petroleum products

7 FINDINGS AND CONCLUSIONS

Haley & Aldrich has performed a Phase I assessment of the property located at Vista Sorrento Parkway and Mira Sorrento Place in San Diego, California. The scope of work is described and conditioned by our proposal dated 3 March 2009. As indicated in our proposal, this Phase I assessment was performed in conformance with the scope and limitations of the ASTM E 1527-05 Standard and the AAI Rule. Deviations from this Standard, and/or data gaps and their significance are described in section 1.5 of this report. Our conclusions are intended to help the user evaluate the "business environmental risk" associated with the Site, as defined in the ASTM E 1527-05 Standard and discussed in section 1.1 of this report.

SDG&E is conducting a land use feasibility study of the Site to evaluate the regulatory requirements to develop the Site as 69/12 Kilo Volt (kV) substation. The design of the future development will consist of two 60 kV banks, four 69 kV tie lines, a standard profile 138 kV bus, and two 12kV capacitors. The land use feasibility study will include the evaluation of Site constraints, Site development requirements, and specific regulations or permits necessary for project approval. The Site, approximately 3.7 acres, is currently vacant with no structures on it.

The Site is not listed in the EDR searched databases.

The objective of a Phase I assessment is to identify known and suspect RECs, HRECs, and *de minimis* conditions associated with the Site, as defined in the ASTM E 1527-05 Standard and in section 1.1 of this report.

No data gaps were identified during the performance of this Phase I assessment. Thus, it is our opinion that sufficient information was obtained to identify Site conditions indicative of releases or threatened releases of hazardous substances and petroleum hydrocarbons.

Based on the results of this Phase I Environmental Site Assessment, our findings are as follows:

KNOWN OR SUSPECT RECOGNIZED ENVIRONMENTAL CONDITIONS

The ASTM E 1527-05 Standard defines an REC as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property." A material threat is defined by the ASTM E 1527-05 Standard as "a physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the environmental professional, is threatening and might result in impact to public health or the environment." Consistent with ASTM E 1527-05 Section 12.5 (Report Format), and for the purposes of this assessment, those RECs that have been identified as being present with respect to the Site are referred to as KRECs, and those RECs that have been identified as being likely present with respect to the Site are referred to as Suspect Recognized Environmental Conditions SRECs.

This Phase I assessment has revealed no evidence of KRECs or SRECs in connection with the Site except for the following SREC listed below.

Our opinion of the potential impacts of the REC(s) identified in this Phase I assessment is as follows:

Suspect Recognized Environmental Conditions

SREC #1: Dry Cleaning Solvent Release from Cosmopolitan Cleaners
Explanation: This facility, located approximately 0.301 mile east northeast of the Site, has had two release cases under the San Diego County Department of Health (DEH) regulatory oversight. The review of DEH records by Haley & Aldrich indicated that the first case, involving the release of dry-cleaning solvents, TCE and PCE to the soil, obtained regulatory closure in April 2000.

The second case, still open, involved the release of TCE and PCE to the soil only and is under assessment. According to the DEH records, in 2003, the Sorrento Towers LLC, the property owner, submitted a letter and identified Cosmopolitan Cleaner as the responsible party of a solvent release and requested assistance for oversight of the investigation. The letter indicated that concentrations of solvents detected, TCE and PCE, were comparable to those detected for previous release which was granted closure in 2000. In November 2004 Sorrento Towers LLC submitted a signed VAP to DEH. In March 2006, DEH approved permits for four vapor wells drilled to 10 feet below grade and screened from 2 to 9 feet. In November 2008, Enviroforensics, on behalf the property owner, submitted a report titled "Request for Site Closure" (Closure Report), dated 10/31/2008 to the DEH. The Closure Report summarized the work that was conducted in this facility and indicted that:

- The Vapor Extraction System (VES) was installed and started mid-December 2007, and the report documents the total mass of PCE removed as of 26 September 2008 (A table summarizing the VES operating data is attached in Appendix C)
- Began Pulse operation of VES since they were observing decreasing concentrations of Volatile Organic Compound's being removed.
- Confirmation soil samples were collected from 4 borings, two of which were installed in June 2008, and two were installed in September 2008. Based on June results the operation of VES continued.
- Based on September soil samples Enviroforensics requested closure as TCE and PCE soil concentrations were below PRG's.

On December 2008, DEH requested the new property owner to obtain a new VAP application as the original VAP was outdated.

Based on the database report, and the DEH file review this facility is a SREC.

HISTORICAL RECs

The ASTM E 1527-05 Standard defines an HREC as an environmental condition "which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently."

This Phase I assessment has revealed no evidence of HRECs in connection with the Site.

DE MINIMIS CONDITIONS

The ASTM E 1527-05 Standard defines *de minimis* conditions as those conditions which "do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." The ASTM E 1527-05 Standard notes that "conditions determined to be *de minimis* are not recognized environmental conditions."

This Phase I assessment has revealed no evidence of *de minimis* conditions in connection with the Site.

SUMMARY AND RECOMMENDATIONS

In summary, one SREC was identified during this Phase I assessment.

8 CREDENTIALS

This Phase I assessment report was prepared by Mr. Kasra Nikkhah, under the direct supervision of Mr. Mehdi Miremadi, who served as the Officer-in-Charge of this project. Qualification information for the project personnel is provided below.

Mehdi Miremadi
Officer-in-Charge

Mr. Miremadi has over 28 years of experience in site assessment, due diligence, investigation, remediation, and closure of contaminated sites with particular focus on redevelopment of large contaminated industrial properties. He specializes in remedial investigations/feasibility studies (RI/FS), evaluation of remedial alternatives, hydrogeologic investigations, health risk assessment, conceptual and detail design of soil and groundwater remediation systems, contaminant fate and transport assessment and modeling, regulatory compliance, and water resources studies. Mr. Miremadi has extensive experience in assessment and remediation of sites contaminated with chlorinated hydrocarbons and metals and has been retained as an expert in the area of degradation of chlorinated hydrocarbons and their fate and transport in the subsurface.

Kasra Nikkhah, CAC
Senior Scientist

Mr. Nikkhah has over 19 years of experience in preparing Phase I environmental site assessments, preliminary endangerment assessments, soil groundwater investigation work plans, remedial action work plans, and site closure reports. He has been responsible for managing and implementing soil and groundwater environmental investigations both to meet regulatory requirements and in support of litigation. His experience also includes management of underground storage tank removals, oversight for excavation and disposal of chemically impacted soils. Mr. Nikkhah is a United States AHERA-trained building inspector, management planner, project designer and contractor supervisor for asbestos, and has been a Cal/OSHA-certified asbestos consultant.

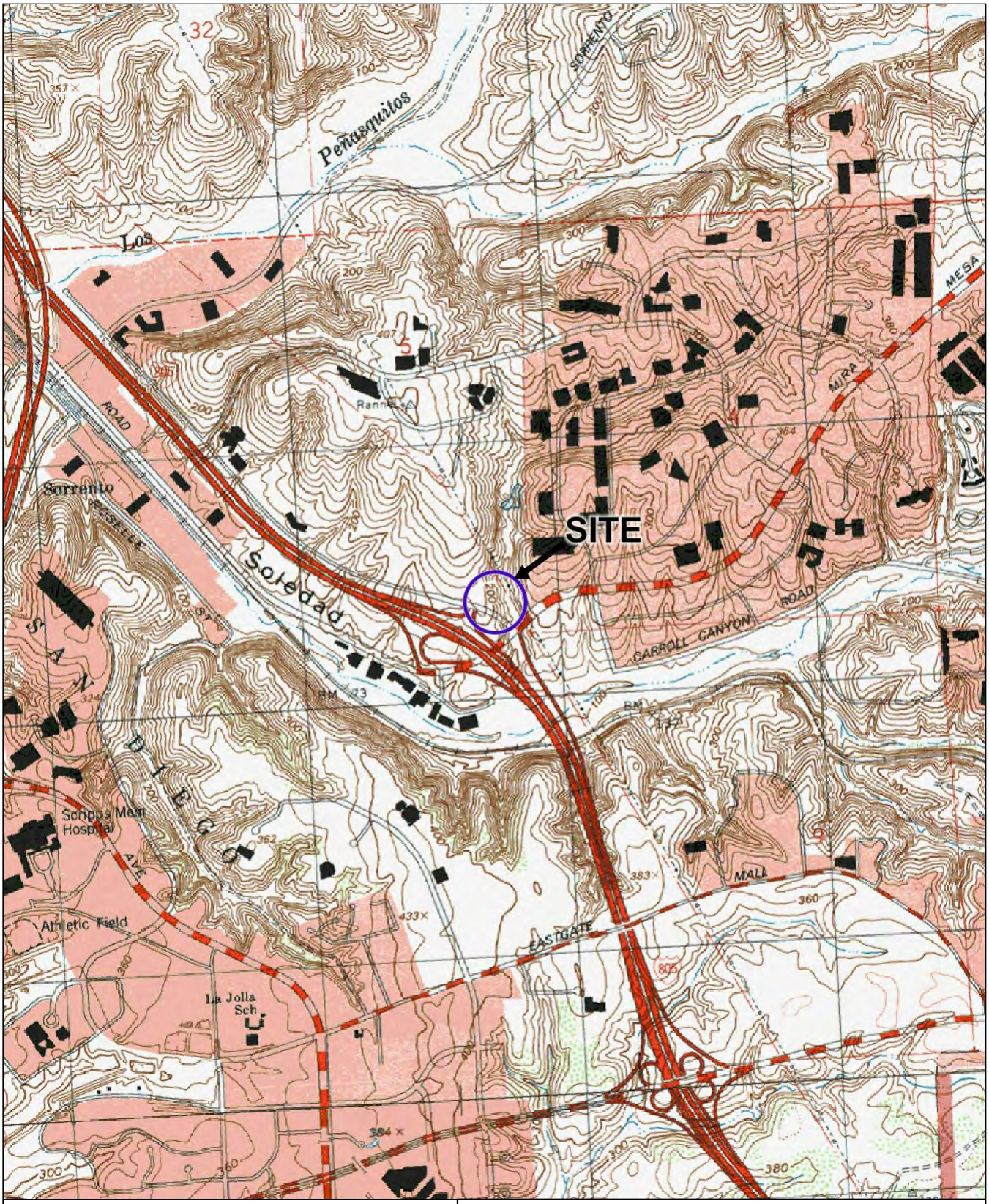
REFERENCES

1. Environmental Data Resources, Inc., Database Report, dated 30 April 2009.

2. Haley & Aldrich, Inc., Site visit conducted by Kasra Nikkhah on 7 May 2009.

3. Historic topographic maps for the Site dated 1904, 1930, 1967, and 1994; and aerial photographs dated 1953, 1963, 1974, 1980, 1990, 1994, 2002 and 2005; were reviewed.

4. Mr. Sykes of San Diego Gas & Electric., interview with Haley & Aldrich, Inc, 30 July 2009.



SITE COORDINATES:32°53'33"N 117°12'21"W





U.S.G.S. QUADRANGLE: DEL MAR, CA

HALEY & ALDRICH

SAN DIEGO GAS AND ELETRIC COMPANY
MIRA SORRENTO PHASE I
SAN DIEGO, CALIFORNIA

PROJECT LOCUS

SCALE: 1:24,000
AUGUST 2009

FIGURE 1

36352-000 1.PDF

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LEGEND

- SAN DIEGO COUNTY PARCEL BOUNDARY
- SITE BOUNDAEY

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W E
S

0 200

SCALE IN FEET

HALEY & ALDRICH

SAN DIEGO GAS & ELECTRIC COMPANY
MIRA SORRENTO PHASE I
SAN DIEGO, CALIFORNIA

SITE PLAN

SCALE: AS SHOWN
AUGUST 2009

FIGURE 2

APPENDIX A

Haley & Aldrich proposal dated 25 March 2009

Haley & Aldrich, Inc.
9040 Friars Road
Suite 220
San Diego, CA 92108-5860

Tel: 619.280.9210
Fax: 619.280.9415
HaleyAldrich.com

HALEY & ALDRICH

20 October 2008
File No 35344-971

RBF Consulting – San Diego
9755 Clairemont Mesa Boulevard, Suite 100
San Diego, California 92124

Attention: Mr. Alex Jewell

Subject: Proposal for Phase I Environmental Site Assessment
In Support of SDG&E Proponents Environmental Assessment
Proposed Mira Sorrento Power Plant Substation
Sorrento Valley, California

Dear Mr. Jewell:

Pursuant to your request, Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this proposal to RBF to provide environmental consulting services. This proposal presents our scope of work to conduct a Phase I Environmental Site Assessment in support of RBF's proposal to San Diego Gas & Electric's (SDG&E) for a Proponents Environmental Assessment (PEA) for the proposed Mira Sorento 69/12kV Substation project located in Sorrento Valley, California. This proposal has been prepared in accordance with the SDG&E Request for Proposal (RFP) provided to Haley & Aldrich on 17 October, 2008. Haley & Aldrich is pleased to support RBF in their response to this proposal.

PROJECT UNDERSTANDING AND BACKGROUND

Our understanding of the project is based on information provided in the referenced RFP, and additional information provided to us on 17 October 2008 from RBF as summarized below.

SDG&E has requested professional consultant services from RBF in support of regulatory and permitting activities for selecting a suitable site for a proposed Mira Sorrento 69/12k V Substation to be located southeast of the intersection of Mira Sorrento Place and Vista Sorrento Parkway, in Sorrento Valley. RBF has likewise asked Haley & Aldrich to provide consulting services to conduct a Phase I Environmental Site Assessment (Phase I ESA) as part of this RFP. The term "site" for the purposes of this proposal is herein after used to reference the proposed location to be assessed. According to the RFP any follow-on Phase II activities would be proposed under separate scope and cost following completion of the Phase I ESA.

The proposed project is for the construction of a new substation to provide adequate electrical service for the area. The new substation will require approximately 3.7 acres. This acreage includes: access roads, drainage, slopes, and easement buffers. The substation design will be a standard profile design consisting of two 69 kV banks, four 69kV tie lines, a standard profile 138 kV bus, and two 12kV capacitors. The four 69kV tie lines will be coming in

underground, with two coming in from the adjacent right of way and two from the north. The site is depicted on the attached Exhibit 3 (provided by RBF). The scope of the Phase I ESA services is further outlined below.

SCOPE OF WORK

Phase I Environmental Site Assessment (Phase I Assessment)

Overview and Objective

This proposal presents our scope of work to perform a Phase I assessment of the subject Site, using methods consistent with the American Society of Testing and Materials (ASTM) E1527-05 Standard Practice for Environmental Site Assessments to comply with 40 CFR Part 312 (the All Appropriate Inquiries [AAI] Rule). The completion of this Phase I assessment is only one component of the process required to satisfy the AAI Rule. In addition, the user must adhere to a set of user responsibilities as defined by the ASTM Standard and the AAI Rule. User responsibilities are discussed below. A user seeking protection from Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) liability as an innocent landowner, bona fide prospective purchaser, or contiguous property owner must complete all components of the AAI process in addition to meeting ongoing obligations. AAI components, CERCLA liability relief, and ongoing obligations are discussed in the AAI Rule and in Appendix XI of the ASTM E 1527-05 Standard.

The goal of a Phase I assessment is to evaluate site history, existing observable conditions, current site use, and current and former uses of surrounding properties to identify the potential presence of "Recognized Environmental Conditions (RECs)" associated with the subject site. RECs are defined in the ASTM E 1527-05 Standard as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water at the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."

In addition, the ASTM E 1527-05 Standard requires that historical RECs (HRECs) and known or suspect environmental conditions are identified in the Phase I assessment report. The standard defines HRECs as environmental conditions "which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently." The term "known or suspect environmental condition" is not specifically defined in the standard, but is used by Haley & Aldrich to highlight environmentally-related information that is not anticipated to adversely affect the subject site and/or does not rise to the level of an REC.

The ASTM E 1527-05 Standard requires an opinion of the potential impacts of REC(s) identified on a site during a Phase I assessment. Our conclusions regarding the potential

impact of RECs on the subject site are intended to help the user evaluate the "business environmental risk" associated with the subject site, defined by ASTM as "a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of business environmental risk issues may involve addressing one or more non-scope considerations…" The non-scope considerations listed in ASTM E 1527-05 are also discussed below.

Proposed Phase I Assessment Scope of Work

The Phase I assessment work scope described below has been developed to be consistent with the ASTM E 1527-05 Standard, based on our current understanding of the subject site. The Phase I assessment consists of four components: Records Review; Site Reconnaissance; Interviews; and Report Preparation. The scope of work specific for each component is described below.

1. Records Review - Haley & Aldrich will assemble and review readily available information on site history and usage as it relates to the presence of hazardous substances and petroleum products that would constitute RECs on the subject site. The ASTM standard lists standard and additional records for review.

   We will review information from the mandatory databases within the ASTM-specified approximate minimum search distances. The mandatory databases include: NPL; Delisted NPL; CERCLIS; CERCLIS NFRAP; ERNS; RCRA non-CORRACTS TSD; RCRA CORRACTS TSD; RCRA Generators; Federal Institutional and Engineering Controls; State and Tribal Landfills and Solid Waste Disposal Sites; State and Tribal equivalent NPL and CERCLIS Sites; State and Tribal Registered Storage Tanks; State and Tribal Leaking Storage Tanks; State and Tribal Institutional and Engineering Controls; State and Tribal Voluntary Clean-up Sites; and State and Tribal Brownfields Sites. We intend to use an electronic database service to provide a report summarizing information from the required records, and will rely on the database service to conform to ASTM requirements for currency of the information. Should the database search report identify listed sites with the potential to impact the subject site, Haley & Aldrich may review the federal or state files pertaining to the listed sites, as reasonably ascertainable and practically reviewable. The budget presented below does not include costs for review of files at more than one agency's office.

   As required by ASTM, a current 7.5-minute U.S. Geologic Survey (USGS) topographic map or equivalent will be used to evaluate the physical setting in the subject site area, and will be supplemented by discretionary review of readily available information concerning surface topography, surface water, soil, bedrock, and groundwater conditions on and in the vicinity of the subject site.

   To complete the ASTM discretionary records review, Haley & Aldrich may contact one or more of the following local or regional agencies concerning the subject site:

Health Department, Fire Department, Water Department, Planning or Zoning Board, and Engineering Department. We will contact the agencies for information concerning records related to storage, use, or release of hazardous substances or petroleum products that may constitute RECs on the subject site, and will document our contacts in writing.

ASTM requires that "obvious uses" of the subject site be identified from the present back to the first developed use or back to 1940, whichever is earlier. In order to complete that task, Haley & Aldrich will review one or more of the following ASTM-listed standard historical sources: Aerial photographs, fire insurance maps, property tax files, recorded land title records, USGS topographic maps, local street directories, building department records, and zoning/land use records. Haley & Aldrich may also review ASTM-listed "other historical sources" including newspaper archives, internet sites, and local libraries and historical societies.

Haley & Aldrich will review previous reports prepared for the subject site, if provided. For budgeting purposes, we have included costs for up to 4 hours of time devoted to reviewing previous reports.

Pursuant to the ASTM Standard, records identified by ASTM as "Additional" or "Other" will be reviewed when, in Haley & Aldrich's judgment, they are (1) reasonably ascertainable; (2) sufficiently useful, accurate, and complete; and (3) generally obtained pursuant to local good commercial or customary practice.

2. Site Reconnaissance - Haley & Aldrich will visit the subject site and view interior and exterior conditions to assess the nature and type of activities that have been conducted with respect to the potential for RECs to be present. Haley & Aldrich will observe and document visible evidence of current and past usage of the subject site, particularly related to potential filling, previous structures, sewage disposal systems, hazardous substances, petroleum products, storage tanks, and evidence of spills or releases of hazardous substances or petroleum products. We understand that you will make all areas of the subject site accessible to our representative(s) for the site visit. Conditions of adjoining properties will also be observed from the subject site boundaries and/or public thoroughfares. For budgeting purposes, we have assumed that all areas of the subject site will be made accessible and that the site reconnaissance will be conducted in one site visit, during normal working hours.

   Our observations and conclusions related to the site reconnaissance may be limited by prevailing weather conditions or other conditions at the time of our site visit. Our report will include a discussion of factors limiting our site reconnaissance, if applicable.

3. Interviews with Owners and Occupants - The ASTM Standard requires that interviews be performed with a "Key Site Manager" (the owner or occupant of the subject site) and with representatives of building occupants. In accordance with ASTM, an interview will be conducted with a representative of each occupant if the building has five or fewer occupants. If the building contains more than five occupants, an

interview will be conducted with those major occupants, as defined by ASTM, and those occupants whose operations could indicate RECs in connection with the subject site. We request that the current owner(s) or representative(s) be notified of our visit and be asked to participate in an interview regarding subject site usage and history. Further, as required by the ASTM standard, we ask that you request that the current site owner assemble and make available to Haley & Aldrich copies of previous environmental investigations and audits of the property, and other information related to storage, use, or release of hazardous substances or petroleum products at the subject site, such as environmental permits, registrations for tanks, material safety data sheets, or waste disposal records.

4. Interview with State and/or Local Government Officials – Haley & Aldrich may interview one or more state and/or local government officials in conjunction with the state and local government records review with the intention to obtain information indicating potential RECs in connection with the subject site.

5. Evaluation and Report - Haley & Aldrich will interpret the information and data assembled from work scope items No. 1 through No. 4 above, and will formulate conclusions regarding evidence of RECs at the subject site and their potential impact on the subject site. We will prepare a draft report of the Phase I assessment (see below) activities for your review. The report will include a summary of the results of our assessments and a discussion of our conclusions regarding the potential presence and impact of RECs in connection with the subject site, based on the work scope described herein. After addressing your comments, if any, we will prepare and submit to you five copies of a final report.

The report will be prepared in accordance with the standards and practices set forth in 40 CFR Part 312, and consistent with ASTM E 1527-05. Documentation supporting the conclusions presented will be appended to the report. As required by ASTM, our final report will include declarations that the Phase I assessment was conducted consistent with the scope and limitations of the ASTM Standard, and that the persons who signed the report meet the definition of environmental professional. In addition, the Phase I assessment report will indicate whether RECs were or were not identified in connection with the subject site, and whether there are any data gaps. If data gaps are identified, Haley & Aldrich will indicate whether they are considered significant (i.e., affect our ability to identify conditions indicative of releases or threatened releases of hazardous substances or petroleum hydrocarbons).

User-provided Information

The AAI Rule requires that the user consider the following:

- Whether the user of the report has specialized knowledge about previous ownership or uses of the subject site that may be material to identifying RECs,

- Whether the user has determined that the subject site's Title contains environmental liens or other information related to the environmental condition of the property, including engineering and institutional controls and Activity and Use Limitations (AULs), as defined by ASTM,

- Whether the user is aware of commonly known or reasonably ascertainable information about the subject site including whether or not the presence of contamination is likely on the subject site and to what degree it can be detected, and
- Whether the user of the report has prior knowledge that the price of the subject site has been reduced for environmentally related reasons.

We request that you provide this information to us for inclusion in our report. Though it is not required by the AAI Rule or the ASTM Standard that this information be provided to Haley & Aldrich, failure on the part of the user to obtain such information for their own records, should it be reasonably ascertainable, may violate the user's ability for CERCLA liability protection in the future.

Out-of-Scope Services

Our work scope for this project will be performed in accordance with the standards and practices set forth in 40 CFR Part 312, and consistent with the ASTM E 1527-05 Standard for Phase I Environmental Site Assessments. Several organizations other than ASTM, such as the Federal Home Loan Bank Board, the Resolution Trust Corporation, and Professional Associations, have also developed "guidelines" or "standards" for environmental site assessments. The scope of work for the Phase I assessment outlined above may vary from the specific "guidelines" or "standards" required by other organizations. If this project requires conformance with a specific "guideline" or "standard" other than ASTM, we will be pleased to review our proposal considering the specific requirements, and we will revise and resubmit this proposal, if necessary. Unless specifically referenced in this proposal, the work scope and report will not address other guidelines or standards.

The ASTM E 1527-05 Standard includes the following list of "additional issues" that are non-scope considerations outside of the ASTM Phase I practice: asbestos-containing materials, radon, lead-based paint, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, bio-agents and mold. Assessment of these items is not included in our proposed work scope. A limited assessment of the presence of PCBs is included in the ASTM work scope; accordingly, our assessment of the presence of PCBs is limited to those potential sources specified in the ASTM Standard as "electrical or hydraulic equipment known or likely to contain PCBs…to the extent visually and or physically observed or identified from the interview or records review."

COSTS

Services associated with completing work scope items Nos. 1 through 5 will be conducted for a lump sum fee of **$**. Additional meetings, lengthy conference calls, and other additional services, if required, will be billed separately.

The following assumptions were made during the preparation of this proposal:

- Access to the subject site will be provided by the SDG&E or current tenant during normal working hours. For budgeting purposes, we have assumed that the subject site

will be made accessible and that the site reconnaissance will be conducted in one site visit.

- All pertaining property information, including property boundary, and parcel numbers will be made available prior to site visit.
- Previous reports for the Site will be provided to Haley & Aldrich, within a reasonable timeline to allow review and inclusion of comments into the PEA.

SCHEDULE

We will provide a draft copy of our Phase I assessment report for your review within approximately 3 to 4 weeks of our receipt of a signed copy of this proposal or authorization and Site access by SDG&E. The final report will be provided to RBF within one week of receiving review comments. This schedule is negotiable and flexible to SDG&E schedule.

AUTHORIZATION

Our report will be submitted to RBF for inclusion in their PEA Report for the project. The report will be prepared for the exclusive use of SDG&E, solely for the purposes stated in this proposal. The report may not be circulated or conveyed, in whole or in part, to any other party, nor used by any other party, without the prior written permission of Haley & Aldrich. We agree, however, that the report may be conveyed to other parties associated with the proximate transfer of the property, subject to their acceptance of the terms of this proposal and our attached "Standard Terms and Conditions" and "Standard Fee Schedule". Such other parties must agree that they will not rely on the information provided in the report, recognizing the work was not performed for them, nor was it done with their specific needs, interests, risk tolerance, or expectations in mind.

Mr. Robert Manriquez, P.G. will serve as the Project Manager and Mr. Mehdi Miremadi will act as the Officer-in-Charge of the project.

This proposal is valid for a period of 60 days from the date of this letter. If acceptance and authorization to proceed are not received within that period, we reserve the right to renegotiate the estimated costs and scope of work.

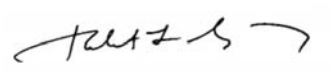
Consulting services will be provided in accordance with the attached Terms and Conditions and "Standard Fee Schedule," dated January 2008, designated 08-R5, which are integral to this proposal.

If the above arrangements are satisfactory to you, please indicate your approval by signing and returning one copy of this letter. When accepted by you, this proposal, together with the attached Terms and Conditions and Fee Schedule, will constitute our Agreement.

CLOSING

We appreciate the opportunity to submit this proposal and look forward to our association with you on this project. Please contact the undersigned if you wish to discuss this proposal or any aspect of the project.

Sincerely yours,
HALEY & ALDRICH, INC.



Robert L Manriquez, P.G.
Project Manager



Mehdi Miremadi
Senior Vice President

Attachments

Exhibit 3– Approximate Site Location

This proposal, and the attached "Standard Terms and Conditions" and "Standard Fee Schedule", are understood and accepted:

RBF CONSULTING – SAN DIEGO

By _____
(authorized signature)

By _____
(print or type name)

Title _____

Date _____

G:\Proposals\ENVIRONMENTAL\2008\SDG&E\RBF_Mira Sorrento - SDG&E _35344_Lost\PEA_ Sorrento_Mesa_Substation Prop_Haley_Aldrich.doc

APPENDIX B

Historical Research Documentation

Mira Sorrento Substation
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

Inquiry Number: 2482912.3
April 30, 2009

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

4/30/09

Site Name:
Mira Sorrento Substation
Vista Sorrento Parkway and
San Diego, CA 92121

Client Name:
Haley & Aldrich
9040 Friars Rd.
San Diego, CA 92108

EDR Inquiry # 2482912.3

Contact: kasra Nikkhah

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Haley & Aldrich were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Mira Sorrento Substation
Address: Vista Sorrento Parkway and Mira Sorrento
City, State, Zip: San Diego, CA 92121
Cross Street:
P.O. # 36352-000
Project: RBF - SDG&E
Certification # 83E6-4019-B431

Sanborn® Library search results
Certification # 83E6-4019-B431

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

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Mira Sorrento Substation
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

Inquiry Number: 2482912.4
April 30, 2009

The EDR Historical Topographic Map Report

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Please contact EDR at 1-800-352-0050
with any questions or comments.

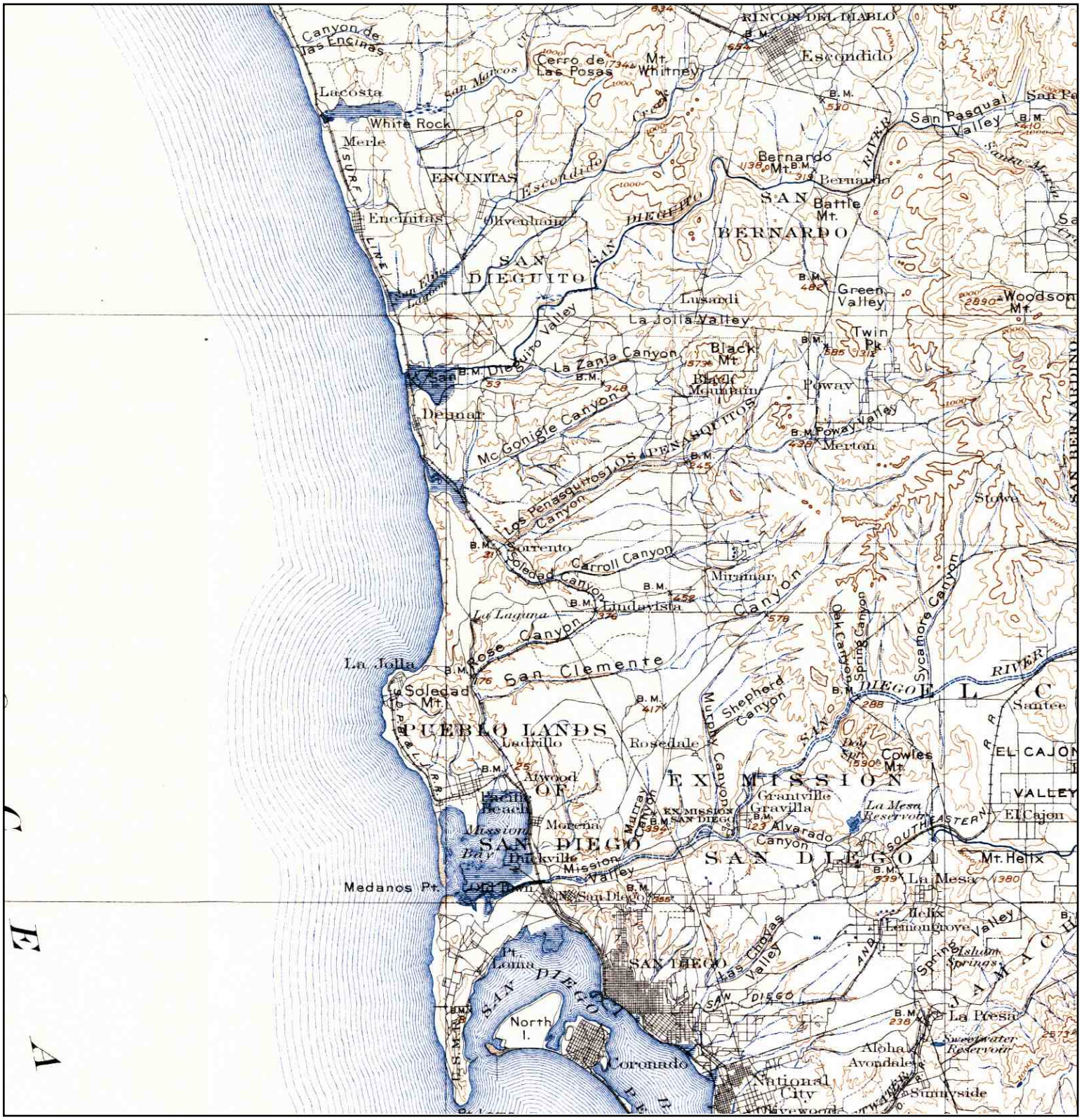
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Historical Topographic Map



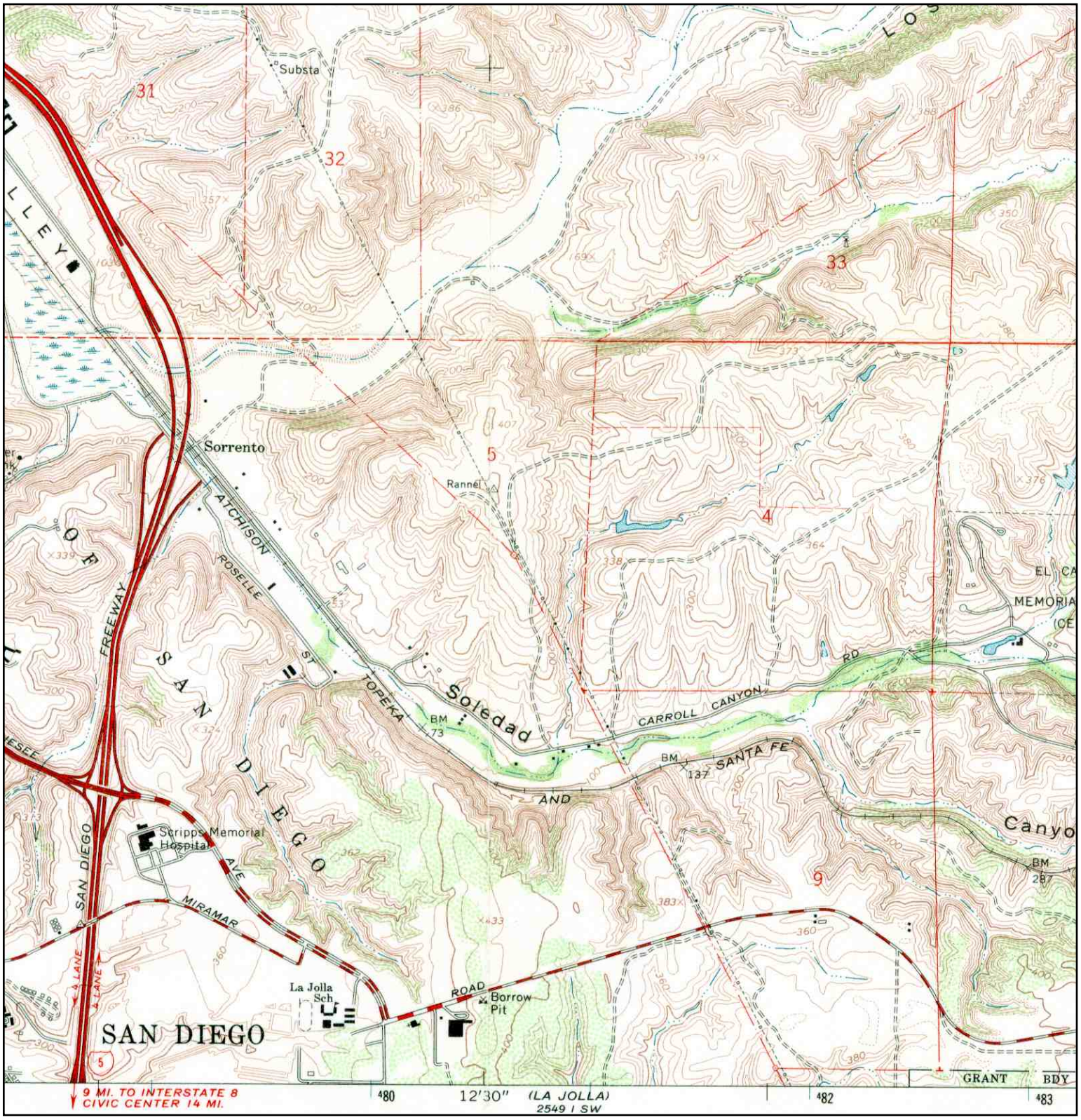
N	TARGET QUAD NAME: SOUTHERN CA SHEET 2 MAP YEAR: 1904 SERIES: 60 SCALE: 1:250000	SITE NAME: Mira Sorrento Substation ADDRESS: Vista Sorrento Parkway and Mira Sorrento Place San Diego, CA 92121 LAT/LONG: 32.8923 / 117.206	CLIENT: Haley & Aldrich CONTACT: kasra Nikkhah INQUIRY#: 2482912.4 RESEARCH DATE: 04/30/2009

Historical Topographic Map



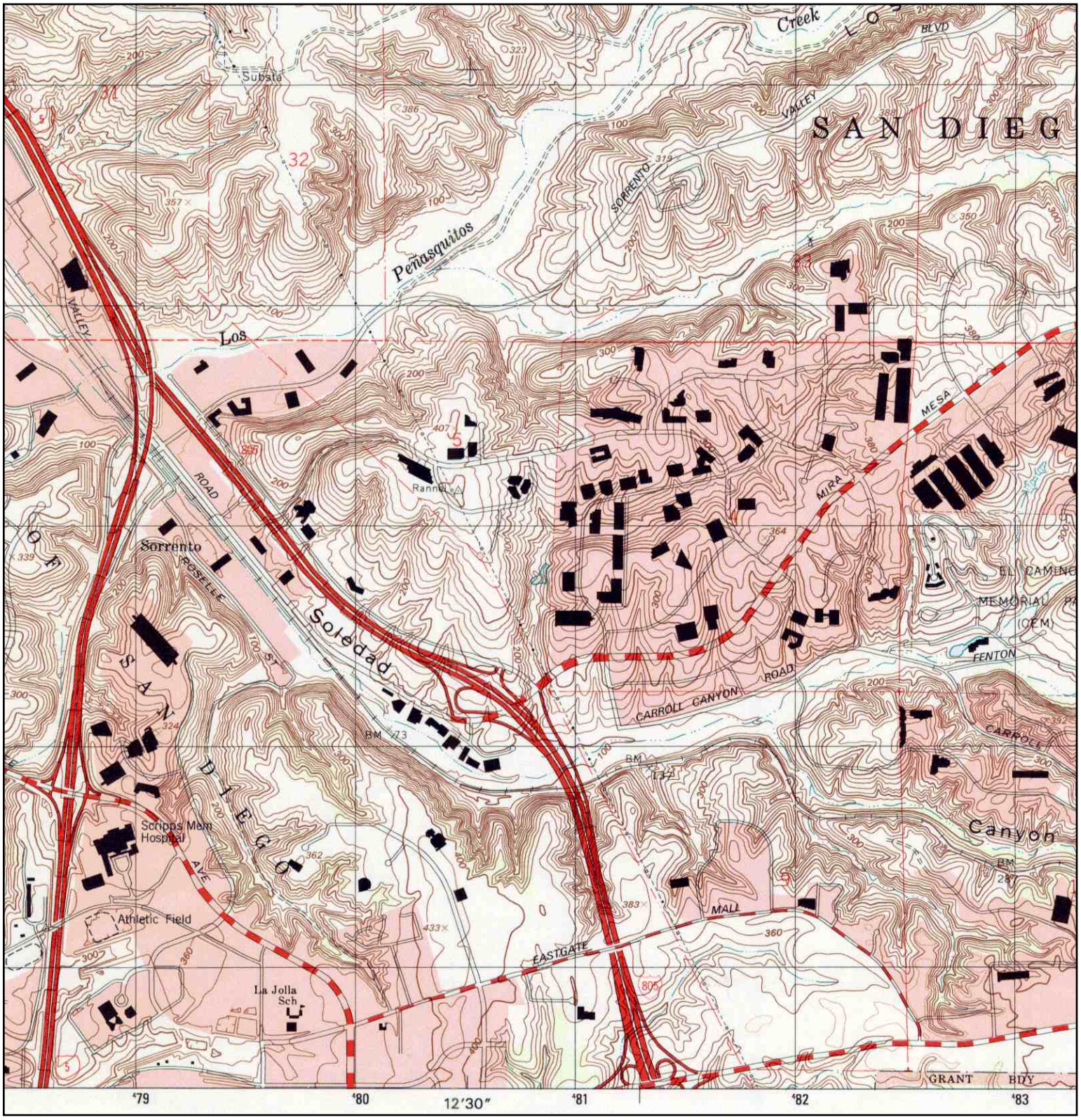
N	TARGET QUAD		SITE NAME:	Mira Sorrento Substation	CLIENT:	Haley & Aldrich
	NAME:	LA JOLLA	ADDRESS:	Vista Sorrento Parkway and Mira Sorrento Place	CONTACT:	kasra Nikkhah
	MAP YEAR:	1930		San Diego, CA 92121	INQUIRY#:	2482912.4
	SERIES:	15	LAT/LONG:	32.8923 / 117.206	RESEARCH DATE:	04/30/2009
	SCALE:	1:62500				

Historical Topographic Map



N	TARGET QUAD NAME: DEL MAR MAP YEAR: 1967 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Mira Sorrento Substation ADDRESS: Vista Sorrento Parkway and Mira Sorrento Place San Diego, CA 92121 LAT/LONG: 32.8923 / 117.206	CLIENT: Haley & Aldrich CONTACT: kasra Nikkhah INQUIRY#: 2482912.4 RESEARCH DATE: 04/30/2009

Historical Topographic Map



N	TARGET QUAD NAME: DEL MAR MAP YEAR: 1994 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Mira Sorrento Substation ADDRESS: Vista Sorrento Parkway and Mira Sorrento Place San Diego, CA 92121 LAT/LONG: 32.8923 / 117.206	CLIENT: Haley & Aldrich CONTACT: kasra Nikkhah INQUIRY#: 2482912.4 RESEARCH DATE: 04/30/2009

Mira Sorrento Substation
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

Inquiry Number: 2482912.5
May 01, 2009

The EDR Aerial Photo Decade Package

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800.352.0050
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EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography May 01, 2009

Target Property:

Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

Year	***Scale***	***Details***	***Source***
1953	Aerial Photograph. Scale: 1"=555'	Flight Year: 1953	Park
1963	Aerial Photograph. Scale: 1"=555'	Flight Year: 1963	Cartwright
1974	Aerial Photograph. Scale: 1"=600'	Flight Year: 1974	AMI
1990	Aerial Photograph. Scale: 1"=666'	Flight Year: 1990	USGS
1994	Aerial Photograph. Scale: 1"=666'	Flight Year: 1994	USGS
2002	Aerial Photograph. Scale: 1"=666'	Flight Year: 2002	USGS
2005	Aerial Photograph. Scale: 1"=485'	Flight Year: 2005	EDR


Site
INQUIRY #: 2482912.5
YEAR: 1953
= 555'
N


Site
INQUIRY #: 2482912.5
YEAR: 1963
= 555'
N

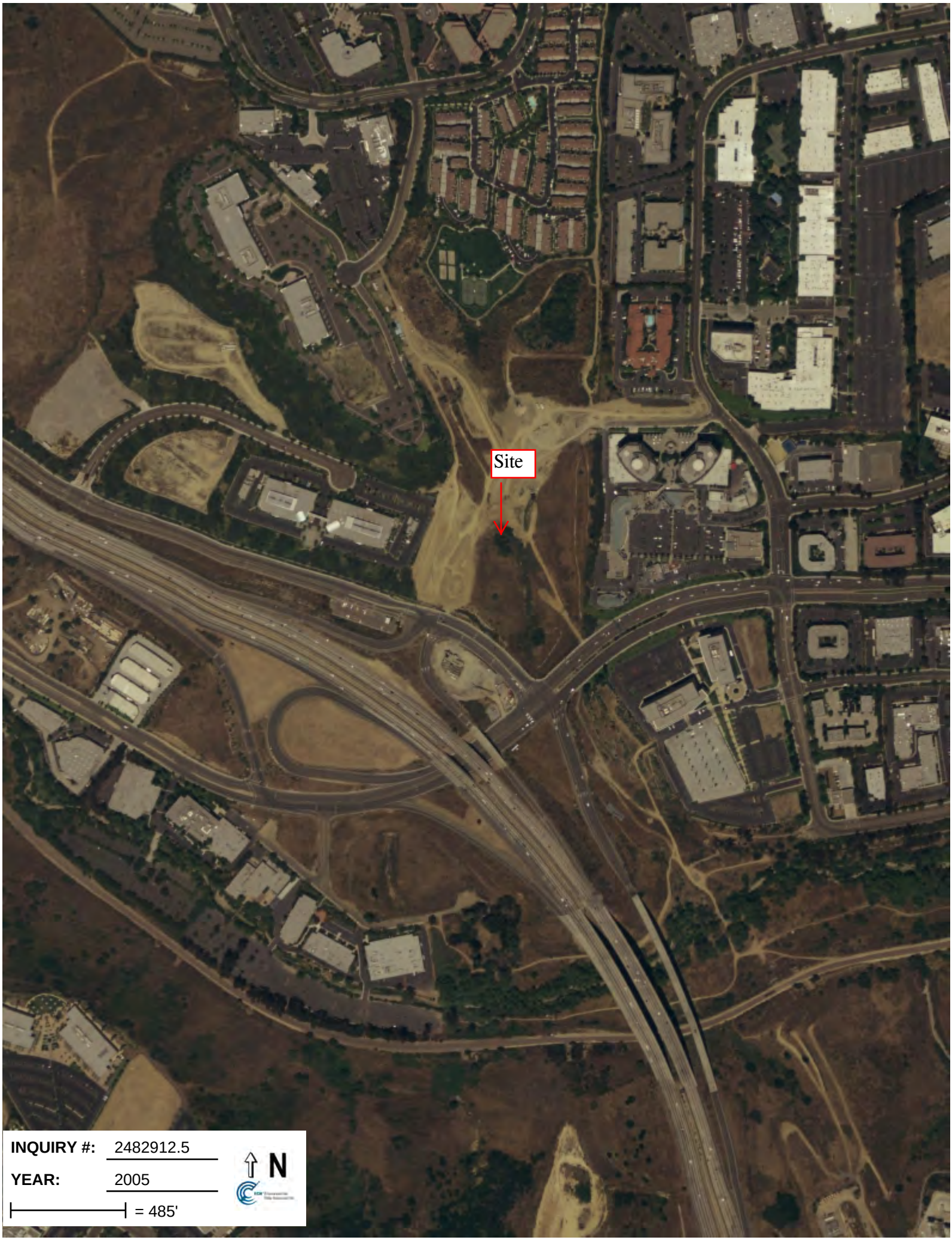

Site
INQUIRY #: 2482912.5
YEAR: 1974
= 600'
N


Site
INQUIRY #: 2482912.5
YEAR: 1980
= 600'
N


Site
INQUIRY #: 2482912.5
YEAR: 1990
= 666'
N


Site
INQUIRY #: 2482912.5
YEAR: 1994
= 666'
N


Site
INQUIRY #: 2482912.5
YEAR: 2002
= 666'
N


Site
INQUIRY #: 2482912.5
YEAR: 2005
= 485'
N

Mira Sorrento Substation
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

Inquiry Number: 2482912.6
April 30, 2009

The EDR-City Directory Abstract

Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
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TABLE OF CONTENTS

SECTION

Executive Summary

Findings

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2009 Enhancements to EDR City Directory Abstract

New for 2009, the EDR City Directory Abstract has been enhanced with additional information and features. These enhancements will make your city directory research process more efficient, flexible, and insightful than ever before. The enhancements will improve the options for selecting adjoining properties, and will speed up your review of the report.

City Directory Report. Three important enhancements have been made to the EDR City Directory Abstract:

1. *Executive Summary.* The report begins with an Executive Summary that lists the sources consulted in the preparation of the report. Where available, a parcel map is also provided within the report, showing the locations of properties researched.

2. *Page Images.* Where available, the actual page source images will be included in the Appendix, so that you can review them for information that may provide additional insight. EDR has copyright permission to include these images.

3. *Findings Listed by Location.* Another useful enhancement is that findings are now grouped by address. This will significantly reduce the time you need to review your abstracts. Findings are provided under each property address, listed in reverse chronological order and referencing the source for each entry.

Options for Selecting Adjoining Properties. Ensuring that the right adjoining property addresses are searched is one of the biggest challenges that environmental professionals face when conducting city directory historical research. EDR's new enhancements make it easier for you to meet this challenge. Now, when you place an order for the EDR City Directory Abstract, you have the following choices for determining which addresses should be researched.

1. *You Select Addresses and EDR Selects Addresses.* Use the "Add Another Address" feature to specify the addresses you want researched. Your selections will be supplemented by addresses selected by EDR researchers using our established research methods. Where available, a digital map will be shown, indicating property lines overlaid on a color aerial photo and their corresponding addresses. Simply use the address list below the map to check off which properties shown on the map you want to include. You may also select other addresses using the "Add Another Address" feature at the bottom of the list.

2. *EDR Selects Addresses.* Choose this method if you want EDR's researchers to select the addresses to be researched for you, using our established research methods.

3. *You Select Addresses.* Use this method for research based solely on the addresses you select or enter into the system.

4. *Hold City Directory Research Option.* If you choose to select your own adjoining addresses, you may pause production of your EDR City Directory Abstract report until you have had a chance to look at your other EDR reports and sources. Sources for property addresses include: your Certified Sanborn Map Report may show you the location of property addresses; the new EDR Property Tax Map Report may show the location of property addresses; and your field research can supplement these sources with additional address information. To use this capability, simply click "Hold City Directory research" box under "Other Options" at the bottom of the page. Once you have determined what addresses you want researched, go to your EDR Order Status page, select the EDR City Directory Abstract, and enter the addresses and submit for production.

Questions? Contact your EDR representative at 800-352-0050. For more information about all of EDR's 2009 report and service enhancements, visit www.edrnet.com/2009enhancements

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1903 through 2006. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 1320 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2006	Haines Company, Inc.	-	X	X	-
2000	Haines Company, Inc.	-	X	X	-
1995	PACIFIC BELL WHITE PAGES	-	X	X	-
1992	PACIFIC BELL WHITE PAGES	-	X	X	-
1991	PACIFIC BELL WHITE PAGES	-	X	X	-
1989	Pacific Bell	-	X	X	-
1986	Pacific Telephone	-	-	-	-
1985	R. L. Polk & Co.	-	X	X	-
1984	R. L. Polk & Co.	-	X	X	-
1980	R. L. Polk & Co.	-	X	X	-
1976	Luskey Blue Book	-	-	-	-
1975	R. L. Polk & Co.	-	X	X	-
1971	Community Directory Co.	-	-	-	-
1970	John M. Ducy	-	-	-	-
1968	R. L. Polk & Co.	-	-	-	-
1966	R. L. Polk & Co.	-	-	-	-
1965	Community Directory Co.	-	-	-	-
1962	Community Directory Co.	-	-	-	-
1961	R. L. Polk & Co.	-	-	-	-
1960	R. L. Polk & Co.	-	X	X	-
1956	Glendale Directory Co.	-	-	-	-
1955	The Pacific Telephone Telegraph Co.	-	-	-	-
1952	R. L. Polk & Co. of California	-	-	-	-
1950	The Pacific Telephone Telegraph Co.	-	-	-	-
1948	San Diego Directory Co.	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1945	Southern California Telephone Co.	-	-	-	-
1943	San Diego Directory Co.	-	-	-	-
1940	R. L. Polk & Co.	-	-	-	-
1938	San Diego Directory Co.	-	-	-	-
1933	San Diego Directory Co.	-	-	-	-
1927	San Diego Directory Co.	-	-	-	-
1921	San Diego Directory Co. Inc.	-	-	-	-
1907	San Diego Directory Co.	-	-	-	-
1903	San Diego Directory Co.	-	-	-	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

FINDINGS DETAIL

Target Property research detail.

No Addresses Found

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

MIRA SORRENTO PL

5355 MIRA SORRENTO PL

Year	*Uses*	*Source*
2006	OCTAGON	Haines Company, Inc.
	PHARMANET INC	Haines Company, Inc.
	PROSOURCE	Haines Company, Inc.
	QUALISTICS INC	Haines Company, Inc.
	IREGENT	Haines Company, Inc.
	PUBLISHING	Haines Company, Inc.
	SERVICES	Haines Company, Inc.
	ROSENFIELD	Haines Company, Inc.
	ASSOCIATES	Haines Company, Inc.
	RYAN GARRETr	Haines Company, Inc.
	FINE ART CNSLTNG	Haines Company, Inc.
	SELECT MORTGAGE	Haines Company, Inc.
	SERVICES	Haines Company, Inc.
	SILBERSTEIN	Haines Company, Inc.
	CAPITAL MNG LLC	Haines Company, Inc.
	STRUCTURE	Haines Company, Inc.
	COMPUTERS	Haines Company, Inc.
	T&B PLANNING	Haines Company, Inc.
	CONSULTANTS	Haines Company, Inc.
	TANNER&	Haines Company, Inc.
	ASSOCIATES	Haines Company, Inc.
	TEUGENTSAN	Haines Company, Inc.
	DIEGO TCO	Haines Company, Inc.
	THE GARRETT	Haines Company, Inc.
	GROUP	Haines Company, Inc.
	TORRE LAZUR	Haines Company, Inc.
	MCCANN WEST	Haines Company, Inc.
	VIDEOCONFERENCE	Haines Company, Inc.
	PROFESSIONAL	Haines Company, Inc.
	WCB FIVE	Haines Company, Inc.
	WORLD FINANCIAL	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2006	ZELKIND	Haines Company, Inc.
	SHACKLEFORD LLP	Haines Company, Inc.
	BUILDING	Haines Company, Inc.
	ACCOUNTANTS	Haines Company, Inc.
	DIRECT	Haines Company, Inc.
	BARRISTER	Haines Company, Inc.
	FIRST MAGNUS	Haines Company, Inc.
	FINANCIAL	Haines Company, Inc.
	GAMBRAAND	Haines Company, Inc.
	ASSOCIATES	Haines Company, Inc.
	GENQUEST	Haines Company, Inc.
	GOLETA NATIONAL	Haines Company, Inc.
	HULSTINE SHERRY	Haines Company, Inc.
	LLMFT	Haines Company, Inc.
	IMPAC MEDICAL	Haines Company, Inc.
	SERVICES	Haines Company, Inc.
	INTITIATIVE MEDIA	Haines Company, Inc.
	LAB PROS	Haines Company, Inc.
	LINEN LENDERS	Haines Company, Inc.
	MERCHANT	Haines Company, Inc.
	BANKING	Haines Company, Inc.
	STRATEGIES	Haines Company, Inc.
	METAPROBE LLC	Haines Company, Inc.
	MONTAGUE GROUP	Haines Company, Inc.
2000	CMSTAT	Haines Company, Inc.
	MITSUBISHI MBL	Haines Company, Inc.
	VALIN CORPORATION	Haines Company, Inc.
	BUILDING AKERS SOUZASANDI	Haines Company, Inc.
	AMER OFFICE	Haines Company, Inc.
	CENTERS BUSCHER&ASSOC	Haines Company, Inc.
	CADWAREINC	Haines Company, Inc.
	CALTROLINC	Haines Company, Inc.
	COLLEGES COM	Haines Company, Inc.
	EMCON	Haines Company, Inc.
	ENVISION MAGAZINE	Haines Company, Inc.
	G E A POWER COOLING	Haines Company, Inc.
	SYSTMS INC HI	Haines Company, Inc.
	VISITORS&CONVENTIO	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2000	N BUREAU INFOCAL	Haines Company, Inc.
	INTRST MARKETING	Haines Company, Inc.
	ASSOCIATES JESKO&ASSOC	Haines Company, Inc.
	LIBERTY MUTUAL	Haines Company, Inc.
	GROUP SALES LIFECARESOLUTIONS	Haines Company, Inc.
	INC MEDICALMNGNURSE	Haines Company, Inc.
	CMNCTNTECHCTR NATIONS HEALTHCARE	Haines Company, Inc.
	HOSPICE NATIONS HEALTHCARE	Haines Company, Inc.
	RGNL OFFICE PV INSURANCE	Haines Company, Inc.
	SANLI PASTORE&HILL	Haines Company, Inc.
	SMARTCODE	Haines Company, Inc.
	SOFTWARE SORRENTOTOWERSN	Haines Company, Inc.
	STRUCTURE	Haines Company, Inc.
	COMPUTERS	Haines Company, Inc.
	STRUCTURE	Haines Company, Inc.
	COMPUTERS STRUCTURE	Haines Company, Inc.
	COMPUTERS STRUCTURE	Haines Company, Inc.
	COMPUTERS TT L D FNCL SERVS	Haines Company, Inc.
	TALENTSCAPE	Haines Company, Inc.
	TANNERSASSOCIATES	Haines Company, Inc.
	TECHNISOURCEINC	Haines Company, Inc.
	STRUCTURE 858 55 B 6400	Haines Company, Inc.
	COMPUTERS	Haines Company, Inc.
1995	Liberty Life Assurance Co Of Boston	PACIFIC BELL WHITE PAGES
	LIBE RTY MUTUAL IN S URAN CE GROUP Claims & Sales	PACIFIC BELL WHITE PAGES
	Mitsubishi Foods MC Inc	PACIFIC BELL WHITE PAGES
	Ofc	PACIFIC BELL WHITE PAGES
	Executive Offlce	PACIFIC BELL WHITE PAGES
1992	Bio Systems Analysis Inc	PACIFIC BELL WHITE PAGES
	Biosystems Associates Ltd	PACIFIC BELL WHITE PAGES
	Bioteau Olivier& Stephanie.....	PACIFIC BELL WHITE PAGES
	Robin & Dackerman	PACIFIC BELL WHITE PAGES
	Rubinstein & Perry attys	PACIFIC BELL WHITE PAGES
	Sorrento Towers	PACIFIC BELL WHITE PAGES
	Paddy A Service Corp	PACIFIC BELL WHITE PAGES
	Padelford L.....	PACIFIC BELL WHITE PAGES
	Padelford Wm B.....	PACIFIC BELL WHITE PAGES

FINDINGS

Year	Uses	Source
1992	Automated Research Technology	PACIFIC BELL WHITE PAGES
	Peirce Phelps Inc	PACIFIC BELL WHITE PAGES
	From San Diego Telephones Call	PACIFIC BELL WHITE PAGES
	Peirce Robert H	PACIFIC BELL WHITE PAGES
	Peirce Tara	PACIFIC BELL WHITE PAGES
	Serve San Diego	PACIFIC BELL WHITE PAGES
	Free Enterprise Development	PACIFIC BELL WHITE PAGES
	GE A Power Cooling Systems Inc	PACIFIC BELL WHITE PAGES
	Sorrento Court Management	PACIFIC BELL WHITE PAGES
	Sorrento Financial Mortgage	PACIFIC BELL WHITE PAGES
	Sorrento Towers Leasing Office	PACIFIC BELL WHITE PAGES
	What Cha Doing Saturday Nite	PACIFIC BELL WHITE PAGES
	Whatcott Bruce	PACIFIC BELL WHITE PAGES
	Biosystems Research Institute	PACIFIC BELL WHITE PAGES
	Whatley A M	PACIFIC BELL WHITE PAGES
	What AConcept Inc	PACIFIC BELL WHITE PAGES
	ADH Company	PACIFIC BELL WHITE PAGES

5356 MIRA SORRENTO PL

Year	Uses	Source
2006	CHARTER FUNDING	Haines Company, Inc.

5375 MIRA SORRENTO PL

Year	Uses	Source
2006	SACHS & FONES	Haines Company, Inc.
	AMERANTH	Haines Company, Inc.
	WIRELESS	Haines Company, Inc.
	ARDEN REALTY INC	Haines Company, Inc.
	BIOPHARMA	Haines Company, Inc.
	SCIENTIFIC INC	Haines Company, Inc.
	BLUE OASIS	Haines Company, Inc.
	TECHNOLOGIES	Haines Company, Inc.
	CLARITAS INC	Haines Company, Inc.
	COMPUWARE	Haines Company, Inc.
	NELSON	Haines Company, Inc.
	SECURITIES	Haines Company, Inc.
	PRECEPT	Haines Company, Inc.
	CORPORATION	Haines Company, Inc.
2000	KELLY SERVICES	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2000	BUILDING	Haines Company, Inc.
	CLARITAS	Haines Company, Inc.
	FEIGHNERJOHNPMD	Haines Company, Inc.
	INC FIGHNERRSRCHINST	Haines Company, Inc.
	HAGIWARASYCOM US	Haines Company, Inc.
	ICG TELECOM GROUP	Haines Company, Inc.
	OFSDLP	Haines Company, Inc.
	KELLY SCIENTIFIC	Haines Company, Inc.
	RESOURCES	Haines Company, Inc.
	KELLY SERVICES	Haines Company, Inc.
	KELLY TECHNICAL	Haines Company, Inc.
	SERVICES NATL DECISION	Haines Company, Inc.
	SYSTEMS	Haines Company, Inc.
1995	Reliance Insurance	PACIFIC BELL WHITE PAGES
	United Pacific Insurance Co	PACIFIC BELL WHITE PAGES
1992	Bloomfield Internat I Travel	PACIFIC BELL WHITE PAGES
	From La Jolla Telephones Call	PACIFIC BELL WHITE PAGES
	Directors Mortgage Loan Corp	PACIFIC BELL WHITE PAGES
	Di Renza Peter J	PACIFIC BELL WHITE PAGES
	Direnzo James	PACIFIC BELL WHITE PAGES
	From Del Mar Telephones Call.....	PACIFIC BELL WHITE PAGES
	Fax Line.....	PACIFIC BELL WHITE PAGES
	Hiliman Properties	PACIFIC BELL WHITE PAGES
	Hillman R.....	PACIFIC BELL WHITE PAGES
	United Pacific Insurance Co	PACIFIC BELL WHITE PAGES
	United Pacific Life Insurance Co Annuity Sales	PACIFIC BELL WHITE PAGES
	Reliance Insurance	PACIFIC BELL WHITE PAGES
	Tax & Financial Management Inc	PACIFIC BELL WHITE PAGES
	From San Diego Telephones Call	PACIFIC BELL WHITE PAGES

MOREHOUSE DR

5405 MOREHOUSE DR

Year	Uses	Source
2006	BUILDING	Haines Company, Inc.
	AMERPRISE	Haines Company, Inc.
	FINANCIAL	Haines Company, Inc.
	ADVISORS ARNOLD	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2006	ASSOCIATES INC	Haines Company, Inc.
	AVAACK	Haines Company, Inc.
	BIOPHASE	Haines Company, Inc.
	SOLUTIONS INC	Haines Company, Inc.
	BRANDONTAYLOR	Haines Company, Inc.
	COMMUNICATIONS	Haines Company, Inc.
	CHEN & SAN	Haines Company, Inc.
	ACCOUNTANCY	Haines Company, Inc.
	CHEN FAN	Haines Company, Inc.
	ACCOUNTANCY	Haines Company, Inc.
	AGENCY	Haines Company, Inc.
	COOPERUGHTING	Haines Company, Inc.
	GENISYS FINANCIAL	Haines Company, Inc.
	JI SOURCE INC	Haines Company, Inc.
	r KNETRA	Haines Company, Inc.
	KINGSROAD	Haines Company, Inc.
	FINANCIAL	Haines Company, Inc.
	LAFFER	Haines Company, Inc.
	ASSOCIATES	Haines Company, Inc.
	LUCAS GROUP	Haines Company, Inc.
	MILESTONE	Haines Company, Inc.
	EQUMES	Haines Company, Inc.
	MONAHAN	Haines Company, Inc.
	MORTGAGE	Haines Company, Inc.
	PANACEA	Haines Company, Inc.
	CORPORATION	Haines Company, Inc.
	PETERSON	Haines Company, Inc.
	LAURENCEE	Haines Company, Inc.
	ATTORNEY	Haines Company, Inc.
	REMEDY INTLLGNT	Haines Company, Inc.
	STFFNG SRRNTO	Haines Company, Inc.
	ROBERTHALE&	Haines Company, Inc.
	ASSOCIATES	Haines Company, Inc.
	SOLUTIONS	Haines Company, Inc.
	CONSULTING	Haines Company, Inc.
	GROUP INC	Haines Company, Inc.
	W 1 NDFIRE	Haines Company, Inc.
	TECHNOLOGY LLC	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2006	WIRELESS	Haines Company, Inc.
	INTERFACE TECH	Haines Company, Inc.
	N GROUP	Haines Company, Inc.
2000	SUNBELT	Haines Company, Inc.
	MANAGEMENT	Haines Company, Inc.
	COMPANY VELUR INVESTMENTS	Haines Company, Inc.
	INC WAVECOM INC	Haines Company, Inc.
1995	Powervision Inc	PACIFIC BELL WHITE PAGES
	Ameri Star Financial	PACIFIC BELL WHITE PAGES
	Ameritech Business Communications	PACIFIC BELL WHITE PAGES
1992	Blue Shield Agent Sorrento Mesa Ins Agcy	PACIFIC BELL WHITE PAGES
	BLUE S HIE LD	PACIFIC BELL WHITE PAGES
	Mission Management Company	PACIFIC BELL WHITE PAGES
	Krantz Margie MFCC	PACIFIC BELL WHITE PAGES
	Latigo West Development Co	PACIFIC BELL WHITE PAGES
	Latil Juhal D	PACIFIC BELL WHITE PAGES
	Latimer Andrew N.	PACIFIC BELL WHITE PAGES
	Calmark Supply Co	PACIFIC BELL WHITE PAGES
	Cal Mat Concrete & Aggregate Division	PACIFIC BELL WHITE PAGES
	California Motorcars Inc	PACIFIC BELL WHITE PAGES
	Enguehard Dana	PACIFIC BELL WHITE PAGES
	Engwis Paul	PACIFIC BELL WHITE PAGES
	Adults Molested As Children	PACIFIC BELL WHITE PAGES
	Adults Molested As Children East County	PACIFIC BELL WHITE PAGES
	Adushany Omar	PACIFIC BELL WHITE PAGES
	MN Al Basic Four Inc	PACIFIC BELL WHITE PAGES
	Janez Properties Inc	PACIFIC BELL WHITE PAGES
	S ORRE N TO ME S A IN S URAN CE AGE N CY	PACIFIC BELL WHITE PAGES
	Counseling Centre Of San Diego	PACIFIC BELL WHITE PAGES
	Counseling & Family Treatment	PACIFIC BELL WHITE PAGES
	Counseling For Families	PACIFIC BELL WHITE PAGES
	Prevost Construction Inc	PACIFIC BELL WHITE PAGES
	Northview Corp	PACIFIC BELL WHITE PAGES
	Engtel Inc	PACIFIC BELL WHITE PAGES
	Engwis JM	PACIFIC BELL WHITE PAGES
	San Diego	PACIFIC BELL WHITE PAGES
	Latimer Brian M	PACIFIC BELL WHITE PAGES

FINDINGS

Year	Uses	Source
1992	KLABUN DE R.....	PACIFIC BELL WHITE PAGES
1989	MAI Basic Four Inc	Pacific Bell
	Wes Terra Development Corp	Pacific Bell
	Manishor & Ames Inc	Pacific Bell
	Wes Terra Capital Corp	Pacific Bell
	Wes Terra Construction Co	Pacific Bell
	Hawkins Associates Architects Inc	Pacific Bell
	Mc Devitt & Street Co	Pacific Bell
	Hillman Properties	Pacific Bell
	Midwest Pacific Financial Inc	Pacific Bell
	Midwest Pacific Financial Inc	Pacific Bell
	Sorrento Towers Leasing Office	Pacific Bell
	Kerbis Joseph CPA	Pacific Bell
	Shefte D Frederick atty	Pacific Bell
	ORielly Co The	Pacific Bell

S SCRANTON RD

9430 S SCRANTON RD

Year	Uses	Source
1992	Tim Tomlinson Hair Design	PACIFIC BELL WHITE PAGES

SCRANTON RD

9330 SCRANTON RD

Year	Uses	Source
2006	SEA INTERNATL	Haines Company, Inc.
	CANON USA INC	Haines Company, Inc.
	CHICKEN OF THE	Haines Company, Inc.
	TURNER	Haines Company, Inc.
	CONSTRUCTION CO	Haines Company, Inc.
	CHICKEN OFTHE	Haines Company, Inc.
	GROUP	Haines Company, Inc.
	MANAGEMENT	Haines Company, Inc.
	BULEY WEALTH	Haines Company, Inc.
	GRP RTRMNT SV	Haines Company, Inc.
	PRINCIPAL FNCL	Haines Company, Inc.
	GRP GRP INS SLS	Haines Company, Inc.
	PRINCIPAL FNCL	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2006	PPDPHARMACO	Haines Company, Inc.
	OCEANSFNCL &INS	Haines Company, Inc.
	INS CNTR	Haines Company, Inc.
	MAHDION FNCLAND	Haines Company, Inc.
	LINEAR FINANCIAL	Haines Company, Inc.
	GRP SO CA BUS	Haines Company, Inc.
	PRINCIPAL FNCL	Haines Company, Inc.
	QUORUM	Haines Company, Inc.
	SOLUTIONS INC	Haines Company, Inc.
	EASSISTGLOBAL	Haines Company, Inc.
	BUILDING	Haines Company, Inc.

9420 SCRANTON RD

Year	Uses	Source
2006	SUPERSTORE	Haines Company, Inc.
	OFFICE	Haines Company, Inc.
	STAPLESTHE	Haines Company, Inc.

9430 SCRANTON RD

Year	Uses	Source
1995	Sorrento Plaza	PACIFIC BELL WHITE PAGES
1992	Joseph Cynthia E Hair Stylist	PACIFIC BELL WHITE PAGES
	I Strand Florists	PACIFIC BELL WHITE PAGES
	Gilchrist VZ	PACIFIC BELL WHITE PAGES
	Joseph D D	PACIFIC BELL WHITE PAGES
	Gilchrist Tina hairdrsr	PACIFIC BELL WHITE PAGES
	Sorrento Wine & Spirits	PACIFIC BELL WHITE PAGES
	Chicks Norsky	PACIFIC BELL WHITE PAGES
	Chicks Natural	PACIFIC BELL WHITE PAGES
	FX Salon	PACIFIC BELL WHITE PAGES
	Melinda Chesley	PACIFIC BELL WHITE PAGES
	Salon FX	PACIFIC BELL WHITE PAGES
	Salon Effects	PACIFIC BELL WHITE PAGES
	Sorrento Plaza	PACIFIC BELL WHITE PAGES
	Chico A	PACIFIC BELL WHITE PAGES

9436 SCRANTON RD

Year	Uses	Source
1992	Yogurt Affair	PACIFIC BELL WHITE PAGES

FINDINGS

9438 SCRANTON RD

Year	*Uses*	*Source*
2006	SPIRITS	Haines Company, Inc.
	Rest AURANT	Haines Company, Inc.
	THAICHADA	Haines Company, Inc.
	CHICKS NATURAL	Haines Company, Inc.
	QUIZNOS CLASSIC	Haines Company, Inc.
	SALON SOL	Haines Company, Inc.
	SORRENTOWINE&	Haines Company, Inc.
	STARBUCKS	Haines Company, Inc.
	COFFEE	Haines Company, Inc.

9440 SCRANTON RD

Year	*Uses*	*Source*
1992	La Jolla	PACIFIC BELL WHITE PAGES

9448 SCRANTON RD

Year	*Uses*	*Source*
2006	MCDONALDS	Haines Company, Inc.
	Rest AURANTS	Haines Company, Inc.

9450 SCRANTON RD

Year	*Uses*	*Source*
2006	COOKIES BY	Haines Company, Inc.
	DESIGN	Haines Company, Inc.
	COOKIES BY	Haines Company, Inc.
	DESIGN	Haines Company, Inc.
	COSMOPOLITAN	Haines Company, Inc.
	CLNRS	Haines Company, Inc.
	FIESTAMEXICAN	Haines Company, Inc.
	GRILLE	Haines Company, Inc.
	GREEK CAFE THE	Haines Company, Inc.
	JAMBAJUICE	Haines Company, Inc.
	JAMES MAHOOTI	Haines Company, Inc.
	KABULWEST	Haines Company, Inc.
	MAHOOTI JAS DDS	Haines Company, Inc.
	MANDARIN	Haines Company, Inc.
	EXPRess	Haines Company, Inc.
	MONACO BISTRO	Haines Company, Inc.
	ORCHIDS NAILS	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2006	PASCUCCI PASTA	Haines Company, Inc.
	PAZZA PIZZA	Haines Company, Inc.
	PHIL CLARK	Haines Company, Inc.
	INSURANCE	Haines Company, Inc.
	SITAR INDIAN	Haines Company, Inc.
	CUISINE	Haines Company, Inc.
	SORRENTOVLY	Haines Company, Inc.
	OPTOMETRIC CTR	Haines Company, Inc.
	TACOSIETC	Haines Company, Inc.
	TIKI HUT ISLAND	Haines Company, Inc.
	GRILLE	Haines Company, Inc.
	TOKYO EXPRess	Haines Company, Inc.
	TOKYO EXPRess	Haines Company, Inc.
	Rest AURANT	Haines Company, Inc.
	WASHINGTON	Haines Company, Inc.
	MUTUAL	Haines Company, Inc.
	WEITZMAN MARVIN	Haines Company, Inc.
	BUILDING	Haines Company, Inc.
	ADECCO	Haines Company, Inc.
	EMPLOYMENT	Haines Company, Inc.
	SERVICES SD	Haines Company, Inc.
	Bust ERS WINDY	Haines Company, Inc.
	CITY DOGS	Haines Company, Inc.
	CARMELVALLEY	Haines Company, Inc.
	CLEANERS	Haines Company, Inc.
	CINGULAR	Haines Company, Inc.
	WIRELESS PCS	Haines Company, Inc.
	STORE	Haines Company, Inc.
1995	LAS E R US A	PACIFIC BELL WHITE PAGES
	Lasercare	PACIFIC BELL WHITE PAGES
1992	Blue Cross Authorized Agent E G S Insurance Services	PACIFIC BELL WHITE PAGES
	Blue Shield Authorized Agent E G S Insurance Services	PACIFIC BELL WHITE PAGES
	Tacos Etc	PACIFIC BELL WHITE PAGES
	I Bar Boy Control Systems	PACIFIC BELL WHITE PAGES
	Fax Line	PACIFIC BELL WHITE PAGES
	Greek Cafe The	PACIFIC BELL WHITE PAGES
	E G S	PACIFIC BELL WHITE PAGES

FINDINGS

Year	Uses	Source
1992	Insurance Services	PACIFIC BELL WHITE PAGES
	Traffic School	PACIFIC BELL WHITE PAGES
	Sorrento Mesa	PACIFIC BELL WHITE PAGES
	San Diego	PACIFIC BELL WHITE PAGES
	Sorrento Mesa	PACIFIC BELL WHITE PAGES
	Mahooti Jas DOS	PACIFIC BELL WHITE PAGES
	Mandarin Express	PACIFIC BELL WHITE PAGES
	Sorrento Mesa	PACIFIC BELL WHITE PAGES
	Sorrento Valley Office	PACIFIC BELL WHITE PAGES
	Branch Office	PACIFIC BELL WHITE PAGES
	I Bar B Que Delights	PACIFIC BELL WHITE PAGES
	Sorrento Gallery Custom Framing Inc	PACIFIC BELL WHITE PAGES
	Ofc	PACIFIC BELL WHITE PAGES
	Spruce Wayne E MD hematology oncology Childrens Hospital & Health Center	PACIFIC BELL WHITE PAGES
	Tokyo Express	PACIFIC BELL WHITE PAGES
	Sorrento Mesa	PACIFIC BELL WHITE PAGES
	Cosmopolitan Cleaners	PACIFIC BELL WHITE PAGES
	K Cs Tandoor	PACIFIC BELL WHITE PAGES
	Sunnys Pizza & Restaurant	PACIFIC BELL WHITE PAGES
1989	Sorrento Valley Office	Pacific Bell

9460 SCRANTON RD

Year	Uses	Source
2006	BANK AM SERVICE	Haines Company, Inc.

9510 SCRANTON RD

Year	Uses	Source
2006	AMERCARWASH	Haines Company, Inc.
	AMERICANA CAR	Haines Company, Inc.
1992	Americana Encyclopedia	PACIFIC BELL WHITE PAGES
	Americana Dental Group	PACIFIC BELL WHITE PAGES
	Americana Car Wash	PACIFIC BELL WHITE PAGES

9605 SCRANTON RD

Year	Uses	Source
2006	BUILDING	Haines Company, Inc.
	AOI TECHNOLOGY	Haines Company, Inc.
	US INC	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2006	ATCALL	Haines Company, Inc.
	BEXCOM	Haines Company, Inc.
	CORPORATE	Haines Company, Inc.
	OFFICES	Haines Company, Inc.
	BEXCOM NORTH	Haines Company, Inc.
	AMERICA	Haines Company, Inc.
	BEXCOM	Haines Company, Inc.
	Rese ARCH	Haines Company, Inc.
	CDI CORPORATION	Haines Company, Inc.
	ELEKTROBIT INC	Haines Company, Inc.
	ETHERTRONICS INC	Haines Company, Inc.
	HANDF	Haines Company, Inc.
	AERONAUTICAL	Haines Company, Inc.
	TECH INC	Haines Company, Inc.
	HUGHES NETWORK	Haines Company, Inc.
	SYSTEMS	Haines Company, Inc.
	IMAGINE REALTY	Haines Company, Inc.
	INSIDERS	Haines Company, Inc.
	MORTGAGE	Haines Company, Inc.
	KINTERA	Haines Company, Inc.
	MAGUIRE PRPRTS	Haines Company, Inc.
	SD TECH CNTR	Haines Company, Inc.
	QTHINK	Haines Company, Inc.
	SAFE MED	Haines Company, Inc.
	VITALRX COM INC	Haines Company, Inc.
	WARE MALCOMB	Haines Company, Inc.
1992	Blakkolb & Grimshaw Inc	PACIFIC BELL WHITE PAGES
	Goodsell Morris & Lofgren A Professional Accounting Corp	PACIFIC BELL WHITE PAGES
	Goodsell Randy J CPA	PACIFIC BELL WHITE PAGES
	Kelting & Associates Inc	PACIFIC BELL WHITE PAGES
	UCS D Child & Family Studies	PACIFIC BELL WHITE PAGES
	Real Estate Loan Dept	PACIFIC BELL WHITE PAGES
	Great Western Broker Loans	PACIFIC BELL WHITE PAGES
	Mitsubishi Foods MC Inc	PACIFIC BELL WHITE PAGES
	Resnick Development Corp	PACIFIC BELL WHITE PAGES
	Morris Vaughn CPA	PACIFIC BELL WHITE PAGES
	Business Publications Inc	PACIFIC BELL WHITE PAGES
	Naiman Tech Center	PACIFIC BELL WHITE PAGES

FINDINGS

Year	Uses	Source
1992	Nokia Mobira	PACIFIC BELL WHITE PAGES
	Nolaly C.....	PACIFIC BELL WHITE PAGES
	Nolan AE	PACIFIC BELL WHITE PAGES
	Alliance For Affordable Health Care	PACIFIC BELL WHITE PAGES
	Lofgren Robert E CPA	PACIFIC BELL WHITE PAGES
	Okon Development	PACIFIC BELL WHITE PAGES
	Okoneski K	PACIFIC BELL WHITE PAGES
	Pacific Cielo Development Inc	PACIFIC BELL WHITE PAGES
	MC Snack Inc	PACIFIC BELL WHITE PAGES
	I Star Corp	PACIFIC BELL WHITE PAGES
	Urban Technology International	PACIFIC BELL WHITE PAGES
	PrimeInterface	PACIFIC BELL WHITE PAGES
	Prime Marketing Inc	PACIFIC BELL WHITE PAGES
	Wellington & Associates	PACIFIC BELL WHITE PAGES
	Wellington Carolyn & Fred.....	PACIFIC BELL WHITE PAGES
	Ruland And Mattingley	PACIFIC BELL WHITE PAGES
	Sorrento Valley	PACIFIC BELL WHITE PAGES
1991	Mitsubishi Foods MC Inc	PACIFIC BELL WHITE PAGES
1989	Calicchia Stone Internatl	Pacific Bell
	M C Snack Inc	Pacific Bell
	Great Western Savings	Pacific Bell
	Comps Inc	Pacific Bell
	Mitsubishi FoodsMC Inc	Pacific Bell
	AustinHansenFehlman Group	Pacific Bell
	NBI Inc	Pacific Bell
	Sporting Clubs Of America	Pacific Bell
	Star Corp	Pacific Bell
	Kelting & Associates Inc	Pacific Bell
	Okon Development	Pacific Bell
	BALL SYSTEMS ENGINEERING DIVISION	Pacific Bell
	Naiman Company The	Pacific Bell
	Spinneybeck Inc	Pacific Bell
	Fehlman Mark	Pacific Bell
	Swancourt Hotels Inc	Pacific Bell
	Fogel Danny L CCIM Inc investmt realtor	Pacific Bell
	United Pacific Insurance Company	Pacific Bell

FINDINGS

9645 SCRANTON RD

Year	Uses	Source
2006	WIDCOMM INC	Haines Company, Inc.
	FOSTER WHEELER	Haines Company, Inc.
	ENERGY SERVICES	Haines Company, Inc.
	INFLOW	Haines Company, Inc.
	KINTERA	Haines Company, Inc.
	SOUTHRN PRIDE	Haines Company, Inc.
	TRUCKING	Haines Company, Inc.
1992	Tetra Tech Data Systems Inc	PACIFIC BELL WHITE PAGES
	ME GATE K	PACIFIC BELL WHITE PAGES
	Tetra Tech Inc	PACIFIC BELL WHITE PAGES
1989	MEGATEK	Pacific Bell
	TGS	Pacific Bell
	Template Graphics Software	Pacific Bell
	Tetra Tech Inc	Pacific Bell

9650 SCRANTON RD

Year	Uses	Source
2006	MRRTTMRA	Haines Company, Inc.
	COURTYARD BY	Haines Company, Inc.
1992	i San Diego	PACIFIC BELL WHITE PAGES

SORRENTO VALLEY RD

10030 SORRENTO VALLEY RD

Year	Uses	Source
1960	Dowden Harriet A	R. L. Polk & Co.

10050 SORRENTO VALLEY RD

Year	Uses	Source
2000	XXXX	Haines Company, Inc.
1984	SORRENTO VALLEY FARMS HORSE RANCH	R. L. Polk & Co.
	JONES RICHD A	R. L. Polk & Co.
1980	Jones Richd A	R. L. Polk & Co.
1975	Jones Richd A	R. L. Polk & Co.
1960	Barnes John H	R. L. Polk & Co.

FINDINGS

10051 SORRENTO VALLEY RD

Year	Uses	Source
1991	California Printing Co	PACIFIC BELL WHITE PAGES

10102 SORRENTO VALLEY RD

Year	Uses	Source
2000	XXXX	Haines Company, Inc.
1975	Brown Norwood horse trainer	R. L. Polk & Co.

10110 SORRENTO VALLEY RD

Year	Uses	Source
2006	MAXIMA	Haines Company, Inc.
	CORPORATION	Haines Company, Inc.
	MICROCONSTANTS	Haines Company, Inc.
2000	REAL MARKETING	Haines Company, Inc.
	FINANCL STAT	Haines Company, Inc.
	SERVICES	Haines Company, Inc.
	SERVICES	Haines Company, Inc.
1992	Ariel Life Systems Manufacturing	PACIFIC BELL WHITE PAGES
	Aries Angela J	PACIFIC BELL WHITE PAGES
1984	DATA ELECTRONIC INC OFCS	R. L. Polk & Co.
1980	Data Electronic Inc Ofcs	R. L. Polk & Co.

10120 SORRENTO VALLEY RD

Year	Uses	Source
2000	XXXX	Haines Company, Inc.
1960	Mc Carroll C C	R. L. Polk & Co.

10130 SORRENTO VALLEY RD

Year	Uses	Source
2006	OPTIMER	Haines Company, Inc.
	BECKMAN COULTER	Haines Company, Inc.
	PHARMACEUTICALS	Haines Company, Inc.
2000	XXXX	Haines Company, Inc.
1984	DATA ELECTRONIC INC OFCS	R. L. Polk & Co.

10150 SORRENTO VALLEY RD

Year	Uses	Source
2006	MEDICAL	Haines Company, Inc.
	LAJOLLARDLGY	Haines Company, Inc.
	MDCL GRP	Haines Company, Inc.

FINDINGS

Year	Uses	Source
2006	LAJOLLARDLGY	Haines Company, Inc.
	MED GRP 1 PTNT	Haines Company, Inc.
	SALES Reso URCE	Haines Company, Inc.
	CENTER SD	Haines Company, Inc.
	STEROTEACTIC	Haines Company, Inc.
	BREAST BIOPSY	Haines Company, Inc.
	LAJOLLA	Haines Company, Inc.
	RADIOLOGY	Haines Company, Inc.
2000	XXXX	Haines Company, Inc.
1995	COS TA TRAVE L	PACIFIC BELL WHITE PAGES
	Costa Valley	PACIFIC BELL WHITE PAGES
1992	Wiley Cynthia	PACIFIC BELL WHITE PAGES
	CS I Insurance Agency	PACIFIC BELL WHITE PAGES
	Emerson & Stern Associates	PACIFIC BELL WHITE PAGES
	Alpert David	PACIFIC BELL WHITE PAGES
	Technical Careers	PACIFIC BELL WHITE PAGES
	Wiley Co The	PACIFIC BELL WHITE PAGES
	Wiley D	PACIFIC BELL WHITE PAGES
1991	LOPE Z TRAVE L COS TA DIVIS ION	PACIFIC BELL WHITE PAGES
1989	CSI Insurance Agency	Pacific Bell
	Wiley Co The	Pacific Bell
	Hooberman Group The	Pacific Bell
	Arm Cal Industries Inc	Pacific Bell
	Emerson & Stern Associates	Pacific Bell
	The Hooberman Group	Pacific Bell
	Assured Asset Management Corp	Pacific Bell
	Spectrum Meeting Services	Pacific Bell
1985	CARLISTO SHARP	R. L. Polk & Co.
	DEI-DATA ELECTRONICS INC	R. L. Polk & Co.
	SCOTT GUND INSURANCE AGENCY INC	R. L. Polk & Co.

10170 SORRENTO VALLEY RD

Year	Uses	Source
2006	SCRIPPSBusn S	Haines Company, Inc.
	SERV DEPT	Haines Company, Inc.
1995	Verbatim Tape Corp	PACIFIC BELL WHITE PAGES
1992	Carlisle Myron.....	PACIFIC BELL WHITE PAGES
	Carlisle Memory Products	PACIFIC BELL WHITE PAGES

FINDINGS

Year	Uses	Source
1991	Carlisle N	PACIFIC BELL WHITE PAGES
	Carlisle Memory Products	PACIFIC BELL WHITE PAGES
1989	Data Electronics Inc	Pacific Bell
	DEIData Electronics Inc	Pacific Bell

10190 SORRENTO VALLEY RD

Year	Uses	Source
1980	Snell Wm	R. L. Polk & Co.

10220 SORRENTO VALLEY RD

Year	Uses	Source
2000	LEGACY Recp	Haines Company, Inc.
1984	VACANT	R. L. Polk & Co.

10240 SORRENTO VALLEY RD

Year	Uses	Source
2006	WEBSENSEINC	Haines Company, Inc.
	AMERINC	Haines Company, Inc.
	ELECTRONICS	Haines Company, Inc.
	SAMSUNG	Haines Company, Inc.
2000	PHASE METRICS	Haines Company, Inc.
1992	Technology Insights	PACIFIC BELL WHITE PAGES
	Gas Cooled Rbactor Associates	PACIFIC BELL WHITE PAGES
	Four Winds Consultants Inc	PACIFIC BELL WHITE PAGES
	S AIT	PACIFIC BELL WHITE PAGES
1989	Data Perceptions Corp	Pacific Bell
	Oce Business Systems Inc	Pacific Bell
	Software Products International	Pacific Bell
	Electrotek Concepts Inc	Pacific Bell
	FOSTER GENE ASSOCIATES	Pacific Bell
	GEA Power Cooling Systems Inc	Pacific Bell
	GCRA	Pacific Bell
	San Diego Institute For Arts Educations	Pacific Bell
	Gene Foster Associates	Pacific Bell
	Gas Cooled Reactor Associates	Pacific Bell
1984	VACANT	R. L. Polk & Co.

10260 SORRENTO VALLEY RD

Year	Uses	Source
2000	XXXX	Haines Company, Inc.

FINDINGS

Year	Uses	Source
1992	S AIC Range Systems	PACIFIC BELL WHITE PAGES
1989	SAIRange Systems	Pacific Bell
	SAIRange Systems	Pacific Bell
1984	SPECTRAGRAPHICS COMPUTER GRAPHICS	R. L. Polk & Co.

FINDINGS

TARGET PROPERTY: ADDRESS NOT LISTED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not listed in the research source.

Address Researched	Address Not Listed in Research Source
Vista Sorrento Parkway and Mira Sorrento Place	2006, 2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

ADJOINING PROPERTY: ADDRESSES NOT LISTED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not listed in research source.

Address Researched	Address Not Listed in Research Source
10030 SORRENTO VALLEY RD	2006, 2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10050 SORRENTO VALLEY RD	2006, 1995, 1992, 1991, 1989, 1986, 1985, 1976, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10051 SORRENTO VALLEY RD	2006, 2000, 1995, 1992, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10102 SORRENTO VALLEY RD	2006, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10110 SORRENTO VALLEY RD	1995, 1991, 1989, 1986, 1985, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10120 SORRENTO VALLEY RD	2006, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10130 SORRENTO VALLEY RD	1995, 1992, 1991, 1989, 1986, 1985, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10150 SORRENTO VALLEY RD	1986, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10170 SORRENTO VALLEY RD	2000, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10190 SORRENTO VALLEY RD	2006, 2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10220 SORRENTO VALLEY RD	2006, 1995, 1992, 1991, 1989, 1986, 1985, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Listed in Research Source
10240 SORRENTO VALLEY RD	1995, 1991, 1986, 1985, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
10260 SORRENTO VALLEY RD	2006, 1995, 1991, 1986, 1985, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
5355 MIRA SORRENTO PL	1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
5356 MIRA SORRENTO PL	2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
5375 MIRA SORRENTO PL	1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
5405 MOREHOUSE DR	1991, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9330 SCRANTON RD	2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9420 SCRANTON RD	2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9430 S SCRANTON RD	2006, 2000, 1995, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9430 SCRANTON RD	2006, 2000, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9436 SCRANTON RD	2006, 2000, 1995, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9438 SCRANTON RD	2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9440 SCRANTON RD	2006, 2000, 1995, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9448 SCRANTON RD	2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9450 SCRANTON RD	2000, 1991, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9460 SCRANTON RD	2000, 1995, 1992, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9510 SCRANTON RD	2000, 1995, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Listed in Research Source
9605 SCRANTON RD	2000, 1995, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9645 SCRANTON RD	2000, 1995, 1991, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
9650 SCRANTON RD	2000, 1995, 1991, 1989, 1986, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1968, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

APPENDIX C

Regulatory Records Documentation

Mira Sorrento Substation
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

Inquiry Number: 2482912.2s
April 30, 2009

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

Mira Sorrento Substation
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

Inquiry Number: 2482912.8
May 01, 2009

The EDR Property Tax Map Report

Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Property Tax Map Report

Environmental Data Resources, Inc.'s EDR Property Tax Map Report is designed to assist environmental professionals in evaluating potential environmental conditions on a target property by understanding property boundaries and other characteristics. The report includes a search of available property tax maps, which include information on boundaries for the target property and neighboring properties, addresses, parcel identification numbers, as well as other data typically used in property location and identification.

NO COVERAGE

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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Site Name: Mira Sorrento Substation

Inquiry Number: 2482912.7
DATE 04/24/2009

The EDR Environmental LienSearch™ Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Environmental LienSearch™ Report

The EDR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental LienSearch™ Report

TARGET PROPERTY INFORMATION

ADDRESS

SITE NAME
Vista Sorrento Parkway and Mira Sorrento Place
San Diego, CA 92121

RESEARCH SOURCE

Source 1: 340-090-65

Source 2: San Diego County

PROPERTY INFORMATION

Deed 1:

Type of Deed;	Quit Claim Deed
Title is vested in:	Kilroy Realty, L.P., a Delaware Limited Partnership
Deed Dated:	07/27/2004
Deed Recorded:	08/04/2004
Book:	
Page:	
Volume:	
Instrument:	2004-0739413
Docket:	
Land Record Comments:	
Miscellaneous Comments:	

Legal Description: THAT PORTION OF PARCEL 2 OF PARCEL MAP 18777, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, RECORDED ON 21 AUGUST 2001, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, CONTAINING 203.04 SQUARE FEET, 0.00466 ACRES AND BEING MORE FULLY DESCRIBED IN INSTRUMENT NO. 2004-0739413 IN THE DEED RECORDS OF SAN DIEGO COUNTY, CALIFORNIA.

Legal Current Owner:

Property Identifiers:

Comments:

EDR Environmental LienSearch™ Report

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

If found:

1st Party:

2nd Party:

Dated:

Recorded:

Book:

Page:

Docket:

Volume:

Instrument:

Comments:

Miscellaneous:

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AUL's: Found ☐ Not Found ☒

If found:

1st Party:

2nd Party:

Dated:

Recorded:

Book:

Page:

Docket:

Volume:

Instrument:

Comments:

Miscellaneous:

RECORDING REQUESTED BY
CHICAGO TITLE COMPANY

AND WHEN RECORDED MAIL TO
Jennifer Young
[redacted] VP. ASSET MANAGEMENT
KILROY REALTY, L.P., a
Delaware limited partnership
3811 VALLEY CENTRE DRIVE,
SUITE 300
SAN DIEGO, CA 92130

23260

340-090-62

Escrow No. 33010718 -U44
Order No. 033010718 - U13

DOC # 2004-0739413

AUG 04, 2004 4:23 PM
OFFICIAL RECORDS
SAN DIEGO COUNTY RECORDER'S OFFICE
GREGORY J. SMITH, COUNTY RECORDER
FEES: 37.00
DC: AFNF
PAGES: 4

2004-0739413

SPACE ABOVE THIS LINE FOR RECORDER'S USE

QUITCLAIM DEED

THE UNDERSIGNED GRANTOR(S) DECLARE(S)
DOCUMENTARY TRANSFER TAX IS $-0-
☐ unincorporated area ☐ City of
☒ computed on the full value of the interest or property conveyed, or is
☐ computed on the full value less the value of liens or encumbrances remaining at time of sale, and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

THE CITY OF SAN DIEGO, A MUNICIPAL CORPORATION

hereby **REMISE, RELEASE AND FOREVER QUITCLAIM** to

KILROY REALTY, L.P., A DELAWARE LIMITED PARTNERSHIP

the following described real property in the County of , State of California:
AS ATTACHED HERETO AND BY THIS REFERENCE MADE A PART HEREOF.

The purpose of this Quitclaim Deed is to terminate and eliminate the interest conveyed under that certain Grant Deed recorded on June 14, 2004 as File No. 2004-0548873.

Dated July 27, 2004

THE CITY OF SAN DIEGO,
a municipal corporation

BY: Carol A. Chiodo

NAME: Carol A. Chiodo
ITS: Deputy Director, Real Estate Assets

STATE OF CALIFORNIA
COUNTY OF) SS.
On before me,

a Notary Public in and for said County and State, personally appeared

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature of Notary

FOR NOTARY SEAL OR STAMP

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE: IF NO PARTY SO SHOWN, MAIL AS DIRECTED ABOVE

Name | Street Address | City, State & Zip

QD1-08/12/94bk

EXHIBIT "A"

RIGHT OF WAY ACQUISITION

APN: 340-090-62 **23261**

Parcel 2A

That portion of Parcel 2 of Parcel Map 18777, in the City of San Diego, County of San Diego, State of California, recorded on 21 August 2001, in the office of the County Recorder of said County, more particularly described as follows:

Commencing at the East corner of said Parcel 2, lying at the intersection of the courses North 26°20'36" West (North 26°20'46" West per Parcel Map No. 18777) 474.24 feet and South 75°17'35" West (South 75°17'25" West per Parcel Map No.18777) 258.64 feet; Thence North 26°20'36" West 116.82 feet along a portion of the Easterly boundary line of said Parcel 4 to an intersection with a curve, said intersection also being the **POINT OF BEGINNING**; concave Easterly, having a radius of 654.00 feet, a radial bears North 62°05'03" West; Thence Southerly along the arc of said curve 118.06 feet through a central angle of 10°20'36"; Thence South 18°51'01" West 25.31 feet to a cusp of a curve, concave Easterly, having a radius of 604.00 feet, a radial bears North 71°08'59" West; Thence Northerly along the arc of said curve 95.54 feet through a central angle of 9°03'48" to an intersection with the Easterly boundary line of said Parcel 2; Thence along said Easterly boundary line, South 26°20'36" East 4.31 to the Point of Beginning.

Above described parcel containing 203.04 Square feet, 0.00466 acres.

See City of San Diego Drawing 19708-B.

PROFESSIONAL LAND SURVEYOR * FREDERICK R. LePAGE * EXP. 12-31-2003 NO. 7524 STATE OF CALIFORNIA

Frederick R. LePage 5/28/2003

Frederick R. LePage PLS 7524 Date
Assoc. Land Surveyor, Field Engineering
My Registration Expires 12/31/2003

File: 526760e.wpd
W.O. 526760 - 5/27/2003

ALL PURPOSE ACKNOWLEDGMENT – CALIFORNIA

State of California
County of San Diego } ss.

23262

On August 2, 2004 (Date) before me, David T. Yeargain, Notary Public, (Name and Title of Officer, e.g. "Jane Doe, Notary Public")

personally appeared Carol A. Chiodo (Name(s) of Signer(s))

☒ Personnaly known to me -

☐ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that ~~he/she/they~~ executed the same in ~~his/her/their~~ authorized capacity(~~ies~~), and that by ~~his/her/their~~ signature(s) on the instrument, the person(s), or entity upon behalf of which the person(s) acted, executed the instrument.

DAVID YEARGAIN Comm. # 1482569 NOTARY PUBLIC-CALIFORNIA San Diego County My Comm. Expires April 11, 2008

WITNESS my hand and official seal

OPTIONAL

The information below is not required by law. However, it could prevent fraudulent attachment of this acknowledgment to an unauthorized document.

DESCRIPTION OF ATTACHED DOCUMENT

Title or Type of Document: Quitclaim Deed

Date of Document: July 27, 2004 Number of Pages: 2 pages

Document No.: 2004-0548873

CAPACITY CLAIMED BY SIGNER (PRINCIPAL)

Signer(s) Name: Carol A. Chiodo

☒ INDIVIDUAL

☐ CORPORATE OFFICER – Title(s) _____

☐ PARTNER -- ☐ LIMITED ☐ GENERAL

☐ TRUSTEE(S)

☐ ATTORNEY-IN-FACT

☐ OTHER _____

SIGNER IS REPRESENTING: City of San Diego

Signer's Right Thumbprint

Top

23263

NOTARY SEAL CERTIFICATION

(Government Code 27361.7)

I CERTIFY UNDER PENALTY OF PERJURY THAT THE NOTARY SEAL ON THE DOCUMENT TO WHICH THIS STATEMENT IS ATTACHED READS AS FOLLOWS:

Name of the Notary: David Yeargain

Commission Number: 1482569 Date Commission Expires: April 11, 2006

County Where Bond is Filed: San Diego

Manufacturer or Vendor Number: VS11
(Located on both sides of the notary seal border)

Signature: _____
Firm Name (if applicable)

Place of Execution: San Diego Date: 8, 4, 04

Rec. Form #R10.1 (Rev. 6/11/03)

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

VISTA SORRENTO PARKWAY AND MIRA SORRENTO PLACE
SAN DIEGO, CA 92121

COORDINATES

Latitude (North):	32.892300 - 32° 53' 32.3''
Longitude (West):	117.206700 - 117° 12' 24.1''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	480667.1
UTM Y (Meters):	3639175.5
Elevation:	214 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	32117-H2 DEL MAR, CA
Most Recent Revision:	1975

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2005
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Transporters, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

LUST ---------- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ---------- Active UST Facilities
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP ---- Voluntary Cleanup Program Properties
INDIAN VCP ---- Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ---- Torres Martinez Reservation Illegal Dump Site Locations
ODI ---- Open Dump Inventory
WMUDS/SWAT ---- Waste Management Unit Database
SWRCY ---- Recycler Database
HAULERS ---- Registered Waste Tire Haulers Listing
INDIAN ODI ---- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---- Clandestine Drug Labs
HIST Cal-Sites ---- Historical Calsites Database
SCH ---- School Property Evaluation Program
Toxic Pits ---- Toxic Pits Cleanup Act Sites
CDL ---- Clandestine Drug Labs
San Diego Co. HMMD ---- Hazardous Materials Management Division Database

Local Lists of Registered Storage Tanks

CA FID UST ---- Facility Inventory Database
HIST UST ---- Hazardous Substance Storage Container Database
SWEEPS UST ---- SWEEPS UST Listing

Local Land Records

LIENS 2 ---- CERCLA Lien Information
LUCIS ---- Land Use Control Information System
LIENS ---- Environmental Liens Listing
DEED ---- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System
CHMIRS ---- California Hazardous Material Incident Report System
LDS ---- Land Disposal Sites Listing
MCS ---- Military Cleanup Sites Listing

Other Ascertainable Records

RCRA-NonGen ---- RCRA - Non Generators
DOT OPS ---- Incident and Accident Data

DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
CA BOND EXP. PLAN	Bond Expenditure Plan
CA WDS	Waste Discharge System
Cortese	"Cortese" Hazardous Waste & Substances Sites List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
HAZNET	Facility and Manifest Data
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants	EDR Proprietary Manufactured Gas Plants
EDR Historical Auto Stations	EDR Proprietary Historic Gas Stations
EDR Historical Cleaners	EDR Proprietary Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 11/12/2008 has revealed that there are 2 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARDEA BIOSCIENCES INC	***4939 DIRECTORS PL***	***NW 1/8 - 1/4 (0.222 mi.)***	***2***	***9***
Lower Elevation	**Address**	**Direction / Distance**	**Map ID**	**Page**
PHASE METRICS	***10220 SORRENTO VALLEY R***	***SW 1/8 - 1/4 (0.218 mi.)***	***1***	***7***

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 02/23/2009 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
COSMOPOLITAN CLEANERS (SORRENT Status: Refer: 1248 Local Agency	9450 SCRANTON ROAD	ENE 1/4 - 1/2 (0.301 mi.)	A4	18
Lower Elevation	**Address**	**Direction / Distance**	**Map ID**	**Page**
K-TUBE FACILITY(FORMER) Status: Refer: 1248 Local Agency	10581-75 ROSELLE ST.	WNW 1/2 - 1 (0.866 mi.)	5	19

State and tribal leaking storage tank lists

SLIC: SLIC Region comes from the California Regional Water Quality Control Board.

A review of the SLIC list, as provided by EDR, and dated 01/06/2009 has revealed that there is 1 SLIC site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
COSMOPOLITAN CLEANERS	***9450 SCRANTON RD***	***ENE 1/4 - 1/2 (0.301 mi.)***	***A3***	***12***
Facility Status: Open - Site Assessment				
Facility Status: Completed - Case Closed				

SAN DIEGO CO. SAM: The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

A review of the SAN DIEGO CO. SAM list, as provided by EDR, and dated 01/22/2009 has revealed that there is 1 SAN DIEGO CO. SAM site within approximately 0.5 miles of the target property.

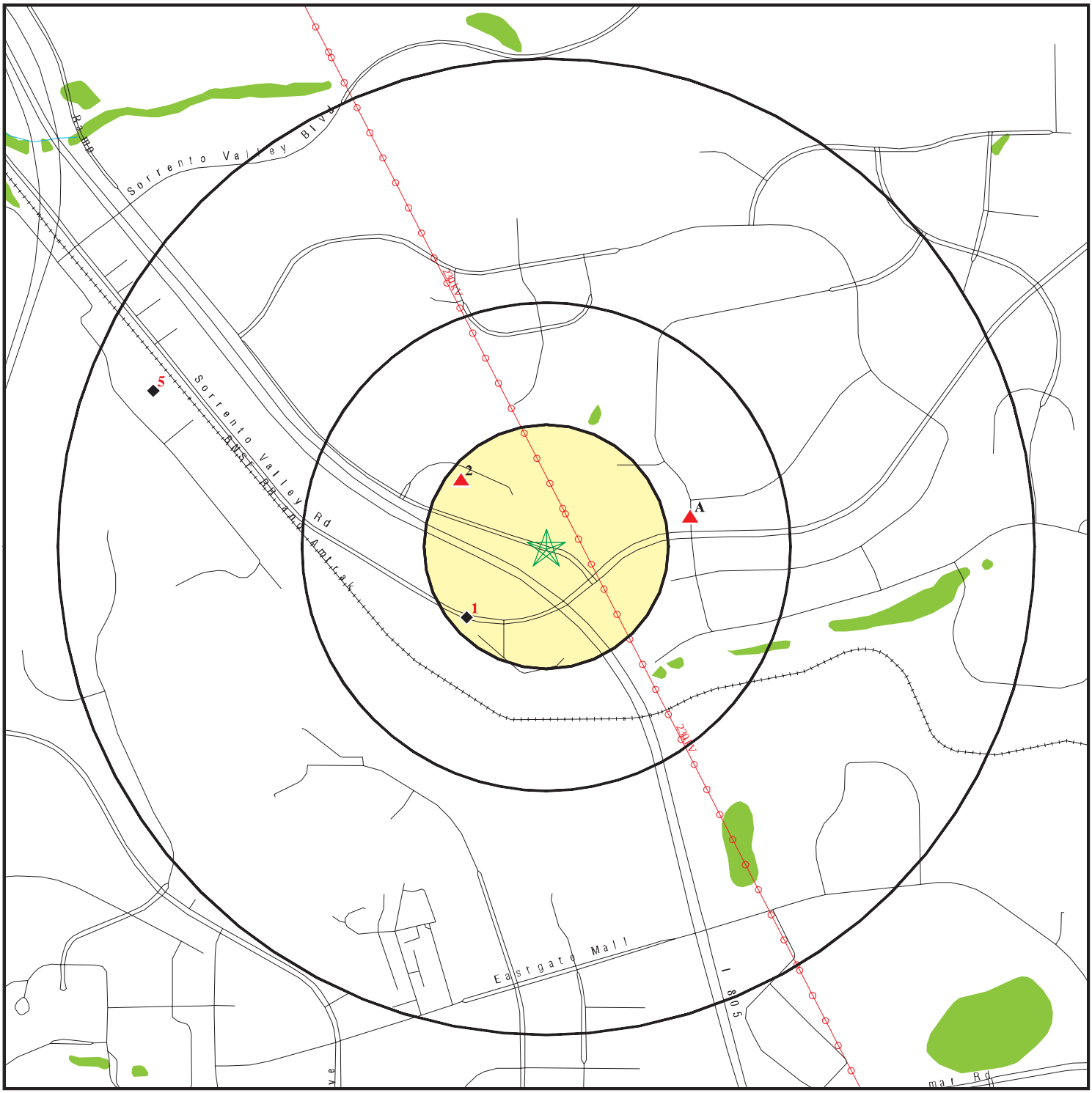
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
COSMOPOLITAN CLEANERS	***9450 SCRANTON RD***	***ENE 1/4 - 1/2 (0.301 mi.)***	***A3***	***12***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
SORRENTO CLEANERS	HAZNET, DRYCLEANERS
SAN DIEGO BAY PRIMARY SHIP CHANNEL	CHMIRS, ENVIROSTOR, HIST Cal-Sites
24TH STREET TERMINAL	CHMIRS, SLIC
38TH AND QUINCE STREET	CERCLIS, FINDS
DIAMOND SOLID WASTE SERVICES, LLC	SWF/LF
MIRA MAR AUTOPORT 76	HAZNET
SORRENTO VALLEY COLLISION CENTER	HAZNET
SORRENTO VALLEY AREA, SURREY TOOL	ERNS

OVERVIEW MAP - 2482912.2s



0 1/4 1/2 1 Miles

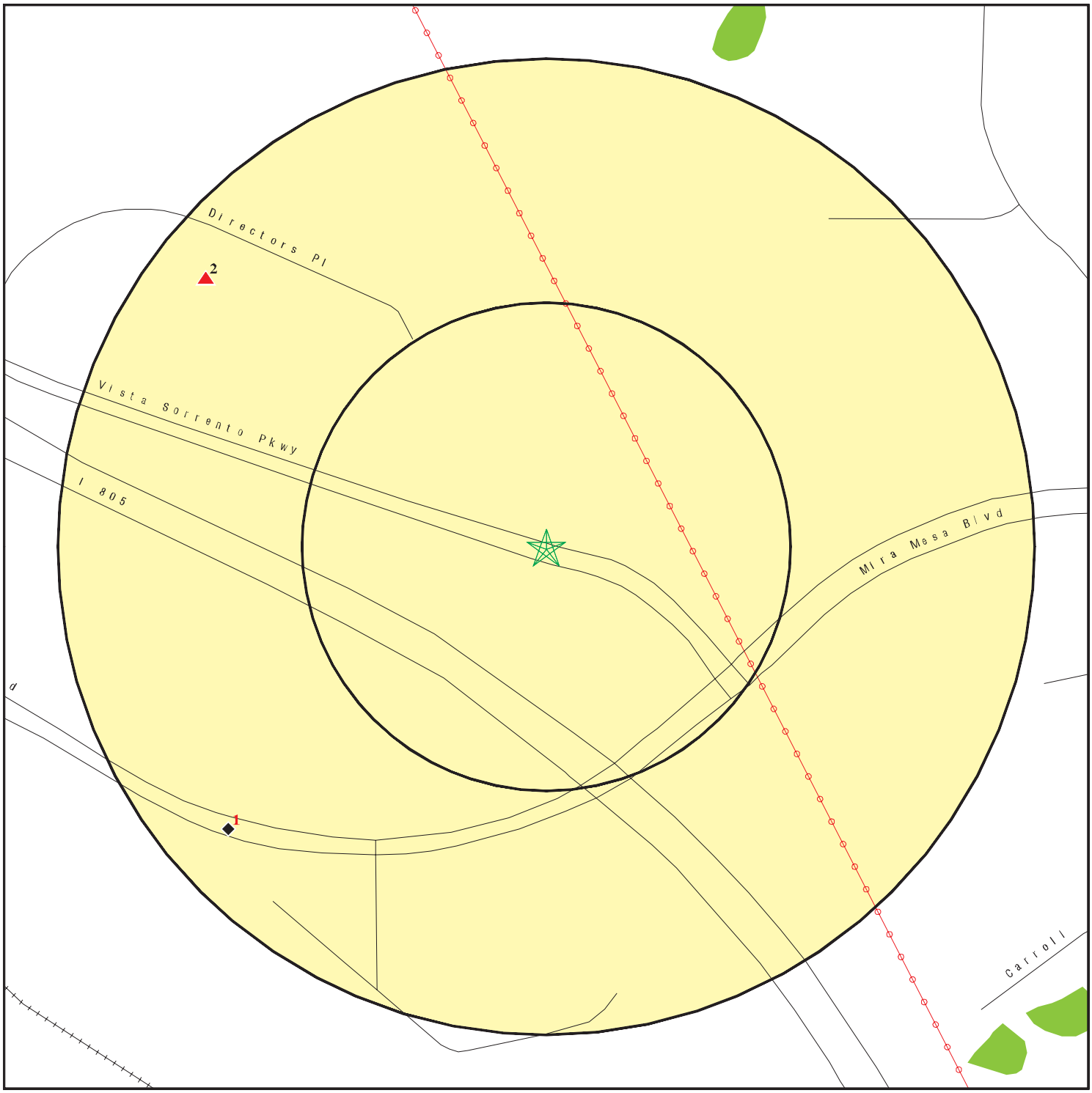
- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Mira Sorrento Substation ADDRESS: Vista Sorrento Parkway and Mira Sorrento Place San Diego CA 92121 LAT/LONG: 32.8923 / 117.2067	CLIENT: Haley & Aldrich CONTACT: kasra Nikkhah INQUIRY #: 2482912.2s DATE: April 30, 2009 1:09 pm

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DETAIL MAP - 2482912.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- National Wetland Inventory
- Areas of Concern

0 1/16 1/8 1/4 Miles

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Mira Sorrento Substation	CLIENT: Haley & Aldrich
ADDRESS: Vista Sorrento Parkway and Mira Sorrento Place San Diego CA 92121	CONTACT: kasra Nikkhah
LAT/LONG: 32.8923 / 117.2067	INQUIRY #: 2482912.2s DATE: April 30, 2009 1:09 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	2	NR	NR	NR	2
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE		1.000	0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR		1.000	0	0	1	1	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST		0.500	0	0	0	NR	NR	0
SLIC		0.500	0	0	1	NR	NR	1
SAN DIEGO CO. SAM		0.500	0	0	1	NR	NR	1

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST		0.500	0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST		0.250	0	0	NR	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP		0.500	0	0	0	NR	NR	0
INDIAN VCP		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
WMUDS/SWAT		0.500	0	0	0	NR	NR	0
SWRCY		0.500	0	0	0	NR	NR	0
HAULERS		TP	NR	NR	NR	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
HIST Cal-Sites		1.000	0	0	0	0	NR	0
SCH		0.250	0	0	NR	NR	NR	0
Toxic Pits		1.000	0	0	0	0	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
San Diego Co. HMMD		TP	NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST		0.250	0	0	NR	NR	NR	0
HIST UST		0.250	0	0	NR	NR	NR	0
SWEEPS UST		0.250	0	0	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
LIENS		TP	NR	NR	NR	NR	NR	0
DEED		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
CHMIRS		TP	NR	NR	NR	NR	NR	0
LDS		TP	NR	NR	NR	NR	NR	0
MCS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Other Ascertainable Records								
RCRA-NonGen		0.250	0	0	NR	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN		1.000	0	0	0	0	NR	0
CA WDS		TP	NR	NR	NR	NR	NR	0
Cortese		0.500	0	0	0	NR	NR	0
Notify 65		1.000	0	0	0	0	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
WIP		0.250	0	0	NR	NR	NR	0
HAZNET		TP	NR	NR	NR	NR	NR	0
EMI		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		0.250	0	0	NR	NR	NR	0
EDR Historical Cleaners		0.250	0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
SW
1/8-1/4
0.218 mi.
1151 ft.

PHASE METRICS
10220 SORRENTO VALLEY RD
SAN DIEGO, CA 92121

RCRA-SQG
FINDS
HAZNET

1001195281
CAR000018465

Relative:
Lower

Actual:
120 ft.

RCRA-SQG:

Date form received by agency:	03/13/1997
Facility name:	PHASE METRICS
Facility address:	10220 SORRENTO VALLEY RD SAN DIEGO, CA 92121
EPA ID:	CAR000018465
Mailing address:	SORRENTO VALLEY RD SAN DIEGO, CA 92121
Contact:	WAYNE DAVIS
Contact address:	10260 SORRENTO VALLEY RD SAN DIEGO, CA 92121
Contact country:	US
Contact telephone:	(619) 646-4962
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	PHASE METRICS
Owner/operator address:	10260 SORRENTO VALLEY RD SAN DIEGO, CA 92121
Owner/operator country:	Not reported
Owner/operator telephone:	(619) 646-4800
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	Unknown
Mixed waste (haz. and radioactive):	Unknown
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	Unknown
Furnace exemption:	Unknown
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No
Off-site waste receiver:	Commercial status unknown

Violation Status: No violations found

PHASE METRICS (Continued) **1001195281**

FINDS:
Other Pertinent Environmental Activity Identified at Site

Registry ID: 110002916471

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZNET:

Gepaid:	CAR000018465
Contact:	PHASE METRICS
Telephone:	6196464824
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	10260 SORRENTO VALLEY RD
Mailing City,St,Zip:	SAN DIEGO, CA 921211605
Gen County:	San Diego
TSD EPA ID:	CAT000613976
TSD County:	Orange
Waste Category:	Liquids with halogenated organic compounds > 1000 mg/l
Disposal Method:	Transfer Station
Tons:	.0166
Facility County:	San Diego

Gepaid:	CAR000018465
Contact:	BILLIE ENGLISH - ENG BUYER
Telephone:	6196464824
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	10260 SORRENTO VALLEY RD
Mailing City,St,Zip:	SAN DIEGO, CA 921211605
Gen County:	San Diego
TSD EPA ID:	Not reported
TSD County:	Orange
Waste Category:	Liquids with halogenated organic compounds > 1000 mg/l
Disposal Method:	Transfer Station
Tons:	0.05
Facility County:	Not reported

Gepaid:	CAR000018465
Contact:	PHASE METRICS
Telephone:	6196464824
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	10260 SORRENTO VALLEY RD
Mailing City,St,Zip:	SAN DIEGO, CA 921211605
Gen County:	San Diego
TSD EPA ID:	CAT000613893
TSD County:	Los Angeles
Waste Category:	Aqueous solution with less than 10% total organic residues
Disposal Method:	Transfer Station

PHASE METRICS (Continued) **1001195281**

Tons: .2209
Facility County: San Diego

Gepaid: CAR000018465
Contact: PHASE METRICS
Telephone: 6196464824
Facility Addr2: Not reported
Mailing Name: Not reported
Mailing Address: 10260 SORRENTO VALLEY RD
Mailing City,St,Zip: SAN DIEGO, CA 921211605
Gen County: San Diego
TSD EPA ID: CAD093459485
TSD County: Fresno
Waste Category: Organic liquids with metals Alkaline solution (pH <UN-> 12.5) with metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc)
Disposal Method: Transfer Station
Tons: .2502
Facility County: San Diego

Gepaid: CAR000018465
Contact: PHASE METRICS
Telephone: 6196464824
Facility Addr2: Not reported
Mailing Name: Not reported
Mailing Address: 10260 SORRENTO VALLEY RD
Mailing City,St,Zip: SAN DIEGO, CA 921211605
Gen County: San Diego
TSD EPA ID: CAD050806850
TSD County: Los Angeles
Waste Category: Unspecified solvent mixture Waste
Disposal Method: Transfer Station
Tons: 0.035
Facility County: San Diego

Click this hyperlink while viewing on your computer to access
3 additional CA_HAZNET: record(s) in the EDR Site Report.

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2 **ARDEA BIOSCIENCES INC** **RCRA-SQG 1005441152**
NW **4939 DIRECTORS PL** **FINDS CAR000116095**
1/8-1/4 **SAN DIEGO, CA 92121** **HAZNET**
0.222 mi.
1173 ft.

Relative:
Higher

Actual:
238 ft.

RCRA-SQG:
Date form received by agency: 01/10/2008
Facility name: ARDEA BIOSCIENCES INC
Facility address: 4939 DIRECTORS PL
SAN DIEGO, CA 92121
EPA ID: CAR000116095
Contact: JENNIFER RIVERA
Contact address: 4939 DIRECTORS PL
SAN DIEGO, CA 92121
Contact country: US
Contact telephone: 714-729-5547
Contact email: JRIVERA@ARDEABIOSCIENCES.COM
EPA Region: 09

ARDEA BIOSCIENCES INC (Continued) **1005441152**

Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: KILROY REALTY LP
Owner/operator address: PO BOX 64733
LOS ANGELES, CA 90064
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 02/11/2000
Owner/Op end date: Not reported

Owner/operator name: ARDEA BIOSCIENCES INC
Owner/operator address: Not reported
Not reported
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 03/01/2008
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No
Off-site waste receiver: Commercial status unknown

Historical Generators:
Date form received by agency: 05/14/2002
Facility name: ARDEA BIOSCIENCES INC
Site name: NEWBIOTICS INC
Classification: Not a generator, verified

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF

ARDEA BIOSCIENCES INC (Continued) **1005441152**

LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D022
Waste name: CHLOROFORM

Waste code: F002
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Waste code: F003
Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

Registry ID: 110012545987

California - Hazardous Waste Tracking System - Datamart

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZNET:
Gepaid: CAR000116095
Contact: James Macdonald
Telephone: 8582001843
Facility Addr2: Not reported
Mailing Name: Not reported
Mailing Address: 4939 Directors Pl

ARDEA BIOSCIENCES INC (Continued) **1005441152**

Mailing City,St,Zip:	San Diego, CA 92121
Gen County:	San Diego
TSD EPA ID:	Not reported
TSD County:	Los Angeles
Waste Category:	Liquids with halogenated organic compounds > 1000 mg/l
Disposal Method:	Recycler
Tons:	1.01
Facility County:	Not reported

Gepaid:	CAR000116095
Contact:	CHRIS HEADRICK, VP & CFO
Telephone:	8582001850
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	4939 Directors Pl
Mailing City,St,Zip:	San Diego, CA 92121
Gen County:	San Diego
TSD EPA ID:	CAD008252405
TSD County:	San Diego
Waste Category:	Liquids with halogenated organic compounds > 1000 mg/l
Disposal Method:	Recycler
Tons:	0.67
Facility County:	San Diego

Gepaid:	CAR000116095
Contact:	CHRIS HEADRICK, VP & CFO
Telephone:	8582001850
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	4939 Directors Pl
Mailing City,St,Zip:	San Diego, CA 92121
Gen County:	San Diego
TSD EPA ID:	FLD980711071
TSD County:	San Diego
Waste Category:	Unspecified solvent mixture Waste
Disposal Method:	Recycler
Tons:	0.01
Facility County:	San Diego

A3 **COSMOPOLITAN CLEANERS** **San Diego Co. HMMD** **S105691014**
ENE **9450 SCRANTON RD** **SLIC** **N/A**
1/4-1/2 **SAN DIEGO, CA 92121** **EMI**
0.301 mi. **SAN DIEGO CO. SAM**
1590 ft. **Site 1 of 2 in cluster A**

Relative:
Higher

Actual:
262 ft.

San Diego Co. HMMD:

Facility ID:	129801
Inactive Indicator:	Active
Business Code:	6HK53
SIC:	Not reported
Permit Expiration:	Not reported
Owner:	DUDLEY DO RITE INC
2nd Name:	Not reported
Mailing Address:	9450 SCRANTON RD #1
Mailing City,St,Zip:	SAN DIEGO, CA 92121
Map Code/Business Plan on File:	Not reported
Corporate Code:	Not reported
Fire Dept District:	Not reported

COSMOPOLITAN CLEANERS (Continued) **S105691014**

Census Tract Number:	83.46
EPA ID:	CAD982431884
Gas Station:	Not reported
Inspection Date:	3/7/2007 0:00:00
Reinspection Date:	Not reported
Inspector Name:	MMASCHUE
Violation Notice Issued:	Not reported
Facility Contact:	DAYLEN TEREN
Delinquent Flag:	Not Delinquent
Last Update:	5/28/2008 9:14:17 AM
Last Delinquent Letter:	Not reported
Delinquent Comment:	Not reported
Last Letter Type:	Not reported
Property Owner:	TRIZEC SORRENTO TOWERS LLC
Property Address:	P O BOX A3879
Property City,St,Zip:	CHICAGO, IL 60690
Tank Owner:	Not reported
Tank Address:	Not reported
Tank City,St,Zip:	Not reported
Business Plan Acceptance Date:	Not reported
Reinspection Date Y2K Compatible:	Not reported
Facility Phone:	858-450-6772

HMMD DISCLOSURE INVENTORY:

Item Number:	PE71
Chemical Name:	PERCHLOROETHYLENE OR TETRACHLOROETHYLENE, CL2CCCL2 99%:PERC DRY CL
Case Number:	127-18-4
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	ACUTE
2nd Hazard Category:	CHRONIC

Item Number:	NI72
Chemical Name:	NITROGEN GAS
Case Number:	7727-37-9
Quantity Stored At One Time:	Not reported
Quantity Stored at One Time:	Not reported
Annual Quantity String:	Not reported
Annual Quantity String:	Not reported
Measurement Units:	Not reported
Carcinogen:	No
1st Hazard Category:	ACUTE
2nd Hazard Category:	Not reported

HMMD UNDERGROUND TANKS:

Tank Number:	Not reported
Tank ID Number:	Not reported
Waste or Product:	Not reported
Tank Contents:	Not reported

HMMD VIOLATIONS:

Inspection Date:	3/7/2007
Waste Code:	Not reported

COSMOPOLITAN CLEANERS (Continued) **S105691014**

Occurrences: Not reported
Item Number: 3304

Inspection Date: 12/21/1998
Waste Code: Not reported
Occurrences: Not reported
Item Number: 8842

Inspection Date: 3/24/2003
Waste Code: Not reported
Occurrences: Not reported
Item Number: 7277

Inspection Date: 3/24/2003
Waste Code: Not reported
Occurrences: Not reported
Item Number: 7278

Inspection Date: 9/28/2001
Waste Code: Not reported
Occurrences: Not reported
Item Number: 8217

Inspection Date: 9/28/2001
Waste Code: Not reported
Occurrences: Not reported
Item Number: 8216

HMMD WASTE STREAMS:
Inspection Date: 3/7/2007
Waste Item #: 251
Waste Code: 251
Waste Name: STILL BOTTOMS W/HALO
Qnty at Inspection: Not reported
Quantity String: Not reported
Annual Qty: Not reported
Annual Qty String: Not reported
Measurement Unit: Not reported
Treatment Method: 001 RECYCLE
Storage Method: PLASTIC DRUM
Haz Waste Hauler: 1406 SAFETY KLEEN
Waste Desc: STILL BOTTOM & EVAP WATER
Carcinogen: No

SLIC:
Region: STATE
Facility Status: **Open - Site Assessment**
Status Date: 2003-11-24 00:00:00
Global Id: T0607395205
Lead Agency: SAN DIEGO COUNTY LOP
Lead Agency Case Number: H29801-002
Latitude: 32.893422
Longitude: -117.203507
Case Type: Cleanup Program Site
Case Worker: Not reported

COSMOPOLITAN CLEANERS (Continued) **S105691014**

Local Agency: SAN DIEGO COUNTY LOP
RB Case Number: Not reported
File Location: Local Agency
Potential Media Affected: Not reported
Potential Contaminants of Concern: * Chlorinated Hydrocarbons
Site History: Not reported

Region: STATE
Facility Status: **Completed - Case Closed**
Status Date: 2000-04-19 00:00:00
Global Id: T0608185577
Lead Agency: SAN DIEGO COUNTY LOP
Lead Agency Case Number: H29801-001
Latitude: 32.893422
Longitude: -117.203507
Case Type: Cleanup Program Site
Case Worker: Not reported
Local Agency: SAN DIEGO COUNTY LOP
RB Case Number: Not reported
File Location: Local Agency
Potential Media Affected: Soil
Potential Contaminants of Concern: * Chlorinated Hydrocarbons
Site History: Not reported

EMI:
Year: 1999
County Code: 37
Air Basin: SD
Facility ID: 89103
Air District Name: SD
SIC Code: 7216
Air District Name: SAN DIEGO COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 2000
County Code: 37
Air Basin: SD
Facility ID: 89103
Air District Name: SD
SIC Code: 7216
Air District Name: SAN DIEGO COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0

COSMOPOLITAN CLEANERS (Continued) **S105691014**

Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 2001
County Code: 37
Air Basin: SD
Facility ID: 89103
Air District Name: SD
SIC Code: 7216
Air District Name: SAN DIEGO COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 2002
County Code: 37
Air Basin: SD
Facility ID: 89103
Air District Name: SD
SIC Code: 7216
Air District Name: SAN DIEGO COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 2003
County Code: 37
Air Basin: SD
Facility ID: 89103
Air District Name: SD
SIC Code: 7216
Air District Name: SAN DIEGO COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 2004
County Code: 37
Air Basin: SD
Facility ID: 89103

COSMOPOLITAN CLEANERS (Continued) **S105691014**

Air District Name:	SD
SIC Code:	7216
Air District Name:	SAN DIEGO COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.371925
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2005
County Code:	37
Air Basin:	SD
Facility ID:	89103
Air District Name:	SD
SIC Code:	7216
Air District Name:	SAN DIEGO COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2006
County Code:	37
Air Basin:	SD
Facility ID:	89103
Air District Name:	SD
SIC Code:	7216
Air District Name:	SAN DIEGO COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.371925
Reactive Organic Gases Tons/Yr:	.259826805
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

SAN DIEGO CO. SAM:

Case Number:	H29801-001
Historical Name:	COSMOPOLITAN CLEANER
Agency:	DEH Site Assessment & Mitigation
Funding:	**PRIVATE - VAP**
FType:	SOILS ONLY
FStatus:	CLOSED CASE
Date:	4/19/2000
Date Began:	3/6/2000

COSMOPOLITAN CLEANERS (Continued) **S105691014**

Case Number: H29801-002
Historical Name: COSMOPOLITAN CLEANERS
Agency: DEH Site Assessment & Mitigation
Funding: PRIVATE - VAP
FType: SOILS ONLY
FStatus: PRELIMINARY ASSESSMENT
Date: 11/24/2003
Date Began: Not reported

A4 **COSMOPOLITAN CLEANERS (SORRENTO COURT)** **ENVIROSTOR** **S106893861**
ENE **9450 SCRANTON ROAD** **N/A**
1/4-1/2 **SAN DIEGO, CA 92121**
0.301 mi.
1590 ft. **Site 2 of 2 in cluster A**

Relative:
Higher

Actual:
262 ft.

ENVIROSTOR:
Site Type: Evaluation
Site Type Detailed: Evaluation
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: Referred - Not Assigned
Division Branch: Cypress
Facility ID: 37720037
Site Code: Not reported
Assembly: 75
Senate: 39
Special Program: Not reported
Status: Refer: 1248 Local Agency
Status Date: 2000-03-23 00:00:00
Restricted Use: NO
Funding: Not Applicable
Latitude: 32.8934499460624
Longitude: -117.203609117397
Alias Name: 37720037
Alias Type: Envirostor ID Number

APN: NONE SPECIFIED
APN Description: Not reported
Comments: DTSC is not involved with this project.

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: SB 1248 Notification
Completed Date: 2000-03-23 00:00:00

Confirmed: NONE SPECIFIED
Confirmed Description: Not reported
Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Media Affected: NONE SPECIFIED
Media Affected Desc: Not reported

COSMOPOLITAN CLEANERS (SORRENTO COURT) (Continued) **S106893861**

Management:
- Management Required: NONE SPECIFIED
- Management Required Desc: Not reported
- Potential: NONE SPECIFIED
- Potenital Description: Not reported
- Schedule Area Name: Not reported
- Schedule Sub Area Name: Not reported
- Schedule Document Type: Not reported
- Schedule Due Date: Not reported
- Schedule Revised Date: Not reported
- PastUse: NONE SPECIFIED

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5 **K-TUBE FACILITY(FORMER)** **ENVIROSTOR** **S106893847**
WNW **10581-75 ROSELLE ST.** **N/A**
1/2-1 **SAN DIEGO, CA 92121**
0.866 mi.
4572 ft.

Relative:
Lower

Actual:
42 ft.

ENVIROSTOR:
- Site Type: Evaluation
- Site Type Detailed: Evaluation
- Acres: Not reported
- NPL: NO
- Regulatory Agencies: NONE SPECIFIED
- Lead Agency: NONE SPECIFIED
- Program Manager: Not reported
- Supervisor: Referred - Not Assigned
- Division Branch: Cypress
- Facility ID: 37330007
- Site Code: Not reported
- Assembly: 75
- Senate: 39
- Special Program: Not reported
- Status: Refer: 1248 Local Agency
- Status Date: 2000-10-18 00:00:00
- Restricted Use: NO
- Funding: Not Applicable
- Latitude: 32.8965228458466
- Longitude: -117.220297195812
- Alias Name: 37330007
- Alias Type: Envirostor ID Number

- APN: NONE SPECIFIED
- APN Description: Not reported
- Comments: Not reported

Completed Info:
- Completed Area Name: PROJECT WIDE
- Completed Sub Area Name: Not reported
- Completed Document Type: SB 1248 Notification
- Completed Date: 2000-10-18 00:00:00

- Confirmed: NONE SPECIFIED
- Confirmed Description: Not reported
- Future Area Name: Not reported
- Future Sub Area Name: Not reported
- Future Document Type: Not reported
- Future Due Date: Not reported

K-TUBE FACILITY(FORMER) (Continued) **S106893847**

Media Affected:	NONE SPECIFIED
Media Affected Desc:	Not reported

Management:

Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NATIONAL	S105644244		24TH STREET TERMINAL	92121	CHMIRS, SLIC
SAN DIEGO	1005440860	38TH AND QUINCE STREET	38TH AND QUINCE STREET		CERCLIS, FINDS
SAN DIEGO	S107148358	MIRA MAR AUTOPORT 76	5706 MIRA MAR	92121	HAZNET
SAN DIEGO	S108541288	SORRENTO CLEANERS	10066 PACIFIC HEIGHTS BLVD STE	92121	HAZNET, DRYCLEANERS
SAN DIEGO	S104549143	SAN DIEGO BAY PRIMARY SHIP CHANNEL	SAN DIEGO BAY		CHMIRS, ENVIROSTOR, HIST Cal-Sites
SAN DIEGO	8852243	SORRENTO VALLEY AREA, SURREY TOOL	SORRENTO VALLEY AREA, SURREY T		ERNS
SAN DIEGO	S109431766	SORRENTO VALLEY COLLISION CENTER	11633 SORRENTO VALLEY RD STE 1	92121	HAZNET
SAN DIEGO, CA 92121	S108935427	DIAMOND SOLID WASTE SERVICES, LLC	9174 RECHO ROAD	92121	SWF/LF

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 02/02/2009
Date Data Arrived at EDR: 02/12/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 46

Source: EPA
Telephone: N/A
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/27/2009
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 02/02/2009
Date Data Arrived at EDR: 02/12/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 46

Source: EPA
Telephone: N/A
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/27/2009
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 02/02/2009
Date Data Arrived at EDR: 02/12/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 46

Source: EPA
Telephone: N/A
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/27/2009
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/07/2008
Date Data Arrived at EDR: 10/16/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 53

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 04/17/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/03/2007
Date Data Arrived at EDR: 12/06/2007
Date Made Active in Reports: 02/20/2008
Number of Days to Update: 76

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 03/16/2009
Next Scheduled EDR Contact: 06/15/2009
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/17/2008
Date Data Arrived at EDR: 12/22/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 98

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/03/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Transporters, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 11/12/2008
Date Data Arrived at EDR: 11/18/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 118

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/23/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/12/2008
Date Data Arrived at EDR: 11/18/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 118

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/23/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 11/12/2008
Date Data Arrived at EDR: 11/18/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 118

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/23/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/12/2008
Date Data Arrived at EDR: 11/18/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 118

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/23/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 10/06/2008
Date Data Arrived at EDR: 10/17/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 10/06/2008
Date Data Arrived at EDR: 10/17/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 01/23/2008
Date Made Active in Reports: 03/17/2008
Number of Days to Update: 54

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 02/23/2009
Date Data Arrived at EDR: 02/24/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 43

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/24/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 02/23/2009
Date Data Arrived at EDR: 02/24/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 43

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/24/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 03/09/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Integrated Waste Management Board
Telephone: 916-341-6320
Last EDR Contact: 03/10/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 02/02/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 03/03/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Quarterly

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 01/06/2009
Date Data Arrived at EDR: 01/08/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 19

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 04/08/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 02/09/2009
Next Scheduled EDR Contact: 05/11/2009
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 01/06/2009
Date Data Arrived at EDR: 01/08/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 19

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 04/08/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2008
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 02/09/2009
Next Scheduled EDR Contact: 05/11/2009
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 03/03/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 03/03/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 03/03/2009
Date Data Arrived at EDR: 03/04/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 26

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 03/13/2009
Date Data Arrived at EDR: 03/17/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 13

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 12/15/2008
Date Data Arrived at EDR: 12/16/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/17/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/19/2009
Date Data Arrived at EDR: 02/19/2009
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 25

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 06/06/2008
Date Data Arrived at EDR: 10/09/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 41

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 02/15/2009
Date Data Arrived at EDR: 02/27/2009
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 17

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/01/2008
Date Data Arrived at EDR: 12/03/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 20

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/20/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 01/06/2009
Date Data Arrived at EDR: 01/08/2009
Date Made Active in Reports: 01/30/2009
Number of Days to Update: 22

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 04/08/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 11/01/2007
Date Data Arrived at EDR: 02/10/2009
Date Made Active in Reports: 04/14/2009
Number of Days to Update: 63

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 04/27/2009
Next Scheduled EDR Contact: 07/27/2009
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/19/2009
Date Data Arrived at EDR: 02/19/2009
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 25

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 06/06/2008
Date Data Arrived at EDR: 10/09/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 41

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 09/08/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 27

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/25/2008
Date Data Arrived at EDR: 11/26/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 27

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/01/2008
Date Data Arrived at EDR: 12/30/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 76

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/20/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 03/13/2009
Date Data Arrived at EDR: 03/17/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 13

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 03/03/2009
Date Data Arrived at EDR: 03/04/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 26

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/15/2008
Date Data Arrived at EDR: 12/16/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 90

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/17/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 04/02/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/23/2009
Date Data Arrived at EDR: 02/24/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 43

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/24/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 10/01/2008
Date Data Arrived at EDR: 11/14/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 04/17/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 03/25/2008
Date Data Arrived at EDR: 04/17/2008
Date Made Active in Reports: 05/15/2008
Number of Days to Update: 28

Source: EPA, Region 9
Telephone: 415-972-3336
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 03/04/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Quarterly

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 01/05/2009
Date Data Arrived at EDR: 01/08/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 19

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 04/08/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 12/22/2008
Date Data Arrived at EDR: 12/22/2008
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 36
Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 10/31/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 53
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/26/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/23/2009
Date Data Arrived at EDR: 02/24/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 43
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/24/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 09/30/2008
Date Data Arrived at EDR: 10/06/2008
Date Made Active in Reports: 10/13/2008
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 04/24/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/29/2008
Date Data Arrived at EDR: 12/29/2008
Date Made Active in Reports: 01/30/2009
Number of Days to Update: 32

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Varies

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 11/20/2008
Date Data Arrived at EDR: 12/23/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 03/03/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 03/09/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/13/2009
Date Data Arrived at EDR: 02/17/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 50

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/02/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 8

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/30/2008
Date Data Arrived at EDR: 10/16/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 34

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/16/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 05/09/2008
Date Made Active in Reports: 06/20/2008
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 01/06/2009
Date Data Arrived at EDR: 01/08/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 19

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 04/08/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 01/06/2009
Date Data Arrived at EDR: 01/08/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 19

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 04/08/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Quarterly

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 11/12/2008
Date Data Arrived at EDR: 11/18/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 118

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 04/23/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2008
Date Data Arrived at EDR: 05/28/2008
Date Made Active in Reports: 08/08/2008
Number of Days to Update: 72

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/24/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 02/06/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 09/05/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 18

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 11/03/2008
Date Data Arrived at EDR: 01/06/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 83

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/21/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/21/2008
Date Data Arrived at EDR: 10/29/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 55

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 07/13/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 03/16/2009
Next Scheduled EDR Contact: 06/15/2009
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 10/31/2008
Date Data Arrived at EDR: 12/23/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 97

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/24/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 04/09/2009
Next Scheduled EDR Contact: 06/15/2009
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 04/14/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/08/2008
Date Data Arrived at EDR: 10/17/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 52

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 03/16/2009
Next Scheduled EDR Contact: 06/15/2009
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 10/08/2008
Date Data Arrived at EDR: 10/17/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 52

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 03/16/2009
Next Scheduled EDR Contact: 06/15/2009
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 03/14/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 35
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 12/04/2008
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/31/2008
Date Data Arrived at EDR: 08/13/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 27
Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 12/04/2007
Date Data Arrived at EDR: 02/07/2008
Date Made Active in Reports: 03/17/2008
Number of Days to Update: 39
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 02/02/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/07/2009
Date Data Arrived at EDR: 01/15/2009
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 74
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/28/2008
Date Data Arrived at EDR: 10/29/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/29/2009
Next Scheduled EDR Contact: 07/27/2009
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/30/2008
Date Data Arrived at EDR: 10/31/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 53

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/19/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 03/16/2009
Next Scheduled EDR Contact: 06/15/2009
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 01/21/2009
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 04/22/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/23/2008
Date Data Arrived at EDR: 09/24/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 5

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 04/17/2009
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 10/31/2008
Date Data Arrived at EDR: 11/03/2008
Date Made Active in Reports: 11/26/2008
Number of Days to Update: 23

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 04/24/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 02/17/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 50

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 02/17/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 10/16/2008
Date Made Active in Reports: 11/26/2008
Number of Days to Update: 41

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 04/17/2009
Next Scheduled EDR Contact: 04/13/2009
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 02/06/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 12/08/2008
Date Data Arrived at EDR: 12/09/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 97

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 05/11/2009
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 02/06/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: N/A

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/23/2009
Date Data Arrived at EDR: 01/23/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 75

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/23/2009
Date Data Arrived at EDR: 01/23/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 76

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/24/2009
Date Data Arrived at EDR: 02/25/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 42

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Semi-Annually

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 01/14/2009
Date Data Arrived at EDR: 01/15/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 12

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 02/02/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 9

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 07/07/1999
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/26/2008
Date Data Arrived at EDR: 01/27/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 71

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 02/09/2009
Next Scheduled EDR Contact: 05/11/2009
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 11/10/2008
Date Data Arrived at EDR: 11/25/2008
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 63

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 02/11/2009
Next Scheduled EDR Contact: 05/11/2009
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 03/10/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 02/14/2008
Date Data Arrived at EDR: 04/10/2008
Date Made Active in Reports: 05/06/2008
Number of Days to Update: 26

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 02/09/2009
Next Scheduled EDR Contact: 05/11/2009
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 02/09/2009
Date Data Arrived at EDR: 02/17/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 51

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 02/09/2009
Next Scheduled EDR Contact: 05/11/2009
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 02/20/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 02/23/2009
Date Data Arrived at EDR: 02/24/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 44

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/11/2009
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 02/05/2009
Date Data Arrived at EDR: 02/17/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 51

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 04/27/2009
Next Scheduled EDR Contact: 07/27/2009
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/09/2008
Date Data Arrived at EDR: 07/09/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 22

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Semi-Annually

Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Annually

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 03/02/2009
Date Data Arrived at EDR: 03/18/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 21
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 03/05/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 03/02/2009
Date Data Arrived at EDR: 03/27/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 12
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 03/05/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 03/02/2009
Date Data Arrived at EDR: 03/18/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 22
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 01/26/2009
Date Data Arrived at EDR: 02/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 57
Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 04/03/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 11/06/2008
Date Data Arrived at EDR: 11/17/2008
Date Made Active in Reports: 11/26/2008
Number of Days to Update: 9
Source: Department of Public Health
Telephone: 951-358-5055
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 02/19/2009
Date Data Arrived at EDR: 02/20/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 48
Source: Health Services Agency
Telephone: 951-358-5055
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Contaminated Sites

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 01/30/2009
Date Data Arrived at EDR: 02/03/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 64

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/29/2009
Next Scheduled EDR Contact: 07/27/2009
Data Release Frequency: Quarterly

ML - Regulatory Compliance Master List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 01/30/2009
Date Data Arrived at EDR: 02/03/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 64

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/29/2009
Next Scheduled EDR Contact: 07/27/2009
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 01/07/2009
Date Data Arrived at EDR: 01/09/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 18

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 03/03/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 07/16/2008
Date Data Arrived at EDR: 10/29/2008
Date Made Active in Reports: 11/26/2008
Number of Days to Update: 28

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 04/03/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 11/01/2008
Date Data Arrived at EDR: 12/23/2008
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 35

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 11/17/2008
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 01/22/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 8
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/31/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Varies

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 10/01/2008
Number of Days to Update: 12
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 03/16/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 02/10/2009
Date Data Arrived at EDR: 02/25/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 43
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/29/2009
Date Data Arrived at EDR: 01/30/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 68
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 01/05/2009
Date Data Arrived at EDR: 01/06/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 21
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 12/29/2008
Date Data Arrived at EDR: 12/29/2008
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 29
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Varies

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 03/03/2009
Date Data Arrived at EDR: 03/03/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 36
Source: City of San Jose Fire Department
Telephone: 408-277-4659
Last EDR Contact: 03/03/2009
Next Scheduled EDR Contact: 06/01/2009
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 01/09/2009
Date Data Arrived at EDR: 01/30/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 68
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 01/09/2009
Date Data Arrived at EDR: 02/03/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 65
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/20/2009
Date Data Arrived at EDR: 01/21/2009
Date Made Active in Reports: 01/27/2009
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Quarterly

SUTTER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 04/01/2009
Date Data Arrived at EDR: 04/02/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 7

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/30/2009
Next Scheduled EDR Contact: 06/29/2009
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 02/26/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 8

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/10/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2008
Date Data Arrived at EDR: 09/04/2008
Date Made Active in Reports: 09/18/2008
Number of Days to Update: 14

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/16/2009
Next Scheduled EDR Contact: 05/18/2009
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/09/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 12/29/2008
Date Data Arrived at EDR: 01/08/2009
Date Made Active in Reports: 01/30/2009
Number of Days to Update: 22

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/08/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 01/14/2009
Date Data Arrived at EDR: 02/06/2009
Date Made Active in Reports: 04/09/2009
Number of Days to Update: 62

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 04/13/2009
Next Scheduled EDR Contact: 07/13/2009
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 12/11/2008
Date Made Active in Reports: 03/19/2009
Number of Days to Update: 98

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 03/13/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 09/30/2007
Date Data Arrived at EDR: 12/04/2007
Date Made Active in Reports: 12/31/2007
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 02/20/2009
Next Scheduled EDR Contact: 05/04/2009
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/27/2009
Date Data Arrived at EDR: 02/25/2009
Date Made Active in Reports: 03/12/2009
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/25/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 09/11/2008
Date Made Active in Reports: 10/02/2008
Number of Days to Update: 21

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 03/09/2009
Next Scheduled EDR Contact: 06/08/2009
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 02/12/2009
Date Made Active in Reports: 03/11/2009
Number of Days to Update: 27

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 03/16/2009
Next Scheduled EDR Contact: 06/15/2009
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/22/2008
Date Made Active in Reports: 09/08/2008
Number of Days to Update: 17

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 04/07/2009
Next Scheduled EDR Contact: 07/06/2009
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

MIRA SORRENTO SUBSTATION
VISTA SORRENTO PARKWAY AND MIRA SORRENTO PLACE
SAN DIEGO, CA 92121

TARGET PROPERTY COORDINATES

Latitude (North):	32.89230 - 32° 53' 32.3''
Longitude (West):	117.2067 - 117° 12' 24.1''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	480667.1
UTM Y (Meters):	3639175.5
Elevation:	214 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	32117-H2 DEL MAR, CA
Most Recent Revision:	1975

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

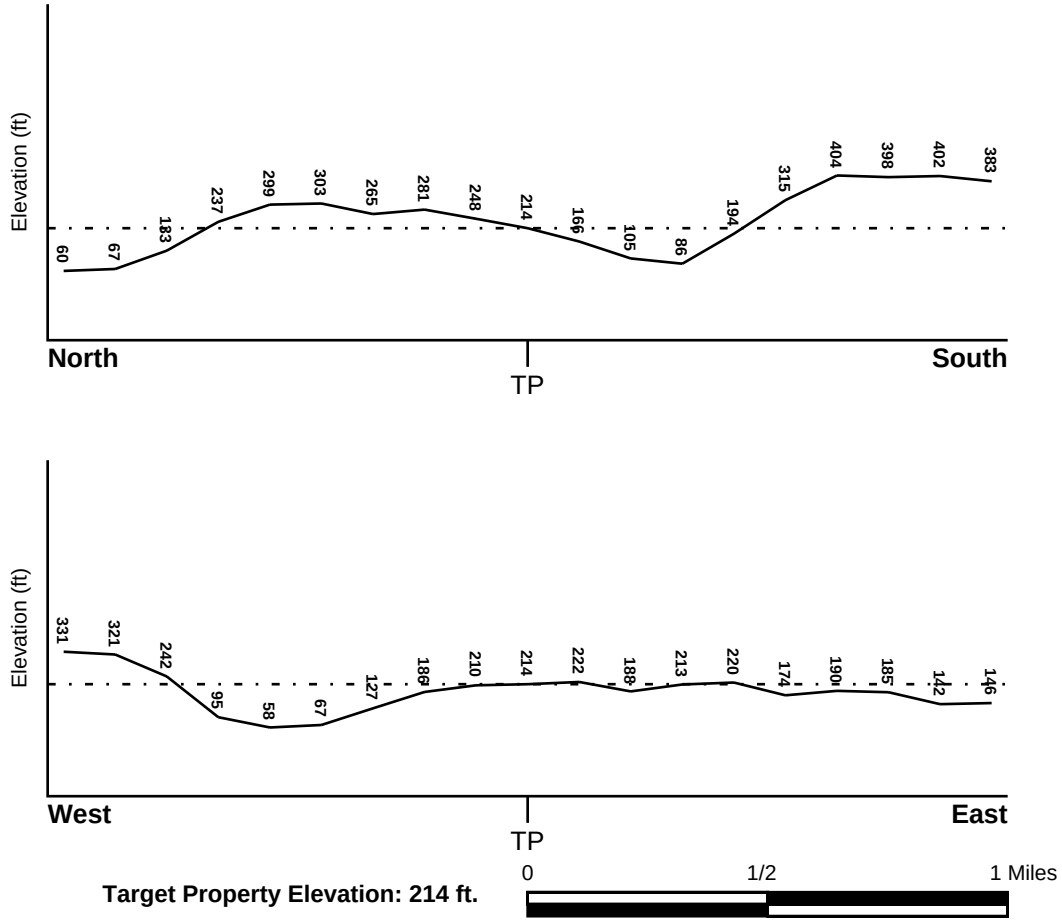
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAN DIEGO, CA	Not Available

Flood Plain Panel at Target Property: Not Reported

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
DEL MAR	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
3	1/2 - 1 Mile NW	WSW
5	1/2 - 1 Mile SE	Not Reported

For additional site information, refer to Physical Setting Source Map Findings.

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

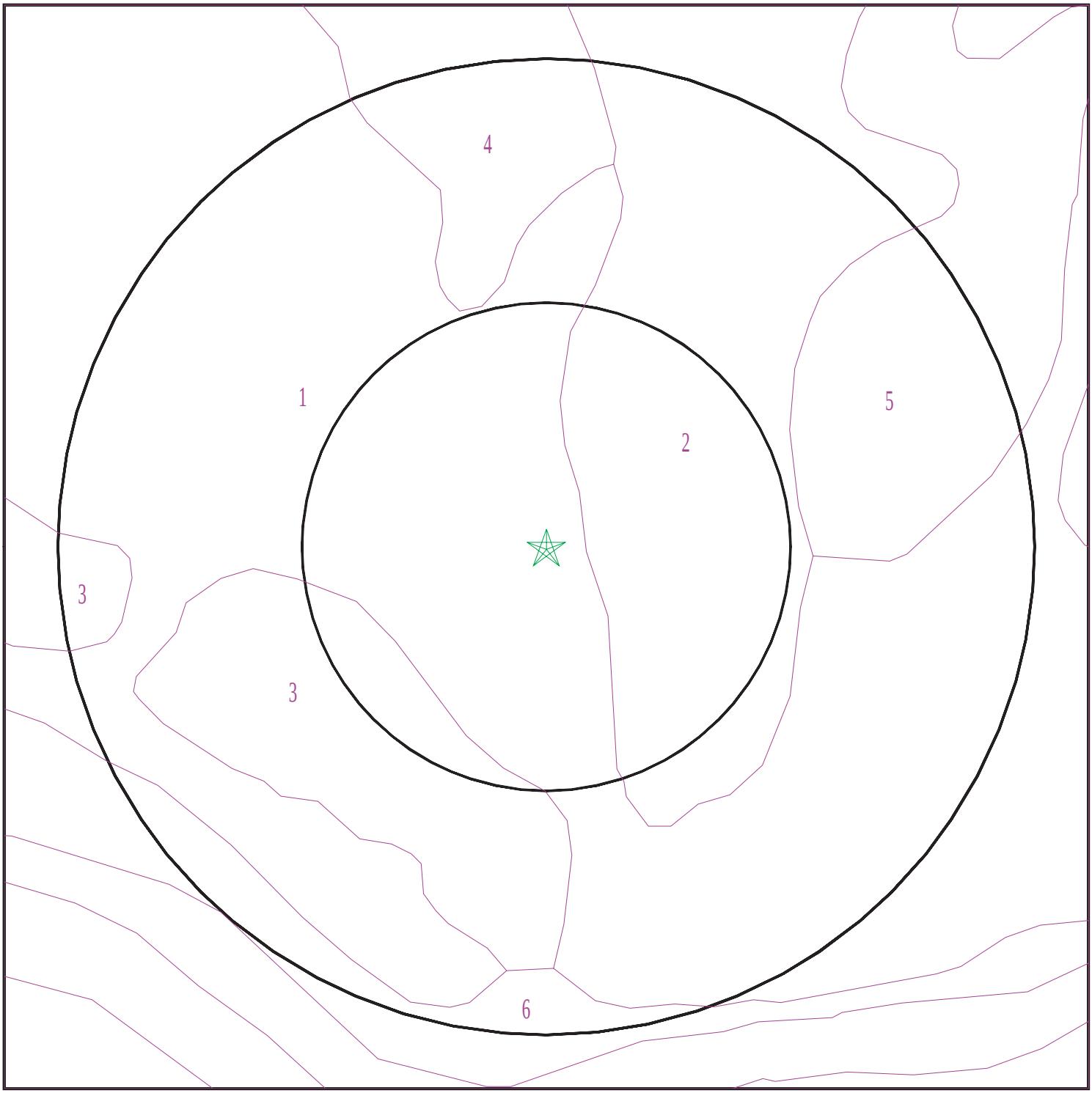
Era:	Cenozoic
System:	Tertiary
Series:	Eocene
Code:	Te *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 2482912.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Mira Sorrento Substation	CLIENT:	Haley & Aldrich
ADDRESS:	Vista Sorrento Parkway and Mira Sorrento Place San Diego CA 92121	CONTACT:	kasra Nikkhah
LAT/LONG:	32.8923 / 117.2067	INQUIRY #:	2482912.2s
		DATE:	April 30, 2009 1:09 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: HUERHUERO

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
2	9 inches	50 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	50 inches	59 inches	stratified sand to sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: ALTAMONT

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:
2	25 inches	29 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:
3	29 inches	33 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: HUERHUERO

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
2	11 inches	55 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	55 inches	72 inches	stratified sand to sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 4

Soil Component Name: HUERHUERO

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
2	11 inches	55 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4
3	55 inches	72 inches	stratified sand to sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 5

Soil Component Name: ALTAMONT

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	20 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:
2	20 inches	25 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:
3	25 inches	29 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 6

Soil Component Name: SALINAS

Soil Surface Texture: clay loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	22 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
2	22 inches	46 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
3	46 inches	64 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS3124305	1/4 - 1/2 Mile South
B4	USGS3124306	1/2 - 1 Mile WNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

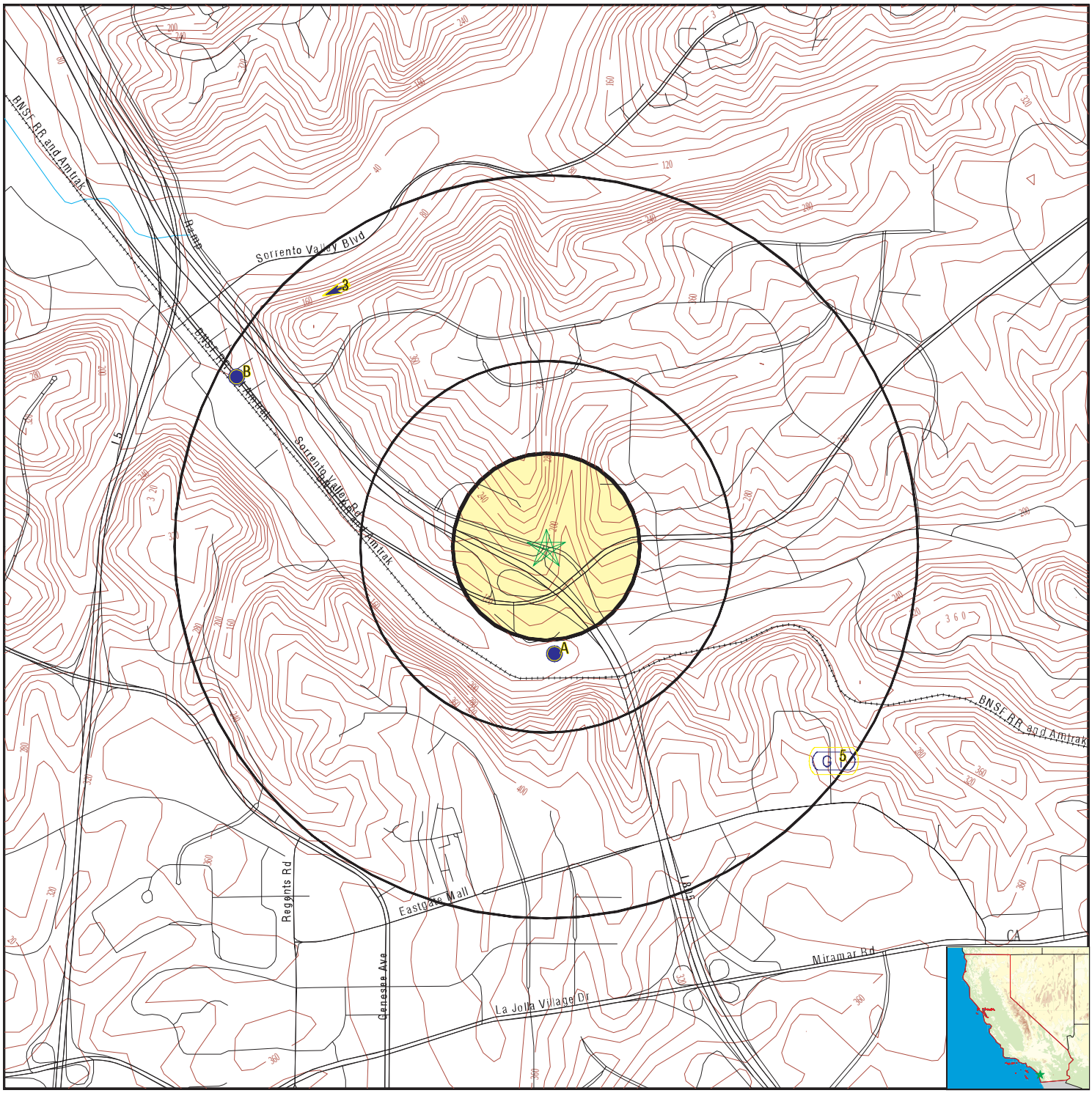
No PWS System Found

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	CADW20000000695	1/4 - 1/2 Mile South
B6	CADW20000000719	1/2 - 1 Mile WNW

PHYSICAL SETTING SOURCE MAP - 2482912.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Mira Sorrento Substation	CLIENT:	Haley & Aldrich
ADDRESS:	Vista Sorrento Parkway and Mira Sorrento Place San Diego CA 92121	CONTACT:	kasra Nikkhah
LAT/LONG:	32.8923 / 117.2067	INQUIRY #:	2482912.2s
		DATE:	April 30, 2009 1:09 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
A1 **South** **1/4 - 1/2 Mile** **Lower**	**CA WELLS**	**CADW20000000695**

Longitude:	117.2059
Latitude:	32.8881
Stwellno:	15S03W09D001S
Districtco:	3
Welluseco:	Z
Countycode:	37
Gwcode:	702800
Site id:	CADW20000000695

A2
South
1/4 - 1/2 Mile
Lower

FED USGS **USGS3124305**

Agency cd:	USGS	Site no:	325317117121801
Site name:	015S003W09D001S		
Latitude:	325317		
Longitude:	1171218	Dec lat:	32.88810229
Dec lon:	-117.20586866	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	073
Country:	US	Land net:	Not Reported
Location map:	DEL MAR	Map scale:	24000
Altitude:	85.00		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	San Diego. California. Area = 1390 sq.mi.		
Topographic:	Undulating		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	35.5
Source of depth data:	Not Reported		
Project number:	479239900		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1985-03-20	Ground water data end date:	1985-03-20
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1985-03-20	5.3	

3
NW
1/2 - 1 Mile
Lower

AQUIFLOW **33867**

Site ID:	Not Reported
Groundwater Flow:	WSW
Shallow Water Depth:	10
Deep Water Depth:	15
Average Water Depth:	Not Reported
Date:	06/18/1997

B4
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS3124306**

Agency cd:	USGS	Site no:	325356117131101
Site name:	015S003W06H002S		
Latitude:	325356		
Longitude:	1171311	Dec lat:	32.89893529
Dec lon:	-117.22059131	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	073
Country:	US	Land net:	Not Reported
Location map:	DEL MAR	Map scale:	24000
Altitude:	30.00		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	San Diego. California. Area = 1390 sq.mi.		
Topographic:	Valley flat		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	15.5
Source of depth data:	Not Reported		
Project number:	479239900		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1985-03-20	Ground water data end date:	1985-03-20
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1985-03-20	3.15	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

			Database	EDR ID Number
5 **SE** **1/2 - 1 Mile** **Higher**	Site ID:	Not Reported	**AQUIFLOW**	**55096**
	Groundwater Flow:	Not Reported		
	Shallow Water Depth:	Not Reported		
	Deep Water Depth:	Not Reported		
	Average Water Depth:	30		
	Date:	12/04/1992		

B6 **WNW** **1/2 - 1 Mile** **Lower**			**CA WELLS**	**CADW20000000719**
	Longitude:	117.2206		
	Latitude:	32.8989		
	Stwellno:	15S03W06H002S		
	Districtco:	3		
	Welluseco:	Z		
	Countycode:	37		
	Gwcode:	702800		
	Site id:	CADW20000000719		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zip	Total Sites	> 4 Pci/L	Pct. > 4 Pci/L
92121	3	1	33.33

Federal EPA Radon Zone for SAN DIEGO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SAN DIEGO COUNTY, CA

Number of sites tested: 30

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.677 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.400 pCi/L	100%	0%	0%
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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ML

County of San Diego

GARY W. ERBECK
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
P.O. BOX 129261, SAN DIEGO, CA 92112-9261
(619) 338-2222 FAX (619) 338-2377
1-800-253-9933

RICHARD HAAS
ASSISTANT DIRECTOR

April 19, 2000

Mr. Sean M. Tabor
WCB Five Limited Partnership
450 Newport Center Drive #304
Newport Beach, CA 92660

Dear Mr. Tabor:

VOLUNTARY ASSISTANCE PROGRAM CASE H29801-001
COSMOPOLITAN CLEANERS
9450 SCRANTON ROAD, SAN DIEGO, CA 92121

The site remediation information submitted to this agency by ENSR consultants, summarizing the site characterization and mitigation activities at the above-referenced location, has been reviewed. With the provision that the information provided to this agency was accurate and representative of existing conditions, it is the position of this office that **no further action is required at this time.**

Please be advised that this letter does not relieve you of any liability under the California Health and Safety Code or the Porter Cologne Water Quality Control Act. If previously unidentified contamination is discovered which may affect public health, safety and/or water quality, additional site assessment and cleanup may be necessary.

Changes in the proposed use of the above site may require reevaluation to determine if the change will pose a risk to public health.

Thank you for your efforts in resolving this matter. Please contact Mo. Lahsaie of the Site Assessment and Mitigation Program (SAM), at (619) 338-2256, if you require additional assistance.

Sincerely,

CHRIS GONAVER, Chief
Land and Water Quality Division

CG:ML:kf

Enclosure

cc: Regional Water Quality Control Board Consultant
David Parker, ENSR Consultant

Case Closure Summary
Non-LOP or Voluntary Assistance Program

I. AGENCY INFORMATION

DATE: 04/17/2000

Agency Name: County of San Diego, Environmental Health, SAM	Address: P.O. Box 129261
City/State/ZIP: San Diego, CA 92112-9261	Phone: (619) 338-2222 FAX: (619) 338-2377
DEH Staff Person: Mo. Lahsaie	Title: Project Manager

II. CASE INFORMATION

Case No.: H29801-001		
Site Name: Cosmopolitan Cleaners		
Site Address: 9450 Scranton Road, San Diego, CA 92121		
Property Owner: WCB Five Real Estate Limited Partnership	Address: 450 Newport Center Drive #304, Newport Beach, CA 92660	Phone: (949) 640-6900
Responsible/Requesting Party : Same as above	Address:	Phone:
Type of Case: Non-Tank Case		
RWQCB/DTSC notification of DEH Oversight: 03/23/2000		

III. SITE CHARACTERIZATION AND/OR INFORMATION

Cause and Type of Contamination: Real Estate Phase II Site Assessment for dry cleaners			
Site Characterization complete? Yes			
Monitoring Wells Installed? No	Total Number: N/A	Proper Screened Interval? N/A	Number of decommissioned wells: N/A
Range of groundwater levels on the site? 40-100 feet below ground surface			Groundwater Flow Direction: N/A
Most Sensitive Current Use: Beneficial groundwater use			
Are Drinking Water Wells Affected? No	RWQCB Basin Number: Miramar Reservoir Hydrologic Area (906.10)		
Is Surface Water Affected? No	Nearest Surface Water name: Carroll Canyon Creek approximately 0.5 miles south of the property		
Off-Site Beneficial Use Impacts (addresses/locations): None			

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
—	—	—	—

Non-LOP - Underground Storage Tank Oversight handled outside the LOP
Non-Tank – Voluntary Assistance Program

Case Closure Summary
Non-LOP or Voluntary Assistance Program

III. SITE CHARACTERIZATION AND/OR INFORMATION (Continued)

H29801-001

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS - - BEFORE AND AFTER CLEANUP

Contaminant	Soil (ppm)		Water (ppm)		Contaminant	Soil (ppm)		Water (ppm)	
	Before	After	Before	After		Before	After	Before	After
Trichloroethene (TCE)	0.057	0.057	----	----					
Tetrachloroethene (PCE)	3.77	3.77	----	----					

Comments: The site is an operating dry cleaning facility. TCE and PCE concentrations detected in soil beneath the on-site dry cleaner facility between 3 to 7 feet below ground surface range from below laboratory detection limits (<0.005) to 3.77 mg/kg. TCE and PCE concentrations in soil are below EPA residential and industrial Preliminary Remediation Goals (PRGs). Based on available information, consultants have concluded that the source of contamination may be incidental spills from daily operations. Based on reported information, a drip plate has been installed beneath the entire operating dry cleaning unit. Based on available information, there is no apparent threat to public health and/or the environment at the subject property.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes

Does corrective action protect public health for current land use? Yes

Case review based on current/proposed use as dry cleaning facility.

Are there other issues DEH needs to follow up on: None

Site Management Requirements: None

Should corrective action be reviewed if land use changes? Yes

List Enforcement Actions Taken: None

List Enforcement Actions Rescinded: None

Is this account up to date and current?: Yes

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Kevin Heaton	Title: Senior Hydrogeologist Land and Water Quality Division
Signature: K M. H	Date: 4/17/2000

VI. RWQCB NOTIFICATION

Date Submitted to RWQCB: Soil Only Case	RWQCB Response: N/A	
RWQCB Staff Name: N/A	Title: N/A	Date: N/A

VII. ADDITIONAL COMMENTS, DATA, ETC.

This document and the related CASE CLOSURE LETTER, shall be retained by the lead agency as part of the official site file.

Case History VAP Case H29801-002

- **11/21/2003**

Sorrento Towers LLC (property owner) submitted a letter identifying Cosmopolitan Cleaners as the responsible party of a solvent release and requested our assistance for oversight of the investigation. URS report attached (dated 9/26/03) documenting soil samples collected and analyzed inside and outside of the cleaners 8/22/2003. The VAP request letter notes that the concentrations of solvents detected during this work were comparable to those detected for a previous release (H29801-001) that was granted closure April 19, 2000 (copy of closure letter was attached).

- **11/24/2004**

Signed VAP application submitted by Sorrento Towers LLC.

- **4/22/2004**

ENSR (formerly URS) submits a request for closure dated April 5, 2004. The request is based on the URS report dated 9/26/03 and the previous closure for H29801-001.

- **8/6/2004**

ENSR submits a Corrective Action Plan (CAP), dated July 2004 proposing to excavate PCE contaminated soil and collect confirmation samples. Continue excavation if confirmation samples show PCE above levels that cause risk to fail based on their calculations of the previous soil samples collected. Vapor risk calculations were not submitted.

- **9/7/2004**

DEH Email message sent to David Parker of ENSR in response to the CAP indicating:

a. CAP not necessary for VAP cases;
b. vapor risk fails for many of the soil samples;
c. Ewan questions vapor risk assumptions in the CAP as his calculations of risk are 5 times greater than theirs, which would affect the extent of soil excavation;
d. lateral and vertical delineation of solvents in soil needed; and
e. groundwater might have beneficial uses if surface-water drains to Carroll Canyon.

Case History VAP Case H29801-002 Cont.

- **9/8/2004**

ENSR Email response to DEH email:

a. floor area and building height were the only assumptions changed (spread sheet was attached;
b. lateral and vertical extent of solvents in soil would be addressed by the excavation work;
c. uses of groundwater were established as non-beneficial by the previous closure (H29801-001);
d. additional remedial actions will be implemented if the soil excavation fails to reduce the vapor risk.

- **9/8/2004**

DEH email Response to ENSR email:

a. Ewan indicates that his risk evaluation is still 3 times higher than theirs using their floor area and building height;
b. Ewan speculates that they also reduced the floor area of flux from 100 to some lesser value;
c. Ewan indicates that without lateral soil delineation must use 100% of floor area.

- **9/15/2004**

ENSR email response to DEH email:

a. They admit that they used 33% instead of 100% for area of flux;
b. They intend to delineate by excavation and believe that the excavation will allow them to remove concentrations in soil that fail the vapor risk evaluation;
c. They ask for a meeting onsite.

- **9/15/2004**

DEH email Response to ENSR email:

a. Ewan acknowledges that soil excavation could reduce the risk;
b. He suggests they consider doing soil gas survey before excavating soil to evaluate vapor risk;
c. Indicates he will let them know soon when he can meet with them.

Case History VAP Case H29801-002 Cont.

- **9/23/2004**

ENSR email response to DEH email:

They acknowledge that soil gas would be the next logical step if the property owner wasn't in such a hurry to proceed. In that context they ask:

- Under VAP does DEH normally provide a formal approval for a remedial action work plan, or just comments?

- Are there risks in proceeding with excavation remedial action without an approved work plan?

- Can the owner expect a NFA letter if all the confirmation samples are below levels of acceptable risk?

- **10/5/2004**

ENSR submits soil vapor sampling work plan. No approval letter in the file.

- **1/26/2005**

ENSR submits a revised CAP that includes the results of the soil vapor sampling.

CAP proposes:

- Excavation of soil in the area of the dry cleaning machine (10 feet by 20 feet by 5 feet deep)
- Place slotted piping in the bottom of the excavation prior to backfilling
- Install a VES (vapor extraction system) connected to seven vapor wells and the excavation piping.

- **2/16/2005**

ENSR sends an email to Ewan after a Telcon with him. The email indicates that the CAP review is taking longer than they expected and they request a simple review and response.

Case History VAP Case H29801-002 Cont.

- **2/16/2005**

DEH email response to ENSR email:

a. Ewan states there are no simple reviews, or equivalent letters a full review of the CAP is needed to respond to it.
b. Ewan states that he could write a letter (or email) for the soil excavation part of the plan, but not for the VES part due to lack of drawing for excavation piping proposed.

- **2/17/2005**

ENSR email response to DEH email requesting a full review of the CAP including the VES and a letter approval.

- **2/18/2005**

DEH email response to ENSR email:

Ewan states that he has reviewed the CAP, but that he needs a confirmation sampling plan and map with locations before he can approve it. He also offers the following comments and suggestions:

- Dig as deep as safely possible past 5 feet especially in the hot zone.
- Use a mobile lab.
- Backfill excavation with the least permeable fill possible and collect soil gas samples at 2 feet below grade to verify vapor risk still exists.
- He cannot comment about the appropriateness of placing the slotted piping in the excavation as it may or may not be needed.
- He cannot comment on the VES pilot test or VES operation as it may not be needed.

- **3/3/2005**

DEH letter issued approving the ENSR CAP (excavation and VES). He indicates that vertical delineation may still be required after the remedial action is completed. He also states that confirmation borings and/or soil gas samples will also be required at the end of the remedial action.

Case History VAP Case H29801-002 Cont.

- **11/11/2005**

New consultant Enviroforensics sends an email to Ewan asking if he has had time to approve their CAP.

- **11/14/2005**

Ewan's response indicates that they submitted a letter proposing to do just VES using two wells and eliminate soil excavation. He told them **"Being a Voluntary Assistance Plan (VAP) you are welcome to try anything you wish (you do not need our formal approval)."**

Ewan recommends they do a pilot test for the VES to determine the radius of influence, but qualifies it by saying **"This is only a recommendation, if you wish to proceed directly to SVE as indicated in the document, you are certainly welcome to since it is your choice."** He tells them that whatever they do that at the end of the process vapor sampling would be required.

- **11/14/2005 Cont.**

There is nothing in the file regarding the CAP they reference, but Ewan thinks he remembers that it was a letter possibly proposing to use the ENSR CAP minus the soil excavation.

- **3/7/2006**

DEH well permit approved for four vapor wells drilled to 10 feet below grade and screened from 2 to 9 feet.

- **8/14/2007**

Letter dated 4/5/2005 submitted by Bob Russell (lawyer for Sorrento Towers LLC) stating that the property is now owned by Arden Realty Limited Partnership. Contact is Ms. Doreen Reagle, Vice President-Operations, (858) 521-4200.

- **11/10/2008**

Enviroforensics submits a report titled *Request for Site Closure*, dated 10/31/2008.

The report summarizes work they conducted (without a work plan):

- They imply that they used the ENSR CAP approved by DEH (minus the soil excavation) with the intent of reducing PCE in soil to levels below the EPA PRG's using a VES.

- The VES was installed and started mid-December 2007, and the report documents the total mass of PCE removed as of 9/26/2008.

Case History VAP Case H29801-002 Cont.

- **11/10/2008 Cont.**

- Began Pulse operation of VES since they were observing decreasing concentrations of VOC's being removed.

- Confirmation soil samples were collected from 4 borings, two installed in June and two installed in September. Based on June results they continued VES.

- Based on September soil samples they request closure as TCE and PCE soil concentrations are below PRG's.

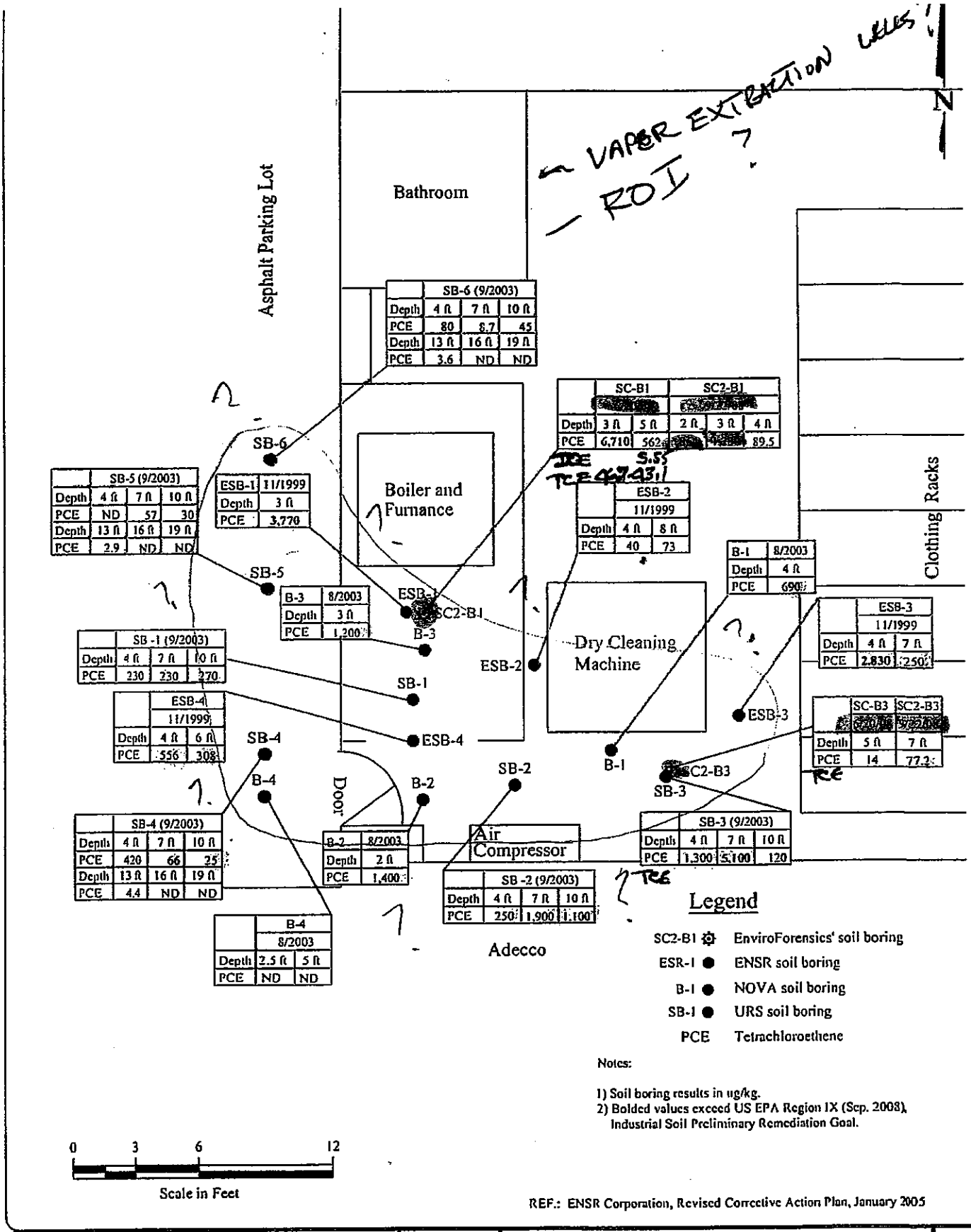
Report is missing: a drawing showing the location of the vapor extraction wells; no idea of the ROI (radius of influence) of the vapor wells; well construction diagrams; drawings in plan and cross-section view showing interpreted extent of soil impacts.....

- **11/18/2008**

Case transferred to me (Donn LiPera).

- **12/8/2008**

Discussed the need for a new VAP application with Nasser as the original one was outdated (new property owner). I verified in iMap that the new property owner is: Trizec Sorrento Towers LLC, c/o Equity Property Tax Group LLC, P.O. Box A3879, Chicago, IL 60690. Nasser verified that the Equity Group local office would fill out the new VAP application. Nasser emailed a VAP application to: Brian Coon, Chief Engineer, Equity Office, 5375 Mira Sorrento Place, Suite 290, San Diego, CA 92121.....(858) 558-0132.



REF.: ENSR Corporation, Revised Corrective Action Plan, January 2005

No.	Date	Revision	Approved

ENVIRO
ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC.
P.O. Box 590 • Alamo, CA 94507
EnviroForensics.com

Date:	10/31/05
Designed:	SH
Drawn:	HR
Checked:	KM
DWG file:	13256-05

SOIL BORING LOCATIONS MAP
Cosmopolitan Cleaners
9450 Scranton Road
San Diego, California

Figure
2
Project
590

TABLE 1
Operating Data Summary
Cosmopolitan Cleaners
San Diego, California

Date:				12/29/07	01/04/08	01/11/08	01/18/08	1/25/08	2/1/08	2/8/08	2/15/08	2/22/08	2/29/08	3/7/08	3/14/08	3/21/08	3/28/08	4/4/08	4/11/08	4/18/08	4/25/08	5/2/08	5/9/08	5/16/08	5/23/08
Operator Name:																									
			Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Data																									
	Schedule	Comment																							
Operating hours reading	Weekly		NA	2964.7	3107.4	3279.1	3445.8	3611.7	3779.2	3947.6	4116.4	4285.3	4430.7	4619.8	4788	4954.9	5124.7	5291.6	5460.3	5626.9	5795.1	5962.6	6131	6299	6464
Hours			0	60	142.7	171.7	166.7	165.9	167.5	168.4	168.8	168.9	145.4	189.1	168.2	166.9	169.8	166.9	168.7	166.6	168.2	167.5	168.4	168	165
Cumulative Hours				60	202.7	374.4	541.1	707	874.5	1042.9	1211.7	1380.6	1526	1715.1	1883.3	2050.2	2220	2386.9	2555.6	2722.2	2890.4	3057.9	3226.3	3394.3	3559.3
Power meter Reading, kwh			NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	7,508.0	8,231.0	9,132	9,982	10,842	11,702	12,567	13441	14230	15028	15814	16611	17433	18227
Well head valves, open/close	Weekly																								
SVE 1			Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
SVE 2			Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
SVM 1			Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
SVM 2			Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
Dilution air valve, open/close	Weekly		Close	Close	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
Recycle blower valve, open/close	Weekly		Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
Blower intake vaccum, in Hg	Weekly		NA	7.0	7.2	9.0	10.0	10.2	11.0	16.0	9.5	8.5	10.2	10	9.2	10.0	10	10	10	9.5	9.5	10	9	10	8
Blower discharge flow rate, fpm	Weekly		NA	3500	3500	3500	3500	3200	3100	2900	3400	3400	3300	3500	3600	3400	3200	3200	3400	3500	3500	3500	3400	3500	3400
Blower discharge flow rate, sfpm	Weekly	Carbon Adsorber 1 and 2 rates		76.37	76.37	76.37	76.37	69.824	67.642	63.278	74.188	74.188	69.824	76.37	78.552	74.188	69.824	69.824	74.188	76.37	76.37	76.37	74.188	76.37	74.188
Blower discharge flow rate, sfpm	Weekly	Carbon Adsorber 1 and 2 rates		77.24	77.38	77.24	67.46	61.86	59.75	53.12	64.72	67.35	60.91	66.83	69.39	65.53	60.91	60.91	63.72	67.14	67.46	67.68	66.80	66.62	67.90
Blower discharge Pressure, in H_2O	Weekly		NA	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Blower discharge temperature, °F	Weekly		NA	92	91	92	172	170	172	205	180	155	180	178	172	172	180	180	190	175	172	170	160	180	150
Condensate level in knockout tank	Weekly		0	0	0	0	0	0	6.5	5.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0.0	0.0	0	0
Temperature after air cooler, °F	Weekly		NA	68	72	89	91	84	72	91	80	75	95	95	84	87	90	90	104	96	98	89	83	102	76
Blower Discharge PID Reading	Weekly		15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	3.9	4.1	3.7	6.1	6.1	4.2	5.0	3.9	0.6	0.3	0.2	0.1	0.1	0.1	0
Carbon adsorber 1 exhaust FID/PID Reading	Weekly	Portable Equipment		0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Carbon adsorber 2 exhaust FID/PID Reading	Weekly	Portable Equipment		0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Atmospheric monitoring	Weekly	Portable Equipment							0.2																
[redacted]	Monthly	12" from piping and equipment	NA		0.1	0.3	0.2		0.3				0.2	0.4											
[redacted]	Monthly	12" from piping and equipment	NA		0.2	0.2	0.3		0.3				0.4	0.3					0		0.0		0.2		
[redacted]	Monthly	12" from piping and equipment	NA		0.1	0.3	0.3		0.3				0.2	0.4					0.2		0.0		0.1		
[redacted]	Monthly	12" from piping and equipment	NA		0.1	0.2	0.2		0.3				0.3	0.4					0.2		0.0		0.1		
Blower discharge piping	Monthly	12" from piping and equipment	NA		0.1	0.2	0.3		0				0.1	0					0.1		0.0		0.2		
Knockout tank	Monthly	12" from piping and equipment	NA		0.1	0.1	0.2		0				0	0					0		0.0		0.0		
Sound monitoring																			0		0.0		0.0		
At the fence	Monthly		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	84.0	NM											
At the cleaners building	Monthly		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	28.0	NM											
Lbs of PCE Removed				0.18	0.44	0.53	0.45	0.41	0.40	0.36	0.11	0.12	0.08	0.19	0.18	0.12	0.13	0.05	0.06	0.03	0.02	0.01	0.01	0.01	0.00
Cumulative PCE lbs removed				0.18	0.62	1.15	1.60	2.00	2.40	2.76	2.86	2.98	3.06	3.26	3.44	3.56	3.69	3.73	3.79	3.82	3.84	3.85	3.86	3.87	3.87

NA Not available
NC Not calculated
NM Not Measured
NR Not reported

TABLE 1
Operating Data Summary
Cosmopolitan Cleaners
San Diego, California

Date:			5/30/08	6/13/08	6/20/08	6/27/08	7/11/08	7/18/08	7/25/08	7/31/08	8/8/08	8/14/08	8/22/08	8/29/08	9/5/08	9/12/08	9/19/08	9/26/08
Operator Name:																		
			24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Data																		
	Schedule	Comment																
Operating hours reading	Weekly		6634	6634.3	6801	6973	6973	7145	7314	7452	7651	7788	7983	8150	8319	8486	8650	8827
Hours			170	0.3	166.7	172	0	172	169	138	199	137	195	167	169	167	164	177
Cumulative Hours			3729.3	3729.6	3896.3	4068.3	4068.3	4240.3	4409.3	4547.3	4746.3	4883.3	5078.3	5245.3	5414.3	5581.3	5745.3	5922.3
Power meter Reading, kwh			19057	19057	20068	21098	21099	22208	22919	23642	24659	25375	26399	27284	28192	29098	29994	30797
Well head valves, open/close	Weekly																	
SVE 1			Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
SVE 2			Open	Open	Open	Open	Open	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close
SVM 1			Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
SVM 2			Open	Open	Open	Open	Open	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close
Dilution air valve, open/close	Weekly		Close	Close	Close	Close	Close	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
Recycle blower valve, open/close	Weekly		Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close
Blower intake vaccum, in Hg	Weekly		8	15	14	14	15	14	13	9	13.5	10	12	12	12.5	12	11	14
Blower discharge flow rate, fpm	Weekly		3450	2000	2600	2800	2800	2800	2800	2800	2800	2900	2900	2900	2800	2800	2800	2800
Blower discharge flow rate, afpm	Weekly	Carbon Adsorber 1 and 2 rates	75.279	43.64	56.732	61.096	61.096	61.096	61.096	61.096	61.096	63.278	63.278	63.278	61.096	61.096	61.096	61.096
Blower discharge flow rate, sfpm	Weekly	Carbon Adsorber 1 and 2 rates	66.71	40.14	46.58	49.79	56.85	50.91	52.48	53.71	51.68	54.77	54.35	54.35	51.29	52.48	53.30	50.91
Blower discharge Pressure, in H_2O	Weekly		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Blower discharge temperature, °F	Weekly		170	147	220	225	140	210	190	175	200	185	190	190	205	190	180	210
Condensate level in knockout tank	Weekly		0	0	4"	4"	5"	4"	4"	4"	3"	1.5"	0	0	0	0	0	0
Temperature after air cooler, °F	Weekly		89	74	86	105	86	111	108	89	111	94	100	94	110	93	88	109
Blower Discharge PID Reading	Weekly		0	0.6	0.9	0.4	5	0.4	0.5	0.1	0.1	0.1	0	1.1	0.2	0.3	0.2	0.1
Carbon adsorber 1 exhaust FID/PID Reading	Weekly	Portable Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbon adsorber 2 exhaust FID/PID Reading	Weekly	Portable Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Atmospheric monitoring	Weekly	Portable Equipment					0.3									0.1		
SVE 1	Monthly	12" from piping and equipment		0.0		0.0	0.0						0.0			0.2		
SVE 2	Monthly	12" from piping and equipment		0.0		0.0	0.0						0.0			0.1		
SVM 1	Monthly	12" from piping and equipment		0.0		0.0	0.0						0.0			0		
SVM 2	Monthly	12" from piping and equipment		0.0		0.0	0.0						0.0			0.1		
Blower discharge piping	Monthly	12" from piping and equipment		0.0		0.0	0.0						0.0			0		
Knockout tank	Monthly	12" from piping and equipment		0.0		0.0	0.0						0.0			0		
Sound monitoring																		
At the fence	Monthly								39									
At the cleaners building	Monthly								21									
Lbs of PCE Removed			0.00	0.00	0.06	0.03	0.00	0.03	0.04	0.01	0.01	0.01	0.00	0.09	0.02	0.02	0.02	0.01
Cumulative PCE lbs removed			3.87	3.87	3.93	3.96	3.96	4.00	4.03	4.04	4.05	4.06	4.06	4.15	4.16	4.18	4.20	4.21

NA Not available
NC Not calculated
NM Not Measured
NR Not reported

TABLE 2
SUMMARY ANALYTICAL RESULTS
Cosmopolitan Cleaners
2450 Scranton Rd.
San Diego, California
Project # 590

		ENSR Borings - November 1999							NOVA Borings - August 2003				
Boring No.	[redacted]	ESB-1	ESB-2	ESB-2	ESB-3	ESB-3	ESB-4	ESB-4	B-1	B-2	B-3	B-4	B-4
Depth		3.0	4.0	8.0	4.0	7.0	4.0	6.0	4.0	2.0	3.0	2.5	5.0
Tetrachloroethene (PCE)	[redacted]	[redacted]	40	73	[redacted]	250	556	308	690	1,400	1,200	ND	ND
Trichloroethene (TCE)		31	9.4	ND	57	7.0	20	15.8	34	17	27	ND	ND

		URS Borings - September 2003																	
Boring No.	[redacted]	SB-1	SB-1	SB-1	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3	SB-4	SB-4	SB-4	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5
Depth		4.0	7.0	10.0	4.0	7.0	10.0	4.0	7.0	10.0	4.0	7.0	10.0	13.0	16.0	19.0	4.0	7.0	10.0
Tetrachloroethene (PCE)		230	230	270	250	1900	1100	1300	[redacted]	120	420	66	25	4.4	ND	ND	ND	57	30
Trichloroethene (TCE)		5.4	11	26	2.2	ND	ND	ND	150	15	54	12	3.2	ND	ND	ND	ND	10	5.5

		URS Borings - September 2003									EnviroForensics Borings - June 2008				EnviroForensics Borings - September 2008		
Boring No.	[redacted]	SB-5	SB-5	SB-5	SB-6	SB-6	SB-6	SB-6	SB-6	SB-6	SC-B1	SC-B2	SC-B3	SC2-B1	SC2-B1	SC2-B1	SC2-B3
Depth		13.0	16.0	19.0	4.0	7.0	10.0	13.0	16.0	19.0	3.0	5.0	5.0	2.0	3.0	4.0	7.0
Tetrachloroethene (PCE)	[redacted]	2.9	ND	ND	80	8.7	45	3.6	ND	ND	[redacted]	562	14	864	1,230	89.5	77.2
Trichloroethene (TCE)	[redacted]	ND	ND	ND	11	3.0	8.0	ND	ND	ND	46.7	43.1	<2	<20	<20	<20	<20

* Source: US EPA Region 9 Industrial Preliminary Remediation Goals, September 2008

All TCE/PCE concentrations are reported in µg/kg

2,700
14,000

APPENDIX D

Site Photographs



Photograph 1. Looking From North to South of Site.



Photograph 2. East Side of Site.



Photograph 3. Looking From South to North of Site.



Photograph 4. Unpaved, Dirt Road East of Site.



Photograph 5. Water Collected in Valley South East of Site.



Photograph 6. Concrete Stormwater Channel Inside the Site – West Side



Photograph 7. Stormwater Drain on Mira Sorrento Place.



Photograph 8. Stormwater Drain Access -.West Side of Site

APPENDIX E

Interview Documentation

Haley & Aldrich, Inc.
ASTM Phase I Environmental Site Assessment
Site Visit and Interviews Guide – Page 1 of 8

H&A File No.: 36352-000 Date of Visit & Interview: Site Visit 7 May 2009 Interview 30 Jun 2009

Site Name and Address: Mira Sorrento Sub Station
Mira Sorrento Pkwy & Mira Sorrento Place, San Diego 92121

H&A Representative: Kasra Nikkhah

Key Site Manager:

Tenant Interviews: No Tenants

Note: Pages 15 and 16 of the ASTM E1527-00 Standard include a detailed description of what should be observed during a site visit, and of what each bulleted item is intended to address.

1. **General Site Setting**
(Describe the topography, surface water, geologic features (e.g. bedrock outcrops), landscaping, roads, structures, areas not developed with roads or structures, and property boundaries)

Site is hilly.
No Structures
Vegetation all around.
Road on the east side - dirt.
Sprinkler around the sites keep vegetation dry.

2. **Current Site Uses and Tenants:**
(Do they use or store OHM? Doctor or dentist offices? Printers? Labs? Photo developers? Dry cleaners? Manufacturing or light industrial spaces?)

Vacant lot.

H&A File No.: _____ Date of Visit & Interview: _____

Site Name and Address: _____

---

3. **Previous Site Uses and Tenants:**
(Collect same information as for current site uses and tenants)

Vacant Ground
No Tenants

4. **Description of Adjoining Properties:**

North: Mira Sorrento Place, office Park

South: ~~Vacant lot~~, Mira Mesa Blvd, office buildings

East: Vacant Lot, office bldg, Shopping Center

West: Vista Sorrento Pkwy & I-805

H&A File No.: _____ Date of Visit & Interview: _____

Site Name and Address: _____

---

5. **Current or Past Uses of Adjoining properties and the surrounding area**

Office & shopping center

6. **Suppliers of the following services:**

Potable Water: SD

Sewerage: SD

Waste Disposal (trash, OHM waste, biohazard waste): —

Utilities (electric, gas): —

7. **Heating and cooling system:**
(Fuel oil? Steam? What is the source?)

— NA

H&A File No.: _____ Date of Visit & Interview: _____

Site Name and Address: _____

---

8. **Use and Storage of Hazardous Substances and Petroleum Products (Interior and Exterior):** (Describe types, quantities, locations, storage types (drums or buckets?), and secondary containment. Are there nearby floor drains? Are the storage containers properly labeled? Is there evidence of a release? How are the materials brought in, stored, used, and disposed? Describe drums and storage tanks, both aboveground and underground. For tanks, describe their construction, capacity, contents, fill and vent locations, permits, age, leak detection or spill prevention. Did you observe evidence or does the site manager have knowledge of a release?)

NA –
None known

9. **Other Drums or Containers**
(Including unidentified containers or drums or containers with unidentified uses, regardless of whether or not they are leaking, unless it is known that their contents are not hazardous materials or petroleum products.)

NA
None known

H&A File No.: _____ Date of Visit & Interview: _____

Site Name and Address: _____

---

10. **PCBs:**
(commonly found in electric or hydraulic equipment, e.g., transformers, capacitors, hydraulic lifts, hydraulic elevators, - age?, evidence or knowledge of a release?, pad or pole-mounted?, owner?)

NA
None known

11. **Hydraulic Lifts and Elevators:**
(Observe the reservoirs and elevator pits – usually must be arranged in advance. Is there evidence of a release from the reservoir or piston? Does the site contact have knowledge of a release?)

NA None

12. **Vehicle Maintenance Lifts:**

NA

13. **Emergency Generators and Sprinkler System Pumps:**
(How fueled? What use? Evidence or knowledge of a release?)

NA NO –
Irrigation System. CITY water Pump –

14. **Transformers, Circuit Breakers and Capacitors:**
(How fueled? What use? Evidence or knowledge of a release?)

NA

15. **Floor Drains and Sumps:**
(Discharge location?, sump permits?, evidence of a release?, storage of OHM nearby?)

NA

H&A File No.: _____ Date of Visit & Interview: _____

Site Name and Address: _____

---

16. **Catch basins and Oil/Water Separators:**

NO

17. **Dry wells:**
(Where do they lead? Was anything disposed in the dry wells? Are they concrete lined or do they lead directly into the ground?)

NA

18. **Stains or Corrosion on Floors, Walls, or Ceilings:**
(What is the probable cause? Are the stains indicative of a release? Are they near drains or other conduits to the subsurface?)

NA

19. **Odors:**

NO

20. **Pits, Ponds, Lagoons, and Pools of Liquid:**
(Standing surface water? Sump pits?)

Yes Pond is not this off site

21. **Stained Soil or Pavement and Stressed Vegetation:**

NO

H&A File No.: _____ Date of Visit & Interview: _____

Site Name and Address: _____

---

22. **Solid Waste:**
(Describe areas that look like they could have been filled with trash or other solid waste.)
NO

23. **Wastewater and Stormwater Discharge:**
(Describe the system. Ask about permits – Are they required? Are they in place?)
NO YES - City Owner

24. **Monitoring, Water Supply, and Irrigation Wells:**
NO

25. **Sanitary Sewer and Septic Systems:**
NO NO - unknown
City System

26. **Manhole covers:**
(Where do they lead? Are they identified?)
NO

27. **Known or Suspected Releases:**
(Ask about the location, type, response, and status of each, if any)
NOT Known

H&A File No.: _____ Date of Visit & Interview: _____

Site Name and Address: _____

---

28. **Previous Environmental Assessments:**
(Ask to obtain copies of previous environmental reports. If recommendations were made in the previous reports, ask about the status of the responses, if any.)

NUNE - known.

29. **Property Environmental Records:**
(Ask to review and obtain copies of manifests, tank registrations, discharge permits, and other environmentally-related documentation.)

NU

30. **Review of Building Plans:**
(Ask to review old plans of the property—look for tanks, septic systems, or other old features or previous uses related to oil and hazardous materials.)

NU

APPENDIX H

TECHNICAL NOISE EVALUATION

TECHNICAL NOISE EVALUATION

PROPOSED MIRA SORRENTO SUBSTATION PROJECT

City of San Diego, County of San Diego, State of California

Prepared For:

San Diego Gas & Electric Company
8315 Century Park Court
San Diego, CA 92123-1548
Contact: Mr. Richard Quasarano
(858) 654-8211

Prepared By:

RBF CONSULTING
9755 Clairemont Mesa Blvd., Suite 200
San Diego, CA 92124
Contact: Monica Kling, Environmental Analyst
(858) 614-5000

July 2010
Updated September 2011

JN 25-103691.001

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EXECUTIVE SUMMARY

The purpose of this Technical Noise Evaluation is to analyze potential noise source impacts on existing land uses surrounding the proposed Mira Sorrento Substation facility. This Report evaluates short-term construction-related impacts as well as long-term buildout (ultimate) conditions based on manufacture noise specifications provided by Sempra Energy Resources. Regionally, the Project site is located within the City of San Diego in San Diego County. The proposed Mira Sorrento Substation is located within the Mira Mesa region of the City of San Diego in the vicinity of the Interstate 805 (I-805) and Mira Mesa Boulevard. The substation would be located at the northeast corner of Mira Sorrento Place and Vista Sorrento Parkway.

The main Project component is the construction of a new substation. The electrical facilities to be installed include 69/12kV air-insulated electrical buses, steel support structures, transformers, capacitors, reactors, circuit breakers, disconnect switches, communication equipment, control equipment, and protective relays. The Substation equipment will be fully contained within the walled area. In its ultimate configuration, the 120 MVA 69/12kV distribution Substation will be designed to include the following components: Four standard profile, low sound 28 MVA transformers; Four one-quarter sections of switch gear to accommodate sixteen 12kV circuits; Four 12kV metal enclosed capacitors; Four 69kV transmission lines entering the substation underground; Four bays of standard steel rack approximately 30 feet tall consisting of the 69kV bus, 69kV potential transformer, and nine 69kV circuit breakers; One 40-foot x 20-foot wide long masonry block control shelter. Distribution conduit duct packages for the 12kV circuits and telecommunication and telephone will be installed on Mira Sorrento Place along with intercepting existing conduit along Vista Sorrento Parkway. The proposed loop-in is the process of connecting the proposed Substation with the existing transmission line. The Proposed Project will loop-in TL665 into the proposed 69kV/12kV Mira Sorrento Substation. As part of the Proposed Project, TL665 will split and proceed underground via two new parallel trench alignments along Vista Sorrento to the proposed Mira Sorrento Substation at a distance of approximately 600 feet each of single circuit 69kV duct package infrastructure.

Project construction activities would temporarily increase local noise levels in the Project study area. However, construction activities would comply with the City of San Diego Municipal Code, Section 59.5.0404 relating to construction noise. Construction is permitted only between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday (except on legal holidays as specified in Section 59.5.0404 of the Municipal Code). With adherence to the Municipal Code and

implementation of control measures regarding construction noise, noise impacts would be reduced to a less than significant level.

A sound analysis of the substation equipment was prepared for the ultimate substation configuration which will four 69/12kV transformers – each transformer is a noise source with a maximum sound level of 61 dBA. The noise sources for these transformers are typically 60-cycle vibration and cooling fans. These cooling fans operate in stages as the main tank oil temperature increases due to increased loading. The noise level used in the sound analysis was 61dBA for each transformer. This is a conservative estimate in that 61dBA is the highest sound level permitted by the transformer with its cooling fans on. This is not a normal operation during off-peak hours and night. Based on the study, the noise would range from 39.9dBA to 49.6 dBA at the screen wall. Therefore, operation of the proposed Project would not result in significant noise impacts.

1.0 INTRODUCTION AND PROJECT SUMMARY

Regionally, the proposed Mira Sorrento Substation site is located within the City of San Diego in San Diego County (refer to *Exhibit 1 – Regional Vicinity Map*). The Mira Sorrento Substation (herein referenced as the "Project site") is located within the Mira Mesa region of the City of San Diego in the vicinity of the Interstate 805 (I-805) and Mira Mesa Boulevard (refer to *Exhibit 2 - Site Vicinity Map*). The Project site would be located at the northeast corner of Mira Sorrento Place and Vista Sorrento Parkway. The San Diego Northern Railroad (SDNR) Coaster commuter service railroad tracks are approximately one-quarter of a mile south of the Project site. Interstate 5 (I-5) is located approximately 1-mile west of the Project site. The Project site is zoned as Residential Single Unit (RS-1-8) with the surrounding areas consisting of a mixture of research and development uses as well as light manufacturing. The nearest residences are located approximately 1.2 miles north of the Project site.

PROJECT DESCRIPTION

The proposed Project is divided into two primary components, a 120MVA 69/12 kilovolt (kV) distribution substation (Mira Sorrento Substation) and the Loop-in of the existing 69kV circuit transmission line (TL665) into the new substation; refer to *Exhibit 3 – Preliminary Site Plan*.

MIRA SORRENTO SUBSTATION

The main Project component is the construction of a new substation. Ultimately, the Substation perimeter security/screen wall/gates will enclose an area approximately 62,420 square feet, for a total of 1.43 acres. A 10-foot high security/screen wall will be constructed around the perimeter of the substation. All entrance gates will be locked and monitored remotely to limit access to only qualified personnel. Access to the Substation will be provided at two locations along Mira Sorrento Place.

The total disturbed area needed for construction of the substation is approximately 2.7 acres, which includes both temporary and permanent disturbed area. This area includes the following: the construction lay-down yard, remedial grading, cut and fill slopes, the substation pad, driveways, and landscape/irrigation. Site development of the new Substation will consist of

construction work including site clearing and grubbing, remedial grading, dewatering (if necessary), mass grading, retaining walls, storm water system, electrical underground conduits, finish grading, perimeter security screen wall/gates and paving of internal and external operational and maintenance driveways. The landscaping and irrigation system will be installed in conjunction with the Substation construction and after the site development construction activities are complete.

The electrical facilities to be installed include 69/12 kilovolt (kV) air-insulated electrical buses, steel support structures, transformers, capacitors, reactors, circuit breakers, disconnect switches, communication equipment, control equipment, and protective relays.

Additional facilities located inside the control shelter will include metering, Supervisory Control and Data Acquisition (SCADA) security, and communications equipment. The Substation equipment will be fully contained within the walled area. In its ultimate configuration, the 120 MVA 69/12kV distribution Substation will be designed to include the following components:

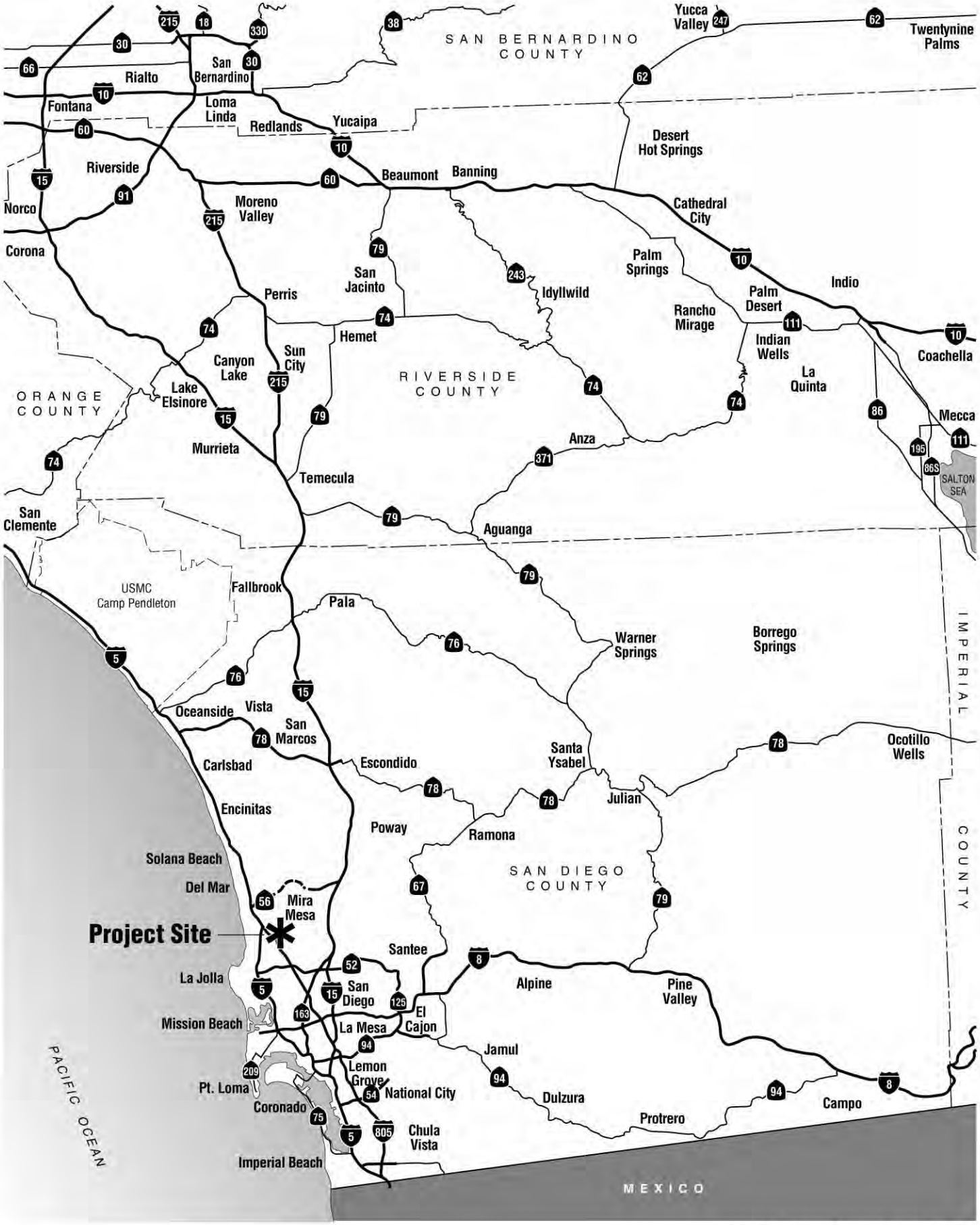
- Four standard profile, low sound 28 megavolt-amperes (MVA) transformers
- Four one-quarter sections of switch gear to accommodate sixteen 12kV circuits
- Four 12kV metal enclosed capacitors
- Four 69kV transmission lines entering the substation underground
- Four bays of standard steel rack approximately 30 feet tall consisting of the 69kV bus, 69kV potential transformer, and nine 69kV circuit breakers
- One 40-foot by 20-foot wide long masonry block control shelter

DISTRIBUTION

Distribution conduit duct packages for the 12kV circuits and telecommunication and telephone will be installed on Mira Sorrento Place along with intercepting existing conduit along Vista Sorrento Parkway. Two new manholes will be installed on Mira Sorrento Place at the Mira Sorrento Substation. All distribution circuits will be installed underground outside of the Substation within franchise position.

TRANSMISSION LINE (TL) 665 LOOP-IN

The proposed loop-in is the process of connecting the proposed Substation with the existing transmission line. The Proposed Project will loop-in TL665 into the proposed 69kV/12kV Mira Sorrento Substation. As part of the Proposed Project, TL665 will split and proceed underground via two new parallel trench alignments along Vista Sorrento to the proposed Mira Sorrento Substation at a distance of approximately 600 feet each of single circuit 69kV duct package infrastructure. Trench installation will total approximately 1,200 feet between the two parallel trench alignments. In addition, installation of approximately two 69kV vaults along this trench alignment will be required, as well as associated vault racking, installation of approximately 4,000 circuit-feet of 69kV 3000KCMIL CU underground cable, telecommunications cable, 69kV cable joints, and terminations.



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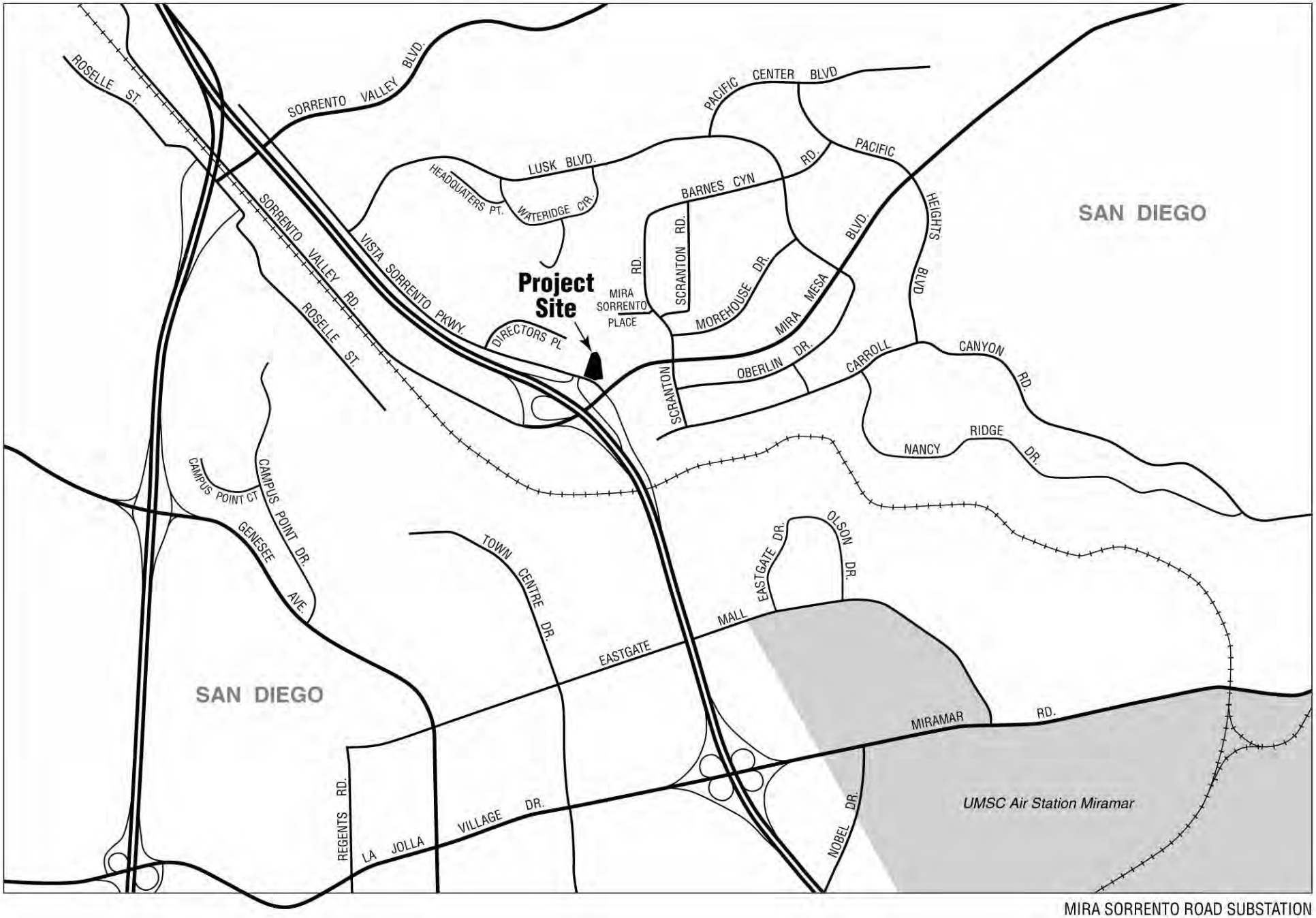
not to scale

5/16/03 JN 25-100649-10274

MIRA SORRENTO ROAD SUBSTATION
ACCOUSTICAL IMPACT ANALYSIS

Regional Vicinity

Exhibit 1



RBF CONSULTING

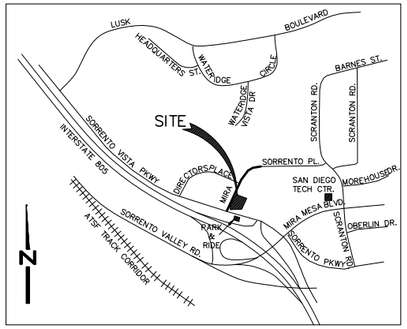
0 2000'

5/19/03 JN 25-100649-10274

MIRA SORRENTO ROAD SUBSTATION
ACCOUSTICAL IMPACT ANALYSIS

Site Vicinity Map

Exhibit 2



VICINITY MAP
NO SCALE

SITE SUMMARY

APN: 340-090-65, 340-090-67
PORTION OF 304-090-64

GROSS AREA: 3.74 AC

SUBSTATION AREA: 1.43 AC
(WITHIN SCREEN WALL)

PRESENT USE: VACANT

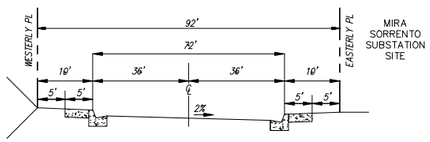
EXISTING ZONING: IP-1-1

FOR EASEMENTS AND PROPERTY LINE DATA, SEE: MTO-S-905

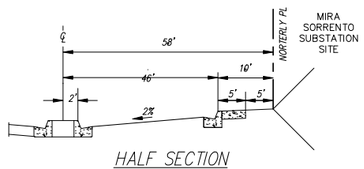
FOR DETAILED GRADING & DRAINAGE, SEE: MTO-S-901

NOTE: ALL PROPERTY LINE AND AREA DATA TO BE VERIFIED BY BOUNDARY SURVEY.

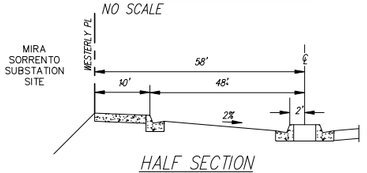
TYPICAL SECTIONS:



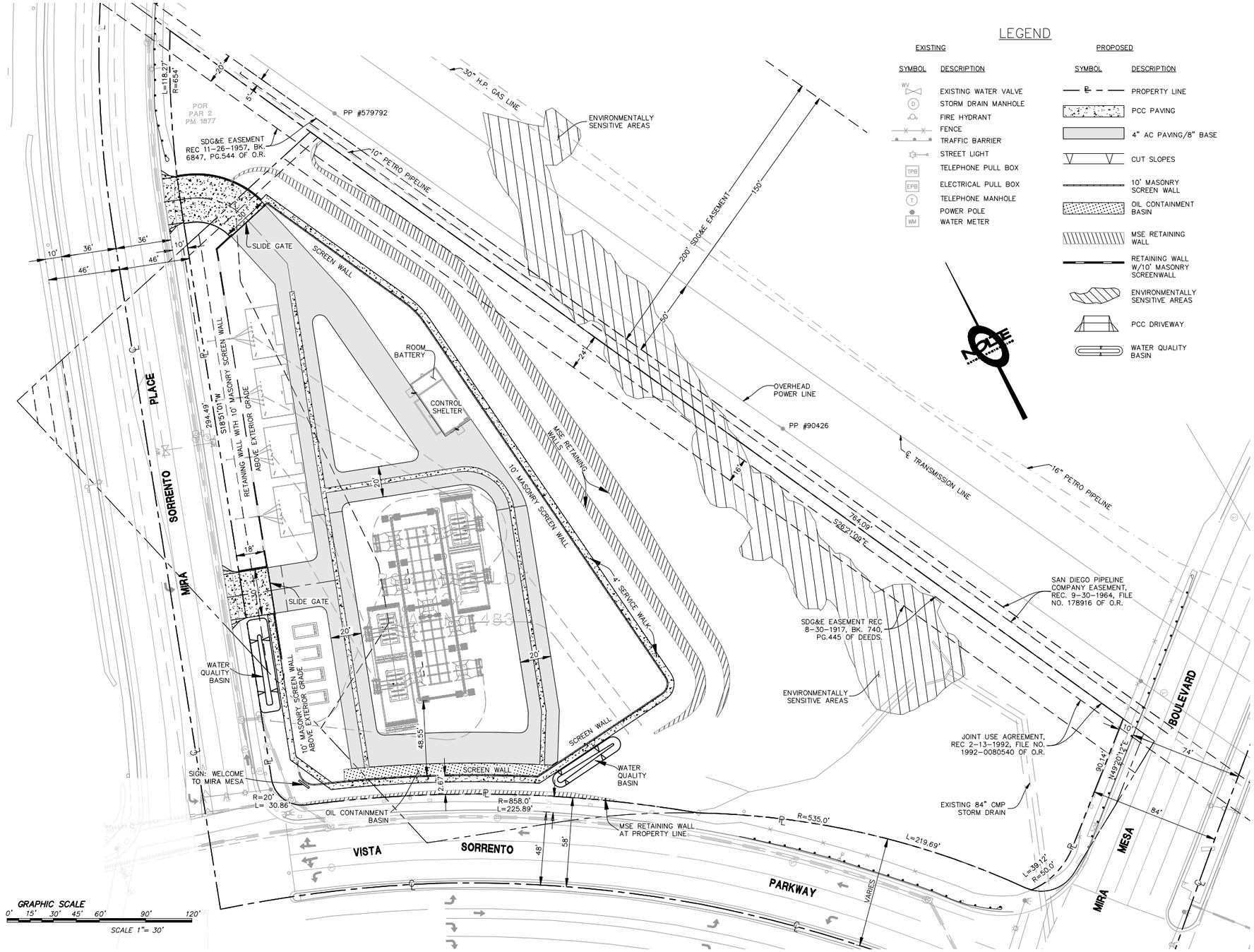
MIRA SORRENTO PLACE
NO SCALE



HALF SECTION
VISTA SORRENTO PARKWAY
NO SCALE



HALF SECTION
MIRA MESA BOULEVARD
NO SCALE



Source: Nolte Engineering, 2011

SD Mac: 25103691EIRTabloidLandscape.indd

Mira Sorrento Substation
Acoustical Impact Analysis

PRELIMINARY SITE PLAN

Exhibit 3

2.0 DESCRIPTION OF NOISE METRICS

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In general, a 1 dB change in the sound pressure levels of a given sound is detectable only under laboratory conditions. A 3 dB change in sound pressure level is considered a "just detectable" difference in most situations. A 5 dB change is readily noticeable and a 10 dB change is considered a doubling (or halving) of the subjective loudness. It should be noted that, generally speaking, a 3 dBA increase or decrease in the average traffic noise level is realized by a doubling or halving of the traffic volume; or by about a 7 mile per hour (mph) increase or decrease in speed.

For each doubling of distance from a point noise source (a stationary source, such as a loudspeaker or loading dock), the sound level will decrease by 6 dBA. In other words, if a person is 100 feet from a machine, and moves to 200 feet from that source, sound levels will drop approximately 6 dBA. For each doubling of distance from a line source, like a roadway, noise levels are reduced by 3 to 4.5 dBA, depending on the ground cover between the source and the receiver. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud; 20 dBA higher four times as loud; and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various sound levels in different environments are shown in *Table 1, Sound Levels and Human Response*.

TABLE 1
SOUND LEVELS AND HUMAN RESPONSE

Noise Source	dB(A) Noise Level	Response
	150	
Carrier Jet Operation	140	Harmfully Loud
	130	Pain Threshold
Jet Takeoff (200 ft.) Discotheque	120	
Unmuffled Motorcycle Auto Horn (3 ft.) Rock'n Roll Band Riveting Machine	110	Maximum Vocal Effort Physical Discomfort
Loud Power Mower Jet Takeoff (2000 ft.) Garbage Truck	100	Very Annoying Hearing Damage (Steady 8-Hour Exposure)
Heavy Truck (50 ft.) Pneumatic Drill (50 ft.)	90	
Alarm Clock Freight Train (50 ft.) Vacuum Cleaner (10 ft.)	80	Annoying
Freeway Traffic (50 ft.)	70	Telephone Use Difficult
Dishwashers Air Conditioning Unit (20 ft.)	60	Intrusive
Light Auto Traffic (100 ft.)	50	Quiet
Living Room Bedroom	40	
Library Soft Whisper (15 ft.)	30	Very Quiet
Broadcasting Studio	20	Just Audible
	10	Threshold of Hearing
Source: Melville C. Branch and R. Dale Beland, Outdoor Noise in the Metropolitan Environment, 1970 (p. 2).		

Many methods have been developed for evaluating community noise to account for, among other things:

- The variation of noise levels over time;
- The influence of periodic individual loud events; and
- The community response to changes in the community noise environment.

Numerous methods have been developed to measure sound over a period of time; refer to *Table 2, Noise Descriptors*.

TABLE 2
NOISE DESCRIPTORS

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).
A-Weighted Decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent Sound Level (L_{eq})	The sound level containing the same total energy as a time varying signal over a given time period. The L_{eq} is the value that expresses the time averaged total energy of a fluctuating sound level.
Maximum Sound Level (L_{max})	The highest individual sound level (dBA) occurring over a given time period.
Minimum Sound Level (L_{min})	The lowest individual sound level (dBA) occurring over a given time period.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 PM to 10:00 PM, and +10 dBA for the night, 10:00 PM to 7:00 AM
Day/Night Average (L_{dn})	The L_{dn} is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the L_{eq}. The L_{dn} is calculated by averaging the L_{eq}'s for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 PM to 7:00 AM), by 10 dBA to account for the increased sensitivity of people to noises that occur at night.
Exceedance Level (Ln)	The fast A-weighted noise levels equaled or exceeded by a fluctuating sound level for 1 percent, 10 percent, 50 percent and 90 percent of a stated time period.
Source: Cyril M. Harris, *Handbook of Noise Control*, 1979.	

HEALTH EFFECTS OF NOISE

Human response to sound is highly individualized. Annoyance is the most common issue regarding community noise. The percentage of people claiming to be annoyed by noise generally increases with the environmental sound level. However, many factors also influence people's response to noise. The factors can include the character of the noise, the variability of the sound level, the presence of tones or impulses, and the time of day of the occurrence. Additionally, non-acoustical factors, such as the person's opinion of the noise source, the ability to adapt to the noise, the attitude towards the source and those associated with it, and the predictability of the noise, all influence people's response. As such, response to noise varies widely from one person to another and with any particular noise, individual responses range from "not annoyed" to "highly annoyed."

When the noise level of an activity rises above 70 dBA, the chance of receiving a complaint is possible, and as the noise level rises, dissatisfaction among the public steadily increases. However, an individual's reaction to a particular noise depends on many factors such as the source of the sound, its loudness relative to the background noise, and the time of day. The reaction to noise can also be highly subjective; the perceived effect of a particular noise can vary widely among individuals in a community.

The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise on the community can be organized into six broad categories:

- Noise-Induced Hearing Loss;
- Interference with Communication;
- Effects of Noise on Sleep;
- Effects on Performance and Behavior;
- Extra-Auditory Health Effects; and
- Annoyance.

Although it often causes discomfort and sometimes pain, noise-induced hearing loss usually takes years to develop. Noise-induced hearing loss can impair the quality of life through a reduction in the ability to hear important sounds and to communicate with family and friends. Hearing loss is one of the most obvious and easily quantified effects of excessive exposure to noise. While the loss may be temporary at first, it could become permanent after continued exposure. When combined with hearing loss associated with aging, the amount of hearing loss directly caused by the environment is difficult to quantify. Although the major cause of noise-induced hearing loss is occupational, substantial damage can be caused by nonoccupational sources.

According to the United States Public Health Service, nearly ten million of the estimated 21 million Americans with hearing impairments owe their losses to noise exposure. Noise can mask important sounds and disrupt communication between individuals in a variety of settings. This process can cause anything from a slight irritation to a serious safety hazard, depending on the circumstance. Noise can disrupt face-to-face communication and telephone communication, and the enjoyment of music and television in the home. It can also disrupt effective communication between teachers and pupils in schools, and can cause fatigue and vocal strain in those who need to communicate in spite of the noise.

Interference with communication has proved to be one of the most important components of noise-related annoyance. Noise-induced sleep interference is one of the critical components of community annoyance. Sound level, frequency distribution, duration, repetition, and variability can make it difficult to fall asleep and may cause momentary shifts in the natural sleep pattern, or level of sleep. It can produce short-term adverse effects on mood changes and job performance, with the possibility of more serious effects on health if it continues over long periods. Noise can cause adverse effects on task performance and behavior at work, and non-occupational and social settings. These effects are the subject of some controversy, since the presence and degree of effects depends on a variety of intervening variables. Most research in this area has focused mainly on occupational settings, where noise levels must be sufficiently high and the task sufficiently complex for effects on performance to occur.

Recent research implicates that more moderate noise levels can produce disruptive after-effects, commonly manifested as a reduced tolerance for frustration, increased anxiety, decreased incidence of "helping" behavior and increased incidence of "hostile" behavior. Noise has been implicated in the development or exacerbation of a variety of health problems, ranging from hypertension to psychosis. As with other categories, quantifying these effects is difficult due to the amount of variables that need to be considered in each situation. As a biological stressor, noise can influence the entire physiological system. Most effects seem to be transitory, but with continued exposure some effects have been shown to be chronic in laboratory animals.

Annoyance can be viewed as the expression of negative feelings resulting from interference with activities, as well as the disruption of one's peace of mind and the enjoyment of one's environment. Field evaluations of community annoyance are useful for predicting the consequences of planned actions involving highways, airports, road traffic, railroads, or other noise sources. The consequences of noise-induced annoyance are privately held dissatisfaction, publicly expressed complaints to authorities, and potential adverse health effects, as discussed above. In a study conducted by the United States Department of Transportation, the effects of annoyance to the community were quantified. In areas where noise levels were consistently above 60 dBA CNEL, approximately nine percent of the community is highly annoyed. When levels exceed 65 dBA CNEL, that percentage rises to 15 percent. Although evidence for the various effects of noise have differing levels of certainty, it is clear that noise can affect human health. Most of the effects are, to a varying degree, stress related.

GROUND-BORNE VIBRATION

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity or the

root mean square velocity is usually used to describe vibration amplitudes. The peak particle velocity is defined as the maximum instantaneous peak or vibration signal, while the root mean square is defined as the square root of the average of the squared amplitude of the signal. The peak particle velocity is typically used for evaluating potential building damage, whereas the root mean square is typically more suitable for evaluating human response. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source.

Both construction and operation of development projects can generate ground-borne vibration. In general, demolition of structures preceding construction generates the highest vibrations. Construction equipment, such as vibratory compactors or rollers, pile drivers, and pavement breakers, can generate perceptible vibration during construction activities. Heavy trucks can also generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions.

3.0 METHODOLOGY

In order to quantify existing ambient noise levels in the Project area, noise measurements were conducted by RBF Consulting on July 22, 2009. The noise measurement sites were representative of typical existing noise exposure within the Project area. The noise measurement locations were considered representative of typical existing noise exposure levels within the area (refer to Appendix A – *Noise Measurements*). Noise levels from operations of the electrical substation are based on information provided in the *Noise Study for Mira Sorrento 69/12 kV Substation*, prepared by SDG&E, dated June 29, 2011.

4.0 EXISTING CONDITIONS

REGULATORY SETTING

Regulating noise is generally the responsibility of local governments. Federal and State publications recommend noise levels depending on certain criteria. The noise analysis was conducted in accordance with federal, state, and local criteria, as described in the following sections.

U.S. ENVIRONMENTAL PROTECTION AGENCY

The U.S. Environmental Protection Agency (EPA) offers guidelines for community noise exposure in the publication *Noise Effects Handbook – A Desk Reference to Health and Welfare Effects of Noise*. These guidelines consider occupational noise exposure as well as noise exposure in homes. The EPA recognizes an exterior noise day-night level of 55 decibels (55 dB Ldn) as a general goal to protect the public from hearing loss, activity interference, sleep disturbance, and annoyance. The EPA and other federal agencies have adopted suggested land use compatibility guidelines that indicate that residential noise exposures of 55 to 65 dB Ldn are acceptable. The EPA notes, that these levels are not regulatory goals, but are levels defined by a negotiated scientific consensus without concern for economic and technological feasibility or the needs and desires of any particular community.

STATE OF CALIFORNIA

The State of California Office of Planning and Research (OPR) Noise Element Guidelines recommend exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The OPR Guidelines contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the community noise equivalent level (CNEL). A noise environment of 50 to 60 CNEL is considered to be normally acceptable for residential uses. The OPR recommendations also note that, under certain conditions, more restrictive standards than the maximum levels cited may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by five to ten dB to reflect their lower existing outdoor noise levels in comparison with urban environments.

CITY OF SAN DIEGO GENERAL PLAN NOISE ELEMENT

The City of San Diego has adopted noise compatibility guidelines for various land uses that are contained in the Noise Element of the General Plan. As shown in *Table 3, Land Use – Noise Compatibility Guidelines (City General Plan Noise Standards)*, the City of San Diego General Plan considers a noise environment of up to 65 Ldn compatible for office uses which is the category most similar to the courthouse. A noise environment of up to 75 Ldn is allowed for new development of these types of uses only when a detailed analysis of noise reduction requirements has been conducted and the best practicable and available noise insulation features have been incorporated into the Project design. These features for a courthouse typically will involve construction with better-insulating or smaller windows.

TABLE 3
LAND USE – NOISE COMPATIBILITY GUIDELINES
(CITY GENERAL PLAN NOISE STANDARDS)

Land Use Category	Exterior Noise Exposure				
	60	65	70	75	
Open Space and Parks and Recreational					
Community & Neighborhood Parks, Passive Recreation					
Regional Parks, Outdoor Spectator Sports, Golf Courses, Athletic Fields, Outdoor Spectator Sports, Water Recreational Facilities, Horse Stables, Park Maintenance Facilities					
Agricultural					
Crop Raising & Farming, Aquaculture, Dairies, Horticulture Nurseries & Greenhouses, Animal Raising, Maintain & Keeping, Commercial Stables					
Residential					
Single Units, Mobile Homes, Senior Housing		45			
Multiple Units, Mixed-Use Commercial/Residential, Live Work, Group Living Accommodations, **For uses affected by aircraft noise, refer to Policies NE-D.2 & NE-D.3*		45	45*		
Institutional					
Hospitals, Nursing Facilities, Intermediate Care Facilities, Kindergarten through Grade 12 Educational Facilities, Libraries, Museums, Places of Worship, Child Care Facilities		45			
Vocational of Professional Educational Facilities, Higher Education Institution Facilities (Community or Junior Colleges, Colleges, or Universities)		45	45		
Cemeteries					
Sales					
Building Supplies/Equipment, Food, Beverages & Groceries, Pets & Pet Supplies, Sundries, Pharmaceutical, & Convenience Sales, Wearing Apparel and Accessories			50	50	
Commercial Services					
Building Services, Business Support, Eating & Drinking, Financial Institutions, Assembly & Entertainment, Radio & Television Studios, Golf Course Support			50	50	
Visitor Accommodations		45	45	45	

TABLE 3, LAND USE – NOISE COMPATIBILITY GUIDELINES (CITY GENERAL PLAN NOISE STANDARDS), CONTINUED

Land Use Category	Exterior Noise Exposure				
	60	65	70	75	
Offices					
Business & Professional, Government, Medical, Dental & Health Practitioner, Regional & Corporate Headquarters			50	50	
Vehicle and Vehicular Equipment Sales and Services Use					
Commercial or Personal Vehicle Repair & Maintenance, Commercial or Personal Vehicle Sales & Rentals, Vehicle Equipment & Supplies Sales & Rentals, Vehicle Parking					
Wholesale, Distribution, Storage Use Category					
Equipment & Materials Storage Yards, Moving & Storage Facilities, Warehouse, Wholesale Distribution					
Industrial					
Heavy Manufacturing, Light Manufacturing, Marine Industry, Trucking & Transportation Terminals, Mining & Extractive Industries					
Research & Development				50	

	Compatible	Indoor Uses	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level. Refer to Section 1.
		Outdoor Uses	Activities associated with the land use may be carried out.
	Conditionally Compatible	Indoor Uses	Building structure must attenuate exterior noise to the indoor noise level indicated by the number for occupied areas. Refer to Section 1.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated make the outdoor activities acceptable. Refer to Section 1.
	Incompatible	Indoor Uses	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

The City's General Plan recognizes noise pollution as a significant source of environmental degradation. The City's General Plan policy document identifies community noise goals and establishes policies to reduce noise pollution. Many of the goals and policies address new residential development. The general plan goals and policies that apply to the Project are summarized below.

Goal

Consider existing and future noise levels when making land use planning decisions to minimize people's exposure to excessive noise.

Policies

- NE-A.1. Separate excessive noise-generating uses from residential and other noise-sensitive land uses with a sufficient spatial buffer of less sensitive uses.

- NE-A.2. Assure the appropriateness of proposed developments relative to existing and future noise levels by consulting the guidelines for noise-compatible land use (shown on *Table 3*) to minimize the effects on noise-sensitive land uses.

- NE-A.3. Limit future residential and other noise-sensitive land uses in areas exposed to high levels of noise.

- NE-A.4. Require an acoustical study consistent with Acoustical Study Guidelines for proposed developments in areas where the existing or future noise level exceeds or would exceed the "compatible" noise level thresholds as indicated on the Land Use - Noise Compatibility Guidelines (*Table 3*), so that noise mitigation measures can be included in the Project design to meet the noise guidelines.

- NE-A.5. Prepare noise studies to address existing and future noise levels from noise sources that are specific to a community when updating community plans.

CITY OF SAN DIEGO NOISE ORDINANCE

Chapter 5 of the *City of San Diego Municipal Code* regulates sound level limits from stationary noise sources within the City. Specifically, Section 59.5.0401 of the Municipal Code states the following with respect to stationary noise sources:

> *(a) It shall be unlawful for any person to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit given in the following table, at any location in the City of San Diego on or beyond the boundaries of the property on which the noise is produced.*

Table 4, San Diego Municipal Code-Stationary Noise Limits, summarizes acceptable sound levels with respect to various land uses. For clarity, the following table has been modified from a larger table contained within the Municipal Code. Section 59.5.0401(b) of the San Diego Municipal Code identifies the sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. The site is zoned residential, but

is adjacent to an agricultural zone, and therefore is subject to the arithmetic mean of those two zones.

TABLE 4
SAN DIEGO MUNICIPAL CODE – STATIONARY NOISE LIMITS

Land Use Zone	Time of Day	One-Hour Average Sound Level (dBA)
Single Family Residential	7:00 a.m. to 7:00 p.m.	50
	7:00 p.m. to 10:00 p.m.	45
	10:00 p.m. to 7:00 a.m.	40
Commercial	7:00 a.m. to 7:00 p.m.	65
	7:00 p.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	60
Industrial or Agricultural	7:00 a.m. to 7:00 p.m.	75
	7:00 p.m. to 10:00 p.m.	75
	10:00 p.m. to 7:00 a.m.	75
Project Site*	7:00 a.m. to 7:00 p.m.	62.5
	7:00 p.m. to 10:00 pm	60.0
	10:00 p.m. to 7:00 a.m.	57.5

Source: San Diego Municipal Code, Chapter 5, Public Safety, Morals and Welfare.

*Per Section 59.5.0401(b) of the San Diego Municipal the project site is subject to the arithmetic mean of the single family residential and agricultural sound levels.

Section 59.5.0404, of the City's Municipal Code exempts construction noise on nonresidential zoned properties as long as it occurs between the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday, and not on legal holidays. Section 59.5.0404, of the City Municipal Code further states that construction activity at or beyond the property lines of any property zoned residential are prohibited to cause, an average sound level greater than 75 decibel from 7:00 AM to 7:00 PM.

In accordance with significance criteria established by Appendix G of the State California Environmental Quality Act (CEQA) Guidelines and the City of San Diego, a significant impact could occur if the Proposed Project would:

- Result in exterior noise levels that exceed 65 CNEL in residential areas and outdoor recreational areas including parks, and 70 CNEL in office districts, and 75 CNEL in commercial and industrial districts;
- Result in interior noise levels that exceed 45 CNEL for single-family and multi-family residential homes;
- Create a substantial or periodic increase in ambient noise levels in the project vicinity above levels existing without the Proposed Project; or,

- Result in noise levels that violate the City's Noise Ordinance (Section 59.5.0101 Sound Level Limits of the Municipal Zoning Code).

ENVIRONMENTAL SETTING

The major sources of noise in the area are associated with Mira Mesa Boulevard, Vista Sorrento Place, Mira Sorrento Place, and I-805. The site is bordered by Vista Sorrento Parkway to the southwest, Mira Sorrento Place to the northwest, a 200-foot SDG&E utility easement to the north and an undeveloped area to the east with a drainage channel that trends from northwest to southeast. Other surrounding land uses include the Sorrento Towers North office complex and Sorrento Court retail commercial service area to the northeast across the drainage. The Marriott Courtyard and Water Ridge condominium complexes are located north of the site at distances of approximately 800 and 1,000 feet, respectively.

SENSITIVE RECEPTORS

Land uses deemed sensitive by the State of California include schools, hospitals, rest homes, and long-term care and mental healthcare facilities. Many jurisdictions also consider residential uses particularly noise-sensitive because families and individuals expect to use time in the home for rest and relaxation, and noise can interfere with those activities. Some jurisdictions may identify other noise-sensitive uses such as churches, libraries, and parks. Insensitive noise receptors typically include uses that generate significant noise levels and uses of low-level human occupancy. Refer to *Table 5, Sensitive Receptors*, for a list of sensitive noise receptors within one mile of the Proposed Project site. A one-mile radius represents a reasonable distance where sensitive noise receptors could potentially experience impacts because most typical construction equipment noise attenuates to less than 70 dBA at 800 feet and would not be discernable at a distance of one mile.

TABLE 5
SENSITIVE RECEPTORS

Type	Name	Distance From Project Site (miles)	Direction from Project Site
Proposed Mira Sorrento Substation (City of San Diego)			
Residential	Water Ridge Condominium Complex	0.3	North
Hotels	Marriott Courtyard	0.1	North
	Country Inn and Suites	0.7	East
	Woodfin Hotel	0.9	East
	Homestead San Diego	1.0	East
	Holiday Inn Express	0.7	East

TABLE 5. SENSITIVE RECEPTORS, CONTINUED

Type	Name	Distance From Project Site (miles)	Direction from Project Site
Schools	San Diego College of Ayurveda	0.3	West
	Children's World Living Center	1.0	Northeast
	San Diego Chinese Institute	0.7	East
	Star Specialties	0.6	Northeast
Hospitals	Sharp Medical Offices	0.3	West
Places of Worship	Bread of Life Christian Church	0.6	Northwest
	The Celebration Center for Spiritual Living	0.6	East
Parks	San Diego Wildlife Refuge	1.0	South

1. Sensitive receptor populations utilized in this analysis are those within a one-mile radius of the proposed Mira Sorrento Substation site.
Source: http://maps.google.com

EXISTING NOISE MEASUREMENTS

Noise monitoring equipment used for the ambient noise survey consisted of a Bruel & Kjaer (B&K) Hand-held Analyzer Type 2250 equipped with a 4189 pre-polarized freefield microphone. The instrumentation was calibrated prior to use with a B&K Type 4231 acoustical calibrator to ensure the accuracy of the measurements and compliance with applicable requirements of the American National Standards Institute (ANSI) for Type I (precision) sound level meters. *Table 6, Noise Measurements*, provides a summary of the results of the noise monitoring survey (refer to Appendix A - *Noise Measurements*).

TABLE 6
NOISE MEASUREMENTS

Site No.	Location	Leq		Time	Time/Comments
1	Back parking lot off of Director's Place	73.6		11:52 am – 12:02 pm	Sunny, mild winds
2	Sorrento Valley – Scripps Clinic	57.6		12:42 pm – 12:52 pm	Sunny, mild winds
3	Mira Mesa – Canon Building	67.8		1:41 pm – 1:51 pm	Sunny, mild winds
4	Scranton – Courtyard Hotel	56.4		2:05 pm –2:15 pm	Sunny, mild winds

Source: Noise Monitoring Survey conducted by RBF Consulting, July 2009.

5.0 SHORT-TERM CONSTRUCTION NOISE

CONSTRUCTION NOISE

Construction noise is generally of relatively short duration, lasting from a few days to a period of several months. Noise impacts associated with construction activities would typically occur in several distinct phases, each with its own noise characteristics. All construction equipment, vehicles, personnel, and material staging areas would be accommodated within the property lines of the proposed substation property. Access to the property would be along Mira Sorrento Place. The first phase, site preparation, is generally the noisiest. Activities that occur during this phase include earthmoving and compacting of soils. High noise levels are created during this phase from the operation of heavy-duty trucks, backhoes and front-end loaders.

During construction, operation of construction equipment will generate noise. Typical noise levels of construction equipment at a distance of 50 feet from the source range from 81 to 101 dBA Leq; refer to *Table 7, Typical Noise Levels from Construction Equipment*. The noise from construction equipment could be appreciable during the construction phase of the Project. Because all equipment would not be operating on most days during construction, actual noise levels would, on many days, be lower than present in *Table 7*.

TABLE 7
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Scraper	88
Jack Hammer	88
Dozer	87
Paver	89
Generator	78
Pile Driver	101
Front Loader	79
Scraper	88
Grader	85
Backhoe	85
Building Assembly -hammering on beams	85
Source: Cunniff, Environmental Noise Pollution, 1977 and U.S. Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, 1971.	

Construction activities associated with the proposed project would occur in six distinct phases over a two-year period. The six construction phases and required equipment are provided in Table 8, Construction Equipment and Phasing. During the site grading phase, a total of 1.8 acres would be graded at a maximum of 0.50 acres per day. The Proposed Project would require approximately 65,500 cubic yards of cut and 67,000 cubic yards of fill for the grading, retaining wall backcut, and retaining wall backfill. Approximately 16,500 cubic yards of cut and 22,600 cubic yards of import fill material would be used to balance the site and complete the substation pad. The proposed project would haul 1,004 cubic yards per day of cut material from the site.

Portable cranes and heavy hauling trucks would be employed for equipment delivery and installation. Concrete trucks, backhoes, crew trucks and pick-up trucks would be coming and going to the site during the installation of the foundations, ground grid, and underground ducts. Crew trucks, boom trucks, and pick-up trucks would be going to and from the site daily for the balance of the construction activities, testing and check-out, final transmission tie-ins, and circuit cabling until the station is energized.

TABLE 8
CONSTRUCTION EQUIPMENT AND PHASING

Total Estimated Vehicles Used	Hours Operating at Site/Day (per vehicle)	Daily Worst Case Vehicle Usage
Verdura Retaining Wall Construction (approximately 1½ months, concurrent with grading) (Note: The Verdura retaining wall construction assumes a 12 man crew: 1 superintendent, 4 operators, 8 laborers)		
3 – Front End Loader IT28	9	3
1 – Excavator	9	1
1 – Water truck	9	1
1 – Motor Grader (blade)	9	1
4 – Other Equipment (190 hp)	9	4
1 – Other General Industrial Equipment (238 hp)	3	1
3 – Other Material Handling Equipment (191 hp)	1	3
Site Development and Grading Construction (approximately 6 months):		
4 – Scrapers**	7	4
2 – Front End Loader	6	2
25 – Dump Trucks (12 cubic-yard)***	7	25
2 – Dozer (D6 or D8 or D9)	6	2
2 – Skid Steer Loader	3	2
2 – Back Hoe	6	2
1 – Paver	6	1
2 – Drum Roller Compactor	6	2
2 – Other Equipment (190 hp)	7	2

TABLE 8, CONSTRUCTION EQUIPMENT AND PHASING, CONTINUED

Total Estimated Vehicles Used	Hours Operating at Site/Day (per vehicle)	Daily Worst Case Vehicle Usage
1 – Other General Industrial Equipment (238 hp)	8	1
10 – Other Material Handling Equipment (191 hp)	1	10
CMU Retaining Wall, CMU Screen Wall, and Gate Construction (approximately 1½ months):		
2 – Forklift	6	2
1 – Back Hoe	7	1
1 – Excavator	7	1
1 – Water Truck	4	1
2 – Mobile Cement Mixer	5	2
1 – Mobile Generator	8	1
1 – Spray Pump (wall waterproof)	6	1
1 – Other Equipment (190 hp)	6	1
2 – Other General Industrial Equipment (238 hp)	4	2
11 – Other Material Handling Equipment (191 hp)	1	11
SUBSTATION BELOW GRADE - 6 MONTHS		
2 - Back Hoe	6	1
2 -Loader	6	2
2 - Truck (20 cubic-yard end dump)	3	2
2 – Skid Steer Loaders	4	1
1 – Water truck	3	1
1 – Other General Industrial Equipment (238 hp)	6	1
15 – Other Material Handling Equipment (191 hp)	1	15
SUBSTATION CONSTRUCTION - 13 MONTHS		
1 – Water truck	2	1
1 – Generator Sets (49 hp)	2	1
10 – Other General Industrial Equipment (238 hp)	4	10
TOTAL TRANSMISSION CONSTRUCTION: 2-4 MONTHS		
1 - Back Hoe	6	1
1 - Truck (20 cubic-yard end dump)	4	1
1 - Skid Steer Loaders	4	1
1- Crane	0.5	1
1- Drill Rig	0.5	1
2 – Other Equipment (190 hp)	2	2
2 – Other General Industrial Equipment (238 hp)	2	2
4 – Other Material Handling Equipment (191 hp)	1	4

TABLE 8, CONSTRUCTION EQUIPMENT AND PHASING, CONTINUED

Total Estimated Vehicles Used	Hours Operating at Site/Day (per vehicle)	Daily Worst Case Vehicle Usage
Source: San Diego Gas & Electric, 2010.		
Notes: * - Number equipment operating concurrently for worst-case scenario. ** - For the purpose of the construction noise analysis, due to the relatively small area of the project site, it was assumed that only two scrapers would be able to operate concurrently. *** - For the purpose of the construction noise analysis, due to the relatively small area of the project site, it was assumed that only three dump trucks would be able to operate concurrently. **** - For the purpose of the construction noise analysis, due to the relatively small area of the project site, it was assumed that only one asphalt truck would be able to operate.		

Project construction activities would temporarily increase local noise levels in the project site. Construction equipment noise was modeled using Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054)*, January 2006; refer to Attachment A, *Noise Data.* As indicated in *Table 9, Projected Construction Equipment Noise*, the closets receptor is the Marriott Courtyard, approximately 528 feet north of the proposed project site. Modeled construction noise levels were highest at this location and were projected to be 70.2 dBA. Although the Marriott Courtyard is not zoned residential, to provide for a more conservative analysis the residential threshold was utilized to determine construction noise impacts to this sensitive use. The projected noise level of 70.2 dBA at this location would not exceed the City's noise standard limiting construction activity at or beyond the property lines of any property zoned residential to an average sound level greater than 75 decibel from 7:00 AM to 7:00 PM. Therefore, construction noise impacts were determined to be less than significant.

TABLE 9
PROJECTED CONSTRUCTION EQUIPMENT NOISE

Approximate Sensitive Receptor Distance to Project Site	Direction from Proposed Project Site	Project Noise Level
528 feet	North	70.2
5,280 feet	South	50.2
3,168 feet	East	54.6
1,584	West	60.6
Notes: * - Number equipment operating concurrently for worst-case scenario. ** - For the purpose of the construction noise analysis, due to the relatively small area of the project site, it was assumed that only two scrapers would be able to operate concurrently. *** - For the purpose of the construction noise analysis, due to the relatively small area of the project site, it was assumed that only three dump trucks would be able to operate concurrently. **** - For the purpose of the construction noise analysis, due to the relatively small area of the project site, it was assumed that only one asphalt truck would be able to operate.		
Use to the north of the project site is residential; to the south is the San Diego Wildlife Refuge; to the east are hotels, schools, and churches; to the west are a hospital and school.		
Distance is from the nearest receptor to the construction activity area of the project site, in feet.		
Derived from the Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054),* January 2005; refer to Appendix A, Noise Data.		
Construction noise in San Diego is governed by the Municipal Code. Construction is normally limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday. The Municipal Code identifies the maximum noise level for construction noise at 75 dBA Leq at residential property line.		

Construction activities would be done in a manner that maintains uninterrupted electric service to customers. On occasion, construction activities may be required at night or on weekends in order to minimize impacts on schedules and facilitate cutover work. Depending on loading requirements, construction activities may need to occur after normal business hours or on the weekends and/or at night. On occasion, construction activities may need to extend beyond these typical hours, based on SDG&E's need to perform transfers which are performed at night to limit the number of customers that could be affected by unintentional outage. If construction activities are necessary outside the normal construction hours (7:00 A.M. and 7:00 P.M), SDG&E shall provide advance notice to all property owners within 300 feet of construction.

The major pieces of heavy equipment are expected to be moved on to the site once during each construction phase and would have a less than significant short-term effect on noise levels. It is anticipated that approximately 12 workers could be employed for the Verdura Retaining Wall Construction phase of the Proposed Project. Eight to fifteen workers could be on-site during the balance of construction of the transmission, substation, and distribution infrastructure until just prior to control wiring checkout and testing. At this stage of construction, approximately four to six electricians would be on-site. Final activities, including final tie-ins and energizing the station, would utilize about six to eight electricians and two to four engineers. Total construction time including testing and energizing is expected to take approximately 24 months. Daily transportation of construction workers is not expected to cause a significant effect since this traffic would not be a substantial percentage of current daily volumes in the area and would not be anticipated to increase traffic noise levels by more than 1 dBA over existing noise levels.

In addition, construction activities would comply with the City of San Diego Municipal Code, Section 59.5.0404 relating to construction noise. Construction is permitted only between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday (except on legal holidays as specified in Section 21.04 of the Municipal Code).

All construction activities would comply with the City of San Diego Municipal Code, occur within the City's allowable hours, and property owners within 300 feet of the construction limits of the details of construction activities would be notified. Therefore, potential construction noise levels are considered less than significant.

6.0 PROPOSED FACILITY OPERATION AND MAINTENANCE

EQUIPMENT NOISE

The pieces of equipment that would be responsible for the majority of the noise emissions from the Proposed Project would be the 69/12kV distribution transformers (two initially and four ultimate). A site specific noise study of the distribution transformers at the Proposed Project site was prepared by SDG&E substation engineers. By policy, SDG&E utilizes distribution transformers, which reduce operational sound levels by approximately 12 dBA below the National Electrical Manufacturers Association standards for test methods, test codes, and properties of liquid-immersed transformers (NEMA TR-1). The units and cooling apparatus are designed not to exceed 58/60/61 dBA for oil cooled with air (OA)/forced air cooled with fans (FA) ratings. The distribution transmission banks proposed for the Mira Sorrento Substation would be furnished with FA transformer cooling equipment. Based upon manufacturer specifications, the maximum sound levels are 61 dBA for the distribution transformers at a distance of three feet from the source. The electrical substation equipment would be positioned approximately 70-feet from the western wall, 59-feet from the southern wall, 60-feet from the western property line and 220-feet from the northern wall. A sound analysis was performed for the ultimate substation configuration which will four 69/12kV transformers – each transformer is a noise source with a maximum sound level of 61 dBA. The noise sources for these transformers are typically 60-cycle vibration and cooling fans. These cooling fans operate in stages as the main tank oil temperature increases due to increased loading. The noise level used in the sound analysis was 61dBA for each transformer. This is a conservative estimate in that 61dBA is the highest sound level permitted by the transformer with its cooling fans on. This is not a normal operation during off-peak hours and night. Based on the study, the noise would range from 39.9dBA to 49.6 dBA at the screen wall. Noise level contours with all four transformers operating are shown in *Figure 4 - Distribution Transformer Noise Contours (Ultimate Configuration)*.

Standard fundamentals for noise propagation maintain that for each doubling of distance from a point noise source, the sound level will decrease by approximately 6 dBA. In other words, if a person is 100 feet from a machine and moves to 200 feet from that source, sound levels will drop by approximately 6 dBA. Given the setback distance and reduced operational sound levels of the proposed equipment, by applying the noise propagation fundamentals just described, it can be

assumed that average operational noise levels associated with the proposed cooling fans would be approximately 46 dBA with both cooling units running.[1]

As previously mentioned, the Project proposes to incorporate a screening wall (10 feet high) to prevent unassisted and unauthorized entrance. Screening walls may provide between 5 dBA and 10 dBA sound attenuation depending on wall height, location and length. The exact degree of noise attenuation depends also on the composition of the wall. The proposed concrete wall is a solid concrete block wall with no gaps or openings except for two entry gates along along Mira Sorrento Place. Although not accounted for in the noise contour calculations it can be assumed that the proposed perimeter wall would provide a minimum of 5 dBA noise reduction because of the solid wall material , which would help to offset normal facility conditions and anticipated full fan operational conditions noise levels.

SDG&E would meet the City's Municipal Code one-hour average sound level standards related to stationary noise sources for the proposed Project (75 dBA for manufacturing and industrial uses). Therefore, the combination of noise muffling devices provided on the cooling equipment and the noise attenuation provided by the screening wall would result in an average maximum noise level of approximately 50 dBA at the screening wall, which is well below the 75 dBA noise standard established by the City's Noise Ordinance. Therefore, potential noise impacts as a result of operation of the Proposed Project are considered less than significant.

MAINTENANCE ACTIVITY NOISE SOURCES

The substation would be unmanned and electric equipment within the substation would be controlled from SDG&E's central operations facilities. Entry to an operational substation would be restricted to authorized personnel only. Maintenance includes equipment testing, equipment monitoring and repair as well as emergency and routine procedures for service continuity and preventive maintenance. Routine maintenance is expected to occur approximately six trips per year by a two- to four-person crew. Routine operations will require one or two workers in a light utility truck to visit the Substation on a weekly or daily basis. It is anticipated that one annual major maintenance inspection will occur, requiring an estimated 10 personnel. It is anticipated that this inspection will take approximately one week to complete. Nighttime maintenance

1 When adding decibels, if the difference is greater than 8 dBA, the resulting dBA is the same as the higher decibel. Therefore, when adding the 36 dBA from the distribution transformers and 46 dBA from the transmission transformers, experienced at 48 feet from the sources, the resulting noise level is 46 dBA.

activities are not expected to occur more than once a year. It is anticipated that the transmission circuits that loop into the Substation will be inspected once per year. The non-emergency major maintenance required may potentially include the replacement of insulators damaged by either vandals or line-surge and flashovers. Maintenance crews may consist of as many as four people and may require a tool truck, an assist truck, and a large bucket lift truck. Because of the presence of conductive particles in the air that exist in coastal regions, insulators may require washing up to three times a year to prevent flashovers, equipment damage and outages. Based on the similar maintenance activities at other SDG&E distributions these maintenance activities do not generate a significant amount of noise and potential impacts are considered less than significant.

Figure 4 - Distribution Transformer Noise Contours (Ultimate Configuration)

7.0 APPLICANT PROPOSED MEASURES

LONG TERM

No Applicant Proposed Measures are required.

SHORT TERM

No Applicant Proposed Measures are required.

8.0 REFERENCES

LIST OF PREPARERS

RBF CONSULTING

14725 Alton Parkway
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Monica Kling. Environmental Analyst

DOCUMENTS

1. Cyril Harris, Handbook of Noise Control, Second Edition, 1979.

2. L.L. Beranek, I.L. Ver, Noise and Vibration Control Engineering: Principals and Applications, 1992.

3. Thomas Guide, 2001 San Diego County Street Guide and Directory, 2001.

4. San Diego Gas and Electric, Noise Study, Mira Sorrento 69/12 kV Substation, June 29, 2011

APPENDIX A

NOISE MEASUREMENTS

Site Number: Mira Sorrento #__1__ (MS 001__)
Recorded By: Monica Kling
Job Number: 25103691.001
Date: 7/22/2009
Time: 11:52 AM
Location: Director's Place – Back parking lot
GPS:
Source of Peak Noise: air planes; traffic from Interstate 5; traffic from Vista Sorrento; cars in parking lot

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
73.6	62.3	94.5	112.3

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**2548189**	**4/29/2009**	
	Microphone	**Brüel & Kjær**	**4189**	**2543364**	**11/17/2008**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**4265**	**11/17/2008**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**7/31/2006**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** ☼
	Note: dBA Offset = 0.00		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	1.1	85.4	1003.0

Photo of Measurement Location



Site Number: Mira Sorrento #__2__ (MS 002__)
Recorded By: Monica Kling
Job Number: 25103691.001
Date: 7/22/2009
Time: 12:42 PM
Location: Sorrento Valley – Scripps Clinic
GPS:
Source of Peak Noise: helicopters; vehicles; a group of women talking; tress; large trucks on adjacent road – up slight incline; airplanes

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
57.6	50.4	73.3	97.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**2548189**	**4/29/2009**	
	Microphone	**Brüel & Kjær**	**4189**	**2543364**	**11/17/2008**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**4265**	**11/17/2008**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**7/31/2006**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** ☼
	Note: dBA Offset = 0.00		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	0.6	83.6	1008.8

Photo of Measurement Location



Site Number: Mira Sorrento #__3__ (MS 003__)
Recorded By: Monica Kling
Job Number: 25103691.001
Date: 7/22/2009
Time: 1:41 PM
Location: Mira Mesa Blvd/Canon Blvd.
GPS:
Source of Peak Noise: Traffic on Mira Mesa Blvd.

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
62.8	56.3	78.5	99.9

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**2548189**	**4/29/2009**	
	Microphone	**Brüel & Kjær**	**4189**	**2543364**	**11/17/2008**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**4265**	**11/17/2008**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**7/31/2006**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** ☼
	Note: dBA Offset = 0.00		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	0.8	87.7	1004.4

Photo of Measurement Location



Site Number: Mira Sorrento #__4__ (MS 004__)
Recorded By: Monica Kling
Job Number: 25103691.001
Date: 7/22/2009
Time: 2:05 PM
Location: Scranton – Courtyard Hotel
GPS:
Source of Peak Noise: Cars on Mira Sorrento Place; air planes; helicopters; car horn

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
63.1	51.6	83.0	101.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Brüel & Kjær**	**2250**	**2548189**	**4/29/2009**	
	Microphone	**Brüel & Kjær**	**4189**	**2543364**	**11/17/2008**	
	Preamp	**Brüel & Kjær**	**ZC 0032**	**4265**	**11/17/2008**	
	Calibrator	**Brüel & Kjær**	**4231**	**2545667**	**7/31/2006**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** ☼
	Note: dBA Offset = 0.00		**Sensor Height (ft):** 5 ft
	Wind Ave Speed (mph / m/s)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	0.8	87.4	1002.1

Photo of Measurement Location



APPENDIX B

NOISE STUDY BY SDG&E
(EQUIPMENT NOISE)

NOISE STUDY

MIRA SORRENTO
69/12 KV SUBSTATION

SDGE

A Sempra Energy company

San Diego Gas & Electric Co.

Prepared By: _____ Date: 6/29/11

S.C. Campbell, Team Lead
Substation Engineering & Design

Approved By: _____ Date: 6/30/11

K. J. Iliev, Manager
Substation Engineering & Design

Summary

The calculated sound levels along all sides of the wall lines are below the City of San Diego guidelines for noise in an Industrial zone of 75 dbA during the hours of 7 AM-10 PM and 75 dbA during the hours of 10 PM-7 AM. Attachment A-1 is a noise contour of the substation site that shows the sound level at various points along the substation wall line during the maximum noise condition.

The sound analysis was performed for the ultimate substation configuration of four 69/12kV transformers, The sources of noise for these transformers are typically 120-cycle vibration and cooling fans. The cooling fans operate in stages as the main tank oil temperature increases due to increased loading. The additional cooling allows the transformer to achieve the higher ratings.

The noise levels used in this study was 61 dbA for the 69/12 kV transformers. These sound levels are the maximum allowed by SDG&E specifications. A typical 69/12kV, 30 MVA transformer sound test report from Waukesha is shown in Attachment A-2.

Method of Analysis

Sound level calculations were performed using the EENoise program. The program uses noise equations published in the Standard Handbook for Electrical Engineers, 10th Edition, Section 11-100. They are as follows:

$$A = 20 \log_{10} \frac{2.83D}{Q} \qquad (1)$$

$$Q = 1.7(WH)^{1/2} \qquad (2)$$

A - decibel attenuation for distance> Q
D - distance from the noise source
Q - critical distance from noise source beyond which it appears as a point source
W - width of noise source perpendicular to a line from the noise source to the point in question. (i.e. an observer)
H - height of the noise source

The following equation calculates the noise level from a particular noise source observed at a given point:

$$SL = NSSL - A \qquad (3)$$

SL = Sound level at the point in question
NSSL = Noise source sound level
A = decibel attenuation for distance > Q (see above)

For multiple noise sources the total sound level at a point from a number of noise sources is:

$$SL_{TOTAL} = 10\ Log_{10}\ (10^{X1} + 10^{X2} + \ldots . + 10^{Xn}) \qquad (4)$$

Where

$X_1 = SL_1/10$
$X_2 = SL_2/10$
$X_n = SL_n/10$

Input Data

The input data required for the sound analysis program includes the length, width, and height dimensions of each transformer main tank, the sound level of each transformer, the number of transformers, the coordinates of the receptors, and coordinates of each noise source. All coordinates are referenced to the origin of the coordinate system. The dimensions and coordinates for each transformer are listed below. The noise level for each 69/12kV kV transformer is 61 dbA for the 69/12 kV transformers. The coordinates of the receptors with associated sound level are shown in the table below and on the noise contours in Attachment A-1.

Transformer Approximate Dimensions:

Length (X) 25.6 feet
Width (Y) 12.7 feet
Height (Z) 12.7 feet

Transformer Coordinates:

Bank	Position X (ft)	Position Y (ft)
30	59.0	-71.0
31	92	-71.0
32	122.0	-127.0
33	152.0	-127.0

Receptor Coordinates & Noise Levels:

Receptor	Position X (ft)	Position Y (ft)	Position Z (ft)	Noise (dbA)
1	0	0	6	44.15
2	100	0	6.	46.78
3	286	0	6	39.91
4	286	-71	6	41.22
5	200	-150	6	47.93
6	150	-175	6	49.59
7	0	-233	6	41.34

Waukesha Electric Systems, Inc.

POWER TRANSFORMER OCTAVE BAND SOUND LEVEL TEST REPORT

Customer:	SAN DIEGO GAS & ELECTRIC CO.	Number of Fans - FA:	4			Date:	Jun. 3, 2011
Work Order Number:	WT-00732	Number of Fans - FAFA:	8			Technician:	1786
Customer Order Number:	4.4E+09	Fan RPM:	850				
MVA - OA:	16.8	Fan Diameter:	24	inches			
MVA - FA:	22.4	Number of Radiators:	8				
MVA - FAFA:	28	Panels per Radiator:	34				
HV Volts:	69000	Min. Height from Floor - Lower:	65	inches			
LV Volts:	12470	Min. Height from Floor - Upper:	116	inches			
Tap Positions:	C-N	Additional Comments:			Guaranteed sound level (db):		OA 58

Average db	49.2	57.0	53.1	52.4	44.4	35.6	27.1	25.2	24.9		52.7
Microphone	Octave Band Center Frequencies										NEMA
Location	63 HZ	125 HZ	250 HZ	500 HZ	1000 HZ	2000 HZ	4000 HZ	8000 HZ	16000 HZ		A Weighted
L1	48.9	58.8	59.1	57.5	46.5	36.6	29.1	25.0	24.9		56.6
U1	49.4	58.5	48.1	55.0	45.8	36.9	27.1	26.0	24.9		53.5
L2	48.9	52.8	60.0	51.3	47.5	34.9	27.1	26.0	24.9		54.4
U2	48.1	57.7	52.4	55.2	41.6	36.1	27.7	25.9	24.9		53.4
L3	51.1	57.2	59.2	48.8	43.9	37.5	26.7	25.7	24.9		53.0
U3	49.0	53.6	61.2	52.7	44.4	36.7	28.6	26.2	24.9		55.0
L4	51.6	61.8	58.0	51.9	47.4	38.6	28.3	26.2	24.9		54.3
U4	51.8	56.0	54.4	52.7	46.0	36.9	28.3	25.6	24.9		52.7
L5	51.5	58.8	47.5	52.8	42.7	35.8	28.0	25.4	24.9		51.6
U5	51.5	55.1	49.8	49.3	43.4	37.9	28.2	26.1	24.9		49.7
L6	52.0	58.1	50.4	50.3	42.6	37.0	27.9	25.1	24.9		50.4
U6	53.7	59.2	55.1	50.9	45.2	36.8	27.7	25.4	24.9		52.2
L7	51.2	56.2	49.4	62.6	45.4	38.7	27.1	24.9	24.9		59.7
U7	51.5	50.0	49.1	57.0	45.8	38.3	26.3	24.9	24.9		54.8
L8	50.8	63.7	61.0	53.6	48.2	38.6	28.3	24.9	24.9		56.2
U8	50.2	59.0	52.3	57.6	46.7	36.5	27.9	24.9	24.9		55.7
L9	48.3	67.1	44.9	57.0	52.0	36.6	28.6	25.5	24.9		57.3
U9	50.8	65.3	57.1	54.6	49.7	37.2	28.4	24.9	24.9		55.9
L10	48.3	65.3	57.7	54.2	52.2	41.0	27.8	25.0	24.9		56.8
U10	48.8	62.6	59.7	55.4	47.1	39.5	28.3	24.9	24.9		56.0
L11	48.7	59.2	52.9	58.0	47.4	38.6	27.2	24.9	24.9		56.2
U11	49.7	48.1	52.3	54.4	45.7	39.2	27.9	25.2	24.9		53.2
L12	48.5	56.1	50.1	55.8	46.2	36.5	26.2	24.9	24.9		54.1
U12	47.1	53.2	53.3	54.1	41.5	34.6	26.1	24.9	24.9		52.5
L13	47.5	52.7	53.7	50.6	43.4	33.7	26.2	24.9	24.9		50.8
U13	46.8	53.4	53.3	50.2	42.2	30.3	25.9	25.0	24.9		50.2
L14	47.4	55.8	57.2	51.3	40.7	32.8	25.4	24.9	24.9		52.1
U14	49.1	53.0	53.6	47.7	36.5	30.6	25.8	24.9	24.9		48.6
L15	47.7	56.2	53.6	52.2	41.8	33.6	26.2	24.9	24.9		51.5
U15	45.9	57.7	44.5	50.6	41.5	31.4	26.1	25.2	24.9		49.6
L16	48.7	55.7	46.2	46.8	43.6	34.7	26.1	24.9	24.9		48.2
U16	47.2	57.5	54.2	48.2	39.8	33.0	26.2	25.0	24.9		49.8
L17	47.1	53.0	54.6	45.3	39.4	34.2	26.3	25.0	24.9		48.7
U17	46.2	54.6	55.2	53.2	42.5	31.2	26.2	24.9	24.9		52.4
L18	48.1	58.3	52.1	45.3	39.5	31.6	26.9	25.2	24.9		48.2
U18	47.2	48.1	45.1	49.3	44.2	30.1	26.1	24.9	24.9		48.8
L19	50.4	56.8	50.0	51.7	43.3	31.5	26.2	25.0	24.9		50.9
U19	49.0	51.4	52.4	47.6	39.6	31.5	26.0	25.4	24.9		48.2
L20	51.0	58.4	48.8	55.0	44.8	34.3	26.2	24.9	25.0		53.3
U20	47.7	60.0	43.5	48.3	46.9	34.0	27.1	25.7	24.9		50.6
L21	50.8	60.6	58.8	55.8	46.8	38.6	28.2	24.9	24.9		55.7
U21	46.5	57.7	58.2	49.9	45.1	38.8	27.8	24.9	24.9		52.9
L22											
U22											
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Waukesha Electric Systems, Inc.

POWER TRANSFORMER OCTAVE BAND SOUND LEVEL TEST REPORT

Customer:	SAN DIEGO GAS & ELECTRIC CO.	Number of Fans - FA:	4		Date:	Jun. 3, 2011
Work Order Number:	WT-00732	Number of Fans - FAFA:	8		Technician:	1786
Customer Order Number:	4.4E+09	Fan RPM:	850			
MVA - OA:	16.8	Fan Diameter:	24	inches		
MVA - FA:	22.4	Number of Radiators:	8			
MVA - FAFA:	28	Panels per Radiator:	34			
HV Volts:	69000	Mic. Height from Floor - Lower:	65	inches		
LV Volts:	12470	Mic. Height from Floor - Upper:	116	inches		
Tap Positions:	C-N	Additional Comments:			Guaranteed sound level (db):	FA 60

Average db	49.4	57.6	54.5	53.7	47.8	40.1	32.2	27.3	25.7		54.4
Microphone	Octave Band Center Frequencies										NEMA
Location	63 HZ	125 HZ	250 HZ	500 HZ	1000 HZ	2000 HZ	4000 HZ	8000 HZ	16000 HZ		A Weighted
L1	49.3	60.9	59.4	58.4	50.5	43.5	34.5	28.6	26.2		58.0
U1	50.6	58.7	50.3	54.8	52.5	45.7	36.6	30.5	27.8		56.1
L2	50.1	50.7	59.7	51.9	48.4	41.3	32.8	27.8	26.1		54.8
U2	49.7	56.0	52.6	55.2	47.3	42.2	32.7	28.0	26.2		54.3
L3	51.7	58.5	60.4	48.7	46.3	40.7	30.9	26.3	24.9		54.3
U3	50.6	57.7	61.9	51.9	46.9	40.6	31.0	26.7	25.0		55.6
L4	52.7	65.0	60.4	49.9	49.6	39.0	30.3	26.1	24.9		55.8
U4	50.9	57.8	54.8	51.5	48.8	39.4	30.4	26.2	25.3		53.3
L5	52.2	58.7	49.5	53.2	43.3	35.6	27.8	24.9	24.9		52.0
U5	52.4	58.5	50.6	49.8	44.8	36.9	28.4	26.1	25.0		50.7
L6	52.6	56.7	48.5	49.3	45.1	39.4	27.3	24.9	24.9		50.3
U6	54.2	58.4	55.7	51.7	44.8	37.3	27.9	25.4	24.9		52.5
L7	52.7	55.7	50.5	63.4	47.1	39.3	30.5	26.2	24.9		60.6
U7	51.6	50.5	49.6	55.0	47.5	40.6	30.5	26.4	24.9		53.8
L8	50.3	59.0	61.8	53.2	50.1	40.6	32.0	27.1	24.9		56.5
U8	49.1	54.2	52.1	56.8	47.1	40.7	32.2	27.1	25.1		55.1
L9	45.9	64.7	51.1	54.8	51.4	42.5	34.2	27.9	26.2		56.0
U9	49.4	64.4	55.7	56.4	49.9	43.1	33.8	28.0	26.2		56.5
L10	48.5	63.0	55.2	54.5	52.9	42.7	35.2	29.1	26.2		56.6
U10	48.7	63.8	57.9	56.8	50.1	44.8	35.8	29.7	26.9		57.1
L11	47.2	51.1	55.1	57.8	48.0	39.5	33.1	28.6	27.1		56.2
U11	48.7	49.0	51.1	54.2	47.9	40.1	33.2	28.9	27.1		53.5
L12	47.9	57.2	55.3	55.6	47.8	39.2	31.2	27.1	26.2		54.9
U12	46.7	58.3	55.1	53.3	45.9	38.2	31.4	27.2	26.2		53.3
L13	50.0	59.4	54.9	55.0	44.7	37.2	30.8	27.0	25.5		54.0
U13	51.5	62.0	57.1	53.1	46.0	37.2	30.9	26.8	26.1		54.1
L14	47.6	58.2	56.4	53.9	45.3	37.2	29.6	26.2	24.9		53.7
U14	50.5	61.5	53.9	52.0	45.9	36.5	29.5	26.2	24.9		52.8
L15	47.8	58.3	53.5	53.6	48.6	41.1	34.5	27.2	24.9		54.0
U15	45.6	52.0	51.2	51.3	48.2	41.7	34.3	27.7	25.2		52.5
L16	47.8	60.8	50.2	52.2	49.9	41.4	35.4	27.7	25.5		53.9
U16	48.6	53.5	55.4	51.8	49.2	42.6	35.8	28.3	26.0		53.8
L17	47.1	53.6	53.4	52.7	49.4	41.2	34.9	27.1	24.9		53.7
U17	46.6	57.1	52.0	51.8	49.4	41.3	35.1	27.8	25.1		53.3
L18	47.9	55.2	51.9	52.2	48.6	40.2	34.3	27.1	24.9		53.0
U18	52.1	58.4	49.6	51.9	48.8	40.5	34.8	27.1	24.9		53.0
L19	48.2	60.9	56.0	54.7	46.3	37.7	30.6	26.2	24.9		54.5
U19	49.0	59.1	55.5	52.1	45.8	37.8	30.2	26.5	25.3		52.9
L20	48.1	55.8	53.1	55.2	45.6	38.4	31.2	27.1	26.2		53.9
U20	47.2	51.1	59.4	53.1	45.9	40.0	31.2	27.1	26.2		54.4
L21	48.1	57.1	54.4	55.9	47.4	39.9	33.2	28.6	27.1		54.9
U21	48.9	58.4	58.2	55.8	47.8	40.4	34.1	30.6	28.5		55.7
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Waukesha Electric Systems, Inc.

POWER TRANSFORMER OCTAVE BAND SOUND LEVEL TEST REPORT

Customer:	SAN DIEGO GAS & ELECTRIC CO	Number of Fans - FA:	4		Date:	Jun. 3, 2011
Work Order Number:	WT-00732	Number of Fans - FAFA:	8		Technician:	1786
Customer Order Number:	4.4E+09	Fan RPM:	850			
MVA - OA:	16.8	Fan Diameter:	24	inches		
MVA - FA:	22.4	Number of Radiators:	8			
MVA - FAFA:	28	Panels per Radiator:	34			
HV Volts:	69000	Mic. Height from Floor - Lower:	65	inches		
LV Volts:	12470	Mic. Height from Floor - Upper:	116	inches		
Tap Positions:	C-N	Additional Comments:			Guaranteed sound level (db):	FA 61

Average db	52.1	59.3	56.5	55.5	50.2	43.1	35.3	29.0	26.6		56.4
Microphone	Octave Band Center Frequencies										NEMA
Location	63 HZ	125 HZ	250 HZ	500 HZ	1000 HZ	2000 HZ	4000 HZ	8000 HZ	16000 HZ		A Weighted
L1	51.8	61.4	60.8	57.7	51.9	47.8	38.8	31.4	27.9		58.6
U1	54.7	57.4	52.4	56.1	54.3	47.5	39.9	32.5	29.2		57.7
L2	53.2	55.4	60.6	52.7	50.7	44.7	36.5	29.7	26.2		56.3
U2	52.4	56.3	53.6	55.9	50.8	46.0	36.8	30.3	27.6		56.1
L3	51.8	59.8	59.8	49.6	48.3	43.4	34.6	27.7	25.2		54.8
U3	52.7	52.4	61.2	53.4	49.2	44.8	34.8	28.6	26.2		56.2
L4	59.4	65.8	60.4	51.7	51.9	42.7	32.0	26.2	24.9		57.0
U4	59.0	59.9	55.0	50.7	49.9	44.7	33.8	27.4	26.2		54.3
L5	56.2	60.0	49.9	54.0	44.0	37.9	28.6	25.6	24.9		52.9
U5	55.7	59.0	51.9	50.9	47.5	37.9	29.1	25.9	24.9		52.2
L6	60.0	56.0	52.8	53.2	44.8	39.3	28.6	24.9	24.9		52.6
U6	53.9	61.9	54.9	52.7	47.4	39.7	28.7	24.9	24.9		53.8
L7	53.0	59.4	52.3	62.8	49.7	43.1	33.3	27.9	26.2		60.3
U7	53.2	57.4	52.5	57.2	49.0	42.5	33.3	28.5	26.2		56.0
L8	52.5	60.8	61.1	56.6	51.5	43.6	35.2	28.6	26.2		57.8
U8	54.0	60.8	54.7	58.3	51.6	43.8	35.5	29.1	26.2		57.6
L9	53.2	66.6	50.5	58.9	53.4	45.3	36.8	30.2	26.4		58.9
U9	57.5	66.5	57.5	56.1	53.1	46.0	37.0	30.4	26.8		58.1
L10	52.0	67.6	59.5	57.1	54.9	46.3	38.3	31.9	27.9		59.5
U10	51.3	64.1	61.0	59.1	53.7	47.7	38.9	32.2	28.0		59.8
L11	52.4	59.8	57.6	59.0	50.5	42.7	36.6	31.4	29.2		58.0
U11	48.5	53.6	55.7	56.0	49.9	43.1	36.2	31.3	29.2		55.8
L12	52.0	56.5	56.6	57.2	49.2	41.1	34.3	29.1	27.1		56.4
U12	51.4	60.7	58.6	56.4	48.7	40.5	33.9	29.2	27.9		56.3
L13	51.2	56.7	57.2	55.3	47.4	39.7	33.8	27.9	26.2		55.0
U13	53.6	60.9	59.2	54.8	48.3	39.5	33.3	27.9	26.3		55.7
L14	52.4	56.1	58.9	56.2	48.2	40.2	32.2	27.0	24.9		56.0
U14	51.9	58.8	58.6	54.4	48.0	38.9	31.9	27.0	25.7		55.2
L15	48.7	61.0	56.1	55.6	52.9	44.5	37.9	29.2	26.2		57.0
U15	48.7	56.5	53.9	54.7	52.1	44.9	37.4	29.5	26.2		56.0
L16	48.3	60.6	54.4	55.6	52.7	44.5	38.9	29.7	26.2		56.8
U16	48.5	56.3	56.3	55.0	52.5	45.7	38.6	29.2	26.2		56.6
L17	48.8	55.4	55.7	55.3	52.6	44.3	38.6	30.4	26.2		56.5
U17	47.4	58.0	54.9	54.4	52.0	44.5	38.2	29.8	26.3		55.9
L18	46.4	59.0	54.6	55.0	51.9	43.9	38.6	28.7	25.7		56.1
U18	48.3	54.6	54.4	54.3	52.0	43.6	38.1	28.9	26.1		55.7
L19	50.1	63.7	58.7	56.4	47.9	40.9	33.8	27.9	26.2		56.5
U19	51.7	62.8	58.1	54.8	47.9	41.0	33.1	27.9	26.2		55.6
L20	49.7	61.4	55.6	56.7	48.8	42.1	35.8	30.0	27.5		56.1
U20	51.2	58.0	61.1	55.0	48.9	42.7	34.9	29.4	27.9		56.5
L21	49.5	55.1	57.4	56.5	50.5	43.3	37.9	31.6	29.2		56.5
U21	51.4	56.2	58.3	57.1	50.3	43.0	37.4	31.8	30.2		56.9
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MTO sub

Substation Noise Contour (Z = 6)

