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September 19, 2013

VIA E-FILING AND HAND DELIVERY

El Segundo Energy Center Petition to Amend (00-AFC-14C) Siting Committee
Commissioner Karen Douglas – Presiding Member
Commissioner Janae A. Scott – Associate Member
Paul Kramer – Hearing Officer
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Re: El Segundo Energy Center Petition to Amend (00-AFC-014C)
Applicant's Responses to Data Requests in Set Two (#84-90)

Dear Committee Members:

On August 19, 2013, the California Energy Commission staff docketed its Data Request Set 2 (the "**Data Requests**") related to the El Segundo Energy Center LLC ("**ESEC LLC**") Petition to Amend (the "**Petition**") the El Segundo Energy Center project (00-AFC-014C). Since then, ESEC LLC has worked diligently to compile the requested information. ESEC LLC hereby submits the enclosed responses subject to ESEC LLC's: (a) September 3, 2013 Request for Extension to Submit Data Response 87 Contained in Set 2 (#84-90); and (b) Application for Confidential Designation of Socioeconomic Records for Data Request 85. The Application for Confidential Designation will be submitted concurrently with the enclosed responses, but under separate cover.

Please contact me or my colleague Allison Harris if there are any questions about the enclosed Responses.

Locke Lord LLP

By: _____
John A. McKinsey
Attorneys for El Segundo Energy Center LLC

JAM:awph

Enclosures

EL SEGUNDO ENERGY CENTER
PETITION TO AMEND
(00-AFC-14C)

Data Responses, Set **2**
(Response To Data Requests **84** to **90**)

SUBMITTED BY

EL SEGUNDO ENERGY CENTER, LLC

WITH TECHNICAL ASSISTANCE FROM

CH2MHILL®

SEPTEMBER 19, 2013

El Segundo Energy Center Petition to Amend

El Segundo Power Facility Modification

(00-AFC-14C)

Data Responses, Set 2

(Response to Data Requests 84 to 90)

Submitted to

California Energy Commission

Prepared by

El Segundo Energy Center LLC

With Assistance from

CH2MHILL®

2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

September 19, 2013

Contents

Introduction

Attached are El Segundo Energy Center LLC's (ESEC LLC or the Applicant) responses to the California Energy Commission (CEC) Staff's Data Requests, Set 2, regarding the El Segundo Power Facility Modification (ESPFM) proposed in the El Segundo Energy Center (ESEC) (00-AFC-14C) Petition to Amend (PTA).

Applicant's responses are presented in the same order as CEC Staff presented them, and are keyed to their respective Data Request numbers. New and revised graphics and tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 84 would be numbered Table DR84-1. The first figure used in response to Data Request 10 would be Figure DR84-1, and so on.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data or stand-alone documents such as plans or folding graphics) are included at the end of their respective section and may not be sequentially numbered.

Socioeconomics (84–85)

BACKGROUND

Pg. 2-26 of the Petition to Amend (PTA) notes that Table 2-20 lists the projected total construction craft workers by month for the El Segundo Energy Center (ESEC). An estimated peak of 422 craft and professional personnel is anticipated in months 11 and 12 following construction mobilization. Pg. 3-118 notes the proposed addition of the El Segundo Power Facility Modification (ESPFM) to the ESEC project will have a peak of 337 construction workers over an 18-month period. There is no table for demolition and construction craft workers by month for the ESPFM.

DATA REQUEST

84. Please provide a new table showing ESPFM demolition and construction craft workers by month for the 6-month demolition period and the 18-month construction period.

Response: The number of ESPFM demolition and construction craft workers by month for the 6-month demolition period and the 18-month construction period are provided in Table DR84-1.

TABLE DR84-1
ESPFM Demolition and Construction Craft Workers by Month

MONTH AFTER MOBILIZATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	TOTAL	AVERAGE
Craft Staff																																
Insulation Workers											5	5	5	5	8	10	24	24	24	35	36	36	36	30	30	30	1	1	0	0	345	12
Boilermakers					0	0	40	40	40	48	48	48	48	46	44	40	44	36	26	36	24	24	15	15	15	15	2	1	1	0	696	23
Bricklayers and Masons			1	1	2	3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	6	6	1	1	1	1	165	6
Carpenters	12	15	12	12	12	12	50	50	50	42	40	40	40	40	38	38	44	44	66	60	66	66	66	20	24	24	2	2	2	1	990	33
Electricians	4	4	5	5	5	5	28	28	28	28	30	30	30	30	32	36	54	70	75	75	72	72	74	33	33	33	4	3	3	2	931	31
Ironworkers	12	3	8	8	8	8	53	53	53	46	36	34	34	34	34	34	36	38	21	21	21	21	23	10	10	10	2	2	1	0	674	22
Laborers	20	23	23	23	23	24	50	50	50	50	48	48	48	48	48	48	54	56	58	58	58	58	58	30	30	30	24	24	30	40	1232	41
Millwrights					0	0	18	18	18	18	18	18	18	19	19	16	24	24	12	8	8	8	8	6	6	6	2	2	1	0	295	10
Operating Engineers	4	7	11	11	11	11	13	13	13	16	17	16	16	16	16	16	18	18	18	18	18	18	18	12	12	12	3	3	2	1	378	13
Plasterers										1	1	1	3	3	3	3	5	5	4	4	5	5	5	6	6	6	4	4	4	4	82	3
Painters										1	1	1	3	3	3	3	5	5	4	4	5	5	5	5	5	5	16	16	16	16	127	4
Pipefitters	4	4	4	4	4	4	36	36	36	40	43	40	40	40	40	40	120	110	120	110	110	120	120	120	120	120	3	3	2	1	1,594	53
Sheetmetal Workers				3	3	3	10	10	10	10	12	12	13	13	13	15	15	15	16	16	16	14	14	12	12	12	3	3	2	1	278	9
Sprinklerfitters							1	1	1	1	1	1	1	1	1	5	5	5	5	5	5	5	9	8	8	8	2	1	1	0	81	3
Teamsters	2	2	4	4	4	4	6	6	6	4	6	6	6	6	6	6	2	2	2	2	2	2	2	2	2	2	1	1	1	1	102	3
Surveyors	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	1	2	2	2	103	3
Craft Staff Subtotal	**60**	**60**	**72**	**75**	**76**	**78**	**317**	**317**	**317**	**317**	**318**	**312**	**317**	**316**	**317**	**322**	**458**	**464**	**463**	**464**	**458**	**462**	**464**	**318**	**322**	**322**	**71**	**69**	**69**	**70**	**8,065**	**268**
Contractor Staff	40	40	28	25	24	22	33	33	33	33	32	38	33	34	33	28	42	36	37	36	42	38	36	32	28	28	29	31	31	30	**985**	**33**
Total	**100**	**100**	**100**	**100**	**100**	**100**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**350**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**350**	**350**	**350**	**100**	**100**	**100**	**100**	**8,328**	**570**

BACKGROUND

The socioeconomics analysis provides some information related to the capital costs and construction and operation payroll for the ESPFM on pg. 3-118 of the PTA. Other information related to local demolition, construction, and operation expenditures on materials and supplies or indirect and induced employment is not provided. Project owners proposing modifications to power plants and applicants proposing new power plants often perform an IMPLAN model analysis. IMPLAN is an input-output model that relies on a series of multipliers to provide estimates of the number of times each dollar of input or direct spending cycles through the economy in terms of indirect and induced output or additional spending, personal income, and employment. Staff would use this information in analyzing the socioeconomic benefits of the ESPFM on the local economy.

DATA REQUEST

85. Please perform an IMPLAN or similar analysis regarding the socioeconomic impacts from the demolition, construction, and operation of the ESPFM. Please provide a demolition and construction economic benefits table that displays capital cost, total demolition payroll, total construction payroll, average annual local construction payroll, average monthly direct demolition and construction employment, indirect and induced employment, indirect and induced income, annual local expenditures on materials and supplies, and total sales tax. Please provide an operations and maintenance (O&M) economic benefits table that displays annual O&M payroll, annual O&M employment, indirect and induced income and employment, expenditures for locally purchased materials and supplies, total sales tax, and total annual property taxes beginning with the first year of operation following construction of the ESPFM.

Response: Table DR85-1, submitted under confidential cover, contains the requested information.

Visual Resources (86)

BACKGROUND

In the original 2000 application for certification (00-AFC-14), nine key observation points (KOPs) were identified and analyzed. Five KOPs (KOP 1, 2, 3, 7 and 8) were carried forward for determination of visual impacts in the 2010 Final Revised Staff Analysis for the El Segundo Power Redevelopment project.

In the 2013 petition to amend to replace the once-through cooling units 3 and 4 with one new combined cycle generator (Unit 9), one steam turbine generator (Unit 10) and two simple-cycle gas turbines (Units 11 and 12), the facility owner has included an additional KOP located along the Strand near 44th Street in Manhattan Beach (KOP 10). In a recent field visit staff identified an additional KOP that would take into consideration the residences and public viewpoints along 45th Street, near Vista Del Mar. This additional KOP provides an elevated view of the project site.

Please see the attached figure representing a potential location of a new KOP.

DATA REQUEST

86. Please provide a new KOP from the area depicted in Figure A that reflects the existing viewshed and simulated view along 45th Street, approximately 100 feet east of Vista Del Mar in order for staff to analyze potential visual impacts from the proposed new project components (including construction and demolition equipment, the proposed administration building, proposed units 9-12, and parking).

Response:

On August 24, 2013, the Applicant located and photo-documented this new Key Observation Point (KOP DR86) identified by Commission staff. Figure DR86-1 is an aerial photo of the ESEC site in which the location of KOP DR86 has been identified. A set of photos was taken from this viewpoint using a single-lens reflex digital camera set to take photos with a focal length equivalent to that of photos taken with a 35 millimeter (mm) camera with a 50 mm lens. The photographs in attached Figures DR86-2a and DR86-2b depict the view toward the project site from 45th Street in Manhattan Beach, approximately 100 feet east of Vista Del Mar.

The Applicant recently installed berms and landscaping around the southern perimeter of the ESEC site in compliance with ESEC mitigation measures VIS-2 and VIS-9. To create Figure DR86-1, plan drawings of these berms and landscaping were overlain on the aerial photograph of the project site. This figure also depicts the location of the Administration Building as proposed in the April 2013 PTA, and the parking lot proposed to be situated immediately south of the Administration Building.

Figure DR86-2a presents the existing view from KOP DR86. Two photo frames were merged to capture the entire, panoramic view of KOP DR86, which extends from the new berm along 45th Street northward to the Chevron refinery hill located east of Vista Del Mar and north of 45th Street. The current power generation units are not visible from this KOP, and the only portion of the Applicant's real property that is visible from this KOP is the new berm along the ESEC site's southeasterly boundary (north of 45th Street). The white tank situated behind the Chevron sign in the right-hand portions of Figures DR86-2a and DR86-2b, respectively, and the small stack located immediately north (to the right) of the white tank are not part of the existing El Segundo Power Facility. Instead, they are owned and operated by Plains All American Pipeline, which has a third-party easement with El Segundo Power. The location of this equipment is also depicted in Figure DR86-1.

Figure DR86-2b is a simulation of the view from KOP DR86 as it would appear in 2023, 5 years after construction of the facilities proposed in the PTA. This simulation was prepared pursuant to the procedures

described in the PTA's Visual Resources analysis. The recently planted landscaping visible in this view is depicted with 10 years of growth. In this view, heavy vegetation is visible on the berm located along 45th Street, southwest (left) of the gas station. This KOP view looks downhill, toward trees the Applicant recently planted atop a slope inside the southeastern boundary of the ESEC site. These trees are located to the north and west (right) of the gas station. They enhance the local aesthetics and reduce the visual impact of the aforementioned white tank and the adjacent stack. The only new project structure that will be visible from KOP DR86 will be a small corner of the Administration Building, which will be visible to the southwest (left) of the aforementioned white tank. As the major new project facilities, including the Unit 9, 11, and 12 stacks, turbines, heat recovery steam generators, and heat exchangers will be located well to the north and downhill of the Administration Building, views of these facilities from KOP DR86 will be blocked by the sloped terrain at the ESEC site and the Chevron refinery east of Vista Del Mar.

From KOP DR86, the view of the power generation units is already minimal. The new landscaping that the Applicant installed in compliance with existing Conditions of Certification VIS-2 and VIS-9 have aesthetically improved, and will continue to reduce, the ESEC facility's visual contrast with its surroundings. The Administration Building's proposed, low-profile location in the hillside will further reduce the visual impact of the modified ESEC. Consequently, as viewed from this KOP, the effect of the changes brought about by the proposed PTA will be less than significant.

Landscape planting plan shown in compliance with ESEC Conditions of Certification VIS-2 and VIS-9. Vegetation recently installed.

Note 1: The white tank, associated stack and containment area are owned and operated by Plains All-American on a third-party easement.

0 50 100
Approximate scale in feet

LEGEND
- KOP
- Photo Direction
- El Segundo Power Facility boundary

FIGURE DR86-1
Location of the DR-86 KOP and Relationship to Project Features
El Segundo Power Facility Modification
April 2013 Petition to Amend 00-AFC-14
El Segundo, California

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ES080813223057SCO El_Segundo_DR-86_KOP.ai 9/13

KOP DR-86, Existing view (August, 2013) toward project site from 45th Street, just east of Highland Avenue.

FIGURE DR86-2a
KOP DR-86 Existing View
El Segundo Power Facility Modification
April 2013 Petition to Amend 00-AFC-14
El Segundo, California

KOP DR-86, Simulated view toward project site from 45th Street, just east of Highland Avenue representing conditions in 2023, five years after project completion. The only project structure that will be visible in this view will be a small corner of the administration building, which can be seen to the left of the white tank located on the right side of the photo.

FIGURE DR86-2b
KOP DR-86 Simulated View 5 Years After Project Completion
El Segundo Power Facility Modification
April 2013 Petition to Amend 00-AFC-14
El Segundo, California

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Waste Management (87–90)

BACKGROUND

The El Segundo LLC Generating Station is an active cleanup site listed in the State's Envirostor database. The site is said to be contaminated with polychlorinated biphenyls (PCBs) and vanadium. An updated description of the site contamination and cleanup efforts were not provided in the Petition to Amend.

Staff requires a complete understanding of the existing contamination locations relative to the planned disturbance areas. The Petition to Amend does not clearly show the locations of all power generating units relative to areas of contamination or whether adequate remediation will be completed prior to construction to ensure protection of the public and worker safety. In addition, it is not clear whether construction and operation could exacerbate existing conditions and result in spread of contaminants off site.

DATA REQUEST

87. Please provide an updated Phase I Environmental Site Assessment (ESA) identifying recognized environmental concerns in and adjacent to the footprint of the proposed project.

Response: An updated Phase I ESA will be provided under separate cover on or before September 30, 2013, pursuant to the Commission's extension of the Applicant's time to respond to this Data Request.

DATA REQUEST

88. Please provide a map of contaminated areas on the site and where construction, demolition, or other disturbance may take place.

Response: Figure DR88-1 is a map of known contaminated areas onsite that will be addressed during construction of the new units.

DATA REQUEST

89. Please provide a list agencies involved in clean-up of the site along with their responsibilities and contact information.

Response: Table DR89-1 provides a list agencies involved in clean-up of the site along with their responsibilities and contact information.

TABLE DR89-1
Agency Responsibilities and Contacts

Name	Agency	Address	Phone	e-mail
Steve Tsumura Environmental Safety Manager	El Segundo Fire Department, (CUPA)	314 Main St El Segundo, CA 90245	(310) 524-2242	stsumura@elsegundo.org
Carmen Santos PCB Spill Cleanup Officer	USEPA Region 9	75 Hawthorne Street Mail Code: CMD-4 San Francisco, CA 94105	(415) 972-3360	santos.carmen@epa.gov
Henry Jones	Los Angeles Regional Water Quality Control Board (Remediation)	320 West Fourth Street Suite 200 Los Angeles, CA 90013	(213) 576-6697	hjones@waterboards.ca.gov

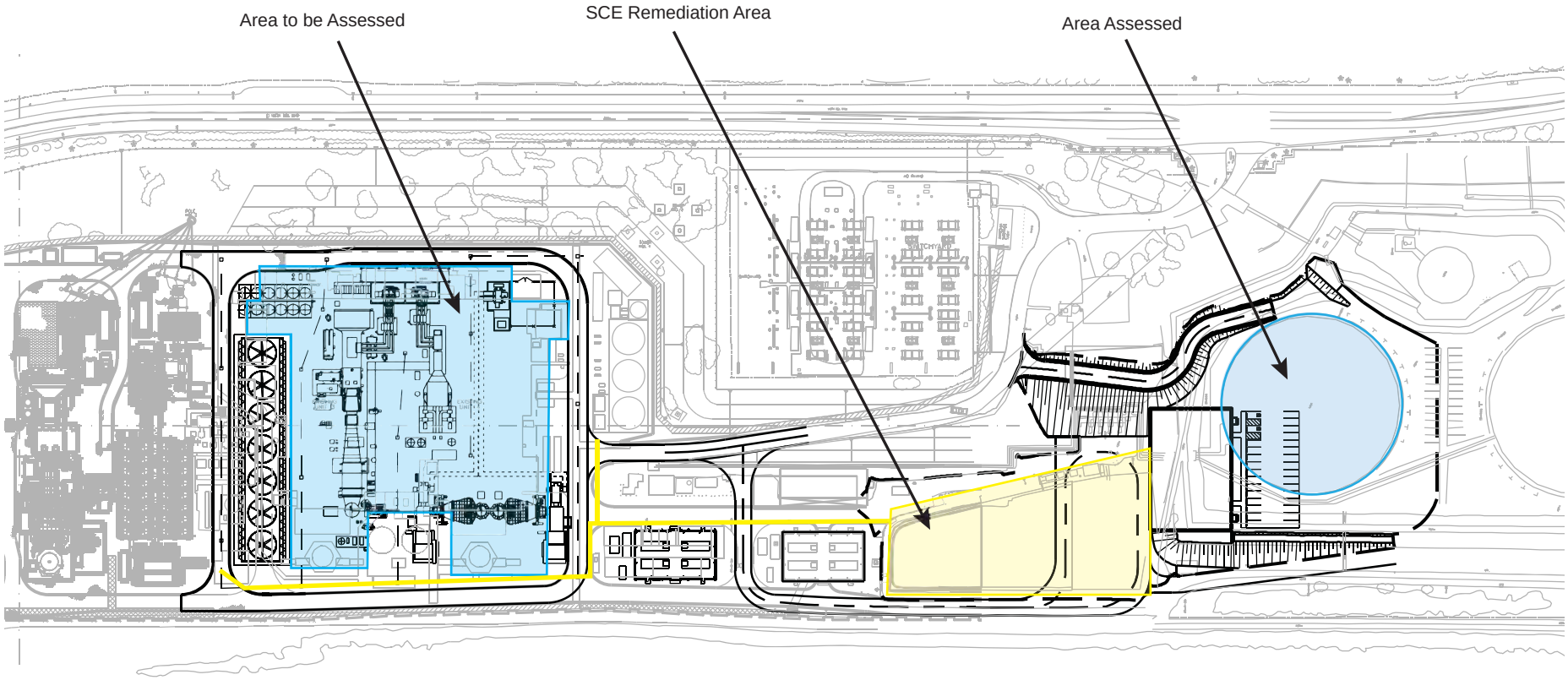
TABLE DR89-1
Agency Responsibilities and Contacts

Name	Agency	Address	Phone	e-mail
Steven Rounds	Department of Toxic Substance Control (RCRA Investigation and Remediation)	Chatsworth Field Office 9211 Oakdale Avenue Chatsworth, CA 91311-6505	(818) 717-6602	SRounds@dtsc.ca.gov
	Los Angeles County Department of Public Health Monitoring Well Abandonment and Construction Permits	5050 Commerce Drive, Baldwin Park, CA 91706	(626) 430-5420	waterquality@ph.lacounty.gov
Gensen Kai	Los Angeles Regional Water Quality Control Board (NPDES Permits)	320 West Fourth Street Suite 200 Los Angeles, CA 90013	(213) 576-6651	gkai@waterboards.ca.gov
Andrew Lee	South Coast Air Quality Management District (Rule 1166 Site Specific Permit, Soil Monitoring)	21865 Copley Drive Diamond Bar, CA 91765	(909) 396-2643	ALee@aqmd.gov
	U.S. Army Corps of Engineers Regulatory Division Los Angeles District (404 Permitting)	PO BOX 532711 Los Angeles, CA 90053-2325		

DATA REQUEST

90. Please provide the "Draft Closure Plan for the El Segundo Energy Center Retention Basin Site."

Response: The Draft Closure Plan for the El Segundo Generating Station Retention Basin Site (May 2010) (the Closure Plan) is provided as Attachment DR90-1. Southern California Edison (SCE) submitted this Closure Plan to the Department of Toxic Substances Control (DTSC) in May 2010. The DTSC circulated the document for public review from June 14 through July 14 2010. The DTSC did not receive any comments on the Closure Plan and approved it as the final closure plan on July 23, 2010. Approval of the Final Closure Plan is provided as Attachment DR90-2. The Closure Plan addresses SCE legacy issues related to the retention basin and appurtenances.



LEGEND

RCRA Identified Assessment/Remediation Areas

SCE Stipulated Retention Basin and Appurtenances Remediation Areas. Closure Plan completed.

FIGURE DR88-1
Areas For Investigation or Identified Remediation
El Segundo Energy Center

Source: NRG

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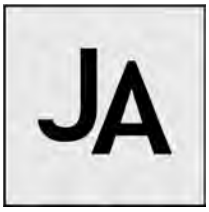
Attachment DR90-1
Draft Closure Plan for the El Segundo Generating Station Retention Basin Site



Jamison and Associates, Inc.

SOUTHERN CALIFORNIA EDISON

DRAFT CLOSURE PLAN
EL SEGUNDO GENERATING STATION
RETENTION BASIN SITE,
LOS ANGELES COUNTY, CALIFORNIA

May 2010

Jamison and Associates, Inc.
PO Box 34802
Reno, NV 89533

CLOSURE PLAN FOR THE WASTEWATER RETENTION BASIN SITE AT THE EL SEGUNDO GENERATING STATION

May 2010

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Cecil R. House, Senior Vice President

Rick Greenwood, Director, Environment, Health & Safety

Randall S. Weidner, Project Manager

The undersigned certifies that all interpretative work conducted in support of this document was conducted in accordance with DTSC and USEPA guidance.

Dennis Jamison

Dennis Jamison, CHG #471

The undersigned certifies that all investigative work conducted in support of this document was conducted in accordance with DTSC-approved work plans.

Patrick Hamilton

Patrick Hamilton, CEG #998

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INTRODUCTION

In 1996, Southern California Edison Company (Edison) implemented a Water Quality Monitoring Program in response to a Final Judgment pursuant to a Stipulation, handed down by the Superior Court of California, Los Angeles County, Number BC 121219 on February 1, 1995. The Stipulation alleged that Edison had stored hazardous wastes in non-permitted wastewater retention basins at their electrical generating stations in southern California. Edison agreed to close these basins according to Chapter 15 of Title 22, California Code of Regulations. The El Segundo Generating Station is one of the facilities cited in the agreement.

This Closure Plan and associated documents are being prepared in accordance with the Stipulation, which uses the terms "retention basin" and "boiler chemical cleaning basin" to describe the units being closed. These terms are equivalent to the term "surface impoundment" in Title 22. For purposes of the Closure Plan, the terms "retention basin" or "retention basin site" will be used. The retention basin site (or waste management unit), is the subject of this Closure Plan. The retention basin site consists of two retention basins and the associated pipelines and appurtenances that connect the basins to the power generating units. The two wastewater retention basins at the El Segundo Generating Station were created when a single basin was partitioned in 1987. The basins are presently lined with high-density polyethylene (HDPE) liners to prevent leakage of wastewater from the basins.

This Closure Plan is organized into sections that cover facility and waste descriptions, previous and future site characterization activities, and plans and standards for any site remediation that may be required. The closure process described herein includes an evaluation of site data using statistical analysis and risk assessment to determine if remedial action is needed to protect human and ecological receptors and the environment.

The sections below are based on Department of Toxic Substances Control (DTSC) guidance for surface-impoundment closure plans (DTSC, 2006). The purpose of the Closure Plan is to allow DTSC and public review of the proposed plans, standards, and contingencies for remediating the retention basin site, if necessary, at the El Segundo Generating Station. Once the Closure Plan is approved, Edison will implement the plan under the guidance and direction of DTSC. After the site is fully evaluated, a Closure Certification Report will be generated to document the closure process and demonstrate that the standards set forth in this Closure Plan were achieved. The Closure Certification Report will be approved by DTSC before the site closure is considered complete.

1. FACILITY IDENTIFICATION

Site Name: El Segundo Generating Station (wastewater retention basin site)

Edison USEPA Identification Number: CAD000630962

Contact Person (Project Manager): Randall Weidner (626) 302-4033

Facility and Mailing Address: 301 Vista Del Mar, El Segundo, California, 90245

Facility Owner and Operator: El Segundo Power LLC

Nature of Business: Generation of Electricity

The El Segundo Generating Station (the station), is a 670 megawatt plant in El Segundo, California. Under waste discharge permit #CA0001147 the station can discharge up to 605 million gallons per day (MGD) of once-through cooling water from four steam electric generating units and low volume wastes (from the retention basins) into the Pacific Ocean. The effluent is discharged through ocean outfalls (Discharge Serial Nos. 001 and 002) located approximately 2,000 feet offshore at a depth of 20 feet (California Regional Water Quality Control Board, 2000). The location of the generating station and the adjacent Chevron refinery are shown on **Figure 1**.

Edison sold the station in 1998, but retained responsibility under the contract of sale for environmental liability associated with the past operation of the retention basins during the period of Edison's ownership. This liability resulted from the past practice of temporarily storing boiler chemical cleaning wastes in the retention basins prior to 1992.

Note that Edison is closing the Hazardous Waste Management Unit (HWMU) but is not physically closing the retention basins, which are necessary for continued operation of the station. Thus, the basins will remain in operation after the HWMU is closed.

2. FACILITY LOCATION

The station is located on the California coast, on the west side of the City of El Segundo in Los Angeles County (**Figure 1**). Specifically, the station is immediately south of Dockweiler Beach State Park, west of Vista Del Mar Boulevard, south of Grand Avenue and north of Rosecrans Avenue. The station property has an area of 37 acres. The retention basin site is a subset of the station property as shown on **Figures 2** and **3**.

2.1 CLIMATE AND SURFACE HYDROLOGY

The station is situated on the coastal plain within Los Angeles County and has a Mediterranean type climate. This includes warm, dry summers and cool, wet winters. Precipitation occurs mainly during the period from November through April. The Los Angeles County Flood Control District maintains a precipitation recording station located less than one-mile east of the generating station. The records indicate the average annual precipitation, normalized to 100 years, is 12.2 inches (Dames and Moore, 1986).

The Pacific Ocean is the only water body present within one mile of the generating station. The shoreline is about 200 feet west-southwest of the retention basins. Normal daily tidal fluctuations range from 4 to 6 feet between high and low tides. Coastal currents are influenced by a combination of tide, wind, thermal structure, and local bathymetry. In Santa Monica Bay, surface water currents generally move northward along the shore. However, during winter, the direction of the current may change to the south (MBC, 2003). There are no surface water drainages within one mile of the generating station.

2.2 HYDROGEOLOGY

The station is located near the western edge of the West Coast groundwater basin, a rectangular sub-basin of the Los Angeles Coastal groundwater basin. A complete study of the hydrogeology beneath the station property is presented in a report prepared by Dames & Moore titled, "Hydrogeologic Assessment Report [HAR], El Segundo Generating Station" (January 27, 1986). The discussion below presents a summary of the near-surface units, which are the most critical to the groundwater monitoring program.

The units immediately underlying the station property consist of a series of unconsolidated shallow marine and continental deposits of Pleistocene and Holocene age. In general, the shallow subsurface stratigraphy below the station property is divided into three hydrologic units. In downward stratigraphic succession, these units are: 1) Old Dune Sand-Gage aquifer, 2) El Segundo aquitard, and 3) Silverado Aquifer.

The Old Dune Sand and Gage aquifers are merged beneath the station property. The Old Dune Sand-Gage aquifer consists of fine-to coarse- grained sand and fine gravel with minor interbeds of silt and clay. The base of the merged aquifer is at a nearly constant elevation of about -35 to -40 feet or about 58 feet beneath the ground surface. All of the monitoring

wells used on this project are completed in the upper part of this aquifer with the deepest well at an elevation of about -6 feet above mean sea level (amsl). The aquifer thickness varies from about 55 to 70 feet depending upon the surface elevation (Dames and Moore, 1986).

The El Segundo aquitard underlies the Old Dune Sand-Gage aquifer and separates it from the Silverado aquifer. It consists of dark gray to blue gray clay and silty clay. The basal silt and clay contains shell fragments with interbedded gray and brown fine to medium sand. The thickness of the aquitard varies from about 10 feet at the northern edge of the station property to about 20 feet beneath the central portion of the station property (Dames and Moore, 1986).

The Silverado aquifer consists of fine-to coarse-grained sand and gravel. The top of the aquifer ranges in elevation from about -60 feet amsl beneath the central part of the station property to -45 feet in the northern portion. The thickness of the aquifer is believed to be at least 105 to 125 feet (Dames and Moore, 1986).

The groundwater flow in the Old Dune Sand-Gage aquifer beneath the station property is to the west or northwest, towards the ocean. The groundwater level elevation in the twenty-three monitoring wells and piezometers at the station varies from two to five feet above sea level (Hamilton, 2009). The depth to groundwater in the wells adjacent to the retention basin varied from fifteen to nineteen feet below ground surface, from 1998 to 2000. By projecting the observed groundwater gradient (0.001 to 0.003 foot per foot) seaward from these monitoring wells, it is apparent that the area of natural groundwater discharge for the Old Dune Sand-Gage aquifer is in the intertidal zone, since the water table is projected to be above sea level there, while the land surface is at or below sea level.

A tidal influence study in the project monitoring wells indicates very little water level change caused by tidal fluctuation. This may, in part, be due to the injection of fresh water into the shallow aquifer along a barrier project about a mile to the east. The West Coast Basin Barrier Project injects treated imported and reclaimed wastewater into several aquifers to prevent sea water intrusion eastward of the barrier (Dames and Moore, 1986; LARWQCB Basin Plan, 1994; LA County DPW, 2003). The Los Angeles County Flood Control district began this project in 1963. The barrier presently extends from El Segundo to Palos Verdes and includes over 120 injection wells and 270 observation wells.

3. FACILITY DESIGN

Most of the station property is graded and paved with asphalt. All precipitation is directed to storm drains. Details of the individual retention basin site facilities are described below.

3.1 RETENTION BASINS

When the El Segundo Generating Station was completed in 1965, a single wastewater retention basin was included along the western portion of the facility (**Figures 2** and **3**). The basin dikes were constructed with compacted fill material. The floor of the basin was approximately the same elevation as the present ground surface. The interior slopes and bottom of the basin were lined with a four-inch layer of asphaltic concrete. The basin was designed for a maximum wastewater depth of seven feet and a maximum capacity of about 1.3 million gallons (MG). This basin was modified in the early 1980's by applying a single layer of synthetic liner (HDPE) over the existing asphaltic liner.

In 1987, the wastewater retention basin was partitioned into two basins by installing a 12-inch thick concrete wall. The larger, northern portion of the original basin was designated the "Retention Basin" (RB). The smaller, southern portion was used as a Boiler Chemical Cleaning Basin (BCCB). The interior slopes and bottom of the BCCB were relined with a new four-inch layer of asphaltic concrete. A sheet of HDPE was placed over the wall and welded to the existing HDPE liner on the RB and to a new HDPE liner covering the newly created BCCB.

A retrofit to the BCCB was performed in 1989. A double liner of HDPE and a leachate collection system was installed over the asphaltic liner.

Historically, the RB was used to temporarily hold (for less than 30 days) acidic cleaning solutions from the removed corrosion and mineral deposits from the boiler tubes. These cleaning solutions were stored in the basin until removal and offsite treatment. With the creation of the BCCB in 1987, the use of the RB for storing the cleaning solutions ceased. The use of hydrochloric acid for boiler cleaning for the station was discontinued in 1992 and the BCCB was placed out of service.

Currently, the North Retention Basin is used to collect and store non-hazardous wastewater and stormwater runoff from the facility. The wastewater, containing minor amounts of oil, grease, and suspended solids, is systematically mixed with spent cooling water and discharged to the ocean under the provisions of a National Pollutant Discharge Elimination System (NPDES) permit. The BCCB was renamed the South Retention basin and is currently only used when the North Retention basin is systematically being cleaned. The South Retention basin also collects and evaporates rainwater since it has no outlet. Any water collected in this basin must be pumped to the North Retention Basin for disposal.

3.2 PIPELINES

As part of the closure process, the DTSC required Edison to investigate any station feature that conveyed wastewater to the retention basins. Edison began this task by a determination of which station features were directly related to the basin, each feature's use, and whether the feature was part of a process that could create hazardous materials (Hamilton, 2009).

The results of the investigation revealed that two pipelines convey wastewater to the retention basins. One pipeline conveys wastewater from a sump (the Common Sump) that collects effluent from various station drains originating at each of the four generation units. These drains include floor drains, steam trap drains, boiler acid wash drains, fireside/air preheater wash drains, and boiler blowdown drains. It was determined that the floor, steam trap, and boiler blowdown drains are not related to a process that could create hazardous materials. However, the drains associated with the boiler acid and fireside/air preheater washes could have conveyed wastewater with low pH values, metal constituents, and polycyclic aromatic hydrocarbons (PAHs). The station discontinued the draining of the boiler acid and fireside/air preheater washes to the retention basin in 1992 (Hamilton, 2009).

The second pipeline originates at a sump which was initially used to collect regeneration wastewater from a demineralizer. This water could have had low pH values. Since 1991, only regeneration from portable reverse osmosis units is discharged to this sump. This wastewater contains concentrations of general mineral parameters similar to what a home reverse osmosis unit would generate (Hamilton, 2009).

Further details on these appurtenances are presented in Sections **3.2.1** through **3.2.4**.

3.2.1 DRAIN SYSTEMS

The station's drain systems are described below. The first pipeline to the retention basins (Section **3.2**) corresponds to the first drain system, and the second pipeline corresponds to the second drain system.

Each of the four generation units are serviced by various drain systems. The three main drain systems are for: 1) boiler acid wash wastewater, 2) fireside/air preheater wash wastewater, and 3) removal of condensed steam related liquids.

The first drain system routs boiler acid wash (Section **3.2.2**) and fireside/air preheater wash (Section **3.2.3**) wastewater from Units 1 and 2, via a single pipeline, to a point where it connects with the boiler acid wastewater line from Units 3 and 4 (**Figure 2**). This common pipeline drains to the Common Sump located southwest of Unit 4 (**Figure 2**).

The dimension of the Common Sump is 23 feet by 6 feet with a depth of 12 feet. There is an oil/water separator attached to the east side which drains into the sump. Pumps are contained in a 17-foot deep portion of the sump located on the west end.

Units 3 and 4 have a Fireside Sediment Trap adjacent to each Unit (**Figure 2**). A separate, fireside/air preheater wash wastewater pipeline is routed from each of the sediment traps to a common line that parallels the other common line to the Common Sump (**Figure 2**).

The commingled wastewater from the Common Sump is conveyed to the retention basin via a single 10-inch diameter pipeline.

Between 1978 and the early 1980's, a separate system for the boiler blowdown wastewater was utilized at the site. Edison believed that higher than anticipated concentrations of copper was being detected in the wastewater only during the start-up process for the generation units. A new sump was installed at each pair of units. The sump at Units 1 and 2 was called the Blowdown Transfer Sump while the second sump, at Units 3 and 4, was referred to as the Boiler Blowdown Treatment Sump (**Figure 2**). The transfer sump collected the blowdown wastewater from Units 1 and 2 and conveyed it to the treatment sump where the water commingled with discharge from Units 3 and 4. The blowdown wastewater in the treatment sump was processed through a set of cartridge filters before being conveyed to the retention basin. When it was determined this system was not necessary, it was removed. The scars from the abandoned sumps can be seen on the asphalt surface. The DTSC requested that Edison include these features in the pipelines investigation.

The second drain system is the sump and pipeline associated with the water treatment facility (Section **3.2.4**). In the past, this sump collected low pH wastewater from the regeneration of a demineralizer system. The water in this sump was conveyed through a 6-inch diameter pipeline to the retention basin (Hamilton, 2008).

The third drain system collects only wastewater from floor, steam trap, and boiler blowdown drains. Since this system is not related to a process that could create hazardous materials or waste, it is not included in this Closure Plan.

3.2.2 BOILER ACID WASH

During the production of steam, the boiler tubes could become coated with material deposited from the water. The coating would cause the heating cycle to become less efficient. When this occurred, an acid wash would be performed on the boiler. This was performed by injecting an acid solution into the boiler tubes. The resultant waste material was conveyed through pipelines to the common sump and then the retention basin.

The 6-inch diameter pipeline conveying the waste material began at the southwest corner of Unit 2 (**Figure 2**). The pipeline traversed an angled route along the western portion of the site. The diameter of the pipeline increased to 10-inches as it connected with the feeder pipeline conveying boiler acid waste material from Unit 3. A separate feeder pipeline collects boiler acid waste material from below Unit 4. This pipeline connected with the

common pipeline from the other units. The pipeline then continues to the common sump (Hamilton, 2008).

3.2.3 FIRESIDE WASH

During the burning of fossil fuels, deposits occur on the boiler walls and on the boiler tubes. The deposits cause a reduction in the efficiency of the heat transfer in the tubes. A process called a fireside/air preheater wash was used to clean the deposits from the boiler when it was determined necessary. This was performed by externally washing the boiler tubes with water. The wash water was directed into the fireside/air preheater wash drain system.

The fireside/air preheater wash waste material from Units 1 and 2 was conveyed to the common sump in the same pipeline as the Boiler Wash waste material.

Identical pipeline systems were installed below Units 3 and 4. The fireside/air preheater wash drain is also referred to as the Hopper drain on design drawings. The drain is 10 inches in diameter and initially conveys the wash water to a sediment trap adjacent to each unit (**Figure 2**). The dimension of the traps is 7 feet by 9 feet and about 7 feet in depth. The traps allow the water to gravity flow through the pipeline to the common sump. The discharge from the Unit 4 trap joins the pipeline before the common sump.

Similarly, the pie-shaped wedges of the air preheater were also washed periodically. During the burning of fossil fuels, deposits occur on the air preheater wedges. The deposits cause a reduction in the efficiency of the heat transfer of the air preheater. A process called an air preheater wash was used to clean the deposits from the air preheater when it was determined necessary. This process utilized clean, station water (Hamilton, 2008).

3.2.4 WATER TREATMENT FACILITY

Prior to 1991, the station operated a demineralizer to produce ultra-clean water for the steam system. This process utilized both acid and caustic materials. The regeneration wastewater was collected in a small sump associated with the treatment facility. The dimension of the sump is 8 feet by 8 feet with a depth of 8 feet. During the process, this sump would often contain water with a low pH value. The station discontinued this process in 1991 and presently uses a portable reverse osmosis system. The sump is presently used to collect regeneration water from the reverse osmosis unit. This wastewater contains concentrations of general anions and cations similar to those generated in home reverse osmosis units.

In 1996, an integrity test was performed on the sump. The results of the test were presented in a report titled “Sump Integrity Report” (December 19, 1996). It was determined that the sump had leaked low pH water to the soil as shown by soil discoloration and lower than

background soil pH values of the samples. Subsequent to the test, the sump was repaired and returned to service (Hamilton, 2008).

4. DESCRIPTION OF HAZARDOUS WASTE CONSTITUENTS

This section presents available information on boiler chemical cleaning waste that was used at the station, and the investigation methods used to detect this waste in environmental media at the retention basin site.

Constituents of Concern (COCs) are the waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the regulated unit (California Code of Regulations, 22 CCR s 66264.93). In this case the regulated unit is the retention basin site. Inorganic COCs present at concentrations that are statistically elevated with respect to site-specific background levels become Constituents of Potential Concern (COPCs) and are carried forward into a health risk assessment (DTSC, 1997). In addition, detected volatile organic compounds (VOCs), PAHs and total petroleum hydrocarbons (TPH) become COPCs unless the regulated unit is not the source of VOC contamination (Section **4.5**) or the percentage of detections is determined by DTSC to be statistically insignificant.

Accordingly, inorganic chemicals found in site investigation samples are termed "elevated" if their concentrations are determined through statistical analyses to be significantly higher than corresponding background levels. Background evaluations consist of the comparison of statistically-determined average inorganic chemical concentrations in site soil and groundwater with average concentrations in samples unaffected by site operations (i.e., background). Chemicals that are detected at high concentrations are not necessarily elevated if their background concentrations are also detected at high levels. Chloride in coastal groundwater is an example of this situation. Summary statistics for soil and groundwater COC concentrations in site investigation samples are presented in **Tables 1** and **2**.

Statistical analyses for all inorganic COCs in **Tables 1** and **2** will be presented in the Closure Certification Report, to be issued following site evaluation [as described in Section **16**]. Prior to DTSC approval of Edison's application for site closure, concentrations of all COPCs will have to meet the Closure Performance Standards described in Section **11** or **19**.

4.1 LIST OF COMPOUNDS

Refer to Appendix **A** for a representative analysis of boiler chemical cleaning waste. The chemicals generally associated with boiler chemical cleaning include the following: copper, nickel, vanadium, and zinc. The chemicals with the highest concentrations (greater than 1 milligram per liter [mg/l]) in Appendix **A** are: total chromium, copper, fluorine, lead, molybdenum, nickel, and zinc. PAHs and TPH will be added to the COC list for future sampling in soil matrix, soil gas (TPH only) and groundwater media. PAHs have been analyzed in groundwater annually since 2002.

4.2 LIST OF TEST METHODS

Analytical test methods used to evaluate COCs, including the metal and VOC chemicals listed in Appendix **A,** are shown in **Table 3** and discussed in Section **9**. In summary, metals are analyzed in soil and groundwater samples collected at the retention basin site, while VOCs were analyzed in soil matrix samples through November 2004 and are consistently analyzed in groundwater samples. VOCs, PAHs, and TPH will be analyzed in future soil matrix samples. Soil gas was not sampled due to the hydrocarbon contamination from the Chevron refinery (Section **4.5** and **4.6.1**), however soil gas will be analyzed in the future (Section **8**).

4.3 LIST OF SIGNIFICANT HAZARDOUS WASTE CONSTITUENTS

Not all chemicals in the representative analysis of boiler chemical cleaning waste (Appendix **A**) were detected in soil and groundwater characterization samples collected at the retention basin site. For example, trichloroethylene (TCE) was not detected by the sampling programs described below (Section **4.6**). However, the soil characterization report (Hamilton 2008) and groundwater monitoring annual report (Hamilton 2009) show that those chemicals with the highest concentrations in Appendix **A** were detected in analyses of soil and groundwater characterization samples collected at the site. Details are provided in Sections **4.6.1** and **4.6.2**, respectively.

A preliminary assessment was performed for the metals having the highest concentrations in boiler chemical cleaning waste (listed at the end of Section **4.1**), by reviewing concentrations for these metals in onsite soil and groundwater samples (**Tables 1** and **2**, respectively). The assessment indicated that these metals have higher maximum concentrations in soil from the compliance area (defined below) than in corresponding background samples. In addition, lead, molybdenum and nickel have higher maximum concentrations in groundwater from the compliance area than in corresponding background samples.

4.4 HISTORY OF CHEMICAL STORAGE AND USE

The two wastewater retention basins at the El Segundo Generating Station were created when a single basin was partitioned in 1987. The two basins were lined with HDPE installed over the existing asphalt liners in 1989. The Retention Basin is used to collect and store non-

hazardous wastewater from the station. The wastewater, containing minor amounts of oil, grease, and suspended solids, is systematically mixed with spent cooling water and discharged to the ocean under the provisions of an NPDES permit.

Historically, metal COCs such as nickel and vanadium were concentrated in the acidic wash solutions described in Section **3.2.2** and were temporarily stored in the BCCB. The use of hydrochloric acid for boiler cleaning was discontinued in 1992. The BCCB is no longer in service. During its period of operation, the BCCB was used to temporarily hold (for less than 30 days) acidic cleaning solutions containing the removed corrosion and mineral deposits from the boiler tubes. The acidic waste material was removed from the basin using a vacuum truck and carried to an off-site disposal facility.

PAHs may be found in the residue from burning fuel oil. The use of fuel oil at El Segundo was discontinued in the 1970s. The designed collection areas for sediments that could potentially contain PAHs are the fireside sediment traps (Section **3.2.3**). These traps were cleaned in December 2007; however the sediments were not analyzed for PAHs. There was no evidence that the traps leaked, based on metals analyses from borings adjacent to the traps (Hamilton, 2008). Since October 2002, PAHs were analyzed in groundwater samples at El Segundo but no PAHs were detected.

In the late 1980s Chevron installed soil gas probes and a hydrocarbon vapor recovery system that included 20 vapor recovery wells on the station property. The purpose of this work was to remediate the contamination described in Section **4.5** below. The station's facilities never included a gasoline storage tank.

4.5 KNOWN HYDROCARBON CONTAMINATION

A pool of liquid hydrocarbon floating on the groundwater was initially reported in the HAR (Dames and Moore, 1986) beneath the northern portion of the El Segundo Generating Station property. Nearly two feet of gasoline was measured in 1986. Subsequent to the issuance of the HAR, the hydrocarbon layer was detected below the retention basins. The source of the hydrocarbon was determined to be leaking gasoline storage tanks on the Chevron refinery adjacent to the eastern boundary of the generating station property. Note that the West Coast Barrier Project is located about one and a half miles east and south of the refinery (Dames and Moore, 1986). This hydraulic barrier causes groundwater beneath the refinery property to flow towards the El Segundo Generating Station and onward to the ocean.

The groundwater contamination beneath the Chevron facility consists primarily of gasoline but may include other hydrocarbon components. This contamination has been well documented and Chevron is presently under an Order to remediate the contamination. During the remediation program, Chevron installed three product extraction wells and

numerous vapor extraction wells on the El Segundo station property. One of the extraction wells was immediately adjacent to the northern dike of the retention basin.

There is presently no immiscible layer of hydrocarbons below the generating station property. However, the groundwater analytical data from samples collected from the site monitoring wells has detected an extensive array of gasoline parameters dissolved in the groundwater (Hamilton, 2009). The hydrocarbon contamination has migrated from a known offsite source and has been detected in both upgradient and downgradient wells at the station.

Groundwater beneath the station was dedesignated for municipal (MUN) use (California Regional Water Quality Control Board, Los Angeles Region, 1998), to facilitate remediation of the hydrocarbon plume migrating from the Chevron refinery.

The remediation system included an injection barrier parallel to Chevron's western property line, approximately 1,500 feet to the east of that property line. Thus the remedial injection barrier was downgradient of the center of the refinery property and upgradient of the retention basin site. The barrier was installed in approximately 1990 and operated intermittently. Chevron also operated a line of recovery wells along their western property line, capturing some of the injected water. Thus, two types of water have flowed beneath the station from the Chevron property: water containing hydrocarbon contamination and to a lesser extent, water injected for the remediation barrier. (In addition, ambient groundwater that originates from the West Coast Basin Barrier Project flows beneath the Chevron refinery and continues on beneath the generating station to the ocean.)

4.6 BACKGROUND AND SITE INVESTIGATION

This section describes existing soil and groundwater investigations of the retention basin site, which produced the data shown in **Tables 1** through **3**. Following the completion of the existing investigation, DTSC requested additional investigation of PAHs, TPH, and soil gas at the site. General descriptions of these additional investigations to be performed by Edison under this Closure Plan are presented in Sections **8** and **10**.

4.6.1 SOIL CHARACTERIZATION

Characterization investigations pursuant to the Stipulation began at the facility in 1996. The purpose of the investigations was to determine if the basins or associated conveyance system (pipelines) had released wastewater to the underlying soil. If a release was detected, the nature and extent of the contamination was to be investigated. Sampling investigations at the retention basin site began with groundwater monitoring in 1996 (Section **4.6.2**). Soil sampling began in 1997 and continued intermittently through 2006. A total of eleven soil sampling investigations were preformed to investigate the basins, pipeline and background soils (Table 1 of Hamilton, 2008).

The sampling plans, methods, and analytical results are presented in the Soil Characterization Report (Hamilton, 2008). It is referenced in Appendix **C** of the Closure Plan and was submitted to the DTSC.

For purposes of this Closure Plan, the area where historical boiler chemical cleaning operations may have led to contamination is defined as the "compliance area". This includes the basin, pipeline, and associated downgradient area extending westward to the shoreline (**Figure 4**). The background area is the remaining part of the retention basin site that is upgradient of the compliance area.

Soil in the compliance area was characterized using 423 soil samples from 114 borings collected during the period of June 1997 through August 2006 (Hamilton, 2008). These include 256 soil samples collected from the 68 borings advanced along the nearly 1200 feet of pipelines. The compliance soil boring locations are shown on **Figures 2** and **3**.

Analytical data for the initial phase of pipeline sampling (106 samples collected from 33 borings in November 2004) indicated that pipelines conveying waste solutions to the basins leaked wastewater to the subsurface. This wastewater was laden with metal constituents, primarily vanadium and nickel (Hamilton, 2008). A second phase of pipeline soil sampling showed that the elevated metal parameters were at the groundwater level. Using this analytical data, the DTSC determined that the groundwater may have been threatened along the pipeline corridors. The DTSC directed Edison to expand the groundwater monitoring program to investigate if the pipeline leakage has impacted the groundwater (Hamilton, 2009) (Section **4.6.2)**.

For the background soil, a total of 46 soil samples from 13 borings upgradient of the compliance area were collected. The background soil boring locations are shown on **Figure 2**.

COCs that were analyzed in the soil matrix samples during this characterization program are listed in **Table 1**. All soil samples were analyzed for metals using the United States Environmental Protection Agency (USEPA) Methods 6020 and 7471 (**Table 3**). In addition, all soil samples collected from June 1997 through November 2004 were analyzed for VOCs using USEPA Method 8260. VOCs related to the Chevron refinery were detected in soil samples collected beneath the basin liner (Hamilton, 2008). The only VOC parameters found in soil samples at the site matched the VOCs found in groundwater contaminated by hydrocarbons from the Chevron refinery, an upgradient source (Section **4.5**). Thus, there was no indication of a VOC release in the compliance area. VOC analyses for soil samples collected at the retention basin site were then discontinued, with DTSC concurrence, after November 2004 (Hamilton 2008). However, PAHs and TPH were not analyzed in the soil matrix samples. Future soil matrix sampling for analysis of PAHs and TPH is described in Section **8** of this Closure Plan.

Edison's grid of soil borings was extended outward from the retention basin site until a significant attenuation in contaminant concentration (approaching background levels) was observed. Background concentrations for metals in soil are presented in **Table 1**. At the outermost soil sample locations, concentrations of the key metals associated with boiler chemical cleaning (e.g., nickel and vanadium) were attenuated to within the maximum background concentrations in virtually every case. Arsenic was also attenuated to within the maximum background concentrations.

Soil gas was not sampled due to the hydrocarbon contamination from the Chevron refinery as described in Section **4.5**. However, future soil gas sampling is proposed in Section **8**.

4.6.2 GROUNDWATER MONITORING

The Stipulation required that site characterization investigations pursuant to 22 CCR 66265.98 begin at the facility in 1996. Between December 1996 and September 1997, quarterly groundwater sampling events occurred at the site. The initial well pattern was three upgradient and three downgradient locations. The purpose of the sampling was a Detection Monitoring program for the two retention basins at the site. An Annual Report describing the four quarters of groundwater data was prepared for the DTSC in December 1997. A hiatus from sampling occurred during the report review period. Quarterly groundwater sampling was resumed in June 1998.

Quarterly sampling reports have been submitted to the DTSC after each sampling event except for the December events. The field data for the December events are incorporated into the annual Groundwater Monitoring Report for that sampling year. The most recent annual Groundwater Monitoring Report (Hamilton, 2009) includes analytical results through December 2008. These were used to develop **Table 2**. The annual report is referenced in Appendix **C** of this Closure Plan and was submitted to the DTSC along with other existing characterization reports.

The reports include gradient plots of the groundwater elevation data measured during the sampling events over the year and a tabular presentation of the analytical data derived from the samples collected at the event. Report tables, time-series plots and hydrographs also contain water-level and analytical data from previous sampling events dating back to project inception to allow for data comparison.

The sampling plans, methods, and analytical results are presented in the Water Quality Monitoring Program and Sampling and Analysis Plan (SAP) (Hamilton, 1996 and 2000), and the most recent annual Groundwater Monitoring Report (Hamilton, 2009). These documents are referenced in Appendix **C** of this Closure Plan.

As described below, the scope of the groundwater monitoring program increased over the study period from the original six wells to include twenty-one well locations as shown on

Figure 4. Table 1 of the annual Groundwater Monitoring Report (Hamilton, 2009) describes construction details for each of the monitoring wells. All monitoring wells included in the sampling program, except the background wells, are within the compliance area for risk assessment purposes.

Three hundred twenty-nine groundwater samples were collected from 15 monitoring wells in the compliance area during the period of September 2001 through December 2008 (Hamilton, 2009 and **Table 2**). One hundred thirty-five samples were collected from 6 background monitoring wells during the same period. COCs that were analyzed during this period are listed in **Table 2.** The monitoring well locations are shown on **Figure 4**. The background well numbers are ES-5, ES-6, ES-7, E-22, E-30, and E-34.

Groundwater analyses prior to September 2001 were not used to develop **Table 2** because: 1) analytical detection limits in use were significantly higher prior to September 2001 (the ranges are shown in **Table 3**), 2) the groundwater dataset described in **Table 2** is sufficiently large for future statistical analyses, and 3) the older analytical data prior to September 2001 are less relevant for site closure purposes. (All analytical data are included in the annual Groundwater Monitoring Report [Hamilton, 2009] however.)

The program was expanded in 2001 by the addition of four downgradient monitoring wells west of the retention basins. The purpose of these wells was to close the gap between the existing three wells (Hamilton, 2009). Practical quantitation limits (PQLs) used for the analysis of inorganic COCs decreased beginning in September 2001. The range of PQLs for each metal is shown in **Table 3**.

The DTSC directed Edison to begin the Evaluation Monitoring phase of the groundwater investigation in 2002. Edison reported that downgradient groundwater samples contained statistically elevated concentrations of vanadium. Part of the evaluation monitoring process is the analytical testing of groundwater samples for the constituents listed on Appendix IX to Chapter 14 of CCR Title 22. The first analysis for the Appendix IX list of compounds was performed in October 2002. Analysis for the Appendix IX list of compounds has been performed annually since 2002 (Hamilton, 2009) including the analysis of PAHs (but not TPH).

The groundwater monitoring program was again expanded in 2004. A soil investigation for the wastewater pipelines (Section **4.6.1**) determined that leakage had occurred along the corridor. The pipeline investigations are summarized below.

As part of the closure process, the DTSC required Edison to investigate any station feature that conveyed wastewater to the retention basins. Findings of Edison's investigation of pipelines and appurtenances that conveyed wastewater to the basins is presented in Section **3.2**.

Eleven sampling wells were added to the monitoring program along the pipeline corridor in 2005 (**Figure 4**). Five new wells were installed while sampling pumps were placed in six existing wells. Groundwater samples collected from these wells provide the necessary analytical data to determine if the groundwater has been affected by the pipeline leakage. The initial sampling event for these eleven wells was in the third quarter of 2005 (Hamilton, 2009).

5. ESTIMATE AND MANAGEMENT OF MAXIMUM INVENTORY

No hazardous waste was stored in the retention basins and appurtenances during the period of characterization (1996 to 2008). The current owner/operator does not have a permit to store hazardous waste in the retention basins. Non-hazardous wastewater is stored and released under the previously noted NPDES permit.

Edison discontinued the practice of storing hazardous waste in the retention basins approximately 6 years prior to the sale of the station (in 1998), and assumes the current owner has continued the established practice of complying with the NPDES permit.

The maximum potential historical inventory (i.e., the maximum potential inventory before 1996) is equal to the combined volume of the two basins or 1.3 MG. This combined capacity represents the estimated maximum potential inventory that would exist if both basins were filled with hazardous wastewater at the same time (prior to 1987 there was a single 1.3 MG basin). Note that operational safety policy has been to generally keep the basin(s) below fifty percent of capacity. However, the value of 1.3 MG is useful as a theoretical upper limit on the historical inventory of hazardous wastewater stored at the retention basin site.

6. DECONTAMINATION PROCEDURES FOR EQUIPMENT, STRUCTURES, AND BUILDINGS

The retention basins are emptied and cleaned as a routine operational procedure to remove wind-blown sand, stormwater sediments, algae, and other solids. These materials are removed by the station operator to maintain full retention basin storage volume. Edison considers it unlikely that any residual contamination is present in the basin sediments since the basins have not stored hazardous wastewater for up to 17 years (Section **3**). It is Edison's opinion that the cleaning process described below would effectively remove residual contamination if it were present in the basin sediments. Details of this process are given below.

The retention basin, named the North Basin by the current owner, El Segundo Power LLC, is cleaned by them as needed. The last two basin cleanings were reported by El Segundo Power LLC to have occurred in 2003 and 2008. Retention basin inflow is managed during the cleaning procedure by temporarily activating the BCCB for wastewater storage while the retention basin is drained. The cleaning process involves draining off the clear liquids through a standard NPDES discharge, and then pumping out the residual liquid/solid sludge with a vacuum truck. The sludge, which is characterized as mainly water, is tested for hazardous characteristics, as defined in Title 22 of the CCR, then transported to a licensed recycling facility for processing. Once the retention basin is cleaned and the liner passes an inspection by a liner contractor, it is placed back into service. Any wastewater temporarily placed in the BCCB is pumped into the retention basin. This process is normally performed within 30 days.

The Waste Profile (Filter Recycling Services, Inc., 2008) from the latest basin cleaning indicates the sludge is characterized as non-hazardous.

The boiler chemical cleaning basin stores only the rainwater that falls into the basin. (Full references are contained in Appendix **C** of this Closure Plan).

Decontamination of the basin liners is not considered necessary. Comprehensive leachability testing of similar liner material from the former Edison Long Beach Generating Station (Komex, 2005) indicated there were no leachable contaminants within the liner samples that represented a health risk to ecological or human receptors.

Water has continuously flowed through the pipelines leading to the retention basins, due to normal operation of the station over the period of approximately 17 years since hazardous wastes were last stored in the basins. Due to the operational flow, there should be no sediments from this period remaining in the pipelines.

The sumps connected to the pipelines and basins (**Figure 2**) potentially could contain residual sediments from the period when hazardous wastes were stored in the basins.

Decontamination procedures will include: inspection, solids removal, pressure washing, and testing (confirmation sampling) of the wash water and solids. Based on the list of COCs established for this site, confirmation samples will be tested for metals, PAHs, TPH, and VOCs. Decontamination wash water and solids will be removed and properly disposed, based on the results of the analytical testing.

7. CONFIRMATION SAMPLING PLAN FOR CONTAINMENT STRUCTURES, TANKS, AND EQUIPMENT

Edison believes that confirmation sampling at the retention basin site applies only to the sumps, since the basins and pipelines no longer contain sediments from the time period when the site facilities were used for storing hazardous waste. Details on the cleaning of facilities at the retention basin site are given in Section 6 above.

Confirmation sampling will be performed in the sumps, by testing the wash water after the sump is cleaned. If solids are collected during the confirmation sampling, they will be sampled along with the wash water. The wash water and any solids will be analyzed as described in Section **6**, in consultation with DTSC. The analytical methods listed in **Table 3** will be used, as appropriate.

8. SOIL SAMPLING PLAN

This section describes plans for additional characterization of the soil matrix and new characterization of soil gas at the retention basin site. Existing investigations that produced the data shown in **Tables 1** and **3** are described in Section **4.6.1**. The plans discussed below are in response to DTSC requests following completion of the existing soil investigation (August 2006). General descriptions of future work plans are provided here. Detailed Work Implementation Plans will be developed based on the concepts presented in this section, in consultation with DTSC, after this Closure Plan is approved.

Edison believes the soil at the retention basin site has been fully characterized with the exceptions of: 1) PAHs and TPH in the soil matrix, and 2) soil gas characterization that includes the volatile PAH naphthalene and TPH. The purpose of the additional data collection is to meet the State of California's requirements for cumulative risk assessments.

The existing characterization reports have been reviewed by DTSC. Edison has concluded that the soil characterizations are sufficient to allow Edison to proceed with a Closure Plan.

No VOCs have been detected in the groundwater samples that are not related to the known hydrocarbon contamination migrating from the Chevron refinery. Therefore, no soil gas survey has been performed. However, Edison intends to collect soil gas samples within the retention basin and pipeline areas as part of the comprehensive risk assessment described in this Closure Plan. The soil gas samples will be analyzed for VOCs (including naphthalene) and TPH. This will allow evaluation of: 1) health and safety of the current workers at the site, and 2) the potential risk due to sub-surface vapor intrusion to indoor air and the resulting cumulative risk under future land-use conditions.

The designed collection areas for sediments that could potentially contain PAHs are fireside sediment traps (Section **3.2.3**). Suspended PAHS may also potentially be present along the pipeline alignment at leak locations. TPH may potentially occur anywhere on the site, based on the historic release from the Chevron refinery. Edison intends to investigate and assess PAHs and TPH in soil in areas of known leaks along the pipeline, appurtenances such as traps and sumps, and beneath the basins in order to support risk assessments for these chemicals. Edison also intends to investigate and assess PAHs and TPH in the background area in order to determine their source and support risk assessments.

9. ANALYTICAL TEST METHODS

Analytical test methods used for soil and groundwater samples collected during the field investigations completed to date (Section **4**) are summarized in **Table 3**. The analytical tests for soil and groundwater samples were performed by Weck Laboratories, Inc, an Environmental Laboratory Accreditation Program (ELAP) certified lab.

Soil samples collected at the retention basin site were analyzed for metals using USEPA methods shown in **Table 3** (Hamilton, 2008). Soil samples collected prior to November 2004 were analyzed for VOCs using USEPA Method 8260B.

Groundwater samples collected at the retention basin site were analyzed for metals using the USEPA methods shown in **Table 3** (Hamilton, 2009). Groundwater samples were analyzed for VOCs using USEPA Method 8260B.

Potential future test methods for VOCs, PAHs and TPH are shown in **Table 3**. At present the test methods for TPH are uncertain due to the distinct chemistry and toxicology of the aliphatic and aromatic compounds in TPH. The method shown is based on DTSC's Interim Guidance for TPH (DTSC, 2009).

Analytical test methods for future analyses are subject to future changes in test methodology. It is assumed that future analyses would have method detection limits that meet risk-based criteria, such as California Human Health Screening Levels (CHHSLs) in soil and drinking water criteria in groundwater.

10. GROUNDWATER SAMPLING PLAN

This section describes plans for additional characterization of groundwater at the retention basin site. Existing investigations that produced the data shown in **Tables 2** and **3** are described in Section **4.6.2**. The plans discussed below are in response to DTSC requests following completion of the existing soil investigation (August 2006). Although existing groundwater monitoring data summarized in **Table 2** extends up to December 2008, the groundwater sampling program has continued without interruption in 2009.

General descriptions of future work plans are provided here. Detailed Work Implementation Plans will be developed based on the concepts presented in this section, in consultation with DTSC, after this Closure Plan is approved.

Edison believes the groundwater at the retention basin site has been fully characterized with the exception of TPH. Edison proposes to analyze PAHs and TPH in future groundwater sampling on a quarterly basis as part of the comprehensive risk assessment described in this Closure Plan. The purpose of the additional data collection is to meet the State of California's requirements for cumulative risk assessments.

11. CLOSURE PERFORMANCE STANDARDS (CLEANUP LEVELS)

Standards for closing the retention basin site to meet clean closure (unrestricted land use standards) are described below along with the Conceptual Site Model (CSM). Due to hydrocarbon contamination in site groundwater (Section **4.5**), and cumulative risk effects of hydrocarbons and metals, it is possible the site will be closed to industrial standards (Section **19**) with a Land-Use Covenant (LUC) for protection of human health. In the event that remedial action is performed (Section **12**), updated site data following remediation would have to meet these standards.

Clean closure can be achieved in accordance with Closure Performance Standards either by: 1) Demonstrating that no COPCs are identified at the retention basin site through site characterization and statistical analysis, 2) Demonstrating that COPCs identified at the retention basin site are below risk-based criteria, or 3) Demonstrating that COPCs identified at the retention basin site were remediated to concentrations that are below background or risk-based criteria. Background concentrations for metals in soil and groundwater are presented in **Tables 1** and **2**. The distinction between the terms "COC" and "COPC", along with the definition of "background" concentrations, are explained in Section **4**.

All COCs (listed in **Tables 1** and **2**) analyzed and reported in the site characterization reports will be evaluated for site closure in addition to new COCs described. Each inorganic COC can potentially become a COPC according to the DTSC criteria for identifying statistically elevated chemical concentrations (Section **4**).

Figure 5 is a CSM that illustrates the potential exposure routes from the points of chemical release at the retention basin site, and upgradient sources impacting the retention basin site, to human and ecological receptors. Under current (2009) land use conditions, the potential human receptors are industrial workers and construction workers. Under future unrestricted land use conditions (i.e., after the station is decommissioned and removed), a resident is considered as a hypothetical human receptor in order to support closure evaluations. Potential exposure routes to aquatic and terrestrial ecological receptors will be evaluated under both current and future land use conditions.

Currently the retention basin is lined with a single layer of asphaltic concrete covered by a single layer of a synthetic HDPE liner. And the BCCB is currently lined with a single layer of asphaltic concrete covered by a double layer of a synthetic HDPE liner and has a leachate collection system installed between the two layers of HDPE liner (Section **3**). The remainder of the retention basin site is paved, so there are no potential direct exposures (i.e., ingestion or dermal contact) by industrial workers with COPCs in surface or subsurface soil, as the industrial workers do not have access to soil or groundwater beneath the basins or pipelines. Similarly, indirect contact pathways through inhalation of dust-borne particulates or inhalation of subsurface vapors intruding into indoor air are also currently incomplete for

industrial workers. The only indoor workspaces on the retention basin site are trailers in the pipeline area. Since the trailers are onsite temporarily and do not have permanent in-ground foundations that vapors could accumulate beneath, the indoor air exposure pathway is incomplete.

Current construction workers could potentially contact surface and subsurface soils and be exposed to COPCs through ingestion, dermal contact, dust inhalation or outdoor vapor inhalation should construction activities occur at the retention basin site. Thus, although these pathways are shown as potentially complete on **Figure 5**, they are likely to be very limited. The DTSC and Edison have agreed that a risk analysis of the hydrocarbons (VOCs, PAHs and TPH) described in Section **4.5** will be performed for the retention basin site to protect current construction workers who may contact soils beneath the basin site (recognizing that the hydrocarbon constituents may have originated upgradient of the retention basin site). Hydrocarbon concentrations in soil and soil gas will also be used with COPC metal concentrations to compute the cumulative risk for each group of workers. Protective measures will be specified in a health and safety plan (HaSP) before subsurface work is performed at the retention basin site (Section 17).

Currently, the groundwater ingestion route is incomplete for industrial and construction workers because the potable water at the station is supplied by the local municipality. Also, it is assumed that current and future construction workers are unlikely to be exposed to COPCs in groundwater by dermal contact with groundwater, as groundwater is 15 feet or more below land surface.

Given the highly developed nature of the station property, terrestrial ecological receptors are not likely to be present on the site. Therefore, no contact by ecological receptors with COPCs in soil is likely to occur under current conditions.

Under future conditions, the site is assumed to have no basins, liners, pipelines or sumps and the surface is assumed to be unpaved. A future resident is assumed, hypothetically, to come into contact with the surface and subsurface soil (assuming subsurface soils are disturbed and re-distributed at the surface), and inhale airborne dust particulates and indoor vapors intruding from the subsurface. Future industrial and construction workers are assumed, hypothetically, to be exposed through the same soil-related routes as a resident, except that construction workers are assumed to be exposed to outdoor air and not indoor air.

The DTSC and Edison have agreed that a risk analysis of the hydrocarbons described in Section **4.5** will be performed for the retention basin site to protect future industrial and construction workers who may contact soils beneath the basin site. Also, risks will be analyzed for future industrial workers for sub-surface vapor intrusion to indoor air (recognizing that the hydrocarbon constituents may have originated upgradient of the

retention basin site). Hydrocarbon concentrations in soil and soil gas will also be used with COPC metal concentrations to compute the cumulative risk for each group of workers.

Due to the dedesignation of groundwater beneath the station for MUN use (Section **4.5**), groundwater is not likely to be a potential water supply source in the future. Nevertheless, to be health protective and at the request of DTSC, it is assumed that future groundwater exposures for residents may occur, as shown on **Figure 5**.

Based on long-term monitoring of the groundwater, it is concluded that groundwater moves from east to west, likely at a moderately low flow velocity. Thus, groundwater may be discharging into the nearshore marine environment west of the site. Groundwater discharge could, therefore, potentially result in complete exposure pathways for ecological receptors, such as plankton, benthic invertebrates, epibenthic invertebrates, and fish through uptake and for shorebirds through ingestion of prey (see ocean water on **Figure 5**). This will be examined in a scoping ecological risk assessment performed for inorganic COCs. Edison understands that Chevron will perform a scoping ecological risk assessment (ERA) for hydrocarbon COCs. Due to the discharge of groundwater to the ocean, it is anticipated that water quality criteria protective of ecological receptors, such as the most protective criteria for marine organisms in the California Ocean Plan (State Water Resources Control Board, 2005) will become the primary closure performance standards for these receptors.

As described in Section **3**, nonhazardous wastewater containing minor amounts of oil, grease, and suspended solids, is stored in the retention basins. The wastewater from the basins is comingled with cooling water from the station and discharged to the ocean under the provisions of an NPDES permit (Hamilton, 2008). Therefore, although there is a possibility that chemicals and water in the retention basins may be released to the ocean under current conditions, this discharge would be substantially diluted, resulting in insignificant exposure pathways for ecological receptors. Therefore, wastewater is not likely to be a secondary source.

Under future conditions the site is likely to continue to be used for industrial purposes, although it is possible that unrestricted land use could result in other types of development at the site. As such, it is likely that future ecological receptors would be the same as under current conditions. Assuming the highly developed nature of the station property continues under future conditions, sensitive terrestrial receptors are not likely to be present on the site as illustrated on **Figure 5**. Potential exposure routes from the retention basins to aquatic and terrestrial receptors will be determined through a scoping ecological risk assessment, supplemented, as appropriate, with chemical and biological monitoring conducted in support of the NPDES permit and in consultation with DTSC. The scoping ERA will examine whether the nearshore receptors identified in the biological characterization described in Section

12.3.2 could be exposed to COPCs in groundwater through uptake or ingestion of food items (see **Figure 5**).

Additional information would be collected during potential remediation. The additional information may be used to modify the CSM based on any determinations indicating that future (post-remediation) conditions differ from those depicted in **Figure 5**. If additional complete exposure routes are identified, an evaluation will be performed to confirm that closure performance standards are met to achieve protection of ecological receptors and the environment. Demonstration of compliance with the closure performance standards will include evaluations of COPC concentrations within the aquifer beneath the basin site as a whole (e.g., average COPC concentrations) and examination of the effects of any dilution caused by transport prior to discharge to the nearshore environment. If necessary, based on the results of the evaluation and consultation with DTSC, additional remediation would be performed.

The initial (primary) closure performance standards for metals in the soil and groundwater are the corresponding background levels. However, for groundwater, the standard protective of human health will be ecologically protective criteria when they are greater than background, because (for most metal COCs in **Table 2**) these criteria are lower than Maximum Contaminant Levels (MCLs). In any case where the ecologically protective criteria are greater than both MCLs and background, then the greater of MCLs and background would become the health-protective standard. In the event that it is not technically feasible to remediate metals to background (or MCL) concentrations, the closure performance standards will be as follows:

1. For the site soil, the closure performance standard will be health risk-based criteria for unrestricted closure. USEPA guidance indicates that a cumulative carcinogenic risk range between 1 in 1,000,000 and 1 in 10,000 (1×10^{-6} and 1×10^{-4}) is considered to be protective of public health. The lower end of this risk range is typically applied to residential situations and is considered the point of departure by the USEPA and DTSC. Accordingly, the human health risk-based criteria for carcinogens will be based on a target carcinogenic risk of 1×10^{-6} (cumulative for all COPCs) and the human health risk-based criteria for noncarcinogens will be based on a target hazard index of 1. A post remedial risk assessment will be performed and presented in the Closure Certification Report (Section **16**).
2. For groundwater, the closure performance standards will be the water quality criteria protective of ecological receptors, such as the most protective criteria for marine organisms in the California Ocean Plan. Closure Performance Standards for protection of terrestrial ecological receptors, if any, will be developed in consultation with DTSC.

A Closure Certification Report (Section **16**) will be generated to demonstrate that the closure performance standards described in this section are met following remediation.

In the event that clean closure is not achieved, an LUC an Implementation and Enforcement Plan (IEP), consistent with closure to industrial standards, will be prepared for approval by DTSC as described in Section **19**. Closure performance standards for protection of ecological receptors in Section **19** are the same as described above.

12. SOIL AND GROUNDWATER REMOVAL/CLEANUP PROCEDURES

The overall remediation strategy (if needed) would be to use Edison's characterization data, for statistical analyses and risk assessments, to identify the specific contaminants and locations that require remediation to achieve the site's closure performance standards.

12.1 SOIL REMOVAL/CLEANUP PROCEDURES

The closure performance standards (Sections **11** and **19**) and supporting statistical analyses and risk assessments may indicate that soil excavation should be performed. Candidate metals with local areas of elevated concentrations that could potentially drive soil removal action in order to protect marine ecological receptors include nickel. The California Ocean Plan has no standards for vanadium or TPH.

If soil removal is required the following procedures would be used. A work plan for soil removal would be developed and submitted to the DTSC for approval. The work plan would include a soil management plan with a HaSP. Confirmation soil samples would be collected from the walls and bottom of the excavation(s) on approximate twenty foot centers, with a minimum of one sample on each sidewall. The samples would be analyzed for the COPCs identified through statistical and risk analysis of the characterization data, in consultation with DTSC. The analytical methods listed in **Table 3** would be used, as appropriate.

If analyses of the confirmation samples show that the closure performance standards have not been met, then additional soil may be excavated laterally and vertically to the water table. The confirmation sampling would be repeated as well.

The completed excavation would be backfilled with clean, compacted fill (for which characterization samples would also be collected and analyzed). The basin liner would be repaired as necessary. The remediation equipment would be decontaminated by pressure washing. Decontamination wash water and residue would be characterized and removed for disposal at a permitted facility offsite as described in Section **6**.

The excavated soil would be characterized in accordance with the CCR Title 22 as described in Section **6**, and disposed of at an appropriate facility, based on a determination of whether or not it is hazardous. If this waste is determined to be hazardous, it would not be stored onsite for more than 90 days. Soil removal, transport, and cleanup procedures would conform to DTSC guidelines. A Remedial Implementation Plan would be prepared and approved by DTSC prior to initiation of cleanup.

A similar process would be used for removal of PAHs, if demonstrated to be associated with releases from the retention basin site.

Edison assumes that El Segundo Power LLC or Chevron will be responsible for cleaning up soil containing hydrocarbons that originated at the Chevron refinery.

The Closure Certification Report (Section **16**) will provide comprehensive documentation of the evaluation of any chemicals that may require remediation, soil removal actions, cleanup confirmation, and post-remedial risk assessment.

12.2 GROUNDWATER REMOVAL/CLEANUP PROCEDURES

The closure performance standards (Section **11**) and supporting statistical analyses and risk assessments may indicate that groundwater remediation should be performed. In this case a workplan would be developed for review and approval by DTSC. The methodology and extent of the remediation defined in the workplan would be determined based on the results of the data evaluation described above. The remedial objective would be to meet the closure performance standards defined in Section **11** or **19**.

Ongoing groundwater monitoring (Section **15**) would serve as confirmation sampling to evaluate the efficacy of the remedial action on meeting the site's Closure Performance Standards for groundwater. Groundwater samples will be collected and analyzed according to the existing Water Quality Monitoring Program and Sampling and Analysis Plan (Hamilton, 1996 and 2000) to demonstrate attainment of the groundwater cleanup standards. When attainment is achieved, the Closure Certification Report (Section **16**) would provide a comprehensive assessment of any chemicals that require remediation, as well as documentation of necessary remedial actions, and demonstration of attainment of the groundwater cleanup standards.

Edison assumes that El Segundo Power LLC or Chevron will be responsible for cleaning up hydrocarbons in groundwater that originated at the Chevron refinery.

12.3 CULTURAL AND BIOLOGICAL RESOURCES

12.3.1 CULTURAL RESOURCES

Edison conducted a cultural resources records search of a half-mile radius around the proposed project at the South Central Coastal Information Center (SCCIC). The records search materials contain information collected from the California Historical Resources Information System to include the locations of previous cultural resources surveys and archaeological sites as well as a search of the listings in the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Historic Landmarks (CHL), and California Points of Historic Interest (CPHI).

Fourteen previous cultural resources surveys have been conducted within a half–mile radius of the project area. Of these 14 previous studies, one study encompasses the project area. This study was conducted in 2000 by URS for the California Energy Commission, and it is a Historic Evaluation of the station to determine whether the steam station qualifies for listing in the NRHP as a historic resource or as a historic resource under applicable guidelines (Section

15064.5 (a)(2)¬(3)) of California Environmental Quality Act (CEQA). The report concluded that the station does not meet the criteria for listing on the National Register nor it is an important historic resource under CEQA (Bunse and Mikesell 2000). The remaining 13 studies lie outside of the station, but are within a half-mile radius of the project area. None of these studies identified any new resources.

No previously recorded prehistoric or historical-period archaeological resources were identified within a half-mile radius of the project area. However, a total of eight historic properties are identified within the half-mile radius record search boundary, but are outside of the station. These are historical period buildings and structures, and will not be affected by the proposed project due to their distance from the project area.

Based on a review of the supporting documentation and the cultural resources records search, this archaeological assessment confirms the absence of sensitive cultural resources, including CRHR- and NRHP-eligible resources, on the property. No additional archaeological assessments are required at this time.

To further ensure that such resources are not impacted, Edison will have an archeologist present during any earth moving activities, with appropriate 'project control measures' enacted. In the event that cultural resources are encountered during any future earth disturbing activities, all work must halt at that location until the resources can be properly evaluated by a qualified archaeologist. Further, if human remains are unearthed during excavation, State Health and Safety Code Section 7050.5 state that "…no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and distribution pursuant to Public Resources Code Section 5097.98."

12.3.2 BIOLOGICAL RESOURCES

This biological characterization was based on a review of previous biological reports prepared for the facility, including the National Pollutant Discharge Elimination System, 2002 Receiving Water Monitoring Report, El Segundo and Scattergood Generating Stations (MBC, 2003), and Application for Certification: El Segundo Power Redevelopment Project (URS, 2000), and studies on the ecology of the regional marine environment. For the species of regulatory concern (threatened, endangered, and sensitive species), local occurrences were obtained from a query of the California Natural Diversity Database (CNDDB) (CNDDB, 2008). The station is located along Santa Monica Bay, in which the nearshore environment consists mainly of a sandy bottom. No rocky outcroppings are present directly offshore of the site, except for anthropogenic hard-bottom substrate at the ends of the cooling water intake and discharge pipes located approximately 1,900 to 2,100 feet offshore. Three sensitive habitats occur near the El Segundo Generation Station: southern dune scrub (located near Los Angeles International Airport), the Chevron butterfly preserve more than 2 miles to the north, and southern coastal salt marsh habitat more than 4 miles to the north.

Common species in the nearshore marine environment offshore of the site include phytoplankton and zooplankton. Abundant benthic invertebrates include annelid worms (e.g., *Apoprionospio pygmaea*), sand dollars, small clams, and amphipods. The sand crab (*Emerita analoga*) is the most common intertidal benthic species that occurs on the beach. Common macroinvertebrates include several rock crab species, California spiny lobster (*Panulirus interruptus*), purple-striped jellyfish (*Chrysaora colorata*), and red rock shrimp (*Lysmata californica*). A variety of fish are likely to occur offshore, including the most abundant queenfish (*Seriphus politus*), Walleye surfperch (*Hyperprosopon argenteum*), croakers, northern anchovy (*Engraulis morda*), and Pacific sardine (*Sardinops sagax*).

Birds present near the site consist of marshbirds, shorebirds, waterbirds, and seabirds. Shorebirds are likely the most common birds present along the beach near the site, where they typically feed on invertebrates living in the sandy beach.

Several marine mammals may be transitory visitors to waters offshore of the site; these include the California sea lion (*Zalophus californicus*), harbor seal (*Phoca vitulina*), gray whale (*Eschrichtius robustus*), and several species of dolphin.

Species of regulatory concern include federally and California state-listed threatened or endangered species, candidate species, or California Species of Special Concern. The California least tern (*Sterna antillarum browni*), California gnatcatcher (*Polioptila californica*), western snowy plover (*Charadruis alexandrinus nivosa), and California black rail (Laterallus jamaicensis coturniculus*) are the only bird species of regulatory concern that may occur in the vicinity of the site. The areas surrounding the station do not provide suitable habitat or nesting grounds for birds, and none of the above avian species have been sighted in the surrounding areas for several years. The blue whale (Balaenoptera musculus), fin whale (*Balaenoptera physalus*), and humpback whale (*Megaptera novaeangliae*) are the only threatened or endangered marine mammals that could potentially visit Santa Monica Bay, although they are likely only transitory visitors. No other special status terrestrial or freshwater aquatic animals, marine algae, invertebrates, or fish were identified or are likely to occur in waters near the property. The station offers no suitable foraging, nesting, or refuge habitat for any other special status animals, plants, or invertebrates observed in nearby areas.

Although it is unlikely that suitable habitat for species of regulatory concern is present on or near the site, if there is a potential impact to a listed species, consultation with the US Fish and Wildlife Service may be required. Guidelines and avoidance measures would be required prior to conducting the proposed ground disturbing work activities.

13. CLOSURE COST ESTIMATE

A cost estimate for performing the Closure activities is described in Appendix **D**. At this time, it has not been demonstrated whether soil or groundwater remediation will be necessary. If the statistical evaluation and risk assessment identify COPCs that exceed the Closure Performance Standards, a remedial implementation work plan will be developed along with a cost estimate. This information would be used to update the Financial Assurance Document included in Section **14** and Appendix **E**. The total estimated closure cost is $455,000 (**Table D-1**).

14. FINANCIAL RESPONSIBILITY

A statement of financial assurance is included in Appendix **E**.

15. CLOSURE IMPLEMENTATION SCHEDULE

The time frame for any potential remedial activities would be based on the approved closure plan date, and determination of the necessity for remedial action during the statistical analysis and risk assessment phase following approval of the Closure Plan. If remedial action is required, an implementation schedule would be developed during the preparation of a Remedial Implementation Plan.

Assuming remedial action is required, post-remediation groundwater monitoring to track the effectiveness of the remedy would continue for a period of up to five years to assess progress toward meeting the Closure Performance Standards (Section **11**).

Progress reports and /or continued quarterly groundwater monitoring reports would be submitted during that assessment period, as required by DTSC.

Details concerning the contingency plan that would be followed if the Closure Performance Standards could not be met within five years are presented below (Section **19**).

If the presumed remedy is found to be effective in meeting the standards within five years, groundwater monitoring to confirm clean conditions would continue for a period consistent with CCR 66265.96. The groundwater monitoring network could be modified (streamlined) depending on the timeframe for certification of the presumed remedy.

After Edison demonstrates that the Closure Performance Standards (Section **11** or **19**) have been met, a Closure Certification Report will be prepared within six months for DTSC review.

16. CLOSURE CERTIFICATION REPORT REQUIREMENTS

The Closure Certification Report will document the results of site characterization activities, statistical analyses to identify COPCs, and risk assessments used to quantify the achievement of Closure Performance Standards for the site. In addition, the Closure Certification Report will document any remediation activities and associated evaluation of confirmation sampling, should it be required. Data and evaluation to document that the site's Closure Performance Standards have been met for soil and groundwater will be presented. Note that the CSM (**Figure 5**) and list of COPCs would be re-evaluated to account for post-remediation data such as results of confirmation sampling.

17. PERSONAL PROTECTIVE EQUIPMENT (WORKER HEALTH AND SAFETY)

Assuming remedial action is required, a HaSP for performing these activities at the retention basin site would be prepared by the remediation contractor and approved by DTSC prior to commencement of any field work.

A HaSP covering subsurface construction work at the site (performed by or for El Segundo Power LLC) would be incorporated into a potential LUC for the site as described in Section 19.

18. SITE SECURITY

The station is an operating facility and is gated and guarded to prevent unauthorized access. The site is surrounded by fences that are eight feet high, with outward-facing barbed-wire extensions. The site also has an electronic surveillance system.

19. CONTINGENCY POST-CLOSURE PLAN

Site soil and groundwater data will first be evaluated to assess the potential for compliance with the Closure Performance Standards for clean closure, discussed in Section **11**. Due to hydrocarbon contamination in site groundwater (Section **4.5**), and cumulative risk effects of hydrocarbons and metals, it is possible the site will be closed to industrial standards with a LUC for protection of human health. An LUC would likely cover both metals and hydrocarbons for the retention basins. A determination will be made as to whether an LUC is necessary to manage health risks in the pipeline area. A potential LUC would include a soil management plan whenever asphalt is removed.

Further investigation of site media may be performed as the situation dictates, in consultation with DTSC. In the event that further investigation and/or remedial action is performed (Section **12**), updated site data following investigation/remediation would be used for the Contingency Post-Closure Plan assessment.

Under the Contingency Post-Closure Plan, Edison would close the retention basin site to meet industrial closure (restricted land use standards). An LUC and an IEP would be provided for approval by DTSC. An outline for the post-closure groundwater monitoring plan is presented below in Appendix **B**.

Industrial closure can be achieved in accordance with Closure Performance Standards either by demonstrating that no COPCs are identified for the retention basin site, or, alternatively, if one or more COPCs are identified, by performing a risk assessment demonstrating that the resulting risk levels for the COPCs are within prescribed standards for industrial site closure.

The distinction between the terms “COC” and “COPC”, along with the definition of “background” concentrations, are explained in Section **4**.

The suite of COCs analyzed and reported in the site characterization reports (listed in **Tables 1** and **2**) will be evaluated for site closure. Each COC can potentially become a COPC according to the DTSC criteria for identifying statistically elevated chemical concentrations (Section **4**).

Current construction workers could potentially contact surface and subsurface soils and be exposed to COPCs through ingestion, dermal contact, dust inhalation or outdoor vapor inhalation should construction activities occur at the retention basin site. Thus, although these pathways are shown as potentially complete on **Figure 5**, they are likely to be very limited. The DTSC and Edison have agreed that a risk analysis of the hydrocarbons (VOCs, PAHs and TPH) described in Section **4.5** will be performed for the retention basin site to protect current construction workers who may contact soils beneath the basin site. Also, risk analyses will be conducted to evaluate future industrial worker exposures to sub-surface vapor intrusion to indoor air and associated cumulative risks (recognizing that the

hydrocarbon constituents may have originated upgradient of the retention basin site). Hydrocarbon concentrations in soil and soil gas will also be used with COPC metal concentrations to compute the cumulative risk for each group of workers. Protective measures will be specified in a HaSP before subsurface work is performed at the retention basin site (Section **17**).

Closure Performance Standards for the retention basin site would be expressed in terms of risk, by requiring that risk levels for human receptors potentially exposed to the identified COPCs are within USEPA and DTSC prescribed standards for industrial closure. USEPA guidance indicates that a carcinogenic risk probability between 1 in 10,000 and 1 in 1,000,000 (1×10^{-4} and 1×10^{-6}) is considered to be both safe and protective of public health. Accordingly, a carcinogenic risk probability of 1×10^{-5} will be adopted to be protective of future industrial workers. A hazard index of 1 will be used as the target criterion for evaluating potential non-carcinogenic health effects. The contribution of background levels of VOCs, PAHs, and TPH to cumulative risk will also be described.

Closure performance standards for ecological receptors are the same as described in Section **11**. The ecological and environmental closure performance standards would include water quality criteria, such as the most protective criteria for aquatic organisms in the California Ocean Plan. These would be used to examine any constituents that may reach the nearshore marine environment west of the site in the future.

Closure performance standards for the retention basin site are summarized below:

a. The closure performance standard for metals in soil will be background, or the risk-based concentration for industrial site closure (as noted above and based on **Figure 5**), whichever is greater.

b. In the event that further investigation and/or remedial action is performed, risk-based closure standards will be developed as needed if additional complete exposure routes are identified after updating the CSM to account for any post-remediation data. Thus **Figure 5** would be updated under this scenario.

The CSM may be modified based on any determinations indicating that future conditions differ from those depicted in **Figure 5**. If additional complete exposure routes are identified, closure performance standards may need to be met to achieve protection of human and ecological receptors and the environment, as described above.

A Closure Certification Report (Section **16**) will be generated to demonstrate that the above closure performance standards are met.

If the Closure Performance Standards for industrial closure are not met, then a Post-Closure Permit Application will be submitted.

Tables

Table 1
Summary of Frequency of Occurrence of Chemicals of Concern for Basin and Pipeline Soils at
El Segundo Generating Station
June 1997 through August 2006

		Compliance					Background				
Parameter	**Units**	**N**	**NonDetects**	**% detects**	**Minimum**	**Maximum**	**N**	**NonDetects**	**% detects**	**Minimum**	**Maximum**
Antimony	mg/kg	423	329	22%	0.10	4.9	46	43	7%	0.25	0.85
Arsenic	mg/kg	423	3	99%	0.25	30	46	0	100%	1.1	17
Barium	mg/kg	423	0	100%	5.2	155	46	0	100%	4.3	100
Beryllium	mg/kg	423	108	74%	0.05	0.81	46	14	70%	0.05	0.40
Cadmium	mg/kg	423	335	21%	0.05	11	46	21	54%	0.05	1.6
Chromium, Total	mg/kg	423	0	100%	3.0	127	46	0	100%	3.6	72
Chromium VI	mg/kg	317	303	4%	0.05	3.2	18	18	0%	NA	NA
Cobalt	mg/kg	423	0	100%	0.59	32	46	0	100%	0.70	41
Copper	mg/kg	423	0	100%	1.9	85	46	0	100%	0.79	46
Lead	mg/kg	423	0	100%	0.93	87	46	0	100%	0.75	8.3
Mercury	mg/kg	423	48	89%	0.01	1.4	46	11	76%	0.01	0.06
Molybdenum	mg/kg	423	79	81%	0.10	25	46	18	61%	0.10	1.8
Nickel	mg/kg	423	0	100%	2.8	840	46	0	100%	2.6	67
Selenium	mg/kg	423	394	7%	0.25	3.2	46	46	0%	NA	NA
Silver	mg/kg	423	365	14%	0.05	6.1	46	45	2%	0.05	0.11
Thallium	mg/kg	423	415	2%	0.05	0.59	46	46	0%	NA	NA
TOC	mg/kg	209	2	99%	15	4,944	NA	NA	-	NA	NA
Vanadium	mg/kg	423	2	100%	4.0	2,090	46	0	100%	5.6	85
Zinc	mg/kg	423	2	100%	3.9	290	46	2	96%	2.50	120

Notes:

1 - Compliance samples represent the Basin and Pipeline Area

2 - A total of 114 soil borings were sampled in this compliance area.

3 - The background data were obtained from 13 native soil background borings.

NA - Not Applicable

N - Number of samples analyzed

mg/kg - milligrams per kilogram

Table 2
Summary of Frequency of Occurrence of Chemicals of Concern for Basin and Pipeline Groundwater at
El Segundo Generating Station
September 2001 through December 2008

		Compliance						Background					
Chemical	**Units**	**N**	**Detects**	**Non-Detects**	**% detects**	**Minimum**	**Maximum**	**N**	**Detects**	**Non-Detects**	**% detects**	**Minimum**	**Maximum**
pH	Units	273	273	0	100%	6.1	7.7	111	111	0	100%	6.3	7.9
Antimony	mg/L	329	4	325	1%	0.003	0.006	135	4	131	3%	0.003	0.005
Arsenic	mg/L	329	124	205	38%	0.002	0.02	135	9	126	7%	0.002	0.003
Barium	mg/L	329	329	0	100%	0.006	0.5	135	134	1	99%	0.003	0.56
Beryllium	mg/L	329	0	329	0%	0.0003	0.001	135	0	135	0%	0.0003	0.0005
Cadmium	mg/L	329	0	329	0%	0.0005	0.001	135	0	135	0%	0.0005	0.0005
Chromium, Total	mg/L	329	8	321	2%	0.001	0.006	135	9	126	7%	0.001	0.007
Cobalt	mg/L	329	132	197	40%	0.0002	0.004	135	77	58	57%	0.0002	0.003
Copper	mg/L	329	12	317	4%	0.002	0.05	135	6	129	4%	0.002	0.01
Lead	mg/L	329	39	290	12%	0.001	0.03	135	11	124	8%	0.001	0.004
Mercury	mg/L	329	1	328	0.3%	0.0001	0.0005	135	1	134	1%	0.0001	0.0002
Molybdenum	mg/L	329	220	109	67%	0.0005	0.03	135	75	60	56%	0.0005	0.01
Nickel	mg/L	329	171	158	52%	0.002	0.05	135	58	77	43%	0.002	0.04
Selenium	mg/L	329	2	327	1%	0.002	0.02	135	0	135	0%	0.002	0.002
Silver	mg/L	329	0	329	0%	0.0005	0.0010	135	1	134	1%	0.0005	0.001
Thallium	mg/L	329	0	329	0%	0.0005	0.001	135	1	134	1%	0.0005	0.001
TDS	mg/L	329	329	0	100%	490	16,000	135	135	0	100%	560	2,700
Vanadium	mg/L	329	113	216	34%	0.003	0.07	135	10	125	7%	0.003	0.008
Zinc	mg/L	329	21	308	6%	0.01	0.16	135	24	111	18%	0.01	0.22

Notes:

1 - Compliance samples represent the Basin and Pipeline Area

2 - A total of 15 monitoring wells were sampled in this compliance area.

3 - The background data were obtained from 6 native groundwater background monitoring wells.

N - Number of samples analyzed

mg/L - milligrams per Liter

Analytical Test Methods
El Segundo Generating Station

Table 3

	Soil		Soil Gas		Groundwater	
Monitoring Parameter	**EPA Method**	**Practical Quantitation Limit**	**EPA Method**	**Practical Quantitation Limit**	**EPA Method**	**Practical Quantitation Limit**
General Mineral						
pH	9045C	-			SM4500 H+B	-
Nitrate	9056	-			353.2	0.2-2 mg/l
Aluminum	6020	25 mg/kg			200.8	10 - 50 ug/l
Chloride	-	-			300	5 - 20 mg/l
Fluoride	-	-			300	0.05 - 1 mg/l
Manganese	6020	5 mg/kg			200.7	10 ug/l
Metals						
Antimony	6020	0.5 mg/kg			200.8	2.5 - 6 ug/l
Arsenic	6020	0.5 mg/kg			200.8	2 - 5 ug/l
Barium	6020	1.0 mg/kg			200.8	0.5 - 2.5 ug/l
Beryllium	6020	0.1 mg/kg			200.8	0.3 - 1 ug/l
Cadmium	6020	0.1 mg/kg			200.8	0.5 - 1 ug/l
Total Chromium	6020	1.0 mg/kg			200.8	1 - 5 ug/l
Chromium VI	7196	1 mg/kg			-	-
Cobalt	6020	0.2 mg/kg			200.8	0.2 - 7 ug/l
Copper	6020	0.5 mg/kg			200.8	2 - 50 ug/l
Iron	6010	10 mg/kg			200.7	20 ug/l
Lead	6020	0.5 mg/kg			200.8	1 - 5 ug/l
Mercury	7471	0.01 mg/kg			245.1	0.1 - 0.5 ug/l
Molybdenum	6020	0.2 mg/kg			200.8	0.5 - 8 ug/l
Nickel	6020	0.5 mg/kg			200.8	2 - 5 ug/l
Selenium	6020	0.5 mg/kg			200.8	2 - 5 ug/l
Silver	6020	0.1 mg/kg			200.8	0.5 - 1 ug/l
Thallium	6020	0.5 mg/kg			200.8	0.5 - 1 ug/l
Vanadium	6020	1.0 mg/kg			200.8	2.5 - 10 ug/l
Zinc	6020	5.0 mg/kg			200.8	10 - 50 ug/l
Organic Compounds						
VOCs existing analyses	8260B	5 ug/kg	8260B	future[2]	8260B	1 - 5 ug/l
VOCs future analyses[1]			TO-15	future[2]		
PAHs future analyses[1]	8270 or 8310	future[2]	NA	NA	8270 or 8310	future[2]
TPH future analyses[1]	8015C	future[2]	8015C	future[2]	8015C	future[2]

Notes:

1 - Methods for future analyses are subject to future changes in test methodology

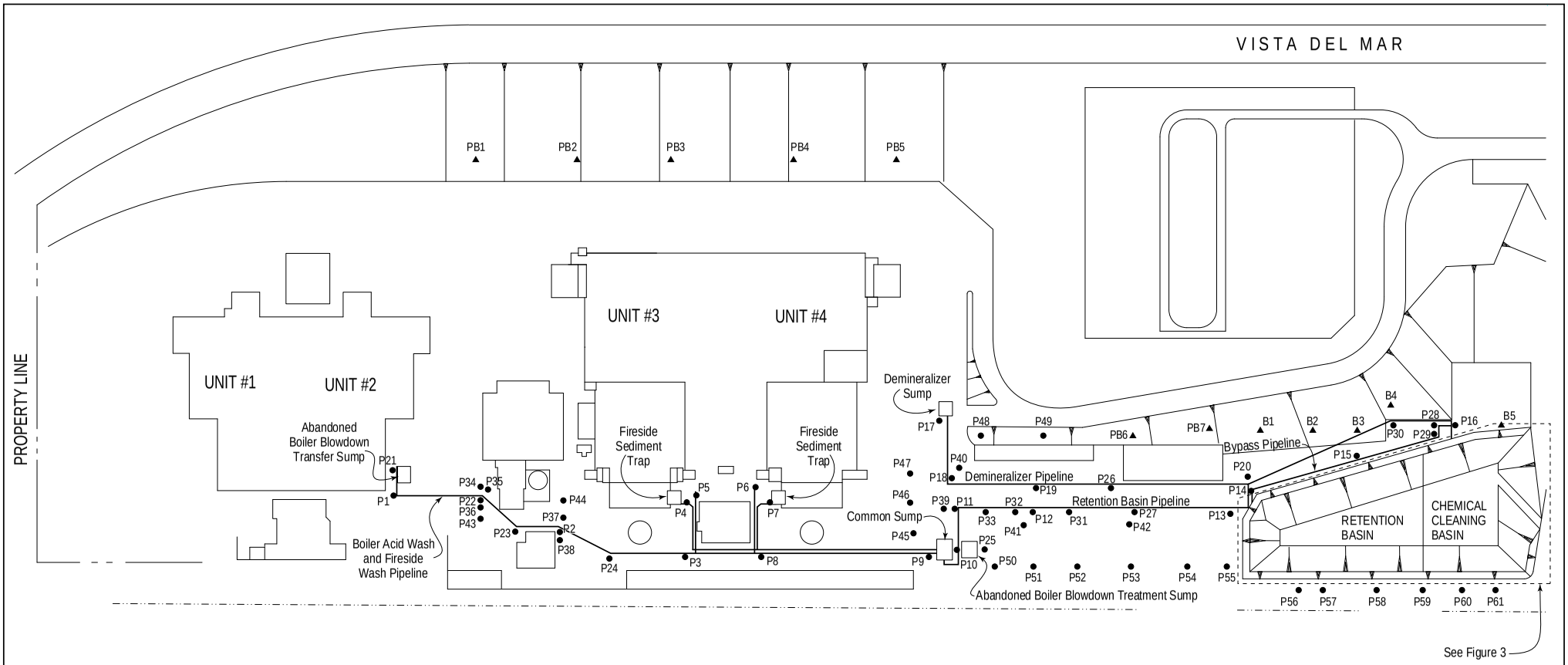
2 - It is assumed that future analyses would have method detection limits that meet risk-based criteria, such as CHHSLs in soil and drinking water criteria in groundwater

NA - Not Applicable (naphthalene is part of the VOC analysis)

Data Source is P. Hamilton

Figures

FIGURE 1 - SITE LOCATION MAP
El Segundo Generating Station
301 Vista del Mar, El Segundo, California



Legend

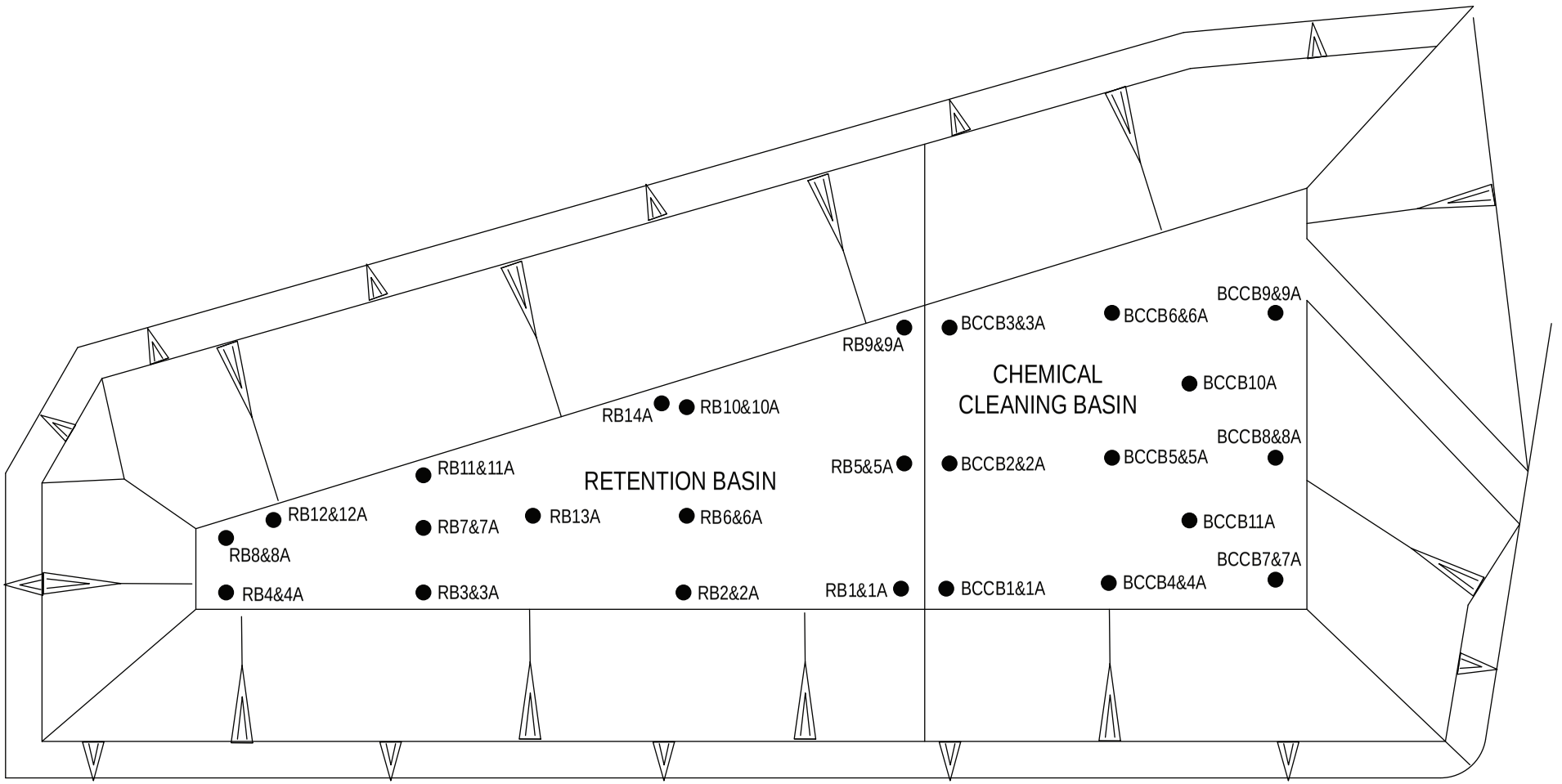
- ● Soil Boring Location
- ▲ Background Soil Boring Location

El SEGUNDO GENERATING STATION

PIPELINES, SUMPS, SEDIMENT TRAPS AND BOREHOLE LOCATIONS

FIGURE 2

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company



Legend

● Soil Boring Location

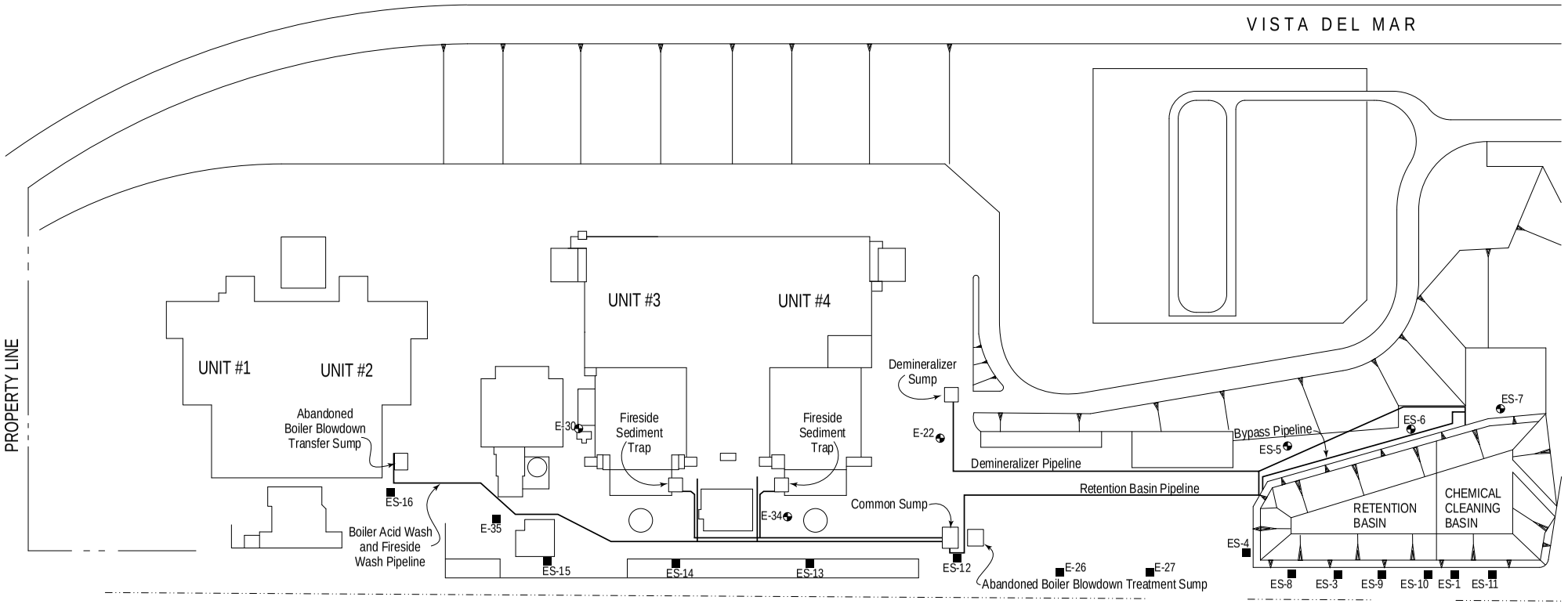
Not to Scale

El SEGUNDO GENERATING STATION

RETENTION BASINS AND
BOREHOLE LOCATIONS

FIGURE 3

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company



Legend

- ■ Compliance Well Location
- ◒ Background Well Location

El SEGUNDO GENERATING STATION

PIPELINES, SUMPS, SEDIMENT TRAPS AND MONITORING WELL LOCATIONS

FIGURE 4

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company

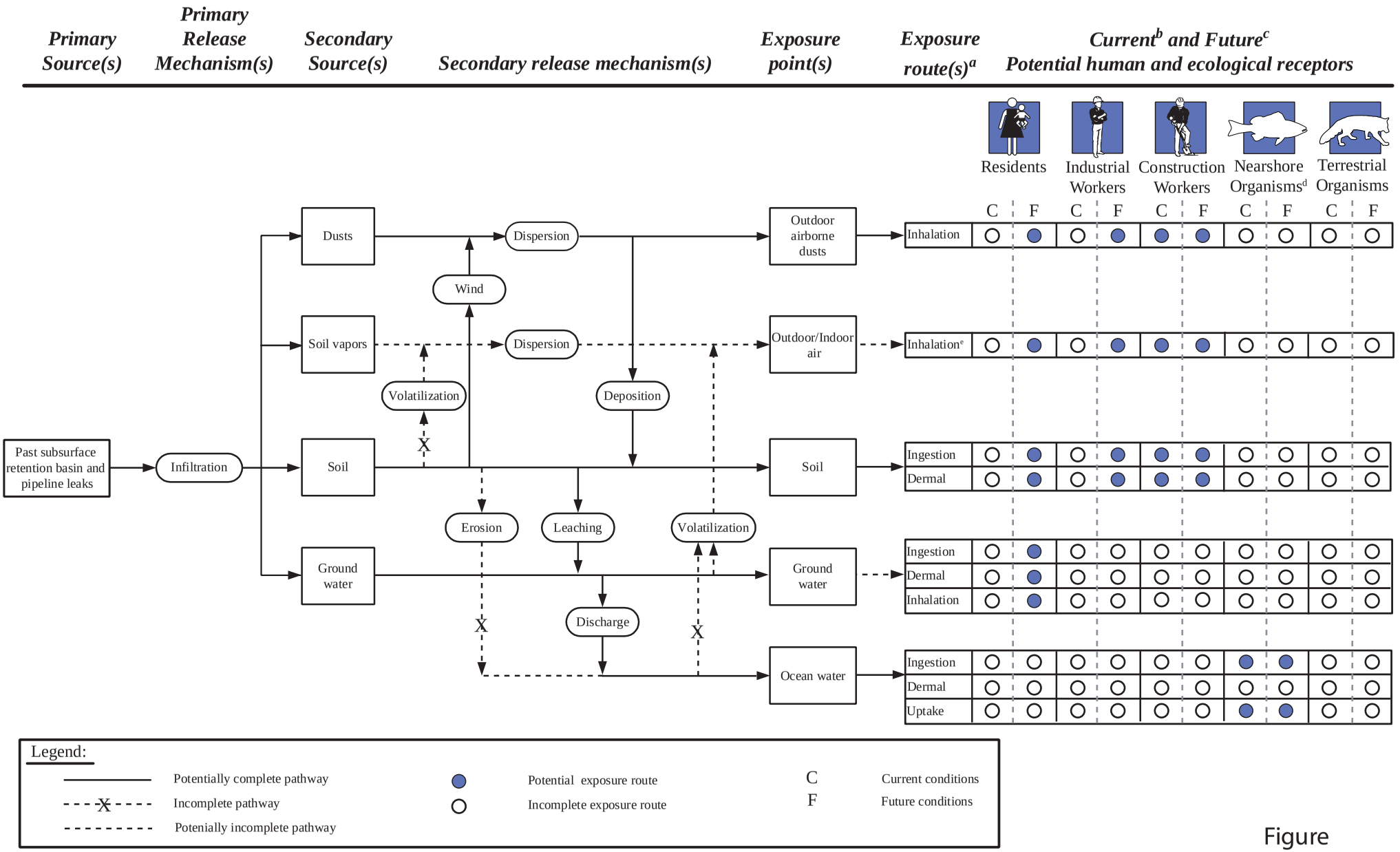


Figure 5

Notes:

a) Exposure routes were based on data available in 2009. Thus, future exposure routes may change depending on any remedial actions taken.
b) Current receptor based on 2009 site conditions
c) Future receptor based on site conditions that could potentially exist after the generating station is decommissioned and removed.
d) Includes plankton, benthic invertebrates, epibenthic invertebrates, fish, and shorebirds.
e) Indoor air exposure for residents and industrial workers; outdoor air exposure for construction workers.

Human Health and Ecological Conceptual site model (CSM) for current and future site use based on current site conditions.

Appendices

Appendix A REPRESENTATIVE CHEMICAL ANALYSIS BOILER CHEMICAL CLEANING WASTE

TABLE 4.2-1

RESULTS[a] OF CHEMICAL ANALYSES OF BOILER CLEANING WASTES

Sample I.D.	STLC[b]	L-DCS-85-9F[c]	L-DCS-85-9FF[c]	L-DCS-85-9S[d]	L-DCS-85-9V[d]
Date Sampled:	--	5/15-16/85	7/20-21/85	6/3/85	7/5/85
Sb	15	0.002	<0.002	0.005	<0.002
As	5.0	0.008	<0.001	<0.001	<0.001
Ba	100	0.091	0.16	<0.012	0.023
Be	0.75	<0.004	<0.004	<0.004	<0.004
Cd	1.0	0.003	<0.003	<0.003	<0.003
Cr VI	5	<0.015	0.019	<0.015	0.017
Cr	560	0.25	1.3	0.65	3.3
Co	80	0.34	0.20	<0.026	0.12
Cu	25	114 [34][e]	52 [37][e]	0.008	<0.007
F	180	127	110	50	100
Pb	5.0	1.4	<0.002	<0.05	<0.002
Hg	0.2	0.0004	<0.0003	<0.0003	<0.0003
Mo	350	0.054	0.082	0.54	2.2
Ni	20	29 [29][e]	1.5	0.13	0.93
Se	1.0	<0.001	<0.001	<0.001	<0.001
Ag	5	0.012	<0.005	<0.005	<0.005
Ti	7.0	<0.005	<0.005	<0.005	<0.005
V	24	0.047	0.35	<0.015	0.19
Zn	250	17	16	0.066	0.38
Aldrin	0.14	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Alpha-BHC	--	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Beta-BHC	--	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Delta-BHC	--	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Gamma-BHC (Lindane)	0.4	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Chlordane	0.25	ND (<0.04)	ND (<0.01)	ND (<0.002)	ND (<0.01)
p,p' DDD	0.1	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
p,p' DDE	0.1	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
p,p' DDT	0.1	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
2,4 - D	10	ND (<1.0)	ND (<0.1)	ND (<0.02)	ND (<0.01)
Dieldrin	0.8	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Dioxin	0.001	ND (<0.002)	ND (<0.001)	ND (<0.001)	ND (<0.0005)
Endosulfan I(alpha)	--	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Endosulfan II(beta)	--	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Endosulfan sulfate	--	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Endrin	0.02	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Endrin Aldehyde	--	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Heptachlor	0.47	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Heptachlor Epoxide	--	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Kepone	2.1	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Pentachlorophenol	1.7	ND (<0.25)	ND (<0.02)	ND (<0.025)	ND (<0.2)
Toxaphene	0.5	ND (<0.1)	ND (<0.025)	ND (<0.005)	ND (<0.025)
Trichloroethylene	204	0.0005	NA	0.0021	ND (<0.0005)
2,4,5 - TP(Silvex)	1.0	ND (<0.2)	ND (<0.02)	ND (<0.004)	ND (<0.02)
2,4,5 - T(Acetic Acid)	--	ND (<0.2)	ND (<0.02)	ND (<0.004)	ND (<0.02)
Arochlor 1016	5.0	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Arochlor 1221	5.0	ND (<0.04)	ND (<0.01)	ND (<0.002)	ND (<0.01)
Arochlor 1232	5.0	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Arochlor 1242	5.0	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Arochlor 1248	5.0	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Arochlor 1254	5.0	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)
Arochlor 1260	5.0	ND (<0.02)	ND (<0.005)	ND (<0.001)	ND (<0.005)

NA Not analyzed.
ND Not detected, detection limit in ( ).
a Results in milligrams/liter (mg/l).
b Soluble Threshold Limit Concentration (mg/l) from California Administrative Code Title 22, Division 4, Chapter 30, Article 11.
c Sample of boiler cleaning waste for drum-type boiler.
d Sample of boiler cleaning waste for once-through boiler.
e Results in [ ] are from WET analysis.

41.9S/1-T4.2-1

Source: Hydrogeologic Assessment Report, El Segundo Generating Station (Dames & Moore, 1986)

Appendix B OUTLINE OF POST-CLOSURE GROUNDWATER SAMPLING PROGRAM

APPENDIX B – OUTLINE OF POST-CLOSURE GROUNDWATER SAMPLING PROGRAM, EL SEGUNDO GENERATING STATION RETENTION BASIN SITE

Following are the monitoring goals for the post-closure groundwater sampling program, if required:

1. Verify that any groundwater contamination remains within the monitoring well network (**Figure 4**).
2. Determine the effectiveness of any remediation measures employed to meet closure performance standards.
3. Document clean conditions for three years after the groundwater concentrations reach acceptable levels.

In order to conduct the post-closure groundwater monitoring program, a Sampling and Analysis Plan that includes the following elements will be prepared:

1. Location, Purpose and Construction Details of New Monitoring Wells
2. Field Sampling Equipment
3. Sampling Protocol
    a. List of Wells to be Sampled Quarterly
    b. List of Wells to be Sampled Annually
    c. COC List
4. QA Procedures
5. Reporting

Appendix C BACKGROUND TECHNICAL REPORTS

Appendix C BACKGROUND TECHNICAL REPORTS, EL SEGUNDO GENERATING STATION RETENTION BASIN SITE

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Appendix D CLOSURE COST ESTIMATE

Appendix D CLOSURE COST ESTIMATE, EL SEGUNDO GENERATING STATION RETENTION BASIN SITE

The attached Table D-1 outlines the closure activities and associated costs. These include preparation of the Closure Plan, follow-up statistical analysis and risk assessment, onsite decontamination and cleanup confirmation activities, preparation of the Closure Certification Report, on-going groundwater monitoring during the closure process, and DTSC oversight. The estimate assumes the Closure Certification Report is finalized and approved by the end of 2010.

Table D-1

CLOSURE COST ESTIMATE
El Segundo Generating Station
(May 2010)

STEP #	CLOSURE ACTIVITY	COST ESTIMATE
1	CLOSURE PLAN PREPARATION Draft Plan Preparation Statistical Analysis and Risk Assessment Report DTSC Oversight	 $20,000 $50,000 $25,000
2	CLOSURE ACTIVITIES Structure Decontamination & Confirmation Sampling	 $50,000
3	CLOSURE CERTIFICATION REPORT Report Preparation DTSC Oversight	 $75,000 $25,000
4	GROUNDWATER MONITORING 2009 2010 DTSC Oversight	 $75,000 $75,000 $10,000
	SUBTOTAL	$405,000
5	CONTINGENCY	$50,000
	TOTAL	$455,000

Appendix E EDISON FINANCIAL ASSURANCE DOCUMENT

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

March 31, 2010

Department of Toxic Substances Control
Financial Assurance Unit
8800 Cal Center Drive, 3rd floor
Sacramento, California 95826-3200

Attention: Mr. Keith Kihara

Re: **Southern California Edison Company**
Financial Assurance Documents for Closure, Post-Closure and Liability

Southern California Edison Company (SCE) is submitting the following documentation supporting the use of a Financial Test and Corporate Guarantee to demonstrate financial assurance at the facilities listed below.

1. Letter from Chief Financial Officer
2. Corporate Guarantee for Closure or Post-closure Care
3. Guarantee for Liability Coverage
4. Special Report from Independent Certified Public Accountant
5. Credit Ratings - Standard & Poors and Moody's
6. Excerpts from SCE's 2009 Annual Report:
    a. Report of Independent Registered Public Accounting Firm (pg. 63)
    b. Consolidated Statements of Income (pg. 64)
    c. Consolidated Balance Sheets (pgs. 65 and 66)
    d. Consolidated Statements of Cash Flows (pg. 67)
    e. Consolidated Statements of Changes in Common Shareholder's Equity (pg. 68)
7. Tangible Net Worth Spreadsheet
8. Closure Cost Estimates

The following facility is owned and operated by SCE and is covered by this documentation.

1. San Onofre Nuclear Generating Station – EPA ID# CAD000630921

The following facilities are not owned by SCE but are also covered by this documentation. The current owners are AES Energy Corp., NRG Company, RRI Energy Corp. and the County of Santa Barbara. SCE retains the environmental liability associated with these facilities.

1. AES Alamitos Generating Station Retention Basin – EPA ID# CAD009694795
2. AES Huntington Beach Generating Station Retention Basin – EPA ID# CAD000631085
3. NRG El Segundo Generating Station Retention Basin – EPA ID# CAD000630962
4. Reliant Cool Water Generating Station Retention Basin – EPA ID# CAD000630905
5. Reliant Etiwanda Generating Station Retention Basin – EPA ID# CAD079548574
6. Reliant Mandalay Generating Station Retention Basin – EPA ID# CAD000630913
7. Reliant Ormond Beach Generating Station Retention Basin – EPA ID# CAD000631036
8. Santa Barbara I Manufactured Gas Plant site – EPA ID# CAC002587830

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

Should you have any questions or require additional information, please contact me directly at (626) 302-9711.

Sincerely,

S. L. Marsh Jr.

Stanley L. Marsh
Project Manager

Enclosures

Cc: Satish Gulati (DTSC)
9211 Oakdale Avenue
Chatsworth, CA 91311

Bcc: (w/ Enclosures)
Eric Hodder
Marc Luesebrink
Brian Metz
Randall Weidner

Bcc: (w/o Enclosures)
John Butler
Anyi Chang
Jeff Duran
Robert Heckler
MaryJane Johnson
John McCarson
Josh Nichols
Richard Tom

SOUTHERN CALIFORNIA EDISON®

An EDISON INTERNATIONAL® Company

LETTER FROM CHIEF FINANCIAL OFFICER

Director, Department of Toxic Substances Control
Financial Assurance Unit
8800 Cal Center Drive
Sacramento, California 95826-3200

I am the chief financial officer of Southern California Edison Company located at 2244 Walnut Grove Avenue, Rosemead, California, 91770. This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage and closure costs as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8.

The firm identified above is the owner or operator of the following facility/TTU for which liability coverage for sudden accidental occurrences is being demonstrated through the financial test specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, sections 66264.147 and 66265.147:

Facility	Location	EPA I.D. No.
San Onofre Nuclear Generating Station Mixed Waste Storage Area	5000 Pacific Coast Hwy San Clemente, CA 92672	CAD000630921

The firm identified above guarantees, through the guarantee specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, sections 66264.147 and 66265.147, liability coverage for sudden accidental occurrences at the following facilities/TTU owned or operated by the following:

Facility	Location	EPA I.D. No.
AES Alamitos Gen. Stn. Owned by AES Energy Corp. Boiler Chem. Cleaning Retention Basin	690 N. Studebaker Rd. Long Beach, CA 90815	CAD009694795
RRI Cool Water Gen. Stn. Owned by Reliant Energy Corp. Boiler Chem. Cleaning Retention Basin	37000 Santa Fe Rd. Daggett, CA 92327	CAD000630905
NRG El Segundo Gen. Stn. Owned by NRG Company Boiler Chem. Cleaning Retention Basin	301 Vista Del Mar El Segundo. CA 90245	CAD000630962
RRI Etiwanda Gen. Stn. Owned by Reliant Energy Corp. Boiler Chem. Cleaning Retention Basin	8996 Etiwanda Ave. Rancho Cucamonga, CA 91739	CAD079548574
AES Huntington Beach Gen. Stn.	21730 Newland Ave.	CAD000631085

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

Owned by AES Energy Corp. Boiler Chem. Cleaning Retention Basin	Huntington Beach, CA 92646	
RRI Mandalay Generating Stn. Owned by Reliant Energy Corp. Boiler Chem. Cleaning Retention Basin	373 N. Harbor Blvd. Oxnard, CA 93030	CAD000630913
RRI Ormond Beach Gen. Stn. Owned by Reliant Energy Corp. Boiler Chem. Cleaning Retention Basin	6635 S. Edison Dr. Oxnard, CA 93030	CAD000631036

The firm identified above is engaged in the following substantial business relationships with the owners or operators listed above, RRI Energy Corp., AES Energy Corp., and NRG Company receiving the following value in consideration of the guarantee:

> Southern California Edison Co. divested the above named generating stations to their new owners in 1998. All environmental liabilities associated with the Boiler Chemical Cleaning Retention Basins located at these facilities were, however, retained by Southern California Edison Co. as agreed to in the contracts for sale with their respective buyers. This arrangement does not stipulate receiving value in consideration of this guarantee.

[Note: The following paragraphs identify the facilities included in SCE's financial test.]

1. The firm identified above is the owner or operator of the following facilities/TTUs for which financial assurance for closure and/or post-closure or liability coverage is demonstrated through the financial test as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, section 66264.143, subsection (f), section 66264.145, subsection (f), section 66265.143, subsection (e), and section 66265.145, subsection (e). The current closure and/or post-closure cost estimates covered by the test are shown for each facility/TTU:

Facility Name and Address	Closure Estimate	Post-closure Estimate
San Onofre Nuclear Generating Station 5000 Pacific Coast Highway San Clemente, CA 92672	$ 5,870,822	None

2. The firm identified above guarantees through the guarantee as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, section 66264.143, subsection (f), section 66264.145, subsection (f), section 66265.143, subsection (e), and section 66265.145, subsection (e), the closure and/or post-closure care or liability coverage of the following facilities/TTUs owned or operated by the guaranteed party. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility/TTU:

Facility Name and Address	Closure Estimate	Post-closure Estimate
AES Alamitos Gen. Stn. Owned by AES Energy Corp. 690 N. Studebaker Rd.	$1,346,000	TBD

Long Beach, CA 90815 Boiler Chem. Cleaning Retention Basin		
RRI Cool Water Gen. Stn. Owned by RRI Energy Corp. 37000 Santa Fe Rd. Daggett, CA 92327 Boiler Chem. Cleaning Retention Basin	$250,000	TBD
NRG El Segundo Gen. Stn. Owned by NRG Company 301 Vista Del Mar El Segundo, CA 90245 Boiler Chem. Cleaning Retention Basin	$505,000	TBD
RRI Etiwanda Gen. Stn. Owned by RRI Energy Corp. 8996 Etiwanda Ave. Rancho Cucamonga, CA 91739 Boiler Chem. Cleaning Retention Basin	$345,000	TBD
AES Huntington Beach Gen. Stn. Owned by AES Energy Corp. 21730 Newland Ave. Huntington Beach, CA 92646 Boiler Chem. Cleaning Retention Basin	$956,000	TBD
RRI Mandalay Gen. Stn. Owned by RRI Energy Corp. 373 N. Harbor Blvd. Oxnard, CA 93030 Boiler Chem. Cleaning Retention Basin	2,631,000	TBD
RRI Ormond Beach Gen. Stn. Owned by RRI Energy Corp. 6635 S. Edison Dr. Oxnard, CA 93030 Boiler Chem. Cleaning Retention Basin	$1,306,000	TBD
Subtotal (Para. 2)	$7,339,000	TBD

Site Name and Address	EPA ID Number	Operation & Maint.
Santa Barbara I Manufactured Gas Plant 136 E. DelaGuerra St. Santa Barbara, CA 93191	CAC002587830	$557,786

Southern California Edison Co. (SCE) formerly operated a manufactured gas plant (MGP) site at this location. Pursuant to a Voluntary Cleanup Agreement with the Department of Toxic Substances Control (DTSC), SCE agreed to remediate materials associated with the former MGP operations and,

following remediation, SCE entered into an Operations and Maintenance Agreement with the DTSC. Pursuant to the Operations and Maintenance Agreement, SCE is obligated to provide financial assurance of ability to perform operations and maintenance.

3. In states where the U.S. Environmental Protection Agency is not administering the financial requirements of subpart H of title 40 CFR parts 264 and 265, this firm as owner, operator or guarantor is demonstrating financial assurance for the closure or post-closure care of the following facilities/TTUs through the use of a financial test equivalent or substantially equivalent to the financial test specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, section 66264.143, subsection (f), section 66264.145, subsection (f), section 66265.143, subsection (e), and section 66265.145, subsection (e). The current closure and/or post-closure cost estimates covered by such a test are shown for each facility/TT.

None

4. The firm identified above is the owner or operator of the following facilities/TTUs for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to U.S. Environmental Protection Agency or a State through the financial test or any other financial assurance mechanism as specified in California Code of Regulations, title 22, division 4.5, chapters 14 and 15, article 8 or equivalent or substantially equivalent State mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility/TTU:

None

5. The firm is the owner or operator or guarantor of the following Underground Injection Control facilities for which financial assurance for plugging and abandonment is required under 40 CFR part 144 and is assured through a financial test. The current closure cost estimates as specified in 40 CFR144.62 are shown for each facility:

None

The firm is required to file a form 10-K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended December 31, 2009.

This firm is using Part B, Alternative II for Closure or Post-closure Care and Liability Coverage.

PART B

ALTERNATIVE II

1. .....Sum of current closure and postclosure cost estimates (Total of all cost estimates shown in the paragraphs of the letter to the Director of the Department of Toxic Substances Control) .....$ 13,767,608

2. .....Amount of annual aggregate liability coverage to be demonstrated..... $ 16,000,000

3. .....Sum of lines 1 and 2.....$29,767,608

4. Current bond rating (Senior secured) of most recent issuance and name of rating service: ..... S&P: A, Moody's: A2

5. .....Date of issuance of bond	Series 2008A	January 22, 2008
.....	Series 2008B	August 18, 2008
.....	Series 2008C	October 15, 2008
.....	Series 2009A	March 20, 2009
.....	Series 2009B	March 20, 2009
.....	Series 2010A	March 11, 2010
6 .....Date of maturity of bond	Series 2008A	February 1, 2038
.....	Series 2008B	August 15, 2018
.....	Series 2008C	March 15, 2014
.....	Series 2009A	March 15, 2039
.....	Series 2009B	September 15, 2014
.....	Series 2010A	March 15, 2040

*7. .....Tangible net worth (if any portion of the closure and post closure cost estimates is included in "total liabilities" on your firm's financial statements, you may add the amount of that portion to this line.) $ 7,651,000,000

*8. .....Total assets in the United States (required only if less than 90 percent of firm's assets are located in the United States). ..... $ N/A

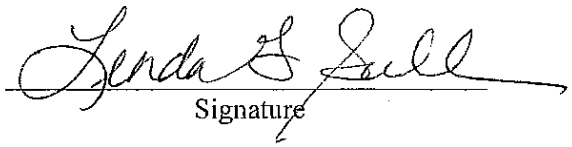
9. .....Is line 7 at least $10 million?.....☒ Yes ☐ No

10. .....Is line 7 at least 6 times line 3?.....☒ Yes ☐ No

*11. .....Are at least 90 percent of the firm's assets located in the United States? If not, complete line 12.....☒ Yes ☐ No

12. .....Is line 8 at least 6 times line 3?.....☒ Yes ☐ No

.....I hereby certify that the wording of this letter is identical to the wording as specified in California Code of Regulations, title 22, section 66264.151, subsection (g) and is being executed in accordance with the requirements of California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8.



Signature

Date: 3/31/10

LINDA G. SULLIVAN, Senior Vice President and Chief Financial Officer

SOUTHERN CALIFORNIA
EDISON

An *EDISON INTERNATIONAL* Company

CORPORATE GUARANTEE FOR CLOSURE OR POSTCLOSURE CARE

Department of Toxic Substances Control
Financial Responsibility Section
8800 Cal Center Drive
Sacramento, California 95826

Guarantee made this March 30, 2010 by Southern California Edison Company (SCE), a business corporation organized under the laws of the State of California, herein referred to as guarantor, to the Department of Toxic Substances Control (DTSC), obligee, on behalf of our subsidiary or entities with which SCE has a substantial business relationship:

San Onofre Nuclear Generating Station	5000Pacific Coast Highway, San Clemente, CA 92672
AES Energy Corporation	690 N. Studebaker Rd., Long Beach, CA 90815 21730 Newland Ave., Huntington Beach, CA 92646
NRG Company	391 Vista Del Mar, El Segundo, CA 90245
RRI Energy Corporation	373 N. Harbor Blvd., Oxnard, CA 93030 6635 S. Edison Dr., Oxnard, CA 93030 37000 Santa Fe Rd., Daggett, CA 92327 8996 Etiwanda Ave., Rancho Cucamonga, CA 91739

This guarantee is made on behalf of the San Onofre Nuclear Generating Station, and SCE affiliate; and AES Energy Corporation, NRG Company, and RRI Energy Corporation, which are entities with which the guarantor has a substantial business relationship as defined in California Code of Regulations, title 22, division 4.5, chapter 10, article 2, section 66260.10 to the DTSC.

RECITALS

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, section 66264.143, subsection (f), section 66264.145, subsection (f), section 66265.143, subsection (e), and section 66265.145, subsection (e).

2. San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation own at least 50 percent of the voting stock of and/or operates the following hazardous waste management facility(ies)/transportable treatment unit(s) (TTU) covered by this guarantee:

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

Facility Name and Address	EPA ID Number	Closure Cost Estimate	Post-Closure Cost Estimate
San Onofre Nuclear Generating Station Owned by Southern California Edison Co. 5000 Pacific Coast Highway San Clemente, CA 92672	CAD000630921	$5,870,822	None
AES Alamitos Generating Station Owned by AES Energy Corp. 690 N. Studebaker Rd. Long Beach, CA 90815 Boiler Chemical Cleaning Retention Basin	CAD009694795	$1,346,000	TBD
RRI Cool Water Generating Station Owned by RRI Energy Corp. 37000 Santa Fe Rd., Daggett, CA 92327 Boiler Chemical Cleaning Retention Basin	CAD000630905	$250,000	TBD
NRG El Segundo Generating Station Owned by NRG Company 301 Vista Del Mar, El Segundo, CA 90245 Boiler Chemical Cleaning Retention Basin	CAD000630962	$505,000	TBD
RRI Etiwanda Generating Station Owned by RRI Energy Corp. 8996 Etiwanda Ave. Rancho Cucamonga, CA 91739 Boiler Chemical Cleaning Retention Basin	CAD079548574	$345,000	TBD
AES Huntington Beach Generating Station Owned by AES Energy Corp. 21730 Newland Ave. Huntington Beach, CA 92646 Boiler Chemical Cleaning Retention Basin	CAD000631085	$956,000	TBD
RRI Mandalay Generating Station Owned by RRI Energy 373 N. Harbor Blvd., Oxnard, CA 93030 Boiler Chemical Cleaning Retention Basin	CAD000630913	$2,631,000	TBD
RRI Ormond Beach Generating Station Owned by RRI Energy 6635 S. Edison Dr., Oxnard, CA 93030 Boiler Chemical Cleaning Retention Basin	CAD000631036	$1,306,000	TBD

3. "Closure plans" and post-closure plans" as used below refer to the plans maintained as required by California Code of Regulations, title 22, division 4.5, chapters 14 and 15, article 7, for the

closure and post-closure care of facilities/TTU(s) as identified above.

4. For value received from San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation, guarantor guarantees to DTSC that in the event that San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and/or RRI Energy Corporation fails to perform closure care of the above facility(ies)/TTUs in accordance with the closure or post-closure plans and other permit or interim status requirements whenever required to do so, the guarantor shall do so or establish a trust fund as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, as applicable, in the name of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, or RRI Energy Corporation in the amount of the current closure or post-closure cost estimates as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8.

5. Guarantor agrees that if, at any time during or at the end of any fiscal year before the termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to DTSC and to San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation that he or she intends to provide alternate financial assurance as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8 as applicable, in the names of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and/or RRI Energy Corporation.. Within 120 days after the end of such fiscal year or other occurrence, the guarantor shall establish such alternate financial assurance unless San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and/or RRJ Energy Corporation have done so.

6. The guarantor agrees to notify DTSC by certified mail of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), United States Code, naming guarantor as debtor within ten (10) days after commencement of the proceeding.

7. Guarantor agrees that within 30 days after being notified by DTSC of a determination that guarantor no longer meets the financial test criteria or that he or she is disallowed from continuing as a guarantor of closure or post-closure care, he or she shall establish alternate financial assurance as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, as applicable, in the names of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation unless San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and/or RRJ Energy Corporation have done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the closure or post-closure plan, amendment or modification of the permit, the extension or reduction of the time of performance of closure or post-closure, or any other modification or alteration of an obligation of the owner of operator pursuant to California Code of Regulations, title 22, division 4.5.

9. Guarantor agrees to remain bound under this guarantee for as long as San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation shall comply with the applicable financial assurance requirements of California Code of Regulations, title 22, division 4.5 for the above listed facilities/TTUs, except as provided in paragraph 10 of this agreement.

10. Guarantor may terminate this guarantee 120 days following the receipt of notification, through either registered of certified mail, by DTSC and by San Onofre Nuclear Generating Station,

AES Energy Corporation, NRG Company, and RRI Energy Corporation.

11. Guarantor agrees that if San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation fails to provide alternate financial assurance as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, as applicable, and obtain written approval of such assurance from DTSC within 90 days after a notice of cancellation by the guarantor is received by DTSC from guarantor, guarantor shall provide such alternate financial assurance in the names of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation.

12. Guarantor expressly waives notice of acceptance of this guarantee by DTSC or by San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, RRI Energy Corporation. Guarantor also expressly waives notice of amendments or modifications of the closure and/or post-closure plan and of amendments or modifications of the facility/TTU permit(s).

The parties hereby certify that the wording of this guarantee is identical to the wording specified in California Code of Regulations, title 22, section 66264.151, subsection (h)(1) and is being executed in accordance with the requirements of California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8.

Effective date: 3/31/2010

Southern California Edison

Signature

LINDA G. SULLIVAN
Senior Vice President and Chief Financial Officer

Signature of witness or notary:

SOUTHERN CALIFORNIA EDISON

An *EDISON INTERNATIONAL* Company

GUARANTEE FOR LIABILITY COVERAGE

Department of Toxic Substances Control
Financial Responsibility Section
8800 Cal Center Drive
Sacramento, California 95826

Guarantee made by March 30, 2010 by Southern California Edison Company a business corporation organized under the laws of the State of California, herein referred to a guarantor. This guarantee is made on behalf of San Onofre Nuclear Generating Station, at 5000 Pacific Coast Highway, San Clemente, CA 92672, subsidiary of guarantor; and AES Energy Corporation, at 690 N. Studebaker Rd., Long Beach, CA 90815, and 21730 Newland Ave., Huntington Beach, CA 92646; NRG Company, at 301 Vista Del Mar, El Segundo, CA 90245; RRI Energy Corporation, at 37000 Santa Fe Rd., Daggett, CA 92327, 8996 Etiwanda Ave., Rancho Cucamonga, CA 91739, 373 N. Harbor Blvd., Oxnard, California 93030, and 6635 S. Edison Dr., Oxnard, CA 93030; which are entities with which guarantor has a substantial business relationships, as defined in California Code of Regulations, title 22, division 4.5, chapter 10, article 2, section 66260.10, to any and all third parties who have sustained or may sustain bodily injury or property damage caused by sudden accidental occurrences arising from operation of the facility(ies)/transportable treatment unit(s) (TTU) covered by this guarantee.

RECITALS

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, sections 66264.147 and 66265.147.

2. Ownership of Facilities.

San Onofre Nuclear Generating Station owns or operates the following hazardous waste management facility covered by this guarantee:

EPA Identification Number:	CAD000630921
Name:	San Onofre Nuclear Generating Station Mixed Waste Storage Facility
Address:	5000 Pacific Coast Highway San Clemente, CA 92672

AES Energy Corporation owns or operates the following hazardous waste management facility(ies)/TTU(s) covered by this guarantee:

EPA Identification Number:	CAD009694795
Name:	AES Alamitos Generating Station Boiler Chemical Cleaning Retention Basin
Address:	690 N. Studebaker Rd. Long Beach, CA 90815

P.O. Box 800
2244 Walnut Grove Ave.
Rosemead, CA 91770

EPA Identification Number:	CAD000631085
Name:	AES Huntington Beach Generating Station Boiler Chemical Cleaning Retention Basin
Address:	21730 Newland Ave. Huntington Beach, CA 92646

NRG Company owns or operates the following hazardous waste management facility(ies)/TTU(s) covered by this guarantee

EPA Identification Number:	CAD000630962
Name:	NRG El Segundo Generating Station Boiler Chemical Cleaning Retention Basin
Address:	301 Vista Del Mar El Segundo, CA 90245

RRI Energy Corporation owns or operates the following hazardous waste management facility(ies)/TTU(s) covered by this guarantee

EPA Identification Number:	CAD000630905
Name:	RRI Cool Water Generating Station Boiler Chemical Cleaning Retention Basin
Address:	37000 Santa Fe Rd. Daggett, CA 92327
EPA Identification Number:	CAD079548574
Name:	RRI Etiwanda Generating Station Boiler Chemical Cleaning Retention Basin
Address:	8996 Etiwanda Ave. Rancho Cucamonga, CA 91739
EPA Identification Number:	CAD000630913
Name:	RRI Mandalay Generating Station Boiler Chemical Cleaning Retention Basin
Address:	373 N. Harbor Blvd. Oxnard, CA 93030
EPA Identification Number:	CAD000631036
Name:	RRI Ormond Beach Generating Station Boiler Chemical Cleaning Retention Basin
Address:	6635 S. Edison Dr. Oxnard, California 93030

This corporate guarantee satisfies California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, third-party liability requirements for sudden accidental occurrences in the above-named owner or operator facility(ies)/TTU(s) for coverage in the amount of $1,000,000 per facility/TTU per occurrence and $2,000,000 annual aggregate.

3. For value received from San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation, guarantor guarantees to any and all third parties who have sustained or may sustain bodily injury or property damage caused by

sudden accidental occurrences arising from operations of the facility(ies)/TTU(s) covered by this guarantee that in the event that San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, or RRI Energy Corporation fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by sudden accidental occurrences, arising from the operation of the above-named facility(ies)/TTU(s), or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor will satisfy such judgment(s), awards(s), or settlement agreement(s) up to the limits of the coverage identified above.

4. Such obligation does not apply to the following:

(a) Bodily injury or property damage for which San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation under a workers' compensation, disability benefits, or unemployment compensation law or any similar laws.

(c) Bodily injury to:

(1) An employee of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation arising from, and in the course of, employment by San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation; or

(2) The spouse, child, parent, brother, or sister of that employee as a consequence of, or arising from, and in the course of employment by San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation. This exclusion applies:

(A) Whether San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraphs (A) and (B).

(d) Bodily injury or property damages arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, or RRI Energy Corporation;

(2) Premises that are sold, given away, or abandoned by San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, or RRI Energy Corporation if the property damage arises out of any part of those premises;

(3) Property loaned to San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, or RRI Energy Corporation;

(4) Personal property in the care, custody, or control of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, or RRI Energy Corporation;

(5) That particular part of real property on which the San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation or any contractor of subcontractors working directly or indirectly on behalf of the San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation are performing operations, if the property damage arises out of these operations.

5. Guarantor agrees that if, at any time during or at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within ninety (90) days, by certified mail, notice to the Department of Toxic Substances Control (DTSC) and to San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation that he or she intends to provide alternate liability coverage as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, sections 66264.147 and 66265.147, as applicable, in the name of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation. Within 90 days after the end of such fiscal year, the guarantor shall establish such liability coverage unless San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation have done so.

6. The guarantor agrees to notify the DTSC by certified mail of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), United States Code, naming guarantor as debtor, within ten (10) days after commencement of the proceedings.

7. Guarantor agrees that within thirty (30) days after being notified by the DTSC of a determination that the guarantor no longer meets the financial test criteria or that he or she is disallowed from continuing as a guarantor, he or she shall establish alternate liability coverage as specified in California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, sections 66264.147 and 66265.147 in the name of San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation, unless the San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation has done so.

8. Guarantor reserves the right to modify this agreement to take into account amendment or modification of the liability requirements set by California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, sections 66264.147 and 66265.147, provided that such modification shall become effective only if DTSC does not disapprove the modification within thirty (30) days of receipt of notification of the modification.

9. Guarantor agrees to remain bound under this guarantee for so long as San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation shall comply with the applicable requirements of California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8, sections 66264.147 and 66265.147 for the above-listed facility(ies)/TTU(s), except as provided in paragraph 10 of this agreement.

10. Guarantor may terminate this guarantee 120 days following receipt of notification, through certified mail, by DTSC and by San Onofre Nuclear Generating Station, AES Energy Corporation, NRG Company, and RRI Energy Corporation.

11. Guarantor hereby expressly waives notice of acceptance of this guarantee by any party.

12. Guarantor agrees that this guarantee is in addition to and does not affect any other responsibility or liability of the guarantor with respect to the covered facility(ies)/TTU(s).

13. The guarantor shall satisfy a third-party liability claim only on receipt of one of the following documents;

(a) Certification from the Principal and the third-party liability claimant(s) that the

liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

CERTIFICATION OF VALID CLAIM

The undersigned, as parties Southern California Edison and Claimant, hereby certify that the claim of bodily injury and/or property damage caused by a sudden accidental occurrence arising from operating San Onofre Nuclear Generating Station mixed waste storage facility, AES Energy Corporation's Alamitos and Huntington Beach Boiler Chemical Cleaning Retention Basin facilities, NRG Company's El Segundo Boiler Chemical Cleaning Retention Basin facility, and RRI Energy Corporation's Coolwater, Etiwanda, Mandalay and Ormond Beach Boiler Chemical Cleaning Retention Basin facilities should be paid in the amount TBD.

Principal

(Notary) Date

Claimant(s)

(Notary) Date

(b) A valid final court order establishing a judgment against the Principal for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Principal's facility/TTU or group of facility(ies)/TTU(s).

14. In the event of combination of this guarantee with another mechanism to meet liability requirements, this guarantee will be considered primary coverage.

I hereby certify that the wording of this guarantee is identical to the wording as specified in California Code of Regulations, title 22, section 66264.151, subsection (h)(2) and is being executed in accordance with the requirements of California Code of Regulations, title 22, division 4.5, chapter 14 and 15, article 8.

Effective date: 3/31/2010

Southern California Edison

Signature

LINDA G. SULLIVAN
Senior Vice President and Chief Financial Officer

Signature of witness or notary:

ANN M. DAVEY
Commission # 1848919
Notary Public - California
Los Angeles County
My Comm. Expires Jun 9, 2013

PRICEWATERHOUSECOOPERS

PricewaterhouseCoopers LLP
350 South Grand Avenue, 49th Floor
Los Angeles CA 90071
Telephone (213) 356 6000
Facsimile (813) 637 4444

Report of Independent Accountants

To the Board of Directors of
Southern California Edison Company

We have performed the procedures included in the California Code of Regulations Title 22, Division 4.5, Chapters 14 and 15, Article 8, which were agreed to by the Department of Toxic Substances Control of the State of California and Southern California Edison Company, solely to assist the specified parties in evaluating Southern California Edison Company's compliance with the financial test option as of December 31, 2009, included in the accompanying letter dated March 31, 2010 from Linda G. Sullivan, Senior Vice President and Chief Financial Officer of Southern California Edison Company. Management is responsible for Southern California Edison Company's compliance with those requirements. This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. The sufficiency of these procedures is solely the responsibility of the parties specified in this report. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

We performed the following procedures:

We compared the information included in items 7, 8 and 11 under the caption "Part B, Alternative II" in the letter referred to above to the audited consolidated financial statements of Southern California Edison Company as of and for the year ended December 31, 2009, on which we have issued our report dated March 1, 2010, and found such information to be in agreement.

The term "in agreement," for these purposes, indicates that no matters came to our attention to indicate that the referenced amounts or information did not agree to amounts included in, or derived from, the audited financial statements referred to above.

We were not engaged to, and did not, perform an examination, the objective of which would be the expression of an opinion on the accompanying letter dated March 30, 2010. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of the board of directors and management of Southern California Edison Company and the Department of Toxic Substances Control of the State of California, and is not intended to be and should not be used by anyone other than these specified parties.

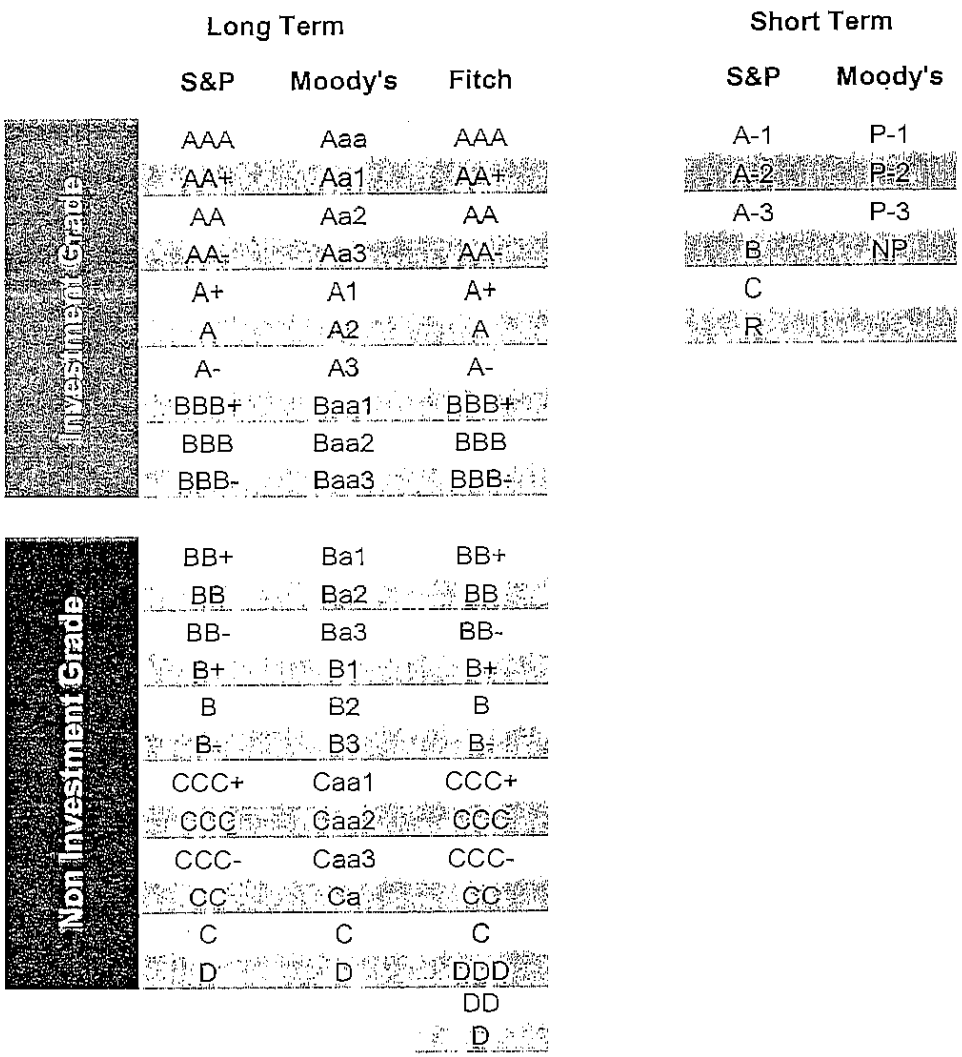
PricewaterhouseCoopers LLP
Los Angeles, California
March 31, 2010

SOUTHERN CALIFORNIA EDISON®

An *EDISON INTERNATIONAL*® Company

Credit Ratings as of February 16, 2010

	S&P	Moody's	Fitch
Issuer Credit / Long Term Rating	**BBB+**	**A3**	**A-**
Outlook	**Stable**	**Stable**	**Stable**
Effective Date	16-Feb-05	16-Oct-06	02-Jul-09
Short Term / Commercial Paper	**A-2**	**P-2**	**F-1**
Effective Date	13-Aug-07	17-Sep-04	02-Jul-09
Senior Secured	**A**	**A2**	**A+**
Effective Date	02-Sep-09	04-Oct-09	02-Jul-09
Senior Unsecured	**BBB+**	**A3**	**A**
Effective Date	02-Sep-09	07-Nov-09	02-Jul-09
Preferred Stock	**BBB-**	**Baa2**	**BBB+**
Effective Date	02-Sep-09	16-Oct-06	22-Jan-10
Senior Secured Credit Facility		**A3**	
Effective Date		03-Mar-08	


Long Term
S&P
Moody's
Fitch
Short Term
S&P
Moody's
Investment Grade
AAA
Aaa
AAA
AA+
Aa1
AA+
AA
Aa2
AA
AA-
Aa3
AA-
A+
A1
A+
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A2
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A-
BBB+
Baa1
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BBB
BBB-
Baa3
BBB-
A-1
P-1
A-2
P-2
A-3
P-3
B
NP
C
R
Non Investment Grade
BB+
Ba1
BB+
BB
Ba2
BB
BB-
Ba3
BB-
B+
B1
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2009

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission File Number 1-2313

SOUTHERN CALIFORNIA EDISON COMPANY
(Exact name of registrant as specified in its charter)

California (State or other jurisdiction of incorporation or organization)	95-1240335 (I.R.S. Employer Identification No.)
2244 Walnut Grove Avenue (P.O. Box 800) Rosemead, California (Address of principal executive offices)	91770 (Zip Code)

(626) 302-1212
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Capital Stock	
Cumulative Preferred	American
4.08%Series	4.32%Series
4.24%Series	4.78%Series

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☐ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "accelerated filer," "large accelerated filer," and "smaller reporting company" in Rule 12b-12 of the Exchange Act. (Check One):

Large Accelerated Filer ☐ Accelerated Filer ☐ Non-accelerated Filer ☒ Smaller Reporting Company ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of February 22, 2010, there were 434,888,104 shares of Common Stock outstanding, all of which are held by the registrant's parent holding company. The aggregate market value of registrant's voting and non-voting common equity held by non-affiliates was zero.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the following documents listed below have been incorporated by reference into the parts of this report so indicated.

(1) Designated portions of the Proxy Statement relating to registrant's 2010 Annual Meeting of Shareholders Part III

Report of Independent Registered Public Accounting Firm

To the Board of Directors and
Shareholder of Southern California Edison Company

In our opinion, the consolidated balance sheets and the related consolidated statements of income, comprehensive income, cash flows and changes in equity present fairly, in all material respects, the financial position of Southern California Edison Company (the "Company") and its subsidiaries at December 31, 2009 and 2008, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2009 in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

As discussed in Note 1, 4 and 10 to the consolidated financial statements, the Company changed the manner in which it accounts for uncertain tax positions as of January 1, 2007, margin and cash collateral deposits related to derivative positions and fair value measurement and disclosure principles as of January 1, 2008, and noncontrolling interests as of January 1, 2009.

/s/ PricewaterhouseCoopers LLP
Los Angeles, California
March 1, 2010

Consolidated Statements of Income — Southern California Edison Company

(in millions)	Years Ended December 31, 2009	2008	2007
Operating revenue	$ 9,965	$ 11,248	$ 10,233
Fuel	721	1,400	1,191
Purchased power	2,751	3,845	3,235
Operation and maintenance	3,154	3,013	2,838
Depreciation, decommissioning and amortization	1,178	1,114	1,011
Property and other taxes	244	232	217
Gain on sale of assets	(1)	(9)	—
Total operating expenses	8,047	9,595	8,492
Operating income	1,918	1,653	1,741
Interest income	11	22	44
Other income	160	101	89
Interest expense – net of amounts capitalized	(420)	(407)	(429)
Other expenses	(49)	(123)	(45)
Income before income taxes	1,620	1,246	1,400
Income tax expense	249	342	337
Net income	1,371	904	1,063
Less: Net income attributable to noncontrolling interests	94	170	305
Dividends on preferred and preference stock not subject to mandatory redemption	51	51	51
Net income available for common stock	$ 1,226	$ 683	$ 707

Consolidated Statements of Comprehensive Income

(in millions)	Years Ended December 31, 2009	2008	2007
Net income	$ 1,371	$ 904	$ 1,063
Other comprehensive income (loss), net of tax:			
Pension and postretirement benefits other than pensions:			
Net gain (loss) arising during period	(7)	2	(3)
Amortization of net gain (loss) included in net income	2	(2)	2
Prior service cost arising during period	—	1	—
Comprehensive income	1,366	905	1,062
Less: Comprehensive income attributable to noncontrolling interests	94	170	305
Comprehensive income attributable to SCE	$ 1,272	$ 735	$ 757

The accompanying notes are an integral part of these consolidated financial statements.

(in millions)	December 31, 2009	2008
ASSETS		
Cash and equivalents	$ 462	$ 1,611
Short-term investments	9	3
Receivables, less allowances of $53 and $39 for uncollectible accounts at respective dates	719	703
Accrued unbilled revenue	347	328
Inventory	337	365
Derivative assets	160	157
Regulatory assets	120	605
Deferred income taxes	78	147
Other current assets	97	283
Total current assets	2,329	4,202
Nonutility property – less accumulated depreciation of $744 and $765 at respective dates	324	953
Nuclear decommissioning trusts	3,140	2,524
Other investments	67	68
Total investments and other assets	3,531	3,545
Utility plant, at original cost:		
Transmission and distribution	22,214	20,006
Generation	2,667	1,819
Accumulated depreciation	(5,921)	(5,570)
Construction work in progress	2,701	2,454
Nuclear fuel, at amortized cost	305	260
Total utility plant	21,966	18,969
Derivative assets	187	74
Regulatory assets	4,139	5,414
Other long-term assets	322	364
Total long-term assets	4,648	5,852
Total assets	$ 32,474	$ 32,568

The accompanying notes are an integral part of these consolidated financial statements.

(in millions, except share amounts)	December 31, 2009	2008
LIABILITIES AND EQUITY		
Short-term debt	$ —	$ 1,893
Current portion of long-term debt	250	150
Accounts payable	1,058	948
Accrued taxes	9	340
Accrued interest	162	153
Customer deposits	238	227
Book overdrafts	224	224
Derivative liabilities	102	156
Regulatory liabilities	367	1,111
Other current liabilities	637	572
Total current liabilities	3,047	5,774
Long-term debt	6,490	6,212
Deferred income taxes	3,651	2,918
Deferred investment tax credits	97	101
Customer advances	119	137
Derivative liabilities	496	738
Pensions and benefits	1,681	2,485
Asset retirement obligations	3,198	3,007
Regulatory liabilities	3,328	2,481
Other deferred credits and other long-term liabilities	1,652	902
Total deferred credits and other liabilities	14,222	12,769
Total liabilities	23,759	24,755
Commitments and contingencies (Note 6)		
Common stock, no par value (560,000,000 shares authorized; 434,888,104 shares issued and outstanding at each date)	2,168	2,168
Additional paid-in capital	551	532
Accumulated other comprehensive loss	(19)	(14)
Retained earnings	4,746	3,827
Total common shareholder's equity	7,446	6,513
Preferred and preference stock not subject to mandatory redemption	920	920
Noncontrolling interests	349	380
Total equity	8,715	7,813
Total liabilities and equity	$ 32,474	$ 32,568

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Cash Flows — Southern California Edison Company

(in millions)	Years Ended December 31, 2009	2008	2007
Cash flows from operating activities:			
Net income	$ 1,371	$ 904	$ 1,063
Adjustments to reconcile to net cash provided by operating activities:			
Depreciation, decommissioning and amortization	1,178	1,114	1,011
Regulatory impacts of net nuclear decommissioning trust earnings (reflected in accumulated depreciation)	158	(10)	143
Other amortization	109	97	95
Stock-based compensation	13	18	18
Deferred income taxes and investment tax credits	574	131	(111)
Changes in operating assets and liabilities:			
Receivables	(9)	14	214
Inventory	28	(74)	(51)
Margin and collateral deposits – net of collateral received	63	(16)	6
Other current assets	149	(35)	(201)
Accounts payable	43	(127)	42
Accrued taxes	(331)	298	61
Book overdrafts	—	20	64
Other current liabilities	26	(18)	(12)
Derivative assets and liabilities – net	(413)	634	(87)
Regulatory assets and liabilities – net	1,457	(2,946)	679
Other assets	48	275	(156)
Other liabilities	(395)	1,343	195
Net cash provided by operating activities	4,069	1,622	2,973
Cash flows from financing activities:			
Long-term debt issued	750	1,500	—
Long-term debt issuance costs	(11)	(20)	(1)
Long-term debt repaid	(154)	(3)	(207)
Bonds repurchased	(219)	(212)	(37)
Preferred stock redeemed	—	(7)	—
Rate reduction notes repaid	—	—	(246)
Short-term debt financing – net	(1,893)	1,393	500
Stock-based compensation – net	4	(15)	(51)
Distributions to noncontrolling interest	(125)	(236)	(210)
Dividends paid	(351)	(376)	(186)
Net cash provided (used) by financing activities	(1,999)	2,024	(438)
Cash flows from investing activities:			
Capital expenditures	(2,999)	(2,267)	(2,286)
Proceeds from sale of nuclear decommissioning trust investments	2,217	3,130	3,697
Purchases of nuclear decommissioning trust investments and other	(2,416)	(3,137)	(3,830)
Sales of short-term investments	1	—	7,069
Purchases of short-term investments	(7)	(3)	(7,069)
Restricted cash	—	—	56
Customer advances for construction and other investments	(15)	(10)	(3)
Net cash used by investing activities	(3,219)	(2,287)	(2,366)
Net increase (decrease) in cash and equivalents	(1,149)	1,359	169
Cash and equivalents, beginning of year	1,611	252	83
Cash and equivalents, end of year	$ 462	$ 1,611	$ 252

The accompanying notes are an integral part of these consolidated financial statements.

(in millions)	Equity Attributable to SCE						
	Common Stock	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Preferred and Preference Stock	Noncontrolling Interests	Total Equity
Balance at December 31, 2006	$ 2,168	$ 383	$ (14)	$ 2,910	$ 929	$ 351	$ 6,727
Net income				758		305	1,063
Adoption of accounting guidance for uncertainty in income taxes				213			213
Other comprehensive loss			(1)				(1)
Dividends declared on common stock				(100)			(100)
Dividends declared on preferred and preference stock not subject to mandatory redemption				(51)			(51)
Distributions to noncontrolling interest						(210)	(210)
Stock-based compensation – net		28		(79)			(51)
Noncash stock-based compensation and other		18		(5)			13
Change in classification of shares purchased to settle performance shares		78		(78)			—
Balance at December 31, 2007	$ 2,168	$ 507	$ (15)	$ 3,568	$ 929	$ 446	$ 7,603
Net income				734		170	904
Other comprehensive income			1				1
Dividends declared on common stock				(400)			(400)
Dividends declared on preferred and preference stock not subject to mandatory redemption				(51)			(51)
Preferred stock redeemed, net of gain		2			(9)		(7)
Distributions to noncontrolling interest						(236)	(236)
Stock-based compensation – net		4		(19)			(15)
Noncash stock-based compensation and other		19		(5)			14
Balance at December 31, 2008	$ 2,168	$ 532	$ (14)	$ 3,827	$ 920	$ 380	$ 7,813
Net income				1,277		94	1,371
Other comprehensive loss			(5)				(5)
Dividends declared on common stock				(300)			(300)
Dividends declared on preferred and preference stock not subject to mandatory redemption				(51)			(51)
Distributions to noncontrolling interests						(125)	(125)
Stock-based compensation – net		7		(3)			4
Noncash stock-based compensation and other		12		(4)			8
Balance at December 31, 2009	$ 2,168	$ 551	$ (19)	$ 4,746	$ 920	$ 349	$ 8,715

The accompanying notes are an integral part of these consolidated financial statements.

Southern California Edison Company
Tangible Net Worth
As of December 31, 2009

(In millions)		
Total assets	$32,474	2009 financial statements filed in Form 10-K, page 66.
Less: Liabilities	23,759	2009 financial statements filed in Form 10-K, page 67.
Total equity	8,715	
Less: Noncontrolling interests	349	
Equity attributable to Southern California Edison	8,366	
Less: Intangible assets	715	See below
Tangible net worth	$7,651	

Intangible assets details: (Actual dollars)

Within utility plant --		
Intangible plant	919,465,415	SAP account 1251010
Intangilbe plant not classified	142,007,813	SAP account 1253010
Accum amort for intangible plant	(363,384,442)	SAP account 1256110, 115, 120, 125, 130 , 135, 140 and 140
	698,088,786	
Within other current assets --		
Current portion RTC	1,150,109	SAP account 1160095
Prepaid trnsln license - Morongo	1,598,282	SAP account 1160095
Prepayment of FTR (cost)	-	SAP account 1160105
	2,748,391	
Within other long-term assets --		
Prepaid software license	4,112,021	SAP account 1165010
LT portion RTC	10,218,556	SAP account 1165040
Unamortized cost LB Op agreement	-	SAP account 1165080
Pension fund excess of FASB 87	-	SAP account 1165110
	14,330,577	
Total intangible assets	715,167,754	

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

January 14, 2010

Keith Kihara
Department of Toxic Substances Control
Financial Responsibility Unit
8800 Cal Center Drive
Sacramento, California 95826-3200

SUBJECT: Annual Closure Cost Estimate

Dear Mr. Kihara

Enclosed is the annual closure cost estimate for Southern California Edison, San Onofre Nuclear Generating Station. An annual inflation factor of 0.59% was included in the calculations.

If you have any questions, please contact Brian Metz at (949) 368-3849.

Sincerely,

Mary Jane Johnson
Manager, Site Support Services

Enclosure(s): Closure Cost Estimate
Closure Cost Estimate Certification

P.O. Box 128
San Clemente, CA 92674-0128

cc: J. Louie (DTSC)
C. Padilla (DTSC)
R. Tom
S. Marsh
R.K. Heckler
B. D. Metz
T. Howard
IDB/CDM

CLOSURE COST ESTIMATE

Step #	Closure Activity		Cost Estimate
1	Notify DTSC		$ 0
2	Remove All Stored Wastes		
	Manpower (40 man hours @ $50/hr)	$ 2,000	
	Transport / dispose:		
	1000 55-gallon containers mixed waste @ $65/gallon	$ 3,575,000	
	25 Boxes @ $6500/Box	$162,500	
	50 30-gallon containers mixed waste @ $65/gallon	$ 97,500	
	50 5-gallon containers mixed waste @ $65/gallon	$ 16,250	$3,853,250
	(See Notes 1 & 2)		
3	Sweep / Vacuum Pad		
	Manpower (8 man hours @ $50/hr)	$ 400	$ 400
4	Decontaminate Tank, Pads and Sumps (if required)		
	Rent one (1) 4,000 gallon Portable Tank / Containment (1 mo)	$ 1,000	
	Rent Vacuum Truck (10 hours @ $80/hr)	$ 800	
	Manpower (160 man hours @ $50/hr) (Note 4)	$ 8,000	
	Decontaminate Analytical Costs:		
	4 Concrete Samples @ $500/sample	$ 2,000	
	4 Soil Samples @ $750/sample	$ 3,000	
	1 Rinse Water Sample @ $500	$ 500	
	Transport / Dispose		
	800 Gallons Decontamination Solution @ $65/gal	$ 52,000	
	Note 3 100 Tons Soil / Concrete (33 boxes) @ $6500/box	$ 214,500	$ 281,800
	Note 4 Conditionally authorized unit (OCA-6) is within this cost estimate (8 man hours)		
5 / 6	Confirmation Sampling / Analysis (Concrete/Soil)		
	Manpower for Sampling (16 man hours @ $50/hr)	$ 800	
	Equipment Rentals	$ 400	
	Analytical Costs:		
	7 Concrete Samples @ $500/sample	$ 3,500	
	21 Soil Samples @ $750/sample	$15,750	
	1 Rinse Water Sample @ $500	$ 500	$ 20,950
7	Certify Closure / Develop Report		$ 2,000
	Project Management		$ 5,000
	SUBTOTAL		$ 4,163,400
	Implicit Price Deflator (Gross National Product) Previous Year's (starting w/ 1997)		$ 1,141,932
	Inflation Factor Current Year 2010 (109.780000/109.1810000= 1.00599)*		$ 31,779
	10% Contingency		$ 533,711
	TOTAL		$ 5,870,822

Note 1: Costs are based on best guess using industry experience from other facilities.

Note 2: Some waste may not have a disposal facility.

Note 3: It has been conservatively assumed that the concrete samples will be analytically determined to be hazardous and the removal and offsite disposal of the containment area will be necessary. The top 1/8" to ¼" of the concrete will be decontaminated using CO_2 decontamination procedures. The uncontaminated concrete will be excavated and transported to an out-of-state landfill.

Note 4: Decontamination of conditionally authorized Unit (OCA-6) mixed waste processing tank is less than $10,000, but is incorporated in this closure cost estimate. (Actual cost $2,104).

*Based on www.bea.gov (US Dept. of Commerces Bureau of Economic Analysis).

Southern California Edison Co.
San Onofre Nuclear Generating Station
CAD000630921

CLOSURE PLAN

CLOSURE PLAN DATE: 2023

UPDATED: January 14, 2010

OWNER / OPERATER SIGNATURES AND CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Mary Jane Johnson — 1/14/10
Date

CONSOLIDATED CLOSURE COST ESTIMATE
SCE GENERATING STATION RETENTION BASINS

(February 2010)

STATION	CLOSURE COST ESTIMATE
Alamitos Generating Station	$1,346,000
Cool Water Generating Station	$250,000
El Segundo Generating Station	$505,000
Etiwanda Generating Station	$345,000
Huntington Beach Generating Station	$956,000
Mandalay Generating Station	$2,631,000
Ormond Beach Generating Station	$1,306,000
TOTAL	$7,339,000

CLOSURE COST ESTIMATE
Alamitos Generating Station
(February 2010)

STEP #	CLOSURE ACTIVITY	COST ESTIMATE
1	CLOSURE PLAN PREPARATION	
	Draft Plan Preparation	$40,000
	Statistical Analysis and Risk Assessment Report	$60,000
	DTSC Oversight	$30,000
2	CLOSURE ACTIVITIES	
	Structure Decontamination & Confirmation Sampling	$50,000
3	SOIL REMEDIATION	
	Liner Removal & Repair	$20,000
	Oversight/Monitoring/Sampling Labor	$10,000
	Mobilization & Demobilization	$5,000
	Excavation & Stockpile	$10,000
	Waste Characterization	$5,000
	Confirmation Soil Samples	$5,000
	Backfill & Compaction	$20,000
	Transportation & Waste Disposal	$20,000
4	GROUNDWATER REMEDIATION	
	In-Well Air Stripping System	
	Permitting	$2,000
	System Installation	$50,000
	Operation & Maintenance (24 mos. @ $2,000/mo.)	$48,000
	Monitoring (24 mos. @ $1,500/mo.)	$36,000
5	CLOSURE CERTIFICATION REPORT	
	Report Preparation	$75,000
	DTSC Oversight	$25,000
6	GROUNDWATER MONITORING	
	2010	$175,000
	2011 (approx. 20% reduction in monitoring)	$140,000
	2012	$140,000
	2013	$140,000
	2014	$140,000
	DTSC Oversight	
	SUBTOTAL	$1,246,000
7	CONTINGENCY	$100,000
	TOTAL	$1,346,000

CLOSURE COST ESTIMATE
Cool Water Generating Station
(February 2010)

STEP #	CLOSURE ACTIVITY	COST ESTIMATE
1	CLOSURE PLAN PREPARATION	
	Site Investigation	$50,000
	Draft Plan Preparation	$20,000
	Statistical Analysis and Risk Assessment Report	$20,000
	DTSC Oversight	$25,000
2	CLOSURE ACTIVITIES	
	Structure Decontamination & Confirmation Sampling	$25,000
3	CLOSURE CERTIFICATION REPORT	
	Report Preparation	$50,000
	DTSC Oversight	$10,000
	SUBTOTAL	$200,000
4	CONTINGENCY	$50,000
	TOTAL	$250,000

CLOSURE COST ESTIMATE
El Segundo Generating Station
(February 2010)

STEP #	CLOSURE ACTIVITY	COST ESTIMATE
1	CLOSURE PLAN PREPARATION	
	Draft Plan Preparation	$20,000
	Statistical Analysis and Risk Assessment Report	$50,000
	DTSC Oversight	$25,000
2	CLOSURE ACTIVITIES	
	Structure Decontamination & Confirmation Sampling	$50,000
	Chevron Hydrocarbon Investigation	$50,000
3	CLOSURE CERTIFICATION REPORT	
	Report Preparation	$75,000
	DTSC Oversight	$25,000
4	GROUNDWATER MONITORING	
	2010	$75,000
	2011	$75,000
	DTSC Oversight	$10,000
	SUBTOTAL	$455,000
5	CONTINGENCY	$50,000
	TOTAL	$505,000

CLOSURE COST ESTIMATE
Etiwanda Generating Station
(February 2010)

STEP #	CLOSURE ACTIVITY	COST ESTIMATE
1	CLOSURE PLAN PREPARATION	
	Draft Plan Preparation	$30,000
	Statistical Analysis and Risk Assessment Report	$30,000
	DTSC Oversight	$25,000
2	CLOSURE ACTIVITIES	
	Structure Decontamination & Confirmation Sampling	$50,000
3	CLOSURE CERTIFICATION REPORT	
	Report Preparation	$40,000
	DTSC Oversight	$20,000
4	GROUNDWATER MONITORING	
	2010	$45,000
	2011	$45,000
	DTSC Oversight	$10,000
	SUBTOTAL	$295,000
5	CONTINGENCY	$50,000
	TOTAL	$345,000

CLOSURE COST ESTIMATE
Huntington Beach Generating Station
(February 2010)

STEP #	CLOSURE ACTIVITY	COST ESTIMATE
1	CLOSURE PLAN PREPARATION	
	Draft Plan Preparation	$30,000
	Statistical Analysis and Risk Assessment Report	$50,000
	DTSC Oversight	$25,000
2	GROUNDWATER REMEDIATION	
	In-Well Air Stripping System	
	Permitting	$2,000
	System Installation	$80,000
	Operation & Maintenance (24 mos. @ $2,000/mo.)	$48,000
	Monitoring (24 mos. @ $2,000/mo.)	$48,000
3	CLOSURE CERTIFICATION REPORT	
	Report Preparation	$75,000
	DTSC Oversight	$25,000
4	GROUNDWATER MONITORING	
	2010	$112,000
	2011 (25% reduction in wells monitored)	$84,000
	2012	$84,000
	2013	$84,000
	2014	$84,000
	DTSC Oversight	$25,000
	SUBTOTAL	$856,000
5	CONTINGENCY	$100,000
	TOTAL	$956,000

CLOSURE COST ESTIMATE
Mandalay Generating Station
(February 2010)

STEP #	CLOSURE ACTIVITY	COST ESTIMATE
1	CLOSURE PLAN PRE-REMEDIATION ANALYSIS	
	Statistical Analysis and Risk Assessment Report	$50,000
	DTSC Oversight	$10,000
2	SITE REMEDIATION	
	Work Implementation Plan/HASP/Utility Clearance	$100,000
	Soil Remediation	
	Liner Removal & Repair	$20,000
	Oversight/Monitoring/Sampling Labor	$10,000
	Mobilization & Demobilization	$5,000
	Excavation & Stockpile	$48,000
	Waste Characterization	$10,000
	Confirmation Soil Samples	$10,000
	Backfill & Compaction	$80,000
	Transportation & Waste Disposal (Note 1)	$480,000
	Remedial Chemical Injection	$100,000
	Groundwater Remediation	
	Injection Contractor/Injection Chemicals-Initial	$400,000
	Injection Contractor/Injection Chemicals-Secondary	$400,000
	DTSC Oversight	$50,000
3	CLOSURE CERTIFICATION REPORT	
	Report Preparation	$75,000
	DTSC Oversight	$25,000
4	GROUNDWATER MONITORING	
	2010	$146,000
	2011 (approx. 50% reduction in wells monitored)	$73,000
	2012	$73,000
	2013	$73,000
	2014	$73,000
	DTSC Oversight	$20,000
	SUBTOTAL	$2,331,000
5	CONTINGENCY	$300,000
	TOTAL	$2,631,000

Note 1: Assumes worst-case where soil is RCRA-hazardous, requiring disposal at Class I landfill.

CLOSURE COST ESTIMATE
Ormond Beach Generating Station
(February 2010)

STEP #	CLOSURE ACTIVITY	COST ESTIMATE
1	CLOSURE PLAN PREPARATION	
	Draft Plan Preparation	$20,000
	Statistical Analysis and Risk Assessment Report	$50,000
	DTSC Oversight	$10,000
2	GROUNDWATER REMEDIATION	
	Pump & Treat Discharge Permitting	$20,000
	Work Implementation Plan/HASP	$20,000
	Pump & Treat System Installation/Demolition	
	Site preparation	$5,000
	Carbon Filtration System Set-up	$20,000
	Well Pumps, Piping & Installation	$25,000
	Discharge Leach Field Construction	$50,000
	Carbon Filtration System	$50,000
	System Demolition	$20,000
	Operation & Maintenance	
	Carbon Change-outs (12 events @ $10,000)	$120,000
	Operation & Maintenance ($4,000/month)	$96,000
	Sampling, Analysis & Reporting ($3,000/month)	$72,000
	DTSC Oversight	$10,000
3	CLOSURE CERTIFICATION REPORT	
	Report Preparation	$75,000
	DTSC Oversight	$25,000
4	GROUNDWATER MONITORING	
	2010	$112,000
	2011 (25% reduction in wells monitored)	$84,000
	2012	$84,000
	2013	$84,000
	2014	$84,000
	DTSC Oversight	$20,000
	SUBTOTAL	$1,156,000
5	CONTINGENCY	$150,000
	TOTAL	$1,306,000

Attachment DR90-2
Final Closure Plan Approval

Linda S. Adams
Secretary for Environmental Protection

Department of Toxic Substances Control

Maziar Movassaghi
Acting Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

July 23, 2010

Mr. Randall Weidner
Southern California Edison
2244 Walnut Grove Avenue
Rosemead, California 91770

FINAL CLOSURE PLAN APPROVAL FOR SOUTHERN CALIFORNIA EDISON COMPANY, EL SEGUNDO GENERATING STATION,
301 VISTA DEL MAR, EL SEGUNDO, CALIFORNIA 90245
EPA ID NUMBER CAD 000 630 962

Dear Mr. Weidner:

The Department of Toxic Substances Control (DTSC) is hereby approving the Closure Plan for the two wastewater retention basins at the El Segundo Generating Station, located at 301 Vista Del Mar, El Segundo, California. A public notice for the proposed closure plan and corresponding draft Notice of Exemption (NOE) prepared in accordance with the California Environmental Quality Act (CEQA) was issued on June 10, 2010 and a thirty (30)-day public comment period was held from June 14, 2010 through July 14, 2010. A notice announcing the public comment period for the proposed closure plan and the proposed NOE was also published in The Daily Breeze newspaper on June 12, 2010. DTSC did not receive any written comments on the document.

In compliance with CEQA, DTSC has issued a NOE after its determination that the project will not cause a significant impact to the environment (enclosed). The NOE has been filed with the State Clearinghouse, Office of Planning and Research.

DTSC requests a ten (10)-day advance notice of fieldwork to be conducted for the implementation of the approved Closure Plan. Should you have any questions regarding this letter, please contact the undersigned at (818) 717-6599.

Sincerely,

Christine Bucklin, Project Manager
Brownfields & Environmental Restoration Program
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, CA 91311

Enc: copy of NOE

CC:

David Lloyd, Secretary
El Segundo Power LLC
301 Vista Del Mar
El Segundo, CA 90245

George L. Piantka, PE
NRG Energy, West
1817 Aston Avenue, Suite 104
Carlsbad, CA 92008

NOTICE OF EXEMPTION

To: Office of Planning and Research
State Clearinghouse
P O Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

From: Department of Toxic Substances Control
Southern California Permitting & Corrective Action
9211 Oakdale Avenue
Chatsworth, CA 91311

Project Title: Southern California Edison Company, El Segundo Generating Station

Project Location: 301 Vista Del Mar Blvd, El Segundo, California 90245

County: Los Angeles

Project Description:

Approval of proposed closure activities by the Department of Toxic Substances Control (DTSC) pursuant to California Health and Safety Code 6.5 as submitted by Southern California Edison (SCE) The purpose of the proposed closure activities is to excavate up to 2,500 cubic yards of soil underlying two surface water impoundment units and associated pipelines and appurtenances, pursuant to the Resource Conservation and Recovery Act and Stipulation Number121219.

Background:

In 1996, SCE implemented an Agreement with the DTSC to clean close the surface impoundments (aka wastewater retention basins) at eleven generating stations in Southern California. This was in accordance with conditions set out in the Final Judgment and Stipulation Number 121219 handed down by the Superior Court of California. The Stipulation alleged that SCE had stored hazardous wastes in non-permitted wastewater retention basins at their electrical generating stations in Southern California. SCE agreed to close these basins according to California Code of Regulations, Title 22, (Cal. Code Regs , title 22), Chapter 15. The El Segundo Generating Station is one of the facilities cited in the Agreement. The original closure plan was submitted to DTSC in November 2009, with a revised version dated May 2010.

There are currently two wastewater retention basins or waste management units at the El Segundo Generating Station. These basins were created when the original surface impoundment was partitioned in 1987, to construct an adjoining wastewater retention basin, aka Boiler Chemical Cleaning Basin (BCCB). The retention basins are open, aboveground level, and located along the western edge of the site The wastewater retention basin impoundment is presently lined with a high-density polyethylene (HDPE) liner to prevent leakage of wastewater. The BCCB is currently double-lined with HDPE and includes a leachate collection system between the liners. The subject of this draft Closure Plan is the surface impoundment site (or waste management units), consisting of two retention basins and the associated pipelines and appurtenances that connect the basins to the generating units

SCE discontinued the practice of storing boiler chemical cleaning wastewater in the El Segundo surface impoundments (or retention basins) in 1992, and the cleaning process is no longer used at the site. The retention basins are currently used to collect and store non-hazardous wastewater from the facility. The wastewater, containing minor amounts of oil, grease, and suspended solids, is systematically discharged to the ocean under the provisions of an NPDES permit number CA0001147.

The retention basins themselves have been cleaned periodically, as needed, by the current owner. It should be noted that SCE is administratively closing out responsibility for their operation of the Hazardous Waste Management Units, but is not physically closing the retention basins, which are necessary for continued operation of the station.

The station is located near the western edge of the West Coast Groundwater Basin, a rectangular sub-basin of the Los Angeles Coastal Groundwater Basin. The Los Angeles Regional Water Quality Control Board's (LARWQCB) Basin Plan indicates that the existing beneficial uses for the sub-basin are Municipal.

Site Investigation:

Field investigations have been conducted in and around the retention basin site from 1996 to 2006, in order to characterize soil and groundwater in areas where historical operations may have led to contamination. No volatile organic compounds have been detected in the soil and groundwater samples that are not related to known hydrocarbon contamination migrating from the Chevron refinery. The analytical data indicates that the pipelines conveying waste solutions to the basins likely leaked wastewater (laden with metal constituents such as vanadium and nickel)

to the subsurface Vanadium and Nickel were detected at maximum soil concentrations of 2,090 ppm and 840 ppm, respectively

Over four hundred groundwater samples from 26 monitoring wells in the exposure area were collected during the period of September 2001 through December 2008 The data set demonstrates that there are no readily identifiable groundwater contaminant plumes beneath the site

It has been determined that characterization of the retention basin site is sufficient to allow SCE to proceed with site remediation and closure DTSC concurs with SCE that the soil at the retention basin site has been adequately characterized with the exception of polynuclear aromatic hydrocarbons and total petroleum hydrocarbons Additional data collection of those compounds will be necessary to meet the State's requirements for cumulative risk assessment

Closure Performance Standards

The Closure Performance Standard for metals in soil and groundwater will be background, or the risk-based standards for human and ecological protection (Cal. Code Regs , title 22, section 66265 111). Clean closure can be achieved in accordance with Closure Performance Standards either by: 1) Demonstrating that no COPCs are identified at the retention basin site through site characterization and statistical analysis, or 2) Demonstrating that COPCs identified at the retention basin site were remediated to concentrations that are below background or risk-based criteria. In the event that clean closure cannot be achieved, a Land-Use Covenant (LUC) and Implementation and Enforcement Plan (IEP), consistent with closure to industrial standards, will be prepared for approval by DTSC.

Summary of Proposed Closure Activities

The overall remediation strategy will be to use SCE's characterization data, statistical analyses, and risk assessments to identify the specific contaminants and locations that require remediation to achieve the site's closure performance standards.

Soil

If contaminated soil is found to underlay the pipelines and retention basins, it may be excavated and removed as needed to meet the Closure Performance Standards. Additional sampling is scheduled to take place Summer 2010, although no precise date has been set because SCE has to gather all data in order to decide if they indeed are going to excavate. Considering the size of the basins, the maximum amount of non-hazardous soil to be removed from the basins is approximately 2,500 cubic yards (or 125 truckloads). Confirmation soil samples will be collected from the walls and bottom of the excavations. If analyses of the confirmation samples show that the closure performance standards have not been met, then additional soil will be excavated as necessary, laterally and to the water table (which ranges from 15 to 20 feet below the floor of the basins). The confirmation sampling will be repeated as appropriate The completed excavation will be backfilled with clean, compacted fill (of which confirmation samples will also be collected) The basin liner will be reassembled and repairs made, if necessary Excavated soil will be characterized in accordance with the CCR Title 22 and disposed at an appropriate facility based on a determination if it is hazardous or not.

Groundwater

The dissolved phase hydrocarbon plume will be remediated through the Los Angeles RWQCB's oversight of the upgradient Chevron facility. Potential remediation of metals will be evaluated based on a feasibility study which focuses on water quality criteria that is protective of ecological receptors

Name of Public Agency Approving Project: Department of Toxic Substances Control

Name of Person or Agency Carrying Out Project: Southern California Edison, Randall Weidner

Exemption Status: (check one)

☐ Ministerial [PRC Sec. 21080(b)(1); CCR Sec 15268]
☐ Declared Emergency [PRC, Sec. 21080(b)(3); CCR, Sec.15269(a)]
☐ Emergency Project [PRC, Sec. 21080(b)(4); CCR, Sec.15269(b)(c)]
☐ Categorical Exemption: [State type and section number]
☐ Statutory Exemptions: [State code section number]
X General Rule [CCR Sec. 15061(b)(3)]

Exemption Title: Title 14, Section 15061(b)(3), California Code of Regulations, with certainty, no possibility of significant environmental effect

Reasons Why Project is Exempt:

The proposed physical closure operations described in the Closure Plan are isolated within the boundaries of the site and will not result in significant effects to human health and the environment because:

1) Additional soil matrix and soil vapor sampling is by standard industry practice and well within the boundaries of the site

2) Dust may be generated during the excavation but dust control measures will be implemented at the site. The maximum amount of soil to be excavated for the basins is 2,500 cubic yards and is limited to the vertical depth of the shallow water table (less than 20 feet below ground surface) The completed excavations will be backfilled with certified clean fill, and the basin liners replaced

3) The specific control measures will be contained in a removal action work plan in the form of an Excavation Plan, Engineering Evaluation/Cost Analysis, Health and Safety Plan, Quality Assurance Project Plan, Transportation Plan, and Air Monitoring and Dust Control Program, and would be made a condition of project approval.

4) The Occupational Safety and Health Administration (OSHA) and California (Cal) OSHA standards will be met for excavations that exceed (6) feet to ensure workers' safety.

5) Any soil excavation activities that may be conducted are within an area that is fully paved A search of the Department of Fish and Game's California Natural Diversity Database (Rare Find) search found sensitive species in areas outside the footprint of the station but not at the project site and none of the project activities will have any impact on these species and habitat. The work area is fenced from any potentially sensitive habitat areas (non paved areas). However, the RP will have a biologist conduct a site visit prior to implementation of work to ensure that conditions have not changed

6) Based on a record search completed by the SCE archaeologist at the South Central Coastal Information Center of the California Historical Resources Information System, no cultural resources are recorded on the El Segundo Generating Station site. To further ensure that such resources are not impacted, SCE will have an archeologist present during all earth moving activities, with appropriate 'project control measures' enacted.

7) The proposed closure plan activities will utilize DTSC's current methods of risk assessment which will conservatively evaluate the potential risk to soil and groundwater.

8) Excavation activities will not take place all at one time. Basins and pipelines would be excavated separately Transportation of trucks from the site will be restricted to off-peak times so as not to impact traffic flow.

9) The site is fully developed for industrial uses. The closest residence is adjacent to the property line for the site, which will be taken into account during the health and safety plan for the excavation activities

10) The site is not located within a scenic highway.

Christine Bucklin	Senior Engineering Geologist	818 717 6599
Project Manager Name	Project Manager Title	Phone #
		6/10/10
Branch Chief Signature		Date
Steve Lavinger	Supervising Hazardous Substances Engineer II	818 717 6532
Branch Chief Name	Branch Chief Title	Phone #

TO BE COMPLETED BY OPR ONLY

Date Received For Filing and Posting at OPR:

DECLARATION OF SERVICE

I, Dee Hutchinson, declare that on September 19, 2013, I served and filed copies of Applicant's Responses to Data Requests in Set Two (#84-90) dated September 19, 2013. The most recent Proof of Service List, which I copied from the web page for this project at: http://www.energy.ca.gov, is attached to this Declaration.

(*Check one*)

For service to all other parties and filing with the Docket Unit at the Energy Commission:

_X_ I successfully uploaded the document to the Energy Commission's e-filing system and I personally delivered the document or deposited it in the US mail with first class postage to those persons for whom a physical mailing address but no e-mail address is shown on the attached Proof of Service List. [The e-filing system will serve the other parties and Committee via e-mail when the document is approved for filing.] **or**

____ I e-mailed the document to docket@energy.ca.gov and I personally delivered the document or deposited it in the US mail with first class postage to those persons for whom a physical mailing address but no e-mail address is shown on the attached Proof of Service List. [The e-filing system will serve the other parties and Committee via e-mail when the document is approved for filing.] **or**

____ Instead of e-filing or e-mailing the document, I personally delivered it or deposited it in the US mail with first class postage to all of the persons on the attached Proof of Service List for whom a mailing address is given and to the

California Energy Commission – Docket Unit
Attn: Docket No. _____
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

[The e-filing system will serve an additional electronic copy on the other parties and Committee via e-mail when the paper document or CD is received, scanned, uploaded, and approved for filing. The electronic copy stored in the e-filing system is the official copy of the document.]

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: September 19, 2013

Dee Hutchinson

Proof of Service List
Docket: 00-AFC-14C
Project Title: El Segundo Power Redevelopment Project Compliance

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