DOE/EA-1391
December 2001

ENVIRONMENTAL ASSESSMENT
for PRESIDENTIAL PERMIT APPLICATIONS
for BAJA CALIFORNIA POWER, INC.
and SEMPRA ENERGY RESOURCES

U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

U.S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
EL CENTRO, CALIFORNIA
Cooperating Agency
Reference Nos. CA-42892 and CA-42893

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

Corporate Entities

BCP	Baja California Power, Inc.
EAX	Energía Azteca X (Mexican power supplier for BCP)
EBC	Energía de Baja California (Mexican power supplier for BCP)
LRPC	La Rosita Power Complex (EBC and EAX combined)
NBP, LLC	North Baja Pipeline, LLC
PG&E	Pacific Gas & Electric
SDG&E	San Diego Gas and Electric Company
SER	Sempra Energy Resources
TDM	Termoeléctrica de Mexicali (Mexican power supplier for SER)

Federal Agencies

BLM	Bureau of Land Management
DOE	Department of Energy
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
IBWC	International Boundary and Water Commission
NIEHS	National Institute of Environmental Health Sciences
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture

State and Local Agencies

CARB	California Air Resources Board
CDMG	California Division of Mines and Geology
CPUC	California Public Utilities Commission
CRWQCB	California Regional Water Quality Control Board
EDD	California Employment Development Department
IID	Imperial Irrigation District
SHPO	State Historical Preservation Office

Mexican Agencies

CFE	Comisión Federal de Electricidad
CNA	Comisión Nacional del Agua
CRE	Comisión Reguladora de Energía
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales

Other Organizations

LASPAU	Latin American Scholarship Program of American Universities
SW	Siemens-Westinghouse

GLOSSARY OF ACRONYMS AND ABBREVIATIONS
(continued)

Federal Statutes

CFR	*Code of Federal Regulations*
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

Geographical, Regulatory, and Technical Terms

ACEC	Area of Critical Environmental Concern
ACSR	Aluminum conductor steel reinforced (conductor)
ACSS	Aluminum conductor steel supported
AQIA	Air Quality Impact Assessment
BACT	Best Available Control Technologies
BMP	Best Management Practice
BOD_5	Biochemical oxygen demand
CDCA	California Desert Conservation Area
CEQA	California Environmental Quality Act
CO	Carbon monoxide
COD	Chemical oxygen demand
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
EO	Executive Order
FCR	Field Contact Representative
g/m^3	grams per cubic meter
ISCST3	Industrial Source Complex Short-Term 3
IV	Imperial Valley
KOP	Key observation point
kV	Kilovolt
mg/l	milligrams per liter
mg/m^3	milligrams per cubic meter
$\mu g/m^3$	micrograms per cubic meter
MW	Megawatt
NAAQS	National Ambient Air Quality Standard
NO_2	Nitrogen dioxide
NO_X	Oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
O&M	Operation and maintenance
pH	Acidity or alkalinity
$PM_{2.5}$	Fine particulate matter (2.5 microns or less in aerodynamic diameter)
PM_{10}	Respirable particulate matter (10 microns or less in aerodynamic diameter)
ppm	Parts per million

GLOSSARY OF ACRONYMS AND ABBREVIATIONS
(continued)

Geographical, Regulatory, and Technical Terms (continued)

RI	Radio interference
RV	Recreational vehicle
SCR	Selective catalytic reduction
SIP	State Implementation Plan
SL	Significance Level
SR-98	California State Route 98
SSAB	Salton Sea Air Basin
STP	Sewage treatment plant
TDS	Total dissolved solids
TSS	Total suspended solids
TVI	Television interference
USGS	U.S. Geological Survey
VMT	Vehicle miles traveled
VOC	Volatile organic compounds
VRM	Visual resource management

1.0 Introduction

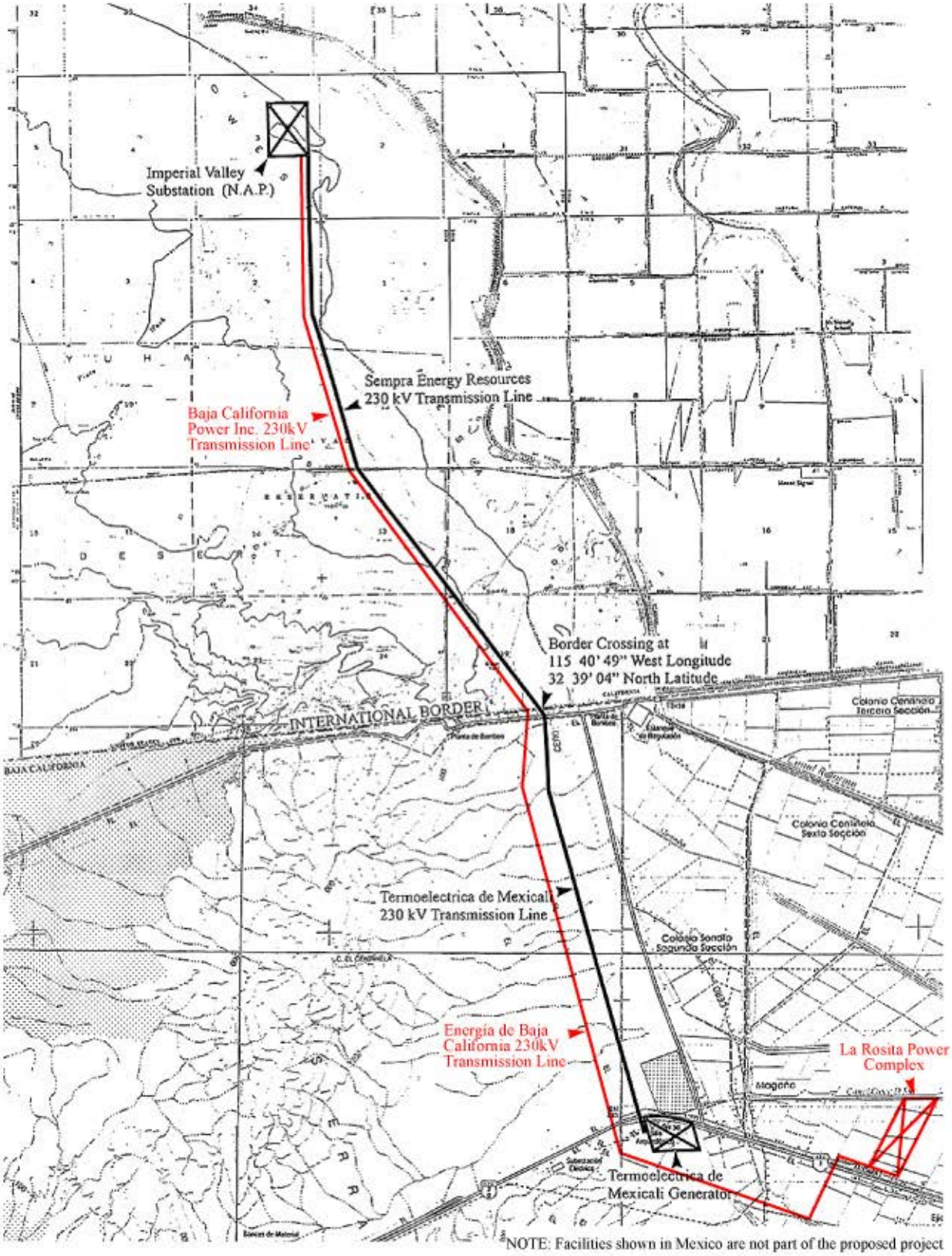
1.1 Background

In separate actions, Sempra Energy Resources (SER) and Baja California Power, Inc. (BCP) have applied to the U.S. Department of Energy (DOE) for Presidential permits pursuant to Executive Order (EO) No. 10485, as amended by EO 12038, and 10 CFR § 205.320 *et seq.* (2000), to construct, operate, maintain, and connect electric power transmission facilities crossing the international border between the United States and Mexico. SER and BCP each propose constructing separate new double-circuit, 230,000 volt (230 kV) transmission lines extending about six miles south from the Imperial Valley Substation (IV Substation), owned and operated by San Diego Gas and Electric Company (SDG&E), to the U.S./Mexico international border. In each case, the objective is to connect the proposed transmission lines to natural gas fueled electric generating plants being constructed in Mexico for the purpose of importing electrical power into the United States onto the southern California electrical grid (Figure 1.1). The proposed transmission lines would traverse about six miles of federal land administered by the U.S. Department of the Interior's Bureau of Land Management (BLM).

The IV Substation is about 10 miles southwest of the city of El Centro in Imperial County, California, and is about 2.5 miles north of State Route 98 (SR-98) and 0.7 mile west of the Westside Main Canal. An existing SDG&E 230 kV transmission line runs south and slightly east from the substation across SR-98 to cross the international border about 6,000 feet west of the junction of the All American Canal and the Westside Main Canal. The BLM right-of-way for the SDG&E transmission line was granted on December 16, 1983; a Presidential permit was issued to SDG&E on December 20, 1983. As indicated, both the BCP and SER transmission lines would be parallel to and within 240 feet of the SDG&E transmission line on the east.

Applications to obtain the DOE Presidential permits and BLM rights-of-way and for the construction, operation, maintenance, and connection of the two double-circuit, 230 kV transmission lines are separate and independent actions by SER and BCP. Transmission facilities, if approved, would be constructed and operated separately by SER and BCP. However, the two transmission lines would affect nearly the same area, are planned for construction at nearly the same time, could be constructed by the same contractor, require similar federal approvals for implementation, and would have similar environmental effects. Therefore, DOE has decided to prepare this environmental assessment (EA) to address both the SER and BCP proposals. In this EA, "the project" refers to both proposed transmission lines unless otherwise indicated.

The proposed SER transmission line would connect with a double circuit, 230 kV transmission line being constructed in Mexico by Termoeléctrica de Mexicali (TDM).



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Map Source: U.S.G.S 7.5 minute topographic map, Mt. Signal quadrangle,
and INEGI carta topograpfica 1:50,000 maps, La Salada and Mexicali

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FIGURE 1.1
Overall System
General Area Map

The SER transmission line would be used to import electric power from the TDM electric generating facility into the U.S. The TDM facility will be comprised of two combustion turbines owned by TDM and exclusively dedicated to exporting power over the SER transmission line. The proposed BCP transmission line will connect with a transmission line being constructed in Mexico by Energía de Baja California (EBC). The BCP transmission line will be used to import electric power into the U.S. from turbines at the La Rosita Power Complex (LRPC) electric generating facility. The LRPC would be geographically separate from (approximately 1.5 miles east) the TDM facility and would contain four combustion turbine generators, one owned by EBC and three owned by Energía Azteca X, S. de R.L. de C.V. (EAX).[1] Two EAX turbines will provide power for the Mexican market for CFE. Power would be supplied to BCP only by the EBC turbine and the EAX turbine designated for export.[2]

The components of the electrical power generating and transmission system described in the preceding paragraph are shown in Figure 1.1. Only the SER and BCP transmission lines north of the international border are subject to U.S. federal jurisdiction and, therefore, are the subject of this EA. A diagram showing the relationship of the generating facilities and transmission lines described in the EA is shown in Figure 1.2.

EO 10485, as amended, provides that before a Presidential permit can be issued, the proposed action must be found to be consistent with the public interest. The two criteria used by DOE to determine if a proposed project is consistent with the public interest are:

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[1] In the mid- to late-nineties, the Comisión Federal de Electricidad (CFE), the national electric utility of Mexico, proposed to construct 10 power plants throughout Mexico to meet its growing demand for power. Demand was growing nationally at a seven percent annual rate, and at a higher rate in the state of Baja California. The construction of these power plants was to be through a "build-own-and-operate" structure, where private companies engineer, construct, finance, and operate the power plant, but contract the power sales (electricity output) to CFE through a 25-year power purchase agreement. One of CFE's 10 initial "bid packages" was for a 500 megawatt (MW) facility in the Mexican State of Baja California. The contract for construction of the Baja California facility was awarded in June, 2000, to Energía Azteca X, S. de R.L. de C.V. (EAX). The awarded proposal was for the construction of a 750 MW power plant: 500 MW for exclusive delivery to CFE, the additional 250 MW to be sold to a U.S. power marketer (for delivery in the southwest U.S. or to CFE). The 750 MW EAX facility would have a commercial operation date of April, 2003.

[2] There is the ability to switch the interconnection of the proposed transmission line from the EAX turbine designated for export to another EAX turbine. However, there are no plans to operate the facilities in this manner and, in any event, it would only occur under very limited circumstances (e.g., when the turbine designated for export is not supplying power to the US, and California would be in need of power). The amount of power to be exported from EAX would remain a nominal 250 MW, and would not impact the export of power by the EBC turbine.

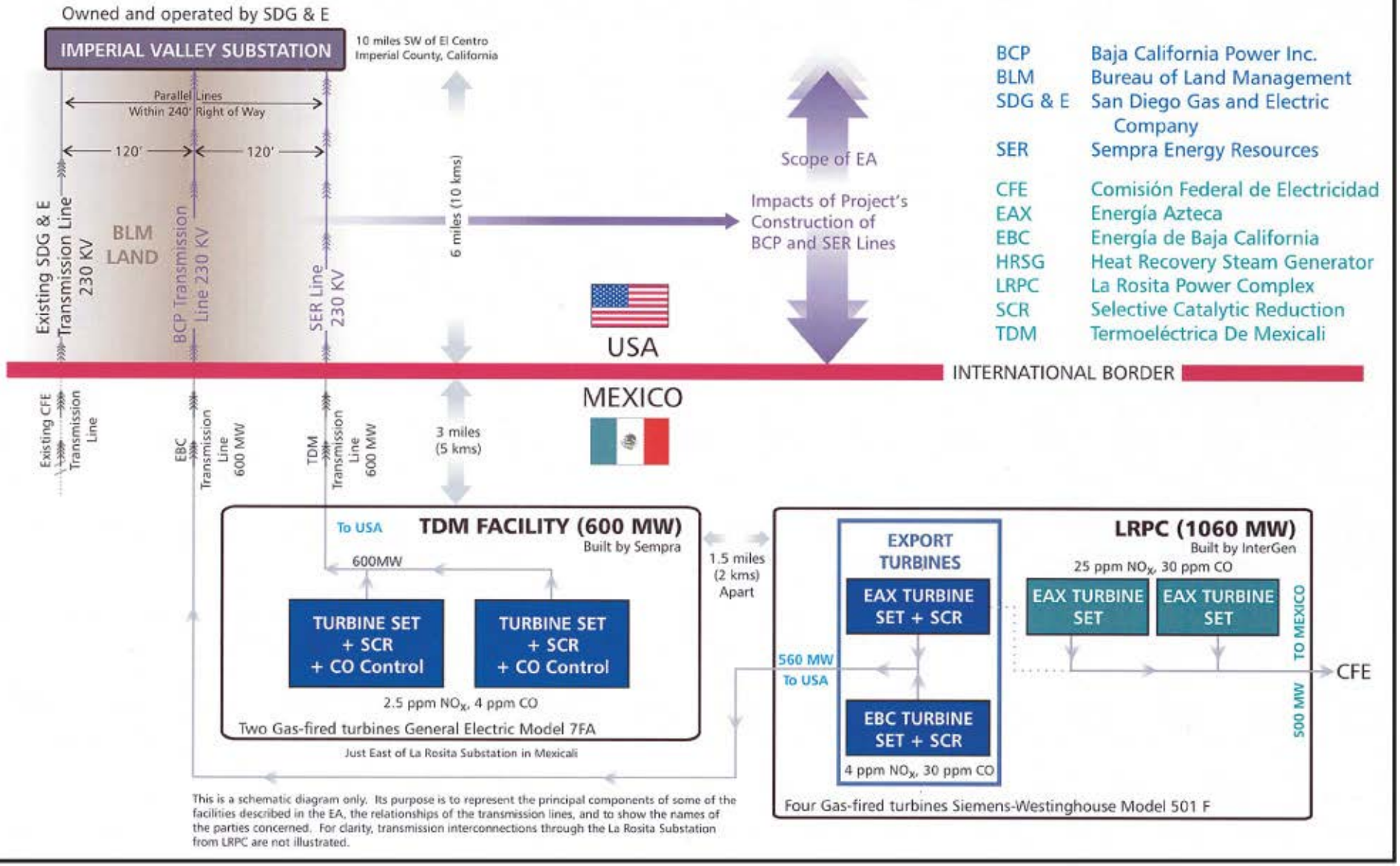

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FIGURE 1.2

Diagram of the Principal Components of the Facilities Described

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1. Assessment of potential environmental impacts in accordance with the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality and DOE implementing regulations at 40 CFR §§ 1500-1508 and 10 CFR § 1021, respectively, and

2. Assessment of impacts on the operating reliability of the U.S. electric supply system; i.e., the ability of the existing generation and transmission system to remain within acceptable voltage, loading, and stability limits during normal and emergency conditions.

Prior to issuing a Presidential permit, DOE must also obtain concurrence from the Secretary of State and the Secretary of Defense.

BCP filed its Presidential permit application with DOE on February 27, 2001. The proposed BCP transmission line would connect power generation facilities being constructed in Mexicali, Baja California, with SDG&E's Imperial Valley Substation. The proposed route in the U.S. is entirely within federal land managed by the BLM. To secure the right-of-way, BCP filed an "Application for Transportation and Utility Systems and Facilities on Federal Lands" with the BLM on February 26, 2001. The proposed right-of-way would run 120 feet to the east of and parallel to the existing SDG&E 230 kV transmission line between the border and the IV Substation in designated Utility Corridor N of the BLM's California Desert Conservation Area Plan (the Desert Plan). The existing SDG&E 230 kV line connects at the U.S./Mexico border with a 230 kV line that is owned and operated by the Comisión Federal de Electricidad (CFE), Mexico's national utility. At the border, the BCP transmission line would connect to a new transmission line being constructed in Mexico.

SER filed its Presidential permit application with DOE on March 6, 2001. The proposed SER transmission line would connect the TDM power plant in Mexicali, Mexico with SDG&E's Imperial Valley Substation. The centerline of the SER right-of-way would be east of and adjacent to the proposed BCP transmission line right-of-way and would be 120 feet wide, so that the centerline of the SER right-of-way would be 120 feet east of the centerline of the proposed BCP right-of-way and 240 feet east of the centerline of the SDG&E right-of-way. The SER right-of-way would also be entirely within federal land managed by the BLM. To secure the right-of-way, SER filed an "Application for Transportation and Utility Systems and Facilities on Federal Lands" with the BLM on February 13, 2001. The proposed SER right-of-way is also within Utility Corridor N of the Desert Plan. At the border, the SER transmission line would connect to a transmission line being constructed in Mexico by TDM.

Although the primary purpose of the proposed transmission lines is to import power into the United States, relatively small amounts of power would also be exported through the proposed transmission lines into Mexico. The export of power is needed for purposes of

initial start-up of Mexican generating facilities (such as water treatment and cooling towers), for the purpose of providing "black start" capability to the Mexican power plants, and for purposes of providing ancillary equipment power when the facilities' electrical generating equipment is not in operation (such as during weekend plant shutdowns). "Black start" refers to start-up of the generating facility when the plant is not generating any electricity to supply its own needs. To permit this export of power, SER filed an application for an electricity export authorization with DOE on March 26, 2001. BCP filed an application for an electricity export authorization with DOE on August 22, 2001.

1.2 Scope of Project

The proposed project consists of the following components:

- The construction, operation, maintenance, and connection of a double-circuit, 230 kV transmission line, approximately six miles (10 kilometers) in length, between the U.S./Mexico international border and the SDG&E Imperial Valley Substation by Sempra Energy Resources.

- The construction, operation, maintenance, and connection of a double-circuit, 230 kV, transmission line, approximately six miles (10 kilometers) in length, between the U.S./Mexico international border and the SDG&E Imperial Valley Substation by Baja California Power, Inc.

- Relocation of six poles of the existing SDG&E 230 kV, single-circuit transmission line near the Imperial Valley Substation.

- Relocation of approximately two poles of the existing Imperial Irrigation District's (IID) 230 kV, single-circuit transmission line near the Imperial Valley Substation.

Both the BCP and SER transmission line projects would also include a static wire strung above the conductors on the lattice towers and monopoles. On both lines, this static wire will also contain fiber optic cables for communications. Together, the project components are intended to allow the importation of electricity generated in Mexico into the United States, and more specifically, into the electrical power grid operated by SDG&E in southern California, and the export of power to the generating facilities for their use, but not to the CFE system.

1.3 Purpose and Need

1.3.1 Agency Action

NEPA requires federal decision makers to consider the environmental effects of their actions. For this EA, the federal decision maker with primary responsibility for complying with NEPA (the "lead agency") is the DOE. The lead agency's primary action subject to NEPA review is the grant or denial of Presidential permits to SER and BCP for construction, maintenance, operation, and connection of the proposed 230 kV transmission lines. A DOE Presidential permit is required before any person can construct an electric transmission line across the U.S. border. The lead agency's action is a response to the applicants' purpose and need.

As a cooperating agency, BLM's primary action subject to NEPA review is the grant or denial of the lease of two 120-foot-wide rights-of-way for the construction, maintenance, operation, and connection of the two proposed transmission lines. Like DOE's action, BLM's is a response to the applicants' purpose and need.

1.3.2 Applicants' Purpose and Need

Since the summer of 2000, California has been experiencing a power supply crisis, which has impacted the entire western United States. As demand for electricity has increased, available supplies have decreased or not kept up with demand growth. In California, electric power customers have experienced temporary losses of power, and the situation with regard to the power supply is such that the loss of electric power, in the form of "rolling blackouts," may continue to occur in periods of high electrical power usage. The interconnecting transmission lines proposed by SER and BCP would make power generated from the TDM, EBC, and the EAX export electrical generating facilities located in Mexico available to California consumers.

The project would benefit the public by improving the region's ability to meet current and future energy demands. The public would benefit from the construction of the transmission lines because the added power supply would increase energy transfer capability and system reliability and would reduce the region's dependence on other, less efficient generation. Routing the transmission lines through Utility Corridor N of the BLM's Desert Plan and adjacent to an existing transmission line would help reduce visual, biological, and land use impacts compared to alternative locations, and is consistent with the intended purpose and use of this corridor in the BLM's Desert Plan.

In considering the proposed actions, the DOE may decide to issue a Presidential permit to both proposed projects; issue a Presidential permit to one of the proposed transmission line projects but deny a Presidential permit to the other; or deny issuance of a Presidential permit to both transmission line projects.

1.4 Agency Actions

1.4.1 Federal Agency Actions for Transmission Lines

1.4.1.1 U.S. Department of Energy

Construction of either or both of the proposed 230 kV transmission lines would require DOE to issue a Presidential permit to Sempra Energy Resources and/or Baja California Power, Inc. DOE's decision must consider whether or not the action is consistent with the public interest, including consideration of environmental and electric reliability issues. Thus, DOE is responsible for compliance with NEPA and will act as the lead federal agency for NEPA compliance.

DOE must also consider whether the proposed construction of transmission facilities by SER and BCP and the export of electric energy to Mexico for start-up and other purposes would impair the sufficiency of electric power supply within the U.S. or would impede or tend to impede the coordinated use of the U.S. power supply network. Based on these considerations and on compliance with NEPA, DOE could grant Presidential permits and electricity export authorizations to export electrical energy if it is determined that:

1. Sufficient generating resources exist such that the exporter could sustain the export while still maintaining adequate generating resources to meet all firm supply obligations, and

2. The export would not cause operating parameters on regional transmission systems to fall outside of established industry criteria.

1.4.1.2 Bureau of Land Management (BLM)

In order for the proposed actions to be implemented, SER and BCP must secure rights-of-way from the Bureau of Land Management of the Department of the Interior, the agency which manages the involved federal lands. Because the BLM has jurisdiction over the land in which the rights-of-way are proposed and is a federal agency with special expertise with relation to land use, biological, cultural resource, visual, and other environmental issues, the BLM is a cooperating agency under NEPA. The BLM will review this EA to determine if the action is consistent with the California Desert Area Conservation Plan (1980), as amended; the Federal Land Policy and Management Act of 1976; and the BLM's mission to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

1.4.1.3 International Boundary and Water Commission (IBWC)

The mission of the IBWC is to apply the rights and obligations which the Governments of the United States and Mexico assume under the numerous boundary and water treaties

and related agreements, and to do so in a way that benefits the social and economic welfare of the peoples on the two sides of the boundary and improves relations between the two countries. IBWC has review authority over actions that may affect the international border area. When NEPA review of the action is complete, IBWC may review the project to ascertain that there would be no change in drainage patterns at the international border, that boundary markers are not impacted, and that the action would not be detrimental to the environment. IBWC may then issue a permit or a letter of concurrence to the federal lead agency for the action.

1.4.1.4 U.S. Army Corps of Engineers (USACE)

According to current project plans, the proposed transmission lines would require placing steel lattice towers in non-wetland waters of the United States under the jurisdiction of the USACE. A permit will be required from the USACE to allow this work under Section 404 of the Clean Water Act. Processing of the Section 404 permit will require certification by the Regional Water Quality Control Board under Section 401 of the Clean Water Act.

1.4.2 Other Agency Actions for Transmission Lines

1.4.2.1 State Historic Preservation Office (SHPO)

The SHPO consults with appropriate Federal agencies in accordance with the National Historic Preservation Act (NHPA) on Federal undertakings that may affect historical properties, and the content and sufficiency of any plans developed to protect, manage, or reduce or mitigate harm to such properties. Although DOE is the federal lead agency for NEPA purposes, BLM, as the "on-site" agency, has coordinated both the BLM and DOE responsibilities under the National Historic Preservation Act. If the undertaking would result in adverse effects, the BLM would consult with SHPO and other consulting parties on ways to resolve the adverse effects.

1.4.2.2 California Public Utilities Commission (CPUC)

The segment of existing SDG&E 230 kV transmission line that is presently on wooden poles near the Imperial Valley Substation will be relocated and placed on steel monopoles in order to provide clearance for the BCP transmission line to pass under the 500 kV Southwest Power Link. Prior authorization is being obtained from the CPUC to allow the relocation. The CPUC has indicated that they intend to use this EA as a California Environmental Quality Act (CEQA) document, provided all CEQA-related requirements are satisfied.

1.4.3 Federal Agency Action Related to Applicants' Projects

1.4.3.1 Federal Energy Regulatory Commission (FERC)

The natural gas to fuel the TDM, EBC, and EAX electric generating turbines will be provided by a new pipeline system extending from an existing El Paso Natural Gas Company pipeline in Ehrenberg, Arizona, in the U.S. to an existing pipeline in Baja California, Mexico, crossing the international border at Algodones, Mexico. The Mexican portion of the pipeline is under construction. The U.S. portion of the pipeline is a proposal by North Baja Pipeline, LLC, (NBP) a wholly owned subsidiary of PG&E Gas Transmission Holdings Corporation. NBP has applied to the FERC for a Certificate of Public Convenience and Necessity, pursuant to the Natural Gas Act, to construct and operate a new interstate pipeline and ancillary facilities [Docket No. CP-01-22-000], and for a Presidential Permit to construct and operate facilities at the international border for the exportation of Natural Gas [Docket No. CP-01-23-000]. FERC issued the Draft Environmental Impact Statement/Environmental Impact Report and Draft Land Use Plan Amendment for the North Baja Pipeline Project (FERC/EIS-0132D) in July 2001.

2.0 Proposed Action and Alternatives

The objective of this EA is to evaluate the proposed action and alternatives in accordance with NEPA. The proposed action is the issuing of Presidential permits by DOE to allow the construction, operation, maintenance, and connection of two double-circuit, 230 kV lines in adjacent 120-foot-wide rights-of-way to be secured from BLM between the Mexican border and SDG&E's Imperial Valley Substation. The objective is to connect transmission lines in Mexico to the SDG&E grid serving southern California to import electrical power generated in Mexico. The associated generating plants and transmission lines in Mexico have already been approved by Mexican authorities and are under construction. Direct environmental effects are evaluated in this EA for the transmission lines in the United States only. Neither the U.S. nor agencies of the State of California, have jurisdiction over the regulation, permitting, or control of air pollutant emissions in Mexico—such as those from the LRPC and TDM facilities—regardless of any potential impact in the U.S. Nonetheless, consistent with the role of this EA to assess the impacts in the U.S. of the construction and operation of the BCP and SER transmission lines, this EA assesses any impacts in the U.S. of air pollutant emissions transported to the U.S. from the TDM and LRPC generating facilities and on water resources within the U.S.

The alternatives evaluated in this EA are (1) the proposed action consisting of two double-circuit, 230 kV electrical transmission lines running parallel to and east of the existing SDG&E 230 kV transmission line from the IV Substation to the international border and (2) the No Action Alternative. Alternative locations for the proposed transmission lines were also considered but rejected and are briefly discussed below. DOE and/or BLM could also choose to issue permits or grant right-of-way for either one of the two transmission lines but not the other. That situation would be a variant of the proposed action in which environmental effects attributable to one of the transmission lines would occur as described in this EA but effects attributable to the other transmission line would not occur.

2.1 No Action Alternative

Under the No Action Alternative, neither of the two transmission lines would be constructed, operated, maintained, and connected. No Presidential permit or electricity export authorization would be issued by DOE, and no right-of-way would be granted by BLM. The purpose and need for the action, as defined in Section 1.3 of this EA, would not be realized. Potential impacts, whether short-term or long-term, direct or indirect, project-specific or cumulative, would not occur.

If the proposed transmission lines are not built, there would be no connection for the TDM and EBC generating plants now under construction west of Mexicali, Mexico to export electrical power to the United States. However, the EAX turbine currently

designated for export would still be built and its electrical output export to the U.S. over the existing IV-La Rosita 230-kV transmission line.

If DOE were to deny one or both of the permit applications, TDM and EBC would be unable to export electric power to the U.S. In that event, TDM and EBC would need to decide whether to complete construction of their respective generating plants and operate them to produce power for the Mexican market. If the owners elected to proceed with the plants in the same manner as described in this EA, the impacts in the U.S. from their operation, as analyzed herein, would still occur. If the owners elected not to complete construction of the plants, the impacts in the U.S. from their operation would not occur.

2.2 Proposed Action

The proposed action would allow implementation of the following four components, which constitute the proposed project:

- The construction, operation, maintenance, and connection of a double-circuit, 230-kV, transmission line for about six miles between the U.S./Mexico international border and the SDG&E Imperial Valley Substation by Sempra Energy Resources.

- The construction, operation, maintenance, and connection of a double-circuit, 230-kV transmission line for about six miles between the U.S./Mexico international border and the SDG&E Imperial Valley Substation by Baja California Power, Inc.

- Relocation of six poles near the Imperial Valley Substation of the existing SDG&E 230 kV, single-circuit transmission line. Approximately2,000 feet of the SDG&E line would be relocated.

- Relocation of two poles of an existing 230 kV, single-circuit transmission line owned and operated by the Imperial Irrigation District near the Imperial Valley Substation.

This EA considers the environmental effects in the U.S. that would result directly or indirectly from the implementation of these components and also any environmental effects from Mexican components of the generating and transmission facilities that could affect the United States. The proposed federal actions are:

- The granting of separate Presidential permits by DOE to SER and BCP to allow the connection of the proposed transmission lines at the international border;

- The granting of separate rights-of-way for the two new transmission lines by BLM;

- The granting of separate electricity export authorizations by DOE as actions secondary and dependent on the granting of Presidential permits for the SER and BCP transmission lines;

- The modification by BLM of the existing right-of-way to SDG&E to allow for the relocation of the SDG&E transmission line in the area immediately adjacent to the Imperial Valley Substation;

- The modification by BLM of the existing Imperial Irrigation District right-of-way to allow for the relocation of two poles of the IID transmission line in the area immediately adjacent to the Imperial Valley Substation; and

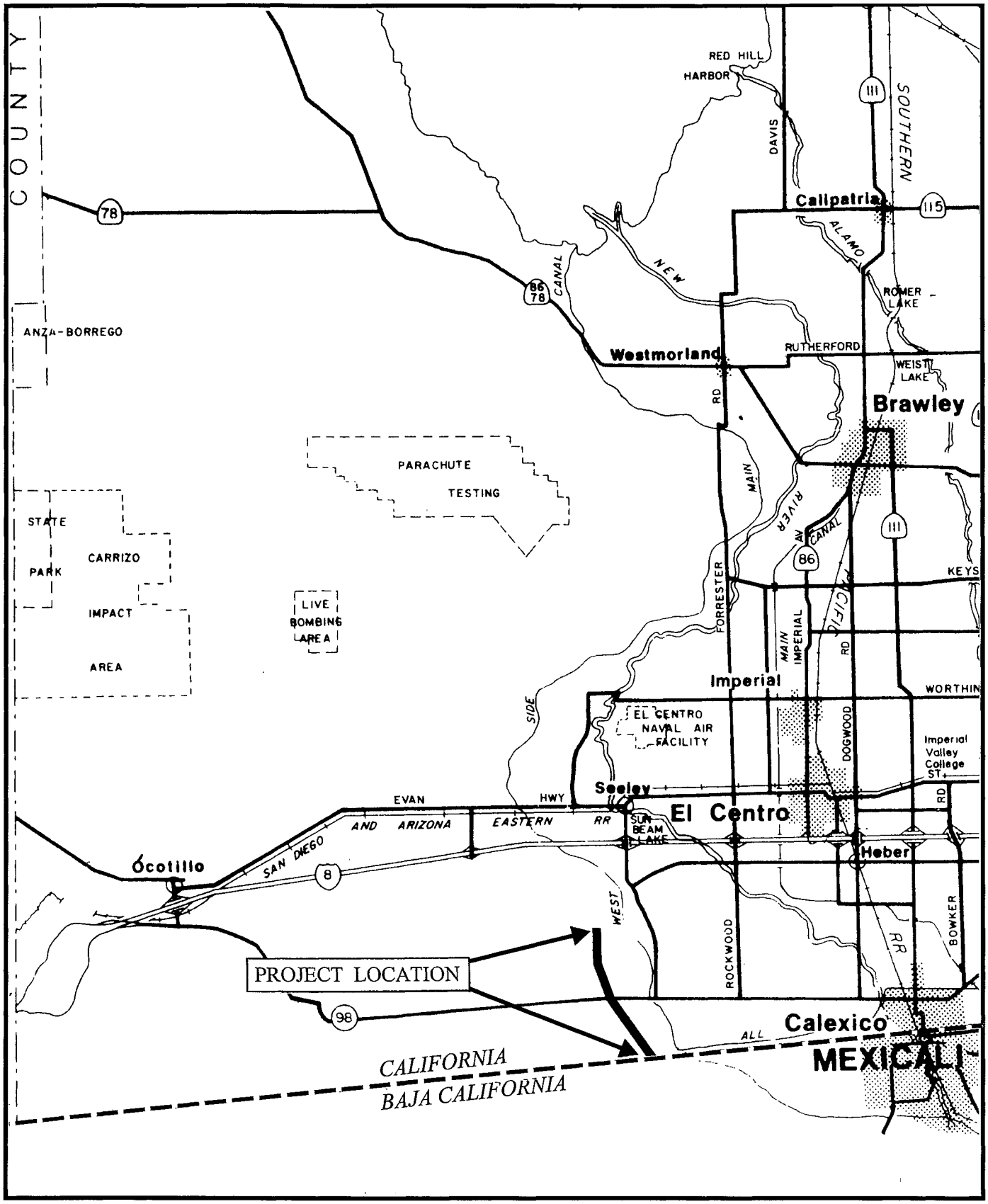
- Granting by BLM of authorization that would allow SER and BCP to lease the use of fiber optic communication lines to a subsidiary.

2.2.1 Overview of the Proposed Project

The information in the following sections of this EA is based on preliminary plans. Such information as the exact number and location of support structures is subject to change as plans are refined. Most of the information on project features in this EA is based on information supplied by BCP and SER. All information such as the area of impact should therefore be regarded indicating the general extent and scope of the project and related features rather than a precise evaluation of the final design. The impacts attributable to the project have been conservatively estimated (overestimated) in this EA, and it is likely that the actual impacts would be less than those described.

The project site is located in the Yuha Basin in the Colorado Desert in the southwest portion of Imperial County, California, about 10 to 12 miles southwest of the town of El Centro (Figures 2.1 and 2.2). This project proposes to construct two double-circuit, 230 kV transmission lines from the existing SDG&E Imperial Valley Substation, continuing southerly approximately six miles (10 kilometers) to the U.S./Mexican border, where each line would connect with a corresponding transmission line in Mexico (Figures 2.3 through 2.6). The transmission lines would be carried on steel lattice towers from the border to just south of the IV Substation, where steel monopoles would be used for each transmission line to allow the crossing of the Southwest Power Link. The Southwest Power Link is a 500 kV transmission line that enters the IV Substation from the east at the substation's southeast corner. Suspended on the steel monopoles, the proposed transmission lines would be carried along the east side of the substation to enter it from the north, similar to the way the existing SDG&E transmission line is connected to the IV Substation.

From the international border to the last tower south of the 500 kV line at the substation, both the BCP and SER rights-of-way would parallel the existing SDG&E transmission



Source: California Dept. of Transportation

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FIGURE 2.1

Location of the Project in Western Imperial County

Imperial Valley Substation

Area Surveyed

Map Source: Reduced scale USGS 7.5 minute topographic map, Mount Signal quadrangle

RECON

Project Components
Existing SDG&E transmission line towers ■ and poles ●
Proposed BCP transmission line towers ■ and poles ●
(120 ft east of existing line)
Proposed SER transmission line towers ■ and poles ●
(240 ft east of existing line)

0 Feet 3500

FIGURE 2.2

Project Location as shown on USGS Topographic Map

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IID Transmission Line

Access Road

Access Road

Imperial Valley Substation

Existing SDG&E Transmission Line
(200 feet right-of-way)

Lower Access Road

120'
60'
120'
60'
240'
60'

MATCHLINE

SEE FIGURE 2.4

FIGURE 2.3

FIGURE 2.4

FIGURE 2.5

FIGURE 2.6

Imperial County, USA
Baja California del Norte, MEXICO

Locator

RECON

0 Feet 600

	Transmission Line	Steel Lattice Towers	Steel Monopoles
Existing SDG&E			
Proposed BCP			
Proposed SER			

FIGURE 2.3

Project Plan, Segment A

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SEE FIGURE 2.3

MATCHLINE

21

20

19

18

17

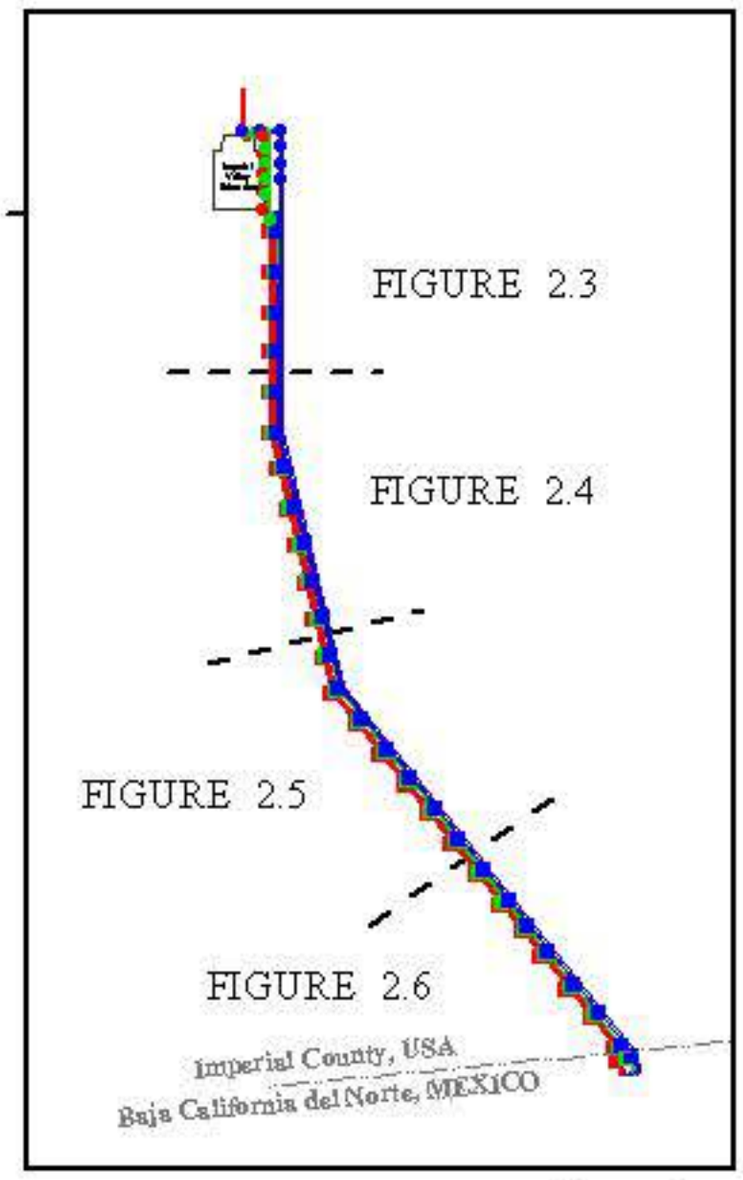
16

15

14

MATCHLINE

SEE FIGURE 2.5



Locator

RECON

0 Feet 600

	Transmission Line	Steel Lattice Towers
Existing SDG&E	~	⊠
Proposed BCP	~	▨
Proposed SER	~	□

FIGURE 2.4

Project Plan, Segment B

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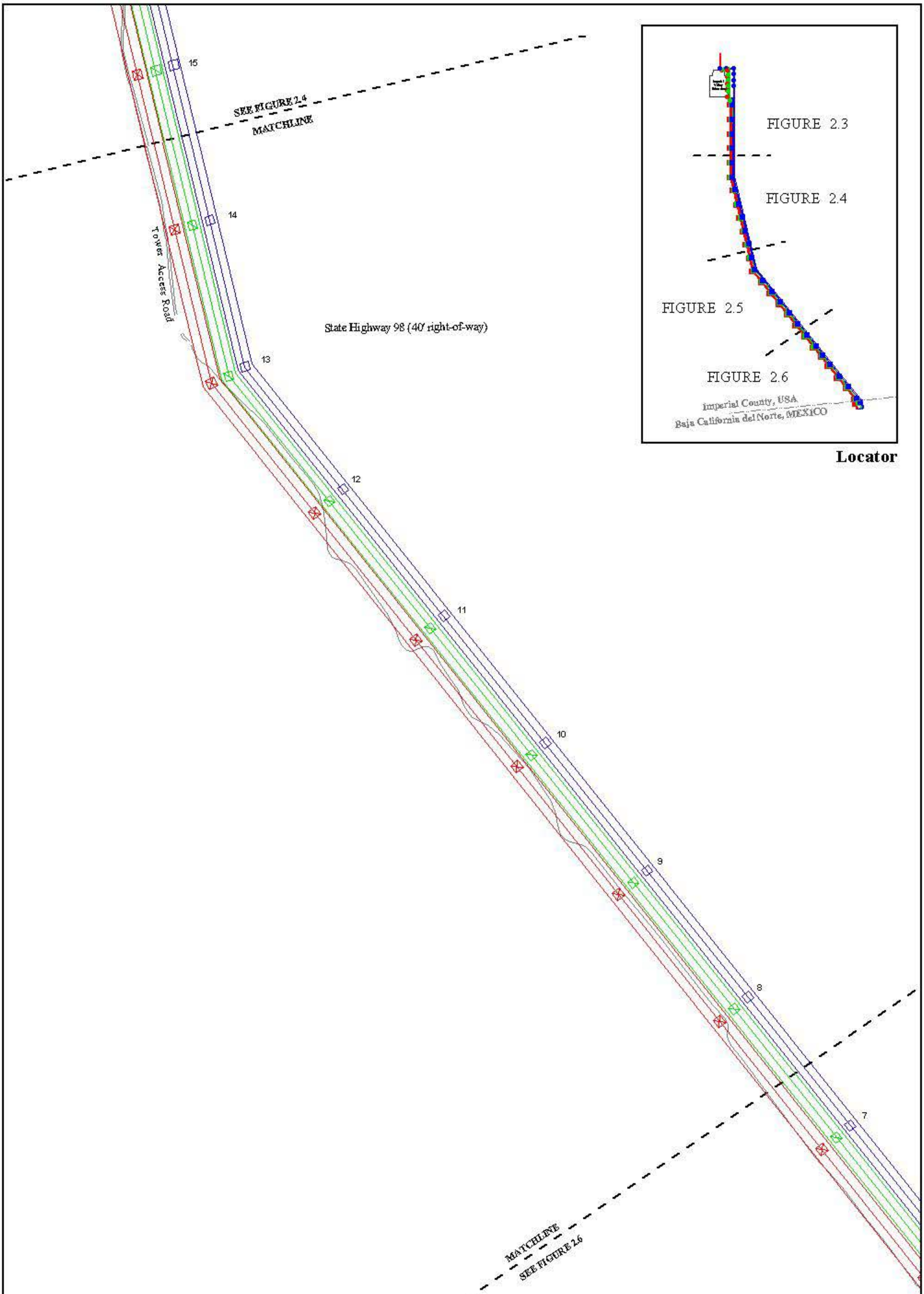

Locator

RECON

0 Feet 600

	Transmission Line	Steel Lattice Towers
Existing SDG&E		
Proposed BCP		
Proposed SER		

FIGURE 2.5

Project Plan, Segment C

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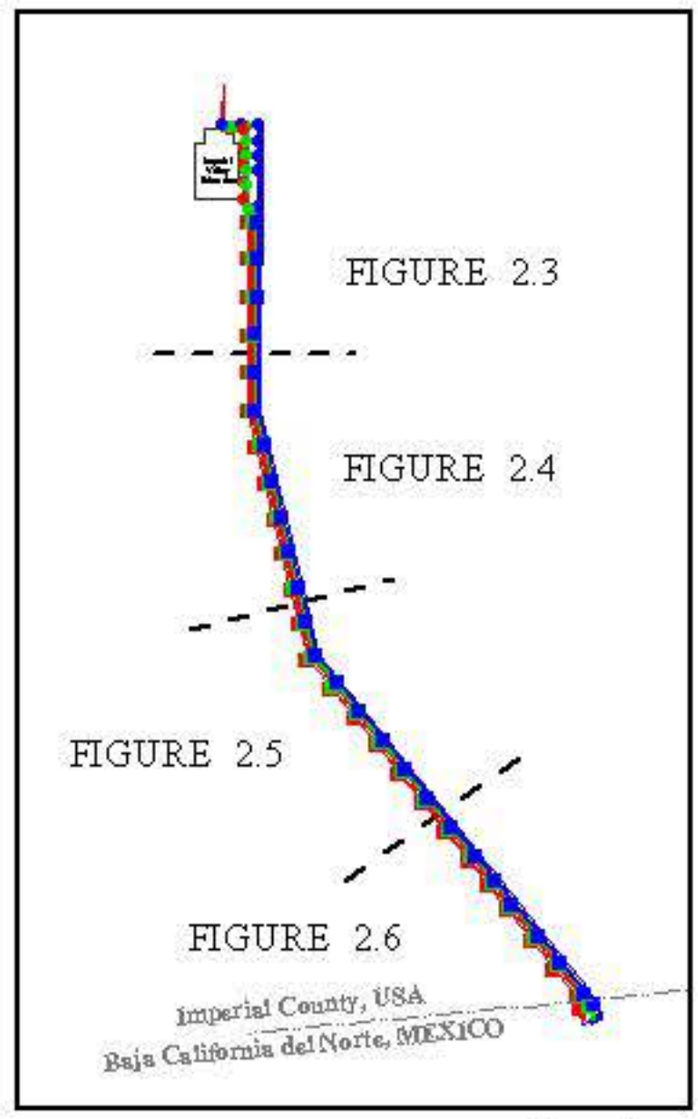

Locator

SEE FIGURE 2.5
MATCHLINE

8
7
6
5
4
3
2
1

Main Access to State Highway 98

Main Access Road

60' Public Reserve

Imperial County, USA

Baja California del Norte, MEXICO

RECON

0 Feet 600

	Transmission Line	Steel Lattice Towers
Existing SDG&E		
Proposed BCP		
Proposed SER		

FIGURE 2.6

Project Plan, Segment D

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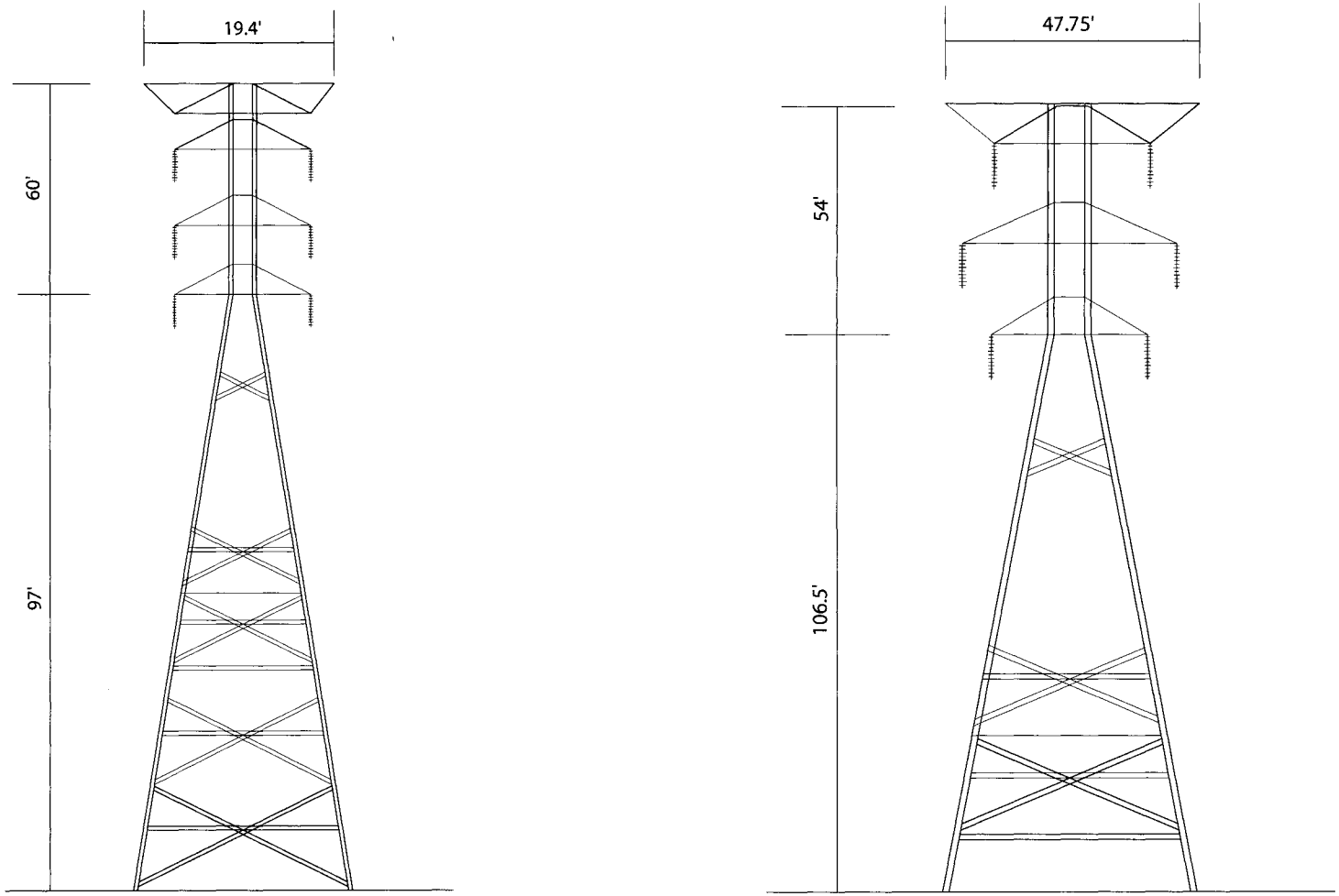
line. The right-of-way for the BCP transmission line would be adjacent to the existing right-of-way for the SDG&E transmission line and would be 120 feet wide, so that the centerline would be 120 feet east of the centerline of the SDG&E right-of-way. The centerline of the SER right-of-way would be east of and adjacent to the proposed BCP transmission line right-of-way and would be 120 feet wide, so that the centerline of the SER right-of-way would be 120 feet east of the centerline of the proposed BCP right-of-way and 240 feet east of the centerline of the SDG&E right-of-way.

For both the BCP and SER transmission lines, steel lattice towers would be erected on the centerlines of the rights-of-way. The towers would be approximately 900 to 1,100 feet apart and would be roughly in line with the existing SDG&E towers in an east-west direction. In this EA, the towers for both lines will be referred to by numbers consecutively from south to north, with Tower No. 1 the first tower north of the international border and Tower No 25 just south of the substation. Similarly, the steel monopoles will be referred to by numbers consecutively from south to the north of the substation. These would all be steel monopoles except for A-frame crossing structures to allow the SER line to cross under the Southwest Power Link. The crossing structures are included in the pole numbering system as No. 2 and No. 3. All proposed features of the project are shown in Figures 2.3 through 2.6. A more detailed narrative description is in Appendix A.

2.2.2 Construction

Construction would begin with site preparation, consisting of grading of access roads, where necessary, and drilling or excavation for the steel lattice tower, steel monopole, and wooden monopole footings. Towers and monopoles would be fabricated in segments in Mexico. The towers would be carried to the construction site for each by helicopter. This would minimize the amount of laydown area required in the United States. Monopoles would be brought to the site by truck in sections and assembled in laydown areas. Principal preparation at each tower and pole location would consist of preparing concrete foundation footings. Each tower would require four footings, one on each corner; a single footing would be needed for each monopole.

Two different sizes of lattice towers would be used, depending on function (Figure 2.7). Suspension towers, used where the cables will be strung in a straight line from one tower to the adjacent ones, would have a square base 30 feet by 30 feet. The last towers at the ends of the line ("dead end" towers) and three other towers in each line ("deflection" or "turning" towers) would have a larger base, 40 feet by 40 feet. From the northernmost lattice tower in each transmission line, the conductors would pass on to steel monopoles to cross under the 500 kV Southwest Power Link to steel monopoles on the north side. Present project plans show all three 230 kV transmission lines—SDG&E's, BCP's, and SER's—on steel monopoles north of the Southwest Power Link. However, it is possible



DEAD END OR DEFLECTION TOWER

SUSPENSION TOWER

RECON

Map Source: CISA, 2001

FIGURE 2.7
Steel Lattice Tower

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that further refinement of project plans could result in the use of lattice towers in place of monopoles for part of the SER line.

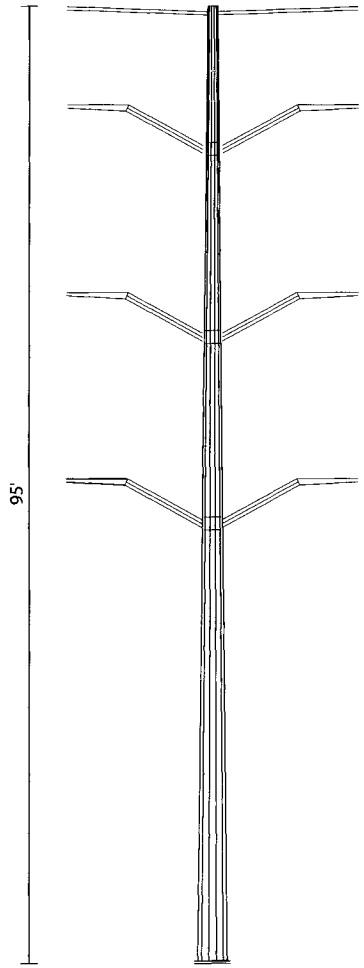
Two types of monopoles would be used (Figure 2.8). Dead end and corner poles would be of heavier construction and would be about 95 feet high (above the ground surface). Suspension poles would be about 100 feet high. The features of the BCP and SER lines north of the Southwest Power Link and the relocated SDG&E and IID lines, as described herein and represented in Figures 2.3 through 2.6, are based on preliminary plans and may not represent the final, detailed design. However, the basic route and layout of the lines is firm. The exact number of poles and towers and their exact locations have not yet been determined and may vary based on actual site conditions. The monopoles will be brought to the site by truck in sections, assembled in laydown areas, and lifted into place using a 90-ton crane. If towers are used in place of poles for the SER line, the towers would be brought in by helicopter and assembled as described earlier.

To safely secure the SER conductors at the crossing of the Southwest Power Link, steel A-frame structures will be used (Figure 2.9). Each leg of the A-frames will be bolted to a cylindrical concrete footing. A total of 16 footings would be needed for the four A-frames, with two A-frame structures on each side of the Southwest Power Link.

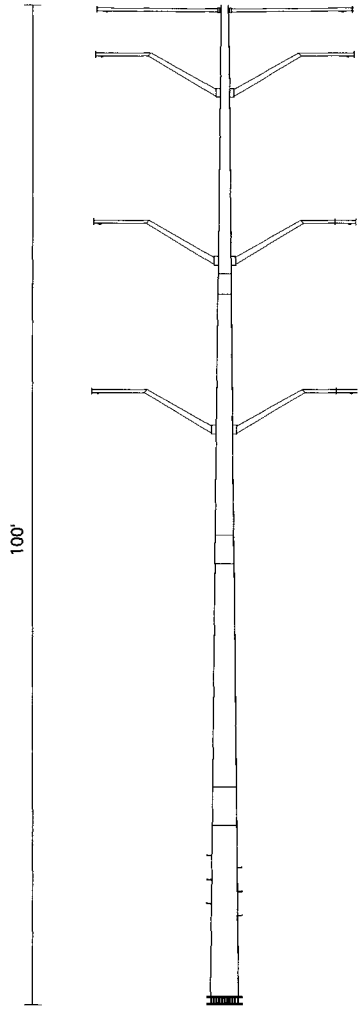
Once the towers, poles, and crossing structures are in place, conductors would be strung (1) on the SER and BCP lines for the entire length of the transmission lines and (2) from the northernmost tower to the substation on the SDG&E line, and (3) through the two southernmost poles on the IID line. Truck-mounted cable-pulling equipment would be used to string the conductors on the support structures. Cables would be pulled through one segment of a transmission line, with each segment containing several towers or poles. To pull cables, truck-mounted cable-pulling equipment would be placed alongside the tower or monopole, directly beneath the crossarm insulators (the "pull site") at the first and last towers or poles in the segment of the transmission line. The conductors would be pulled through the segment of line and attached to the insulators. Then the equipment would be moved to the next segment, with the "front-end" pull site just used becoming the "back-end" pull site for the next segment.

Both the SER and BCP towers and poles would be equipped with static wires designed to also carry a fiber communications cable. These static wires would also act as a lightning ground wire. At the monopole or crossing structure south of the Southwest Power Link, these static wires and fiber optic cables would be brought down the structure, placed in a trench to pass to the other side of the Southwest Power Link, and brought back up the pole or crossing structure on the other side. The trench would be backfilled.

Construction would be completed by restoring disturbed ground surfaces to their original contours. Spoil dirt excavated for the footings would be spread on the ground, on access



DEAD END OR DEFLECTION POLE



SUSPENSION POLE

RECON

Map Source: CISA, 2001

FIGURE 2.8
Steel Monopoles

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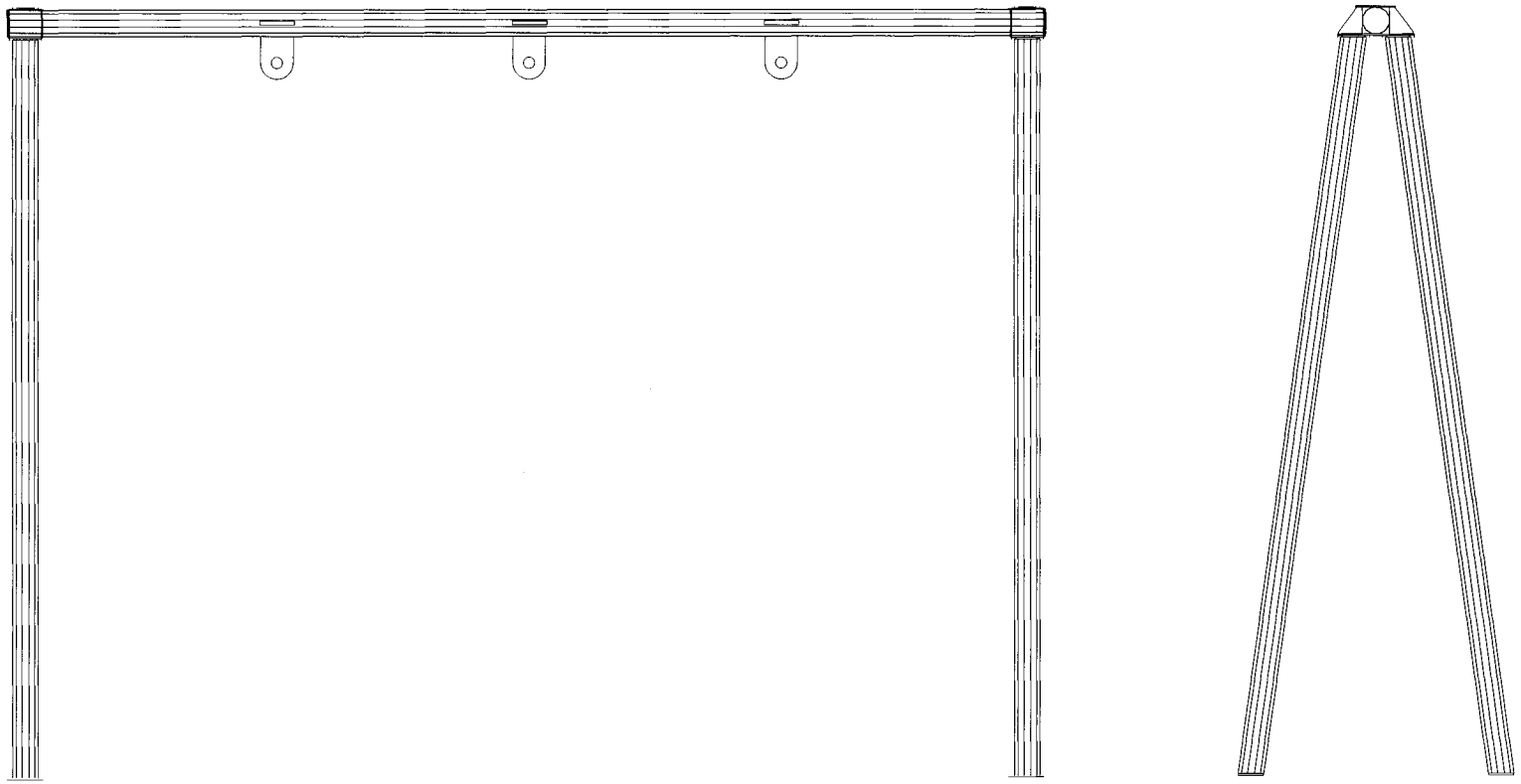

Map Source: CISA, 2001

FIGURE 2.9
SER Crossing Structure

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roads, or taken off-site for disposal in a permitted disposal site. A more detailed narrative description of construction is in Appendix A.

2.2.3 Areas of Construction Impact

Areas of permanent impact would be those areas where the surface of the ground would be permanently disturbed. Specifically, new access roads and footings or anchors for tower, monopole, or crossing structures are areas that would be permanently impacted. Areas of temporary impact are areas where construction activity may take place but where restoration of the surface is possible. These areas include the work areas used to erect the towers, monopoles, or crossing structures; pull sites; laydown areas for the monopoles; and the trenches for the optical cables under the 500 kV transmission line at the substation. In some places, areas of temporary disturbance would overlap.

For this EA, the calculations of areas of impact or disturbance are based on an evaluation of preliminary plans and the assumptions stated in Appendix A. As plans are refined, the exact areas of impact may change. The assessment in this EA is intended to indicate the scale of possible impacts and serve as a basis for the general calculation of mitigation requirements. It should be noted that many areas of temporary disturbance, such as work areas around towers or poles and pull sites, would certainly overlap at least partially, so the total estimate for temporary impact area is overestimated and therefore conservative (worst-case).

The areas of impact, permanent and temporary, from construction of the proposed project are presented in Table 2.1. A more detailed discussion of how the areas were calculated and the assumptions on which they are based is provided in Appendix A.

2.2.4 Operations and Maintenance

Maintenance and operations requirements include, but are not necessarily limited to, the following: (1) yearly maintenance grading of access roads; (2) insulator washing; (3) monthly aerial inspection of lines by helicopter; (4) monthly on-the-ground inspection of towers/poles and access roads by vehicle (pick-up truck); (5) air or ground inspection as needed after severe rain, lightning, wind, or sandstorms; (6) repair of tower or pole components (arms, foundations etc.) as needed; (7) repair or re-conductor of lines as needed; (8) replacement of insulators as needed; (9) painting pole or tower identification markings or corroded areas on towers or poles; and (10) response to emergency situations (outages, etc.) as needed to restore power.

For most of these operations, equipment could use the access roads and no significant additional disturbance would occur. Transmission line conductors may occasionally need to be upgraded or replaced over the life of the line. To accomplish this, the old cables are taken down and new cables are strung on the insulators in an operation similar to the

TABLE 2.1
AREA OF CONSTRUCTION IMPACTS

Type of Impact	Area of Impact in Acres	
	Temporary	Permanent
Lattice Tower Footings		<0.06
Lattice Tower Access Roads		1.72
Lattice Suspension Tower Work Areas	2.46	
Lattice Deflection Tower Work Areas	0.88	
Lattice Tower Pull Sites	0.83	
Area of Potential Impact*	9.5	
Monopole Pull Sites and Work Areas	0.48	
Monopole Laydown Areas	1.21	
Optical Line Trenches	0.06	
Monopole Footings		<0.04
Monopole Access Roads		1.56

*Work area near the IV Substation that will be subject to intensive disturbance. It is likely not all of this area will be disturbed.

cable-pulling operation used to initially install the conductors. While the project access roads can be used for access, pull sites would also be required. The size and location of these pull sites may vary, depending on the cable and equipment used, the methods used by the contractor, and the technology available at the time. For these reasons, the size and location of future temporary disturbance due to pull sites cannot be accurately estimated. In any event, such conductor replacement is infrequent and would require an amendment to any Presidential permit issued in the proceeding.

2.2.5 Connections to Facilities in Mexico

At the international border, both the BCP and SER transmission lines would connect with double-circuit, 230 kV transmission lines that are presently being constructed in Mexico. The BCP transmission line would connect to a transmission line being constructed by EBC in Mexico, which in turn would connect to the La Rosita Power Complex (LRPC). The EBC turbine (310 MW) and the three EAX turbines (250 MW each) (Figure 1.2) make up the 1,060 MW LRPC. The four combustion turbines would operate in combined-cycle configuration and would run on natural gas. The EBC transmission line would be connected to the EBC turbine and to the EAX turbine designated for export (560 MW total). The other two units owned by EAX will supply power to the Comisión Federal de Electricidad, the Mexican national utility, under a 25-year power purchase contract. BCP has submitted information indicating that EBC and EAX jointly have spent or have committed to spend approximately $600 million out of a total estimated project cost of $765 million for the entire LRPC project.

The EBC and the EAX turbine designated for export would be equipped with air emissions control technology, including dry low-NO_x (oxides of nitrogen) combustor technology and selective catalytic reduction (SCR) system for NO_x emissions control. EBC has received a Mexican environmental permit (Manifesto de Impacto Ambiental SGPA-DGIRA-002526) for the proposed generating facility, as well as for the linear transmission line facilities located in Mexico. The environmental permit for the EAX generation facilities is D.O.O.DGOEIA-006752.

The SER transmission line would connect at the international border to a double-circuit, 230 kV transmission line in Mexico that is being constructed by TDM. The TDM transmission line would connect with the Termoeléctrica de Mexicali Power Project located approximately three miles (five kilometers) south of the international border, just east of CFE's La Rosita Substation in Mexicali. The TDM generating plant is designed to produce 600 MW of power, all of which is to be exported to the United States by way of the TDM and SER transmission lines. Information submitted by SER indicates that TDM has made over $280 million in construction contractual commitments ($180 million actually spent to date) and that they would incur an additional $200 million in penalty costs if the project were to be cancelled. The facility would utilize gas turbine technology in a combined cycle configuration, utilizing natural gas as fuel.

The TDM facility would be equipped with air emissions control technology, including dry low-NO_x combustor technology and selective catalytic reduction (SCR) system for oxides of nitrogen emissions control, and catalytic oxidizers for carbon monoxide emissions control. TDM's proposed 600 MW generating facility would achieve air emission levels equal to those required in California. TDM has received a Mexican environmental permit (Manifesto de Impacto Ambiental D.O.O.DGOEIA-000032) for the proposed 600 MW generating facility, as well as for the linear transmission line facilities located in Mexico. A diagram showing the relationships between the generating facilities and the transmission lines described in the EA is shown in Figure 1.2.

Construction of both of the transmission lines in Mexican national territory will be conducted in accordance with the Mexican CFE, Comisión Reguladora de Energía, (CRE) and Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), as well as other Mexican provisions, rules and regulations. In Mexico, the transmission lines now under construction will parallel SDG&E's existing Imperial Valley Substation to La Rosita Substation 230kV transmission line.

Operation of the power plants will require water for purposes of recondensing steam vapor (steam is created and used to generate electricity in each of the TDM and LRPC facility's steam turbines) and for "makeup" of water that is evaporated during the cooling process. Both the TDM and LRPC have contracted with the local Mexican water authority to receive wastewater from the Zaragoza wastewater treatment facility in Mexicali. TDM and LRPC will separately treat this effluent to clean it to power plant standards. After use at the facilities, power plant wastewater will be discharged to drainage channels managed by the Comisión Nacional del Agua (CNA). The drainage channels terminate at the New River in Mexico. The New River flows north, crossing the international border, and discharges, eventually, into the Salton Sea.

2.2.6 Applicant's Proposed Environmental Protection Measures

Several features of the project design and construction methods are intended to reduce the amount of surface disturbance and therefore the potential impacts on environmental resources. These include locating the support structures (steel lattice towers, crossing structures, and steel monopoles) so that new access roads can be kept as short as possible, using existing access roads to the maximum extent possible, and using a helicopter to place lattice tower assemblies onto footings to reduce the amount of ground disturbance that would otherwise be caused by the use of laydown areas and operation of cranes. Additionally, the applicants have hired the same construction contractor to build both lines, further minimizing impacts by combining and coordinating construction activity, eliminating potential repeated impacts to the same area, minimizing traffic flows, and similar measures.

The applicants have also committed to stringent monitoring and mitigation requirements to protect biological, cultural, and paleontological resources. These measures are listed below.

2.2.6.1 Biological Resources

The applicants agree to accept the following conditions to the grant of right-of-way agreement with the BLM:

1. Construction would be scheduled to occur as much as possible during the flat-tailed horned lizard's dormant period, November 15 to February 15, and the construction schedule shall be approved by the BLM before construction begins.

2. A pre-construction worker education program would be developed and implemented. In addition, wallet-cards would be provided to all construction and maintenance personnel that includes information regarding the biology and status of the lizard; the protection measures that are being implemented; the function of the flagging around sensitive resources; reporting procedures if a lizard is found within the construction area; and methods of reducing impacts during commuting to and from construction areas.

3. A field contact representative (FCR) shall be designated prior to the start of construction and approved by the BLM. The FCR would be responsible to ensure compliance with protective measures for the flat-tailed horned lizard and other sensitive biological resources and would act as the primary resource agency contact. The FCR shall have the authority to halt construction activities if the project is not in compliance with mitigation required by the BLM.

4. The FCR shall coordinate with the construction manager to assure that all surface-disturbing activities are located as much as possible in areas that have been previously disturbed or where habitat quality is lower, and where disturbance to biological resources can be minimized.

5. All work areas would be clearly flagged or otherwise marked and all work would be restricted to these areas. All construction workers would restrict their activities and vehicles to areas which have been flagged or to clearly recognizable areas such as access roads that have been identified as "safe" areas by the FCR.

6. A biological monitor would be present in each area of active construction throughout the work day from initial clearing through habitat restoration, except where the project is completely fenced and cleared of horned lizards by a biologist (see measure 12 below). The biologist must have sufficient education and field training with the flat-tailed horned lizard. This biologist would ensure

that the project complies with these mitigation measures and would have the authority to halt activities if they are not in compliance. The biologist would inspect the construction areas periodically for the presence of flat-tailed horned lizards and would inspect any open trenches or pits prior to backfilling. The biologist would also work with the construction supervisor to take steps to avoid disturbance to the lizards and their habitat. If a lizard is discovered within an affected area, the lizard would be captured and relocated. The monitor would also excavate all potential flat-tailed horned lizard burrows within the construction areas and relocate any flat-tailed horned lizards encountered.

7. Only biologists authorized by the BLM may handle flat-tailed horned lizards. Any workers who discover flat-tailed horned lizards would avoid disturbing the animals and would immediately notify their construction supervisor and the biological monitor.

8. If a flat-tailed horned lizard is detected within an affected area, it should be relocated according to the measures detailed in Measure No. 9 of the Mitigation Measures section (Appendix 3) of the *Flat-Tailed Horned Lizard Rangewide Management Strategy* (Foreman 1997). Any relocation must be conducted by a biologist authorized by the BLM to handle the lizards.

9. The area of vegetation and soil disturbance would be minimized to the greatest extent possible. When possible, the equipment and vehicles should use existing surfaces or previously disturbed areas. When excavation or grading is necessary, the topsoil should be stockpiled and restored following completion of the work.

10. Existing roads would be used to the greatest extent possible for travel and staging areas.

11. If desired by the BLM, newly created access roads would be restricted by the construction of barriers, erecting fences with locked gates, and/or by posting signs. Maintenance access control facilities shall be the responsibility of the applicant for the life of the project (construction and operation).

12. Sites where prolonged construction activity, lasting six hours or more, would occur, and in which lizard mortality could occur, may be enclosed with 0.5-inch wire mesh fencing to exclude the lizards from the site. This barrier fencing must be at least 12 inches above and below the ground surface and all entry gates should be constructed to prevent lizard entry. Once a fenced site has been cleared of flat-tailed horned lizards and fenced in this manner, an on-site monitor is no longer required. Fencing is not required if a biological monitor is present.

13. For all areas disturbed by construction, a habitat restoration plan shall be developed by a qualified biologist, approved by the BLM, and implemented by the applicant. The restoration plan must address all of the items included in Measure No. 14 in Appendix 3 and in the Overview for Techniques for Rehabilitation of Lands in Appendix 8 of the Rangewide Management Strategy. The restoration plan would include a schedule for monitoring and assuring the success of restoration, including the removal of invasive species, acceptable to the BLM. The restoration plan must include a minimum of three years of tamarisk and other exotics control following construction.

14. The FCR would keep a record of the extent of all areas permanently and temporarily disturbed by construction. This record would be the basis for determining a monetary compensation to be paid by the applicants to the BLM upon the completion of construction as required by Appendix 4 (Compensation Formula) of the Management Strategy. The BLM may require, prior to the beginning of construction, a reasonable deposit based on the extent of anticipated disturbance, with the final compensation to be determined according to the FCR's final record and the Compensation Formula in the Rangewide Management Strategy.

For any construction occurring during the flat-tailed horned lizard's active period, before November 15 or after February 15, all of the measures listed above that are applicable shall be implemented. In addition, the following measures would be required:

1. The FCR would coordinate with the construction manager for the applicants to assure that vehicular traffic is kept to a minimum consistent with the practical requirements of construction.

2. Work crews would not drive to the work site in the management area in individual vehicles. The applicant would arrange for workers to park on State Route 98 or some other facility outside the management area and be driven together to the work site in single collection vehicles. This limitation would apply to the members of a work crew (two or more persons) who would be working together throughout the shift, except for emergencies.

3. The FCR and biological monitors would keep a record of all sightings of flat-tailed horned lizards and fresh flat-tailed horned lizard scat. Sightings would be reported in writing to the BLM on a schedule established by the BLM.

There is a potential that the proposed project would impact active burrows of the western burrowing owl. The breeding season for burrowing owls is between February 1 and August 31. Burrows can be occupied and active during both the breeding and non-

breeding seasons. To avoid impacts to the burrowing owl, the following measures would be required.

1. Disturbance by construction of any occupied burrowing owl burrows should be avoided. A non-disturbance buffer of 160 feet during the non-breeding season and 250 feet during the breeding season should be maintained around each occupied burrow, when possible. It is preferable that construction take place between September 1 and January 31, to avoid impacts to breeding burrowing owls.

2. If construction is to begin during the non-breeding season, a pre-construction clearance survey should be conducted within the 30 days prior to construction to identify whether any burrowing owl territories are present within the project footprint. The proposed construction areas would need to be identified in the field by the project engineers prior to the commencement of the pre-construction clearance survey. The survey should follow the protocols provided in the Burrowing Owl Survey Protocol and Mitigation Guidelines by the California Burrowing Owl Consortium (2001).

4. Passive relocation of burrowing owls from occupied burrows that would be otherwise impacted by construction would be required. Passive relocation should only be done in the non-breeding season. This includes covering or excavating all burrows and installing one-way doors into occupied burrows. This would allow any animals inside to leave the burrow but would exclude any animals from re-entering the burrow. A period of at least one week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin. The burrows should then be excavated and filled in to prevent their reuse. An artificial burrow should be created beyond 160 feet from the impact area but contiguous with or adjacent to the occupied habitat.

4. The destruction of the active burrows on-site would require construction of new burrows at a mitigation ratio of 1:1 at least 50 meters from the impacted area. New burrows would be constructed as part of the above described relocation efforts.

5. If construction is to begin during the breeding season, the above-described measures should be implemented prior to February 1 to discourage the nesting of the burrowing owls within the area of impact. As construction continues, any area where owls are sighted should be subject to frequent surveys for burrows before the breeding season begins, so that owls can be relocated before nesting occurs.

6. It is possible that these protocols would need to be repeated throughout the length of construction to ensure that additional burrowing owls have not moved within the areas of impact subsequent to the initial pre-construction clearance survey and

relocation efforts. As the construction schedule and details are finalized, a qualified biologist should prepare a monitoring plan to detail the methodology proposed to minimize and mitigate impacts to this species.

The construction of the steel lattice tower portions of both the BCP and SER transmission lines would impact non-wetland jurisdictional waters of the U.S. To mitigate impacts to non-wetland jurisdictional waters, the following measures would be required.

1. Any areas of non-wetland jurisdictional waters temporarily impacted would be returned to pre-construction contours and condition.

2. Permanent impacts of 0.08 acre would be mitigated at a ratio consistent with federal regulatory agencies, which is typically 1:1. A restoration plan would be prepared detailing the proposed mitigation for impacts to jurisdictional waters. It is recommended that enhancement of the survey corridor through removal of the non-native invasive tamarisk be conducted. This should be conducted along the eastern edge of the Imperial Valley Substation, which would account for an area of at least 0.10 acre in size. Additional tamarisk could be removed from the southern wetland area, if necessary. The restoration plan should require a minimum of three years of control for tamarisk and other exotics following construction to ensure that these species are not allowed to establish within the impacted areas.

3. In addition, impacts to these waters would require a Section 404 permit from the U.S. Army Corps of Engineers and a 401 certificate from the Regional Water Quality Control Board in accordance with the Clean Water Act. This project would be covered by Nationwide Permit No. 12 which regulates all activities required for the construction of utility lines and associated facilities within waters of the U.S. This Nationwide Permit covers all projects that do not exceed 0.5 acre of impact resulting from construction of the utility lines and associated access roads. This project meets that threshold by impacting a maximum of 0.21 acre of jurisdictional waters.

2.2.6.2 Cultural Resources

1. Identification and evaluation of historic properties and resolution of adverse effects would be determined through consultation by the Bureau of Land Management, California State Historic Preservation Officer, and consulting parties, pursuant to Section 106 of the National Historic Preservation Act and implementing regulations at 36 CFR 800.

2. The applicants would assist the BLM in consulting (pursuant to the National Historic Preservation Act) with Indian tribes to determine whether there are

properties of religious and cultural significance to the tribes within the Area of Potential Effect. The applicants would document their consultation efforts and would provide this in writing to the BLM. This documentation may be submitted as part of the cultural resource survey report or as an addendum to that report.

3. The applicants would implement the treatment plan for resolving adverse effects on historic properties that would be affected by the undertaking.

4. The BLM would ensure that all historic preservation work is carried out by or under the direct supervision of a person or persons (the Principal Investigator) meeting at a minimum the standards set forth in the Secretary of the Interior's Professional Qualifications (48 FR 44738-9).

5. Archaeological monitoring would be conducted for any subsurface construction or ground-disturbing activity in areas determined by the Principal Investigator and BLM to be archaeologically sensitive in accordance with a monitoring and discovery plan approved by the BLM and SHPO.

6. The Principal Investigator and monitors would attend a preconstruction meeting. The construction contract would state the need for the meeting, and project construction plans would be marked with requirements for monitoring. The meeting would allow the archaeological monitors to establish their roles and responsibilities, and protocol and point of contact information with the construction contractors.

7. Cultural properties discovered during construction would be reported and treated in accordance with a monitoring and discovery plan approved by the BLM and SHPO.

8. If human remains or funerary objects are discovered during construction, construction would cease immediately in the area of discovery and the BLM would be notified by telephone followed by written confirmation. In accordance with the monitoring and discovery plan and Native American Graves Protection and Repatriation Act, the BLM would notify and consult with Indian tribes to determine treatment and disposition measures.

9. BLM would ensure that all materials and records resulting from the treatment program are curated in accordance with 36 CFR 79.

2.2.6.3 Paleontological Resources

The applicants agree to accept the following conditions to the grant of right-of-way agreement with the BLM:

1. A paleontologist approved by the BLM would be retained prior to the beginning of construction and would be responsible for carrying out the mitigation program.

2. The consulting paleontologist would review project plans and site information and determine those areas of the site where excavations may have the potential to encounter significant fossils (areas of paleontological sensitivity).

3. Areas of paleontological sensitivity would be monitored when excavations or any other activities that could expose subsurface formations are occurring. Paleontological monitors approved by the consulting paleontologist would monitor such activities. Areas of paleontological sensitivity would be marked on project plans used by the construction contractor.

4. The consulting paleontologist would attend at least one preconstruction meeting with the construction contractor to explain the monitoring requirements and procedures to be followed if fossils are discovered.

5. The construction contractor would keep the consulting paleontologist informed of the construction schedule and would perform periodic inspections of construction.

6. In the event that fossils are discovered, the paleontological monitor would immediately inform the consulting paleontologist. The monitor would have the authority to temporarily halt, redirect, or divert construction activities to allow the recovery of fossil material.

7. Any fossil materials collected would be cleaned, sorted, and cataloged and then donated to an institution approved by the BLM with a research interest in the materials.

8. Within six weeks of the completion of construction, the consulting paleontologist would prepare a report on the results of the monitoring effort and would submit the report to the BLM and, if fossils have been recovered, to the institution to which the fossils have been donated.

2.3 Alternative Locations

Other alternative locations were considered by the applicants, but were not considered reasonable, as described below.

2.3.1 West of SDG&E Transmission Line

The applicants considered locating either the BCP or SER transmission lines, or both, west of the SDG&E transmission line in the United States. This location, like the

proposed action, would be located entirely on BLM land in Utility Corridor N of the Desert Plan. Environmental impacts would likely be similar to those of the proposed routes east of the SDG&E lines. However, if the BCP and SER lines were west of the SDG&E line, the two new transmission lines would have to cross the SDG&E/CFE line either in the U.S. or in Mexico. In either case, the crossing of the existing transmission line would add considerable expense to construction and maintenance costs, as well as likely result in an increase in the number of towers required to be constructed on the U.S. side and thus in the area temporarily and permanently impacted by construction.

2.3.2 On Federal Land West of Westside Main Canal

The applicants considered locating the BCP and SER transmission lines on the eastern boundary of BLM near the Westside Main Canal, on the western edge of the agricultural fields in that location. The intent would be to avoid the archaeological resources concentrated along the former shoreline of Lake Cahuilla and also to possibly reduce biological effects by constructing the lines on the border of the natural desert area rather than through it. Since the Mexican lines connecting to the proposed lines are under construction and would cross the border in the proposed location, under this alternative the BCP and SER lines would have to be constructed eastward along the border to the eastern edge of BLM lands, then north along the eastern border of BLM lands, then westward again through BLM lands, probably paralleling the Southwest Power Link, to the IV Substation.

Biological and cultural resource surveys have not been performed along this route. However, the route could offer the advantages for effects on those resources mentioned in the preceding paragraph. This alternative was rejected by the applicants after weighing the possible advantages against the following disadvantages.

- The route would be several miles longer, resulting in considerably higher construction costs and in a larger total area of both temporary and permanent impacts because more access roads and more towers would be required.

- Towers and transmission lines located along the agricultural fields could interfere with agricultural operations, especially aerial crop-dusting.

- The U.S. Border Patrol discourages linear projects that closely parallel the border.

- This alternative would result in two widely separated utility corridors in the same general area, rather than the more compact corridor of adjacent rights-of-way that is proposed.

2.3.3 Outside Federal Lands

BLM lands extend more than 20 miles to the west of the SDG&E transmission line corridor but private lands in the Imperial Valley are within one or two miles of the corridor on the east. Any route to the east or west could not avoid federal lands entirely, since the IV Substation is located wholly within federal lands. Routing the proposed transmission lines farther east than proposed could avoid much federal lands. If the lines were routed directly into the IV Substation from the east parallel to the Southwest Power Link, this alternative would traverse a little over a mile in federal lands. Utility Corridor N of the Desert Plan, however, is designated for the location of utility lines and is the most direct route between the Imperial Valley Substation in the United States and the La Rosita Substation in Mexico.

Routing the transmission lines through private land in the east would require considerably longer routes. The generating facilities and the La Rosita Substation are west of Mexicali and south of the BLM lands. The route of the transmission lines, to use private lands, would have to run east, then north, then back west to connect to the IV Substation. Such a route would be considerably longer, more costly to construct, and would result in a larger total area of impacts. Private lands to the east are being used for agriculture. Any easterly alternative route for the transmission line would displace agricultural lands under towers and/or around poles and create conflicts with aerial crop dusting and other agriculture practices.

2.4 Interrelationship with Other Planned Projects

The applicants are not aware of any projects similar to the proposed action related to power transmission line interconnections to Mexico in southern California other than:

- SDG&E's rebundling of the SDG&E 230 kV circuit position from the international border to the IV Substation; and

- SDG&E's plan to install a second circuit on the existing 230 kV transmission line from the international border to the IV Substation.

Other independent power developers have expressed interest in constructing power plants in the north Baja California area. However, no specific information on such proposals was available.

2.4.1 SDG&E 230 kV Circuit Position Reconductor

The SDG&E 230 kV Circuit Position Rebundling project replaced the single 1033 aluminum conductor steel reinforced (ACSR) conductors in the existing position on SDG&E's 230 kV transmission line from the international border to the IV Substation, on

both the steel lattice towers and wooden poles near the substation. The single conductor was replaced with a bundled conductor to increase transmission capacity for importation of additional power from Mexico. Work on the project began August 14, 2001, and was completed on October 5, 2001.

Work on this project was carried out within the existing SDG&E right-of-way and involved principally the use of access roads and pull sites. The existing access roads were used, but the pull sites were a new temporary area of disturbance. These sites are wholly within the SDG&E right-of-way. North of the Southwest Power Link, some pull sites were within the area of potential effect of the proposed action.

2.4.2 SDG&E 230 kV Second Circuit

This SDG&E 230 kV Second Circuit project is proposed by SDG&E to add a second bundled conductor circuit in the empty position on the 230 kV transmission line between the international border and the IV Substation. Matching conductors would be installed on the Mexican portion of the transmission line by CFE. The proposed in-service date for this project is November 2002. Its effects would be similar to the SDG&E reconductor project for the existing line, affecting areas within the SDG&E right-of-way. According to project schedules, it would occur after the completion of the BCP and SER transmission lines.

3.0 Affected Environment

3.1 Land Use

3.1.1 Regional and Local Setting

The study area for the proposed project is in Imperial County, in the Yuha Desert, and is entirely on federal lands under the jurisdiction of the Bureau of Land Management. Areas to the north and east of the study area include land that is almost entirely privately owned and used for agricultural purposes.

3.1.1.1 Federal Lands

Bureau of Land Management

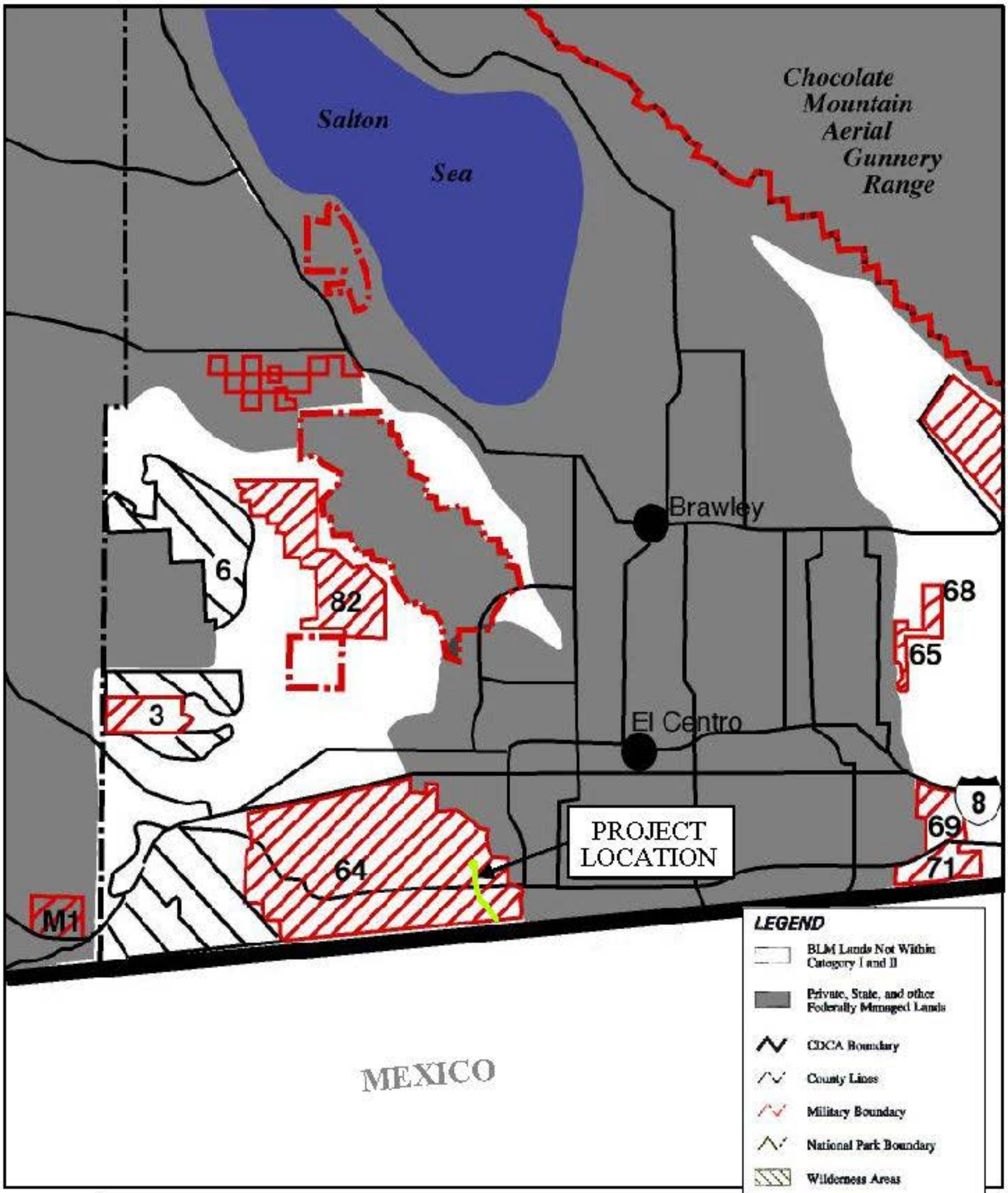
Under the Federal Land Policy and Management Act of 1976, the BLM is responsible for the administration of all public lands under its jurisdiction. Using the principles of multiple use, BLM administers lands that are used for numerous purposes. Sensitive lands under BLM's jurisdiction include Areas of Critical Environmental Concern (ACECs) and Wilderness Areas. The proposed project is located entirely within the Yuha Basin ACEC designated in the *California Desert Conservation Area Plan* (Figure 3.1.1).

3.1.1.2 Local Jurisdictions

County of Imperial

Imperial County is located in the southeastern corner of California. It is bordered on the west by San Diego County, on the north by Riverside County, on the east by the Colorado River which forms the Arizona boundary, and on the south by the 84 miles of International Boundary with Mexico.

Approximately fifty percent of the land in Imperial County is undeveloped and under federal ownership and jurisdiction. Presently, one-fifth of the nearly three million acres of the county is irrigated for agricultural purposes, most notably the central area known as the Imperial Valley. The developed areas, where the county's incorporated cities, unincorporated communities, and supporting facilities are situated, comprise less than one percent of the total land area. Approximately seven percent of the county is covered by the Salton Sea.



RECON

Map Source: BLM 2001

NO SCALE

FIGURE 3.1.1
Conservation Plan

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3.1.2 Land Use Plans and Policies and Proposed Land Uses

3.1.2.1 Federal Lands

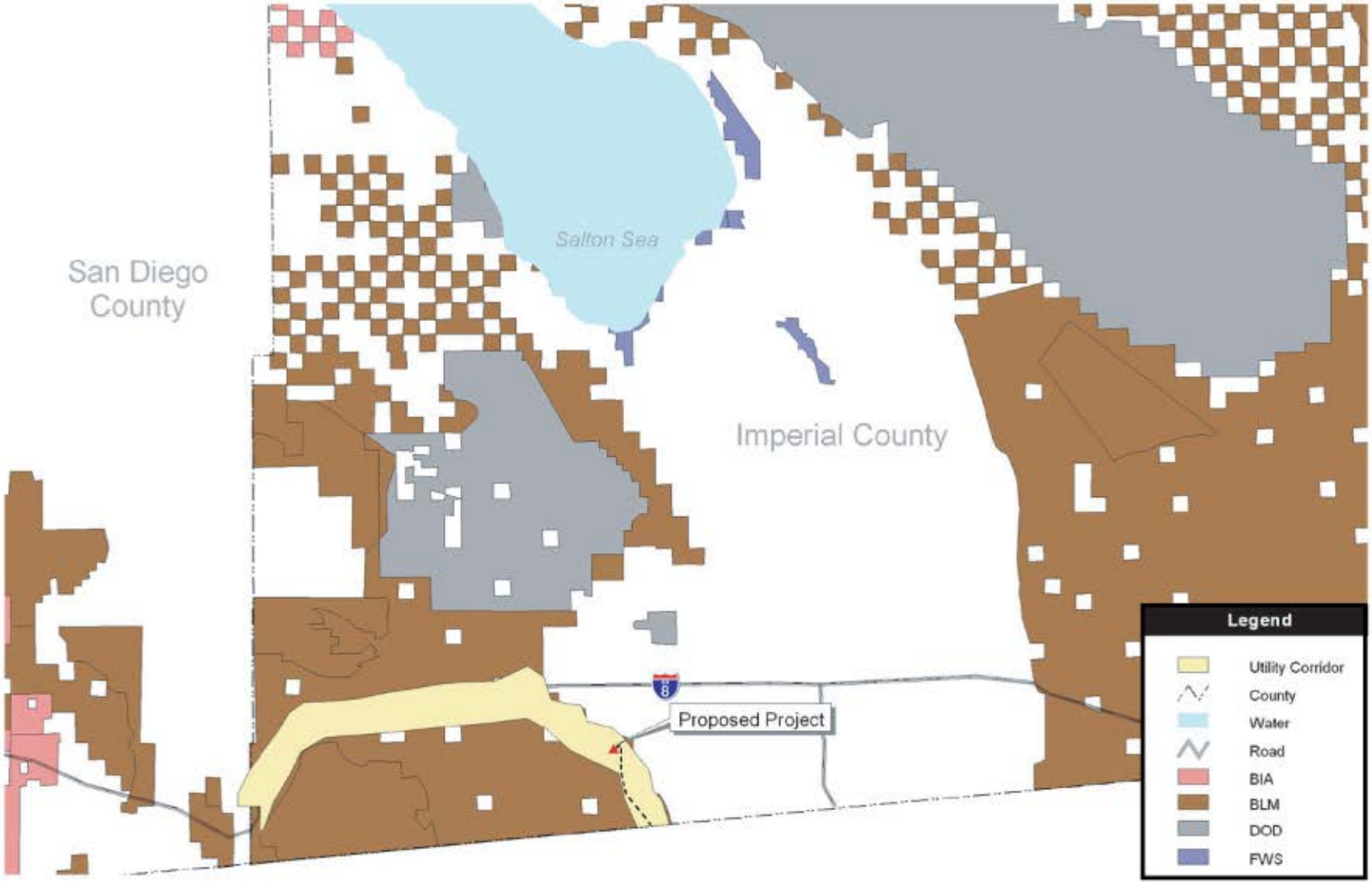
BLM Lands

BLM is the responsible agency for management of the California Desert Conservation Area (CDCA). A long-term plan, the *California Desert Conservation Area Plan* (BLM 1980), establishes guidance for the management of public lands of the desert by BLM, as expressed in the Federal Land Policy and Management Act of 1976. The goal of the Desert Plan is to provide for the use of the public lands and resources of the California Desert Conservation Area, including economic, educational, scientific, and recreational uses, in a manner which enhances wherever possible—and which does not diminish, on balance—the environmental, cultural, and aesthetic values of the desert and its future productivity (BLM 1980). The Desert Plan designates Utility Corridor N stretching from the international border with Mexico to U.S. Interstate 8. The existing SDG&E transmission line and substation, as well as the proposed routes of the BCP and SER transmission lines, are located within Utility Corridor N (Figure 3.1.2).

Areas of Critical Environmental Concern. The California desert is vast and contains many areas with sensitive or unique resources. These areas may be considered special because of the unusual diversity of plant or animal life, unique geologic features or fossil remains, rare concentrations of the remains of historic or prehistoric use and occupation, or other distinct values. In order to manage these unique resources, BLM has developed management programs under the CDCA Plan called Areas of Critical Environmental Concern.

Section 103(a) of the Federal Land Policy and Management Act defines an ACEC as an area "within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards." In order to qualify as an ACEC, an area must meet "relevance and importance criteria" as defined in the Federal Land Policy and Management Act. An environmental or historic resource can be found "relevant" if special management action is required to protect or prevent irreparable damage to the resource (BLM 1980). An environmental resource can be found "important" if it has qualities that give it special worth, consequence, meaning, or distinctiveness. Resources are also generally of more than local significance. Circumstances that make such a resource fragile, sensitive, rare, irreplaceable, endangered, threatened, or vulnerable to adverse change are among causes for concern (BLM 1980).

The proposed BCP and SER 230 kV transmission line routes cross the Yuha Basin ACEC (ACEC No. 64). The land use classification for this ACEC is Multiple-Use Class L



RECON

Map Source: Intergen, 2001

FIGURE 3.1.2
Utility Corridor N

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(limited use). This class protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide generally lower-intensity, carefully controlled, multiple use of resources, while ensuring that sensitive values are not significantly damaged.

Wilderness Areas. In addition to ACECs, BLM has set aside thousands of acres of land in a system of Wilderness Areas. These areas are intended to preserve wilderness as part of the CDCA Plan. The proposed project avoids all Wilderness Areas, and these areas would not pose constraints regarding the construction and operation of the proposed project.

Mineral Resources. The ancient shoreline of Lake Cahuilla, in combination with the younger sediments present, comprises a potential source of mineral material for the sand and gravel industries in the Imperial Valley. The proposed project parallels SDG&E's existing 230 kV transmission line and is largely parallel to the old shoreline, crossing it twice south of State Route 98. Both of the proposed transmission lines, along with the existing SDG&E alignment, traverse two sand and gravel extraction leasehold areas of Imperial County. While these leaseholds are termed "active," at this time no extraction operations are being conducted (pers. comm. Higgins 2001).

The potential for geothermal resources within the study area is evidenced by numerous geothermal lease applications received by the BLM. At this time there are no current leases within the vicinity of the project alignment. There are no mining claims within the proposed project area (pers. comm. Marty 2001).

3.1.2.2 Local Jurisdictions

County of Imperial

The proposed project is located on federally-owned land managed by the BLM within Imperial County and is under the jurisdiction of the BLM. The land use plans and policies of the County of Imperial do not apply to BLM-managed land.

3.2 Air Quality

3.2.1 Regional Climate

The desert region of Imperial County in the area of the Yuha Basin and El Centro is one of the hottest and driest parts of California, with a climate characterized by hot, dry summers and relatively mild winters. In El Centro, the normal maximum temperature in January is a little less than 70 degrees Fahrenheit (F); the normal minimum temperature in January is around 39 degrees F. In July, the normal maximum temperature is over 107

degrees F, while the normal minimum temperature is about 75 degrees F. Normal annual precipitation in El Centro is 2.71 inches.

During the summer, the Pacific High Pressure Zone is well developed to the west of California and a thermal trough overlies California's southeast desert region. The intensity and orientation of the trough varies from day to day. Although the rugged mountainous country surrounding the Imperial Valley inhibits circulation, the influence of the trough does permit some interbasin exchange of air with more westerly coastal locations through the mountain passes.

Relative humidity in summer is very low, averaging 30 to 50 percent in the early morning and 10 to 20 percent in the afternoon. During the hottest part of the day, a relative humidity below 10 percent is common, although the effect of extensive agricultural operations in the Imperial Valley tends to raise the humidity locally. The prevailing weather conditions promote intense heating during the day in summer with marked cooling at night. During all seasons, the prevailing wind direction is from the south and west.

3.2.2 Existing Air Quality

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by the California Air Resources Board (CARB) and federal standards set by the Environmental Protection Agency (EPA). Table 3.2.1 presents the state and federal ambient air quality standards.

On July 18, 1997, the EPA introduced new ambient air quality standards for ground-level ozone and for particulate matter (62 FR 38855 and 62 FR 38562). The EPA planned to phase out and replace the 1-hour 0.12 parts per million (ppm) ozone standard with a new 8-hour 0.08 ppm standard more protective of public health. The EPA also adopted two new standards for particulate matter less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$). These were set at 15 grams per cubic meter (g/m^3) annual arithmetic mean $PM_{2.5}$ concentrations and 65 g/m^3 24-hour average. The standard for particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}) was essentially unchanged.

In response to legal challenges, however, the U.S. Court of Appeals vacated the new particulate standard and directed the EPA to develop a new standard, meanwhile reverting back to maintaining the previous PM_{10} standards. The revised ozone standard was not nullified, but the court ruled that the standard "cannot be enforced." In July 2000, the EPA formally rescinded the 8-hour 0.08 ppm ozone standard and reinstated the 1-hour 0.12 ppm ozone standard in the approximately 3,000 counties where it had been replaced.

TABLE 3.2.1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Maximum Concentration Averaged over Specified Time Period	
	State Standard	Federal Standard
Ozone (O_3)	0.09 ppm (180 $\mu g/m^3$) 1 hr.	0.12 ppm (235 $\mu g/m^3$) 1 hr.
Ozone (O_3)	- -	0.08 ppm (157 $\mu g/m^3$) 8 hr.
Carbon monoxide (CO)	9.0 ppm (10 mg/m^3) 8 hr.	9 ppm (10 mg/m^3) 8 hr.
Carbon monoxide (CO)	20.0 ppm (23 mg/m^3) 1 hr.	35.0 ppm (40 mg/m^3) 1 hr.
Nitrogen dioxide (NO_2)	0.25 ppm (470 $\mu g/m^3$) 1 hr.	0.053 ppm (100 $\mu g/m^3$) Annual Arithmetic Mean
Sulfur dioxide (SO_2)	- -	0.03 ppm (80 $\mu g/m^3$) Annual Arithmetic Mean
Sulfur dioxide (SO_2)	0.04 ppm (105 $\mu g/m^3$) 24 hr.	0.14 ppm (365 $\mu g/m^3$) 24 hr.
Sulfur dioxide (SO_2)	0.25 ppm (655 $\mu g/m^3$) 1 hr.	0.5 ppm (1,300 $\mu g/m^3$) 3 hr.
Respirable particulate matter (PM_{10})	50 $\mu g/m^3$ 24 hr.	150 $\mu g/m^3$ 24 hr.
Respirable particulate matter (PM_{10})	30 $\mu g/m^3$ Annual Geometric Mean	50 $\mu g/m^3$ Annual Arithmetic Mean
Fine particulate matter ($PM_{2.5}$)	No Separate State Standard	65 $\mu g/m^3$ 24 hr.

TABLE 3.2.1
AMBIENT AIR QUALITY STANDARDS
(continued)

Pollutant	Maximum Concentration Averaged over Specified Time Period	
	State Standard	Federal Standard
Fine particulate matter ($PM_{2.5}$)	No Separate State Standard	15 $\mu g/m^3$ Annual Arithmetic Mean
Lead (Pb)	1.5 $\mu g/m^3$ 30-day Average	1.5 $\mu g/m^3$ Calendar Quarter

SOURCE: State of California 1999.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter.

In February 2001, the U.S. Supreme Court affirmed the EPA's authority to establish health-related air quality standards and affirmed that the Clean Air Act prohibits consideration of implementation costs when setting those standards. The Supreme Court, however, overturned the EPA's procedures for implementing the standards and remanded the case back to the Appeals Court level for resolution of those and certain other issues. Until the EPA proposes implementation programs that the Court finds acceptable, implementation of the 8-hour ozone standard and the $PM_{2.5}$ standard are on hold. These standards may be implemented when a required three years of data are available to determine compliance. Therefore, it is uncertain at this time when new ozone and particulate matter standards will be in place, and as of now the 1-hour 0.12 ppm ozone standard and the 150 g/m^3 24-hour PM_{10} standards are the only ones enforceable.

Ambient air quality data in the project area are collected at air quality monitoring stations in El Centro and Calexico operated by the Imperial County Air Pollution Control District. The El Centro monitoring station is at 150 Ninth Street, about 10 miles northeast of the IV Substation; the station in Calexico nearest the project area is at 900 Grant Street, about 12 miles east of the proposed transmission line border crossing. The Ninth Street station measures ozone, carbon monoxide, and particulates. The Grant Street station measures ozone and particulates.

Two other air quality monitoring stations are located in Calexico. The Ethel Street station is located at 1029 Ethel Street and the Calexico East station is opposite the border checkpoint on Highway 111. Each of these stations monitors ozone, PM_{10}, carbon monoxide, nitrogen dioxide, and sulfur dioxide. The most recently reported monitoring data from the El Centro and Calexico monitoring stations are presented in Table 3.2.2.

The air basin in which the project site is located is the Salton Sea Air Basin (SSAB). The SSAB encompasses all of Imperial County plus a portion of Riverside County. At present, the SSAB is a nonattainment area for state and federal ozone standards, but its nonattainment status is qualified as "transitional." The transitional status means that the nonattainment status is due partly to transboundary migration of pollutants from Mexico, the extent of which is not accurately defined.

Out of the entire SSAB, only the area near the Calexico border crossing is classified as a federal nonattainment area for carbon monoxide (CO). This localized nonattainment area does not extend west of the Westside Main Canal and is likely due to the high level of vehicle traffic crossing the border near this location.

The SSAB is a nonattainment area for particulates in the inhalable range (10 microns or less—PM_{10}). Particulate matter levels in Imperial County come from local sources and a significant fraction is also transported from nearby Mexico. These sources include a combination of windblown dust from natural and disturbed land areas, with the primary

TABLE 3.2.2
AIR QUALITY MONITORING
(Number of Days Air Quality Standards Were Exceeded)

Pollutant	Year				
	1996	1997	1998	1999	2000
9th Street Station (El Centro)					
Ozone					
Federal 1-hour standard (0.12 ppm, 235 μg/m^3)	6	2	1	2	NA
State 1-hour standard (0.09 ppm, 180 μg/m^3)	41	29	12	9	NA
Federal 8-hour standard (0.08 ppm, 157 μg/m^3)	28	11	1	0	NA
Suspended 10-Micron Particulate Matter (PM_{10})					
Federal 24-hour average (150 μg/m^3)*	6	0	0	0	6
State 24-hour average (50 μg/m^3)*	108	54	51	108	114
Carbon Monoxide					
Federal 8-hour average (9 ppm, 10 mg/m^3)	0	0	0	NA	NA
State 8-hour average (9.0 ppm, 10 mg/m^3)	0	0	0	NA	NA
Grant Street Station (Calexico)					
Ozone					
Federal 1-hour standard (0.12 ppm, 235 μg/m^3)	2	8	0	4	NA
State 1-hour standard (0.09 ppm, 180 μg/m^3)	19	55	1	23	NA
Federal 8-hour standard (0.08 ppm, 157 μg/m^3)	10	46	0	8	NA
Suspended 10-Micron Particulate Matter (PM_{10})					
Federal 24-hour average (150 μg/m^3)*	18	24	12	30	33
State 24-hour average (50 μg/m^3)*	204	201	168	252	261
Federal annual arithmetic mean (50 μg/m^3)§	70.6	75.9	63.6	77.8	95.2
State annual geometric mean (30 μg/m^3)§	63.8	62.7	52.0	66.2	85.2
Ethel Street Station (Calexico)					
Ozone					
Federal 1-hour standard (0.12 ppm, 235 μg/m^3)	5	4	4	6	4
State 1-hour standard (0.09 ppm, 180 μg/m^3)	44	24	25	38	13
Federal 8-hour standard (0.08 ppm, 157 μg/m^3)	13	8	7	9	4
Suspended 10-Micron Particulate Matter (PM_{10})					
Federal 24-hour average (150 μg/m^3)*	30.0	12.0	6.0	12.0	30.0
State 24-hour average (50 μg/m^3)*	246.0	294.0	234.0	264.0	312.0
Federal annual arithmetic mean (50 μg/m^3)§	73.6	77.7	66.1	72.0	84.7
State annual geometric mean (30 μg/m^3)§	62.4	70.2	58.6	66.3	73.0
Carbon Monoxide					
Federal 8-hour average (9 ppm, 10 mg/m^3)	9	12	8	13	2
State 8-hour average (9.0 ppm, 10 mg/m^3)	11	13	10	13	2

TABLE 3.2.2
AIR QUALITY MONITORING
(Number of Days Air Quality Standards Were Exceeded)
(continued)

Pollutant	Year				
	1996	1997	1998	1999	2000
Nitrogen Dioxide					
Federal annual arithmetic mean (0.053 ppm, 100 µg/m^3)†	0.014	0.015	NA	0.018	NA
State 1-hour standard (0.25 ppm, 470 µg/m^3)	0	0	1	1	0
Sulfur Dioxide					
Federal 24-hour average (0.14 ppm, 365 µg/m^3)	0	0	0	0	0
State 24-hour average (0.04 ppm, 105 µg/m^3)	0	0	0	0	0
Federal annual arithmetic mean (0.030 ppm, 80 µg/m^3)†	0.004	0.003	0.003	0.002	0.002
Calexico East					
Ozone					
Federal 1-hour standard (0.12 ppm, 235 µg/m^3)	3	0	1	3	0
State 1-hour standard (0.09 ppm, 180 µg/m^3)	22	6	27	13	1
Federal 8-hour standard (0.08 ppm, 157 µg/m^3)	12	2	13	5	0
Suspended 10-Micron Particulate Matter (PM_{10})					
Federal 24-hour average (150 µg/m^3)*	48	36	60	120	192
State 24-hour average (50 µg/m^3)*	210	294	264	306	342
Federal annual arithmetic mean (50 µg/m^3)§	109.8	86.8	107.8	168.7	238.8
State annual geometric mean (30 µg/m^3)§	90.3	76.9	79.1	130.1	182.9
Carbon Monoxide					
Federal 8-hour average (9 ppm, 10 mg/m^3)	0	2	3	0	1
State 8-hour average (9.0 ppm, 10 mg/m^3)	0	4	3	1	1
Nitrogen Dioxide					
Federal annual arithmetic mean (0.053 ppm, 100 µg/m^3)†	NA	0.011	0.012	0.013	NA
State 1-hour standard (0.25 ppm, 470 µg/m^3)	0	0	0	0	0
Sulfur Dioxide					
Federal 24-hour average (0.14 ppm, 365 µg/m^3)	0	0	0	NA	NA
State 24-hour average (0.04 ppm, 105 µg/m^3)	0	0	0	NA	NA
Federal annual arithmetic mean (0.030 ppm, 80 µg/m^3)†	0.002	0.002	0.003	NA	NA

SOURCE: www.arb.ca.gov/adam

ppm - parts per million
mg/m^3 - milligrams per cubic meter
µg /m^3 - micrograms per cubic meter
NA - not available
*Calculated days exceeding the standard; an estimate of days expected to exceed the standard if there was sampling every day.
§Data shown are in µg/m^3.
†Data shown are in ppm.

source being vehicles, including off-road vehicles, that use paved and unpaved roads. Construction and agriculture also contribute to particulate levels.

3.3 Geology, Soils, and Seismicity

3.3.1 Geology

The proposed transmission line routes are in the Imperial Valley, a part of the Salton Trough, which is a geological structural depression straddling the transform plate boundary between the Pacific and North American plates and extending from Palm Springs in the north to the Gulf of California in the south. The Salton Trough is the terrestrial extension of the East Pacific Rise transform system as it emerges from the Gulf of California and is the southern terminus of the San Andreas Fault Zone. The transition from the divergent, spreading tectonic regime of the East Pacific Rise to the dominantly strike-slip faulting of the San Andreas Fault Zone has downwarped, downfaulted, extended, and laterally translated the sediments within the Salton Trough. The underlying geologic complexity of the Salton Trough is masked by the relatively featureless surface of the basin, which is filled by thousands of meters of marine and nonmarine sediments.

The sub-sea level basin of the Salton Trough has received a continuous influx of sand, silt, and clay derived from the Colorado River which created ephemeral lakes in the basin until about 300 years ago. Underlying these deposits, sedimentary rocks are believed to extend to a depth of about 16,000 feet. Lying below the sedimentary rocks are approximately 23,000 feet of metamorphosed (greenschist facies) rocks which in turn overlie approximately 6,000 feet of gabbro. Metamorphism of the sedimentary rocks is occurring at relatively shallow depths due to high heat flow over inferred active spreading basin areas. Several areas of the Imperial Valley are classified as "Known Geothermal Resource Areas" because of the presence of high temperature hydrothermal fluids. Tectonic activity that formed the trough continues at a high rate, evidenced by deformed young sedimentary deposits, high sediment deposition rates, and high levels of seismicity.

The proposed transmission line routes are located at the transition from the West Mesa to the wide plain of the Imperial Valley. The West Mesa is composed of interbedded sands, silts, and clays of Pliocene to Pleistocene age and alluvial fan deposits. Desert pavement is common in the sandy areas with usually dry washes dissecting the topography. The agricultural areas of the Imperial Valley, generally a little over a mile east of the proposed routes, are composed dominantly of clays with interbeds of lacustrine sand and silt.

3.3.2 Soils

The soils within the study area are predominantly lacustrine silt and sand deposits with interspersions of alluvial gravels and clays transported by the Colorado River. For the most part, the lacustrine deposits are poorly consolidated and are subject to both water and aeolian erosion. The process of gradual deflation of these deposits has resulted in the formation of desert pavement and protopavement over large areas. Those deposits associated with stable lake stands appear to be especially susceptible to this process. As a result of these factors, most of the surface formations within the project area consist of, or are overlain by, thin aeolian secondary deposits derived from these lacustrine sands and silts. Most of the softer underlying silt/clay formations are dissected by intricate drainage systems trending northward towards the Salton Sea. Ancient beach deposits can often be observed in the banks of these channels.

There are nine soil types present within the survey corridor: Rositas sand, Rositas fine sand, Carsitas gravelly sand, Glenbar complex, Indio-Vint complex, Meloland fine sand, Niland fine sand, pits, and Rositas-Superstition loamy fine sand (U.S. Department of Agriculture [USDA] 1978). The USDA soil survey did not include a portion of the survey corridor south of State Route 98 and west of the existing 230-kV power line. Soils information from this area is not currently available.

3.3.3 Seismicity

The Imperial Valley is one of the most seismically active regions in the nation. Five earthquakes of 5.8 magnitude or greater have occurred in the Imperial Valley in the last 100 years. Several times a year, the Imperial Valley will experience minor tremors, will suffer a moderate quake every five to ten years, and will be subjected to a major quake (magnitude 6 to 7) every 20 to 40 years. Major faults in the area trend generally northwest-southeast, roughly parallel to the proposed transmission line routes. The transmission line routes lie between the Laguna Salada Fault (about 9 miles west), the Superstition Hills Fault (about 9 miles northeast), and the Imperial Fault (about 14 miles east). There has been a major earthquake on each of these faults within the last century.

3.4 Water Resources/Floodplains

The Colorado Desert is subject to extremes of humidity and temperature. Very high summer temperatures, well over 100 degrees Fahrenheit, combine with low rainfall and high evaporation rates to produce an environment that is second only to Death Valley in total aridity. Normal annual precipitation in Calexico is 2.8 inches; in El Centro, it is 2.71 inches. Due to these conditions, there is no surface water in natural areas near the proposed transmission lines, although the Westside Main Canal and other irrigation canals serve the agricultural areas to the east.

In the project area, three defined drainages traverse the proposed routes from, generally, southwest to northeast. The northernmost and largest in area is Pinto Wash, draining toward the northeast about 3,000 feet south of the IV Substation, where it is more than 3,000 feet wide. Another drainage is just south of Highway 98. This area includes the confluence of two streambeds, where a culvert and dam have been placed. The area directly downstream of the culvert has been heavily disturbed due to off-road vehicle traffic. The southernmost area is an extension of an unnamed intermittent drainage that rises to the southwest in Mexico and drains northeasterly. These drainages are normally dry but are probably subject to flash-flooding in occasional torrential storms that can occur in the area. Pinto Wash is the site of the only 100-year floodplain mapped in the proposed transmission line routes by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps.

Groundwater at the IV Substation site in 1980 was encountered in borings at 25 to 30 feet below the ground surface. On USGS topographic maps, the mean sea level contour intersects the substation site. Borings about 3,000 feet east of the IV Substation encountered groundwater about six to seven feet below the ground surface. Agricultural tile drains under fields just east of this area are at a depth of five to six feet. As in most locations in the Imperial Valley, groundwater in the area is brackish and is not used for any beneficial purpose.

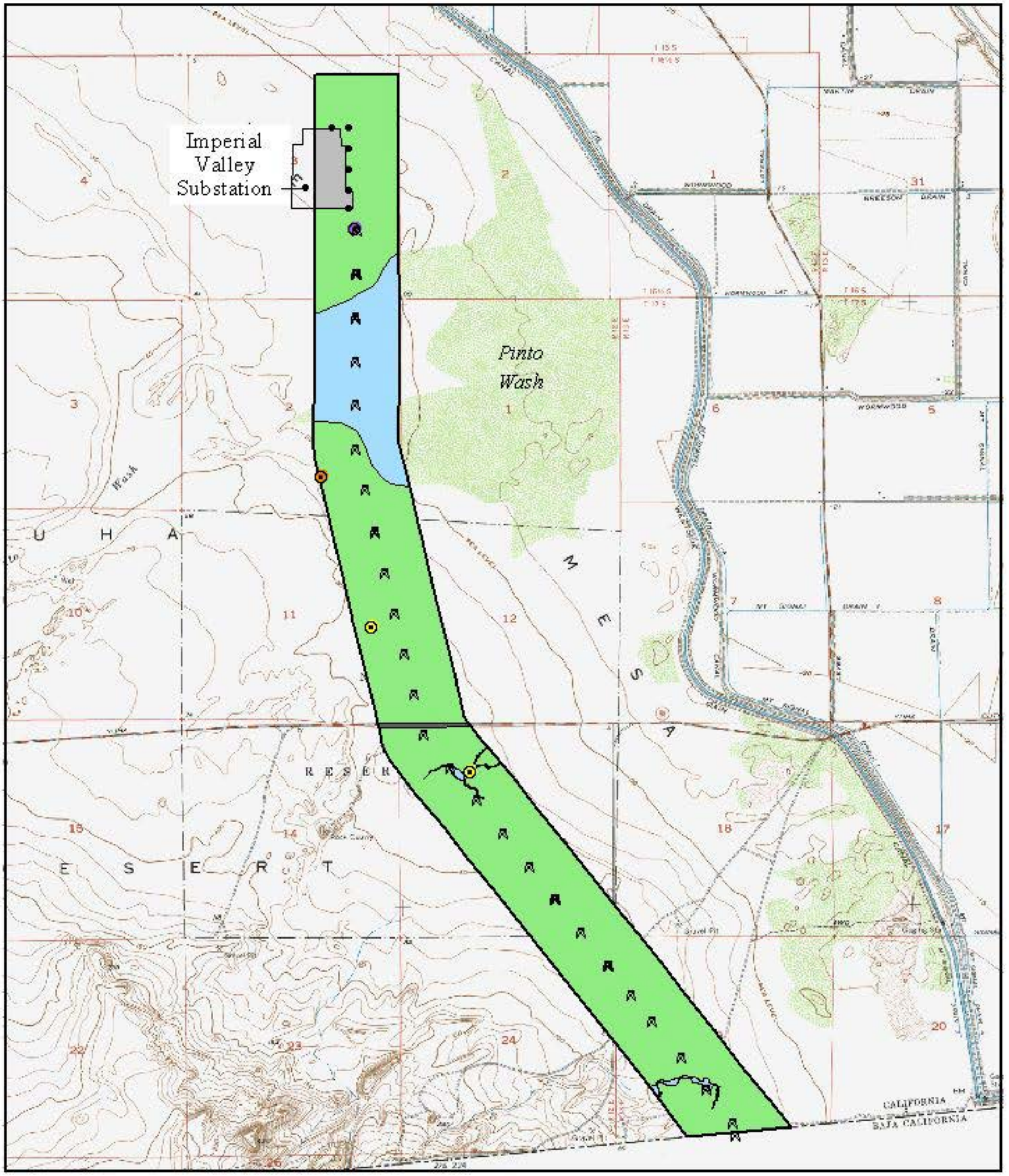
3.5 Biological Resources

The discussion of biological resources in this EA is based on a report of biological surveys conducted in September and October of 2000 of a study area corridor 2,150 feet wide centered on the existing SDG&E transmission line and of the area north and east of the IV Substation. A wetland delineation was also performed. The survey report and wetland delineation report are attached to this EA (Appendix C).

3.5.1 Vegetation

Two vegetation communities were identified within the survey area: Sonoran creosote bush scrub and desert wash (Figure 3.5.1). Neither of these communities is considered a sensitive plant community. Of the approximately 1,464 acres in the survey corridor, about 1,218 are Sonoran creosote bush scrub and about 204 acres are desert wash. The remainder, about 42 acres, is developed. The two major areas of developed land are SR-98 (5.5 acres of the study area) and the IV Substation (36.9 acres). A network of dirt roads used by off-highway vehicles is present around the access roads for the SDG&E transmission line in the center of the study corridor.

Sonoran creosote bush scrub covers most of the study area. It is an open, relatively sparse community dominated by creosote bush (*Larrea tridentata*), with burro-weed (*Ambrosia dumosa*) and two species of saltbush (*Atriplex* spp.) common. Several trees,



RECON

FIGURE 3.5.1

Existing Biological Resources

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such as ironwood (*Olneya tesota*), velvet mesquite (*Prosopis velutina*), and catclaw acacia (*Acacia greggii*), are interspersed throughout the community, particularly in the southern half. A large patch of tamarisk (*Tamarix* sp.) is located along the eastern boundary of the Imperial Valley Substation with a few scattered tamarisk in patches in the southern portion of the survey corridor.

Desert wash is found in three areas of the study area, as shown in Figure 3.5.1. The largest is Pinto Wash, south of the IV Substation, where the dominant plant species is smoke tree (*Psorothamnus spinosus*), occurring with velvet mesquite, cat claw acacia, encelia (*Encelia frutescens*), verbena (*Abronia villosa* var. *villosa*), and big galleta (*Pleuraphis rigida*). Just south of SR-98 is a smaller area where two streambeds converge and where a dam and culvert have been constructed. Small species such as verbena, chinchweed (*Pectis papposa*), paper flower (*Psilostrophe cooperi*), and white dalea (*Psorothamnus emoryi*) are present in part of this drainage. The third and southernmost drainage is a desert streambed in which a stand of tamarisk has taken root amid a few native shrubs and a single ironwood tree.

3.5.2 Wildlife

The Sonoran creosote bush scrub and desert wash provide cover, foraging, and breeding habitat for a variety of native wildlife species. Two species of reptiles were observed in the study corridor, the desert iguana (*Dipsosaurus dorsalis*) and flat-tailed horned lizard (*Phrynosoma mcallii*). Other common species known from this region and expected to occur within the survey corridor are long-tailed brush lizard (*Urosaurus graciosus*), side-blotched lizard (*Uta stansburiana*), long-nose leopard lizard (*Gambelia wislizenii*), western whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), coachwhip (*Masticophis flagellum*), sidewinder (*Crotalus cerastes*), western patch-nosed snake (*Salvadora hexalepis*), western shovel-nosed snake (*Chionactis occipitalis*), and spotted leaf-nosed snake (*Phyllorhynchus decurtatus*).

The diversity of bird species is fairly low, due to the uniformity of habitat. Commonly observed species include yellow-rumped warbler (*Dendroica coronata*) and white-crowned sparrow (*Zonotricha leucophrys*), and two wintering species, blue-gray gnatcatcher (*Polioptila caerulea*) and rock wren (*Salpinctes obsoletus obsoletus*), potentially breed in the study area. Raptors observed include red-tailed hawk (*Buteo jamaicensis*) and prairie falcon (*Falco mexicanus*). The prairie falcon was perched on one of the SDG&E transmission line towers. A western burrowing owl (*Speotyto cunicularia hypugaea*) was observed within one of the small desert washes south of Highway 98.

Mammal species expected in the project area are small mammals adapted to desert conditions. Desert black-tailed jackrabbit (*Lepus californicus deserticola*), cottontail rabbit (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus tereticaudus*), coyote (*Canis latrans*), and desert kit fox (*Vulpes macrotis*) were identified

within the survey corridor. Other common species known from this region and expected to occur within the survey corridor are badger (*Taxidea taxus*), bobcat (*Lynx rufus*), and raccoon (*Procyon lotor*). Mule deer (*Odocoileus hemionus*) and mountain lion (*Felis concolor*) are occasionally observed within this region as well.

3.5.3 Sensitive Biological Resources

No plant or animal species listed as threatened or endangered by the U.S. Fish and Wildlife Service or California Department of Fish and Game were observed during surveys for the project. A number of sensitive or listed species have the potential to occur on the site. Sensitive animal species with such a potential are listed in Table 3.5.1, which also lists their sensitivity status and probability of occurring on the site. Sensitive plant species with a potential to occur are listed in Table 3.5.2, and the sensitivity codes used in Table 3.5.2 are explained in Table 3.5.3. As Tables 3.5.1 and 3.5.2 show, species that are state or federally listed as endangered or threatened generally would not be expected to occur on the site due to lack of suitable habitat or because the site is not within the species' range.

No sensitive plant species were observed within the survey corridor during the surveys in September and October of 2000. One sensitive plant, brown turbans (*Malpernia tenuis*), and two noteworthy plants, Wiggins' cholla (*Opuntia wigginsii*) and Thurber's pilostyles (*Pilostyles thurberi*), have been previously identified on-site. Two sensitive birds were observed on-site: western burrowing owl and prairie falcon. The flat-tailed horned lizard (*Phrynosoma mcallii*) is also known to occur within the survey corridor.

Although it is not state or federally listed, the flat-tailed horned lizard has been designated as a sensitive species by the BLM. Pursuant to a court order of October 24, 2001, the Secretary of the Interior has been ordered to reinstate, within 60 calendar days, a previously effective proposed rule listing the flat-tailed horned lizard as threatened under the Endangered Species Act. A "Rangewide Management Strategy" for the flat-tailed horned lizard has been prepared by representatives from federal, state, and local governments (Foreman 1997). The BLM is a signatory agency to the management strategy, which designates management areas for the flat-tailed horned lizard wherein management and mitigation of actions that may affect the species are to comply with the Rangewide Management Strategy recommendations. The entire study area is suitable habitat for the flat-tailed horned lizard and is within the designated Yuha Desert Management Area for the flat-tailed horned lizard and the Yuha Desert Area of Critical Environmental Concern designated by the California Desert Conservation Area Plan.

3.5.4 Special Jurisdictional Areas

The wetland delineation for the proposed project defined three desert washes as non-wetland jurisdictional waters subject to regulation under the Clean Water Act by the U.S.

TABLE 3.5.1
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)

Species	Status	Habitat	Occurrence/Comments
Amphibians (Nomenclature from Collins 1997)			
Desert slender salamander *Batrachoseps aridus*	FE, SE	Limestone fractures in desert canyons. Only known population in Santa Rosa Mountains of Riverside County.	Out of known range for species; not expected to occur.
Couch's spadefoot *Scaphiosus couchi*	CSC, BLM	Temporary desert rainpools that last at least 7 days with water temperatures greater than 15C	Known only from the Colorado River area in California. Not expected to occur.
Reptiles (Nomenclature from Collins 1997)			
Desert tortoise *Gopherus agassizii*	FT, ST	Mohave and Sonoran desert areas, especially areas of creosote bush scrub.	Out of known range for species; not expected to occur.
Barefoot gecko *Coleonyx switaki*	ST	Rock outcrops on arid hillsides and canyons in desert scrub vegetation types.	No suitable habitat; not expected to occur.
Colorado desert fringe-toed lizard *Uma notata*	CSC, BLM	Loose sand of desert dunes, flats, riverbanks, and washes. Prefers scant vegetation.	Suitable habitat present; high potential to occur.
Flat-tailed horned lizard *Phrynosoma mcalli*	CSC	Dunes and sandy flats of low desert.	Known to occur within survey corridor.
Coast patch-nosed snake *Salvadora hexalepis virgultea*	CSC	Grasslands, chaparral, sagebrush, desert scrub. Found in sandy and rocky areas.	Suitable habitat present; high potential to occur.
Red diamond rattlesnake *Crotalus exsul*	CSC	Desert scrub and riparian, coastal sage scrub, open chaparral, grassland, and agricultural fields.	Suitable habitat present; high potential to occur.

TABLE 3.5.1
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)
(continued)

Species	Status	Habitat	Occurrence/Comments
Birds (Nomenclature from American Ornithologists' Union)			
Northern harrier (nesting) *Circus cyaneus*	CSC	Coastal lowland, marshes, grassland, agricultural fields. Migrant and winter resident, rare summer resident.	No suitable habitat; not expected to occur.
Harris' hawk (nesting) *Parabuteo unicinctus*	CSC	River woods, mesquite, brush, cactus deserts. Casual vagrant.	Reintroduced to region in 1980's with a few nests identified in 1990's only in the lower Colorado River area. Low potential to nest within survey corridor.
Swainson's hawk (nesting) *Buteo swainsoni*	ST	Plains, range, open hills, sparse trees. Uncommon spring migrant.	Local breeding population now extirpated; not expected to occur.
Golden eagle (nesting and wintering) *Aquila chrysaetos*	CSC, CFP, BEPA	Require vast foraging areas in grassland, broken chaparral, or sage scrub. Nest in cliffs and boulders. Uncommon resident.	Range maps exclude the Imperial Valley; low potential to occur.
Merlin *Falco columbarius*	CSC	Rare winter visitor. Grasslands, agricultural fields, occasionally mud flats.	Seldom found in open deserts, low potential to occur within survey corridor.
Peregrine falcon *Falco peregrinus anatum*	FE, SE, CFP	Open coastal areas, mud flats. Rare inland. Rare fall and winter resident, casual in late spring and early summer.	Moderately suitable habitat present. Not known to nest in Imperial County. Not expected to occur.
Prairie falcon (nesting) *Falco mexicanus*	CSC	Grassland, agricultural fields, desert scrub. Uncommon winter resident. Rare breeding resident; nests on cliff ledges or in rock crevices.	Observed within survey corridor during winter. No suitable nesting habitat within the survey corridor. Not expected to nest on-site.
Yuma clapper rail *Rallus longirostris yumanensis*	FE, ST, CFP	Marshland vegetation, dense cattail stands, bulrush, reeds. Resident.	No suitable habitat; not expected to occur.

TABLE 3.5.1
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)
(continued)

Species	Status	Habitat	Occurrence/Comments
Laughing gull (nesting colony) *Larus atricilla*	CSC	Salton Sea.	Not expected to nest within survey corridor.
Elf owl (breeding) *Micrathene whitneyi*	SE	Desert trees. Very localized populations to the east of the Colorado River.	Out of range from known breeding location; not expected to nest within survey corridor.
Western burrowing owl (burrow sites) *Speotyto cunicularia hypugaea*	CSC, BLM	Grassland, agricultural land, coastal dunes with rodent burrows. Declining resident.	Observed within survey corridor during winter. High potential to nest within survey corridor.
Long-eared owl (nesting) *Asio otis*	CSC	Riparian woodland, oak woodland, tamarisk woodland. Rare resident and winter visitor. Localized breeding.	Riparian habitat required by species. Tamarisk scrub within survey corridor not sufficient to support owl population; not expected to occur.
Gila woodpecker *Melanerpes uropygialis*	SE	Saguaro and willow-cottonwood desert. Date palms, tamarisk. Lower Colorado River and near Brawley.	No suitable desert riparian habitat present; not expected to occur within survey corridor.
California horned lark *Eremophila alpestris actia*	CSC	Sandy shores, mesas, disturbed areas, grasslands, agricultural lands, sparse creosote bush scrub.	Suitable habitat present; high potential to occur.
Bank swallow *Riparia riparia*	ST	Steep riverbanks, gravel pits. Nest in colonies.	No suitable habitat; not expected to occur.
Crissal thrasher *Toxostoma dorsale*	CSC	Dense thickets of shrubs or low trees in desert riparian and desert wash habitats.	Suitable habitat present; high potential to occur.
Le Conte's thrasher *Toxostoma lecontei*	CSC, BLM	Desert washes, creosote bush scrub. Uncommon resident.	Generally does not overlap with Crissal thrasher range; low potential to occur.
Loggerhead shrike *Lanius ludovicianus*	CSC	Open foraging areas near scattered bushes and low trees.	Suitable habitat present; high potential to occur.

TABLE 3.5.1
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)
(continued)

Species	Status	Habitat	Occurrence/Comments
Mammals (Nomenclature from Jones et al. 1982)			
California leaf-nosed bat *Macrotus californicus*	CSC, BLM	Low deserts. Caves, mines, buildings. Colonial. Migrational. Mostly near Colorado River in California.	Suitable foraging habitat; no suitable roosting locations. High potential to forage over site.
Pallid bat *Antrozous pallidus*	CSC, BLM	Arid deserts and grasslands. Shallow caves, crevices, rock outcrops, buildings, tree cavities. Especially near water.	Colonial. Audible echolocation signal. Moderate potential to forage over site; no suitable roosting habitat present.
Spotted bat *Euderma maculatum*	CSC, BLM	Wide variety of habitats. Caves, crevices, trees.	Audible echolocation signal. Prefers sites with adequate roosting sites. No suitable roosting site; not expected to occur.
Pale big-eared bat *Corynorhinus townsendii pallescens*	CSC, BLM	Caves, mines, buildings. Found in a variety of habitats, arid and mesic.	Individual or colonial. Extremely sensitive to disturbance.
Pocketed free-tailed bat *Nyctinomops femorosacca*	CSC	Normally roost in crevice in rocks, slopes, cliffs. Lower elevations in San Diego and Imperial Counties.	Colonial. Leave roosts well after dark. Moderate potential to forage over site; no suitable roosting habitat present.
Southern grasshopper mouse *Onychomys torridus Ramona*	CSC	Alkali desert scrub & desert scrub preferred. Also succulent shrub, wash, & riparian areas; coastal sage scrub, mixed chaparral, sagebrush, low sage, and bitterbrush. Low to moderate shrub cover preferred.	Suitable habitat present; high potential to occur.
San Diego desert woodrat *Neotoma lepida intermedia*	CSC	Coastal sage scrub, chaparral, most desert habitats.	Suitable habitat present; high potential to occur.

TABLE 3.5.1
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)
(continued)

Species	Status	Habitat	Occurrence/Comments
American badger *Taxidea taxus*	*	Grasslands, Sonoran desert scrub.	Suitable habitat present; high potential to occur.

STATUS CODES

Listed/Proposed

FE = Listed as endangered by the federal government
FT = Listed as threatened by the federal government
SE = Listed as endangered by the state of California
ST = Listed as threatened by the state of California

Other

BEPA = Bald and Golden Eagle Protection Act
BLM = Bureau of Land Management
CFP = California fully protected species
CSC = California Department of Fish and Game species of special concern
* = Taxa listed with an asterisk fall into one or more of the following categories:

- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands)

TABLE 3.5.2
SENSITIVE PLANT SPECIES
OBSERVED (†) OR WITH THE POTENTIAL FOR OCCURRENCE

Species	State/Federal Status	CNPS List	CNPS Code	Comments
Amaranthus watsonii Watson's amaranth	–/–	4	1-1-1	Mojavean desert scrub; Sonoran desert scrub. Suitable habitat present; high potential to occur.
Astragalus crotalariae Salton milk vetch	–/–	4	1-1-2	Sonoran desert scrub/ sandy or gravelly. Suitable habitat present, high potential to occur.
Astragalus insularis var. *harwoodii* Harwood's milk vetch	–/–	2	2-2-1	Desert dunes. No suitable habitat; not expected to occur.
Astragalus lentiginosus var. *borreganus* Borrego milk vetch	–/–	4	1-1-1	Mojavean desert scrub, Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Astragalus magdalenae var. *peirsonii* Peirson's milk-vetch	CE/FT	1B	2-2-2	Desert dunes. No suitable habitat present, not expected to occur.
Bursera microphylla Elephant tree	–/–	2	3-1-1	Sonoran desert scrub/rocky. No suitable soils, not observed during surveys. Not expected to occur.
Calliandra eriophylla Fairyduster	–/–	2	2-1-1	Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Camissonia arenaria Sand evening-primrose	–/–	4	1-1-1	Mojavean desert scrub, Sonoran desert scrub/sandy, rocky. Suitable habitat present; high potential to occur.
Cassia covesii Cove's cassia	–/–	2	2-2-1	Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Castela emoryi Crucifixion thorn	–/–	2	2-1-1	Mojavean and Sonoran desert scrub. Very localized to the west of the study area. Not observed and not expected to occur.
Cereus giganteus Saguaro	–/–	2	3-2-1	Sonoran desert scrub/rocky. Soils not rocky; not observed in study area.
Chaenactis carphoclinia var. *peirsonii* Peirson's pincushion	–/–	1B	2-1-3	Sonoran desert scrub. Out of known range for species. Low potential to occur.

TABLE 3.5.2
SENSITIVE PLANT SPECIES
OBSERVED (†) OR WITH THE POTENTIAL FOR OCCURRENCE
(continued)

Species	State/Federal Status	CNPS List	CNPS Code	Comments
Chamaesyce abramsiana Abram's spurge	–/–	2	3-2-1	Mojavean desert scrub, Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Chamaesyce platysperma Flat-seeded spurge	–/–	3	3-2-2	Desert dunes, Sonoran desert scrub/sandy. Possibly endemic to California. Suitable habitat present; high potential to occur.
Colubrina californica Las Animas colubrina	–/–	4	1-1-2	Mojavean desert scrub. Suitable habitat present; moderate potential to occur.
Condalia globosa var. *pubescens* Spiny abrojo	–/–	4	1-2-1	Sonoran desert scrub. Suitable habitat present but not observed on-site. Low potential to occur.
Coryphanta vivipara var. *alversonii* Alverson's foxtail cactus	–/–	1B	3-2-2	Mojavean desert scrub, Sonoran desert scrub. Threatened by horticultural collecting. Suitable habitat present but not observed on-site. Low potential to occur.
Croton wigginsii Wiggin's croton	CR/–	2	2-2-1	Desert dunes, Sonoran desert scrub. Moderately suitable habitat present; moderate potential to occur.
Cryptantha costata Ribbed cryptantha	–/–	4	1-1-2	Mojavean and Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Cryptantha holoptera Winged cryptantha	–/–	4	1-1-2	Mojavean and Sonoran desert scrub. Suitable habitat present; high potential to occur.
Cynanchum utahense Utah cynanchum	–/–	4	1-1-1	Mojavean and Sonoran desert scrub/ sandy, gravelly. Suitable habitat present; high potential to occur.
Ditaxis adenophora Glandular ditaxis	–/–	2	3-2-1	Mojavean and Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.

TABLE 3.5.2
SENSITIVE PLANT SPECIES
OBSERVED (†) OR WITH THE POTENTIAL FOR OCCURRENCE
(continued)

Species	State/Federal Status	CNPS List	CNPS Code	Comments
Eucnide rupestris Rock nettle	–/–	2	3-2-1	Sonoran desert scrub. Known from approximately 3 miles east of study area. Suitable habitat present; high potential to occur.
Helianthus niveus ssp. *tephrodes* Algodones Dunes sunflower	CE/–	1B	3-2-1	Desert dunes. No suitable habitat present, not expected to occur.
Ipomopsis effusa Baja California ipomopsis	–/–	2	3-3-1	Known from Pinto Wash west of study area. High potential to occur.
Lupinus excubitus var. *medius* Mountain Springs bush lupine	–/–	1B	2-1-2	Pinyon-juniper woodland, Sonoran desert scrub. Generally occurs in elevations above 1,000 feet. Low potential to occur.
Lycium parishii Parish's desert-thorn	–/–	2	2-1-1	Coastal sage scrub, Sonoran desert scrub. Suitable habitat present; high potential to occur.
Malperia tenuis Brown turbans	–/–	2	3-1-1	Sonoran desert scrub/sandy. Historically observed from the study area. High potential to occur.
Nemacaulis denudata var. *gracilis* Slender woolly-heads	–/–	2	2-2-1	Sandy soils. High potential to occur.
Opuntia munzii Munz's cholla	–/–	3	3-1-3	Sonoran desert scrub/sandy, gravelly. Suitable habitat present in study area but species only known from Chocolate Mountains. Not expected to occur.
Pholisma sonorae Sand food	–/–	1B	2-2-2	Desert dunes. No suitable habitat present, not expected to occur.
Pilostyles thurberi Thurber's pilostyles	–/–	4	1-1-1	Sonoran desert scrub. Parasitic on *Psorothamnus* spp. Host plant present; high potential to occur.
Proboscidia althaeifolia Desert unicorn plant	–/–	4	1-1-1	Sonoran desert scrub. Suitable habitat present; high potential to occur.

NOTE: See Table 3.5.3 for explanation of sensitivity codes.

TABLE 3.5.3
SENSITIVITY CODES

FEDERAL CANDIDATES AND LISTED PLANTS

FE = Federally listed, endangered
FT = Federally listed, threatened
FPE = Federally proposed endangered
FPT = Federally proposed threatened

STATE LISTED PLANTS

CE = State listed, endangered
CR = State listed, rare
CT = State listed, threatened

CALIFORNIA NATIVE PLANT SOCIETY

LISTS

1A = Species presumed extinct.

1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.

2 = Species rare, threatened, or endangered in California but which are more common elsewhere. These species are eligible for state listing.

3 = Species for which more information is needed. Distribution, endangerment, and/or taxonomic information is needed.

4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.

R-E-D CODES

R (Rarity)

1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.

2 = Occurrence confined to several populations or to one extended population.

3 = Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

E (Endangerment)

1 = Not endangered
2 = Endangered in a portion of its range
3 = Endangered throughout its range

D (Distribution)

1 = More or less widespread outside California
2 = Rare outside California
3 = Endemic to California

Army Corps of Engineers (see Figure 3.5.1). A small area in the western part of the southernmost wash was also defined as a jurisdictional wetland based on the vegetation present.

3.6 Cultural Resources

For the proposed project, record searches and field surveys were conducted for a study area 2,150 feet wide centered on the existing SDG&E 230 kV transmission line. A report on the intensive pedestrian cultural resource survey is attached to this EA as confidential Appendix D. The discussion of cultural resources in this EA is based on that report.

The project area is rich in cultural resource sites and is designated by the BLM in the Desert Plan as an Area of Critical Environmental Concern. This designation is related to both environmental and cultural resources. The study area generally parallels and partly contains remnants of ancient Lake Cahuilla, a large, shallow, fresh-water lake. This ancient lake was formed by overflow episodes of the Colorado River into what is now the Salton Basin and Imperial Valley. While freshwater influxes from the Colorado River into the Salton Trough occurred sporadically since Pleistocene times, the relatively dense concentration of archaeological resources in the study area appears to be associated with at least four lacustrine episodes that occurred within the past 2,000 years. These archaeological resources are concentrated on a segment of the ancient shoreline near the 40-foot contour above mean sea level.

Because of the general lack of potable water sources and overall low resource potential in the Yuha desert, permanent human habitation of the West Mesa area must have been dependent on the careful use of reliable water catchment areas and proven travel routes. In such a marginal environment, human population concentrations or settlement nodes would necessarily center on stable sources of water. Thus, the presence of a large, fresh-water source in this arid environment presented prehistoric peoples with a valuable resource, and accounts for the relative abundance of cultural resource sites along what was once the shoreline of Lake Cahuilla.

Site record information from the Southeastern Information Center indicates that 30 recorded sites and 28 isolates are plotted within the study area. The site record forms for these sites were reviewed prior to commencement of the survey fieldwork. The relocation of these sites was considered to be a priority of the current study.

A BLM Class III survey of the defined study area was completed for the proposed project in March 2001. The primary goal of the intensive pedestrian survey was to identify, record, and inventory all cultural resource sites, features, and isolates of prehistoric and historic age within the study area. Twenty-six prehistoric sites and one historic site were identified. This number includes nine previously recorded and relocated sites. All of the

identified sites, except possibly six, are considered to be single-component occupations containing a limited quantity and variety of artifacts. The majority of the prehistoric sites appear to represent surface scatters created by limited, short-term occupation episodes. Tentatively, six larger sites are classified as residential bases and/or larger field camps.

The study area may have been visited as part of a pattern of movement between mountain communities, transitional areas, and the desert. Settlement within the study area reflects an emphasis along the 40-foot contour with smaller, more transitory sites at lower elevations.

The entire study area is contained in the site boundaries for 4-IMP-115 (C-180). The generalized boundary for this site takes in all of the cultural resources recorded in the study and extends outside of the current project. Any consideration for National Register eligibility should take into account the relationship among the various site areas identified during the BLM Class III survey and the extended boundaries for 4-IMP-115. If proposed, a National Register district would have contributing and non-contributing properties. Three of the relocated sites were considered eligible for National Register nomination in 1984. Site testing has been conducted on three sites in the study. The research value of the remaining sites has not been exhausted at the survey level. The determination of eligibility is based on surface indications and on the relationship of these sites with the relict Lake Cahuilla and with one another.

Overall the identified archaeological resources in the study area exhibit integrity of location, setting, materials, workmanship, feeling and association. The landscape in which the sites are located retains many of the characteristics of prehistoric times. Although individual site integrity varies, as a whole the recorded sites are reflective of occupation during periodic infilling and desiccation of Lake Cahuilla between A.D. 700 and A.D. 1720. As the lake receded, alternative residential locations were sought, and temporary camps were established on recessional shorelines to exploit the dwindling resource base. Evaluation of the sites identified in the proposed transmission line could aid in the understanding of shifting land use patterns associated with the various lake stands.

3.7 Visual Resources

3.7.1 Visual Setting

The proposed project site is located on flat terrain approximately 10-12 miles west of the city of Calexico, California. The proposed alignment stretches directly south from the Imperial Valley Substation for a distance of about six miles to the U.S./Mexico international border. It traverses State Highway 98 (SR 98), paralleling an existing 230 kV transmission line operated by SDG&E.

The large undisturbed areas to the north, south and west of the proposed project are relatively featureless areas of desert scrub, with some views of distant mountains beyond. To the east, a low-level tree line marks the Westside Main Canal where agricultural fields begin. The most prominent visual features in the immediate project vicinity are the SDG&E transmission line and other transmission lines converging on the IV Substation, and SR-98 running east and west across the center of the proposed route.

3.7.2 Visual Analysis

The Visual Resource Management (VRM) system developed by the BLM provides a way in which to identify and evaluate the scenic values of a particular site or area. It relates the visual appeal of a tract of land to the level of public concern, taking into account scenic quality of the landscape, sensitivity of viewers, and the distance from sensitive viewpoints. Using those factors to determine the relative value of scenic resources, a VRM Class with specific management objectives is determined.

Four management classes are established by the VRM system to define management objectives. The four classes are defined as:

- **Class I.** A special management designation typically applied to protected areas (e.g., existing wilderness). The existing character of the landscape should be preserved. The level of change to the characteristic landscape should be very low and must not attract attention.

- **Class II.** Contrasts to the basic elements of a landscape (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. The level of change to the characteristic landscape should be low. A contrast, while seen, should not attract attention.

- **Class III.** The existing character of the landscape should be partially retained. This class establishes that the level of change to the characteristic landscape should be moderate. Contrasts to the basic elements caused by a management activity may be evident and begin to attract attention. However, the changes should remain subordinate within views of the existing characteristic landscape.

- **Class IV.** The objective of this class is to provide for management activities which require major modification to the existing character of the landscape. The level of change to the characteristic landscape can be high to the point where contrasts may attract attention and be a dominant feature of the landscape in terms of scale. Attempts should be made to minimize the impact of these activities through care in location, minimal disturbance and the repetition of the basic elements inherent in the characteristic landscape. Less aggressive measures are needed to mitigate impacts.

For the project area, no previous visual studies have been conducted and no VRM class is established. For purposes of this EA, using the three critical factors of scenic quality of the landscape, sensitivity of viewers, and the distance from sensitive viewpoints, an interim VRM class will be assigned.

Scenic Quality

All landscapes are assumed to have some inherent scenic value but can be classified according to the level of interest of their various elements. Generally, the greater the diversity of form, line, texture, and color in a landscape unit or area, the greater the potential for high scenic value. In the VRM system, scenic value is indicated by an A, B, or C rating (Class A: distinctive, Class B: common, Class C: minimal scenic qualities).

The proposed project area is mainly characterized by vast open expanses of desert scrub and exhibits generally flat topography with few landscape features. Vegetation present consists of predominantly low level scrub with little variety of texture and color. The most noticeable vegetation feature is a tree line generally following the western edge of the irrigated agricultural areas about a mile east of the proposed alignment. The most notable topographic features are the mountains on the horizon to the south and west.

The proposed project area is essentially indistinct from the surrounding areas since the specific types of landforms present on site—flat, open areas of desert scrub—are common, covering vast areas of the surrounding lands to the north, south and west. The adjacent scenery, while mostly similar in topography, color and texture, does moderately enhance the proposed project area through its sheer expansiveness, and ultimately adds to the overall visual quality of the area.

None of the landscape features present within the proposed project area could be considered unique or rare within the region and on a wider scale. The landscape features within the proposed project area remain common. The only cultural modifications readily apparent, other than the tree line to the east, are electrical transmission facilities that do not add visual variety or any interesting visual features to the surrounding area.

Based on the above considerations, the scenic quality value assigned to the proposed project alignment and surrounding areas is "B," indicating the area is of common scenic value.

Viewer Sensitivity

Sensitivity levels are a measure of public concern for the preservation of the scenic qualities of a particular area. Public lands, upon analysis of the various indicators of public concern, are assigned high, medium, or low levels of sensitivity. Factors considered when assigning sensitivity ratings include: types of user, the amount of use,

public concern regarding change to the landscape, adjacent land uses, and considerations regarding certain "special areas" such as wilderness.

The project area is relatively isolated, with few residents nearby, and a relatively low level of recreational use. Surrounding uses include electrical transmission facilities, agriculture, transportation, and limited recreation. While the visual quality of the area is of high importance to certain land uses and a small number of viewers, given the overall moderate level of use of the area, sensitive viewers are not deemed to represent a significant proportion of the viewers. The proposed project area does not contain visual features that are unique or special that would tend to become a focus of public interest, and were therefore deemed of little concern to the vast majority of users. Using the BLM Sensitivity Rating Sheet, the proposed project area was considered to fall within the Low Visual Sensitivity classification.

Distance from Viewers

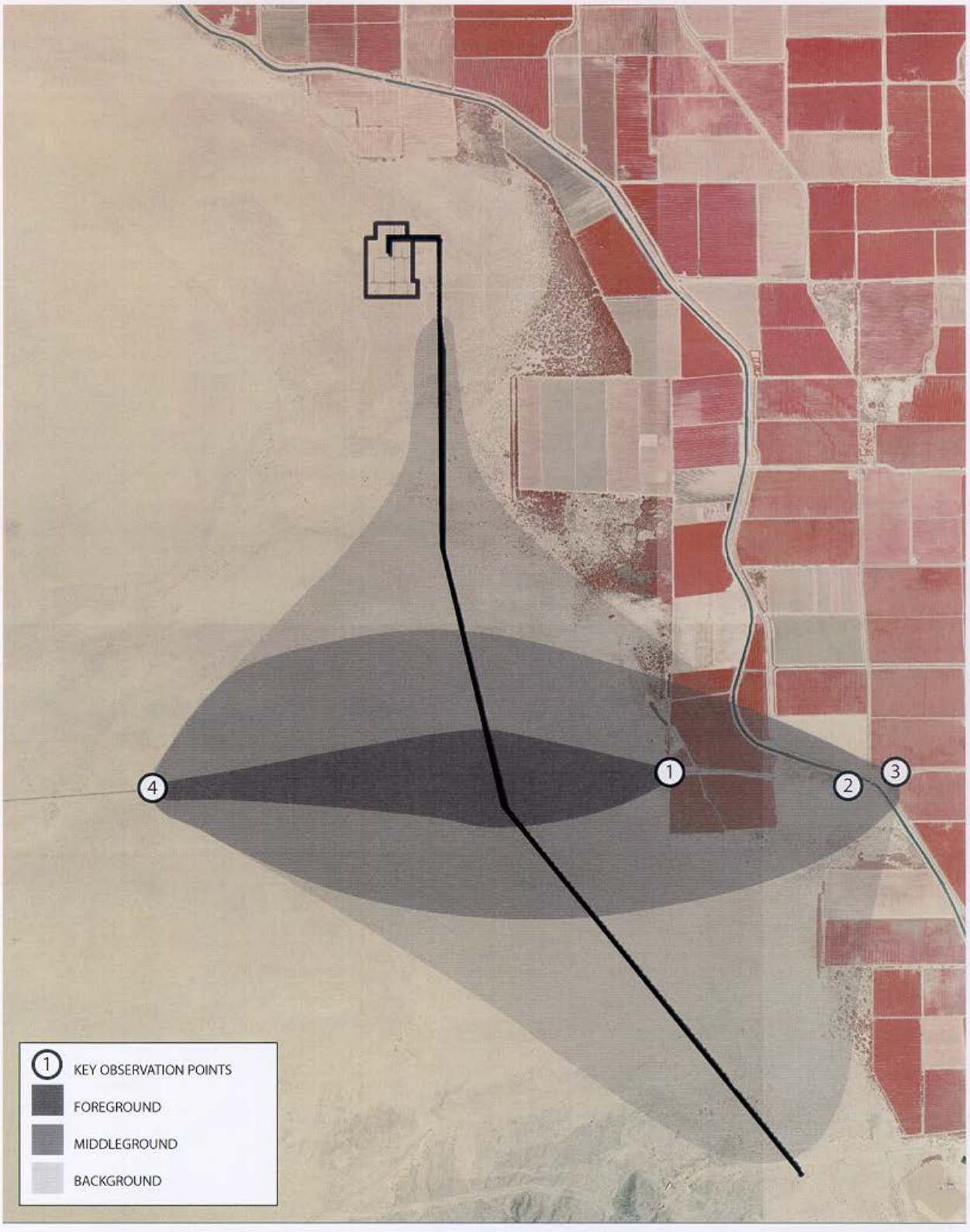
Generally, changes in form, line, color, and texture within the landscape become less perceptible with increasing distance. Figure 3.7.1 shows the distance zones mapped for the proposed project area. The project site is perceptible with a sense of clarity only in the foreground-middleground distance zones, due in part to low, sparse, and fairly uniform vegetation, relatively featureless topography, and prevalence of ground haze or heat shimmer. This viewing zone is limited to the area near SR-98.

Visual Resource Inventory Class

The analysis of this area and the visual resources present resulted in a scenic quality determination of "B," a low sensitivity rating, limited foreground-middleground distance zones, and a lack of significant background zones. Given the above determinations, all currently managed BLM lands within the area of the proposed project are to be classified with an interim Visual Resource Inventory Class III.

3.8 Paleontological Resources

Paleontological resources consist of the fossilized remains of ancient flora and fauna. These fossils are most often preserved in sedimentary deposits, although they may also occur where volcanic ash deposits or molten rock flows entomb animal or plant remains. Fossils may be exposed due to weathering; in the California desert area, this generally occurs in areas of some relief, such as the flanks of hills or mountains, where fossil remains have been exposed by natural processes of erosion.



RECON

Map Source: Intergen, 2001

FIGURE 3.7.1
Distance Zone Map

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Generally, it is not possible to tell, based on surface investigations, whether significant fossils are present in underlying formations or sediments. Slope wash and weathering of surface strata make the prospect of finding intact fossils on the surface very small.

In general, the surface deposits in the project area consist of alluvial deposits of Quaternary age (less than 10,000 years old). Some of these are lacustrine deposits associated with ancient Lake Cahuilla. Because they are relatively recent in origin, these deposits would not be expected to contain significant fossils. Especially in the southern part of the proposed route, however, older Quaternary alluvial deposits intrude from the west. Significant fossils may be more likely to be present in these deposits.

3.9 Socioeconomics

Demographic and economic data incorporated below were obtained from literature searches, statistical reports from the U.S. Department of the Census, the State of California Department of Finance, the U.S. Department of Housing and Urban Development, the State of California Employment Development Department (EDD), and from personal communication with state and local government staff. Additional personal communication was conducted with the engineering companies associated with the construction of the proposed project, VFL Energy Technologies, Inc. and Cableados Industriales, S.A. de C.V.

Portions of the following discussion are based heavily upon data derived from the U.S. Census. When the following text was written, the 1990 Census was the most recent set of fully comparable data. As of July 2001, only partial results from Census 2000 have been released. Although the new census data would provide a more accurate picture of the demographic and socioeconomic setting of the project site and surrounding area, the existing relevant economic statistics are sufficient for the purposes of this evaluation, especially given the sparse population of the study area.

3.9.1 Population

According to recently released Census 2000 data, the population of Imperial County numbered 142,361 persons. Since 1990, the population of the county has increased from 109,303 persons, a gain of 33,058 persons or 30.2 percent. This equates to an annual increase of 3.02 percent over the period. This figure is more than double the growth in neighboring San Diego County, where the population increased by 12.6 percent between 1990 and 2000. Imperial County's growth rate also eclipsed that of California's, which was 13.81 percent over the same period.

As of 2000, the city of Calexico had a population of 27,109 persons, an increase of 8,476 persons since 1990 or 45.4 percent. This amounts to an annual increase of 4.54 percent. The city of El Centro had a population numbering 37,835 persons as of 2000, an increase

of 6,451 persons or 20.55 percent since 1990, equating to an annual increase of 2.05 percent.

3.9.2 Income and Employment

The median household and average per capita incomes for Imperial County in 1990 were $22,422 and $9,208, respectively. In the city of El Centro the figures were $25,147 and $9,898, respectively. The former figure was 12.1 percent above the county average while the latter was 7.4 percent above. In the city of Calexico, the corresponding figures were $18,635 and $6,595, respectively; both were considerably below the corresponding county averages at 16.8 percent and 28.3 percent, respectively. Recent figures for Imperial County showed that the county ranked last within California (58th) for income in 1999.

The California EDD reports that agriculture is the dominant industry within Imperial County. By value of agriculture receipts, the county ranked tenth in the state and twelfth nationally, according to the 1997 Census of Agriculture. Total agricultural gross receipts in the Imperial Valley were in excess of $1 billion in 1999.

The agriculture industry also accounted for over 30 percent of the county's employment in 1999. To a lesser extent, government (28 percent) and retail trade (15 percent) are also significant employers. The California EDD reported that Imperial County had an unemployment rate of 23.2 percent in 1999, significantly higher than California's rate of 5.2 percent and the highest unemployment rate of California counties. This high rate is due in part to the marked seasonal fluctuations characteristic of the county's agricultural and tourism-based economy.

3.9.3 Local Government and Public Services

El Centro is served by a Police Department and offices of the California Highway Patrol, U.S. Marshals, and the Imperial County Sheriff's Department. Calexico is served by a Police Department and a Highway Patrol office. Calexico and El Centro both have city fire departments. The El Centro Regional Medical Center is a 107-bed hospital with a staff of over 100 and is the largest facility in the area. The medical center also has eight clinics within El Centro and several in Calexico. There is also an Air Ambulance service in El Centro.

3.9.4 Transportation

Major transportation links in the project vicinity include Interstate 8, that passes through El Centro, and State Route 78 linking El Centro to Brawley. State Route 98 parallels Interstate 8 on the south for about 55 miles, passing through Calexico and the proposed transmission line route. The city of El Centro operates a small airport. The proposed project study area is proximate to several major urban areas including San Diego (120

miles west of El Centro), Los Angeles (200 miles northwest of El Centro), and Phoenix, Arizona (240 miles northeast of El Centro).

3.9.5 Temporary Accommodation

The nearest populated areas within the vicinity of the project are the cities of El Centro and Calexico, which both support numerous visitor servicing accommodations. These include hotels, motels, and some smaller "Bed and Breakfast" type establishments. The city of El Centro has approximately 1,000 guest rooms and Calexico has approximately 185 rooms. There are also several RV parks within the Calexico and El Centro areas.

In general, these areas see a marked increase in visitors and associated increase in demand for temporary accommodations from October through March. During that period, the availability of temporary accommodation is somewhat more limited. According to interviews with lodging representatives, the "high" season, when guest accommodations are most limited, peaks around January.

3.10 Water Quality

Water volume and quality issues associated with the proposed project are dominated by the water used and discharged by the LRPC and TDM power plants in Mexico. The power plants will require water for the cooling and steam generation processes. Steam is produced in the HRSGs (heat recovery steam generators) for the steam turbine, which utilizes steam to generate electric power. The steam leaves the steam turbine and is recondensed in the cooling towers to start the process again. The water utilized by the power plants is mostly replacement for the water that is evaporated in the cooling towers and the steam generation process.

The water utilized is treated prior to use. Gray water is brought to the power plants and is chlorinated, lime-softened, and clarified. A portion of the water, after being clarified, is utilized as make-up for the cooling towers. The remaining water, that is not sent to the cooling towers, is sent to a filtering and demineralizing system, which prepares the water to be used in the steam generation process. There will be no water usage or discharge in the United States associated with the proposed transmission lines north of the international border. National Pollutant Discharge Elimination System stormwater construction permits will be required for the construction of the transmission lines in the U.S.

3.10.1 U.S.-Mexico Water Law

There exist treaties pertaining to water rights and water issues between the United States and Mexico. The treaties address a number of issues, including quality of flows between the countries, for particular river bodies.

Specific to the study area, the New River flows northerly from Mexico into the United States. There exist no treaty obligations between the United States and Mexico that dictate the amount of water that is to flow into the New River. The International Boundary and Water Commission Minute 264 establishes certain water quality criteria for water in the New River flowing into the United States. The standards include that the river should be free of trash, untreated wastewater, and of toxics, sludge, and pesticides in harmful concentrations. The chemical parameters that are to be monitored according to the minutes are biochemical oxygen demand (BOD_5), chemical oxygen demand (COD), acidity or alkalinity (pH), dissolved oxygen, and fecal coliform organisms. No other parameters are outlined (for example, total dissolved solids [TDS] are is not specified), and as indicated there are no volumetric commitments under this agreement between the U.S. and Mexico.

There is no legal requirement in the U. S. or in Mexico which prescribes cooling technology to be used by power plants. Facilities in Mexico, as in the United States, are permitted to use any cooling technology provided that water is available in sufficient quantities, that receiving bodies can support the quantities of water to be discharged, and that the environmental requirements are met.

3.10.2 Salton Sea

This discussion of the Salton Sea is based in part on the January, 2000 Draft Salton Sea Restoration Project Environmental Impact Statement/Environmental Impact Report.

The largest body of water in the study area is the Salton Sea, with an estimated volume of water of 7,400,000 acre-feet. The Salton Sea was formed when flood flows from the Colorado River broke through a temporary diversion that had been designed to bypass the Imperial Canal. The Imperial Canal, which was routed from the Colorado River to the Imperial Valley through Mexico, was completed in 1901, but by 1904 it had become blocked by sediment. On October 11, 1905, a dike failed and nearly the entire flow of the Colorado River flowed uncontrolled into the Salton Basin for the next 18 months.

The Salton Sea is a terminal lake, with no outlet to the ocean, and is a repository for agricultural and municipal wastewater. The majority of water flowing into the Salton Sea is from the Alamo River (45.5 percent), the New River (32.1 percent), and agricultural drains (7.8 percent). The Whitewater River, San Felipe Creek, Salt Creek, groundwater, direct precipitation, and other inflows make up the remaining 14.6 percent (Table 3.10.1). Total yearly inflow is approximately 1,363,000 acre-feet/year, which is approximately equal to the water evaporation rate of the Salton Sea.

In 1998, in accordance with Section 303(d) of the Clean Water Act, the Salton Sea was listed by the California Regional Water Quality Control Board as an impaired surface water body. Four of the tributaries to the Salton Sea also are listed as impaired: the New

TABLE 3.10.1
SOURCES OF SALTON SEA INFLOW

Source of Inflow	Total Average Annual Inflow in Acre-Feet	Percent Contribution to Total Inflow
Alamo River	620,000	45.5
New River	438,000	32.1
Agricultural Drains	106,000	7.8
Whitewater River	79,000	5.8
Ground Water	50,000	3.6
Direct Precipitation	46,500	3.4
San Felipe Creek	5,500	0.4
Salt Creek	1,000	0.1
Other	17,000	1.3
TOTAL	1,363,000	100.0

SOURCE: January 2000 Draft Salton Sea Restoration Project Environmental Impact Statement/ Environmental Impact Report (USGS stream gage data 1960-1998; Hely et al. 1966; Ogden 1996).

River, the Alamo River, the Coachella Valley Stormwater Channel, and the Imperial Valley Drains.

The Salton Sea is a sump not only for the water that flows into it but also for all of the salts, sediments, and other constituents dissolved in or transported by that water. Since the Salton Sea has no outlet, the loads of some of the constituents entering the Salton Sea will accumulate. One of these is salt loading, commonly measured as TDS. The Salton Sea originally had a salinity of only about 700 milligrams per liter (mg/l), but because of natural causes (mostly evaporation and the fact that it has no outlet to the ocean), it now has a TDS of about 44,000 mg/l (higher than seawater, which is roughly 35,000 mg/l). The salinity of the Salton Sea continues to rise and is expected to pass 50,000 mg/l by the year 2009.

The Salton Sea is a habitat for birds as well as fish. The Salton Sea is a link in the Pacific Flyway, as birds migrate along this coastal corridor. The Salton Sea provides a variety of habitats and ample food sources for these migratory birds as well as for resident bird populations. Food is readily available from the Sea and the agricultural fields that surround it. According to the Salton Sea Authority, there are approximately 400 species of birds that visit or permanently reside at the Salton Sea. In some years as many as 95 percent of the total population of eared grebes may use the Sea, 80 percent of the American white pelicans, 50 percent of ruddy ducks, and 40 percent of the American population of Yuma clapper rails. Nearly 40 percent of California's breeding by black skimmers takes place at the Sea, and the nesting colony of gull-billed terns is the largest in the western U.S. In addition, the Salton Sea has been stocked with several salt-water sportfish such as the orange-mouth corvina, sargo, and gulf croaker. In the mid to late 1970s, tilapia, a fish native to Africa, inadvertently entered the Sea and flourished.

3.10.3 New River

New River flow at the border is approximately 182,000 acre-feet per year. California Regional Water Quality Control Board (CRWQCB) water quality data at the international boundary show that the New River has an average TDS content of 2,600 mg/l, BOD_5 of 20 mg/l, and COD of 30 mg/l. As indicated, the CRWQCB has declared the New River as impaired.

3.10.4 Power Plant Cooling Water Source and Discharge

The primary source of water entering the Zaragoza lagoons, located west of Mexicali, is residential sewage. Other minor sources include stormwater runoff and industrial discharge water (both process and sewage). Although the lagoons discharge into a drain, which in turn discharges into the New River, they do not receive any water from the New River.

The Zaragoza facility currently receives and treats approximately 33,200 acre-feet/year of sewage water. The sewage water received by the Zaragoza facility is processed through 13 lagoons (settling ponds). The treatment process consists of primary treatment, in which the solids are settled out before the water is discharged into the New River. The New River flows northward and crosses the U.S. border at Calexico, California.

As a result of the constituents in the water, water flow in the New River carries biological disease vectors (pathogens), industrial contaminants (such as trace metals and volatile organic compounds), and agricultural wastes (nutrients and pesticides). The New River continues northward for about 60 miles into the Salton Sea, and as it flows receives additional inflows from mostly agricultural runoff in Imperial County.

The TDM and LRPC power plants have been permitted by Mexican authorities to receive, treat, and recycle sewer water from the Mexicali Zaragoza sewage treatment lagoons. The power plants have also received permits from Mexican authorities to discharge water to the federal water commission's (Comisión Nacional del Agua) water drains. The drains designated by CNA to receive the water discharged from the power plants will flow into the New River.

4.0 Environmental Consequences

No Action Alternative. Under the No Action Alternative, no Presidential permit or electricity export authorization would be issued by DOE, and no right-of-way would be granted by BLM. As a result, neither of the two transmission lines would be constructed, maintained, operated, and connected, and the applicants would not be able to export electric power to the U.S.

The direct implications of No Action are that the potential environmental impacts of the transmission lines, as described herein, would not occur. If one of the transmission lines were allowed by the Federal agencies but not the other, the impacts would be proportionately reduced. Furthermore, there would be a loss of economic benefits associated with the projects, including (1) purchase of equipment and materials, (2) proceeds from the grant of right-of-way by the BLM, (3) construction and labor expenditures including indirect (multiplier effect) economic benefits, and (4) ongoing expenditures by the transmission line operators for operations and maintenance. If one of the transmission lines were allowed but not the other, these benefits would be foregone, but to a lesser degree.

As an indirect implication of No Action, there would be no capability for the TDM and EBC electric generating facilities now under construction west of Mexicali, Mexico, to export electrical power to the United States. Therefore, the facilities would not be available to contribute a source of electrical energy to ease possible future shortages in California. In that event, the owners would need to decide whether to complete construction of the facilities and operate them to produce power for the Mexican market. If the owners elected to proceed with the facilities in the same manner as described in this EA, the impacts in the U.S. from their operation, as analyzed herein, would still occur. If the owners elected not to complete construction of the facilities, the impacts in the U.S. from the operation of one or both would not occur. Regardless of the decisions which TDM and EBC may make, the EAX turbine currently designated for export would still be build and its electrical output exported to the U.S. over the existing IV-La Rosita 230-kV transmission line, as originally planned (see Section 2.1).

The remainder of this chapter will dsicuss the environmental consequences of implementing the proposed action.

Proposed Action. Construction, maintenance, operation, and connection of the proposed transmission lines in the U.S. and environmental impacts from the associated Mexican power plants would not be expected to result in any unavoidable adverse environmental impacts. With implementation of the design and mitigation measures committed to by the applicants (see Section 2.2.6 of this EA), the proposed project would be expected to result in only minor impacts on the environment. Principal effects on the environment would occur during construction, when the applicants have committed to environmental

monitoring to minimize adverse effects. Impacts during the construction period would be short-term and transient, limited to when construction workers and equipment are present. Permanent effects would be limited to visual presence of the transmission lines and principally to new access roads and support structure footings.

4.1 Land Use

The two proposed 230 kV transmission lines would be built adjacent to the existing SDG&E 230 kV transmission line. Adjacent lands are either vacant or, near the IV Substation, contain other substantial electrical transmission facilities, including the substation and other transmission lines. No changes in current and designated land uses would be required for project implementation. The proposed use would be compatible with nearby and adjacent uses and would not mark a major change in land use already present in the area.

The BLM has jurisdiction over land uses in the entire project area, and the entire project area is within the Yuha Basin ACEC. Within the ACEC, the proposed route would be within Utility Corridor N as designated in the Desert Plan. Because the proposed lines would be located as close to each other and to the existing SDG&E transmission line as practicable according to accepted engineering design practices, physical effects on the ACEC would be confined to a relatively compact area. The project would be compatible with the land use plans and policies of the BLM.

There are no urban uses in the vicinity of the proposed transmission lines and there would be no effects of project implementation on urban areas of Imperial County. Recreational use within the study area is primarily off-road vehicle use. A camping area is within approximately one-half mile of the proposed route. However, camping areas within the Yuha Basin have no established facilities or boundaries. Since the proposed route lies on the easternmost portion of the open space area within an existing utility corridor, and because the transmission line would not displace much land, the project would not have a substantial effect on off-road vehicle use or camping activities.

The proposed action is not expected to substantially affect the use of mineral resources in the project area. Geothermal, oil and gas, and gravel extraction operations generally affect relatively large areas. There are no current geothermal leases or mining claims in the vicinity of the proposed alignments. Both the proposed transmission lines, as well as the existing SDG&E transmission line easement, cross two sand and gravel leasehold areas of the County of Imperial. Although termed "active," no extraction is being conducted at either leasehold.

Agricultural fields are at least a half-mile to a mile east and also to the north of the proposed routes. The closest proposed transmission line towers or poles would be only a

few hundred feet closer to the agricultural fields. The only agricultural activity that could likely conflict with the proposed transmission lines is aerial crop dusting. Since the SDG&E transmission line is already present, it is reasonable to assume that experienced crop dusters are aware of it and that it does not substantially interfere with their activities. There have been no known incidents between crop dusting operations and the SDG&E transmission line. The proposed project is expected to be compatible with agricultural operations.

4.2 Air Quality

This section discusses the impacts arising from construction of the subject transmission lines in the U.S. and impacts in the U.S. caused by the pollutant emissions transported to the U.S. from the Mexican power plants supplying power to the proposed transmission lines.

4.2.1 Impacts from Transmission Line Construction

The construction period for the BCP and SER transmission lines would be from December 2001 through April 2002, taking into account the BLM's administration of the flat-tailed horned lizard protection program. Construction of the transmission lines would involve setting foundations, which would require the movement of equipment along the route, as well as the placement of the steel lattice towers by helicopter. The primary equipment used in setting foundations would be cement trucks, pick-up trucks, and small construction equipment such as backhoes and skip loaders for excavation.

The amount of fugitive dust generated by these sources depends upon several factors including the number of wheels, vehicle speed, and soil moisture. However, the dust generated by entrainment on vehicle wheels is typically temporary in nature and settles in the immediate vicinity. Such fugitive dust emissions would not materially affect ambient PM_{10} levels in the project region. Water sprayed from truck-mounted equipment would be used sparingly for dust control at access roads, work areas, and when helicopters are in use at tower sites. Any impacts would also be temporary in nature.

The emission factor for estimating fugitive PM_{10} from unpaved roadways is based on an empirical equation that includes the following variables: silt content of the parent soil, the average vehicular weight in tons, and surface material moisture under natural conditions. The emission factor yielded is in pounds of PM_{10} per vehicle-mile traveled (VMT). The estimated emissions for vehicular travel along the unpaved existing right-of-way during transmission tower construction includes generic assumptions for these variables, including an average soil silt loading of 23 percent, average vehicle weight of 2.2 tons, and surface soil moisture during construction of 0.2 percent (Environmental Protection Agency 2001). The number of days with measurable rain (greater than 0.01 inch) is also taken into account and the estimate reflects that construction would take place during the

time of year during which precipitation in the region generally takes place. Using AP-42 Section 13.2.2, Equation 1, the estimated emission factor is 2.15 pounds of PM_{10} per VMT.

It is estimated that 18 round trips per day during the first two months of construction, 8 round trips per day during the next month, and 5 round trips per day during the last two months of construction will occur (see Section 4.9.3, below). Assuming that SR-98 is the take-off point for traffic to the work site and that the maximum distance from I-98 to the construction (to the north and south) is three miles, the vehicle miles traveled would be 54 VMT, 24 VMT, and 15 VMT. Therefore, PM_{10} emissions from vehicular traffic to and from the construction site would be 116.1 pounds (lb.) of PM_{10} per day for the first two months (54 VMT $\times$ 2.15 PM_{10}/VMT), 51.4 lb. of PM_{10} per day for the next month, and 32.3 lb. of PM_{10} per day for the following two months of construction.

Construction equipment, as well as vehicle traffic associated with the movement of construction workers to and from the site, would also cause air emissions resulting from the combustion of fuel. However, the number of construction equipment vehicles to be used on site and the relatively small number of total construction workers commuting to and from the general project site is not expected to result in a substantial impact on air quality. Any air quality impacts associated with this vehicular traffic would also be temporary in nature.

The tower placement would be performed over a two- to three-week period. The towers would be picked up from the lay-down area in Mexico and placed at each location by helicopter. The helicopter movement would cause some dust to be generated by downwash from the rotor blades. Such dust generation is similar to that from wind erosion and would be expected to cause entrainment of the loose surface material. The amount of dust generated is expected to be small and would impact only the localized area near the tower base. The project area is mostly uninhabited desert, and no sensitive receptors are present. If necessary to control dust, small quantities of water would be sprayed in the area surrounding the tower locations as mitigation. However, application of water could encourage non-native invasive plant species to grow and would be used minimally.

The estimated fugitive PM_{10} emissions from pad construction are conservatively estimated to be at approximately 26.4 pounds of PM_{10} per acre per day (South Coast Air Quality Management District 1993). The disturbed area for each pad is expected to be less than 0.25 acres in area, and therefore during the construction period the estimated emissions would be about 6.6 pounds per day or less. For the helicopter operations delivering the preconstructed towers, an emission factor of 21.3 pounds of fugitive PM_{10} per hour may be assumed (South Coast Air Quality Management District 1993). It is estimated that helicopter operations will last a maximum of three hours total per day. Thus, maximum fugitive dust emissions from helicopter operations would be 63.9 lb.

PM_{10} per day. Maximum fugitive dust emissions for the project site are therefore estimated to be 186 lb. PM_{10} per day, decreasing to 121.9 lb. PM_{10} per day and then to 102.8 lb. PM_{10} per day.

4.2.2 Impacts from Transmission Line Operation

The newly installed transmission lines would require periodic maintenance of the transmission towers, insulators, and conductors. Operations and maintenance (O&M) would involve operators driving to the appropriate towers and performing the tasks required. This would generate additional traffic in the area, but should not be noticeable due to the existing traffic conditions generated mostly by the U.S. Border Patrol. Any increases in PM_{10} generated by operations and maintenance procedures would be negligible.

4.2.3 Conformity Review

Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate State Implementation Plan (SIP). The final rule for "Determining Conformity of Federal Actions to State or Federal Implementation Plans" was promulgated by the U.S. EPA on November 30, 1993 (58 FR 63214), and took effect on January 31, 1994 (40 CFR Parts 6, 51, and 93). This rule established the conformity criteria and procedures necessary to ensure that federal actions conform to the SIP and meet the provisions of the Clean Air Act. In general, this rule ensures that all criteria air pollutant emissions and volatile organic compounds are specifically identified and accounted for in the SIP's attainment or maintenance demonstration and conform to a SIP's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards. If the action would be undertaken in a nonattainment or maintenance area, the provisions of the final rule for conformity apply.

The proposed action would be within an ozone and PM_{10} nonattainment area in Imperial County. However, actions are exempted when the totals of direct and indirect emissions are below specified emissions levels [40 CFR §51.853(b)1]. The applicable level for PM_{10} is 100 tons per year.

As illustrated in the preceding subsections 4.2.1 and 4.2.2, PM_{10} emissions are considered to be the principal emissions from the construction and maintenance of the transmission lines in Imperial County, California, and total approximately nine tons in the year of construction, and much less in subsequent years for maintenance thereafter—totals that are considerably less than the specified level of 100 tons per year.

Additionally, the provisions of the final rule do not apply in a nonattainment area if the emissions of concern are less than 10 percent of this area's total emissions [40 CFR

§51.853(i)]. The proposed action is considered to be a "regionally significant action" subject to full conformity analysis only if the emissions exceed the 10 percent threshold. The SIP total for Imperial County is approximately 19,000 tons per year of PM_{10} (U.S. EPA 1999AIRData). The nine tons per year of PM_{10} emissions estimated to result from the construction and maintenance of the transmission lines that comprise this project in Imperial County is considerably less than 10 percent of the regional emissions of 19,000 tons per year. Thus, pursuant to the provisions of 40 CFR §51.853(b)(1) and 40 CFR §51.853(i), the proposed action is exempt from any further review for conformity determination.

4.2.4 Power Plant Impacts

Both the SER and BCP transmission lines would export power to the United States from electric generating facilities located in Mexico. The SER transmission line would transmit power from the TDM turbines and the BCP transmission line would transmit power from the EBC turbine and the EAX turbine designated for export. Both power plants are located approximately three miles (5 kilometers) south of the international border. Both power plants have received the necessary environmental permits from the relevant Mexican regulatory agencies in accordance with Mexican regulations. The TDM turbines would consist of two natural gas-fired combustion turbines and would be used exclusively to export power over the SER transmission line to the U.S. The EBC turbine and the EAX turbine designated for export also are fired by natural gas and will be used to export power over the BCP transmission line to the U.S. A diagram of the relationships of the generation facilities and transmission lines is shown earlier in Figure 1.2.

4.2.4.1 Annual Emissions of Air Pollutants

The estimated maximum annual emissions of the criteria air pollutants NO_2, CO, and PM_{10} are shown in Table 4.2.1. Listed are the annual emissions from the TDM facility, annual emissions from the EBC and EAX export units, as well as annual emissions from all four units at LRPC (i.e., the EBC and EAX export units plus the two EAX units used for Mexican power distribution to CFE).

The regulatory jurisdiction of the U.S. EPA does not pertain to air pollutant emissions in Mexico; nevertheless, a useful benchmark in found within U.S. EPA air permitting regulations and permitting guidance can be drawn upon to help assess the significance of these predicted increases from Mexican sources at the U.S. border and points north. In the context of permitting a major source or major modification in the U.S., U.S. EPA has established significance levels (henceforth SLs) for the criteria pollutants NO_2, SO_2, CO, and PM_{10} below which a major source or modification will not be considered to cause or contribute to a violation of a NAAQS at any locality that does not meet NAAQS *(40 CFR 51.165)*. In addition, U.S. EPA permitting guidance describes the impact area required

TABLE 4.2.1
AIR POLLUTANT EMISSIONS FROM TDM AND LRPC

	Termoeléctrica de Mexicali (TDM)	La Rosita Power Complex (LRPC)		
	Two Turbines for U.S. Export Only (600 MW)	Two Turbines for U.S. Export: EBC Turbine EAX Turbine (560 MW)	Two Turbines for CFE, Mexico: EAX Turbines (500 MW)	All Four LRPC Turbines: EBC Turbine and EAX Turbine for U.S. Export, Plus Two EAX Turbines for CFE, Mexico (1,060 MW)
NO_2– Annual	170 tons	282 tons	1,502 tons	1,785 tons
CO– Annual	165 tons	924 tons	957 tons	1,881 tons
PM_{10}– Annual	216 tons	410 tons	314 tons	744 tons

air quality analysis to be a geographical area that exceeds these SLs. Where air dispersion modeling is performed, the U.S. EPA does not require a full impact analysis when emissions of a pollutant from a proposed source or modification would not increase ambient concentrations by more than these prescribed SLs. Thus SLs may be generally regarded as thresholds of impact below which impact is not viewed to be significant.

Termoeléctrica de Mexicali Power Plant

The TDM generation facility connected to the SER transmission line would be equipped with air emission control technology and would be comprised of two General Electric 7FA machines equipped with dry low-NO_x combustor technology to minimize NO_x and CO emissions from the combustion of natural gas, the exclusive fuel for the facility. Both turbines would also be equipped with selective catalytic reduction systems to further reduce NO_x emissions and with oxidizing catalyst systems to further reduce CO emissions. Heat Recovery Steam Generators associated with each turbine and one steam turbine generator completes the main components of the facility. In its environmental permit application to the Mexican regulatory agencies, the TDM facility proposed a 2.5 ppm NO_x emission rate and a 4.0 ppm CO emission rate. It should be noted that these levels of emissions are the same as those being routinely permitted in the United States and specifically, in California.

As part of its environmental permit application to the Mexican regulatory agencies, TDM prepared and submitted an air dispersion modeling analysis using the U.S. Environmental Protection Agency's (U.S. EPA) Industrial Source Complex Short-Term 3 model, Version 00101, (hereafter ISCST3). The ISCST3 model is the U.S. EPA's current regulatory model for many New Source Review and other air permitting applications. The ISCST3 model is based on a steady-state Gaussian plume algorithm, and is applicable for estimating ambient impacts from point, area, and volume sources out to a distance of about 30 miles (50 kilometers), and includes algorithms for addressing building downwash influences, dry and wet deposition, and complex terrain (see Appendix B). Short term source emissions rates at TDM (from which the annual emission rates shown Table 4.2.1 were constructed) were used in the ISCST3 modeling analysis. The results are shown in Table 4.2.2 and in Appendix B.

As can be seen in Table 4.2.2, the air dispersion analysis demonstrates that TDM's air quality impacts at the international border are below SLs. Impacts further away from the international border, inside the U.S., would be lower than those at the border.

EBC and EAX Export Turbine

These turbines are Model 501F machines provided by Siemens-Westinghouse (SW). The SW machines utilize dry, low-NO_x combustion technology to reduce emissions of oxides of nitrogen. The EBC and EAX export turbine would generate a nominal 560 MW of

TABLE 4.2.2
POLLUTANT INCREASES FROM TDM

Pollutant	Averaging Period	Significance Level (SL)	Concentration Increase at U.S. Receptors*
Nitrogen dioxide	1-hour	N/A	6.00 $\mu g/m^3$
Nitrogen dioxide	Annual	1.0 $\mu g/m^3$	0.09 $\mu g/m^3$
Carbon monoxide	8-hour	500 $\mu g/m^3$	2.16 $\mu g/m^3$
Particulate matter	24-hour	5.0 $\mu g/m^3$	1.12 $\mu g/m^3$
Particulate matter	Annual	1.0 $\mu g/m^3$	0.11 $\mu g/m^3$

*Maximum predicted values by ISCST3 using complex terrain algorithm.

power for export to the U.S. These units would be fitted with selective catalytic reduction technology that would further reduce the emissions of NO_x to approximately 4 parts per million. These emission levels are well below the Mexican standards (Norma Oficial Mexicana – 085) of 139 ppm. In addition, these emission levels are below the latest guidelines for new power plants published by the World Bank in July, 1998, which are 155 ppm. The CO emissions would be 30 ppm.

To predict air emissions impacts on the surrounding areas, an Air Quality Impact Analysis (AQIA) was conducted which uses computer models to simulate the plume from the generation facilities. The AQIA used the Industrial Source Complex (ISCST3) model described earlier. Table 4.2.3 shows the predicted concentration increases.

As can be seen in Table 4.2.3, all predicted increases in pollutant concentrations from the export turbines are below SLs at distinct points along the U.S./Mexico border and points north. As described earlier, SLs may be generally regarded as thresholds of impact below which impact is not viewed to be significant.

Appendix B (BCP) shows the methodology, assumptions, and results of the AQIA for the export turbines associated with the BCP transmission line. Figures B1 through B5 in Appendix B show the predicted impacts of selected criteria pollutants on points north and south of the U.S./Mexico border. This modeling shows that no substantial degradation of air quality would occur at or north of the U.S. border as a result of the generation facilities associated with BCP's transmission line, as predicted levels decline even further below the SLs at points north and east.

4.2.4.2 Combined Impacts from TDM, EBC, and EAX Export Turbines

The SER and BCP transmission lines that connect to the IV Substation would transmit power exported from the Mexican TDM and the EBC and EAX export turbines respectively. ISCST3 modeling analyzed the combined impact of the TDM facility and the EBC and EAX export turbines. The LRPC is made up of four Siemens-Westinghouse combustion turbines, but as described earlier, only two would be used to export power to the U.S., namely an EBC turbine and an EAX turbine (see earlier Figure 1.2). The meteorological driver and receptor and grids were the same as those in the ISCST3 modeling described in Appendix B. The results of this combined SER- and BCP- related analysis were consistent with the results obtained by adding the two separate SER-related and BCP-related analyses. The results are shown in Table 4.2.4.

As can be seen in Table 4.2.4, the increase in ambient concentrations of air pollutants at the U.S./Mexico border, associated with the emissions from the export turbines, are below SLs established by U.S. EPA. As described previously in detail, SLs may be generally regarded as thresholds of impact on air quality below which impact is not viewed to be significant. Hence, in reference to these benchmark SLs, it may be viewed

TABLE 4.2.3
POLLUTANT INCREASES FROM EBC AND EAX EXPORT TURBINES

Pollutant	Averaging Period	Significance Level (SL)	Concentration Increase at U.S. Receptors
Nitrogen dioxide	1-hour	N/A	4.72 $\mu g/m^3$
Nitrogen dioxide	Annual	1.0 $\mu g/m^3$	0.15 $\mu g/m^3$
Carbon monoxide	1-hour	2,000 $\mu g/m^3$	24.6 $\mu g/m^3$
Carbon monoxide	8-hour	500 $\mu g/m^3$	10.7 $\mu g/m^3$
Particulate matter	24-hour	5.0 $\mu g/m^3$	1.70 $\mu g/m^3$
Particulate matter	Annual	1.0 $\mu g/m^3$	0.10 $\mu g/m^3$

TABLE 4.2.4
POLLUTANT INCREASES FROM TDM, EBC, AND EAX EXPORT TURBINES

Pollutant	Averaging Period	Significance Level (SL)	Concentration Increase at U.S. Receptors
Nitrogen dioxide	1-hour	N/A	7.04 $\mu g/m^3$
Nitrogen dioxide	Annual	1.0 $\mu g/m^3$	0.33 $\mu g/m^3$
Carbon monoxide	1-hour	2,000 $\mu g/m^3$	29.7 $\mu g/m^3$
Carbon monoxide	8-hour	500 $\mu g/m^3$	14.7 $\mu g/m^3$
Particulate matter	24-hour	5.0 $\mu g/m^3$	3.0 $\mu g/m^3$
Particulate matter	Annual	1.0 $\mu g/m^3$	0.20 $\mu g/m^3$

that the combined impacts on air quality from the generating facilities in Mexico exporting power to the U.S. are minimal.

4.2.4.3 Ozone Formation

The potential impact of a so-called "secondary" air pollutant, ozone, should also be considered. Fossil-fueled power plants emit a variety of air pollutants, primarily NO, CO, and PM_{10}. Nitric oxide, NO, is initially produced in the turbine combustion zones, and when vented into the atmosphere will undergo subsequent oxidation to nitrogen dioxide, NO_2. These two compounds also interchange in the atmosphere. Ozone, O_3, a photochemical oxidant, is not directly emitted as an air pollutant. Rather, O_3 is a secondary pollutant, formed in the presence of sunlight from a variety of precursors that include NO_x (where NO_x = NO + NO_2 + other oxides of nitrogen), volatile organic compounds (VOCs), and carbon monoxide.

The chemical processes in O_3 formation are quite slow and are favored by sunshine and stagnant air. A simple synopsis of O_3 formation is the breaking down of NO_2 by ultraviolet radiation to NO and O (where O is an oxygen atom), followed by the oxygen atom O reacting with an oxygen molecule to form O_3. However, the entire process is much more complex and is also non-linear (i.e., output is not necessarily proportional to input). A series of tropospheric photochemical reactions involving reactive OH and HO_2 radicals all play a role in producing O_3 along with oxygenated products such as nitric acid, peroxy acetyl nitrate, aldehydes, and organic acids. NO_2 can also be regenerated by these series of reactions. Particulates and short-lived radicals form as well. VOCs could be regarded to act as a "fuel" for O_3 formation in more urban environments where there is plenty of available NO_2. In addition, CO that originates from incomplete combustion in fossil fuels, or that is formed from the oxidation of methane in the atmosphere, can produce O_3 in a NO-rich environment, but can also remove O_3 in a NO-depleted environment. Freshly emitted NO can scavenge O_3, producing NO_2, and high NO_2 levels can form other products such as nitric acid that block the initial oxidation step for VOCs and thence prevent the net formation of O_3. Although it may seem to be counter-intuitive, sometimes a decrease in NO_x in emissions may lead to an increase in O_3. O_3 formation in urban environments tends to be VOC-limited (that is, adding VOCs may increase O_3, whereas adding NO_x may not). As air masses move away from industrial urban centers, the VOC/NO_x ratio tends to become higher and at the high VOC/NO_x ratios typical of more rural settings, O_3 formation tends to be NO_x-limited (i.e., adding NO_x may increase O_3 levels, whereas adding VOCs may not).

In more rural regions, such as Imperial County, O_3 formation does generally tend to be NO_x-limited—i.e., adding more NO_x increases O_3. (If, on the other hand, a region was VOC-limited, then additional NO_x would not increase O_3 levels.) The four turbines exporting power to the U.S. cumulatively increase NO_x levels at the U.S. border at an annual average of 0.33 $\mu g/m^3$ (see Table 4.2.4). This amount is less than the U.S. EPA

SL annual average of 1.0 $\mu g/m^3$ described as a benchmark of impact, and hence this increase could be regarded to be *de minimis.* Therefore, on an annual basis any effect on increased O_3 formation in Imperial County could also be regarded to be very small.

On a short-term basis, the highest recently measured short term 1-hour level for NO_x recorded near the international border at the Calexico Ethel Street Monitoring Site in Imperial County was 483 $\mu g/m^3$ (just above the State standard of 470 $\mu g/m^3$), as shown in Table CAQMA.1 in Appendix B. The highest short term 1-hour increment NO_x at the U.S. border area predicted by ICSCT3 air dispersion modeling of NO_x emissions from the four export turbines in Mexico is 7.04 $\mu g/m^3$ (1.5 percent of the California State standard of 470 $\mu g/m^3$) (as seen in Table 4.2.4). Therefore, in an extreme short term case reflective of highest 1-hour NO_x levels recorded at the U.S. border, the additional impact on O_3 formation associated with NO_x emissions from the turbines in Mexico exporting power to the U.S. could also be regarded to be very small, particularly if O_3 formation were no longer NO_x limited due to the high availability of NO_x.

There is presently no U.S. EPA-approved modeling procedure for determining the impact of individual emission sources on downwind ozone levels. Regulators have used resource-intensive ozone modeling procedures to evaluate the combined impacts of numerous sources on regional ozone levels (e.g., the UAM-V and CAM-X reactive grid models). These grid models have limited resolution to estimate incremental impacts resulting from the relatively low levels of emissions of ozone precursors from an individual source, and there is no U.S. EPA-approved methodology for adjusting the parameters of these models to try to estimate small impacts from low-emitting sources. These modeling tools have therefore not been recommended for use in evaluating impacts from ozone sources. If ozone formation were modeled on the small amount of precursors transported to the U.S. from these generation facilities in Mexico, the impact would be virtually indistinguishable from background ozone levels.

EBC and EAX, jointly the LRPC, have committed to the goal of sustainable development. In support of this commitment the LRPC will be initiating an Imperial Valley Ozone Reduction Program. Although this program is still under development, the following outlines its preliminary details:

- Conceptual overview. The purpose of this program is to examine effective, scientifically based methods to reduce ozone creation along the border region of Imperial County, CA and Mexicali, Mexico, through cooperative relationships from academia, government, industry and non-governmental organizations.

- LRPC is formally entering into a contract with the Latin American Scholarship Program of American Universities (LASPAU), a non-profit organization affiliated with Harvard University, to act as administrator of the program. LASPAU designs,

develops, and implements academic and professional exchange programs on behalf of individuals and institutions in the U.S., Canada, Latin America, and the Caribbean.

The program would establish an independent Scientific Advisory Board. This Board would consist of five to seven members and would provide independent scientific input and verification of the progress of the program. This Board would ostensibly draw its members from the following groups:

- Universities/academics from the US and Mexico
- US and Mexican Government officials (possibly the US EPA and SEMARNAT)
- Local, regional, and international non-governmental organizations.

- LRPC would, consistent with applicable laws, commit to funding the program through a grant over a period of 3 years. LRPC is also committed to seek further funding for the program through "matching" funds, possibly from multi-national financing institutions, governments, industry, and other non-government organizations.

It must be noted that the above Program has been developed and proposed voluntarily by the developers of the LRPC. At this time, no assumptions can be made concerning the efficacy of the Program and the impacts on air quality presented in this EA do not consider any potential benefits from the Program.

In addition to the Ozone Reduction Program, LRPC has offered to provide initial funding and support the start-up of a Cross-Border Sustainable Development Committee. The LRPC is willing, in accordance with applicable laws, to provide funding to an independent body established to pursue studies, programs and other measures that address cross-border sustainable development issues. The membership of the Committee would be established with involvement of officials from Imperial County and the Municipality of Mexicali. It is anticipated that the Committee would be composed of all parties concerned with cross-border issues.

4.2.4.4 Summary

No U.S. federal or state agencies have jurisdiction over the regulation, permitting, or control of air pollutant emissions in Mexico—such as those from LRPC and the TDM facility—regardless of any impact in the U.S. (As described earlier in this section and in Appendix B, emissions from LRPC and TDM comply with Mexican regulations.) Nonetheless, consistent with the role of this EA to assess the impacts in the U.S. of the construction and operation of the BCP and SER transmission lines, this EA includes an assessment of the impacts in the U.S. of air pollutant emissions transported to the U.S. from the associated Mexican generating facilities.

4.3 Geology, Soils, and Seismicity

Construction of the proposed project would require grading for new access roads and excavation for support structure footings as described in Section 2.2.2 of this EA. Some vegetation clearing and trampling may occur at the work areas around the support structure sites and pull sites to allow safe personnel and equipment use and movement. Because the project site is within an Area of Critical Environmental Concern, construction would be monitored to minimize disturbance of biological and cultural resources, which would also minimize disturbance of soils.

Footings are expected to be buried about 10 to 30 feet deep. Subsurface soils near the IV substation are generally dense to very dense sand and silty sand. In the Pinto Wash area, geotechnical investigations have encountered medium dense to dense sands to a depth of 16 feet. Existing electrical transmission lines in the project area, including the SDG&E 230 kV transmission line that would be immediately adjacent to the proposed lines and which was constructed in a similar manner as proposed for the BCP and SER lines, are structurally stable. Soil and geologic conditions appear to offer adequate support for the proposed transmission line support structures.

Groundwater near the IV Substation has been encountered at a depth of about 25 feet. Monopole footings in this area could be deep enough to enter the groundwater zone. If this were to happen, the contractor could use casings to allow the footings to be poured. Thus groundwater, if encountered, would not interfere with construction of the footings nor adversely affect the footings, and the footings would not affect groundwater conditions.

The topography of the entire site is very gently sloping, almost level. Access roads would be graded on the surface, without any significant cut and fill grading, and would not be paved. Existing access roads do not exhibit excessive erosion. Therefore, excessive erosion due to the proposed new access roads is not expected.

Although the entire Imperial Valley is seismically active, none of the proposed routes lie within an Alquist-Priolo fault-rupture hazard zone designated by the State of California Division of Mines and Geology (CDMG). Surface fault rupture is unlikely to occur along the route taking into account the well-delineated fault lines through this region, as shown on the CDMG maps, although the possibility of undiscovered or new faults cannot be ruled out. Seismically-induced liquefaction is not a concern because of the depth of groundwater and predominance of dense sandy soils.

The topography throughout the proposed alignments is nearly level, so the hazard of landsliding is nonexistent. There are no large bodies of water in the vicinity, so there is no threat of tsunami, seiche, or other seismically-induced flooding.

4.4 Water Resources/Floodplains

Groundwater conditions are not expected to be adversely affected by the proposed project, as explained in the preceding section. The ground surface would be restored to approximately the original contours and condition around excavations for support structure footings. Permanent changes to the topography would be minimal, with new access roads on the ground surface and no substantial grading outside the cleared roadway, a width of 12 feet or less. Construction would be monitored to minimize disturbance of biological and cultural resources, which would also minimize disturbance of soils. Given the nearly level topography, erosion and sedimentation due to surface disturbance is not anticipated to be substantial.

The only 100-year floodplain and largest drainage course in the proposed alignment is Pinto Wash. There are two other well-defined but smaller desert washes in the alignment (see Figure 3.5.1), but no other 100-year floodplains defined on FEMA maps. The 100-year floodplain at Pinto Wash consists of two separate areas, one on the north and one on the south. Lattice towers at location No. 21 in the BCP and SER transmission lines would be partly within the northern arm of the floodplain.

4.4.1 Floodplain/Wetland Assessment

This assessment of potential floodplain/wetland effects of the proposed project is included in this EA in accordance with DOE requirements in 10 CFR 1022.

Project Description

The nature and purpose of the proposed project are described in Chapter 2 and Appendix A of this EA. The FEMA-mapped floodplains in the vicinity of the proposed route and the area of floodplain that would be affected by the proposed project are shown in Figure 4.4.1. Some of the footings for the towers in the BCP and SER lines that would be within the floodplain are on the northern fringe of the Pinto Wash floodplain. The work area for the towers would also be partly in the floodplain, but the access roads for the towers could be located on the northern side of these towers and so could avoid the floodplain. The "high hazard area" of a floodplain is described in 10 CFR 1022 as "those portions of riverine and coastal floodplains nearest the source of flooding which are frequently flooded and where the likelihood of flood losses and adverse impacts on the natural and beneficial values served by floodplains is greatest." Since the proposed project would affect only the extreme fringe of the Pinto Wash floodplain, which is not frequently flooded and is neither riverine nor coastal, it would not affect a high hazard area.

Imperial Valley Substation

Area Surveyed

Detail

RESERVATION

CALIFORNIA
BAJA CALIFORNIA

RECON

Project Components
Existing SDG&E transmission line towers ■ and poles ●
Proposed BCP transmission line towers ■ and poles ●
(120 ft east of existing line)
Proposed SER transmission line towers ■ and poles ●
(240 ft east of existing line)

FEMA 100-year floodplain

0 Feet 3500

FIGURE 4.4.1

Project Relationship to FEMA 100-year Floodplain

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Floodplain/Wetlands Effects

A wetland delineation was performed for the proposed project as described in Appendix C. There are no wetlands in Pinto Wash that would be affected by the proposed project. Actions that would affect the 100-year floodplain would be construction of the footings for the proposed lattice towers at location No. 21. Excavations for the footings would be backfilled and the original ground contours would be restored. Restoration of natural conditions would be required by mitigation measures for biological resources listed in Section 2.2.6 of this EA. Only cylindrical sections of the footings three to four feet in diameter would protrude above the ground surface. Based on present plans, a maximum of two lattice tower footings for each transmission line would be in the 100-year floodplain. Therefore, there would only be a minimal permanent change to conditions in the floodplain, with minimal effects on natural and beneficial floodplain values.

Alternatives

The locations of the proposed transmission lines are constrained by the connection points to transmission lines in Mexico on the south and by the location of the IV Substation in the north. Alternative locations to the east and west that were considered but rejected are presented in Section 2.3 of this EA. Since the Pinto Wash floodplain runs west to east across the entire project area, the routes must cross the floodplain. Locations of the towers are determined by engineering factors, so that relocation of the towers at location No. 21 is not practical without redesign of the project. Since the towers at location No. 21 are on the extreme fringe of the floodplain, would have minimal effects on natural and beneficial floodplain values, and would not be incompatible development in the floodplains, alternatives to avoid the floodplain effects are not required.

4.5 Biological Resources

The proposed project would permanently impact 3.10 acres of Sonoran creosote bush scrub and 0.28 acre of desert wash. Temporary impacts would be approximately 14.96 acres of Sonoran creosote bush scrub and 0.46 acre of desert wash (Table 4.5.1). The acreage of Sonoran creosote bush scrub temporarily impacted includes 9.5 acres calculated as the area of potential effects for the transmission lines east and north of the IV Substation. The actual impact in that area would likely be less. In addition, the calculation of impacts for both vegetation communities does not account for the overlap of temporary impacts from work areas and pull sites at the lattice tower and monopole locations.

General impacts to wildlife in the project area may occur. Birds are highly mobile and would most likely move out of the way during construction. Many small terrestrial

TABLE 4.5.1
PROJECT IMPACTS
(acres)

Resource	BCP Transmission Line (including SDG&E and IID)		SER Transmission Line		Total (Temporary/Permanent)
	Temporary Impacts	Permanent Impacts	Temporary Impacts	Permanent Impacts	
Sonoran Creosote Bush Scrub	11.38[1]	1.82	3.58	1.28	18.06[1] (24.54/3.08)
Desert Wash	0.21	0.13	0.25	0.15	0.74 (0.46/0.28)
TOTAL	11.59	1.95	3.83	1.43	18.80 (15.42/3.38)
Jurisdictional Waters of the U.S.	0.06	0.04	0.07	0.04	0.21 (0.13/0.08)

[1]Acreage of temporary impact includes the construction corridor for the BCP and SDG&E steel monopoles which will temporarily impact a maximum of 18.90 acres.

animals may do the same, but small mammals and reptiles with low mobility may be inadvertently killed during construction. After construction is completed, a relatively low acreage of habitat, dispersed over the six miles of the proposed route, would be lost as vegetated wildlife habitat. However, even new access roads may have some residual habitat value, as basking areas, for instance.

The proposed project would not impact any sensitive plant communities or plants federally listed as threatened or endangered but could potentially disturb 23 plant species considered sensitive by the California Native Plant Society.

No wetlands would be affected by the proposed project, but the project is expected to impact a total of 0.21 acre of non-wetland waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers through Section 404 of the Clean Water Act. This impact would result from the placement of tower footings and access roads in the desert wash areas. A permit from the Army Corps of Engineers would be required for project implementation, and the permitting process would also require a water quality certification from the Regional Water Quality Control Board.

Watering may be used for dust control during construction. Watering, especially when combined with disturbance of the ground surface, may create conditions where invasive non-native species can grow. This appears to have occurred where a stand of tamarisks has become established east of the IV Substation in the area of the proposed transmission line routes.

The project site is located in the Yuha Basin ACEC and in the Yuha Desert Management Area for the flat-tailed horned lizard. The applicants have agreed to mitigation measures to minimize impacts to the flat-tailed horned lizard and the western burrowing owl, and other species that BLM consider sensitive biological resources as indicated in Tables 3.5.1, 3.5.2, and 3.5.3. These include measures listed in the "Flat-Tailed Horned Lizard Rangewide Management Strategy" to mitigate the effects of projects in the Yuha Desert Management Area. Pursuant to a court order of October 24, 2001, the Secretary of the Interior has been ordered to reinstate, within 60 calendar days, a previously effective proposed rule listing the flat-tailed horned lizard as threatened under the Endangered Species Act.

The flat-tailed horned lizard is active during most of the year but is dormant and hibernates approximately between November 15 and February 15. Hibernation is obligatory, and the animal hibernates in burrows, usually within a couple of inches of the ground surface. In the active period, the lizards often move about the surface during the day in spring and fall. As temperatures rise, the lizards appear to escape extreme daytime temperatures by retreating to burrows, but forage during the morning and evening. During the night in the active period, the animals spend the night below the sand, or on the surface, or in burrows. When approached, the lizards often remain still, relying on

camouflage for protection. Because of their cryptic coloration, this strategy makes them very hard to detect.

The applicants will attempt to schedule construction to occur as much as possible during the flat-tailed horned lizard's dormant period, November 15 to February 15, and to employ all mitigation measures recommended by the management strategy during that period. Construction is to be completed in as short a time as possible to minimize the length of time that habitat will be disturbed by activity. Some construction would probably be necessary during the lizard's active period (before November 15 and after February 15), however, and if so the applicants would employ additional mitigation measures during that period. In addition, the applicants would employ mitigation measures intended to minimize and mitigate for general disturbance of biological resources, and assure restoration of disturbed areas.

Several features of the project, as proposed by the applicants and described in Section 2.2.2, would be effective in minimizing harm to biological resources. These include positioning the lattice towers and locating the access roads so that permanent disturbance can be minimized. In addition, moving the tower assemblies to their locations in the line by helicopter, instead of assembling them on-site, would greatly reduce the amount of disturbance at each tower site. The mitigation recommended in this EA includes monitoring for flat-tailed horned lizards and western burrowing owls, and would help avoid impacts to other sensitive biological resources. A list of mitigation measures is in Section 2.2.6 of this EA.

4.6 Cultural Resources

The cultural resource survey conducted for the proposed project (see Section 3.6 of this EA) resulted in the relocation of 9 previously recorded sites, the discovery of 18 previously unrecorded sites, and the identification of 34 isolates. All of the sites, except one, date to the prehistoric period and appear to be linked to prehistoric human occupation focused on the 40-foot contour of Lake Cahuilla. Sites that are located below the 40-foot contour are considered important in the study of culture change because they represent activities that were undertaken after one of the intermediate recessions of the lake, or more likely, the final recession. Three of the sites were previously recommended as eligible for nomination to the National Register of Historic Places in 1984. The remaining sites should also be considered eligible for nomination to the National Register of Historic Places.

If implemented, formation of a National Register district in the project area would include all of the sites recorded within the study for this EA. The proposed district would include the generalized boundaries for site 4-IMP-115, which extends outside of the project area. Site testing has been conducted on three of the identified sites. Eligibility

of the remaining sites is based on surface indications and on the interrelationship of these sites with ancient Lake Cahuilla. The suggested National Register of Historic Places district would have contributing and non-contributing properties.

Four prehistoric sites may be directly impacted during construction of the new transmission lines. Indirect impacts associated with new access roads or use of the existing road may require inclusion of additional sites, although the final determination of these variables has not been made. Direct impacts to the archaeological sites located east of the transmission line could include excavation for footings, general ground clearing, and the movement of workers and equipment.

In order to protect the information that is present in this region, a treatment plan has been developed by the applicants and submitted to the BLM for approval. The treatment plan is intended to pose questions and define data needs for sites that may be directly or indirectly affected by the proposed project. This plan would be developed in concert with final project design information and the precise location of on-the-ground impacts. Surveyors would establish specific work zone areas and the locations would be checked by field archaeologists to determine potential impacts. Work or access areas that correspond to archaeological sites would be defined and data recovery would be implemented. The plan would include protection measures, monitoring steps, and Native American consultation. The plan would also include recommendations for long term protection of the study area resources.

To mitigate for the potential impact to valuable cultural resources from the construction of this project, the applicants have agreed to implement a mitigation plan that complies with the treatment plan, subject to the approval of the BLM. The mitigation measures would apply only to those areas identified as permanent or temporary construction impact areas that correspond with surface indications of historic properties. Mitigation would consist of measures to avoid impacts to sensitive cultural resource sites, monitoring of work on the proposed transmission lines, recovery of cultural materials and information, appropriate cataloging and curation, and reporting the findings. The mitigation measures are listed in Section 2.2.6 of this EA.

4.7 Visual Resources

Construction of the proposed project would add electrical transmission towers and conductors to the landscape adjacent to the existing SDG&E transmission line. The evaluation of potential visual impacts takes into account factors such as distance, the angle of observation, the duration of view, the relative size or scale of the project, and the light conditions within the proposed project area. Views by persons from highways or travel routes are not considered to be as sensitive as those from recreational areas or residences due to both the nature of the land use and the longer duration of the view.

Views from residences are typically to be considered more sensitive, since views from a residence are typically more frequent and of longer duration. Other views, such as those of any recreational users in the area, are considered to be of moderate sensitivity.

The varying degrees of visual contrast are outlined below:

- **High:** Strong and moderate visual contrast associated with the presence of the project visible from high sensitivity viewpoints (e.g., residences, recreation sites, scenic routes, etc.) within the 0 to 0.5 mile distance zones.

- **Moderate:** Weak visual contrasts visible from high sensitivity viewpoints within the 0.5 to 1-mile (i.e., foreground) distance zones and strong or moderate visual contrast visible in the 1 to 3 mile (i.e., middleground) distance zone. Also a result of landscapes rated Class B and strong visual contrast from the proposed project.

- **Low:** Weak visual contrast visible from high sensitivity viewpoints within the 1 to 3 mile distance zone, and strong, moderate, or weak contrast visible within the 3 miles and beyond distance zone. Low scenic quality impacts would result.

- **None:** The element contrast is not visible or perceived. No scenic quality impacts would result.

As described in Section 3.7.2, the project area is a BLM Class III Visual Resource Inventory Area. Class III objectives stipulate that the existing character of the landscape be partially retained and any level of change should be moderate. In addition, while management activities may attract attention, they should not dominate the views of casual observers.

Four Key Observation Points (KOPs) were identified for the proposed project area, situated both east and west of the proposed project alignment along State Route 98. Given that roadway users constitute the vast majority of viewers with regard to the proposed project site, all of the KOPs were situated on, or immediately adjacent to, SR-98. The KOPs were situated approximately 0.3 miles east of the proposed alignment (KOP 1), 1.0 miles east (KOP 2), from the nearest residence 1.3 miles east of the proposed alignment (KOP 3), and 0.7 miles west of the proposed alignment along State Route 98 (KOP 4). Visual simulations were generated from each of these points to display the addition of the proposed project to the existing landscape (Figures 4.7.1-4.7.5).

The visual simulations indicate that the project would not be a visually prominent addition to the existing landscape. While the proposed project would be visible from SR-98 (KOPs 1, 2 and 4), both the presence of similar towers among the existing SDG&E 230kV alignment and the somewhat open texture of the steel lattice towers would lessen

A. Existing Conditions

B. With Proposed Project

PHOTO SOURCE: Intergen, 2001

FIGURE 4.7.1

View From Key Observation Point 1

(0.7 Miles East of Existing SDG&E Transmission Line Along Highway 98, Looking West)

A. Existing Conditions

B. With Proposed Project

PHOTO SOURCE: Intergen, 2001

FIGURE 4.7.2

View From Key Observation Point 2

(1.0 Miles East of Existing SDG&E Transmission Line Along Highway 98, View West)

A. Existing Conditions

B. With Proposed Project

PHOTO SOURCE: Intergen, 2001

FIGURE 4.7.3

View From Key Observation Point 3

(1.3 Miles East of Existing SDG&E Transmission Line Along Highway 98, View West Adjacent to Single Family Residence, Adjacent to Highway 98 and Pullian Intersection)

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A. Existing Conditions

B. With Proposed Project

PHOTO SOURCE: Intergen, 2001

FIGURE 4.7.4

View From Key Observation Point 4.1

(0.3 Miles East of Existing SDG&E Transmission Line Along Highway 98, View Northeast)

A. Existing Conditions

B. With Proposed Project

PHOTO SOURCE: Intergen, 2001

FIGURE 4.7.5

Key Observation Point 4.2

(1.0 Miles East of Existing SDG&E Transmission Line Along Highway 98, View Southwest)

the visual effects of the introduction of this additional form into the landscape. The transmission lines would diminish dramatically in the strength of their visual impression with distance, and the lattice construction would allow the viewer to see natural light, and to some degree, the background landscape through the tower. The proposed project would not affect the color value and hue of the existing landscape.

The view from the nearest residence (KOP 3) would not be substantially affected, given the similar distant forms already present and the low-lying landforms and vegetation between the residence and the proposed project. These landforms would have the effect of breaking up the already diffuse views of the proposed project alignment.

The completed project would be a permanent and prominent feature in the landscape visible to travelers on SR-98 and sightseers. The existing SDG&E transmission line is immediately adjacent to the proposed routes and other electrical transmission facilities are also within view in this area. The proposed project would therefore not introduce a new and obtrusive element into the landscape.

It is unavoidable that, to some degree, visual resource impacts would result from the construction and operation of the proposed project. Construction-related visual impacts, while involving lay-down areas, helicopter installation of towers, and work crews over a period of up to six months, would be temporary. Operational visual impacts would result from the proposed project being seen from multiple viewpoints and from the effects on the existing scenic values of the landscape.

Implementation of the proposed project would meet the visual contrast criteria established under the objectives developed for VRM Class III. These objectives stipulate that the existing character of the landscape be partially retained and any level of change should be moderate. A project in a VRM Class III area may attract attention although it should not dominate views. The proposed project meets these criteria.

4.8 Paleontological Resources

It is not known if important paleontological resources are present below the surface on the site. Such resources could be present and could be harmed by excavation, particularly by excavation for transmission line support structure footings in older alluvium or pre-Quaternary geologic formations. In order to assure that the scientific information represented by any fossils that are present is recovered, the applicants have agreed to a monitoring and reporting program to be implemented during construction. The mitigation measures are listed in Section 2.2.6 of this EA.

4.9 Socioeconomics

4.9.1 Population

A total of approximately 69 persons would be employed within the U.S. as a result of the construction of the proposed project, including all subcontractors. Of this total, it is expected that approximately 48 persons would reside locally. No out-of-area professionals or construction workers are anticipated to permanently relocate to the area. No permanent full-time operation and maintenance positions would be created through the construction of the proposed project. Therefore, no persons are expected to relocate to the proposed project area through the operation of the proposed project. The project would have no effect on local population growth, and would cause no related businesses or other developments to be started in or relocated to the local area.

4.9.2 Employment and Infrastructure

The construction of the proposed project would likely employ the following personnel: management and engineering professional/supervisors (10 persons), construction laborers/workers to lay concrete foundations (48 persons), helicopter pilots and engineers (4 persons), pull box operators (4 persons), and security guards (3 persons). The proposed project would cause a minimal, but positive, impact to unemployment levels for the period of construction. Overall, the effect of the project on local employment conditions would be minimal.

Due to the limited number of people employed and the relatively short duration of construction, no substantial effect on local infrastructure elements is anticipated. Adequate emergency services (fire, police, medical) exist or are immediately available nearby. No permanent project-related immigration to the local community is anticipated upon completion of construction.

4.9.3 Housing and Transportation

With only 10 persons requiring local temporary accommodations during the period of construction, basic motel rooms should be able to meet the temporary accommodation demand for the project. No other large projects that would affect room availability in the local area during the construction period are known.

During construction of the proposed project construction, workers from Mexico would be transported to and from the work site by bus, with the remainder of the local and out-of-area workers reaching the project site by car. The needs for heavy equipment and supplies would vary during construction. During the first two months of construction, the proposed project is expected to generate about 18 round trips to the construction site daily. During December, the anticipated number of round trips would decrease to eight

daily, and during January and February, to five round trips daily. The U.S. portion of the majority of these trips would be between the El Centro and Calexico area and the construction site by way of SR-98. The proposed project would add relatively low volumes of traffic to local roads where traffic volumes are already low.

4.9.4 Economic Value of Removed Lands

All lands that would be affected by the proposed project are federal lands administered by the BLM. These lands are presently vacant and cannot be assigned an economic value, since their principal use is for open space and wildlife habitat. Although a certain acreage within the proposed rights-of-way would be converted from wildlife habitat to rights-of-way, and a relatively small acreage would be occupied by transmission line support structure footings, the majority of the land affected would be suitable for and will be returned to its former use. The project would not result in the permanent removal of any land from economic productivity but would be consistent with the implied economic value of Utility Corridor N of the Desert Plan.

4.9.5 Construction Payroll/Material Purchases

Construction of the proposed transmission line project and related facilities is expected over a period of six months. A proportion of construction payrolls would be expected to enter the local economies where the local workers reside (temporarily or permanently). A smaller proportion is likely to be spent in the vicinity of the construction site, that is, in the El Centro and Calexico area. In addition, the El Centro and Calexico area would benefit from accommodation costs for about 10 out-of-area personnel who would reside in the area during construction.

Some of the services, equipment, and materials used for the construction of the proposed project are to be shipped in from outside of the project vicinity. However, local material purchases for both transmission lines would include ACSS 1113 Cable ($2.78 million), concrete ($158,000), field office and materials ($41,000), other construction materials ($5,000) and other basic site supplies such as refreshments for the work crews. These purchases would amount to over $2,984,000.

4.9.6 Government Revenues

Rent payments from leases of the rights-of-way would generate small but long-term revenue for BLM. In addition, a short-term increase in tax revenues to local governments could be expected from transient occupancy taxes for the accommodations for out-of-area workers.

4.9.7 Environmental Justice Statement (Executive Order 12898)

Environmental justice concerns arise when there are potential disproportionately high and adverse impacts to minority populations and low-income populations. Executive Order 12898 (Environmental Justice, 59 FR 7629 [February 11, 1994]) requires each federal agency to achieve, to the greatest extent practical and permitted by law, environmental justice by identifying and addressing "disproportionately high and adverse human health and environmental effects on minority and low-income populations." In order to determine whether environmental justice concerns exist, the demographics of the local area were examined to determine whether minority populations or low-income populations are present and whether such populations could suffer disproportionately high and adverse effects from the proposed transmission lines and related facilities and impacts. The analysis of the major environmental justice indicators used the 1990 Census Block Group statistics for total minority populations, median household income, and per capita income levels. Populations within the entire area are very low with the majority of persons residing in the main communities or cities such as El Centro and Calexico, approximately 10 and 12 miles away, respectively. Outlying areas around these cities are either large farms or vacant areas that are almost completely uninhabited. The vicinity of the proposed project is uninhabited, and the nearest residence is 1.3 miles away.

The proposed project alignments are situated entirely within census tract 060250123.01, which had a total population in 1990 of only 694 persons. As Table 4.9.1 shows, populations within the tract exhibit below county and state averages for both per capita and median household income levels (35 percentage points below county average median household income and 47.5 percentage points below state average per capita income). Minority populations are also considerably below the county and state averages (64 percent below and 36.3 percentage points below, respectively). Low-income populations are also present within the wider area surrounding the project vicinity, as in tract 060250119. Similarly, higher minority populations are also present, as with tract 060250111. The entire area exhibits comparatively low income levels in relation to state levels (county average per capita and median household income levels are 43.9 and 37.4 percentage points below state levels, respectively).

Although census tract data is often effectively used in examining environmental justice concerns, there are a number of limitations when drawing conclusions regarding relative concentrations of low income or minority populations. For example, the resulting data can often be skewed when examining populations within sparsely inhabited rural areas. In this case the proposed project would be entirely situated within one large census tract (060250123.01), which covers approximately 85.1 square miles with a total population of 694 persons inhabiting mostly isolated farms and homesteads. Low-income populations are present within the tract, and higher minority populations are present within the surrounding contiguous tracts. However, since the immediate vicinity of the proposed project is practically uninhabited and populations throughout the wider surrounding areas

TABLE 4.9.1
SURROUNDING INCOME AND MINORITY POPULATIONS

Area/Tract No.	Per Capita Income (PCI)	+/- County Average PCI	+/- State Average PCI	Median Household Income (MHI)	+/- County Average MHI	+/- State Average MHI	% Total Minority Population	+/- County Average	+/- State Average
111	$11,697	+10.06%	- 28.72%	$24,701	+10%	- 31%	47.7%	+23%	+5.2%
119	$6,953	- 24.5%	- 67.23%	$20,000	- 10.89%	- 44.13%	91.5%	+21.2%	+49%
123.01	$8,622	- 6.37%	- 47.46%	$14,592	- 35%	- 59.24%	6.19%	- 64.51%	- 36.31%
Imperial Co.	$9,208	0	- 43.89%	$22,442	0	- 37.4%	70.7%	0	+28.2%
California	$16,409	+78.2%	0	$35,798	+59.5%	0	42.5%	- 28.2%	0

are so diffuse, substantial effects on local populations, either low-income or minority, would not occur

The construction and operation of the proposed project would be localized in an uninhabited area. Therefore, the proposed project would not cause disproportionately high and adverse human health or environmental effects to any low-income populations or minority populations within the wider local area where such populations are present.

No displacements of populations, residences, or businesses are anticipated with regard to either the construction or operation of the proposed project. Further, there is no indication that either the construction or operation of the proposed project would impact a higher minority population component or low-income population component than the general population of the surrounding area. Operation, as explained in Section 4.9.1, would not affect local employment conditions.

All best management practices related to health and safety issues would be adhered to during the period of construction. Children would not be allowed in the construction zone, which is isolated from residential areas, schools, and other areas where children would normally be expected.

There are no unique exposure pathways or cultural practices by which the minority or low-income populations could receive a disproportionately high and adverse impact.

4.10 Water Quality

4.10.1 Impacts from Transmission Line Construction

There will be minimal water usage during construction of the project, consisting mainly of the potential use of water to minimize the production of dust resulting from construction activities. As discussed, however, such water usage encourages the growth of non-native plant species and will be minimized to the extent feasible.

There will also be the potential for sediment to be carried off the construction area as a result of storm water runoff. Under the requirements of the federal Clean Water Act, a National Pollutant Discharge Elimination System (NPDES) permit will have to be obtained from the State Water Resources Control Board for construction of the project. The NPDES permit will require the use of Best Management Practices (BMPs) to minimize sedimentation runoff. Such measures typically include the use of physical barriers such as sedimentation fabric, sandbags, and other measures deemed necessary and feasible.

4.10.2 Impacts from Transmission Line Operation

During the operation of the transmission line, there will be no water consumed and no water discharges.

4.10.3 Impacts from Power Plant Operation

Operation of the power plants will require water for purposes of recondensing steam vapor (steam is created and used to generate electricity in each of the TDM and LRPC facility's steam turbines) and for "makeup" of water that is evaporated during the cooling process.

The LRPC facility will obtain, treat, and recycle raw sewer water. The LRPC has begun construction of a sewage treatment plant (STP) to process the quantities of water needed for the power generation process. LRPC has contracted with the local Mexican municipal water authority, CESPM, to provide untreated, municipal wastewater. Raw sewer water will be routed directly to the LRPC facility. The wastewater will be obtained at the inlet of the Zaragoza lagoons and piped to the LRPC STP, adjacent to the lagoons. The STP will treat the raw sewage via screening, degritting, degreasing, biological treatment by way of an extended aeration activated sludge process, nitrification-denitrification, final clarification, and disinfection. The product of this initial treatment is termed gray water, which is piped approximately 5.2 miles to the LRPC. At the LRPC, the gray water is further treated to reduce phosphates, organics, and heavy metals. Depending on the water requirements of the LRPC at any given time, some gray water (typically one cubic foot per second) will be discharged from the STP into an adjacent drainage channel that eventually combines with the lagoon effluent.

After the water is treated, it will be used as makeup water (both cooling and steam cycle) or filtered for service water use. Once used at the facility, the water is discharged to drainage channels managed by CNA. These drains ultimately discharge to the New River.

TDM has contracted with CESPM to obtain, treat, and recycle sewer water that has first received treatment (i.e., settling of solids) at the Zaragoza facility. This water will be routed via enclosed, buried pipe to the TDM facility. TDM is also constructing a sewage treatment plant which will treat the water prior to its use at the facility, in a fashion similar to LRPC's, except that the water will have already received primary treatment (settling of solids) at the Zaragoza lagoons. TDM's sewage treatment plant will include secondary and tertiary treatment of the water. After the water is treated, it will be used as makeup water (both cooling and steam cycle) or filtered for service water use. Once used at the facility, the water is discharged to drainage channels managed by CNA. This drain ultimately discharges to the New River. TDM has received all of its water discharge permits from CNA.

Both the LRPC and TDM facilities will improve water quality in the New River. The LRPC facility will remove contaminant load from the water that is diverted from the Zaragoza sewage lagoons and treated at its facility. The plant's discharge will be disinfected (i.e., treated to contain very low levels of biological pathogens—bacteria or viruses). In addition, nutrients (nitrogen species and phosphorus) and heavy metals will be reduced, and agricultural/industrial chemicals (VOCs and pesticides) will be substantially removed by the treatment process.

As a result of the sewage treatment plant and power plant water treatment operations of the LRPC, there will be a net reduction of pollutants currently being discharged into the New River of approximately 1,230,000 pounds per year of BOD, 4,230,000 pounds per year of COD, 1,590,000 pounds per year of total suspended solids (TSS), 4,400 pounds per year of iron, and 3,500,000 pounds per year of total dissolved solids. After undergoing five cycles of concentration (i.e., being recycled in the cooling cycle five times), the TDS concentration of the water being discharged will be approximately 4,800 mg/l. The amount of water evaporated will be 7,170 acre-feet per year.

The water treatment process at the TDM facility will similarly eliminate biological contaminants and reduce other contaminants in the water such as nitrogen, phosphorus, heavy metals, and agricultural and industrial chemicals in the water received from CESPM. This reduction will result in a net benefit to water quality in the New River. The net reduction in contaminants from TDM's processing will be approximately 1,500,000 pounds per year of BOD, 1,760,000 pounds per year of COD, 850,000 pounds per year of TSS, 225 pounds per year of iron, and 2,600,000 pounds per year of total dissolved solids. The treated water will undergo three cycles of concentration within the cooling tower. The TDS concentration of the TDM discharge will be 3,430 mg/L and the total amount of water evaporated will be 3,400 acre-feet per year.

4.10.4 Impacts on the Salton Sea

The LRPC facility will evaporate approximately 7,170 acre-feet per year. This represents a net reduction of water flows into the Salton Sea of 0.53 percent (7,170 acre-feet per year/1,363,000 acre-feet per year). This reduction in volume is essentially undetectable since it is not within the sensitivity of most water meters.

The salinity of the New River, upon combining with the water discharge from the LRPC, will increase slightly. The amount of TDS removed by the LRPC treatment facility will be 3,520,000 pounds per year, while discharging 1,845 acre-feet per year at 4,800 mg/L. This amounts to an increase in salinity to the Salton Sea of 0.097 percent. This increase will be essentially undetectable, since the salinity within the Salton Sea can vary beyond this amount.

The TDM facility will evaporate approximately 3,400 acre-feet per year. This represents a net reduction in water flows into the Salton Sea of 0.25 percent (3,400 acre-feet per year/1,363,000 acre-feet per year). This reduction in volume also is undetectable.

The TDM facility will remove approximately 2,600,000 pounds per year of TDS, while discharging 1,400 acre-feet per year at a TDS concentration of 3,430 mg/L. This amounts to an increase in salinity to the Salton Sea of 0.046 percent. Similarly, this increase is undetectable.

4.10.5 Combined Impacts on the Salton Sea

The LRPC and TDM facilities combined will evaporate approximately 10,570 acre-feet per year. This represents a net reduction in water flows to the Salton Sea of 0.78 percent (10,570 acre-feet per year/1,363,000 acre-feet per year).

The LRPC and TDM facilities combined will remove 6,120,000 pounds of TDS per year. The combined discharge to the New River from the facilities will be 3,245 acre-feet per year. This amounts to an increase in salinity to the Salton Sea of 0.142 percent.

These combined impacts in reduction of flows to the Salton Sea, as well as the TDS increase to the Salton Sea, are negligible and well within the error range of the recorded data and measurement instruments. Further, the improvement in water quality from a biological standpoint will greatly help achieve the bi-national water quality treaty standards as contained in IBWC Minute 264 for the New River.

Ultimately, the reduction of certain contaminants from Mexico that currently go into the Salton Sea will be a positive impact on its ecosystem. The potentially small increase in the salinity level and reduction in water quantity will be negligible; hence, the project will have no measurable impact.

4.11 Operational Impacts

4.11.1 Radio and Television Interference

The electric field at the surface of the conductors (transmission lines) causes the phenomenon of corona. Corona is the electrical breakdown or ionization of air in very strong electric fields and, depending upon weather conditions, it is the source of audible noise, electromagnetic interference, and visible light. Radio interference (RI) from transmission lines is primarily caused by corona. The level of corona activity on the proposed line would be minimal because of the use of two relatively large conductors on each phase of each of the proposed transmission lines. In addition, corona is not recognized as a concern for voltages below 345 kV. Consequently, the level of corona-

generated radio interference anywhere out of the right-of-way would be at or below recommended levels.

A second source of RI, gap-type sparking, is not a frequent source of interference on high-voltage lines and is generally not a factor for 230 kV transmission line designs. Spark-gap noise is avoided by proper design and installation of transmission line hardware parts. Individual locations of spark gap noise, including those from nearby objects, can be readily located and corrected.

Dirt on the insulators may cause micro-arcing in foggy weather and thus be an isolated source of RI. However, it is less significant than either corona or spark-gap interference and would not be of concern for the proposed line. Micro-arcing is avoided by increasing the insulation in high contamination areas and washing insulator strings periodically.

In general, for 230 kV transmission lines, radio interference is not a problem in fair weather conditions. During foul weather conditions, the quality of some AM radio broadcast stations with weak signals may be reduced in isolated locations, especially on the right-of-way. There should be no effect on FM radio reception.

Transmission line related sources of television interference (TVI) are caused by corona and gap-type noise. Corona discharge from the transmission line conductors can be a source of TVI, typically on the video portion only, and especially on lines with voltages of 345 kV or greater. Because of the 230 kV operating voltage and the low levels of corona anticipated for the proposed line, corona-generated TVI is not anticipated to be a problem for these lines.

The electromagnetic field, without corona effects, would cause RI and TVI only in relatively close proximity to the lines. The project area is uninhabited for at least a half-mile from the proposed transmission line rights-of-way, and there would be no RI or TVI at the edge of the rights-of-way.

4.11.2 Audible Noise

Audible noise associated with operation of a transmission line is a crackling or buzzing sound caused by corona discharge near the conductors and insulators. The intensity of the noise level is dependent on weather conditions, voltage, and conductor configuration. Because of the large conductors that would be used on the proposed line, corona activity would be minimal during both fair and foul weather. In addition, the proposed routes traverse a large, unpopulated tract of desert where residences or other receptors sensitive to audible noise are absent.

4.11.3 Electric and Magnetic Fields

Electric power lines, generators, transformers (e.g., step-up transformers at the switchyard), and other devices that handle electric currents produce electric and magnetic fields (electromagnetic fields, or EMFs). For this project, the potential for public exposure to project-related EMF is limited to the immediate vicinity of the transmission line rights-of-way. Because of the isolated location, few people are expected to be in the rights-of-way, and only for limited and probably brief periods. The strength of the EMF generated by an alternating current varies with voltage, wire type, spacing, and location, and other factors. Field strength decreases rapidly with distance from the source.

EMFs are produced by power lines, house wiring, all electrical appliances, and wherever electrical currents are flowing. A controversy exists as to whether there are any health effects from exposure to EMFs. Experiments have shown that magnetic fields can cause biological effects in living cells, but it is not known whether these biological effects have any relevance to human health. With respect to the proposed transmission lines, it should be noted that the vicinity of the proposed route is uninhabited and that the nearest residence is 1.3 miles east of the proposed alignment.

In October 1996 the National Research Council of the National Academy of Sciences published the results of its evaluation of the research on health effects attributable to EMF. The Committee conducting the study examined more than 500 studies conducted over the last 17 years and released its findings in a report titled, "Possible Health Effects of Exposure to Residential Electric and Magnetic Fields." Dr. Charles Stevens, chairman of the committee, concluded that the findings to date do not support claims that electromagnetic fields are harmful to a person's health. He stated, "Research has not shown in any convincing way that electromagnetic fields common in homes can cause health problems, and extensive laboratory tests have not shown that EMFs can damage the cell in a way that is harmful to human health."

On June 27, 1998, a 28-member advisory panel sponsored by the National Institute of Environmental Health Sciences (NIEHS), part of the National Institutes of Health, voted 19 to 9 to label EMFs a "possible human carcinogen." On May 4, 1999, NIEHS issued a report entitled *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields*. The report concludes: "The NIEHS believes that the probability that EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm." Although the NIEHS concluded EMF "exposure cannot be recognized as entirely safe" with regard to leukemia, it found the scientific evidence of a leukemia risk to be "weak."

Based on the scientific studies and finding discussed above, and the isolated location of the proposed transmission lines, there would be no substantial hazard to humans from exposure to EMFs associated with the proposed project.

4.11.4 Biological Resources

Once construction is complete, the only project-related activity that is likely to pose a threat to biological resources is maintenance of the transmission lines. For access to the support structures, maintenance personnel would use the existing access roads for the SDG&E facilities in the project area and the access roads added during construction, as described in Chapter 2 of this EA. Some work in the vicinity of the support structures would occur. Normal maintenance activity would be at a relatively low level and frequency. Impacts on most biological resources from maintenance of the proposed transmission lines are not expected to add substantially to impacts from maintenance of the existing SDG&E transmission line.

Operation of the proposed transmission lines has the potential to introduce a potential for bird strikes with transmission conductors. However, bird strikes do not appear to have been a problem for the SDG&E transmission line that parallels the proposed route. Increasing the number of transmission lines in the corridor may increase the potential for bird strikes somewhat. Conversely, three lines in a relatively close array may make the lines more visible to birds.

There may be an extremely low potential for electrocution of large birds, such as raptors, due to the birds' touching conductors of different voltage simultaneously. The minimum distance between conductors of different voltage on the proposed transmission lines would be greater than 12 feet. Therefore, electrical shock as a hazard to birds is unlikely.

In the project area, there is clear evidence of off-road vehicle activity connected to the access roads for the SDG&E transmission line. This may be due to both legal (Border Patrol) and illegal activity. The proposed project would not create any new access from SR-98, but would extend access road spurs eastward from the SDG&E access roads. These spurs would appear likely to contribute incrementally to the disturbance of biological resources.

The amount of the additional disturbance is impossible to estimate, and given the large tracts of vacant desert surrounding the project area, is probably impossible to prevent. Barriers on the roads might exacerbate the problem, for instance, by simply encouraging disturbance of the adjacent desert to bypass the barriers.

There may be, during the life of the proposed transmission lines, a possibility that conductors will be replaced. In such cases, pull sites and other temporary work areas would be needed and would be temporarily disturbed. Different techniques and different

contractors may be used for reconductoring, so it is not possible to predict the effects of reconductoring with any degree of accuracy. Reconductoring is, however, infrequent, occurring generally at intervals of decades. When reconductoring is necessary, the operators of the line would inform and consult with BLM to develop mitigation for any impacts to biological resources according to engineering, environmental, and regulatory conditions prevailing at the time.

4.11.5 Cultural Resources

Operations and maintenance of the proposed transmission lines would use principally the access roads and work areas used during construction. Mitigation for cultural resource impacts of construction would include data recovery from all archaeological sites that could be affected by construction, and consequently, of all sites that would be expected to be affected by operations and maintenance.

Off-road activity associated with the access roads, as discussed in Section 4.10.4 above, could adversely affect cultural resources as well as biological resources. As with biological resources, the possible impacts to cultural resources are not possible to quantify and probably are impossible to effectively prevent.

If conductors are replaced, additional areas of temporary activity and disturbance may be needed for pull sites. Different techniques and different contractors may be used for reconductoring, so it is not possible to predict the effects of reconductoring with any degree of accuracy. Reconductoring is, however, infrequent, occurring generally at intervals of decades. When reconductoring is necessary, the operators of the line would inform and consult with BLM to develop mitigation for any impacts to cultural resources according to engineering, environmental, and regulatory conditions prevailing at the time.

4.12 Interrelated Projects and Cumulative Impacts

4.12.1 Transmission Line Construction and Operation Impacts

Two other transmission line projects have been identified as interrelated to the proposed project (see Section 2.4 of this EA). These two projects, like the proposed project, are intended to increase the ability to import electrical power generated in Mexico to the United States, and specifically into the southern California power grid. All are a response to the power crisis in California and other western states. It should be noted that these other projects are occurring independently of and are not associated with the proposed project. The two other projects are:

- SDG&E's proposed rebundling of the SDG&E 230 kV circuit position from the international border to the IV Substation; and

- SDG&E's plan to build a second circuit on the existing 230 kV transmission line from the international border to the IV Substation.

4.12.1.1 SDG&E 230kV Circuit Position Rebundling

Work on the SDG&E 230kV Circuit Position Rebundling project began on August 14, 2001, and was completed on October 5, 2001. Construction was conducted within the right-of-way of the SDG&E transmission line from the IV Substation to the international border, so it affects the same general area as the proposed BCP and SER transmission lines project. The SDG&E project differs from the BCP and SER projects in that the SDG&E project did not construct new structures, require new right-of-way, or result in new permanent impacts. While it will result in increased transmission capacity for the SDG&E line, it is more like an operations and maintenance project than a new transmission line.

SDG&E has been coordinated with the BLM separately to assure the protection of and to minimize impacts to cultural and biological resources during the rebundling project. Existing access roads were being used for construction as much as possible, and work near the lattice towers and poles was of a type that would be expected as the result of operations and maintenance activities compatible with the grant of the right-of-way from the BLM. SDG&E consulted with the BLM to minimize any adverse environmental effects of the SDG&E project. Archaeological and biological monitoring was employed by SDG&E to avoid adverse effects to sensitive resources.

The SDG&E project has been completed before the beginning of the BCP and SER projects. If mitigation measures recommended in this EA are implemented, both projects would be employing similar measures for the protection of resources, and cumulative impacts of the two projects would be mitigated.

4.12.1.2 SDG&E 230 kV Second Circuit

The SDG&E 230 kV Second Circuit project would add a second circuit to the SDG&E 230 kV transmission line from the IV Substation to the international border. SDG&E's current schedule calls for this second circuit to be in service around November 2002, and construction would be expected to take place after the BCP and SER transmission line project is completed. The second circuit would be installed in the empty position on the existing support structures. Therefore, the construction activity affecting the physical environment would be similar to that of the rebundling project, as described above. That is, existing access roads would be used as much as possible, there would be work areas around the support structures, and pull sites would be needed to string the conductors. Pull sites would have to be aligned with the insulators, so it would not be possible to reuse pull sites that were used for either the rebundling project or the BCP and SER project.

Since the new conductors would be installed in the empty position on existing structures, new structural construction would not be needed. For the protection of cultural and biological resources, it is anticipated that mitigation measures would be required similar to the ones that would be required of the rebundling project and of the BCP and SER project, as appropriate. It is anticipated that the second circuit project would be subject to review by the DOE and the BLM, and that appropriate measures to avoid and protect environmental resources would be required. Under those circumstances, the combination of the second circuit with the other interrelated projects would not be expected to result in substantial cumulative impacts.

4.12.2 Power Plant Cumulative Impacts – Project Area

This section considers the possible effects in the U.S. of all known new electric generating facilities that could affect the project area. Although there have been rumors that other power projects are to be sited in the border region, these have been found to be unsubstantiated, and DOE and BLM are not aware of any electric generating facilities in the project area other than the LRPC and TDM facilities actually being planned. Therefore, additional generation projects in the project area are not reasonably foreseeable. See section 4.12.4 for a discussion of generating facilities outside of the project area.

Air dispersion modeling analysis was conducted using the ISCST3 model to analyze the combined impacts from the entire LRPC, comprising three EAX turbines and one EBC combustion turbine, plus the TDM facility. LRPC generates power both for export to the U.S. and for domestic use in Mexico. The TDM facility generates power only for export to the U.S. The meteorological driver and receptor grids were the same as those used in the ISCST3 modeling for BCP described in Appendix B. The results of this analysis are shown in Table 4.12.1.

The increases in ambient concentrations of air pollutants along the U.S./Mexico border and points north resulting from air pollutant emissions from the entire LRPC and TDM generating facilities can be seen to remain below SLs established by U.S. EPA. As described earlier, SLs may be generally regarded as thresholds of impact on air quality below which impact is not viewed to be significant. Hence, in reference to these benchmark SLs, it may be viewed that there is little impact on U.S. air quality from all of the emissions from the entire LRPC and TDM facilities in Mexico that generate power for both the U.S. and Mexico, regardless of whether the generated power is for export to the U.S., or for use in Mexico.

4.12.3 Pipeline Project Cumulative Impacts

The natural gas to fuel the TDM, EBC, and EAX electric generating facilities will be provided by a new international pipeline system (see Section 1.4.3.1). The FERC has

TABLE 4.12.1
CUMULATIVE POWER PLANT EMISSIONS

Pollutant	Averaging Period	Significance Level (SL)	Concentration Increase at U.S. Receptors
Nitrogen dioxide	Annual	1.0 $\mu g/m^3$	0.8 $\mu g/m^3$
Carbon monoxide	1-hour	2,000 $\mu g/m^3$	70.0 $\mu g/m^3$
Carbon monoxide	8-hour	500 $\mu g/m^3$	30.8 $\mu g/m^3$
Particulate matter	24-hour	5.0 $\mu g/m^3$	4.5 $\mu g/m^3$
Particulate matter	Annual	1.0 $\mu g/m^3$	0.3 $\mu g/m^3$

issued a draft environmental impact statement (EIS) for the U.S. portion of this system (FERC/EIS-0132D), in conjunction with applications for a Certificate of Public Convenience and Necessity for an interstate pipeline and for a Presidential Permit for an international border crossing by North Baja Pipeline, LLC. That EIS discusses the emissions from electric generating facilities which will receive gas from the system. These include seven other individual units, in addition to the TDM, EBC, and EAX export units. Also discussed are impacts to vegetation and wildlife (including the flat-tailed horned lizard and burrowing owl), land use and visual resources, among others. NBP, LLC has recently submitted information in the FERC proceeding projecting that existing sources of air emissions in Mexico will switch from more polluting fuels to natural gas after the new pipeline system is in place, resulting in improved air quality in the U.S. (see Appendix E).

4.12.4 Other Cumulative Impacts – Project Area

In the Yuha Desert east of the Westside Main Canal, there are a number of activities that take place on a more or less continuing basis that may have impacts on environmental resources, particularly cultural and biological resources. These activities include legal and illegal off-road activities, Border Patrol activities, potential disturbance offered by the presence of access by way of SR-98, California Department of Transportation maintenance of SR-98, and camping and recreational uses. There are also two sand and gravel extraction sites near SR-98 leased from the BLM by the County of Imperial, although no active extraction is being conducted.

All of these activities have the potential to adversely affect plants and wildlife in the Yuha Desert area, and some may also have the potential to directly or indirectly adversely affect cultural resources. All may also contribute to adverse effects on environmental resources by increasing human presence and activity, and the potential for access to undisturbed or sensitive areas, in the area. Although the direct effects of the proposed project on biological and cultural resources could be mitigated by the measures recommended in this EA, incremental contributions to the kind of cumulative impacts herein described appear to be unavoidable. Because of the geographic attributes of the area involved, and in some cases the legal entitlement to continue the contributing activity, it appears that full avoidance or even specific measures for fully effective mitigation of the adverse effects are not available or possible.

4.13 Summary

Sempra Energy Resources and Baja California Power, Inc. propose to construct two double-circuit, 230 kV transmission lines between the Imperial Valley Substation and the international border for the purpose of importing electrical power generated in Mexico into the United States. In order to implement the project, SER and BCP would require the approval of Presidential permits by DOE to allow the international border crossing by

the transmission lines and the grant of two 120-foot-wide rights-of-way leased by BLM for construction, operation, and maintenance of the proposed lines. The federal actions, if approved by DOE and BLM, would allow implementation of the following four components, which constitute the proposed project:

- The construction, operation, maintenance, and connection of a double-circuit, 230-kV transmission line between the U.S./Mexico international border and the SDG&E Imperial Valley Substation by Sempra Energy Resources.
- The construction, operation, maintenance, and connection of a double-circuit, 230-kV transmission line between the U.S./Mexico international border and the SDG&E Imperial Valley Substation by Baja California Power, Inc.
- Relocation of six poles of the existing SDG&E 230 kV, single-circuit transmission line. The portion proposed to be relocated is that portion of the line immediately adjacent to the Imperial Valley Substation.
- Relocation of two poles of an existing 230-kV, single-circuit transmission line owned and operated by the Imperial Irrigation District near the Imperial Valley Substation.

In Chapter 4 of this EA, the environmental consequences of the proposed federal actions and the consequent implementation of the proposed project are evaluated and explained. Environmental protection measures that the applicants have committed to implement are listed in Section 2.2.6 of this EA. Mitigation measures committed to by the applicants are designed to protect biological, cultural, and paleontological resources. Impacts requiring mitigation on land use; air quality; geology, soils, and seismicity; visual resources; paleontological resources; and socioeconomics are not anticipated. The proposed project would not result in: irreversible or irretrievable commitments of resources, short-term benefits at the expense of long-term environmental degradation, or conflict with the intent of any Executive Orders relative to NEPA compliance.

The benefits of the proposed project would be substantial. The project, if approved and built, would substantially reduce the critical energy shortage being experienced by California and other western states. The transmission lines proposed by SER and BCP are intended to make power generated from the TDM and LRPC electrical generating facilities located in Mexico available to California consumers. Both transmission lines would benefit the public by improving the region's ability to meet current and future energy demands. The public would benefit from the construction of the transmission lines because the added power supply would increase energy transfer capability and system reliability and would reduce the region's dependence on other, less efficient generation.

5.0 Comments Received and Responses

The DOE received comments from 12 organizations and individuals on the pre-approval version of this Environmental Assessment. Comments were received from the following parties:

(1) Congressman Duncan Hunter, U.S. House of Representatives 52nd District, CA

(2) Congressman Bob Filner, U.S. House of Representatives 50th District, CA

(3) International Boundary and Water Commission, U.S. and Mexico

(4) U.S. Environmental Protection Agency, Region IX

(5) California Department of Transportation

(6) California Air Resources Board

(7) Air Pollution Control District of Imperial County

(8) Department of Public Works, Imperial County

(9) Planning/Building Department, Imperial County

(10) Border Power Plant Working Group

(11) American Lung Association

(12) Carlos Yruretagoyena, Calexico, California

In response to many of the comments DOE added sections to, corrected, clarified, or otherwise revised the EA. Each comment was reviewed for content and relevance to the environmental analyses presented in the EA.

Many commenters raised similar issues and concerns. In order to avoid duplication in responses to the same or similar issues, comments were categorized under major topics and a common response was prepared for each topic. Some comments raised topics that are not pertinent to the EA. In those cases DOE prepared a response but did not change the EA text.

After the close of the comment period on the pre-approval EA, DOE received approximately 400 substantially identical letters via electronic mail requesting that DOE

prepare an environmental impact statement to study the impacts of powerplant construction in the U.S.-Mexico border region. These letters also raised concern about the impacts associated with air emissions from and water use by these powerplants. The major issues summarized below also address the concerns and comments contained in those electronic mail letters.

The major issues raised by commenters and summarized in this section include:

Issue 1. Connected Actions

> *Commenters indicated that the federal agency actions analyzed in this EA (i.e., DOE's issuance of Presidential permits for the SER and BCP electric transmission line projects to cross the U.S./Mexico international border and BLM's issuance of rights-of-way for the transmission lines to cross BLM-administered land) and FERC's actions to issue a Certificate of Convenience and Necessity and a Presidential permit to cross the border to North Baja Pipeline, LLC (NBP, LLC) for the North Baja Natural Gas Pipeline Project, as well as the associated electric generating facilities in Mexico, are all "connected actions" within the meaning of NEPA and therefore are required to be analyzed in a single NEPA document.*

Response. DOE and BLM do not agree that the actions analyzed by DOE and BLM in this EA and the actions analyzed by FERC in a draft EIS for the North Baja Natural Gas Pipeline Project (FERC/EIS-0132D) are connected actions. While the agency actions (and the regulated applicant activities) for the transmission lines on the one hand and the pipeline on the other are related and complementary, in that they all would facilitate the operation of the electric generating facilities being constructed in Mexico, they are independent actions which serve distinct functions and which can proceed separately. The actions analyzed in this EA would allow a means for the applicants to market power in the U.S., while the actions analyzed in the FERC draft EIS would allow a means for U.S. natural gas to fuel several facilities in Mexico (and one in the U.S.), including those associated with the SER and BCP transmission line projects.

Under the Council of Environmental Quality's regulations implementing NEPA, actions are connected if they:

(i) automatically trigger other actions which may require environmental impact statements.

(ii) cannot or will not proceed unless other actions are taken previously or simultaneously.

(iii) are interdependent parts of a larger action and depend on the larger action for their justification.

40 CFR 1508.25(a)(1)

It is clear that the DOE and BLM regulatory actions will not automatically trigger FERC's actions, or vice versa. Each agency's action will be taken pursuant to its underlying authority, and these authorities are independent of each other. Thus, DOE and BLM granting the approvals necessary for the construction of the electric transmission lines under consideration in this EA will not automatically trigger FERC's decision to allow construction of the natural gas pipeline, nor will FERC's approval of the natural gas pipeline trigger decisions by DOE to grant the Presidential permits or by BLM to grant the rights of way for the transmission lines. Likewise, the actions to be taken by the applicants before DOE and BLM will not automatically trigger the actions to be taken by the applicant before FERC, and vice versa.

It is also clear that FERC's actions and the resulting applicant activities can proceed in the face of a decision by DOE or BLM to deny SER or BCP's application, and vice versa. Moreover, each set of actions has utility independent of the other, and it is reasonable to conclude that in each case the applicant(s) will proceed, even if approvals are not forthcoming for the other set of actions. In consultation with FERC staff, DOE and BLM have determined that there are currently under construction, approved for construction, or existing four electric generating facilities, three in Mexico and one in the U.S., which plan to burn natural gas supplied by the NBP LLC project. There are eleven individual units totaling about 3230 megawatts at these four plants. The DOE/BLM actions are related to only four of these units at two facilities totaling about 1160 megawatts. In addition, NBP LLC has submitted information to FERC projecting market demand for the gas from the new pipeline, in which the applicant asserts that the pipeline is a viable project without the generating facilities associated with the SER and BCP transmission lines (Appendix F). Therefore, NBP LLC will proceed with the pipeline project (and will need FERC's actions to do so), regardless of whether DOE and BLM's actions are taken.

Conversely, the DOE/BLM actions have utility independent of FERC's actions. The owners of the generating facilities have made substantial investment in the construction of the generating facilities (see Section 2.2.5), and it is reasonable to conclude that power will be available for export, regardless of the fuel source. Furthermore, SER and BCP have indicated that the owners of the generating facilities have identified possible alternate sources of fuel other than gas from the NBP LLC pipeline (Appendix G). Thus, SER and BCP will proceed with the transmission line projects (and will need the DOE Presidential permits and BLM rights of way), regardless of whether FERC takes its actions for the new pipeline.

Finally, the DOE/BLM actions and FERC's actions and the regulated applicant activities do not display the tight interdependency necessary to be considered parts of a larger action. The only nexus between the DOE/BLM actions and FERC approval actions is the generating facilities located in Mexico. DOE and BLM do not believe that this nexus is sufficient to characterize the actions as connected. The various agencies' actions influence different aspects of the facilities' operation. FERC's action will influence the source of fuel for the SER and BCP-related generating facilities. However, neither DOE nor BLM's action is dependent on, nor in any way influences, the fuel source for the generating facilities. The DOE action only regulates whether SER and BCP market their power in the U.S., while the BLM action only regulates whether and how SER and BCP cross federal land in order to market that power. Therefore, neither the DOE action nor the BLM action depends on a larger action for its justification.

With respect to the generating facilities themselves, it is arguable that they have sufficient independent utility such that they are not connected actions to the DOE/BLM actions, either. Neither DOE nor BLM has any regulatory jurisdiction or control over the facilities, and if DOE or BLM were to deny one or both applications, the owners could decide to complete construction and operate the facilities to market power in Mexico (see Section 2.1). However, without opining on whether the generating facilities are connected actions within the meaning of 40 CFR 1508.25(a)(1), DOE and BLM have elected to analyze the impacts in the U.S. of operation of the generating facilities, in the interest of fully informing the public about activities related to the DOE/BLM actions. For cumulative impact purposes, this EA also discusses the impacts in the U.S. of the generating facilities co-located with BCP facilities that will market power in Mexico (see Section 4.12.2). In addition, it acknowledges the related and complementary nature of the North Baja Pipeline Project by referencing the FERC draft EIS in the cumulative impacts discussion (see Section 4.12.3).

Issue 2. Air Quality Impacts

> *Commenters claimed that air pollutant emissions from the electric generating facilities in Mexico associated with the SER and BCP transmission lines would exacerbate the existing air quality problems within Imperial County, California, and cause serious health impacts. The levels of emissions that some commenters asserted would be emitted by these facilities were substantially higher than the levels analyzed in this EA.*

Response. The analysis in this EA conclusively demonstrates that the impacts in the U.S. caused by the emissions from the generating facilities associated with the SER and BCP transmission lines would be below levels that are used in a regulatory context to determine significance. The U.S. EPA has established significance levels (SL's) for the criteria pollutants NO_2, SO_2, CO, and PM_{10}. Where air dispersion modeling is

performed, the U.S. EPA does not require a full impact analysis when emissions of a pollutant from a proposed new source would not increase ambient concentrations by more than the prescribed SLs. Thus, SLs may be generally regarded as thresholds of impact below which impact is not viewed to be significant. Table 4.2.4 shows that the concentrations of the criteria pollutants from the combined emissions from the TDM, EBC, and EAX export turbines (those generating facilities specifically associated with the subject transmission lines) are below the SL's.

The methodology for the analysis is described in Appendix B. The estimated emissions from the generating facilities used in the analysis were taken from the information prepared to comply with Mexico's permitting requirements. These estimates were based on the operating characteristics of the facilities, including the pollution control equipment the applicants have agreed to install. DOE and BLM have reviewed this analysis and find it accurate. DOE and BLM do not agree with the undocumented higher levels of emissions asserted by the commenters. To the extent these higher levels may include emissions from facilities other than those associated with the SER and BCP transmission lines, DOE and BLM do not agree that they are within the scope of this EA.

Issue 3. Water Use/Quality

> *Commenters expressed concern about the additional use of water by the electric generating facilities in Mexico associated with the SER and BCP transmission lines. A general concern was expressed for any added water use in a region that has a scarcity of water. A specific concern was for how the use of water by the associated generating facilities in Mexico would change the volume and salinity of water entering the Salton Sea from the New River. Commenters suggested the use of dry cooling or a combination of wet/dry cooling technologies as a means of mitigating potential impacts on water use and salinity.*

Response. The draft version of this EA did not discuss the issues of water usage or quality. DOE and BLM have modified this EA to include discussions of existing water use/quality and potential impacts on water use/quality from the proposed actions. These discussions are found in sections 3.10 and 4.10, respectively.

As indicated in sections 3.10 and 4.10, total water flow into the Salton Sea from all sources is approximately 1,345,000 acre-feet per year. Water use by the TDM facility and the entire LRPC would reduce water flow into the Salton Sea by approximately 3,400 acre-feet per year and 7,170 acre-feet per year, respectively. Together, water use by these facilities would reduce water flow into the Salton Sea by 10,570 acre-feet per year or approximately 0.79 percent of the total water flow into the Salton Sea. This percent change in water flow is below the level of sensitivity of most water meters.

The TDM facility and the LRPC combined will remove approximately 6,120,000 pounds per year of total dissolved solids. The combination of reduced water flows and increased salinity of water discharges by the TDM facility and the LRPC results in a negligible change in salinity of the Salton Sea of 0.142 percent.

Issue 4. Mitigation

> *Commenters requested that DOE and BLM require the Mexican power plants be required to meet U.S. emission standards and employ Best Available Control Technologies (BACT). They also indicated that the issuance of permits by DOE and BLM should be conditioned on the implementation of measures designed to reduce the impacts on air and water from the associated electric generating facilities.*

Response. DOE and BLM believe that the owners of the TDM, EBC, and the EAX export turbines have taken substantial measures to mitigate the impacts from their facilities by voluntarily agreeing to equip them with pollution control technology that would significantly reduce emissions. The TDM facility will employ equipment which would be considered Best Available Control Technology (BACT) for facilities built in the U.S. These controls include dry low-NO_x combustor technology, a selective catalytic reduction system, and catalytic oxidizers for carbon monoxide emissions control. This technology will allow air emissions from the TDM facility to meet emissions standards established by the State of California. The EBC and EAX turbines designated for export to the U.S. also would be equipped with dry low-NOx combustors and SCR. As a result of the use of these emissions control technologies, the impacts on air quality (as shown in Table 4.2.4) from the criteria pollutants would be below the Significance Levels established by the U.S. EPA (see Issue 2, above). In addition, as discussed in Section 4.2.4.1, the owners of the EBC and EAX export turbines have agreed to participate in a program to foster sustainable development in the Imperial Valley by investigating ways to reduce ozone. Also, analysis of the impacts on water use by the associated Mexican powerplants and the resulting change in salinity of the Salton Sea (as discussed in section 4.10 and Issue 3., above) shows these impacts to be negligible.

Issue 5. Need for Environmental Impact Statement

> *Several commenters suggested that the impacts on the air quality in Imperial County and the impacts on the volume and salinity of the water entering the Salton Sea would be significant and could only be adequately addressed by preparation of an environmental impact statement.*

Response. The information and analyses contained in this EA do not support those assertions. As noted in the response above to Issue 2, the impact of all criteria air pollutants emitted by a combination of the TDM, ECB, and EAX export turbines is

predicted to be below all Significance Levels established by the U.S. EPA. Similarly, as indicated in the response to Issue 3 above, the change in the water flow into and the salinity of the Salton Sea has been calculated to be below the threshold of detection by most water measuring devices. Furthermore, assessment of the impacts on all other environmental resources, as discussed throughout this EA, has demonstrated that there would be no significant impacts from the subject projects. Consequently, preparation of an environmental impact statement is not warranted.

Issue 6. Other Permitting Requirements

> *Commenters noted that the applicants for Presidential permits and rights-of-way also must obtain permits from other federal and state agencies before either of these projects could be developed.*

DOE and BLM agree with these comments and have informed both applicants of their responsibilities for obtaining all other requisite permits.

Issue 7. Emergency Response Measures

> *Several commenters expressed concern that there appeared to be no emergency response plan to deal with the damage or destruction of the cross-border transmission lines due to terrorist actions, earthquakes, plane crashes, or other actions affecting the integrity of the proposed transmission lines.*

Response. One of the criteria that DOE considers before granting a Presidential permit is the impact of the proposed cross-border transmission line(s) on the reliability of the U.S. electric power supply system. In determining such reliability impact, technical studies are performed which model the operation of the regional electric power supply system under normal and emergency conditions. Emergency analysis assumes the immediate and total loss of the cross-border transmission line(s) during the operating conditions that would place the most stress on the electric power grid if the new facilities were instantaneously rendered unavailable, regardless of the cause. The results of these technical studies and the associated reliability analyses are not part of DOE's NEPA document.

6.0 Agencies, Persons, and Institutions Consulted

Argonne National Laboratory
- Edwin D. Pentecost, Program Manager/Terrestrial Ecologist

Cableados Industriales, S.A. de C.V. (CISA)
- Hector Aguilar, Technical Director

California Department of Fish and Game
- Kim Nichol, Wildlife Biologist

California Division of Mines and Geology
- Christopher Higgins, Geologist

EDAW, Inc.
- Bill Graham, Senior Associate
- Martin J. Watson, Environmental Analyst/Social Impact Specialist

Tribal Governments
- Barona
  - Clifford LaChappa, Sr.
- Campo
  - Gilbert Pablo
  - Ralph Goff
- Cuyapaipe
  - Tony Pinto
- Inaja-Cosmit
  - Rebecca Maxcy
- Jamul
  - Kenneth Meza
- La Posta
  - Gwendolyn Parada
- Manzanita
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DOE/EA-1391
December 2001

APPENDICES TO THE ENVIRONMENTAL ASSESSMENT for PRESIDENTIAL PERMIT APPLICATIONS for BAJA CALIFORNIA POWER, INC. and SEMPRA ENERGY RESOURCES

U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

U.S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
EL CENTRO, CALIFORNIA
Cooperating Agency
Reference Nos. CA-42892 and CA-42893

APPENDICES

A: Project Description
B: Air Quality
C: Biological Resources
D: Cultural Resources (separate and confidential)
E: North Baja Pipeline Submittal to FERC Regarding Air Quality Impacts
F: North Baja Pipeline Submittal to FERC Regarding Natural Gas Demand
G: Applicants' Submittals Regarding Possible Alternate Fuel Supply

APPENDIX A

Project Description

Project Description

Proposed Project Features

The information in this description is based on preliminary plans. Such information as the number and location of support structures is subject to change as plans are refined. Most of the information on project features in this EA is based on information supplied by Baja California Power, Inc. (BCP) and Sempra Energy Resources (SER). All information such as the area of impact should therefore be regarded as intended to indicate the general extent and scope of the project and related features rather than a precise evaluation of the final design.

This project proposes to construct two double-circuit, 230 kilovolt (kV) transmission lines from the existing SDG&E Imperial Valley Substation (IV Substation), continuing southerly approximately six miles to the U.S./Mexican border, where each line would connect with a corresponding transmission line in Mexico. The transmission lines would be carried on steel lattice towers from the border to just south of the IV Substation, where steel monopoles would be used for each transmission line to allow the crossing of the Southwest Power Link. The Southwest Power Link is a 500 kV transmission line that enters the IV Substation from the east at the substation's southeast corner. Suspended on the steel monopoles, the proposed transmission lines would be carried along the east side of the substation to enter it from the north, similar to the way the existing San Diego Gas and Electric Company (SDG&E) transmission line is connected to the IV Substation.

From the international border to the last tower south of the 500 kV line at the substation, both the BCP and SER rights-of-way would parallel the existing SDG&E transmission line. The right-of-way for the BCP transmission line would be adjacent to the existing right-of-way for the SDG&E transmission line and would be 120 feet wide, so that the centerline would be 120 feet east of the centerline of the SDG&E right-of-way. The centerline of the SER right-of-way would be 120 feet east of the proposed BCP right-of-way. For both the BCP and SER transmission lines, steel lattice towers would be erected on the centerlines of the rights-of-way. The towers would be approximately 900 to 1,100 feet apart and would be roughly in line with the existing SDG&E towers in an east-west direction.

In this description, the towers for both lines will be referred to by numbers consecutively from south to north, with Tower No. 1 at the international border and Tower No. 25 just south of the substation. Similarly, the steel monopoles will be referred to by numbers consecutively from south to the north of the substation. The SER and BCP lines would each have nine support structures north of the lattice towers. These would all be steel monopoles except for A-frame crossing structures for the SER line to cross under the Southwest Power Link. The crossing structures are included in the pole numbering system as No. 2 and No. 3. Tower No. 1 in the BCP line would be about 250 feet north

of the international border; Tower No. 1 in the SER line would be about 330 feet north of the international border. Tower No. 25 in both the BCP and SER lines would be about 750 feet south of the 500 kV Southwest Power Link transmission line.

At the substation, in order to clear the 500 kV Southwest Power Link transmission lines and the last Southwest Power Link tower before the entry of the 500 kV line into the substation from the east, the BCP right-of-way would diverge westerly to cross the Southwest Power Link on the west side of the 500 kV tower. The SER line would continue northerly to cross the Southwest Power Link on the east side of the 500 kV tower. The SDG&E line, which passes under the 500 kV transmission line west of the 500 kV tower, would have to be relocated about 60 feet farther westward to allow room for the BCP transmission line to pass beneath the 500 kV transmission line west of the 500 kV tower. The SDG&E right-of-way would be moved only 30 feet to the west, and would be reduced from 120 feet to 60 feet in width where the SDG&E line crosses under the Southwest Power Link.

North of the Southwest Power Link, the SDG&E line and the BCP line would both be in adjacent 60-foot-wide rights-of-way. The SER circuits, after transitioning from vertical arrays to horizontal ones to cross under the Southwest Power Link on A-frame structures, then back to vertical arrays on steel monopoles, would continue north in a 120-foot right-of-way. As the three 230 kV lines turn west north of the substation, the BCP and SDG&E line would remain in 60-foot-wide rights-of-way. The SER right-of-way, adjacent to the BCP right-of-way on the north, would be 70 feet wide from the turn west to the substation. The Imperial Irrigation District (IID) 230 kV transmission line 50-foot-wide right-of-way, immediately north of the substation, would be relocated westward to the west of and adjacent to SER's right-of-way.

From the lattice towers, the conductors for the SDG&E, BCP, and SER lines would transition to steel monopoles south of the Southwest Power Link. The SDG&E and BCP lines would angle slightly westward to pass beneath the 500 kV line on the west side of the 500 kV tower nearest the substation. The SER line would continue northward to cross under the 500 kV transmission line on special A-frame structures, with steel monopoles north of the crossing. All three lines, SDG&E's, BCP's, and SER's, would continue northward after the crossing on steel monopoles along the eastern side of the substation, turn west along the north side of the substation, and then turn south, paralleling IID's line, to enter the substation from the north. The SDG&E and SER lines would have one monopole south of the Southwest Power Link; the BCP line would have two. The SER line will have pairs of A-frame crossing structure north and south of the Southwest Power Link. North of the Southwest Power Link, the SDG&E line would have five monopoles, the BCP line would have seven, and the SER line would have six. The steel monopoles will be spaced about 290 to 540 feet apart, depending on their location. The IID line would continue to utilize the one existing wooden monopole that would be relocated and one new wooden monopole.

Access roads would be needed to each lattice tower and monopole for operations and maintenance activities. For north-south access to the lattice towers, SER and BCP propose to use the existing SDG&E access road. From that "mainline" access road, east-west spurs would be needed to access each steel tower. Because the new lattice towers will roughly line up with the existing SDG&E towers, extensions eastward from the SDG&E mainline road would be used instead of new north-south access roads to minimize permanent surface disturbance. The same east-west spur would be used for the BCP and SER towers at each tower location, also to minimize surface disturbance. There are a number of unpaved roads in the project area, especially near the substation, and wherever possible, these roads would be used instead of grading new ones.

Construction

Site preparation would begin with the grading of the SDG&E access roads, where necessary, and grading of new access roads to each tower location to allow the passage of construction equipment. Grading would create an unpaved roadbed about 10 to 12 feet wide. Access to the SDG&E access roads would be from State Route 98 or from existing roads to the IV Substation.

Towers and monopoles would be fabricated in segments in Mexico and carried to the construction site by helicopter. This would minimize the amount of laydown and work area required in the United States. Principal preparation at each tower and pole location would consist of preparing concrete foundation footings. Each tower would require four footings, one on each corner; a single footing would be needed for each monopole.

For each tower footing, a pit 3 to 4 feet in diameter would be excavated, approximately 15 feet deep. A reinforced concrete caisson would be cast in place in the excavated pit extending to above the ground surface. The concrete caissons would be allowed to cure for a minimum of seven days before the tower segments are mounted. It is anticipated that site preparation for the towers would proceed at a pace of about one and one-half sites per day.

The tower segments, an upper and lower segment for each tower, would be constructed of steel angle iron in Mexico and flown to the proper location in the United States by helicopter. The base segment would be lowered to the anchors and bolted in place by workers on the ground. Then the upper segment would be flown to the site and bolted to the lower segment. It is anticipated that the helicopter would spend about 15 minutes or less at each site to deliver the tower segments.

Two different sizes of lattice towers would be used, depending on function. Suspension towers, used where the cables will be strung in a straight line from one tower to the adjacent ones, would have a square base 30 feet by 30 feet. The last towers at the ends of the line ("dead end" towers) and three other towers in each line ("deflection" or "turning"

towers) would have a larger base, 40 feet by 40 feet. Dead end towers would be the first tower at the international border (Tower No. 1) and the last tower on the north (Tower No. 25). Deflection towers would be Tower No. 7, between the border and SR-98; Tower No. 13, just south of SR-98; and Tower No. 20, between SR-98 and the substation. Dead end and deflection towers would be about 157 feet high (above the ground surface). Suspension towers would be about 160 feet high.

Each tower would have three crossarms to carry the conductors, with cables suspended from insulators at the end of each crossarm. An additional crossarm at the top of the tower would carry, on each side of the tower, a static wire. The static wires would include the initial installation of communications fiber for system monitoring and additional black fiber for future communications use.

From the northernmost lattice tower in each transmission line, the conductors would pass on to steel monopoles to cross under the 500 kV Southwest Power Link to steel monopoles on the north side. The SER 230 kV transmission line, which would pass under the Southwest Power Link east of the 500 kV tower nearest the substation, would require special structures north and south of the 500 kV line to stabilize the SER conductors. Present plans show all three 230 kV transmission lines—SDG&E's, BCP's, and SER's—on steel monopoles north of the Southwest Power Link. However, it is possible that further refinement of design plans could use lattice towers in place of monopoles for part of the SER line.

In this description, monopoles are referred to by number, numbered consecutively from the southernmost pole (Pole No. 1) to the last pole before the conductors enter the substation. For the SER line, the pairs of A-frame crossing structures south and north of the Southwest Power Link are included in the pole numbering system as No. 2 and No. 3, respectively. Two types of monopoles would be used. Dead end and corner poles would be of heavier construction and would be about 95 feet high (above the ground surface). Suspension poles would be about 100 feet high. Dead end and corner poles in the SDG&E line would Poles No. 1, 5, and 6. Dead end and corner poles in the both the BCP and SER lines would be Poles No. 1, 7, and 9. Please note that the features of the BCP and SER lines north of the Southwest Power Link and the relocated SDG&E and IID lines, as described herein, are based on preliminary plans and may not represent the final design.

The monopoles would be brought to the site by truck in sections, assembled in laydown areas, and lifted into place using a 90-ton crane. If towers are used in place of poles for the SER line, the towers would be brought in by helicopter and assembled as described earlier.

To safely secure the SER conductors at the crossing of the Southwest Power Link, A-frame structures would be used. A pair of A-frames on the north and south sides of the

Southwest Power Link would be required for each circuit, for a total of four. Each A-frame would consist of two angled legs on each end, joined at the top to support a crossbar. Insulators to support the conductors would be suspended from the crossbar. Each leg of the A-frames would be bolted to a cylindrical concrete footing about 32 inches in diameter. A total of 16 footings would be needed for the A-frames.

The steel monopoles would be anchored in concrete footings poured in place. The footings would be approximately 8 feet in diameter and 15 to 25 feet deep for suspension poles and larger, about 10 feet in diameter, for dead end and corner poles. Holes for the pole and A-frame footings would be excavated using an augur. Guy wires will be needed for the corner poles.

Once the towers, poles, and crossing structures are in place, conductors would be strung on the SER and BCP lines for the entire length of the transmission lines, from the northernmost tower to the substation on the SDG&E line, and through the three southernmost poles on the IID line. The IID 230 kV conductor would be spliced, with new conductor being compression-connected to the existing conductor.

Truck-mounted cable-pulling equipment would be used to string the conductors on the support structures. Cables would be pulled through one segment of a transmission line, with each segment containing several towers or poles. To pull cables, truck-mounted cable-pulling equipment would be placed alongside the tower or monopole directly beneath the crossarm insulators (the "pull site") at the first and last towers or poles in the segment of the transmission line. The conductors would be pulled through the segment of line and attached to the insulators. Then the equipment would be moved to the next segment, with the "front-end" pull site just used becoming the "back-end" pull site for the next segment.

For the lattice towers, there would be 12 pull sites for each transmission line route, for a total of 24. The pull sites would be paired on each side of six towers in the BCP and SER transmission lines: Towers No. 1, the first tower north of the international border; No. 7, between the border and SR-98; No. 13 and No. 14, the two towers north and south of SR-98; No. 20, the tower at the angle between SR-98 and the substation; and No. 25, the northernmost tower.

For the monopoles near the substation, there would be pull sites at the first poles north of the lattice towers, Pole No. 1 in each line, and at the corners where the routes turn from north to west and from west south into the substation (Poles No. 5 and No. 6 for the SDG&E line, Poles No. 7 and No. 9 for the BCP and SER lines). Because the SDG&E transmission line in this section would be relocated westward, there would be pull sites for all three transmission lines. For the IID line, there would be one pull site at the IV Substation. Also, since each route would make right-angle turns in two locations, two pull sites for each circuit at each of these right angles, one aligned with each direction of

the turn, would be needed. The pull sites will be paired on each side of each pole, so a total of 30 pull sites would be needed for the monopoles around the substation.

Besides the conductors, both the SER and BCP lines would have two static wires atop the towers and poles above the conductors, one on each side. These static wires would include the initial installation of communications fiber (fiber-optic cable) for system monitoring, with additional black fiber for future communications use. At the 500 kV line crossing, these optical cables would be carried down the two poles on the SER and BCP lines on each side of the 500 kV line, buried in a trench from pole to pole under the 500 kV line, and carried back up the pole on the opposite side of the 500 kV line. It should be noted that SER is considering subleasing a portion or a majority of the fiber-optic cable to a subsidiary of Sempra Energy. If SER elects to do so, the fiber-optic cable for the SER line may be upsized so as to accommodate additional fibers. There would be no meaningful changes to construction techniques or to any equipment as a result of this possibility.

Construction would be completed by restoring disturbed ground surfaces to their original contours. Spoil dirt excavated for the footings would be spread on the ground, on access roads, or taken off-site for disposal in a permitted disposal site.

Areas of Construction Impact

Areas of permanent impact would be those areas where the surface of the ground would be permanently disturbed. Specifically, new access roads and footings or anchors for tower, monopole, or crossing structures are areas that would be permanently impacted. Areas of temporary impact are areas where construction activity may take place but where restoration of the surface is possible. These areas include the work areas used to erect the towers, monopoles, or crossing structures; pull sites; laydown areas for the monopoles; and the trenches for the optical cables under the 500 kV transmission line at the substation. In some places, areas of temporary disturbance would overlap.

The following calculations of areas of impact or disturbance are based on an evaluation of preliminary plans. As plans are refined, the areas of impact may change. This assessment is intended to indicate the scale of possible impacts and serve as a basis for the general calculation of mitigation requirements. It should be noted that many areas of temporary disturbance, such as work areas around towers or poles and pull sites, would certainly overlap at least partially, so the total estimate for temporary impact area is overestimated and therefore conservative (worst-case).

The steel lattice transmission towers would have cylindrical footings three to four feet in diameter at each corner. Therefore, at each tower site, the permanent impacts would be a total of 50.24 square feet (assuming a 4-foot diameter) for suspension towers, deflection towers, or dead end towers. For 25 towers, the total area of permanent impact would be

1,256 square feet for each transmission line, or 2,512 square feet for both the BCP and SER tower footings.

The towers at each tower location would line up very nearly in a straight line from west to east (roughly perpendicular to the right-of-way centerlines). To minimize ground disturbance, it is proposed that access roads to each of the BCP and SER towers be constructed by extending "spurs" from the existing, mainline north-south SDG&E access road eastward. A single east-west spur would serve both the BCP and SER towers at any given location. This means that, allowing for some variation in a straight-line connection, approximately 250 linear feet of new access road would be needed at each of 25 tower locations. Assuming that graded access roads would be 12 feet wide, approximately 3,000 square feet of access roads would be needed at each tower location. For 25 tower locations, the total would be 75,000 square feet, or about 1.72 acres.

Areas of temporary impact at each tower would include a work area around the tower that would include the area of excavation for the anchors. No laydown areas would be needed for the towers, since the tower sections would be delivered into the work area by helicopter after assembly in Mexico. Suspension towers would be 30 feet by 30 feet square at the base. Assuming that excavation for the anchors would be 12 feet by 12 feet and that the work area would be five feet from the outer edges of the excavation, a square work area 52 feet by 52 feet, or 2,704 square feet, would be needed around each suspension tower. Subtracting the 16 square feet of permanent impact area from this total yields 2,688 square feet, or 0.06 acres, of temporary impact for the work area at each suspension tower. For 40 total suspension towers, 20 in the BCP line and 20 in the SER line, the total area of temporary impact would be 107,520 square feet, or about 2.46 acres.

Five deflection or dead end towers would be needed in each of the new transmission lines. These towers, which would also be the locations for pull sites, would be 40 feet by 40 feet square at the base. With the same allowance for anchor excavations and allowing for five feet of work area around the excavations' outer edges, the work area at each deflection or dead end tower would be 62 feet by 62 feet, or 3,844 square feet. Subtracting 16 feet of permanent impact area, the temporary impact for work area at each deflection or dead end tower would be 3,828 square feet. For the ten towers of this type in both the BCP and SER lines, the total work area impact would be 38,280 square feet or about 0.88 acre.

In addition to the work area, 12 pull sites for each transmission line for the lattice towers would add to the area of temporary disturbance. The lattice tower pull sites would be 30 feet by 50 feet or 1,500 square feet, centered on the crossarms beneath the towers. In the tower portion of each transmission line, the total area needed for pull sites would be 18,000 square feet, or 0.4 acre. For the BCP line and SER line tower segments together, 36,000 square feet or a total of approximately 0.83 acre of lattice tower related pull sites

would be needed. This is a very conservative estimate, since there would be considerable overlap of work areas and pull sites.

North of the steel lattice towers, conductors would transition to steel monopoles with crossing structures in the SER line where it crosses under the 500 kV Southwest Power Link. Footings for the monopoles would be concrete cylinders poured in augured holes. For the mainline poles, the footings would be eight feet in diameter; for corner and dead end poles, ten feet in diameter. The mainline poles north and south of the 500 kV line would have pull sites, 30 feet by 50 feet, centered on both sides under the crossarms. Other pull sites would be located at the corner poles, oriented in both directions, four at each corner pole. Laydown areas would also be needed, located near each pole site. As previously indicated, the poles would be assembled in sections on-site.

The relocated SDG&E line and the BCP line would be close together and close to the eastern and northern sides of the substation in the pole portion of their routes. The portion of the SER line directly north of the substation would be close to the BCP and the relocated IID lines. Poles would be closer than towers to each other. It should be noted that this area of the project site has been disturbed by past activity. The relocation of the SDG&E line and the construction of the BCP and SER lines would probably be carried out by different contractors using somewhat different construction methods. In addition, the existing SDG&E line structures (mostly wooden H-poles) would be removed as part of the relocation. Therefore, this area, which is the object of the relocation of the SDG&E line and the construction of the BCP line (that is, the area immediately east and immediately north of the IV Substation), would be subject to fairly intense construction activity.

It is reasonable to regard the entire corridor containing the BCP and relocated SDG&E and IID transmission lines in this location, for the purpose of evaluating temporary impacts, as a construction site rather than as discrete areas of activity and disturbance. (Discussion of potential impacts of the SER line in the area east and north of the IV Substation is provided below.) So regarded, the corridor would be about 2,500 feet long and 120 feet wide along the east side of the substation. Immediately north of the substation, the SER right-of-way and IID line relocation area would be adjacent to the BCP and SER work areas in an area about 600 feet long and 190 feet wide. Combined, this area of work activity on the east and north sides of the substation would be about 414,000 square feet or about 9.5 acres. It is likely that not all of this corridor would be disturbed, but for the reasons stated above, it is difficult to determine at this time precisely how much disturbance would occur, or where. This method for calculating impacts results in a conservative overestimation of the impacts in this area. The area should be considered an area of potential environmental effect within which impacts would occur to a smaller total area.

Since the SER line would be 400 to 500 feet east of the BCP line to clear the Southwest Power Link tower, it would not be included in the SDG&E/BCP corridor on the east side of the substation, so that evaluating discrete areas of temporary impact is more appropriate for the SER line along this area. At the southern dead end pole on this segment, Pole No. 1, an area centered on the pole, 90 feet wide, and 50 feet long would include both pull sites and a work area. This would amount to 4,500 feet, or about 0.1 acre. At the northeastern corner pole, Pole No. 7, an area centered on the pole and 90 feet square would include all four pull sites and a work area. This would amount to 8,100 square feet or about 0.19 acre.

Between Pole No. 1 and Pole No. 7 of the SER line, there would be three suspension poles and two pairs of A-frame structures. An additional suspension pole, No. 8, is located between corner Pole No. 7 and is within the part of the BCP/SDG&E area of potential effect directly north of the substation. A work area around each pole about 25 feet in diameter would be needed, and a work area for each pair of A-frames would need to be about 25 feet by 135 feet. The total area of work areas of these dimensions would be about 8,220 square feet or about 0.19 acre. Additional areas of temporary disturbance in this segment would result at laydown areas. A laydown area about 50 feet by 150 feet, or about 7,500 feet, would be needed at each pole location. For 7 locations on the SER line, this would total 52,500 square feet, or about 1.21 acres.

At the Southwest Power Link crossings, the static wires for the SER and BCP lines would be brought down the monopole south of the 500 kV line crossing and placed underground in a trench to cross the 500 kV line to the monopole north of the 500 kV line, and there brought back up the monopole to the upper crossarm. The trench would be relatively shallow and would be dug by hand. In the BCP/SDG&E line area, the trench temporary impacts are included in the construction corridor described above. In the SER corridor, the area of temporary impact for trenching would be about 3 feet wide and 900 feet long, about 2,700 square feet or 0.06 acre.

Permanent impacts in the monopole section of the SDG&E, BCP, SER, and IID transmission lines would result from structure footings and access roads. For suspension poles, the footings would have a surface area of about 50.24 square feet. There would be 15 suspension poles in all four lines for a total permanent impact area from suspension pole footings of about 755 square feet. Dead end or corner poles would have a footing area of about 78.5 square feet. The nine dead end or corner poles would have a total footing permanent impact area of about 707 square feet. The 16 footings for the SER crossing structures would have surface area of about 5.3 square feet each, for a total of about 85 square feet. Adding these figures, the total area of permanent impact for structure footings for all three lines would be about 1, 547 square feet, or less than 0.04 acre.

Access roads would also be areas of permanent impact. The access roads to the monopoles could be configured a number of ways. There are a number of roads already present in the area east of the substation that might be used. If it is assumed for worst-case impact assessment that all new roads would be needed to access each structure location, and that the new roads would be configured in a way to minimize impacts, a total of about 5,650 linear feet would be required to access all poles. If the access roads are 12 feet wide, this equates to approximately 67,800 square feet or less than 1.56 acres of permanent impact for access roads associated with the poles would result. Total permanent impacts for the monopole portion of the project, including the footings and access roads for the SDG&E, BCP, IID, and SER lines, would therefore be approximately 1.6 acres.

For the entire project (the moving of the SDG&E and IID lines and construction of both the BCP and SER lines), the total area of permanent impact would be approximately 3.38 acres. Discrete areas of temporary impact, as assessed above, would total approximately 5.92 acres. In addition, there would be unquantified areas of temporary impact within the 9.5-acre area of potential effect for the SDG&E and BCP lines near the IV Substation.

APPENDIX B

Air Quality

Air Quality Appendix B-1
for
Baja California Power, Inc.
Energía de Baja California
Energía Azteca X

Appendix B-1: BCP Air Quality Modeling Analysis

I. Technical Description

The BCP transmission line would be connected to the La Rosita Power Complex (LRPC), which consists of four natural gas fired combustion turbines with associated heat recovery steam generators (HRSG) and two steam turbine generators. The LRPC is located in Mexicali, Baja California, Mexico, approximately 3 miles south of the US-Mexico border. Two of the four LRPC combustion turbines will generate a nominal 560 MW of power for export to the U.S. One combustion turbine is owned by Energía de Baja California, S. de R.L. de C.V. (EBC), and the other turbine is owned by Energía Azteca X, S. de R.L. de C.V (EAX). EAX also owns the remaining two combustion turbines that will supply power to the Comisión Federal de Electricidad (CFE) under a 25-year power purchase contract.

All four LRPC combustion turbines are Model 501F machines provided by Siemens-Westinghouse (SW). The SW machine utilizes dry, low-NO_X combustion technology to reduce emissions of nitrogen oxides (NO_X). Additionally, two of these units will be fitted with selective catalytic reduction (SCR) technology that will further reduce the emissions of NO_X from these units to a level of approximately 4 parts per million (ppm). These emission levels are well below the Mexican standards (*Norma Oficial Mexicana – 085*) of 139 ppm. In addition, these emission levels are below the latest guidelines for new power plants published by the World Bank in July 1998, which sets the limit at 155 ppm. The LRPC generation facilities will run exclusively on natural gas. The CO emissions from each of the LRPC turbines is 25 ppm.

The Project will, in accordance with specific Mexican requirements (*Norma Oficial Mexicana -- 037*), be required to operate with a continuous emissions monitoring system (CEMS) that gives real-time data on emission rates to verify that the standards are in fact being met. In addition, the project will operate a network of ambient air quality monitoring stations to be designed in conjunction with local authorities that will enhance their existing air quality monitoring systems and provide valuable information for the communities in the area relative to ambient air quality.

EAX and EBC are located on sites immediately adjacent to each other, forming the La Rosita Power Complex. The three EAX turbines are being constructed as a result of an international solicitation by the Comisión Federal de Electricidad (CFE), Mexico's national electric utility, for a power generation facility. The generation capacity of the

three EAX turbines is a nominal 750 MW.. Only one of the units operated by EAX will export power to the U.S. The other two EAX units will provide power to CFE.

II. Air Dispersion Modeling Methodology

While the combustion technology is highly efficient and produces fewer emissions per unit of generation than technologies using other fuels, such as fuel oil or coal, the impacts on air quality require a detailed analysis to ensure that all regulations are met and that no negative health impacts are generated. Because the generation facility will not be located within the United States, U.S. Environmental Protection Agency (U.S. EPA) environmental standards do not apply. Nonetheless, BCP and its affiliates voluntarily incorporated U.S. EPA guidelines for dispersion modeling into the Air Quality Impact Assessment (AQIA) performed for the generation facility. The AQIA presented here was developed for the two export units.

Air quality impact assessments typically have the following steps:

A. Definition of existing concentrations of specific pollutants in the area of interest
B. Estimation of emissions from the project
C. Dispersion modeling to estimate the increase in ambient concentration of the specified pollutants resulting from the project emissions

Each of these steps has been performed for the generation facilities.

II.1. Definition of existing concentrations of specific pollutants

Background concentration levels were available from monitoring stations that are operated by the U.S./Mexico Border Information Center on Air Pollution, a center run under the auspices of the U.S. EPA. Mexicali data for 1997-1998 were used to determine the background concentration levels, along with data obtained from the U.S. EPA in the United States in the border region. Table B-1.1 shows the background levels obtained.

TABLE B1.1
Imperial County Maximum Background Levels
(micrograms per cubic meter)[1]
*All maximum concentrations occurred at Calexico Ethel Street monitoring site.

Averaging Period	NO_2 *	CO *	PM_{10} *
1-Hour	483.2 (1998)	36480 (1995)	----
8-Hour	----	26140 (1995)	----
24-Hour	----	----	568 (1998)
Annual	29.7 (1995)	----	109.8 (1996)

1 Based on Cal-EPA/Air Resources Board *California Ambient Air Quality Data 1980-1998* CD-ROM, December 1999. Values shown represent the maximum values for several air stations located in Calexico, El Centro, Niland and Westmoreland during the 1992-1998 monitoring period. Original values in parts per million were adjusted using *AP-42, Appendix A* factors.

II.2 Estimation of Emissions

The estimated project emissions were calculated based on data from the combustion turbine and heat recovery steam generator vendors. The following table summarizes the dispersion modeling stack parameters during maximum load operations, including duct-firing of the HRSG.

Table B2: Atmospheric Dispersion Modeling Stack Parameters

Turbine Type	Stack Height (m)	Stack Diameter (m)	Stack Temperature (C)	Exit Velocity (m/s)	Emission Rates per turbine (g/s)		
					CO	NO_2	PM_{10}
EAX (gas, combined cycle)	56	5.49	85	21.56	15.16	3.1	6.17
EBC (gas, combined cycle)	56	5.49	85	21.56	15.16	3.1	6.17

II.3 Dispersion Modeling

A dispersion modeling analysis was performed using the U.S. EPA's Industrial Source Complex Short-Term 3 (ISCST3) model (Version 00101). The ISCST3 model is a steady state, multiple-source, Gaussian dispersion model and is applicable for estimating ambient impacts from point, area, and volume sources out to a distance of about 30 miles (50 kilometers), and includes algorithms for addressing building downwash influences,

dry and wet deposition, and complex terrain. The ISCST3 model includes many options to address unique modeling requirements. Some of these options are discussed below, and the options chosen for analyses performed for this proposed project are identified.

ISCST3 incorporates simple terrain algorithms for estimating impacts at receptors where ground-level elevations are equal to or less than the heights of the emission sources (stacks). To estimate impacts at receptors with ground-level elevations that exceed the final plume height centerline, the ISCST3 model incorporates complex terrain algorithms from the COMPLEX-I model. In default mode, the model follows U.S. EPA's guidance for calculation of impacts in intermediate terrain, that is, where ground-level elevations are located between the emissions release height and the final plume height centerline. For intermediate terrain receptors, the ISCST3 model calculates concentrations using both simple terrain algorithms and complex terrain algorithms. The model then compares the predicted concentrations at each receptor, on an hourly basis, and the highest concentration per receptor is output from the model. The results presented were derived from using all three terrain algorithms.

The technical options selected for the ISCST3 modeling are listed below. These are referred to as the regulatory default options in the ISCST3 Users Guide. The input options for ISCST3 are as follows:

- Final plume rise
- Buoyancy-induced dispersion
- Stack tip downwash
- Rural dispersion coefficients
- Calm processing routine
- Default wind profile exponents (rural)
- Default vertical temperature gradients
- Anemometer height = 10 meters.

II.3.1 Meteorology

The meteorological data set deemed most representative of the Mexicali-Calexico region was five years (1990-1994) of hourly surface meteorological data collected at Imperial, California, with Holzworth seasonal average mixing height data (CARB, 2001a; Holzworth, 1972). The Imperial meteorological data set is from the National Weather Service through the CARB archives.

II.3.2 Receptor Grids

A Cartesian receptor grid was used in the modeling analysis. The receptors extend to a distance of approximately 12 kilometers from the proposed turbine source. Beginning at the facility and moving outward, receptors were placed at 250 meter, 500 meter and 1,000 meter increments.

A refined receptor grid with 50-meter grid spacing was placed near at the border in an area where elevated concentrations were predicted. Placing a grid with 125-meter spacing around these points further refined the locations and maximum concentrations at locations south of the border.

In addition to the regularly spaced receptor grids, UTM coordinates corresponding with the ambient air quality monitoring stations were set up as receptor points in order to evaluate impacts at the locations of maximum background air pollution. Since the ambient air monitoring stations are located in generally more densely populated areas, this was done in order to compare the maximum predicted concentrations with the overall maximum predicted concentrations elsewhere on the receptor grids.

III. Results and Conclusion

The Mexican Government and U.S. EPA have developed ambient air quality standards for several pollutants (referred to as "Criteria Pollutants"). These pollutants include nitrogen dioxide, carbon monoxide and particulate matter less than or equal to10 microns in aerodynamic diameter (PM10). If measured or predicted concentrations of the criteria pollutants are below the ambient standard, no health effects are expected. According to the ISCST3 model, the predicted increase in concentration levels of the generation facilities' emissions would not, when added to existing background levels, exceed any of the threshold safety levels established by the Mexican Government. The attached isopleth plots (Figures B1 through B5) of the model results show that the maximum impacts will occur in Mexico in areas of elevated terrain. Impacts decrease in the direction of the border and continue to decrease as the plume moves north into the United States.

The regulatory jurisdiction of the U.S. EPA does not pertain to air pollutant emissions in Mexico; nevertheless, a useful benchmark found within U.S. EPA air permitting regulations and permitting guidance can be drawn upon to help assess the significance of these predicted increases from Mexican sources at the U.S. border and points north. In the context of permitting a major source or major modification in the U.S., the U.S. EPA has established significance levels (henceforth SLs) for the criteria pollutants NO2, SO2,

and PM10 below which a major source or modification in the U.S will not be considered to cause or contribute to a violation of a NAAQS at any locality that does not meet NAAQS (40 CFR 51.165). In addition, U.S. EPA permitting guidance describes the impact area required air quality analysis to be a geographical area that exceeds these SLs. Where air dispersion modeling is performed, the U.S. EPA does not require a full impact analysis when emissions of a pollutant from a proposed source or modification would not increase ambient concentrations by more than these prescribed SLs. Thus SLs may be generally regarded as thresholds of impact below which impact is not viewed to be significant.

The combined increased pollutant concentrations resulting from emissions from the EBC and EAX export turbines are shown in Table B-1.3 (in micrograms per cubic meter). As can be seen, the pollutant levels at the U.S./Mexico border would still be well below U.S. EPA's SL thresholds. For example, the annual level of nitrogen dioxide in the U.S. receptor grid areas affected by the generation facilities tied to the proposed transmission line will be 0.15 µg/m3; the SIL for nitrogen dioxide is 1.0 µg/m3. The one-hour increase in carbon monoxide concentration levels in the U.S. will be 24.6 µg/m3; the SL is 2,000 µg/m3. For particulate matter, the 24-hour increase will be 1.7 µg/m3; the SIL is 5.0 µg/m3. The annual average increase of particulate matter will be 0.30 µg/m3 compared to an SL of 1.0 µg/m3. Thus, none of the increased concentration levels will exceed the U.S. EPA's SL.

Table B-1.3. U.S. EPA Significance Levels, Mexican Standards, and Power Generation Facilities Project Dispersion Modeling Results (micrograms per cubic meter)

Pollutant	Averaging Period	Mexico Standard	Significance Level (SL)	Concentration Increase –U.S. Receptors
Nitrogen dioxide	1-hour	395 µg/m^3	N/A	4.72 µg/m^3
Nitrogen dioxide	Annual	N/A	1.0 µg/m^3	0.15 µg/m^3
Carbon monoxide	1-Hour	N/A	2,000 µg/m^3	24.6 µg/m^3
Carbon monoxide	8-Hour	12,595 µg/m^3	500 µg/m^3	10.7 µg/m^3
Particulate matter	24-Hour	150 µg/m^3	5.0 µg/m^3	1.7 µg/m^3
Particulate matter	Annual	50 µg/m^3	1.0 µg/m^3	0.10 µg/m^3

All predicted concentration increases in the U.S. assessed at distinct points along the U.S./Mexico border and at points north of the U.S. border are below the SILs. Thus, no significant degradation of air quality is expected to occur at or north of the U.S. border as a result of the generation facilities associated with Baja California Power, Inc.'s transmission line.

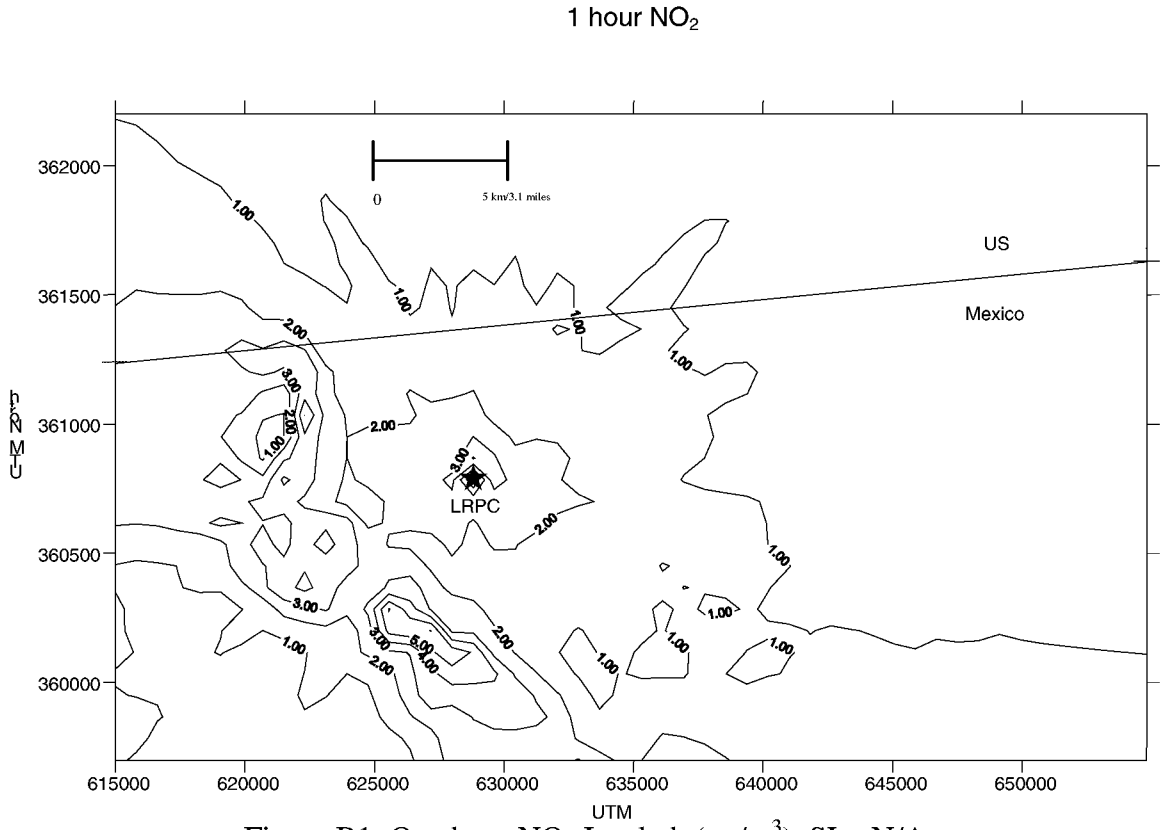

Figure B1: One hour NO_2 Isopleth ($\mu g/m^3$) SL: N/A

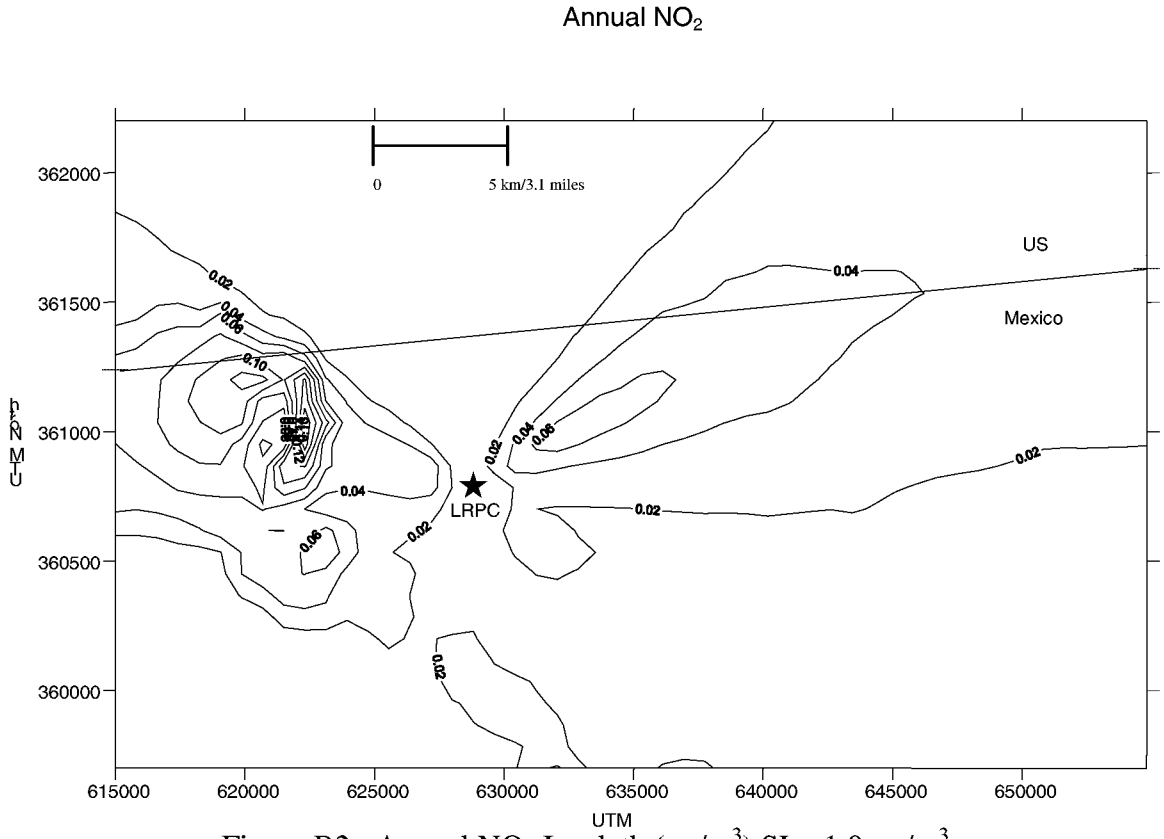

Figure B2: Annual NO_2 Isopleth (µg/m^3) SL: 1.0 µg/m^3

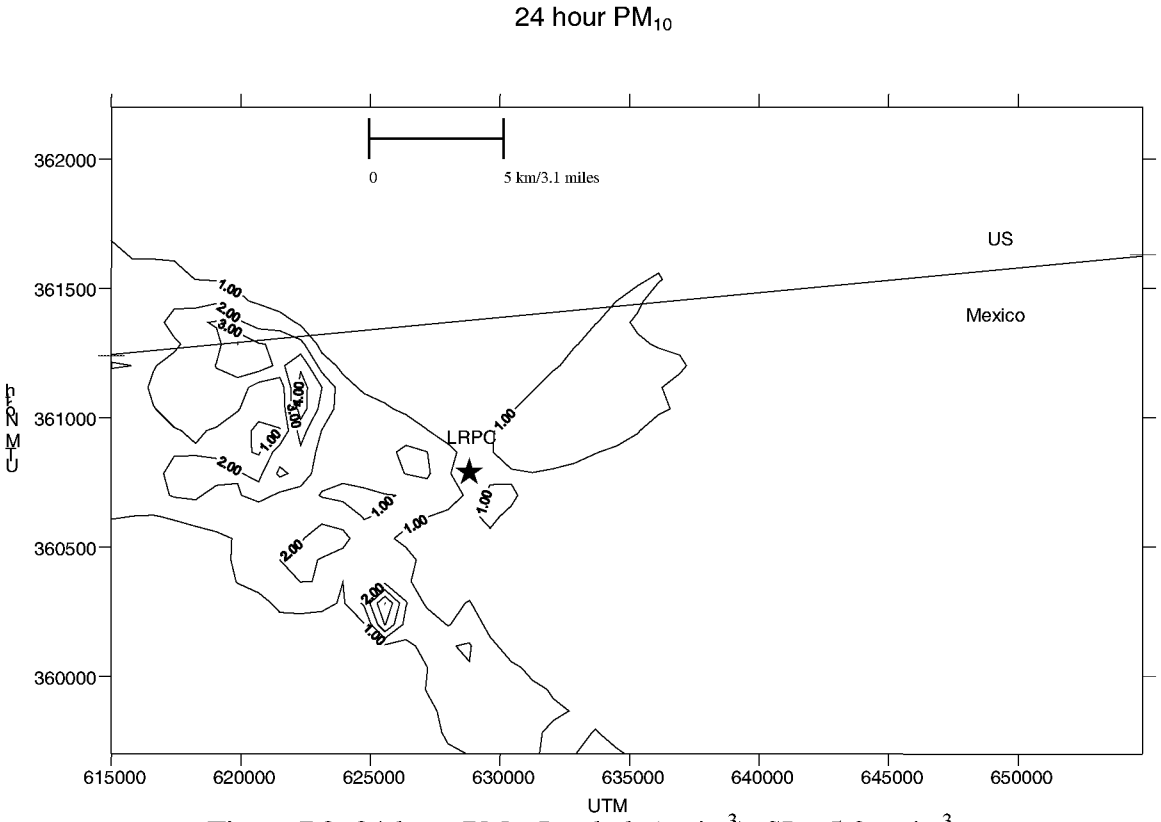

Figure B3: 24-hour PM_{10} Isopleth ($\mu g/m^3$) SL: 5.0 $\mu g/m^3$

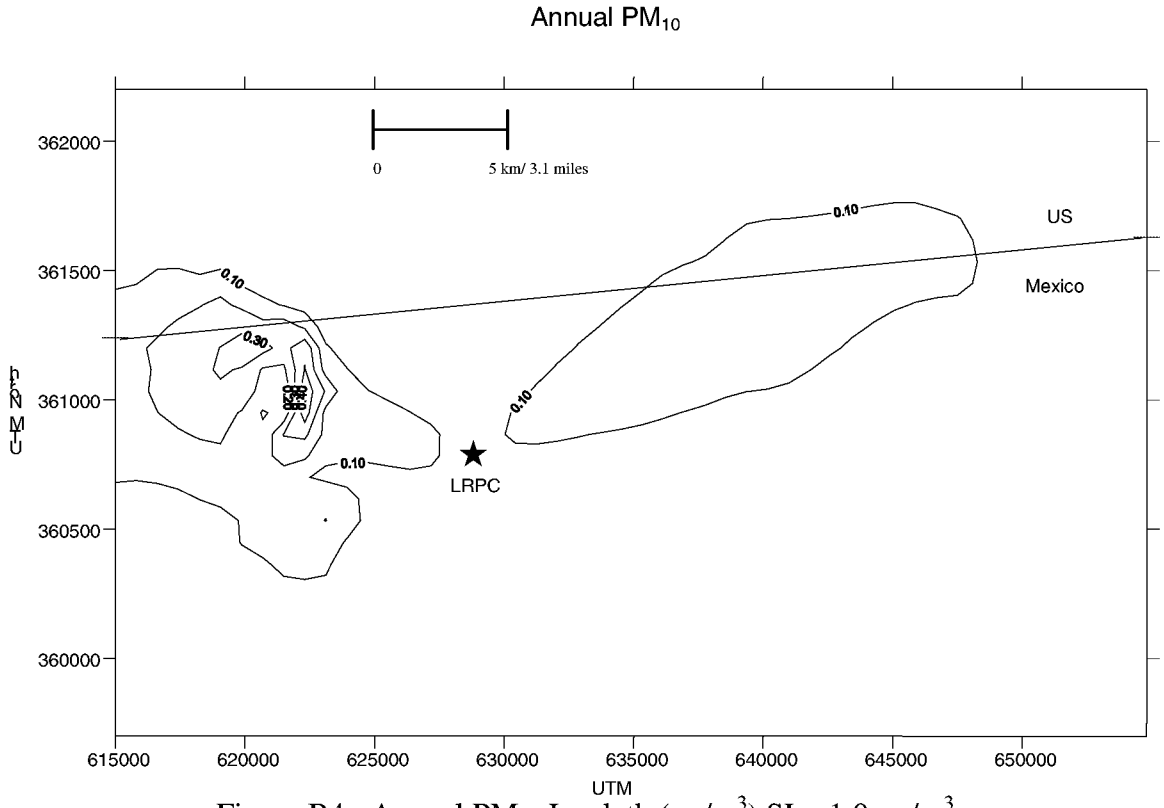

Figure B4: Annual PM_{10} Isopleth ($\mu g/m^3$) SL: 1.0 $\mu g/m^3$

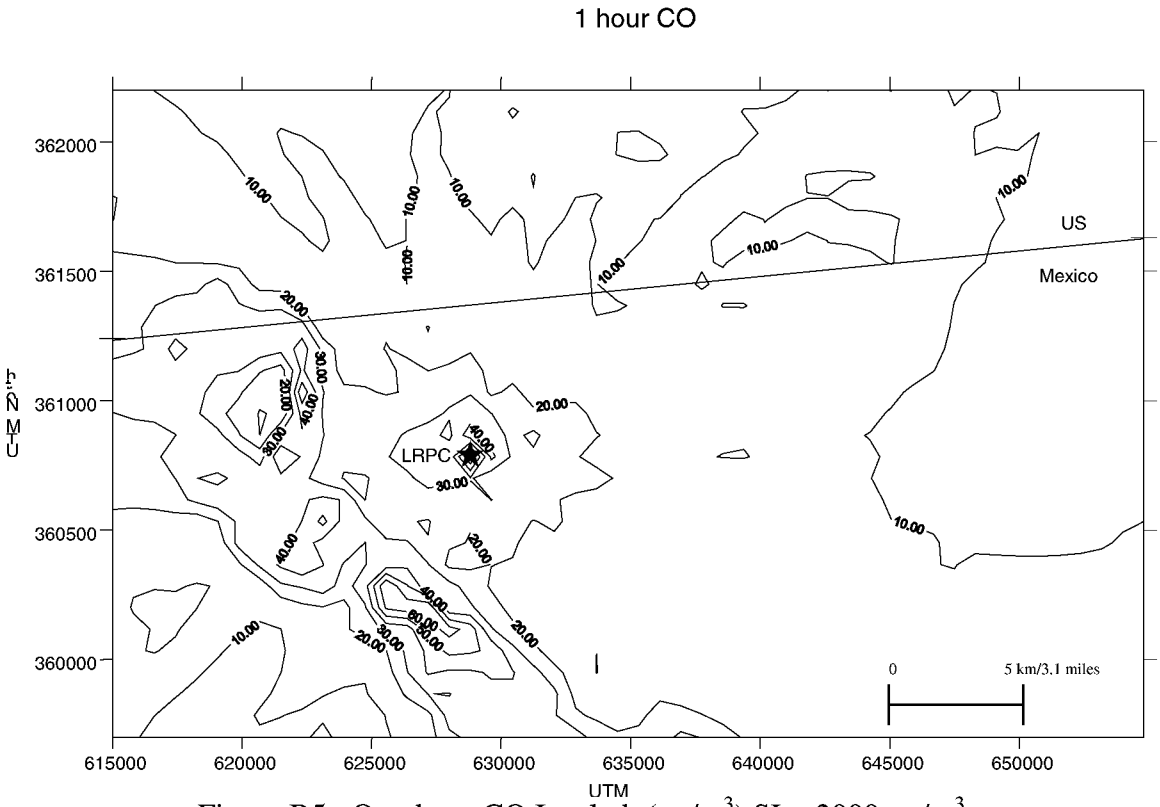

Figure B5: One-hour CO Isopleth (µg/m^3) SL: 2000 µg/m^3

Air Quality Appendix B-2
for
Sempra Energy Resources
Termoeléctrica de Mexicali Power Project

APPENDIX B-2: SER AIR QUALITY MODELING ANALYSIS

An air dispersion modeling analysis was performed to estimate the off-site, ground-level ambient air concentrations of particulate matter (PM_{10}, comprised of airborne particles less than or equal to 10 microns in aerodynamic diameter), nitrogen dioxide (NO_2) and carbon monoxide (CO) resulting from the proposed combined cycle Termoeléctrica de Mexicali (TDM) plant located in Mexicali, Mexico.

In addition, one of the considerations that should be made in order to determine whether a pollution control project is considered environmentally beneficial, is to evaluate if potential emissions of hazardous pollutants meet existing rules or pose a threat to human health and welfare. To address this issue, an air dispersion modeling analysis was performed to estimate the off-site, ground-level ambient air concentrations of potential hazardous air pollutants (HAPs). Results of the analysis are compared with the U.S. EPA Reference Exposure Levels (RELs) and Unit Risk Factors (URFs) as indication of the potential health effects associated with the potentially hazardous air pollutants.

This section describes the modeling methodology, including the assumptions, the dispersion model, and the model input parameters that were used. The modeling methodology is based on the U.S. EPA's Guideline on Air Quality Models (incorporated as Appendix W of 40 CFR 51) and uses an U.S. EPA-approved air dispersion model.

I. AIR DISPERSION MODELING METHODOLOGY

The U.S. EPA 1999 Guideline on Air Quality Models (GAQM) specifies the use of the U.S. EPA Industrial Source Complex Short Term (ISCST3) model for computing downwind pollutant concentrations. If the highest predicted concentrations from the analysis are within the range of acceptable criteria, then it can be reasonably assumed that the actual concentrations are well within the acceptable criteria.

The ISCST3 model, described in "Appendix B: BCP Air Quality Modeling Analysis" was used to predict the ground-level ambient air concentrations of PM_{10}, NO_2, CO, and air toxics resulting from the proposed combined cycle TDM plant.

I.1 Model Input Parameters

The ISCST3 model requires source specific stack parameters as input to the model. These parameters include stack height, stack diameter, flue gas exit temperature, volumetric flow, and pollutant emission rate. Additional site-specific input parameters include building dimensions for the dominant building producing downwash and characterization of the surrounding terrain. Terrain elevation input to the model is discussed in subsection I.2. Both heat recovery steam generators (HRSG) were modeled to determine cumulative impacts. Table B-2.1 presents the stack parameters based on operation of both HRSGs.

I.2 Terrain

Modeling runs were performed with both simple terrain only and complex terrain only. Simple terrain does not take terrain elevations into consideration. Complex terrain allows for elevated terrain height. The terrain elevations used as input into the ISCST3 model were taken from a digital elevation map of the proposed site location. Modeling receptor locations were determined by using a multi-tier grid with different tier spacing. The grid was defined according to the 1998 U.S. EPA Office of Solid Waste (OSW) Human Health Risk Assessment Protocol (HHRAP) and the 1999 U.S. EPA OSW Screening Level Ecological Risk Assessment Protocol (SLERAP). The grid is defined by two tiers. The first tier is a 100-meter spaced grid from the centroid of the emission sources out to a radius of 3 km. The second tier is a 500-meter spaced grid extending from 3 km to 10 km.

I.3 Meteorology

The ISCST3 model was run using two years (1997 and 1998) of meteorological data from the four California Air Resources Board (CARB) Monitoring Stations located in Mexicali, Mexico. It was necessary to use four stations in order to obtain all of the required parameters for the modeling analysis, as none of the meteorological monitoring sites had a complete set of data. Specifically, the most complete set of data was used as the basis for the meteorological data set, and was augmented, where necessary, with data from the other three stations. Site specific meteorology is a key determinant in the identification of potential impacts. The analysis takes into account hourly wind data (i.e., direction and velocity) for each hour of the year and computes 24-hour concentrations for PM_{10}, and annual concentrations for PM_{10} and air toxics. Hourly concentrations for CO, NO_2, and air toxics and 8-hour concentrations for CO were also calculated.

II. RESULTS

The ISCST3 air dispersion model was used to perform an air dispersion analysis to estimate the off-site, ground-level ambient air concentrations of PM_{10}, NO_2, CO and air toxics resulting from the proposed combined cycle Termoeléctrica de Mexicali plant. Ground-level concentrations were determined, based on the simultaneous operation of both HRSGs at full load operation, when firing natural gas. The output data from the air dispersion modeling analysis are attached to the end of this Appendix and the results are summarized in Table B-2.2 with the applicable thresholds.

Table B-2.1
MODELING INPUT PARAMETERS [a]

Parameter	HRSG1	HRSG2
Stack Height (m)	51.8	51.8
Stack Diameter (m)	5.5	5.5
Exit Temperature (°C)	87	87
Stack Outlet Flow (m^3/hr)	1,711,200	1,711,200
Criteria Pollutant Emission rates (kg/hr)		
PM_{10}	12.3	12.3
NO_2	9.7	9.7
CO	9.4	9.4
Non-criteria Pollutant Emission Rates (kg/hr)[b]		
Acetaldehyde	0.061	0.061
Ammonia	14.3	14.3
Benzene	0.013	0.013
1,3-butadiene	0.00013	0.00013
Formaldehyde	0.010	0.010
Hexane	0.22	0.22
PAHs	0.00043	0.00043
Toluene	0.065	0.065
Xylene	0.022	0.022
Cyanide	0.000039	0.000039
Mercury	0.00000039	0.00000039

Downwash Building Dimensions

Building	Building Height (m)	Min. Horizontal Dimension (m)	Max. Horizontal Dimension (m)
HRSG	32.0	7.3	48.2
Cooling Tower	17.7	32.9	113
Control Building	4.0	22.0	27.5
Warehouse	7.0	18.0	28.0
Service Water/Fire Water Storage Tank	13.1	36.6 (diameter)	--
Combustion Turbine, ea.	18.6	14.6	31.7
Steam Turbine	17.1	14.0	32.6
Administration Building	4.0	22.0	22.0

[a] *All stack parameters are based on maximum load operation.*
[b] *Non-criteria pollutant emissions based on Ca Air Toxic Emission Factor (CATEF) Database, Ca Air Resources.*
Source: PCR Services Corporation, April 2001.

II.1 Comparison of Concentrations with Criteria Pollutant Standards

Modeling results and a comparison to Mexico's national air quality standards are summarized in Table B-2.2. The results indicate that the maximum project impacts are predicted to range from 0.09 to 7.1 percent of the applicable Mexican air quality standards for

Table B-2.2

RESULTS OF THE AIR DISPERSION MODELING ANALYSIS COMPARED TO MEXICO AMBIENT AIR QUALITY STANDARDS

		Predicted Impacts and Thresholds			
Averaging Period	Mexico National Standard	Project Peak Complex Terrain	% of Mexico Standard	Project Peak Simple Terrain	% of Mexico Standard
MAXIMUM CONCENTRATIONS					
PM_{10}					
24-hour	150 µg/m3	7.17 µg/m3	4.78	1.212 µg/m3	0.81
Annual	50 µg/m3	0.75 µg/m3	1.50	0.0475 µg/m3	0.10
CO					
8-hour	11 ppm	0.010 ppm	0.09	0.0022 ppm	0.02
8-hour		11.51 µg/m3		2.54 µg/m3	
NO_2					
1-hour	0.21 ppm	0.015 ppm	7.14	0.00519 ppm	2.47
1-hour		27.47 µg/m3		9.76 µg/m3	
Annual		0.588 µg/m3		0.037 µg/m3	
MAXIMUM BORDER AND NORTH OF THE BORDER CONCENTRATIONS					
PM_{10}					
24-hour	150 µg/m3	1.198 µg/m3	0.79	0.885 µg/m3	0.59
Annual	50 µg/m3	0.114 µg/m3	0.23	0.038 µg/m3	0.076
CO					
8-hour	11 ppm	0.0019 ppm	0.02	0.00097 ppm	0.0088
8-hour		2.16 µg/m3		1.12 µg/m3	
NO_2					
1-hour	0.21 ppm	0.003 ppm	1.43	0.0019 ppm	0.90
1-hour		6.00 µg/m3		3.48 µg/m3	
Annual		0.0899 µg/m3		0.030 µg/m3	

Source: PCR Services Corporation, September 2001.

complex terrain and less than 2.5 percent of the standards for simple terrain. Therefore, this analysis has demonstrated that the project meets Mexico's air quality requirements. Figures B6 through B8 provide a graphic presentation of the modeling results with complex terrain. Peak concentrations for the annual averaging period occur approximately 5 kilometers to the northwest, and peak concentrations for 1-hour averaging period occur approximately 3

kilometers to the southwest. Both 8-hour and 24-hour concentrations occur approximately 4 kilometers due west of the project site. Table B-2.2 also presents maximum concentrations to be experienced at the International Border between the United States and Mexico.

II.2 Comparison of Maximum Air Pollutant Increases to Significance Levels (SLs)

The regulatory jurisdiction of the U.S. EPA does not pertain to air pollutant emissions in Mexico; nevertheless, a useful benchmark in U.S. EPA air permitting regulations and permitting guidance can be drawn upon to help assess the significance of these predicted increases from Mexican sources at the U.S. border and points north. In the context of permitting a major source or major modification in the U.S., the U.S. EPA has established significance levels (henceforth SLs) for the criteria pollutants NO_2, SO_2, and PM_{10} below which a major source or modification will not be considered to cause or contribute to a violation of a National Ambient Air Quality Standard (NAAQS) at any locality that does not meet NAAQS *(40 CFR 51.165)*. In addition, U.S. EPA permitting guidance describes the impact area required air quality analysis to be a geographical area that exceeds these SLs. Where air dispersion modeling is performed, the U.S. EPA does not require a full impact analysis when emissions of a pollutant from a proposed source or modification would not increase ambient concentrations by more than these prescribed SLs. Thus SLs may be generally regarded as thresholds of impact below which impact is not viewed to be significant.

Table B-2.3 presents the maximum air pollutant increases predicted by the ISCST3 complex terrain algorithm compared to U.S. EPA SLs.

Table B-2.3 Comparison of Maximum Air Pollutant Increases to SLs

Pollutant	Averaging Period	Significance Level (SL)	Concentration Increase at U.S. Receptors*
Nitrogen dioxide	1-hour	N/A	6.00 $\mu g/m^3$
Nitrogen dioxide	Annual	1.0 $\mu g/m^3$	0.09 $\mu g/m^3$
Carbon monoxide	8-hour	500 $\mu g/m^3$	2.16 $\mu g/m^3$
Particulate matter	24-hour	5.0 $\mu g/m^3$	1.12 $\mu g/m^3$
Particulate matter	Annual	1.0 $\mu g/m^3$	0.11 $\mu g/m^3$

As can be seen from the table, the ISCST3 air dispersion modeling analysis demonstrates that TDM's air quality impacts at the international border are below U.S. EPA SL values. Impacts further away from the international border and thus further away from the TDM facility would be lower than those along the border.

II.3 Potential Health Effects

Health effects resulting from exposure to toxic air contaminants can be categorized as either carcinogenic (cancer-causing), or non-carcinogenic. Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual cancer risk" is the likelihood that a person exposed to concentrations of toxic air contaminants (TACs) over a 70-year lifetime will contract cancer, based on the use of standard risk assessment methodology. These cancer risks are based on the best estimates of plausible cancer potencies as determined by industry standards. When exposure to more than one potential carcinogen is evaluated, the risks posed by the various individual air toxics are summed; this sum is the overall cancer risk estimate.

Non-carcinogenic health effects associated with air toxics vary depending on the types and quantities of air toxics exposure. Adverse effects on health, as well as the potential for nuisance and other forms of irritation, depend largely on the susceptibility of the individual, and are evaluated for two different periods of exposure: acute (short-term exposure) and chronic (long-term exposure). Non-cancer health effects (both acute and chronic) are considered by comparing estimated exposure levels to known or estimated thresholds (termed "reference exposure levels" or RELs).

For health risk assessments, computer modeling is carried out to determine the magnitude and location of the highest estimated ground-level concentrations of TACs emitted from the facility. The hypothetical maximum exposed individual (MEI), whose exposure is used to evaluate the worst-case exposure level, would be located at this point. In residential areas, this MEI is assumed to be exposed to TAC emissions for 24 hours per day, 365 days per year, for 70 years. These levels of exposure are highly unlikely in actual situations, and are typical of standard conservative health risk assessment assumptions.

For carcinogens, the health risk at the MEI receptor is expressed as ten chances in a million that an individual would contract cancer if he or she were exposed to the estimated concentration for 70 years. Health risks associated with exposure to carcinogenic compounds from a facility can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its carcinogenic potential or unit risk factor (URF). The URF is a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It represents an upper bound estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a 70-year lifetime.

An evaluation of the potential non-cancer effects of chemical exposures was also conducted. For non-cancer health effects, the potential for human health hazards is evaluated

by calculating ratios, also know as hazard indices, which compare the estimated level of exposure for various substances to reference doses. Reference doses for non-cancer contaminants are levels established by the scientific community and by governmental agencies responsible for protecting human health. Reference doses for some substances are based on observed effects on laboratory animals. The reference doses for humans are usually based on calculations, in which a 100-fold safety factor is applied to "no observed effects level" (NOEL). When the ratio of the estimated concentration to the reference dose is less than 0.5, no health effect would be anticipated. In a conservative analysis, the ratios for the various substances considered are added together to obtain a "hazard index," which, when less than 0.5, would indicate no health effect.

The analysis of project related health impacts was performed for potential acute, chronic and cancer health effects. Maximum emission rates of hazardous air pollutants, also referred to as non-criteria pollutants, that could be potentially emitted during operation of the proposed project are presented in Table B-2.2. The HAPs were modeled to determine their maximum potential ground level concentration for both the 1-hour and annual averaging period. The 1-hour concentration was then compared to the relevant reference exposure levels (RELs) to determine potential acute health effects.

III. CONCLUSIONS

The project will not cause substantial increases in any of the modeled pollutants in comparison to their relative standards. The project related maximum ambient increase is only 7 percent for the maximum 1-hour NO_2 concentration, and substantially smaller for all other pollutants and averaging periods. Predicted increases of air pollutants are less than U.S. EPA significance levels that can be viewed as benchmarks below which impact is not considered significant. Project related health effects for cancer risk, and both acute and chronic health effects, are substantially below their relative thresholds of 10 in 1 million, 0.5 and 0.5, respectively. Therefore, the proposed project will not have a substantial impact on ambient pollutant concentrations, nor is it expected to pose a significant health impact on the region surrounding the project site.

CO 8-Hr Concentrations (ppm)

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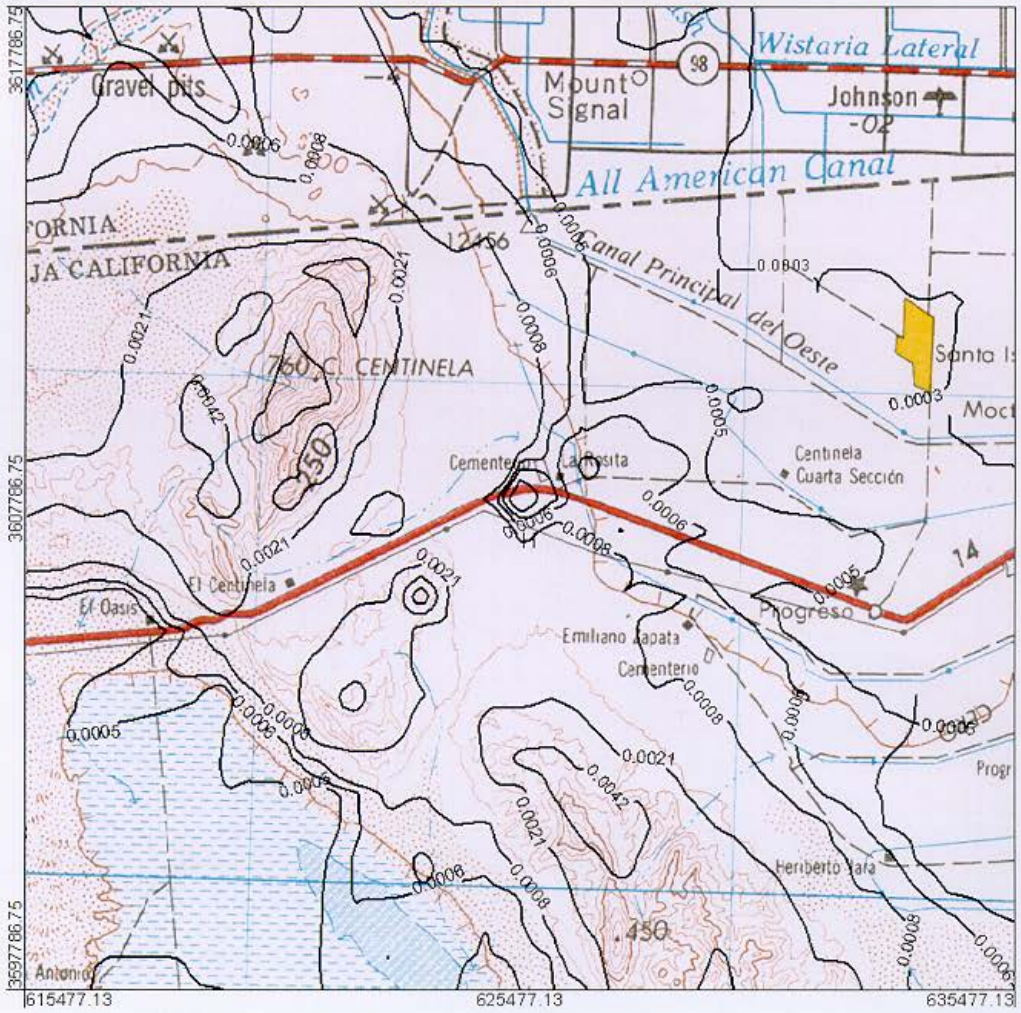
SEMPRA Mexicali Power Plant
PLOT FILE OF HIGH 1ST HIGH 8-HR VALUES FOR SOURCE GROUP: ALL



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MAX: 0.0101	UNITS: ppm		DATE: 8/28/2001	PROJECT/PLOT NO.:

ISC-AERMOD View by Lakes Environmental Software

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NO_2 1-HR Concentrations (ppm)

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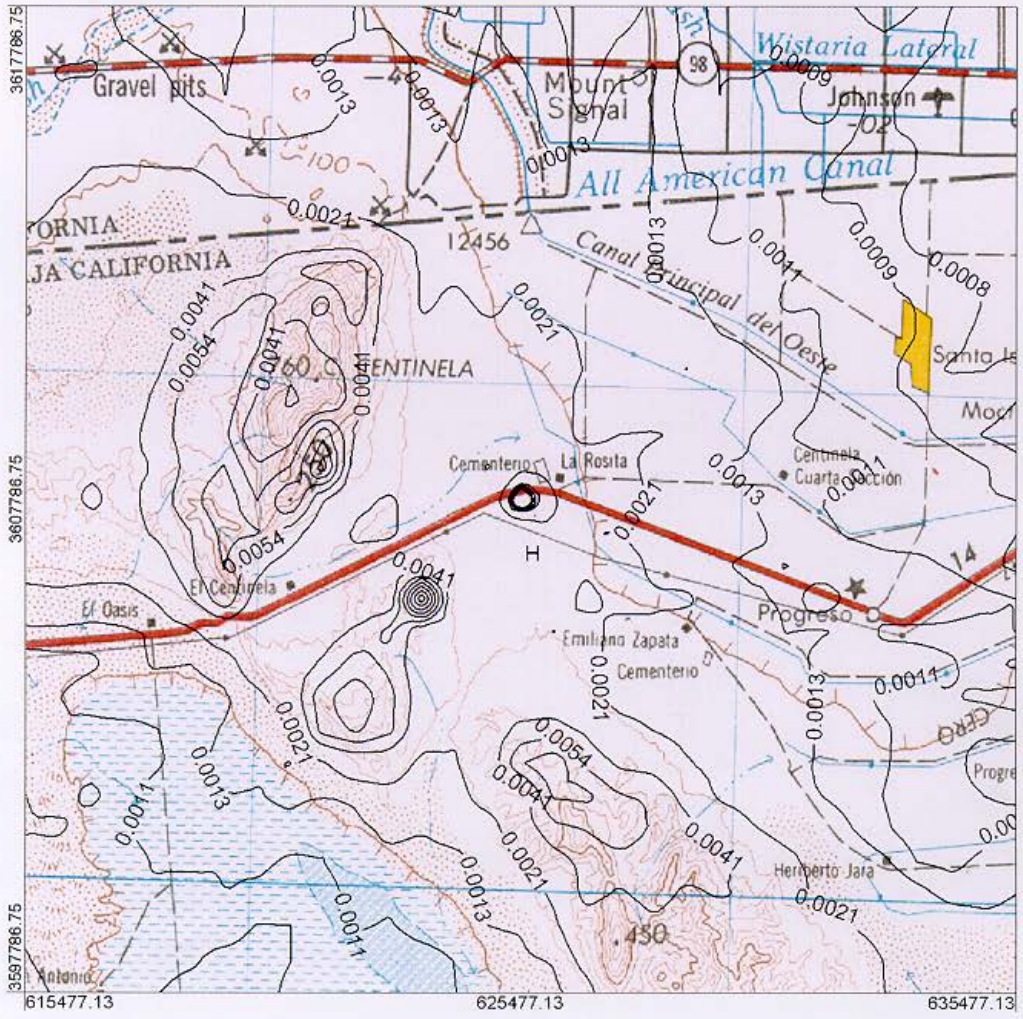
SEMPRA Mexicali Power Plant
PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL



MODELING OPTIONS:			COMPANY NAME:	
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MAX: **0.0146**	UNITS: **ug/m**3**		DATE: **8/28/2001**	PROJECT/PLOT NO:

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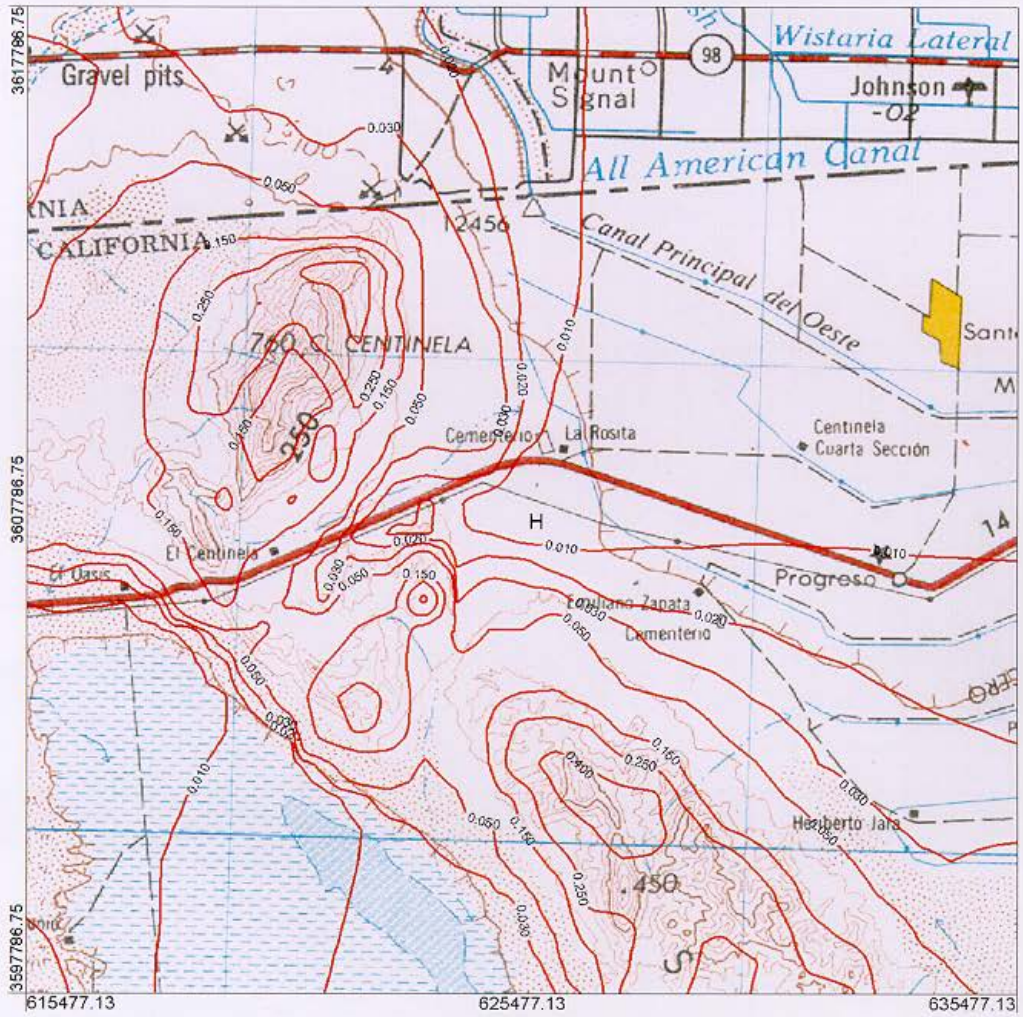
PM_{10} Annual Concentrations ($\mu g/m^3$)

PROJECT NAME
SEMPRA Mexicali Power Plant
PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL



MODELING OPTIONS:			COMPANY NAME:	
CONC, RURAL, ELEV, DFAULT				
OUTPUT TYPE:	RECEPTORS:	COMMENTS	MODELER:	0 4 km
CONC	**5237**	H=HRSG Stacks Location		
MAX:	UNITS:		DATE:	PROJECT/PLOT NO:
0.74576	**ug/m**3**		**4/19/2001**	

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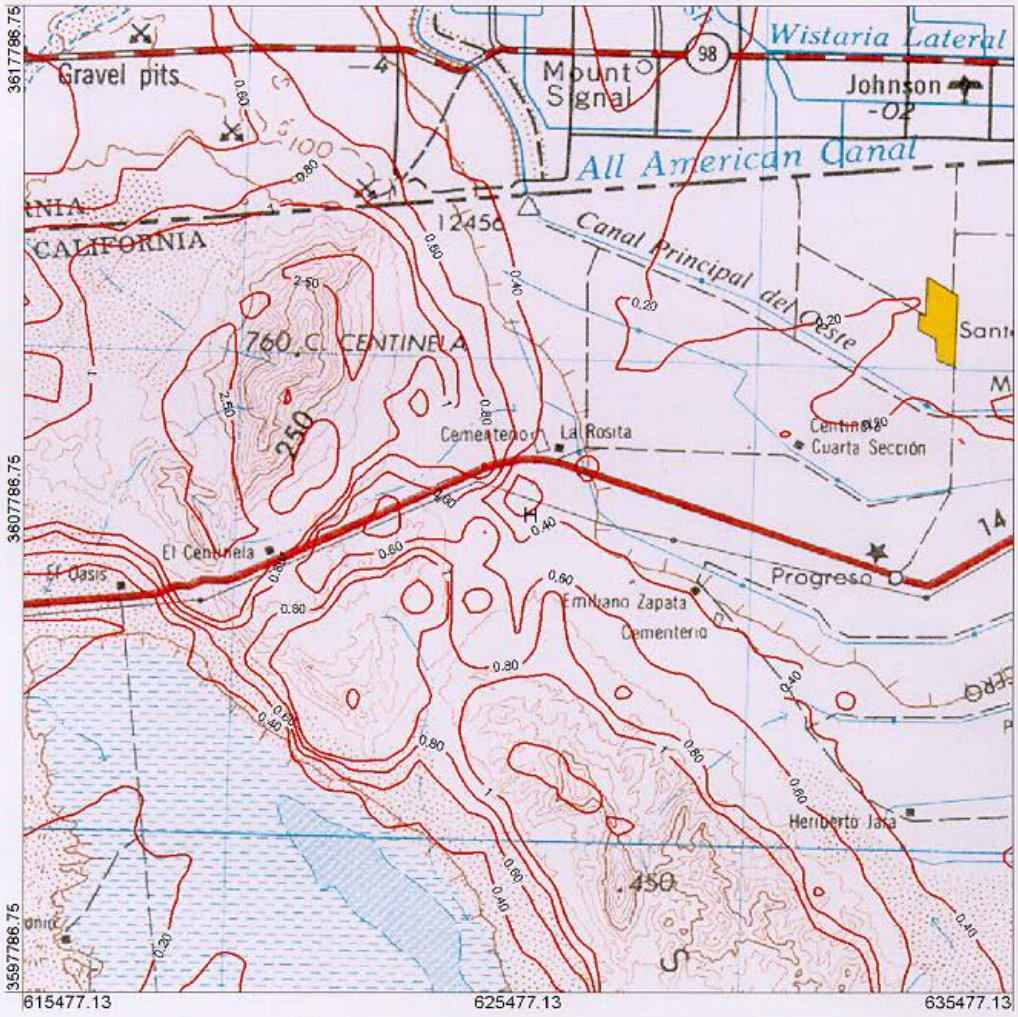
PM_{10} 24-HR Concentrations ($\mu g/m^3$)

PROJECT NAME:
SEMPRA Mexicali Power Plant
PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL



MODELING OPTIONS:			COMPANY NAME:	
CONC, RURAL, ELEV, DFAULT				
OUTPUT TYPE:	RECEPTORS:	COMMENTS:	MODELER:	0 4 km
CONC	**5237**	H=HRSG Stacks Location		
MAX:	UNITS:		DATE:	PROJECT/PLOT NO.:
7.17288	**ug/m**3**		**4/19/2001**	

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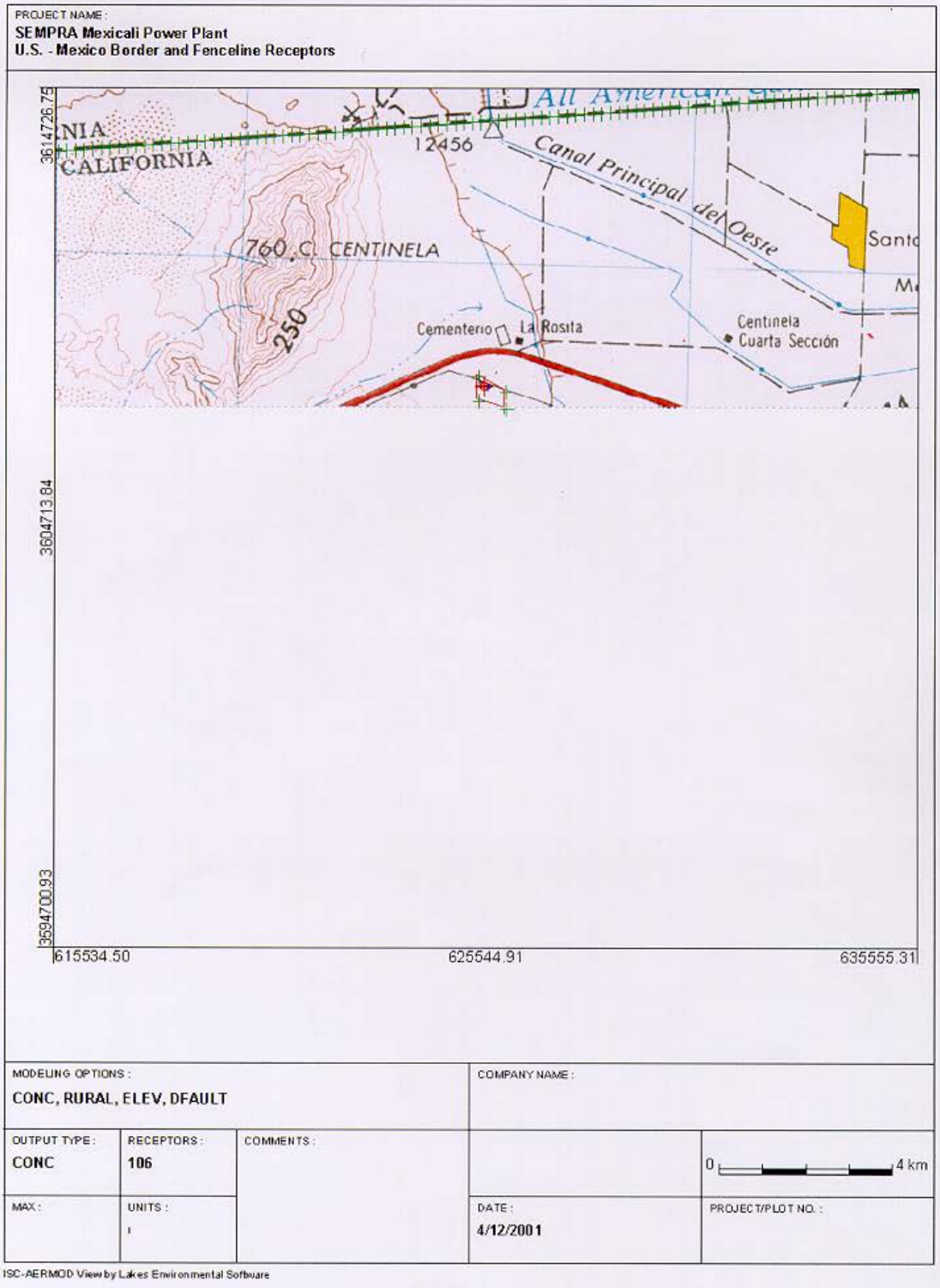

U.S. – Mexico Border and Fenceline Receptors

Air Quality Appendix B-3
for Combined
Baja California Power and
Sempra Energy Resources

Appendix B-3: Combined Air Quality Modeling Analysis

I. Technical Description of Combined Facilities

To determine the combined impacts of the TDM facility and the two LRPC export units, air dispersion modeling was conducted utilizing the U.S. Environmental Protection Agency's Industrial Source Complex Short-Term 3 (ISCST3) model (Version 00101). The ISCST3 model is a steady state, multiple-source, Gaussian dispersion model, as described earlier. Detailed descriptions of the components of the Termoeléctrica de Mexicali (TDM) and La Rosita Power Complex (LRPC) power plants are contained in previous sections of this Appendix.

The TDM and the LRPC power plants have emission levels that are well below the Mexican standards (*Norma Oficial Mexicana – 085*) of 139 ppm. In addition, these emission levels are below the latest guidelines for new power plants published by the World Bank in July 1998, which sets the limit at 155 ppm. Both the TDM and LRPC generation facilities will run exclusively on natural gas.

II. Air Dispersion Modeling Methodology

This combined air quality impact assessment incorporated U.S. EPA guidelines for dispersion modeling.

Air quality impact assessments typically utilize the following information and data:

A. Definition of existing concentrations of specific pollutants in the area of interest;
B. Predicted emissions from the projects/sources;
C. Physical project characteristics;
D. Physical characteristics of surrounding terrain;
E. Dispersion modeling to estimate the increase in ambient concentration of the specified pollutants resulting from the project emissions

Each of these steps has been performed for the TDM and the LRPC export units combined.

II.1 Definition of Existing Concentrations of Specific Pollutants

Background ambient air quality concentration levels are available from monitoring stations operated by the U.S./Mexico Border Information Center on Air Pollution, a center run under the auspices of the U.S. EPA. Mexicali data for 1997-1998 were used to

determine background ambient air quality, along with data obtained from the U.S. EPA. Table B-3.1 shows the background ambient air quality levels.

TABLE B-3.1
Imperial County Maximum Background Levels
(micrograms per cubic meter)[1]
*All maximum concentrations occurred at Calexico Ethel Street monitoring site.

Averaging Period	NO_2*	CO*	PM_{10}*
1-Hour	483.2 (1998)	36480 (1995)	----
8-Hour	----	26140 (1995)	----
24-Hour	----	----	568 (1998)
Annual	29.7 (1995)	----	109.8 (1996)

1 Based on Cal-EPA/Air Resources Board *California Ambient Air Quality Data 1980-1998* CD-ROM, December 1999. Values shown represent the maximum values for several air stations located in Calexico, El Centro, Niland and Westmoreland during the 1992-1998 monitoring period. Original values in parts per million were adjusted using *AP-42, Appendix A* factors.

II.2 Estimation of Emissions

The estimated project emissions were calculated based on data from the combustion turbine and heat recovery steam generator vendors.

II.3 Dispersion Modeling

The ISCST3 model includes many options to address unique modeling requirements. Some of these options are discussed below, and the options chosen for analyses performed for this proposed project are identified.

ISCST3 incorporates simple terrain algorithms for estimating impacts at receptors where ground-level elevations are equal to or less than the heights of the emission sources (stacks). To estimate impacts at receptors with ground-level elevations that exceed the final plume height centerline, the ISCST3 model incorporates complex terrain algorithms from the COMPLEX-I model. In default mode, the model follows U.S. EPA's guidance for calculation of impacts in intermediate terrain, that is, where ground-level elevations are located between the emissions release height and the final plume height centerline. For intermediate terrain receptors, the ISCST3 model calculates concentrations using both simple terrain algorithms and complex terrain algorithms. The model then compares the predicted concentrations at each receptor, on an hourly basis, and the highest concentration per receptor is output from the model. The results presented were derived from using all three terrain algorithms.

The technical options selected for the ISCST3 modeling are listed below. These are referred to as the regulatory default options in the ISCST3 User' Guide. These are the options that U.S.-based regulatory agencies typically require be used when conducting air dispersion modeling. The input options for ISCST3 are as follows:

- Final plume rise
- Buoyancy-induced dispersion
- Stack tip downwash
- Rural dispersion coefficients
- Calm processing routine
- Default wind profile exponents (rural)
- Default vertical temperature gradients
- Anemometer height = 10 meters.

II.3.1 Meteorology

Several meteorological data sets were evaluated for this analysis. The meteorological data set deemed most representative of the Mexicali-Calexico region was five years (1990-1994) of hourly surface meteorological data collected at Imperial, California, with Holzworth seasonal average mixing height data (California Air Resources Board [CARB], 2001a; Holzworth, 1972). The Imperial meteorological data set is from the National Weather Service through the CARB archives.

II.3.2 Receptor Grids

A Cartesian receptor grid was used in the modeling analysis. The receptors extend to a distance of approximately 8½ miles (12 km) from the proposed turbine sources. Beginning at the facilities and moving outward, receptors were placed at 250 meter, 500 meter, and 1,000 meter increments.

A refined receptor grid with 50-meter grid spacing was placed at the border in an area where elevated concentrations may be predicted. Placing a grid with 125-meter spacing around these points provides further refinement to help determine maximum concentrations along the border.

III. Results and Conclusion

The Mexican Government and U.S. EPA have developed ambient air quality standards for several pollutants (referred to in the U.S. by EPA as "Criteria Pollutants"). These include standards for nitrogen dioxide, carbon monoxide and particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}). If measured or predicted concentrations of criteria pollutants are below the ambient air quality standard, no health effects are expected, since ambient air quality standards are set at levels intended to be protective of health and the environment.

The combined increased pollutant concentrations resulting from air emissions from the TDM and the LRPC export facilities (four turbines in all) are shown in Table CAQMA.2 (in micrograms per cubic meter). Annual averages represent the maximum predicted value for any year. Based on the model results, the predicted increase in concentration levels as a result of the generation facilities' emissions would not, when added to existing background levels, exceed any of the ambient air quality standards established by either the Mexican Government or the U.S. EPA for their respective jurisdictions.

The regulatory jurisdiction of the U.S. EPA does not pertain to air pollutant emissions in Mexico; nevertheless, a useful benchmark in U.S. EPA air permitting regulations and permitting guidance can be drawn upon to help assess the significance of these predicted increases from Mexican sources at the U.S. border and points north. In the context of permitting a major source or major modification in the U.S., U.S. EPA has established significance levels (henceforth SLs) for the criteria pollutants NO_2, SO_2, CO, and PM_{10} below which a major source or modification in the U.S. will not be considered to cause or contribute to a violation of a National Ambient Air Quality Standard (NAAQS) at any locality that does not meet NAAQS *(40 CFR 51.165)*. In addition, U.S. EPA permitting guidance describes the impact area required air quality analysis to be a geographical area that exceeds these SLs. Where air dispersion modeling is performed, the U.S. EPA does not require a full impact analysis when emissions of a pollutant from a proposed source or modification would not increase ambient concentrations by more than these prescribed SLs. Thus SLs may be generally regarded as thresholds of impact below which impact is not viewed to be significant. Table B-3.2 shows applicable U.S. EPA SLs and the predicted concentration increases at U.S. receptors.

Table B-3.2. U.S. EPA Significance Levels (SLs) and Power Generation Facilities Project Dispersion Modeling Results (micrograms per cubic meter)

Pollutant	Averaging Period	Significance Level (SL)	Concentration Increase at U.S. Receptors
Nitrogen dioxide	1-hour	N/A	7.04 $\mu g/m^3$
Nitrogen dioxide	Annual	1.0 $\mu g/m^3$	0.33 $\mu g/m^3$
Carbon monoxide	1-hour	2,000 $\mu g/m^3$	29.7 $\mu g/m^3$
Carbon monoxide	8-hour	500 $\mu g/m^3$	16.7 $\mu g/m^3$
Particulate matter	24-hour	5.0 $\mu g/m^3$	3.0 $\mu g/m^3$
Particulate matter	Annual	1.0 $\mu g/m^3$	0.20 $\mu g/m^3$

Based on these results, the pollutant levels at the US/Mexico border would still be well below U.S. EPA's SL thresholds. The nitrogen dioxide concentration in the U.S. from the four turbines will be 0.33 $\mu g/m^3$; the SL for nitrogen dioxide is 1.0 $\mu g/m^3$. The one-hour increase in carbon monoxide concentration levels in the U.S. will be 29.7 $\mu g/m^3$; the SL is 2,000 $\mu g/m^3$. For particulate matter, the 24-hour increase will be 2.58 $\mu g/m^3$; the SL is 5.0 $\mu g/m^3$. The annual average increase of particulate matter will be 0.41 $\mu g/m^3$ compared to a SL of 1.0 $\mu g/m^3$. Thus, none of the increased concentration levels will exceed the U.S. EPA's SLs.

APPENDIX C

Biological Technical Report and Wetland Delineation Report

Biological Technical Report
for the
Imperial Valley to La Rosita 230-kV Line
Imperial County, California

BIOLOGICAL TECHNICAL REPORT FOR THE IMPERIAL VALLEY TO LA ROSITA 230-KV LINE IMPERIAL COUNTY, CALIFORNIA

Prepared for

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Prepared by

WENDY E. LOEFFLER
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AUGUST 29, 2001

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Summary of Findings

Sempra Energy Resources (SER) and Baja California Power, Inc. (BCP) propose constructing new double-circuit 230-kilovolt (kV) transmission lines extending about six miles south from the Imperial Valley Substation owned and operated by San Diego Gas and Electric Company (SDG&E), to the United States (U.S.)-Mexico international border. The project is located in the Yuha Basin of the Colorado Desert in Imperial County, California, southwest of the town of El Centro. The area surveyed consists of a 2,150-foot-wide corridor from the Imperial Valley Substation to the Mexican border.

Two vegetation communities were identified within the survey area: Sonoran creosote bush scrub and desert wash. Neither of these vegetation communities are considered sensitive. No sensitive plant species were observed within the survey corridor during the surveys conducted by RECON. One sensitive plant, brown turbans, and two noteworthy plants, Wiggin's cholla, and Thurber's pilostyles, have been previously identified within the survey corridor. Three sensitive animal species were observed within the corridor: flat-tailed horned lizard, western burrowing owl, and prairie falcon.

Project impacts were analyzed based on a set of assumptions made using the current project design. Project revisions, if substantial, may require a re-analysis of these impacts.

The proposed design will permanently impact approximately 3.10 acres of Sonoran creosote bush scrub and 0.28 acre of desert wash. Temporary impacts will be approximately 14.96 acres of Sonoran creosote bush scrub and 0.46 acre of desert wash. The temporary impact calculations for the Sonoran creosote bush scrub includes the maximum work area for the northern portion of the project and includes overlap between the pull sites and the projected work area at each tower location and thus represents a conservative estimate of impact acreage. Construction methods (i.e., water spray for dust control) could encourage the invasion of non-native, invasive species into these vegetation communities. The project may also impact the flat-tailed horned lizard and burrowing owl. A series of measures will be required to avoid, minimize, or mitigate direct impacts to individuals of these species. Measures will include the presence of a biological monitor and pre-construction clearance surveys. If active burrowing owl burrows are located, an additional mitigation program will need to be implemented to prevent direct loss of individuals and occupied burrows.

The proposed project is expected to impact a total of 0.21 acre of U.S. Army Corps of Engineers (USACE) non-wetland jurisdictional waters of the U.S., which includes both temporary and permanent impacts. There will be no impacts to wetlands. These impacts should be mitigated at a ratio consistent with federal regulatory agencies, which is typically 1:1. Temporary impacts of 0.13 acre will be mitigated by returning the area to the pre-construction contour and vegetative condition. It is recommended that permanent

impacts of 0.08 acre be mitigated through the enhancement of the survey corridor through removal of the non-native, invasive tamarisk located along the eastern edge of the Imperial Valley Substation. A restoration plan will be prepared detailing the proposed mitigation for impacts to jurisdictional waters.

Impacts to these waters will require a Section 404 permit from the USACE and a 401 certificate from the Regional Water Quality Control Board in accordance with the Clean Water Act. This project would be covered by Nationwide Permit (NWP) #12 which regulates all activities required for the construction of utility lines and associated facilities within waters of the U.S.

Introduction

The project is located in the Yuha Basin of the Colorado Desert in Imperial County, California, southwest of the town of El Centro (Figure 1). Sempra Energy Resources (SER) and Baja California Power, Inc. (BCP) propose constructing new double-circuit 230-kV transmission lines extending about six miles south from the Imperial Valley Substation owned and operated by SDG&E, to the U.S.-Mexico international border (Figure 2). The proposed project consists of the following components:

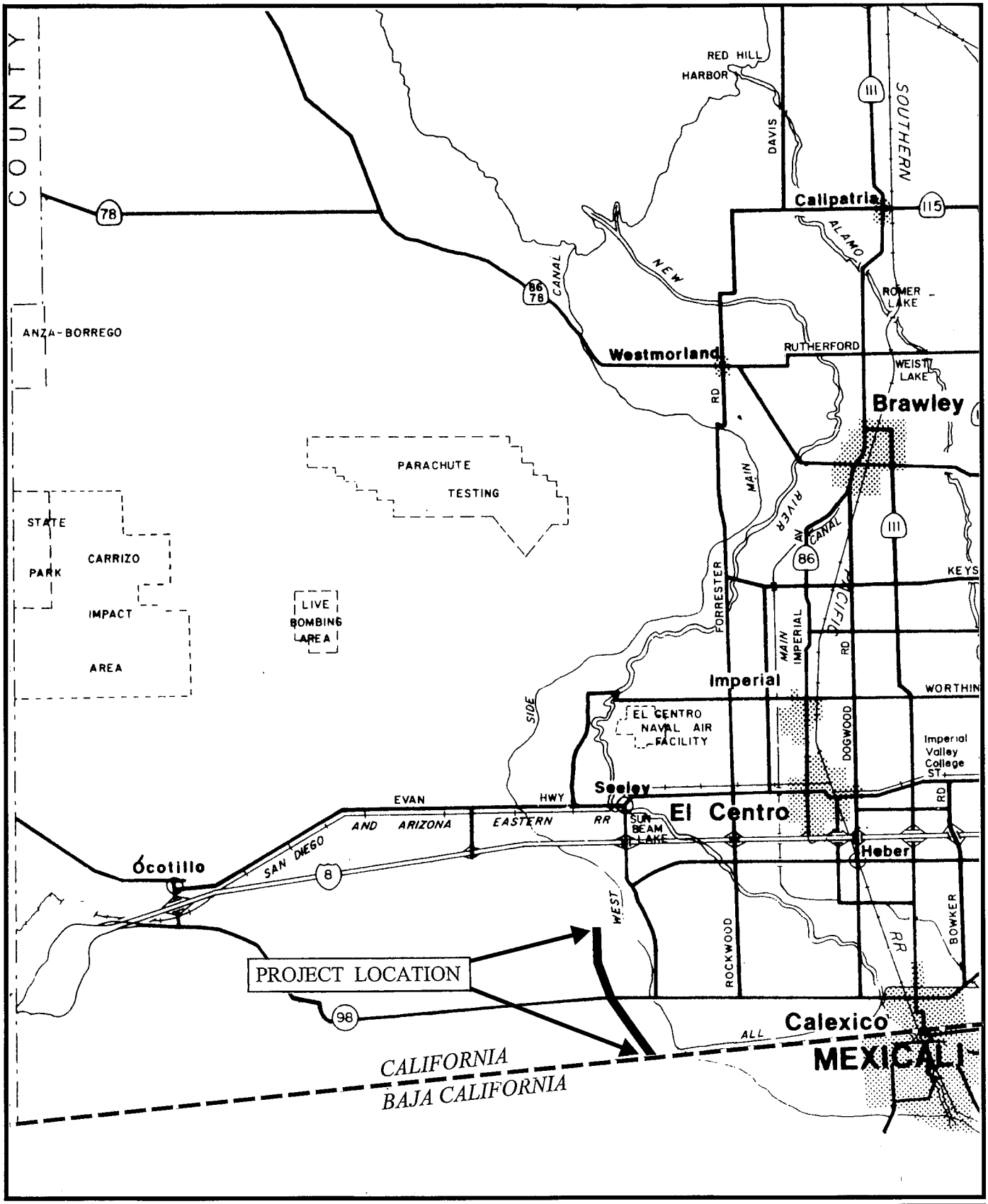
- The construction, operation, and maintenance of a 230-kV, double-circuit transmission line between the U.S./Mexico international border and the SDG&E Imperial Valley Substation by SER.

- The construction, operation, and maintenance of a 230-kV, double-circuit transmission line between the U.S./Mexico international border and the SDG&E Imperial Valley Substation by BCP.

- Relocation of a portion of the existing 230-kV, single-circuit transmission line owned and operated by SDG&E near the Imperial Valley Substation.

- Relocation of approximately two poles of an existing 230-kV, single-circuit transmission line owned and operated by the Imperial Irrigation District (IID) near the Imperial Valley Substation.

The objective of the complete project is to connect electrical generating plants being constructed in Mexico with the electrical power grid operated by SDG&E in southern California for the purpose of importing electrical power into the United States. The project corridor is located completely on Bureau of Land Management (BLM) property and is bisected by Highway 98.



Source: California Dept. of Transportation

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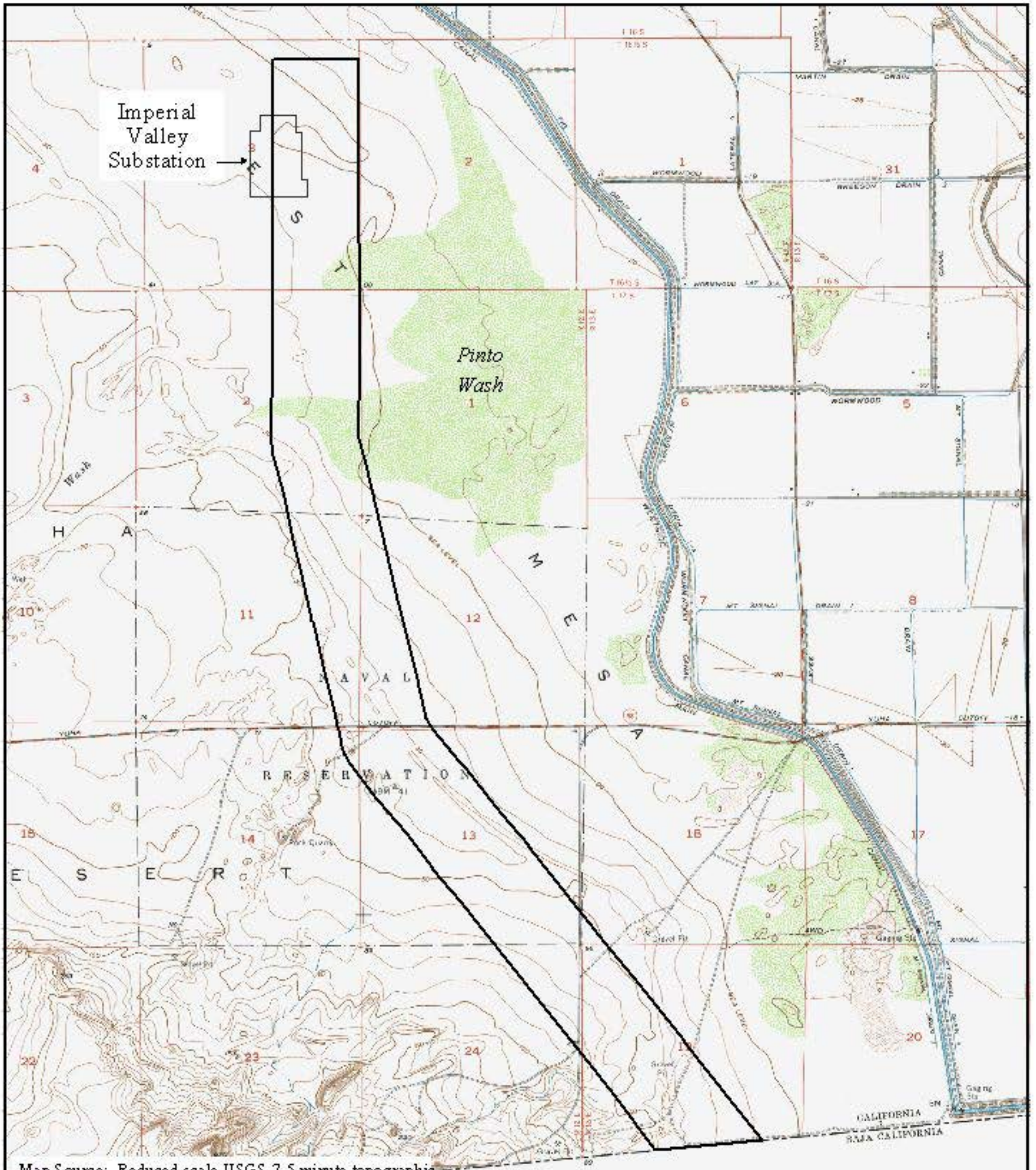
FIGURE 1

Location of the Project in Western Imperial County



RECON

Survey corridor

0 Feet 3500

FIGURE 2

Project Vicinity

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A general biological survey was conducted to map vegetation communities and to assess the presence or potential for presence of sensitive floral and faunal species apparent at the time of the surveys.

Survey Methods

A general biological resources survey was conducted on September 27, October 24 and 25, and December 12, 2000, by RECON biologists Wendy Loeffler, Cynthia Jones, Jennifer Hodge, and Cheri Boucher. Vegetation communities were assessed and mapped on a color aerial flown in 2000. The area surveyed consists of a 2,150-foot-wide corridor. This includes a 120-foot-wide easement for the existing 230-kV power line and an additional 1,015 feet on each side. Animal species observed directly or detected from calls, tracks, scat, nests, or other sign were noted. All plant species observed on-site were also noted, and plants that could not be identified in the field were identified later using taxonomic keys.

On October 24 and 25, 2000, a wetland delineation was performed by RECON biologists Gerry Scheid and Jennifer Hodge according to the guidelines set forth by the USACE (1987) with a follow-up visit made on December 12, 2000. A wetland delineation is used to identify and map the extent of the wetlands and "waters of the U.S." within the proposed project boundary and provide information regarding both state and federal jurisdictional issues. The results of this delineation are provided under separate cover in Wetland Delineation Report for the Imperial Valley to La Rosita 230-Kv Line Imperial County, California, dated July 24, 2001, and are incorporated here, as appropriate.

A habitat assessment and preliminary survey was conducted for the flat-tailed horned lizard (*Phrynosoma mcallii*) by Mark Dodero and other RECON biologists on September 27, 2000 to verify the suitability of the site to support the species and to determine whether the species could be detected this season.

Limitations to the compilation of a comprehensive floral checklist were imposed by seasonal factors, such as blooming period and emergence of spring annual species. Faunal species that are only present during the breeding season of late spring to summer, such as breeding birds and butterflies, were not detected. Since surveys were performed during the day, nocturnal animals were detected by sign.

Floral nomenclature for plants follows Hickman (1993). Plant community classifications generally follows Holland (1986). Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (1998); for mammals, Jones et al. (1982); and for amphibians and reptiles, Collins (1997). Assessments of the sensitivity of species and habitats are based primarily on Skinner and Pavlik (1994), State of California (2000a and 2000b), and Holland (1986).

Several previous surveys have been conducted on the project site or in the general vicinity. Results have been presented in the Final Environmental Impact Statement and Proposed Plan for the California Desert Conservation Area (BLM 1980) and Final Environmental Impact Report for the San Diego Gas & Electric Company's Imperial Valley to La Rosita 230-kV Transmission Line (Environmental Science Associates, Inc. 1983). Information regarding sensitive species in these reports has been incorporated into this report, as appropriate.

Existing Conditions

A. Topography and Soils

Elevation of the survey area ranges from approximately sea level to 85 feet above mean sea level (U.S. Geological Survey 1957). The survey corridor is bisected by Highway 98. Pinto Wash is located to the north of the highway. An unnamed seasonal drainage is located to the south near the U.S./Mexico border. The site is relatively flat and homogenous.

Nine soil types are present within the survey corridor: Rositas sand, Rositas fine sand, Carsitas gravelly sand, Glenbar complex, Indio-Vint complex, Meloland fine sand, Niland fine sand, pits, and Rositas-Superstition loamy fine sand (U.S. Department of Agriculture 1978). The USDA soil survey (1978) did not cover a portion of the survey corridor south of Highway 98 and west of the existing 230-kV power line. Soils information from this area is not currently available.

Rositas sand (0-2 percent slopes) and **Rositas fine sand** (0-2 percent slopes) are alluvial or eolian sands found on floodplains, basins, and terraces. These are the dominant soil types found within the survey corridor and are primarily located north of Highway 98.

Carsitas gravelly sand (0-5 percent slopes) consists of alluvial materials weathered from granitic and metamorphic rocks. This soil type is the dominant soil type south of Highway 98.

Glenbar complex soils are alluvial soils of mixed origin. This soil complex is located in a small area just south of Highway 98.

Indio-Vint complex are level soils found on floodplains and alluvial basin floors. Soil types of this complex were formed in alluvial and eolian sediments of mixed origin. This soil complex is located in two places just north and south of Highway 98.

Meloland fine sand is also found on floodplains and alluvial basin floors and is formed from alluvial and eolian sediments. This soil type is found in one small area just south of Highway 98.

Niland fine sand consists of fine brown sand with a subsoil of brown silty clay and is a soil found on level floodplains and alluvial basin floors. This soil type is located in a small area to the north of Highway 98.

Rositas-Superstition loamy fine sand is a complex of several soil types formed in terrace sediment of West Mesa. The soil types within the complex are derived from alluvial or eolian sand material. Only one small area of this soil complex is present north of Highway 98.

Pits is a mapping unit that describes areas where soil has been removed, generally through gravel mining. Two pits areas are identified near the southern boundary of the survey corridor.

B. Botany

Two vegetation communities were identified within the survey area: Sonoran creosote bush scrub and desert wash. Table 1 presents the acreages of each community within the survey corridor. There are a total of 1,463.7 acres within the survey corridor. Figure 3 illustrates the locations of the vegetation communities. A total of 34 plant species were identified on the site (Attachment 1). Of this total, 31 (91 percent) are species native to southern California and 3 (9 percent) are introduced species.

TABLE 1
VEGETATION COMMUNITIES
WITHIN THE SURVEY CORRIDOR

Resource	Acres
Sonoran creosote bush scrub	1,217.7
Desert wash	203.6
Developed	42.4
TOTAL	1,463.7

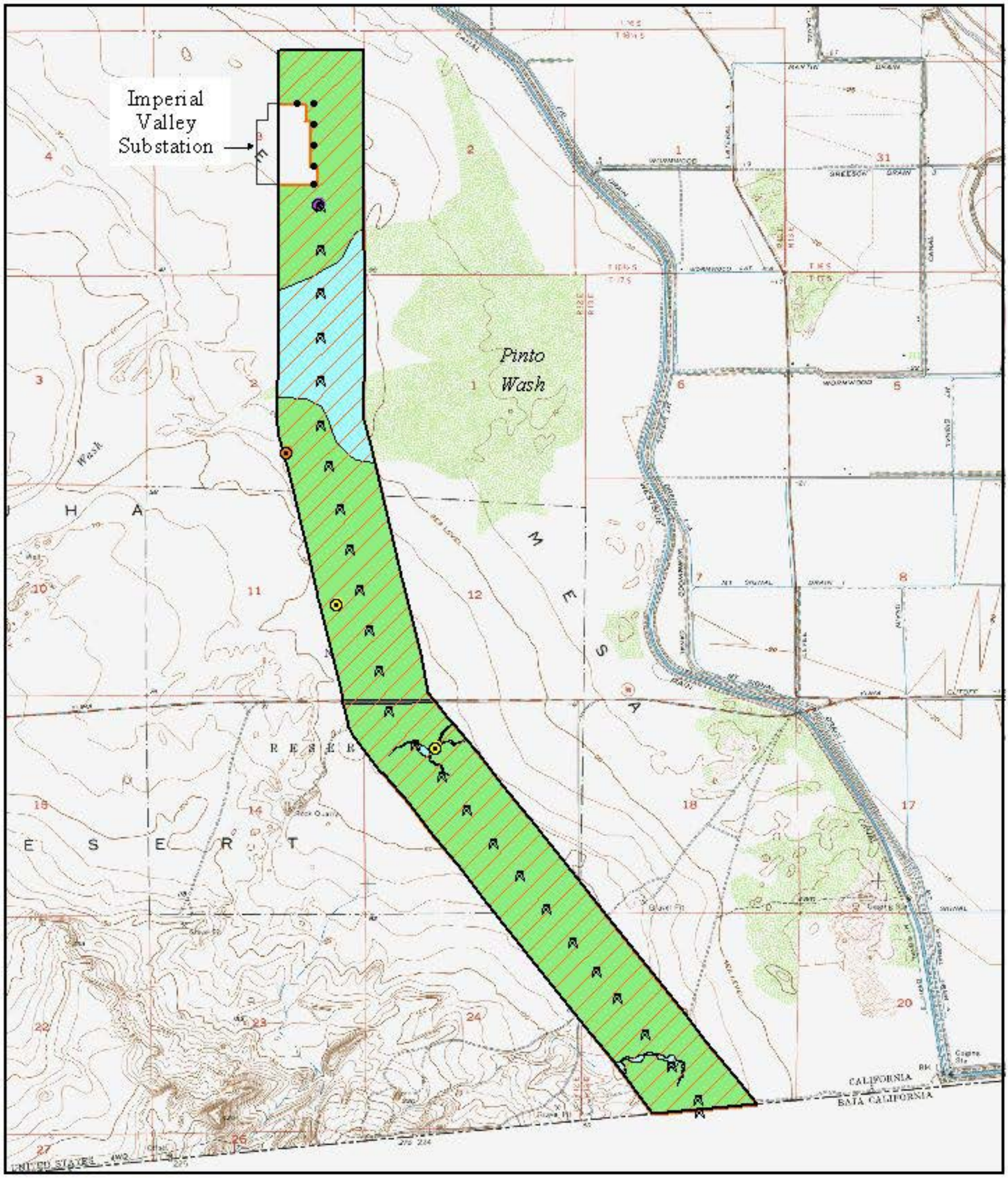

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FIGURE 3

Existing Biological Resources

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1. Sonoran Creosote Bush Scrub (1,217.7 acres)

Sonoran creosote bush scrub is the dominant vegetation community and accounts for approximately 1,217.7 acres within the survey corridor both north and south of Highway 98. The vegetation is open and relatively sparse, dominated by creosote bush (*Larrea tridentata*). Burro-weed (*Ambrosia dumosa*) and two species of saltbush (*Atriplex* spp.) were also common. Several trees, such as ironwood (*Olneya tesota*), velvet mesquite (*Prosopis velutina*), and catclaw acacia (A*cacia greggii*), are interspersed throughout the community, particularly in the southern half. A few scattered tamarisk (*Tamarix* sp.) are present in patches on the southern portion of the survey corridor and a large patch of tamarisk is located along the eastern boundary of the Imperial Valley Substation.

2. Desert Wash (203.6 acres)

Desert wash is found in three distinct areas within the survey corridor for a total of 203.6 acres. The largest area is located near the northern boundary of the corridor and is a part of Pinto Wash, which extends from just east of the survey corridor southwest into Mexico. The dominant species in the wash is smoke tree (*Psorothamnus spinosus*) occurring with velvet mesquite, cat claw acacia, encelia (*Encelia frutescens*), verbena (*Abronia villosa* var. *villosa*), and big galleta (*Pleuraphis rigida*). The second of the three areas is located just south of Highway 98. This area includes the confluence of two streams, where a culvert and dam have been placed. The area directly downstream of the culvert has been heavily disturbed due to off-road vehicle traffic. The road crosses the drainage at this location. Little to no vegetation is found in this disturbed area or east of the culvert. The two finger drainages west of the culvert support verbena, chinchweed (*Pectis papposa*), paper flower (*Psilostrophe cooperi*), and white dalea (*Psorothamnus emoryi*). The southernmost area is an extension of an unnamed intermittent drainage that flows north from Signal Mountain just over the U.S.-Mexico border and then to the east into the survey corridor, where the drainage terminates. The western edge of this area contains a uniform stand of tamarisk while the remainder is primarily unvegetated with a few scattered shrubs. One large ironwood tree occurs in this section of the drainage.

3. Developed (42.4 acres)

Highway 98 bisects the survey corridor in an east-west direction and accounts for 5.5 acres of the survey corridor. A portion of the survey corridor has been developed as the Imperial Valley Substation and is located in the upper northwest portion of the corridor. This covers 36.9 acres of the survey area.

C. Zoology

Overall, the project area and vicinity provides high value habitat for wildlife species. The site contains high-quality Sonoran creosote bush scrub and desert wash habitats, which

provide cover, foraging, and breeding habitat for a variety of native wildlife species. A complete list of the wildlife species detected is provided in Attachment 2. Sensitive species potentially occurring on-site are discussed in the Sensitive Biological Resources section.

1. Amphibians

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

No amphibians were detected during the surveys.

2. Reptiles

The diversity and abundance of reptile species varies with habitat type. Many reptiles are restricted to certain vegetation communities and soil types although some of these species will also forage in adjacent communities. Other species are more ubiquitous using a variety of vegetation types for foraging and shelter.
Both the desert iguana (*Dipsosaurus dorsalis*) and flat-tailed horned lizard were observed within the survey corridor. The flat-tailed horned lizard is known to inhabit this entire region (State of California 2000c; BLM, unpublished data). Other common species known from this region and expected to occur within the survey corridor are long-tailed brush lizard (*Urosaurus graciosus*), side-blotched lizard (*Uta stansburiana*), long-nose leopard lizard (*Gambelia wislizenii*), western whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), coachwhip (*Masticophis flagellum*), sidewinder (*Crotalus cerastes*), western patch-nosed snake (*Salvadora hexalepis*), western shovel-nosed snake (*Chionactis occipitalis*), and spotted leaf-nosed snake (*Phyllorhynchus decurtatus*) (G. Wright, pers. comm. 2001).

3. Birds

The diversity of bird species varies with respect to the character, quality, and diversity of vegetation communities. Due to the homogeneity of habitats present within the survey corridor, the bird diversity is fairly low.

Birds commonly observed include yellow-rumped warbler (*Dendroica coronata*) and white-crowned sparrow (*Zonotricha leucophrys*). Two wintering species, blue-gray gnatcatcher (*Polioptila caerulea*) and rock wren (*Salpinctes obsoletus obsoletus*), potentially breed in the study area.

Raptors observed include red-tailed hawk (*Buteo jamaicensis*) and prairie falcon (*Falco mexicanus*). The prairie falcon was perched on one of the existing towers. A western burrowing owl (*Speotyto cunicularia hypugaea*) was observed within one of the small desert washes south of Highway 98.

4. Mammals

Sonoran creosote bush scrub and desert wash communities typically provide cover and foraging opportunities for a variety of mammal species. Many mammal species are nocturnal and must be detected during daytime surveys by observing their sign, such as tracks, scat, and burrows.

Desert black-tailed jackrabbit (*Lepus californicus deserticola*), cottontail rabbit (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus tereticaudus*), coyote (*Canis latrans*), and desert kit fox (*Vulpes macrotis*) were identified within the survey corridor. Other common species known from this region and expected to occur within the survey corridor are badger (*Taxidea taxus*), bobcat (*Lynx rufus*), and raccoon (*Procyon lotor*). Mule deer (*Odocoileus hemionus*) and mountain lion (*Felis concolor*) are occasionally observed within this region as well (G. Wright, pers. comm. 2001).

D. Sensitive Biological Resources

Federal and state agencies regulate sensitive species and require an assessment of the presence or potential presence of sensitive species to be conducted on-site prior to the approval of any proposed development on a property. For purposes of this report, species will be considered sensitive if they are: (1) listed or proposed for listing by state or federal agencies as threatened or endangered; (2) on List 1B (considered endangered throughout its range) or List 2 (considered endangered in California but more common elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994); or (3) sensitive, rare, endangered, or threatened by other local conservation organizations or specialists.

Noteworthy plant species are considered to be those which are on List 3 (more information about the plant's distribution and rarity needed) and List 4 (plants of limited distribution) of the CNPS *Inventory*.

Determination of the potential occurrence for listed, sensitive, or noteworthy species are based upon known ranges and habitat preferences for the species (Zeiner et al. 1988a, 1988b, 1990; Skinner and Pavlik 1994; Reiser 1994); species occurrence records from the NDDB (State of California 2000c); and species occurrence records from other sites in the vicinity of the project site.

1. Sensitive Plant Communities

Neither Sonoran creosote bush scrub or desert wash are considered sensitive.

2. Sensitive Plants

One sensitive plant, brown turbans (*Malpernia tenuis*), and two noteworthy plants, Wiggin's cholla (*Opuntia wigginsii*) and Thurber's pilostyles (*Pilostyles thurberi*), have been previously identified within the corridor. These are discussed in more detail below.

a. Observed

Brown turbans (*Malpernia tenuis*). Brown turbans, a CNPS List 2 species, is an annual herbaceous species known from southern California in sandy, desert scrub habitats. This species was reported in the Yuha Desert south of Pinto Wash (Reiser 1994; State of California 2000c). This is a very general location description and it is not certain that the species was observed within the survey corridor itself. However, the habitat within the survey corridor is suitable for the species and it has a high potential to occur.

Wiggin's cholla (*Opuntia wigginsii*). Wiggin's cholla, a CNPS List 3 species, is a cactus found primarily in Sonoran Desert scrub habitats. This species is considered by some authorities to be a sporadic hybrid between two other cactus species: pencil cactus (*Opuntia ramosissima*) and silver cholla (*O. echinocarpa*). This species was reported to be present within the existing transmission line corridor in 1983 (Environmental Science Associates, Inc. 1983). Conditions do not appear to have been altered significantly since the original observation and this species is expected to still be present within the survey corridor.

Thurber's pilostyles (*Pilostyles thurberi*). Thurber's pilostyles, a CNPS List 4 species, is a parasitic herbaceous species found primarily in the stems of white dalea (*Psorothamnus emoryi*). White dalea is a common plant of desert scrub and washes. Thurber's pilostyles was reported to be present within the existing transmission line corridor in 1983 (Environmental Science Associates, Inc. 1983). Conditions do not appear to have been altered significantly since the original observation and the host plant is common within Pinto Wash in the survey area. This species is expected to still be present within the survey corridor.

b. Not Observed

Several other sensitive species are known to occur in the vicinity of the project area and are considered as potentially occurring based on vegetation communities present within the survey area. Table 2 summarizes the status and habitats for each of these potentially occurring species, with codes explained in Table 3.

TABLE 2
SENSITIVE PLANT SPECIES
OBSERVED (†) OR WITH THE POTENTIAL FOR OCCURRENCE

Species	State/Federal Status	CNPS List	CNPS Code	Comments
Amaranthus watsonii Watson's amaranth	–/–	4	1-1-1	Mojavean desert scrub; Sonoran desert scrub. Suitable habitat present; high potential to occur.
Astragalus crotalariae Salton milk vetch	–/–	4	1-1-2	Sonoran desert scrub/ sandy or gravelly. Suitable habitat present, high potential to occur.
Astragalus insularis var. *harwoodii* Harwood's milk vetch	–/–	2	2-2-1	Desert dunes. No suitable habitat; not expected to occur.
Astragalus lentiginosus var. *borreganus* Borrego milk vetch	–/–	4	1-1-1	Mojavean desert scrub, Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Astragalus magdalenae var. *peirsonii* Peirson's milk-vetch	CE/FT	1B	2-2-2	Desert dunes. No suitable habitat present, not expected to occur.
Bursera microphylla Elephant tree	–/–	2	3-1-1	Sonoran desert scrub/rocky. No suitable soils, not observed during surveys. Not expected to occur.
Calliandra eriophylla Fairyduster	–/–	2	2-1-1	Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Camissonia arenaria Sand evening-primrose	–/–	4	1-1-1	Mojavean desert scrub, Sonoran desert scrub/sandy, rocky. Suitable habitat present; high potential to occur.
Cassia covesii Cove's cassia	–/–	2	2-2-1	Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Castela emoryi Crucifixion thorn	–/–	2	2-1-1	Mojavean and Sonoran desert scrub. Very localized to the west of the study area. Not observed and not expected to occur.
Cereus giganteus Saguaro	–/–	2	3-2-1	Sonoran desert scrub/rocky. Soils not rocky; not observed in study area.
Chamaesyce abramsiana Abram's spurge	–/–	2	3-2-1	Mojavean desert scrub, Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.

TABLE 2
SENSITIVE PLANT SPECIES
OBSERVED (†) OR WITH THE POTENTIAL FOR OCCURRENCE
(continued)

Species	State/Federal Status	CNPS List	CNPS Code	Comments
Chamaesyce platysperma Flat-seeded spurge	–/–	3	3-2-2	Desert dunes, Sonoran desert scrub/sandy. Possibly endemic to California. Suitable habitat present; high potential to occur.
Condalia globosa var. *pubescens* Spiny abrojo	–/–	4	1-2-1	Sonoran desert scrub. Suitable habitat present but not observed on-site. Low potential to occur.
Coryphanta vivipara var. *alversonii* Alverson's foxtail cactus	–/–	1B	3-2-2	Mojavean desert scrub, Sonoran desert scrub. Threatened by horticultural collecting. Suitable habitat present but not observed on-site. Low potential to occur.
Croton wigginsii Wiggin's croton	CR/–	2	2-2-1	Desert dunes, Sonoran desert scrub. Moderately suitable habitat present; moderate potential to occur.
Cryptantha costata Ribbed cryptantha	–/–	4	1-1-2	Mojavean and Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Cryptantha holoptera Winged cryptantha	–/–	4	1-1-2	Mojavean and Sonoran desert scrub. Suitable habitat present; high potential to occur.
Cynanchum utahense Utah cynanchum	–/–	4	1-1-1	Mojavean and Sonoran desert scrub/ sandy, gravelly. Suitable habitat present; high potential to occur.
Ditaxis adenophora Glandular ditaxis	–/–	2	3-2-1	Mojavean and Sonoran desert scrub/sandy. Suitable habitat present; high potential to occur.
Eucnide rupestris Rock nettle	–/–	2	3-2-1	Sonoran desert scrub. Known from approximately 3 miles east of study area. Suitable habitat present; high potential to occur.
Helianthus niveus ssp. *tephrodes* Algodones Dunes sunflower	CE/–	1B	3-2-1	Desert dunes. No suitable habitat present, not expected to occur.

TABLE 2
SENSITIVE PLANT SPECIES
OBSERVED (†) OR WITH THE POTENTIAL FOR OCCURRENCE
(continued)

Species	State/Federal Status	CNPS List	CNPS Code	Comments
Ipomopsis effusa Baja California ipomopsis	–/–	2	3-3-1	Known from Pinto Wash west of study area. High potential to occur.
Lupinus excubitus var. *medius* Mountain Springs bush lupine	–/–	1B	2-1-2	Pinyon-juniper woodland, Sonoran desert scrub. Generally occurs in elevations above 1,000 feet. Maximum elevation within survey area is 85 feet. Not expected to occur based on elevation restrictions.
Lycium parishii Parish's desert-thorn	–/–	2	2-1-1	Coastal sage scrub, Sonoran desert scrub. Suitable habitat present. Not observed during survey; low potential to occur.
Malperia tenuis† Brown turbans	–/–	2	3-1-1	Sonoran desert scrub/sandy. Historically observed from the study area. High potential to occur.
Nemacaulis denudata var. *gracilis* Slender woolly-heads	–/–	2	2-2-1	Sandy soils. High potential to occur.
Opuntia munzii Munz's cholla	–/–	3	3-1-3	Sonoran desert scrub/sandy, gravelly. Suitable habitat present in study area but species only known from Chocolate Mountains. Not expected to occur.
Opuntia wigginsii† Wiggins' cholla	–/–	3	3-1-2	Sonoran desert scrub/ sandy. Previously observed within survey corridor.
Pholisma sonorae Sand food	–/–	1B	2-2-2	Desert dunes. No suitable habitat present, not expected to occur.
Pilostyles thurberi† Thurber's pilostyles	–/–	4	1-1-1	Sonoran desert scrub. Parasitic on *Psorothamnus* spp. Host plant present; plant observed within survey corridor.
Proboscidia althaeifolia Desert unicorn plant	–/–	4	1-1-1	Sonoran desert scrub. Suitable habitat present; high potential to occur.

NOTE: See Table 3 for explanation of sensitivity codes.

TABLE 3
SENSITIVITY CODES

FEDERAL CANDIDATES AND LISTED PLANTS

FE = Federally listed, endangered
FT = Federally listed, threatened
FPE = Federally proposed endangered
FPT = Federally proposed threatened

STATE LISTED PLANTS

CE = State listed, endangered
CR = State listed, rare
CT = State listed, threatened

CALIFORNIA NATIVE PLANT SOCIETY

LISTS

1A = Species presumed extinct.

1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.

2 = Species rare, threatened, or endangered in California but which are more common elsewhere. These species are eligible for state listing.

3 = Species for which more information is needed. Distribution, endangerment, and/or taxonomic information is needed.

4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.

R-E-D CODES

R (Rarity)

1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.

2 = Occurrence confined to several populations or to one extended population.

3 = Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

E (Endangerment)

1 = Not endangered
2 = Endangered in a portion of its range
3 = Endangered throughout its range

D (Distribution)

1 = More or less widespread outside California
2 = Rare outside California
3 = Endemic to California

3. Sensitive Wildlife

Three sensitive species were observed within the corridor: flat-tailed horned lizard, western burrowing owl, and prairie falcon. These species are mapped on Figure 3.

a. Observed

Flat-tailed horned lizard (*Phrynosoma mcallii*). The flat-tailed horned lizard is a BLM sensitive species and a California Department of Fish and Game (CDFG) species of special concern (State of California 2000b). Pursuant to a recent court order, this species may come under consideration for listing as threatened or endangered by the U.S. Fish and Wildlife Service (G. Wright, pers. comm. 2001).

The distribution of the flat-tailed horned lizard ranges from the Coachella Valley to the head of the Gulf of California and southwestern Arizona. The species typically occurs in areas with fine, sandy soils and sparse desert vegetation. It is also found in areas consisting of mudhills and gravelly flats. The species has declined because of habitat destruction for agriculture and development.

This species was observed during the current surveys and has been observed within the survey corridor during directed surveys conducted by BLM since 1979 (G. Wright, pers. com. 2000). In addition, the survey corridor is located within an identified management area, the Yuha Desert Management Area, for the flat-tailed horned lizard (Foreman 1997). Figure 3 shows the boundary of the areas where flat-tailed horned lizards have been observed during the BLM surveys. Given the homogeneity of the habitat and the fact that the survey corridor is located within a management area, the entire survey corridor is considered to support the species.

Western burrowing owl (*Speotyto cunicularia hypugaea*). The western burrowing owl is a BLM sensitive species and a CDFG species of special concern (State of California 2000b). This subspecies is known to nest throughout most of California. It is a year-round resident and nests from March through August, with peak nesting activity during April and May. In Imperial County it can be found in desert scrub, grassland, and agricultural areas, where it digs its own or occupies existing burrows. Urbanization has greatly restricted the extent of suitable habitat for this species. Other contributions to the decline of this species include the poisoning of prey species and collisions with automobiles.

Burrowing owls are historically known to exist in the general vicinity of the project site (State of California 2000c). One burrowing owl was observed on the sandy bank above the desert wash located in the center of the survey corridor. There is a potential for this species to nest and winter within the survey corridor.

Prairie falcon (*Falco mexicanus*). The prairie falcon is a CDFG species of special concern (State of California 2000b). This falcon ranges from the southeastern deserts

northwest along the inner Coast Ranges and Sierra Nevada. It can be a permanent resident or migrant bird found from annual grasslands to alpine meadows, but is associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. This species nests on cliff ledges and occasionally in rock crevices.

One prairie falcon was observed on one of the existing towers just south of the Imperial Valley Substation. The survey corridor contains suitable foraging habitat, however, there is no suitable nesting habitat for this species within the survey corridor and it is not expected to nest within the survey area.

b. Not Observed

Several other sensitive animals are either known to occur in the vicinity or have a potential to be present within the survey corridor. Table 4 lists the sensitive species observed on-site and those that could potentially occur on-site based on the ranges and habitat requirements of these species and includes the likelihood of occurrence for these species.

4. Wildlife Movement Corridors

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife travel. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations (Beier and Loe 1992). Wildlife movement corridors are considered sensitive by resource and conservation agencies.

The survey corridor is surrounded by undeveloped BLM open space. Wildlife can travel throughout the immediate region unimpeded and thus the site is not considered a movement corridor.

E. Jurisdictional Areas

The methods for delineating wetlands used for this report follows guidelines set forth by the USACE (1987). Three criteria must be fulfilled in order to consider an area a jurisdictional wetland: (1) the presence of hydrophytic vegetation; (2) the presence of hydric soils; and (3) the presence of wetland hydrology. Atypical wetland areas (disturbed wetlands) and problem area wetlands (e.g., seasonal wetlands) may lack one or more of the three criteria but could still be considered wetlands if background information on the previous condition of the area and field observations indicate that the missing wetland criteria were present before the disturbance and would occur at the site under normal

TABLE 4
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)

Species	Status	Habitat	Occurrence/Comments
Amphibians (Nomenclature from Collins 1997)			
Desert slender salamander *Batrachoseps aridus*	FE, SE	Limestone fractures in desert canyons. Only known population in Santa Rosa Mountains of Riverside County.	Out of known range for species; not expected to occur.
Couch's spadefoot *Scaphiosus couchi*	CSC, BLM	Temporary desert rainpools that last at least 7 days with water temperatures greater than 15°C	Known only from the Colorado River area in California. Not expected to occur.
Reptiles (Nomenclature from Collins 1997)			
Desert tortoise *Gopherus agassizii*	FT, ST	Mohave and Sonoran desert areas, especially areas of creosote bush scrub.	Out of known range for species; not expected to occur.
Barefoot gecko *Coleonyx switaki*	ST	Rock outcrops on arid hillsides and canyons in desert scrub vegetation types.	No suitable habitat; not expected to occur.
Colorado desert fringe-toed lizard *Uma notata*	CSC, BLM	Loose sand of desert dunes, flats, riverbanks, and washes. Prefers scant vegetation.	Suitable habitat present; high potential to occur.
Flat-tailed horned lizard *Phrynosoma mcalli*	CSC, BLM	Dunes and sandy flats of low desert.	Known to occur within survey corridor.

TABLE 4
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)
(continued)

Species	Status	Habitat	Occurrence/Comments
Birds (Nomenclature from American Ornithologists' Union)			
Northern harrier (nesting) *Circus cyaneus*	CSC	Coastal lowland, marshes, grassland, agricultural fields. Migrant and winter resident, rare summer resident.	Winter foraging habitat present; not expected to nest within survey corridor.
Harris' hawk (nesting) *Parabuteo unicinctus*	CSC	River woods, mesquite, brush, cactus deserts. Casual vagrant.	Reintroduced to region in 1980s with a few nests identified in 1990s only in the lower Colorado River area. Low potential to nest within survey corridor.
Red-tailed hawk (nesting) *Buteo jamaicensis*	*	Found in almost all habitats throughout California expect in areas of heavy snow. Common resident.	Observed foraging over site. Low potential to nest within survey corridor.
Swainson's hawk (nesting) *Buteo swainsoni*	ST	Plains, range, open hills, sparse trees. Uncommon spring migrant.	Local breeding population now extirpated; not expected to occur.
Golden eagle (nesting and wintering) *Aquila chrysaetos*	CSC, CFP, BEPA	Require vast foraging areas in grassland, broken chaparral, or sage scrub. Nest in cliffs and boulders. Uncommon resident.	Range maps exclude the Imperial Valley; low potential to occur.
Merlin *Falco columbarius*	CSC	Rare winter visitor. Grasslands, agricultural fields, occasionally mud flats.	Seldom found in open deserts, low potential to occur within survey corridor.
Peregrine falcon *Falco peregrinus anatum*	SE, CFP	Open coastal areas, mud flats. Rare inland. Rare fall and winter resident, casual in late spring and early summer.	Not known to nest in Imperial County. Not expected to occur.

TABLE 4
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)
(continued)

Species	Status	Habitat	Occurrence/Comments
Prairie falcon (nesting) *Falco mexicanus*	CSC	Grassland, agricultural fields, desert scrub. Uncommon winter resident. Rare breeding resident; nests on cliff ledges or in rock crevices.	Observed within survey corridor during winter. No suitable nesting habitat within the survey corridor. Not expected to nest on-site.
Elf owl (breeding) *Micrathene whitneyi*	SE	Desert trees. Very localized populations to the east of the Colorado River.	Out of range from known breeding location; not expected to nest within survey corridor.
Western burrowing owl (burrow sites) *Speotyto cunicularia hypugaea*	CSC, BLM	Grassland, agricultural land, coastal dunes with rodent burrows. Declining resident.	Observed within survey corridor during winter. High potential to nest within survey corridor.
Long-eared owl (nesting) *Asio otis*	CSC	Riparian woodland, oak woodland, tamarisk woodland. Rare resident and winter visitor. Localized breeding.	Riparian habitat required by species. Tamarisk scrub within survey corridor not sufficient to support owl population; not expected to occur.
Gila woodpecker *Melanerpes uropygialis*	SE	Saguaro and willow-cottonwood desert. Date palms, tamarisk. Lower Colorado River and near Brawley.	No suitable desert riparian habitat present; not expected to occur within survey corridor.
Crissal thrasher *Toxostoma dorsale*	CSC	Dense thickets of shrubs or low trees in desert riparian and desert wash habitats.	Suitable habitat present; high potential to occur.
Le Conte's thrasher *Toxostoma lecontei*	CSC, BLM	Desert washes, creosote bush scrub. Uncommon resident.	Generally does not overlap with Crissal thrasher range; low potential to occur.
Loggerhead shrike *Lanius ludovicianus*	CSC	Open foraging areas near scattered bushes and low trees.	Suitable habitat present; high potential to occur.

TABLE 4
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)
(continued)

Species	Status	Habitat	Occurrence/Comments
Mammals (Nomenclature from Jones et al. 1982)			
California leaf-nosed bat *Macrotus californicus*	CSC, BLM	Low deserts. Caves, mines, buildings. Colonial. Migrational. Mostly near Colorado River in California.	Suitable foraging habitat; no suitable roosting locations. High potential to forage over site.
Pallid bat *Antrozous pallidus*	CSC, BLM	Arid deserts and grasslands. Shallow caves, crevices, rock outcrops, buildings, tree cavities. Especially near water.	Colonial. Audible echolocation signal. Moderate potential to forage over site; no suitable roosting habitat present.
Spotted bat *Euderma maculatum*	CSC, BLM	Wide variety of habitats. Caves, crevices, trees.	Audible echolocation signal. Prefers sites with adequate roosting sites. No suitable roosting site; not expected to occur.
Pale big-eared bat *Corynorhinus townsendii pallescens*	CSC, BLM	Caves, mines, buildings. Found in a variety of habitats, arid and mesic.	Individual or colonial. Extremely sensitive to disturbance. No suitable roosting site; not expected to occur.
Pocketed free-tailed bat *Nyctinomops femorosacca*	CSC	Normally roost in crevice in rocks, slopes, cliffs. Lower elevations in San Diego and Imperial Counties.	Colonial. Leave roosts well after dark. Moderate potential to forage over site; no suitable roosting habitat present.
Southern grasshopper mouse *Onychomys torridus ramona*	CSC	Alkali desert scrub & desert scrub preferred. Also succulent shrub, wash, & riparian areas; coastal sage scrub, mixed chaparral, sagebrush, low sage, and bitterbrush. Low to moderate shrub cover preferred.	Suitable habitat present; high potential to occur.

TABLE 4
SENSITIVE WILDLIFE SPECIES KNOWN (OR POTENTIALLY OCCURRING)
(continued)

Species	Status	Habitat	Occurrence/Comments
San Diego desert woodrat *Neotoma lepida intermedia*	CSC	Coastal sage scrub, chaparral, most desert habitats.	Suitable habitat present; high potential to occur.
American badger *Taxidea taxus*	*	Grasslands, Sonoran desert scrub.	Suitable habitat present; high potential to occur.

STATUS CODES

Listed/Proposed
FE = Listed as endangered by the federal government
FT = Listed as threatened by the federal government
SE = Listed as endangered by the state of California
ST = Listed as threatened by the state of California

Other
BEPA = Bald and Golden Eagle Protection Act
BLM = Bureau of Land Management
CFP = California fully protected species
CSC = California Department of Fish and Game species of special concern
* = Taxa listed with an asterisk fall into one or more of the following categories:
- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines
- Taxa whose nests are protected under State of California Fish and Game Code
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands)

circumstances. In addition, areas that displayed a prominent ordinary high water mark were also evaluated as potential non-wetland jurisdictional waters or disturbed wetland.

Waters of the U.S., as defined by USACE, were delineated on-site and are described below.

USACE

Based on information on soils, hydrology, and vegetation, observations made in the field, and data analysis, one wetland and three areas of non-wetland jurisdictional waters of the U.S were delineated in the study area. The total area likely to be regulated by USACE within the survey corridor is approximately 38.7 acres, including a 0.90-acre wetland. These areas are depicted in Figure 4.

Project Impacts

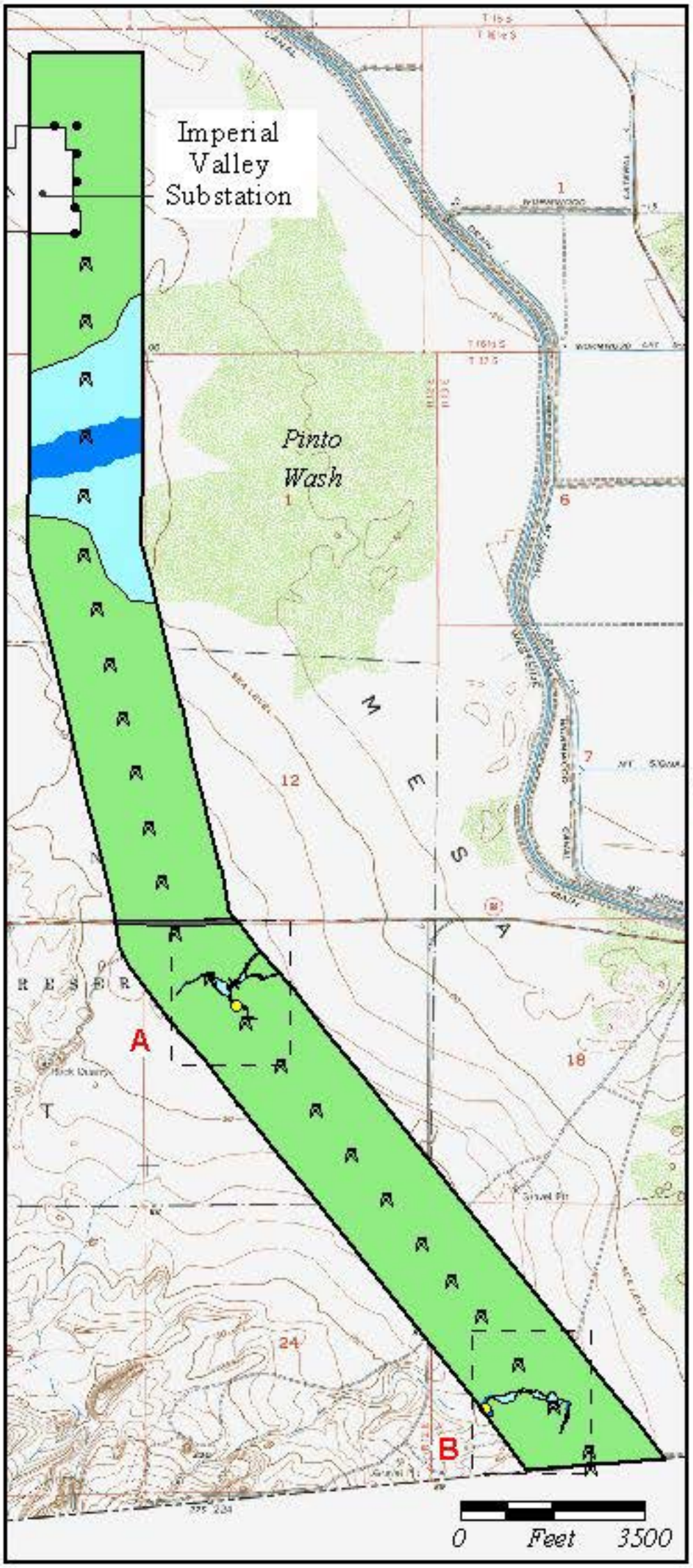
A. Project Description

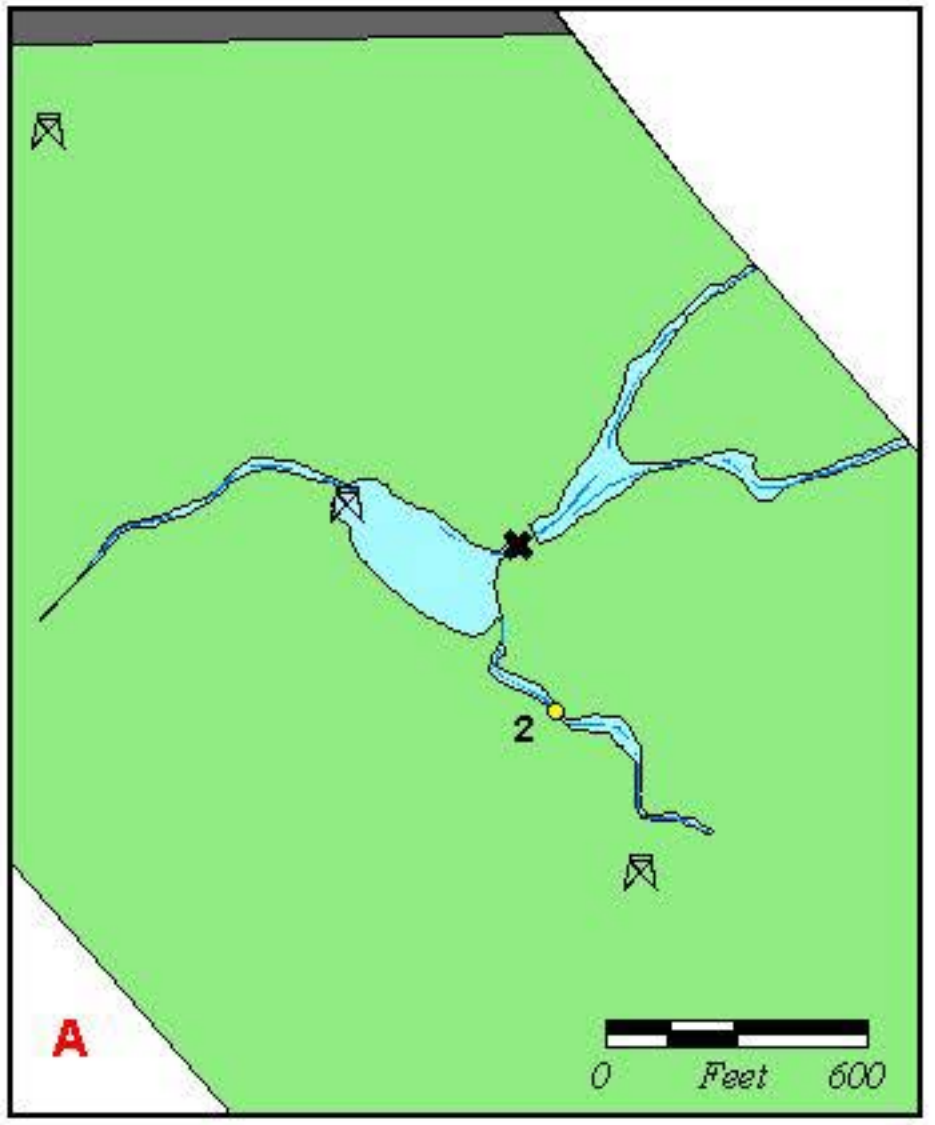
1. General Project Description

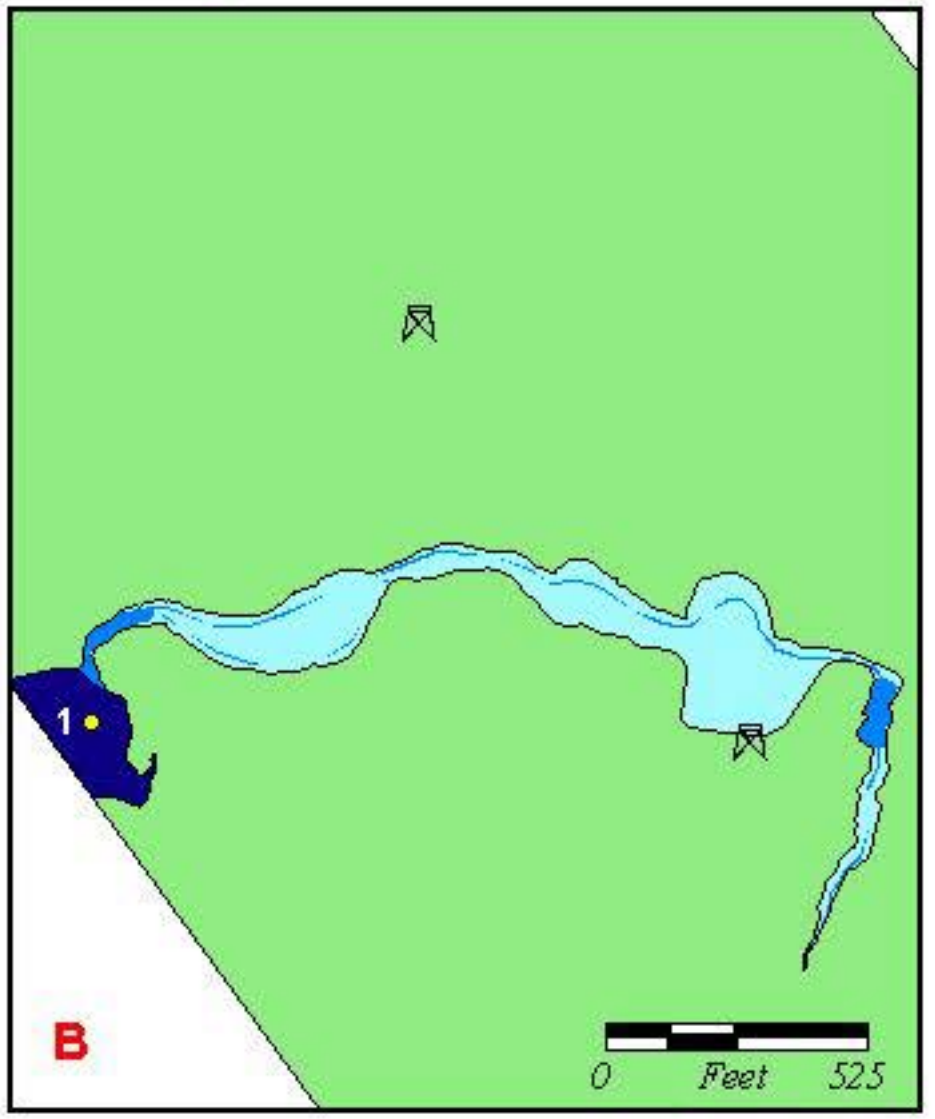
SER and BCP proposes to construct two double-circuit, 230-kV transmission lines from the existing SDG&E Imperial Valley Substation, continuing southerly approximately six miles to the U.S./Mexico border, where each line will connect with a corresponding transmission line in Mexico (Figure 5). The transmission lines will be carried on steel lattice towers from the border to just south of the Imperial Valley Substation, where steel monopoles will be used for each transmission line to allow the crossing of the Southwest Power Link. The Southwest Power Link is a 500-kV transmission line that enters the substation from the east at the substation's southeast corner. Suspended on the steel monopoles, the proposed transmission lines would be carried along the east side of the substation to enter it from the north, similar to the way the existing SDG&E transmission line is connected to the Imperial Valley Substation.

From the international border to just south of the substation, both the BCP and SER rights-of-way will be 120 feet wide and will parallel the existing SDG&E transmission line. The towers would be approximately 900 to 1,100 feet apart and would be roughly in line with the existing SDG&E towers in an east-west direction. Over the length of each proposed transmission line, 25 steel towers would be required.

At the substation, in order to clear the Southwest Power Link transmission line, the BCP right-of-way will diverge westerly to cross the Southwest Power Link on the west side of the last 500-kV tower. The SER line will continue northerly to cross the Southwest Power Link on the east side of the 500-kV tower. The SDG&E line, which passes under







RECON

Existing SDG&E transmission line
towers
poles

Culvert
Test pit

USACE Non-wetland Jurisdictional Waters of the U.S.
USACE wetland
Sonoran creosote bush scrub
Desert wash

Highway 98
Area surveyed

FIGURE 4
Jurisdictional Waters

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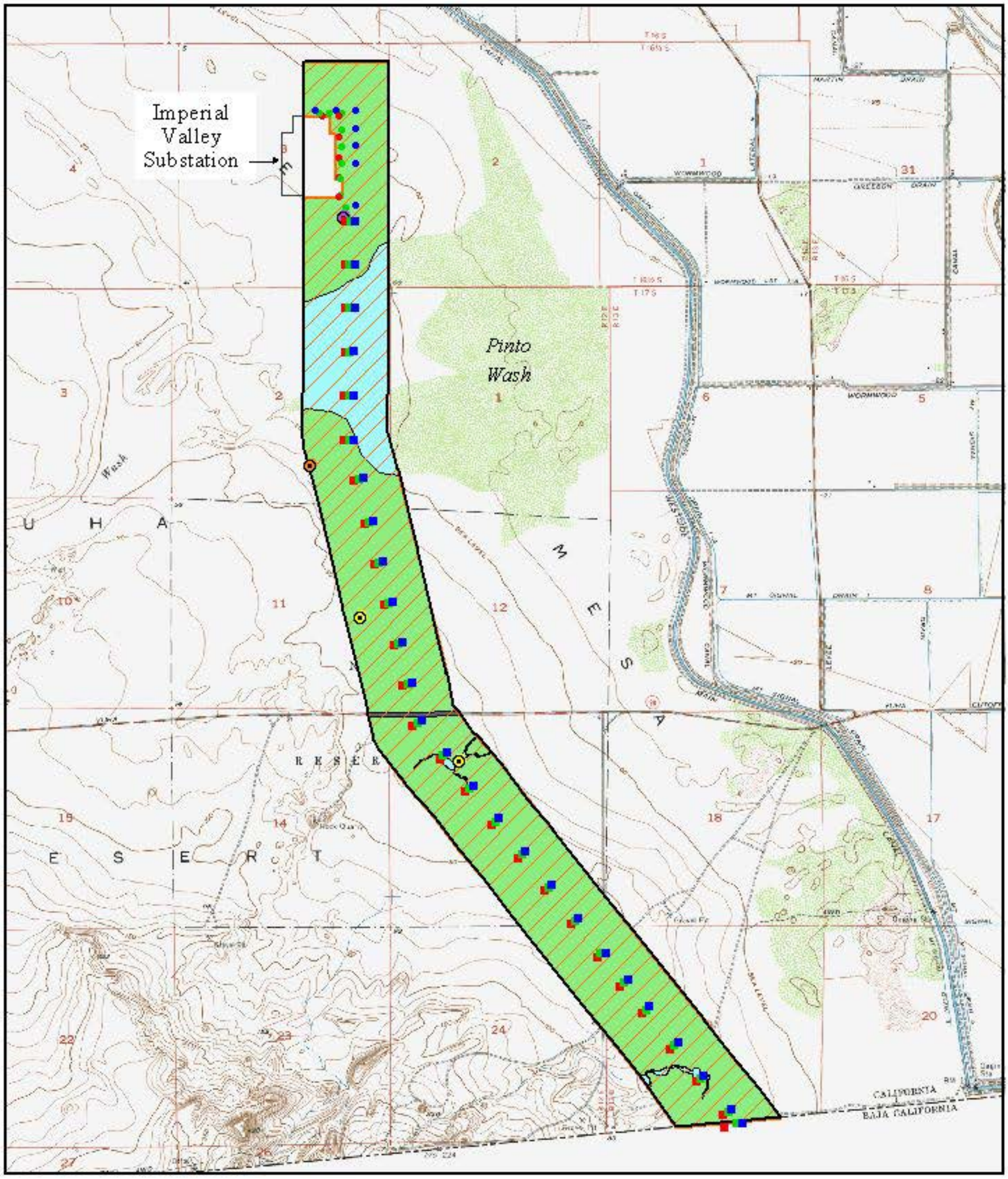

RECON

FIGURE 5

Project Impacts to Existing Biological Resources

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the 500-kV transmission line west of the 500-kV tower, will have to be relocated about 60 feet west to allow room for the BCP transmission line to pass beneath the 500-kV tower. The BCP and SDG&E rights-of-way at this point will be 60 feet wide each and adjacent to each other. The SER line will continue in a 120-foot-wide right-of-way until it turns west at the northern corner of the substation. At this point the right-of-way is reduced to 70 feet and the alignment is located adjacent to the other two lines. In addition, the 50-foot-wide IID right-of-way, at the north end of the substation, will be relocated west to accommodate the new SER line.

Towers will be fabricated in segments in Mexico and carried to the construction site by helicopter. This will minimize the amount of laydown area required in the United States for tower construction. It is anticipated that the helicopter will only spend a maximum of 15 minutes at each location. The monopoles will be brought to the site by truck in sections, assembled in laydown areas, and lifted into place using a 90-ton crane. Principal preparation at each tower and pole location will consist of preparing concrete foundation footings. Each tower will require four footings, one on each corner; a single footing will be needed for each monopole.

For each tower footing, a pit 3 to 4 feet in diameter would be excavated, approximately 15 feet deep. A reinforced concrete caisson would be cast in place in the excavated pit extending to above the ground surface. The base segment will be lowered to the anchors and bolted in place by workers on the ground. Then the upper segment will be flown to the site and bolted to the lower segment.

The steel monopoles will be anchored in concrete footings poured in place. The footings will be approximately 8 feet in diameter and 25 feet deep for suspension poles, and about 10 feet in diameter, for dead end and corner poles.

To safely secure the SER conductors at the crossing of the Southwest Power Link, A-frame structures will be used. A pair of A-frames on the north and south sides of the Southwest Power Link will be required for each circuit, for a total of four. Each A-frame will consist of two angled legs on each end, joined at the top to support a crossbar. Each leg of the A-frames will be bolted to a cylindrical concrete footing about 32 inches in diameter. A total of 16 footings would be needed for the A-frames. Holes for the pole and A-frame footings will be excavated using an auger. Guy wires will be needed to support the corner poles.

Both the SER and BCP lines will have two static wires atop the towers and poles above the conductors, one on each side. These optical ground static wires will include the initial installation of communications fiber (fiber-optic cable) for system monitoring, with additional black fiber for future communications use. At the 500 kV line crossing, these optical cables will be carried down the two poles on the SER and BCP lines on each side

of the 500-kV line, buried in a trench from pole to pole under the 500-kV line, and carried back up the pole on the opposite side of the 500-kV line.

For the lattice towers, there will be 12 pull sites for each transmission line route, for a total of 24 pull sites. The pull sites will be paired on each side of six towers in the BCP and SER transmission lines and will largely overlap with the projected work areas for each tower.

2. Proposed Project Impacts

The impact analysis presented in this document is based on a number of assumptions using the preliminary proposed project design. These assumptions are stated below. The assessment below is intended to indicate the scale of possible impacts and serve as a basis for the general calculation of mitigation requirements. It should be noted that many areas of temporary disturbance, such as work areas around towers or poles and pull sites, will certainly overlap at least partially, so the total estimate for temporary impact area is overestimated and therefore conservative (worst-case). There is a potential that the placement of the towers or access road alignment will be revised as the project design is refined. A reassessment of impacts may be required to assure that a project redesign does not result in additional impacts to sensitive biological resources.

a. Permanent Impacts

Areas of permanent impact will be those areas where the surface of the ground would be permanently disturbed. Specifically, new access roads and footings or anchors for tower, monopole, or crossing structures are areas that will be permanently impacted.

Permanent impacts will include the placement of concrete footings into the ground at each tower and pole location. Each tower footing will result in impact to approximately 12.56 square feet of the surface. Therefore, at each tower site, the permanent impacts would be a total of 50.24 square feet. For the steel suspension monopoles, the footings will have a surface area of about 50.25 square feet. There will be a total of 15 suspension poles in all four lines. Dead end or corner monopoles that will be placed at the end points and anywhere the line turns will have a footing area of about 78.50 square feet. There are a total of nine dead end or corner poles. The A-frame structures for the SER crossing will have 16 footings that would impact a total surface area of about 5.30 square feet each.

New roads will be needed to access the additional transmission lines resulting in additional permanent impacts. The towers, as presented in the current project design, line up very nearly in a straight line from west to east (roughly perpendicular to the right-of-way centerlines). Roads will be constructed by grading and compacting the existing soil. To minimize ground disturbance, it is proposed that access roads to each of the BCP and SER towers be constructed by extending "spurs" from the existing, mainline north-south

SDG&E access road eastward. This means that, allowing for some variation in a straight-line connection, approximately 250 linear feet of new access road would be needed at each of the 25 tower locations. Assuming that graded access roads would be 12 feet wide, approximately 3,000 square feet of access roads would be needed at each tower location. The access roads to the monopoles could be configured a number of ways. There are a number of roads already present in the area east of the substation that might be used. If it is assumed for worst-case impact assessment that all new roads would be needed to access each structure location, and that the new roads would be configured in a way to minimize impacts, a total of about 5,650 linear feet would be required to access all poles. If the access roads are 12 feet wide, this equates to approximately 67,800 square feet or less than 1.56 acres of permanent impact for access roads associated with the poles would result. An assumption has been made that approximately two-thirds of these roads will occur within the work area for the BCP, SDG&E, and IID lines for a total permanent impact of approximately 45,200 square feet (1.04 acres). The projected impacts for access roads along the SER monopole portion of the line would be approximately 2,600 square feet (0.52 acre).

b. Temporary Impacts

Areas of temporary impact are areas where construction activity may take place but where restoration of the surface is possible. These areas include the work areas used to erect the towers, monopoles, or crossing structures; pull sites; laydown areas for the monopoles; and the trenches for the optical cables under the 500-kV transmission line at the substation. In some places, areas of temporary disturbance will overlap.

Areas of temporary impact at each tower will include a work area around each tower that would include the area of excavation for the anchors. No laydown areas will be needed for the towers, since the tower sections will be delivered into the work area by helicopter after assembly in Mexico. Suspension towers will require a work area 52 feet by 52 feet, or 2,704 square feet, around each suspension tower. Subtracting the 16 square feet of permanent impact area from this total yields 2,688 square feet, or 0.06 acre, of temporary impact for the work area at each suspension tower. Twenty towers on each line will be suspension towers.

Five deflection or dead end towers would be needed in each of the new transmission lines at the end points of the lines and at each location where the line turns. The work area at each deflection or dead end tower would be 62 feet by 62 feet, or 3,844 square feet. Subtracting 16 feet of permanent impact area, the temporary impact for work area at each deflection or dead end tower would be 3,828 square feet.

In addition to the work area, 12 pull sites for each transmission line (a total of 24 for both lines) for the lattice towers would add to the area of temporary disturbance. The lattice tower pull sites would be 30 feet by 50 feet or 1,500 square feet, centered on the

crossarms beneath the towers. This is a conservative estimate, since there would be considerable overlap of work areas and pull sites.

It is reasonable to regard the entire corridor containing the BCP and relocated SDG&E and IID transmission lines in this location as a construction site rather than discrete areas of activity for the purpose of evaluating temporary impacts. (Discussion of potential impacts of the SER line in the area east and north of the IV Substation is provided below.) So regarded, the corridor is about 2,500 feet long and 120 feet wide along the east side of the substation and about 600 feet long and 190 feet wide along the north side of the substation, covering about 414,000 square feet or about 9.5 acres. It is likely that not all of this corridor will be disturbed, but for the reasons stated above, it is difficult to determine at this time precisely how much disturbance will occur, or where. This method for calculating impacts results in a conservative overestimation of the impacts in this area. The area should be considered an area of potential environmental effect within which impacts will occur to a smaller total area.

Since the SER line would be 400 to 500 feet east of the BCP line to clear the Southwest Power Link tower, it would not be included in the SDG&E/BCP corridor on the east side of the substation, so that evaluating discrete areas of temporary impact is more appropriate for the SER line along this area. At the southern dead end pole on this segment an area centered on the pole, 90 feet wide, and 50 feet long would include both pull sites and a work area. This would amount to 4,500 feet, or about 0.10 acre. At the northeastern corner pole an area centered on the pole and 90 feet square would include all four pull sites and a work area. This would amount to 8,100 square feet or about 0.19 acre. Three of the remaining SER suspension poles and the two pairs of A-frame structures work area around each pole will require a work area of about 25 feet in diameter per pole and about 25 feet by 135 feet for each pair of A-frames. The total work areas of these dimensions would be about 8,220 square feet or about 0.19 acre. Additional areas of temporary disturbance in this segment would result at laydown areas. A laydown area about 50 feet by 150 feet, or about 7,500 feet, would be needed at each pole location. For these seven locations along the SER line, the total work area is approximately 1.21 acres of temporary impact. The remaining two poles within the SER line (one suspension and one dead end) are located north of the substation adjacent to the BCP and SDG&E lines and are included in the larger work area described above.

At the Southwest Power Link crossings, the static optical cables for the SER and BCP lines would be brought down the monopole south of the 500-kV line crossing and placed underground in a trench to cross the 500-kV line to the monopole north of the 500-kV line, and there brought back up the monopole to the upper crossarm. The trench will be relatively shallow and will be dug by hand. In the BCP/SDG&E line area, the trench temporary impacts are included in the construction corridor described above. In the SER corridor, the area of temporary impact for trenching will be about 3 feet wide and 900 feet long, about 2,700 square feet or 0.06 acre.

B. Vegetation Communities

Table 5 presents the temporary and permanent impacts for each vegetation community within the proposed transmission line corridors. These numbers were calculated using the above-stated assumptions of impacts. Figure 5 illustrates the project impacts.

The proposed design will permanently impact approximately 3.10 acres of Sonoran creosote bush scrub and 0.28 acre of desert wash. Temporary impacts will be approximately 14.96 acres of Sonoran creosote bush scrub and 0.46 acre of desert wash. The temporary impact calculations for the Sonoran creosote bush scrub also includes the 9.5 acres calculated as the maximum work area for the BCP, SDG&E, and IID lines along the east and north of the Imperial Valley Substation. The actual area of impact will likely be smaller than this amount. In addition, the calculation of impacts for both vegetation communities includes the temporary impacts resulting from the 24 pull sites required for stinging the lines along the lattice towers. This acreage includes overlap with the projected work area at each tower location and represents a conservative estimate of impact acreage.

While neither of these communities is considered to be sensitive and impacts are generally considered less than significant; the project design may employ the use of water for air quality control measures during construction. This could encourage the invasion of non-native, invasive species which would be considered a impact.

C. Wildlife

Some impacts to general wildlife associated with the project may occur. Birds have a high mobility and will most likely move out of the way during construction. Small mammals and reptiles with low mobility may be inadvertently killed during construction of the project. After project completion, a minimal amount of habitat will have been lost for general wildlife species. Impacts on general wildlife are considered less than significant.

D. Sensitive Biological Resources

1. Sensitive Vegetation Communities

The proposed project will not impact any sensitive plant communities.

TABLE 5
PROJECT IMPACTS
(acre)

Resource	BCP Transmission Line (including SDG&E and IID)		SER Transmission Line		Total (Temporary/Permanent)
	Temporary Impacts	Permanent Impacts	Temporary Impacts	Permanent Impacts	
Sonoran Creosote Bush Scrub	11.38[1]	1.82	3.58	1.28	18.06 [1] (14.96/3.10)
Desert Wash	0.21	0.13	0.25	0.15	0.74 (0.46/0.28)
TOTAL	11.59	1.95	3.83	1.43	18.80 (15.42/3.38)
Jurisdictional Waters of the U.S.	0.06	0.04	0.07	0.04	0.21 (0.13/0.08)

[1]Acreage of temporary impact includes the construction corridor for work on the BCP, SDG&E, and IID lines which will temporarily impact a maximum of 9.5 acres.

2. Sensitive Plant Species

There are no federally or state listed candidate, proposed, threatened, or endangered plant species expected to occur within the survey area. There will be no impacts to any of these species.

The project will potentially disturb 23 plant species that are included on the CNPS Lists if they are located within any of the work areas. The project will permanently impact only 3.38 acres of potential habitat for sensitive plant within the entire six miles of transmission line corridors. Temporary impacts will potentially affect a maximum of 15.42 acres within these same corridors. The temporary impacts will have some flexibility in areas of exact impact. The project proponents have designed construction to include the presence of a biological monitor during all grading operations. This monitor can assist construction crews in avoiding any sensitive plants that may be present within the construction areas by directing work away from the resource within the temporary work areas. Given the small amount of impact to the proposed project and the proposed presence of a biological monitor during construction, the impacts to these species are expected to be less than significant.

3. Sensitive Wildlife

a. Flat-tailed Horned Lizard

The proposed project will temporarily impact approximately 15.42 acres and permanently impact approximately 3.38 acres of habitat known to be occupied by the flat-tailed horned lizard.

b. Western Burrowing Owl

There is a potential that the proposed project would impact active burrows of the western burrowing owl.

c. Prairie Falcon

The prairie falcon is not expected to nest on-site. No significant impacts will occur to this species.

d. Other Sensitive Species

There is a potential for several other sensitive wildlife species to occur within the survey area. None of these species are listed as a candidate, proposed, threatened, or endangered species by either the federal or state regulatory agencies. The proposed project is not expected to reduce any of these species to less than a self-sustaining level. Impacts would be less than significant.

E. Wildlife Movement Corridors

The survey corridor is not being used as a movement corridor by wildlife. There are no impacts to wildlife movement corridors.

F. Jurisdictional Areas

The proposed project is expected to impact a total of 0.21 acre of USACE non-wetland jurisdictional waters of the U.S., which includes both temporary and permanent impacts (see Table 5 and Figure 6). There will be no impacts to wetlands.

Any future project revisions should be designed to avoid increasing the amount of impact to non-wetland jurisdictional waters. Several of the work areas for the southern lattice towers, as currently placed, are within approximately 60 feet of non-wetland jurisdictional waters. An effort should be made in future redesigns to minimize all impacts to jurisdictional waters and maximize the distance of each tower from these areas.

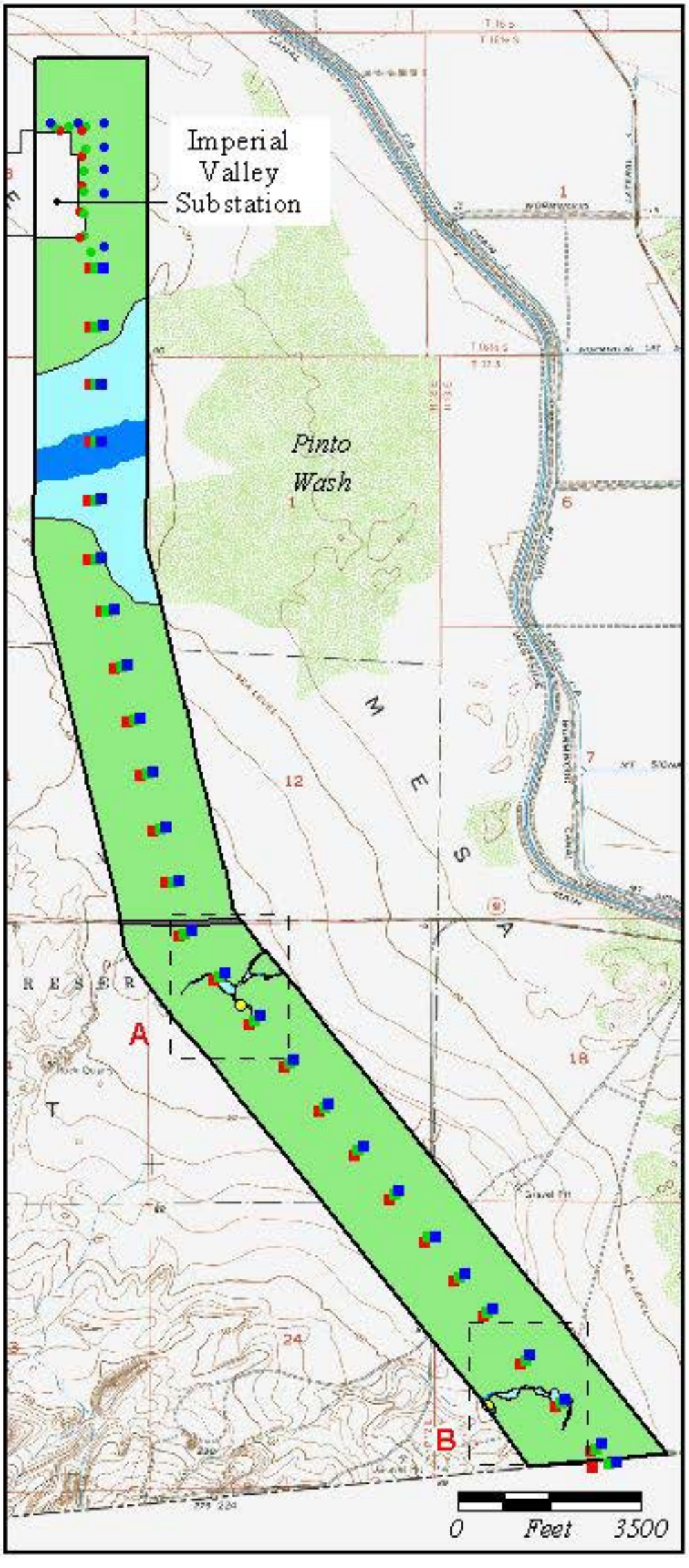
G. Cumulative Impacts

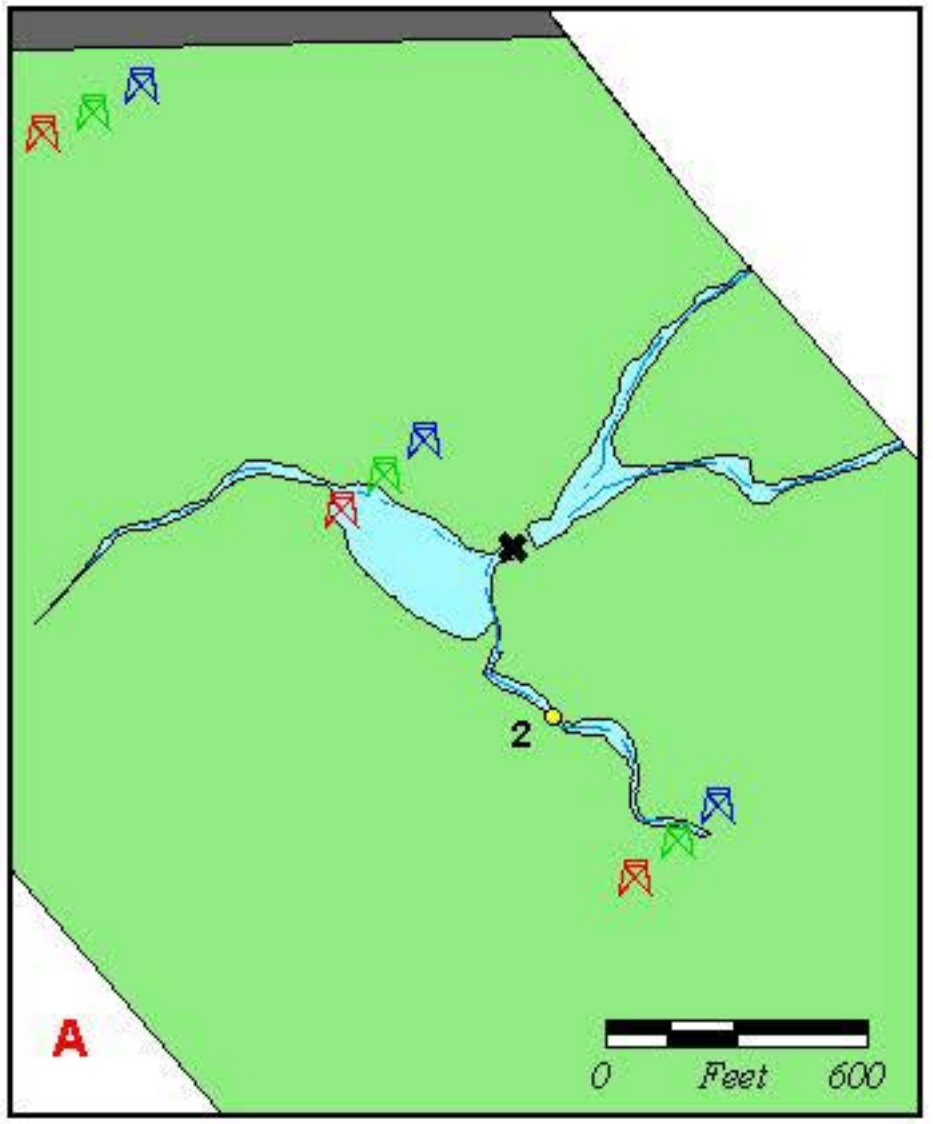
In the project area, there is clear evidence of off-road vehicle activity connected to the access roads for the SDG&E transmission line. This may be due to both legal (Border Patrol) and illegal activity. The proposed project will not create any new access from SR-98, but will extend access road spurs eastward from the SDG&E access roads. These spurs could increase the disturbance of biological resources by creating new access routes into the desert. The amount of the additional disturbance is impossible to estimate, and given the large tracts of vacant desert surrounding the project area, is probably impossible to prevent.

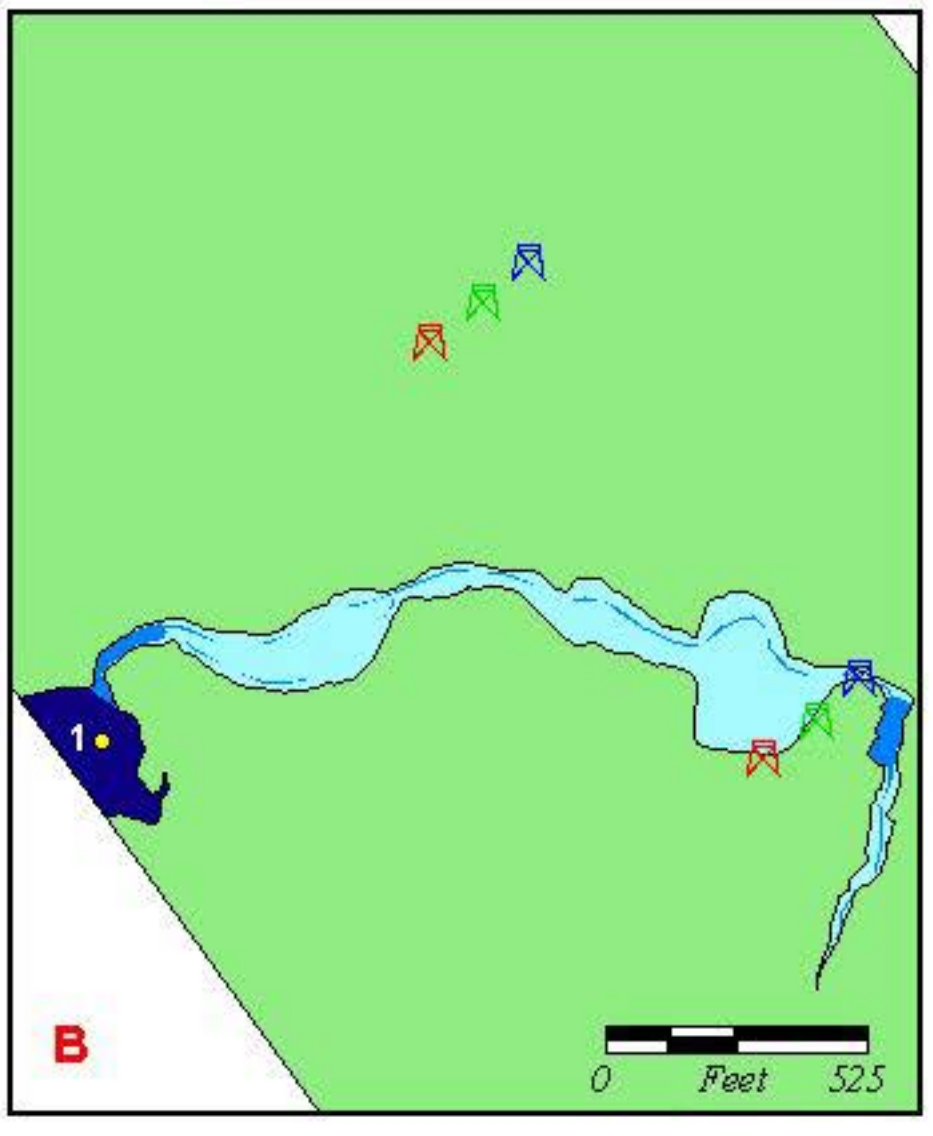
Exotic, invasive species, such as tamarisk, are present in a few areas within the survey corridor. The proposed activities of this project, including the general disturbance of the soil surface and the use of water for dust control, may encourage the growth of these non-native invasive species. This could potentially impact the quality of the native biological resources.

Mitigation Measures

Permanent impacts will result from the clearing of vegetation without opportunity for restoration related to access roads and support structure footings. Temporary impacts in work areas due to the activities of workers and equipment may be suitable for mitigation by restoration.







RECON

Culvert
Test pit

Project impacts
Existing SDG&E facilities
Proposed BCP facilities
Proposed SER facilities

USACE Non-wetland Jurisdictional Waters of the U.S.
USACE wetland
Sonoran creosote bush scrub
Desert wash

Highway 98
Area surveyed

FIGURE 6
Project Impacts to Jurisdictional Waters

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Several features of the project, as proposed by the applicants and described below, will be effective in avoiding, minimizing, and mitigating impacts to biological resources. These include positioning the lattice towers and locating the access roads so that permanent disturbance can be minimized. In addition, moving the tower assemblies to their locations in the line by helicopter, instead of assembling them on-site, will greatly reduce the amount of disturbance at each tower site.

A. Vegetation Communities

To mitigate for the potential invasion of aggressive non-native plant species from the use of water for dust control, the following measures will be employed. Watering should only be employed when absolutely necessary to meet air quality standards and excessive watering should be avoided. In addition, all invasive vegetation along the east side of the Imperial Valley Substation, including a stand of tamarisk trees, shall be removed from this area and the area shall be restored as much as possible to its original, pre-disturbed state. A biological restoration plan will be prepared and shall include provisions for monitoring all areas used for construction and for the removal of invasive species, on a schedule acceptable to the BLM. The restoration plan must include a minimum of three years of control for tamarisk and other exotics following construction.

B. Sensitive Plant Species

As described above, the presence of a biological monitor during grading who can assist the construction crews in minimizing impact to any sensitive plant species that might be present within the temporary work areas will reduce impacts to sensitive plant species to less than significant. Impacts to sensitive plants would not require any further mitigation.

C. Sensitive Wildlife

1. Flat-tailed Horned Lizard

The applicants have agreed to follow the measures listed in the "Flat-Tailed Horned Lizard Rangewide Management Strategy" to mitigate the effects of projects in the Yuha Desert Management Area, as well as other measures for the general protection of sensitive biological resources.

The applicants will attempt to schedule construction to occur as much as possible during the flat-tailed horned lizard's dormant period, November 15 to February 15, and will employ all mitigation measures recommended by the management strategy. Construction is to be completed in as short a time as possible to minimize the length of time that habitat will be disturbed by activity. Some construction will probably be necessary during the lizard's active period (before November 15 and after February 15), however, and if so,

the applicants will employ additional mitigation measures during that period. In addition, the applicants will employ mitigation measures intended to minimize and mitigate for general disturbance of biological resources, and assure restoration of disturbed areas.

Mitigation measures for these impacts are detailed in Appendix 3 of the Flat-tailed Horned Lizard Rangewide Management Strategy (Foreman 1997). These are summarized below. The mitigation measures shall be overseen by a project biologist who is familiar with the entire text and requirements of the mitigation measures outlined in Appendix 3 of the Management Strategy.

1. Construction will be scheduled to occur as much as possible during the flat-tailed horned lizard's dormant period, November 15 to February 15, and the construction schedule shall be approved by the BLM before construction begins.

2. A pre-construction worker education program will be developed and implemented. In addition, wallet-cards will be provided to all construction and maintenance personnel that includes information regarding the biology and status of the lizard; the protection measures that are being implemented; the function of the flagging around sensitive resources; reporting procedures if a lizard is found within the construction area; and methods of reducing impacts during commuting to and from construction areas.

3. A Field Contact Representative (FCR) shall be designated prior to the start of construction and approved by the BLM. The FCR will be responsible to ensure compliance with protective measures for the flat-tailed horned lizard and other sensitive biological resources and will act as the primary resource agency contact. The FCR shall have the authority to halt construction activities if the project is not in compliance with mitigation required by this EA.

4. The FCR shall coordinate with the construction manager to assure that all surface-disturbing activities are located as much as possible in areas that have been previously disturbed or where habitat quality is lower, and where disturbance to biological resources can be minimized.

5. All work areas will be clearly flagged or otherwise marked and all work will be restricted to these areas. All construction workers shall restrict their activities and vehicles to areas which have been flagged or to clearly recognizable areas such as access roads that have been identified as "safe" areas by the FCR.

6. A biological monitor shall be present in each area of active construction throughout the work day from initial clearing through habitat restoration, except where the project is completely fenced and cleared of horned lizards by a biologist (see measure 12 below). The biologist must have sufficient education and field

training with the flat-tailed horned lizard. This biologist will ensure that the project complies with these mitigation measures and will have the authority to halt activities if they are not in compliance. The biologist will inspect the construction areas periodically for the presence of flat-tailed horned lizards and will inspect any open trenches or pits prior to backfilling. The biologist will also work with the construction supervisor to take steps to avoid disturbance to the lizards and their habitat. If a lizard is discovered within an affected area, the lizard will be captured and relocated. The monitor will also excavate all potential flat-tailed horned lizard burrows within the construction areas and relocate any flat-tailed horned lizards encountered.

7. Only biologists authorized by the BLM may handle flat-tailed horned lizards. Any workers who discover flat-tailed horned lizards shall avoid disturbing the animals and shall immediately notify their construction supervisor and the biological monitor.

8. If a flat-tailed horned lizard is detected within an affected area, it should be relocated according to the measures detailed in Measure No. 9 of the Mitigation Measures section (Appendix 3) of the Management Strategy. Any relocation must be conducted by a biologist authorized by the BLM to handle the lizards.

9. The area of vegetation and soil disturbance shall be restricted to the smallest extent possible. When possible, equipment and vehicles should use existing surfaces or previously disturbed areas. When excavation or grading is necessary, the topsoil should be stockpiled and restored following completion of the work.

10. Existing roads shall be used to the greatest extent possible for travel and staging areas.

11. If desired by the BLM, newly created access roads shall be restricted by the construction of barriers, erecting fences with locked gates, and/or by posting signs. Maintenance access control facilities shall be the responsibility of the applicant for the life of the project (construction and operation).

12. Sites where prolonged construction activity, lasting several hours or more, will occur, and in which lizard mortality could occur, shall be enclosed with 0.5-inch wire mesh fencing to exclude the lizards from the site. This barrier fencing must be at least 12 inches above and below the ground surface and all entry gates should be constructed to prevent lizard entry. Once a fenced site has been cleared of flat-tailed horned lizards and fenced in this manner, an on-site monitor is no longer required.

13. For all areas disturbed by construction, a habitat restoration plan shall be developed by a qualified biologist, approved by the BLM, and implemented by the applicant. The restoration plan must address all of the items included in Measure No. 14 in Appendix 3 and in the Overview for Techniques for Rehabilitation of Lands in Appendix 8 of the Rangewide Management Strategy (Foreman 1997). The restoration plan shall include a schedule for monitoring and assuring the success of restoration, including the removal of invasive species, acceptable to the BLM. The restoration plan must include a minimum of three years of tamarisk (and other exotics) control following construction.

14. The FCR shall keep a record of the extent of all areas permanently and temporarily disturbed by construction. This record shall be the basis for determining a monetary compensation to be paid by the applicants to the BLM upon the completion of construction as required by Appendix 4 (Compensation Formula) of the Management Strategy. The BLM may require, prior to the beginning of construction, a reasonable deposit based on the extent of anticipated disturbance, with the final compensation to be determined according to the FCR's final record and the Compensation Formula in the Management Strategy.

For any construction occurring during the flat-tailed horned lizard's active period, before November 15 or after February 15, all of the measures listed above that are applicable shall be implemented. In addition, the following measures shall be required:

1. The FCR shall coordinate with the construction manager for the applicants to assure that vehicular traffic is kept to a minimum consistent with the practical requirements of construction.

2. Work crews shall not drive to the work site in the Management Area in individual vehicles. The applicant shall arrange for workers to park on State Route 98 or some other facility outside the Management Area and be driven together to the work site in a single vehicle (multiple trips for this collection vehicle are permitted). This limitation shall apply to the members of a work crew (two or more persons) who will be working together throughout the shift, except for emergencies.

3. All motor vehicles in the work area shall be accompanied by a biological monitor trained to recognize the flat-tailed horned lizard and approved by the BLM to walk in front of the vehicle when it is moving from place to place on access roads in order to remove lizards that may be in the path of the vehicle.

The FCR and biological monitors will keep a record of all sightings of flat-tailed horned lizards and fresh flat-tailed horned lizard scat. Sightings will be reported in writing to the BLM on a schedule established by the BLM.

Mitigation will also include contribution to a compensation fund that will be used to acquire lands and enhance habitat within flat-tailed horned lizard management areas (Foreman 1997). The mitigation ratio is calculated using the compensation formula provided in Appendix 4 of the Rangewide Management Strategy (Foreman 1997). A multiplying factor is calculated and applied to the number of affected acres to determine the level of mitigation required. For impacts to lands within a Management Area the multiplier ranges from three to six calculated based on other factors that include the extent of impact to adjacent lands, growth inducing factors of the project, and duration of the project effect.

Based on discussions with BLM staff, the mitigation multiplying factor will be 4.5. This breaks down as follows: 3 for the impact occurring within a designated flat-tailed horned lizard management area, 0.5 for the residual impacts to adjacent lands, and 1 for the fact that impacts will be long term (greater than 10 years). The current mitigation fee is $230 per acre. Based on these factors, the expected compensation fee would be $19,458 (18.80 acres of impact*$230/acre*4.5 multiplying factor). This amount must be paid prior to the start of construction.

2. Western Burrowing Owl

There is a potential that the proposed project would impact active burrows of the western burrowing owl. The breeding season for burrowing owls is between February 1 and August 31. Burrows can be occupied and active during both the breeding and non-breeding seasons. Avoidance of all disturbances to occupied burrows is preferred. A non-disturbance buffer of 160 feet during the non-breeding season and 250 feet during the breeding season should be maintained around each occupied burrow, when possible. It is preferable that construction take place between September 1 and January 31, to avoid impacts to breeding burrowing owls (State of California 1995).

Unavoidable impacts to occupied burrows must be mitigated using passive relocation methods, as described below. Relocation should be implemented within the non-breeding season only. If construction is to begin during the non-breeding season, a pre-construction clearance survey should be conducted within the 30 days prior to construction to identify whether any burrowing owl territories are present within the project footprint. The proposed construction areas will need to be identified in the field by the project engineers prior to the commencement of the pre-construction clearance survey. The survey should follow the protocols provided in the Burrowing Owl Survey Protocol and Mitigation Guidelines by the California Burrowing Owl Consortium (2001). A focused survey should be conducted which includes pedestrian surveys over the entire project site and areas within a 500-foot area around the area of impact. If burrows or burrowing owls are located, a burrowing owl census should be conducted. This includes night surveys of the areas around the identified burrows or owl sightings on four separate days to determine the number and locations of owls using the site.

If active burrows are present within the project footprint, the following mitigation measures should be implemented. Passive relocation methods are to be used to move the owls out of the impact zone. Passive relocation should only be done in the non-breeding season. This includes covering or excavating all burrows and installing one-way doors into occupied burrows. This will allow any animals inside to leave the burrow but will exclude any animals from re-entering the burrow. A period of at least one week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin. The burrows should then be excavated and filled in to prevent their reuse. An artificial burrow should be created beyond 160 feet from the impact area but contiguous with or adjacent to the occupied habitat.

The destruction of the active burrows on-site requires construction of new burrows at a mitigation ratio of 1:1 at least 50 meters from the impacted area and must be constructed as part of the above-described relocation efforts.

If construction is to begin during the breeding season, it is recommended that the above-described measures are implemented prior to February 1 to discourage the nesting of the burrowing owls within the area of impact. As construction continues, any area where owls are sighted should be subject to frequent surveys for burrows before the breeding season begins, so that owls can be relocated before nesting occurs.

Given the long, linear nature of this project, it is possible that these protocols will need to be repeated throughout the length of construction to ensure that additional burrowing owls have not moved within the areas of impact subsequent to the initial pre-construction clearance survey and relocation efforts. As the construction schedule and details are finalized, a qualified biologist should prepare a monitoring plan that will detail the methodology proposed to minimize and mitigate impacts to this species.

D. Jurisdictional Areas

Impacts to non-wetland jurisdictional waters of the U.S. should be mitigated at a ratio consistent with federal regulatory agencies, which is typically 1:1, for a total of 0.21 acre. Temporary impacts of 0.13 acre will be mitigated by returning the area to the pre-construction contour and condition. Given that the permanent impacts are so small, 0.08 acre, it is recommended that enhancement of the survey corridor through removal of the non-native invasive tamarisk be conducted. This should be conducted along the eastern edge of the Imperial Valley Substation which would account for an area of at least 0.10 acre in size. Additional tamarisk could be removed from the southern wetland area, if necessary. A restoration plan will be prepared detailing the proposed mitigation for impacts to jurisdictional waters. This plan will include a minimum of three years of control for tamarisk and other exotics following construction to ensure that these species are not allowed to establish within the impacted areas.

In addition, impacts to these waters will require a Section 404 permit from the USACE and a 401 certificate from the Regional Water Quality Control Board in accordance with the Clean Water Act. This project would be covered by Nationwide Permit (NWP) #12 which regulates all activities required for the construction of utility lines and associated facilities within waters of the U.S. This NWP covers all projects that do not exceed 0.5 acre of impact resulting from construction of the utility lines and associated access road. This project meets that threshold by impacting a maximum of 0.21 acre of jurisdictional waters.

E. Cumulative Impacts

The impacts from the potential proliferation of roads through the Yuha Desert from the creation of new spur roads is difficult, if not impossible to mitigate. Given the large tracts of vacant desert surrounding the project area, is probably impossible to prevent. Barriers on the roads might actually exacerbate the problem, for instance, by simply encouraging disturbance of the adjacent desert to bypass the barriers. Increased signage at the access road entrances off Highway 98 and at each of the spur roads to the towers may assist in reducing the illegal off-road-vehicle use, though it is unlikely to affect the use of the area by the Border Patrol and other law enforcement entities. These residual impacts would likely remain following completion of the project and implementation of the above-described mitigation measures. It is impossible to quantify the residual impacts because of the nature of the impacts. The mitigation fee, as calculated above for impacts to the flat-tailed horned lizard habitat, was set at a higher ratio (increased from 3.5 to 4.5) to account for residual impacts on adjacent lands and was calculated for the entire project impact area. This additional fee will provide some offset for the impacts.

A biological restoration plan will be prepared to provide appropriate mitigation for the potential proliferation of exotic invasive species. This plan will include a minimum of three years of control for tamarisk and other exotics following construction to ensure that these species are not allowed to establish within the impacted areas.

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ATTACHMENTS

ATTACHMENT 1

ATTACHMENT 1
PLANT SPECIES OBSERVED

Scientific Name	Common Name	Habitat	Origin
Abronia villosa var. *villosa* S. Watson	Verbena	DW	N
Acacia greggii A. Gray	Catclaw acacia	CS, DW	N
Ambrosia dumosa	Burro-weed	CS	N
Aristida purpurea Nutt.	Purple three-awn	DW	N
Atriplex canescens ssp. *linearis* (Parsh) Nutt.	Fourwing saltbush	DW	N
Atriplex polycarpa (Torrey) S. Watson	Saltbush	DW	N
Bebbia juncea (Benth.) E. Greene	Sweetbush	DW	N
Bouteloua barbata Lag.	Six-weeks grama	DW	N
Chamaesyce sp.	Prostrate spurge	CS	N
Croton californicus Muell.-Arg.	California croton	DW	N
Datura sp. Regel	Jimson weed	DW	N
Encelia farinosa Torrey & A. Gray	Brittlebush	CS	N
Encelia frutescens (A. Gray) A. Gray	Encelia	DW	N
Ephedra californica Wats.	Desert tea	CS	N
Eriogonum inflatum Torrey & Fremont	Desert trumpet	DW	N
Hymenoclea salsola A. Gray	Burrobrush	DW	N
Isocoma acradenia (E. Greene) var. *eremophila* (E. Greene) G. Nesom	Alkali goldenbush	DW	N
Larrea tridentata (DC.) Cov.	Creosote bush	CS	N
Opuntia acanthocarpa Engelm. & Bigel. var. *coloradensis* L. Benson	Buckhorn cholla	CS	N
Oenothera deltoides Torr and Frem.	Primrose	CS	I
Olneya tesota A. Gray	Ironwood	CS, DW	N
Palafoxia arida B. Turner & M. Morris	Spanish needle	CS	N
Pectis papposa Harvey & A. Gray var. *papposa*	Chinchweed	CS	N
Petalonyx thurberi A. Gray ssp. *thurberi*	Sandpaper plant	DW	N
Phoradendron californicum Nutt	Desert mistletoe	CS	N
Plantago ovata Forsskal	Wooly plantain	CS	I
Pleuraphis rigida Thurber	Big galleta	DW	N
Prosopis velutina Wooton	Velvet mesquite	CS, DW	N
Psilostrophe cooperi (A. Gray) Greene	Paper flower	DW	N
Psorothanmus spinosus (A. Gray) Barneby	Smoke tree	DW	N
Psorothanmus emoryi (A. Gray) Rydb.	White dalea	DW	N
Stephanomeria pauciflora (Nutt) Nelson	Wire lettuce	CS	N
Tamarix sp.	Tamarisk	DW	I
Tiquilia plicata (Torrey) A. Richardson	Tiquilia	CS	N

HABITATS

CS = Sonoran creosote bush scrub
DW = Desert wash

OTHER TERMS

N = Native to locality
I = Introduced species from outside locality

ATTACHMENT 2

ATTACHMENT 2
WILDLIFE SPECIES OBSERVED/DETECTED

Common Name	Scientific Name	Occupied Habitat	Status	Evidence of Occurrence
Invertebrates (Nomenclature from Mattoni 1990 and Opler and Wright 1999)				
Alfalfa butterfly	*Colias eurytheme*	CS, DW		O
Monarch	*Danaus plexippus*	DW		O
Painted lady	*Vanessa cardui*	CS		O
Pigmy blue	*Brephidium exilis*	CS		O
Reptiles (Nomenclature from Collins 1997)				
Desert iguana	*Dipsosaurus dorsalis*	CS, DW		O
Flat-tailed horned lizard	*Phrynosoma mcallii*		CSC, BLM	O
Birds (Nomenclature from American Ornithologists' Union)				
Red-tailed hawk	*Buteo jamaicensis*	F		O
Prairie falcon	*Falco mexicanus*	CS	CSC	O
Western burrowing owl	*Speotyto cunicularia hypugaea*	DW	CSC	O
Northern flicker	*Colaptes auratus*	CS		O
Common raven	*Corvus corax clarionensis*	CS		O
Phainopepla	*Phainopepla nitens*	CS		O
Rock wren	*Salpinctes obsoletus obsoletus*	CS		O
Blue-gray gnatcatcher	*Polioptila caerulea*	CS		O
Black-tailed gnatcatcher	*Polioptila melanura*	CS		
Yellow-rumped warbler	*Dendroica coronata*	CS, DW		O
White-crowned sparrow	*Zonotrichia leucophrys*	CS		O
Mammals (Nomenclature from Jones et al. 1982)				
Round-tailed ground squirrel	*Spermophilus tereticaudus tereticaudus*	CS		V
Desert black-tailed jackrabbit	*Lepus californicus deserticola*	CS		O
Cottontail rabbit	*Sylvilagus audubonii*	CS		O
Coyote	*Canis latrans*	CS		D, S
Desert kit fox	*Vulpes macrotis*	CS		S

Habitats

CS = Sonoran creosote bush scrub
DW = Desert wash
F = Flying overhead

Status

BLM= Bureau of Land Management
CSC = California Department of Fish and Game species of special concern

Evidence of Occurrence

V = Vocalization
O = Observed
S = Scat
D = Den site

Wetland Delineation Report
for the
Imperial Valley to La Rosita 230-kV Line
Imperial County, California

WETLAND DELINEATION REPORT FOR THE IMPERIAL VALLEY TO LA ROSITA 230-KV LINE IMPERIAL COUNTY, CALIFORNIA

Prepared for

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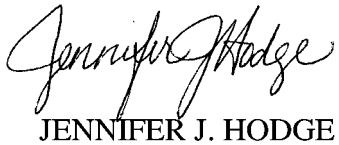
Prepared by



JENNIFER J. HODGE
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Summary of Findings

A wetland delineation was conducted within the corridor of the proposed San Diego Gas and Electric (SDG&E) 230-kilovolt (kV) line from the Imperial Valley Substation to the Mexican border in Imperial County, California. Methods for delineating wetlands follow guidelines set forth by the U.S. Army Corps of Engineers ([USACE] 1987). A total of 38.7 acres of jurisdictional waters of the U.S. (0.90 acre of wetlands and 37.8 acres of waters of the U.S.) were delineated according to USACE guidelines. This wetland delineation is subject to review and approval by the USACE.

Impacts to jurisdictional waters on the site will require a Section 404 permit from the USACE and a 401 certificate or waiver from the Regional Water Quality Control Board in accordance with the Clean Water Act. An analysis of project impacts is provided in the biological technical report for this project (RECON 2001).

Introduction

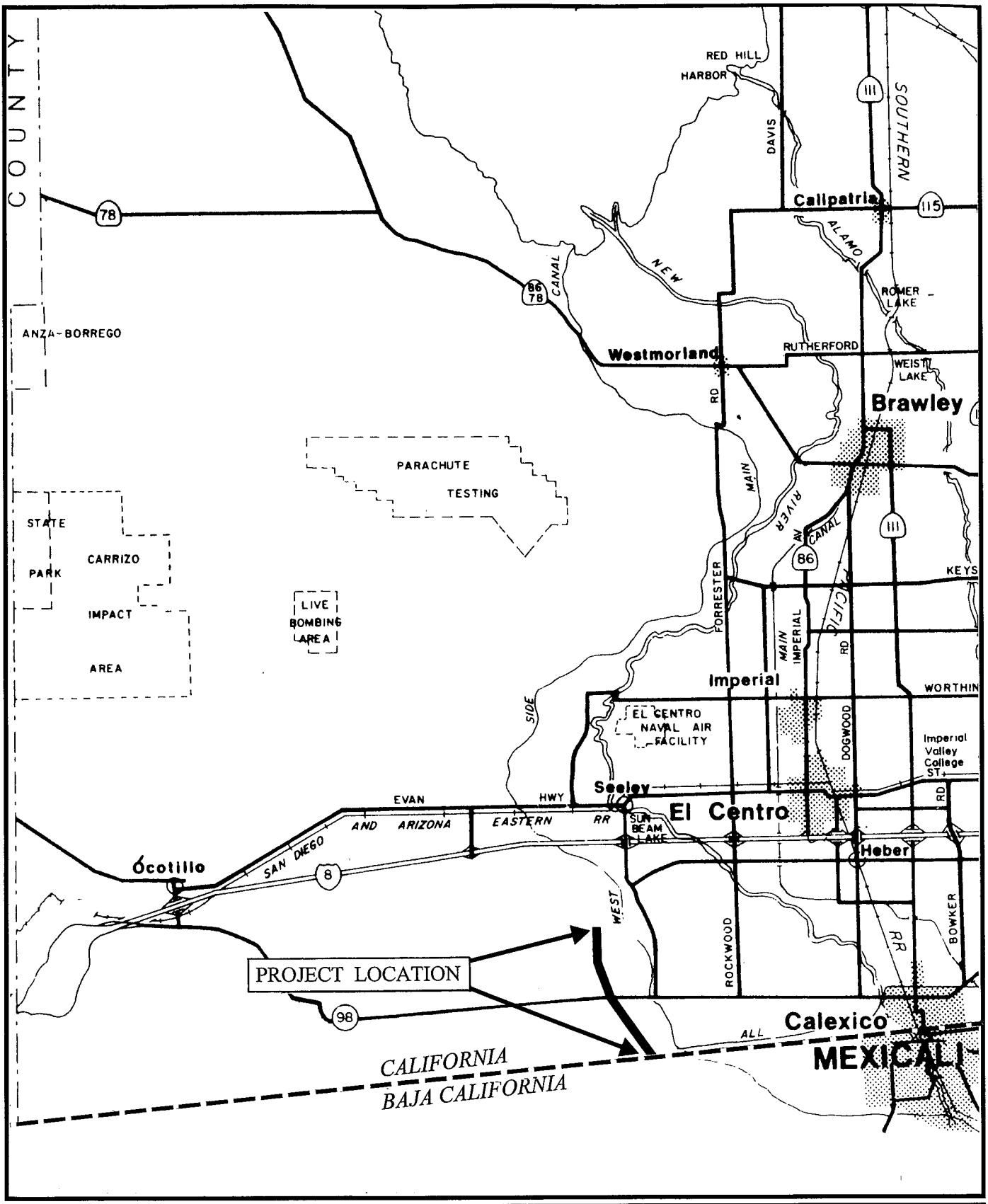
The proposed project is located in the Yuha Basin of the Colorado Desert in Imperial County, California, southwest of the town of El Centro (Figure 1). This project proposes to construct a 230-kV transmission line from the existing SDG&E Imperial Valley Substation, south approximately five miles to the U.S./Mexican border (Figure 2), where the Comision Federal de Electricidad (CFE) will construct the remaining three miles of the line to their La Rosarita Substation.

The project corridor is located completely on Bureau of Land Management (BLM) property and is bisected by Highway 98. The project area is located within portions of Section 3, Township 16½ South, Range 12 East, Sections 1, 2, 11, 12, 13, 14, and 24 of Township 17 South, Range 12 East, and Sections 18 and 19 of Township 17 South, Range 13 East on the Mt. Signal 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle (see Figure 2).

Wetland delineation data and background information required for environmental analysis by the USACE are included in this report. The biological technical report for the SDG&E 230-kV Line (RECON 2001) contains all other biological resource information for the project.

Methods

The methodology for delineating wetlands used for this report follows guidelines set forth by the USACE (1987). Three criteria must be fulfilled in order to consider an area a



Source: California Dept. of Transportation

0 MILES 5.2 10.4

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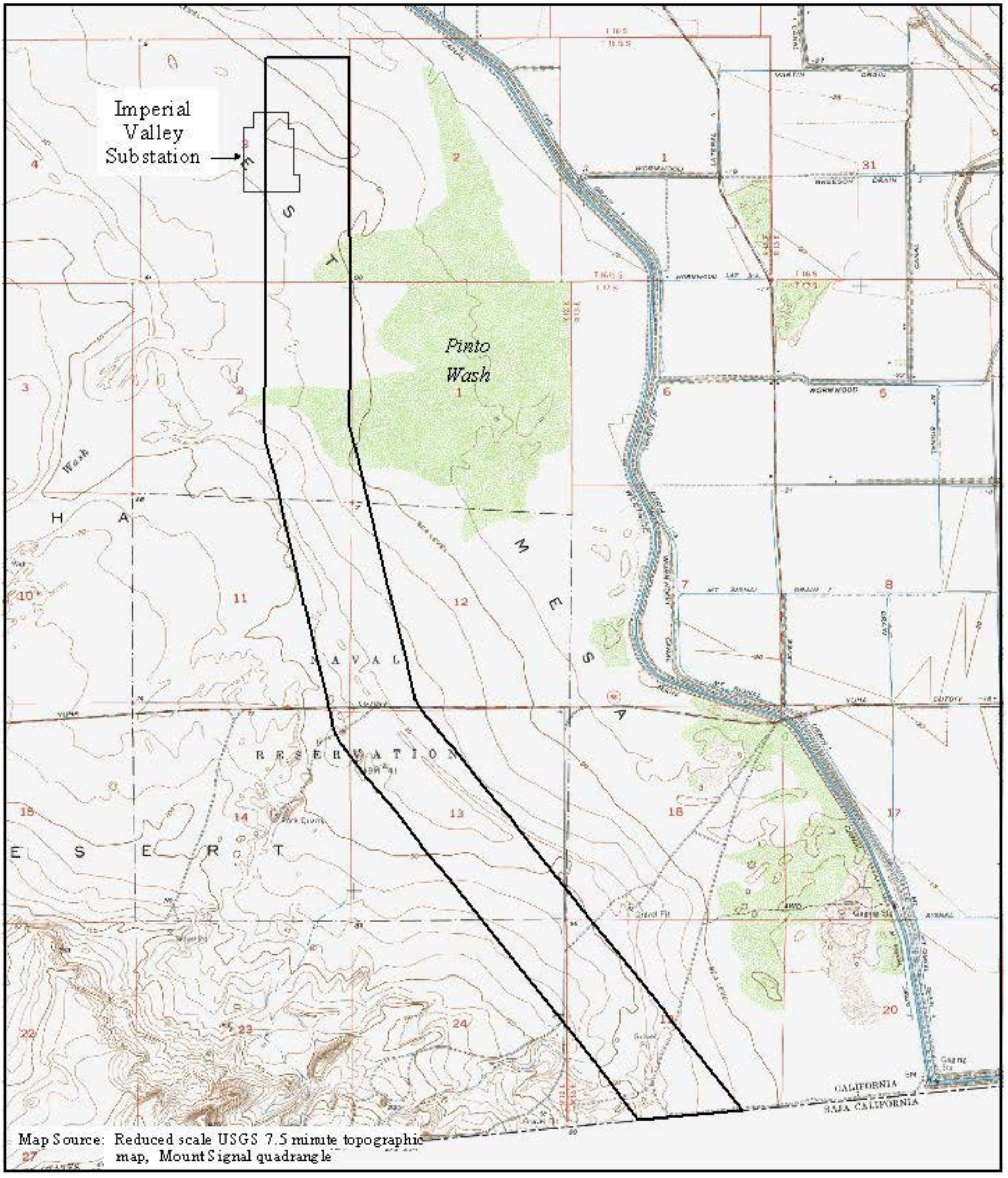
FIGURE 1

Location of the Project in Western Imperial County



Map Source: Reduced scale USGS 7.5 minute topographic map, Mount Signal quadrangle

RECON

Survey corridor

0 Feet 3500

FIGURE 2

Project Vicinity

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jurisdictional wetland: (1) the presence of hydrophytic vegetation; (2) the presence of hydric soils; and (3) the presence of wetland hydrology. Atypical wetland areas (disturbed wetlands) and problem area wetlands (e.g., seasonal wetlands) may lack one or more of the three criteria but could still be considered wetlands if background information on the previous condition of the area and field observations indicate that the missing wetland criteria were present before the disturbance and would occur at the site under normal circumstances. In addition, areas that displayed a prominent ordinary high water mark were also evaluated as potential non-wetland jurisdictional waters or disturbed wetland.

A routine on-site determination method (USACE 1987) was conducted on October 24 and 25, 2000 by Gerry Scheid and Jennifer Hodge to gather field data at potential wetland areas on the project site. The limits of the streambed were marked using global positioning system technology by RECON biologists Jennifer Hodge and Amy Elsnic on December 12, 2000.

A. Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (USACE 1987). The potential wetland areas were surveyed by walking the proposed project site and making observations of those areas exhibiting characteristics of jurisdictional waters or wetlands. Vegetation units with the potential to be wetlands were examined, the dominant plant species for each vegetation stratum (i.e., tree, shrub, herb, and vine) within the unit was determined, and the relative canopy cover of the species present was visually estimated. The dominant species from each stratum were then recorded on a summary data sheet along with the associated wetland indicator status of those species. The wetland indicator status of each dominant species was determined by using the list of wetland plants for California provided by the U.S. Fish and Wildlife Service (1997).

The hydrophytic vegetation criterion is considered fulfilled at a location if greater than 50 percent of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative-wet (FACW), or facultative (FAC) (USACE 1987). An OBL indicator status refers to plants that have a 99 percent probability of occurring in wetlands under natural conditions. A FACW indicator status refers to plants that occur in wetlands (67-99 percent probability) but are occasionally found in non-wetlands. A FAC indicator status refers to plants that are equally likely to occur in wetlands or non-wetlands (estimated probability 34-66 percent).

B. Hydric Soils

Sample points were selected within a particular vegetation unit where the apparent boundary between wetland and upland was inferred based on changes in the composition of the vegetation. Soil pits were dug to a depth of at least 18 inches, as necessary, to determine soil color, evidence of soil saturation, depth to groundwater, and indicators of a reducing soil environment (e.g., mottling, gleying, sulfidic odor). Soil profiles exposed by these pits were compared to known profiles for soil types occurring in the region by referencing the local soil survey (U.S. Department of Agriculture [USDA] 1973). The order, group, and series for the soils present on the site were recorded. The local hydric soils list, obtained from the Soil Conservation Service, was checked to determine if any of the sampled soil types are considered hydric with respect to the conditions stated on the list.

The hydric soil criterion is considered fulfilled at a location if soils could be inferred to have a high groundwater table, evidence of prolonged soil saturation, or any indicators suggesting a long-term reducing environment in the upper 18 inches of the soil profile.

Information on the soil types sampled in the study area is summarized from the following sources: *Soil Survey, Imperial County, Imperial Valley Area* (USDA 1981), Soil Taxonomy (USDA 1975), and the local hydric soil list obtained from the Soil Conservation Service.

C. Wetland Hydrology

Hydrologic information for the site was obtained by locating "blue-line" streams on USGS topographic maps, reviewing groundwater table elevation information from soil surveys, and directly observing hydrology indicators in the field (e.g., inundation, drift lines, sediment deposits, drainage patterns). Evidence of flows, flooding, and ponding were recorded and the frequency and duration of these events were inferred.

The wetland hydrology criterion is considered fulfilled at a location based upon the conclusions inferred from the field observations, which indicate that an area has a high probability of being inundated or saturated (flooded or ponded) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE 1987).

D. Non-Wetland Jurisdictional Waters of the U. S.

Drainages, or portions thereof, that lack hydrophytic vegetation and/or hydric soils, but have distinct evidence of seasonal flows were classified as non-wetland jurisdictional

waters. The extent of the observed ordinary high water mark, as defined by the USACE under Section 404 of the Clean Water Act, was used to estimate the limits of these jurisdictional waters.

Results of Field Data

A description of the major vegetation units observed, soil types encountered, and a discussion of the local hydrology in the project area are presented below. Copies of the field data forms are provided in Attachment 1.

Three areas were identified as potential jurisdictional areas: Pinto Wash in the northern portion of the project area, a wash directly south of State Route 98, and a complex of washes near the border in the southern portion of the project area.

A. Vegetation

Figure 3 depicts the vegetation communities mapped on the project site. Two vegetation communities were identified within the survey area: Sonoran creosote bush scrub and desert wash. Hydrophytic plant species present in the wetland area is limited to tamarisk, a facultative plant species.

1. Sonoran Creosote Bush Scrub (1,097.5 acres)

Sonoran creosote bush scrub is the dominant vegetation community on the project site and accounts for approximately 1,097.5 acres within the survey corridor both north and south of State Route 98. The vegetation is open and relatively sparse, dominated by creosote bush (*Larrea tridentata*). Burro-weed (*Ambrosia dumosa*) and two species of saltbush (*Atriplex* spp.) were also common. Several trees, such as ironwood (*Olneya tesota*), velvet mesquite (*Prosopis velutina*), and catclaw acacia (A*cacia greggii*), are interspersed throughout the community, particularly in the southern half.

Creosote bush, the dominant plant species in this community, is considered an upland species, as are the majority of species found in this community. Velvet mesquite and cat claw acacia are facultative-upland (FACU) plant species, meaning they rarely (1 to 33 percent estimated probability) occur in wetlands.

2. Desert Wash (203.6 acres)

Desert wash is found in three distinct areas within the survey corridor for a total of 203.6 acres. The largest area is located near the northern boundary of the corridor and is a part of Pinto Wash. The dominant species in the wash is smoke tree (*Psorothamnus spinosus*) occurring with velvet mesquite, cat claw acacia, encelia (*Encelia frutescens*), verbena

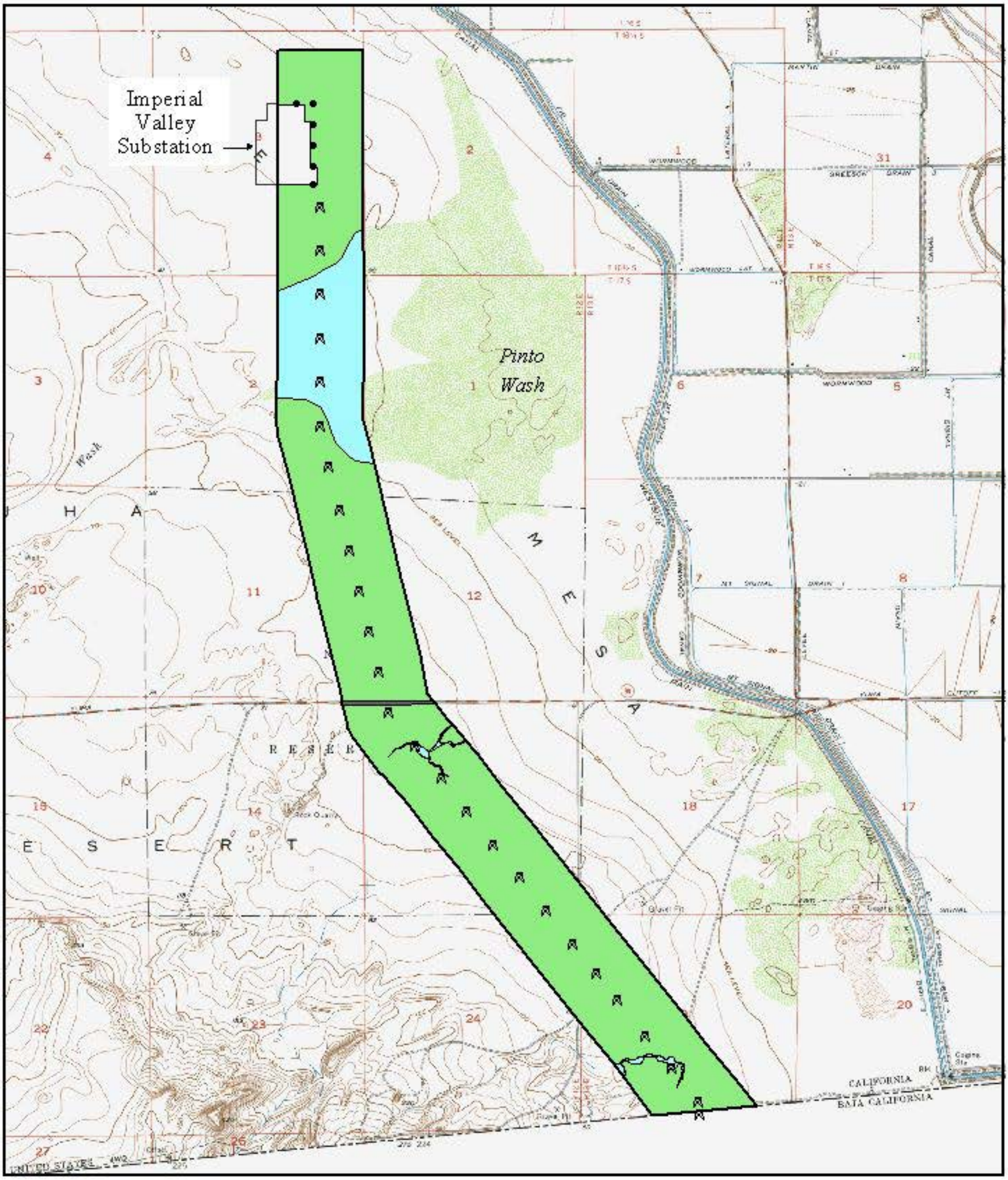

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FIGURE 3

Existing Vegetation Communities

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(*Abronia villosa* var. *villosa*), and big galleta (*Pleuraphis rigida*). The second of the three areas is located just south of State Route 98. This area includes the confluence of two streams, where a culvert and dam have been placed. The area directly downstream of the culvert has been heavily disturbed due to off-road-vehicle traffic. The road crosses the drainage at this location. Little to no vegetation is found in this disturbed area or east of the culvert. The two finger drainages west of the culvert support verbena, chinchweed (*Pectis papposa*), paper flower (*Psilostrophe cooperi*), and smoke tree (*Psorothamnus emoryi*). The southernmost area is an extension of an unnamed intermittent drainage that flows north from Signal Mountain just over the U.S.-Mexico border and then to the east into the survey corridor, where the drainage terminates. The western edge of this area contains a uniform stand of tamarisk while the remainder is primarily unvegetated with a few scattered shrubs. One large ironwood tree (*Olneya tesota*) occurs in this section of the drainage. A few scattered tamarisk (*Tamarix* sp.) are present in patches on the southern portion of the survey corridor.

The dominant plant species in the desert wash is smoke tree, an upland species. One large uniform patch of tamarisk is found in the southern end of the site. Tamarisk is a facultative (FAC) plant species, indicating it is equally likely (33 to 67 percent) to occur in wetlands and uplands.

B. Soils

There are nine soil types present within the survey corridor, six of which underlie jurisdictional areas. The six soil types include Pits, Carsitas gravelly sand, Rositas sand, Rositas fine sand, Meloland fine sand, and Glenbar complex.

Pits refers to a soil type in which the upper layers of soil material have been removed to expose soil 3 to 20 feet below the natural surface. Drainage ranges from poorly drained to excessively drained. Runoff is slow and the erosion hazard is slight in this soil type. This soil type is found beneath the drainages near the border in the southern portion of the site.

Carsitas gravelly sand, 0 to 5 percent slopes occurs on alluvial fans and the bottoms of washes, from alluvium derived from granitic and metamorphic rocks. Carsitas soils are excessively drained, have rapid permeability, and slow surface runoff. The erosion hazard is slight. The upper 10 inches consist of pink gravelly sand, with strata of sand, coarse sand, and gravelly sand to 68 inches depth. Carsitas gravelly sand is the dominant soil type found in the southern portion of the site.

Rositas sand is common throughout the project area. It underlies a portion of each of the three on-site drainages. Rositas sand, 0 to 2 percent slopes, are deep soils which formed in alluvial sand from various sources. This sand is somewhat excessively drained. Permeability is rapid and surface runoff is slow. The erosion hazard is slight. This pink

and reddish yellow coarse sand is generally found in floodplains and basins to a depth of 27 inches. Fine sand lies beneath the coarse sand layer.

Meloland fine sand, which is found south of State Route 98 beneath a small portion of the central drainage, is a very deep sand formed from alluvial or eolian sediments. The sand is deep and well drained and is generally found in floodplains and alluvial basin floors. Permeability is slow and the erosion hazard slight. The winds can easily pick up this soil and blow it through the basin.

Glenbar complex is a very deep and well-drained soil. It is also formed in alluvial sediment. Its surface texture ranges from silty clay to gravelly sand, with alluvium deposits of fine sand common. Runoff in this soil type is slow; permeability is moderately slow. The erosion hazard is slight, but rills and gullies are common. Glenbar complex lies beneath the western portion of the central drainage.

Rositas fine sand, 0 to 2 percent slopes underlies the Pinto Wash area. Similar to the structure of Rositas sand, this soil type is also a very deep soil formed from alluvial or eolian sands from various sources. Permeability is rapid in this somewhat excessively drained soil. Surface runoff is slow and the erosion hazard is slight. Generally, this soil is reddish yellow fine sand and can be found to a depth of 60 inches. This fine sand has a high potential to blow.

C. Hydrology

No USGS blue-line waters occur on the project site (see Figure 2). Off-site tributaries enter the site from the west at two locations before terminating on-site. The bed and bank and ordinary high water mark were apparent throughout most of the drainages on-site. Narrow (2 to 6 feet), but distinct, flow lines were observed within the wide channels. Evidence of wetland hydrology was present in the form of flow lines and sediment deposition and cracking, indicating ponding and subsequent drying.

Sheet flow is evident in Pinto Wash. Although no distinct ordinary high water mark was observed in the field, the evidence of flow is apparent on recent aerial photographs. A gradual transition of plant species and density of vegetation was used to demarcate Pinto Wash in the field.

The central drainage is likely an ephemeral stream that has been altered by the installation of a culvert and dam. The wide area west of the culvert has a dirt road traveling through it, and is therefore, disturbed.

Jurisdictional Determination

Waters of the U.S. and wetlands, as defined by USACE, were delineated on-site. Based on information on soils, hydrology, and vegetation, observations made in the field, and data analysis, one wetland area (0.90 acre) was delineated in the study area. Since tamarisk is a facultative plant species, additional wetland indicators were used as support of conditions at the wetland area. Sediment deposits, flow lines, and cracks in the surface soil provide evidence of frequent ponding.

Three general areas were determined to support non-wetland jurisdictional waters of the U.S. The total area to be regulated by USACE is approximately 38.7 acres, 0.90 of which is a wetland. These areas are depicted in Figure 4.

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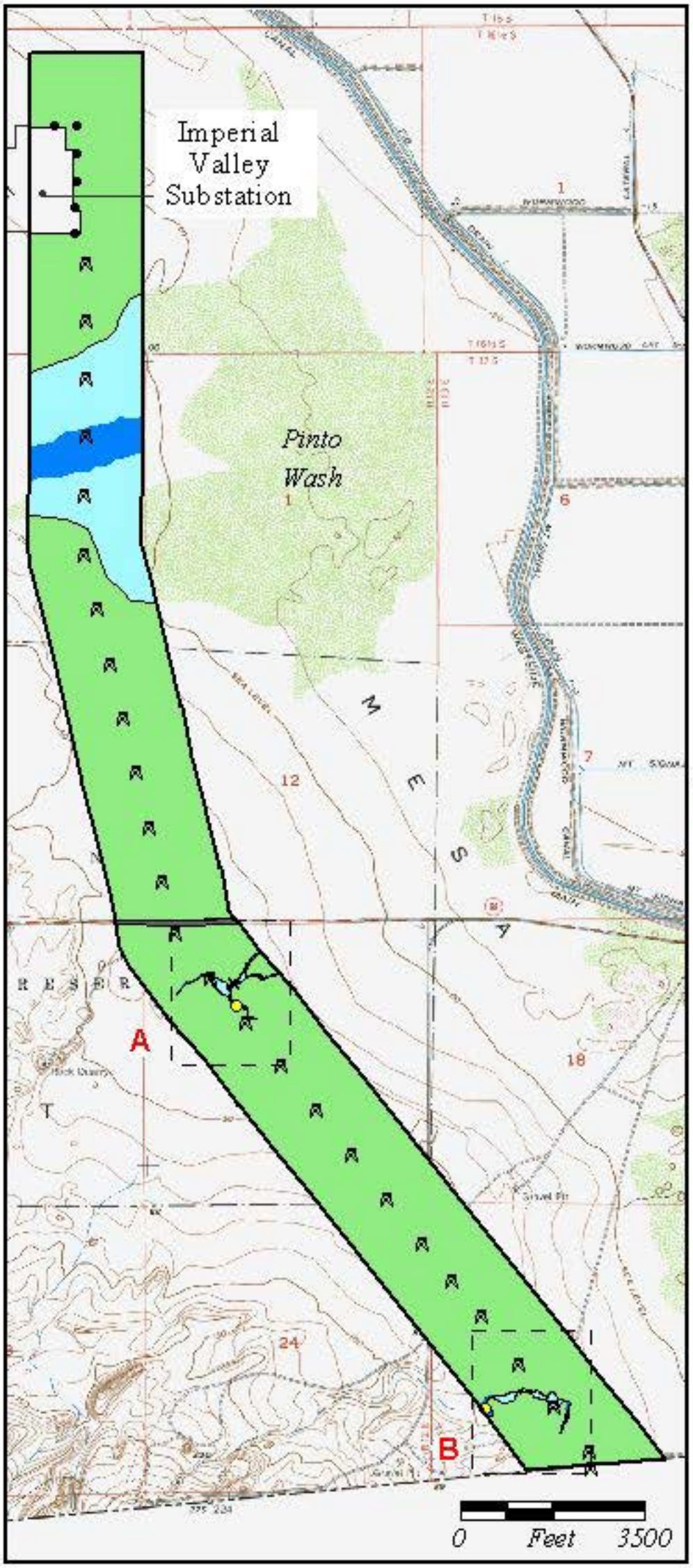

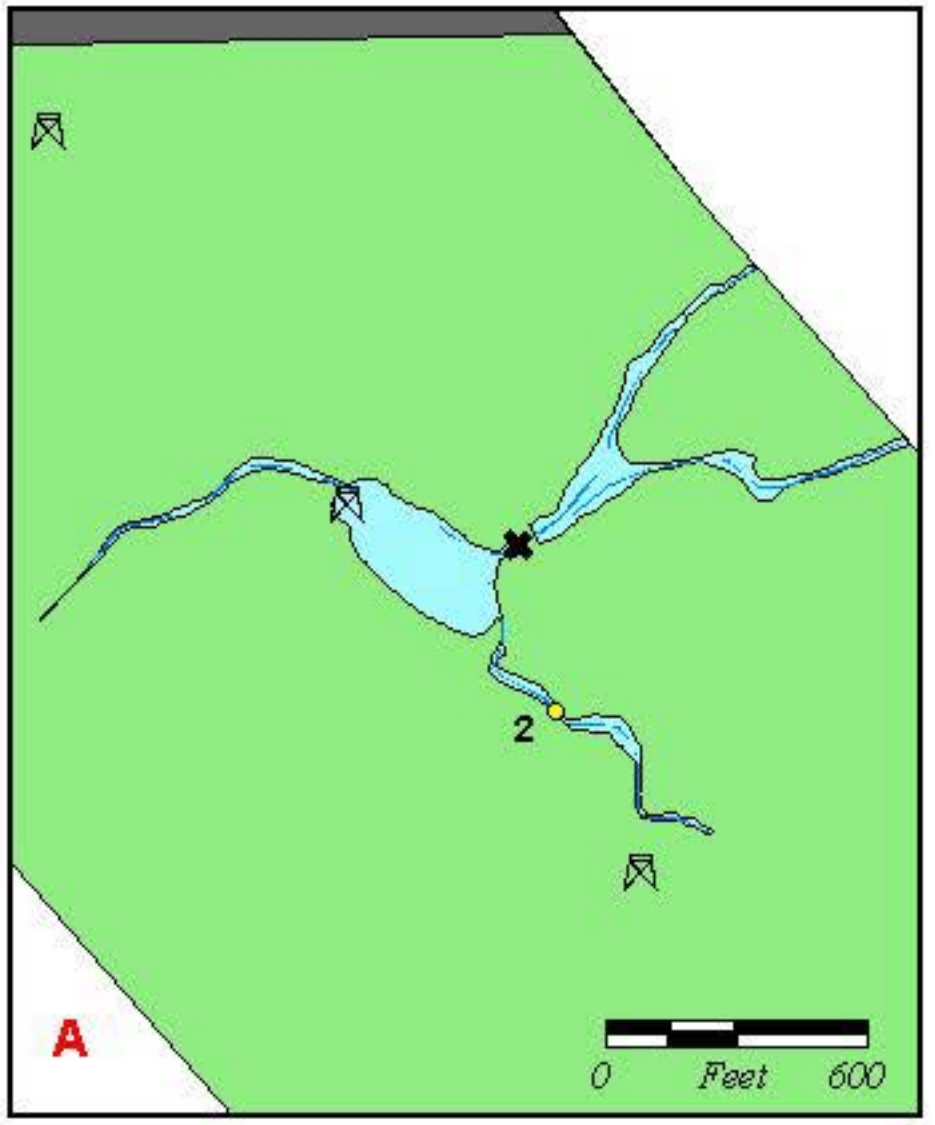

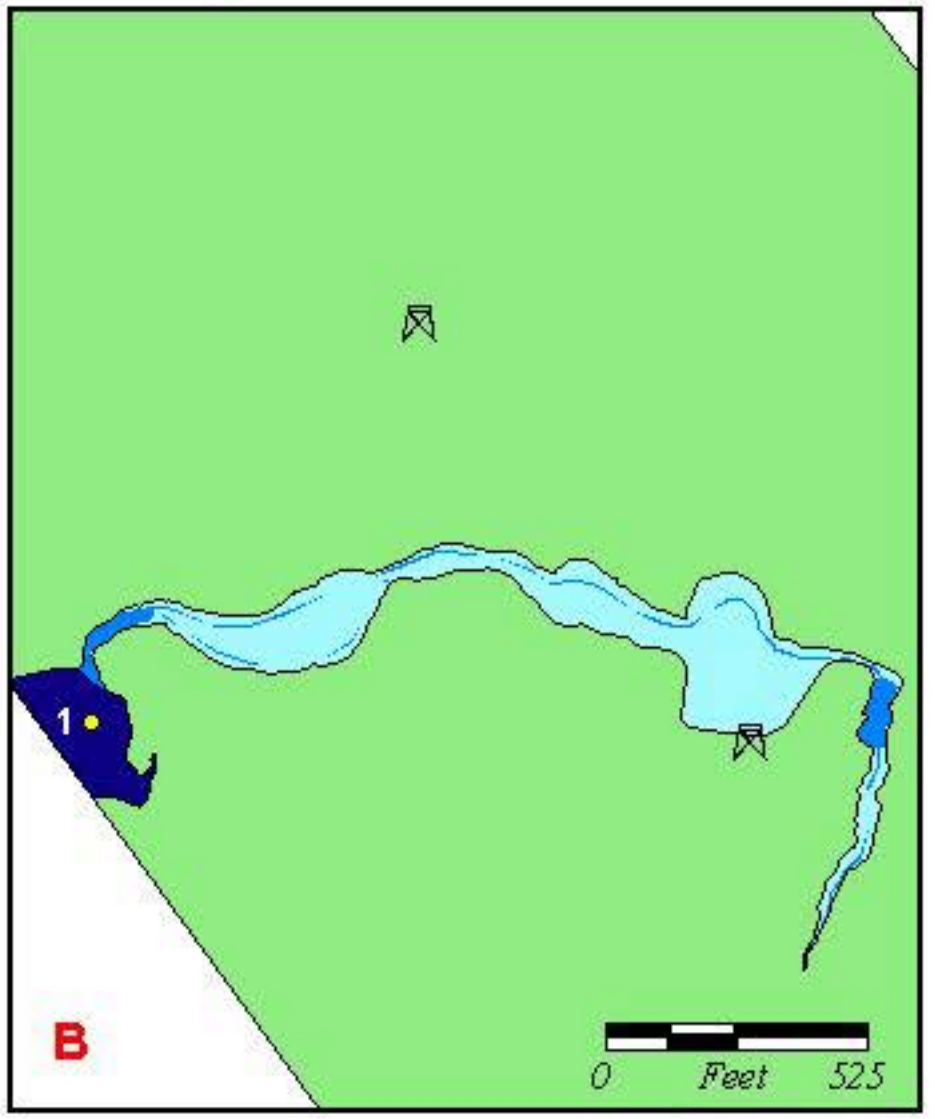

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Existing SDG&E transmission line
towers
poles

Culvert
Test pit

USACE Non-wetland Jurisdictional Waters of the U.S.
USACE wetland
Sonoran creosote bush scrub
Desert wash

Highway 98
Area surveyed

FIGURE 4
Jurisdictional Areas

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ATTACHMENT 1

DATA FORM
ROUTINE ON-SITE DETERMINATION METHOD

Project/Site: Imperial Valley to Rosarita 230-kV Line (3366b) Applicant/Owner: SDG&E Investigator(s): J. Hodge; G. Scheid	Date: 10-24-00 County: Imperial State: CA
Do Normal Circumstances exist on the site? ☒ Yes ☐ No Is the site significantly disturbed (Atypical Situation)? ☐ Yes ☒ No Is the area a potential Problem Area? ☐ Yes ☒ No (if needed, explain on reverse or attach separate sheet.)	Community ID: Desert Wash Transect ID: Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Tamarix sp.*	T	FAC	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 100 percent

Remarks:
1. Assume presence of wetland vegetation? ☒ Yes ☐ No
2. Rooted emergent vegetation present? ☐ Yes ☒ No

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: N/A (in.)
- Depth to Water in Pit: > 18 (in.)
- Depth to Saturated Soil: > 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in: ☐ Upper 12" ☐ 13-18"
- ☐ Water Marks
- ☐ Drift Lines
- ☒ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in: ☐ Upper 12" ☐ 13-18"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Observations and Remarks: Flow lines show in the sediment. Cracks in surface soil provide evidence of ponding.

1. *Filamentous or sheet forming algae present?* ☐ *Yes* ☒ *No*
2. *Slope:* ☒ *0-2%; or* ☐ *>2%*
3. *Oxidized rhizospheres:* ☐ *new roots only;* ☐ *old roots only;* ☐ *new and old roots,* ☒ *none*
4. *Flooding:* ☐ *none, flooding not probable;* ☐ *rare, unlikely but possible under unusual weather conditions;* ☒ *occasional, occurs on an average of once or less in 2 years; or* ☐ *frequent, occurs on an average of more than once in 2 years.*
5. *Duration:* ☐ *very brief, if <2 days;* ☐ *brief, if 2-7 days, or* ☒ *long, if >7 days*
6. *Site ponds water?* ☒ *Yes* ☐ *No*

SOILS

Map Unit Name (Series and Phase): Carsitas Gravelly Sand, 0 to 5 percent slopes Taxonomy (Subgroup): Typic Torripsamments	Drainage Class: Excessively drained Permeability: Rapid Runoff: Slow Field Observations: Confirm Mapped Type? ☐ Yes ☒ No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structures, etc.
0-18		10 YR 4/4	none	--	Silty loam and sand

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Oberservations and Remarks: Areas where ponding occurs contains some clay loam. Smaller channels of flow within the tamarisk.

1. *Smell:* ☐ *Neutral;* ☐ *Slightly fresh; or* ☒ *Freshly plowed field smell*
2. *Site:* ☐ *Irrigated;* ☐ *Land leveled;* ☐ *Ditch drained;* ☐ *Pumped;* ☐ *Graded to drain via slope*
3. *Soils:* ☒ *do* ☐ *do not become frequently ponded or saturated for long (>7 days) to very long durations (>30 days) during the growing season*

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point within a Wetland? ☒ Yes ☐ No
Wetland Hydrology Present?	☒ Yes	☐ No	
Hydric Soils Present?	☒ Yes	☐ No	

Remarks:

1. *Possibly water of the U.S.?* ☒ *Yes* ☐ *No*
2. *Possibly exempt from Corps/EPA Regulation?* ☐ *Yes* ☒ *No (If yes, check item(s) below.)*
   - *(a)* ☐ *Non-tidal drainage and irrigation ditches excavated on dry land*
   - *(b)* ☐ *Artifically irrigated areas which would revert to upland if the irrigation ceased.*
   - *(c)* ☐ *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*
   - *(d)* ☐ *Artifical reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthic reasons.*
   - *(e)* ☐ *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).*

Approved by HQUSACE 3/92

Additional Comments/Remarks:

DATA FORM
ROUTINE ON-SITE DETERMINATION METHOD

Project/Site: Imperial Valley to Rosarita 230-kV Line (3366b) Applicant/Owner: SDG&E Investigator(s): J. Hodge; G. Scheid	Date: 10-25-00 County: Imperial State: CA
Do Normal Circumstances exist on the site? ☒ Yes ☐ No Is the site significantly disturbed (Atypical Situation)? ☐ Yes ☒ No Is the area a potential Problem Area? ☐ Yes ☒ No (if needed, explain on reverse or attach separate sheet.)	Community ID: Desert Wash Transect ID: Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Pectis papposa*	H	UPL	9.		
2. *Psilostrophe cooperi*	H	UPL	10.		
3. *Abronia villosa*	H	UPL	11.		
4. *Psorothamnus emoryi*	H	UPL	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 0 percent

Remarks:
1. Assume presence of wetland vegetation? ☐ Yes ☒ No
2. Rooted emergent vegetation present? ☐ Yes ☒ No

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:
- Depth of Surface Water: N/A (in.)
- Depth to Water in Pit: > 18 (in.)
- Depth to Saturated Soil: > 18 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in: ☐ Upper 12" ☐ 13-18"
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in: ☐ Upper 12" ☐ 13-18"
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☒ Other (Explain in Remarks)

Observations and Remarks: Flow lines show in the sediment.

1. *Filamentous or sheet forming algae present?* ☐ *Yes* ☒ *No*
2. *Slope:* ☒ *0-2%; or* ☐ *>2%*
3. *Oxidized rhizospheres:* ☐ *new roots only;* ☐ *old roots only;* ☐ *new and old roots,* ☒ *none*
4. *Flooding:* ☐ *none, flooding not probable;* ☐ *rare, unlikely but possible under unusual weather conditions;* ☒ *occasional, occurs on an average of once or less in 2 years; or* ☐ *frequent, occurs on an average of more than once in 2 years.*
5. *Duration:* ☒ *very brief, if <2 days;* ☐ *brief, if 2-7 days, or* ☐ *long, if >7 days*
6. *Site ponds water?* ☐ *Yes* ☐ *No*

SOILS

Map Unit Name (Series and Phase): Rositas Sand, 0 to 2 percent slopes Taxonomy (Subgroup): Typic Torripsamments	Drainage Class: Somewhat excessively drained Permeability: Rapid Runoff: Slow Field Observations: Confirm Mapped Type? ☒ Yes ☐ No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Contrast	Texture, Concretions, Structures, etc.
0-18		10YR 6/4	none	--	Sand

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Oberservations and Remarks:

1. *Smell:* ☐ *Neutral;* ☒ *Slightly fresh; or* ☐ *Freshly plowed field smell*
2. *Site:* ☐ *Irrigated;* ☐ *Land leveled;* ☐ *Ditch drained;* ☐ *Pumped;* ☐ *Graded to drain via slope*
3. *Soils:* ☐ *do* ☒ *do not become frequently ponded or saturated for long (>7 days) to very long durations (>30 days) during the growing season*

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☒ No	Is this Sampling Point within a Wetland? ☐ Yes ☒ No
Wetland Hydrology Present?	☐ Yes	☒ No	
Hydric Soils Present?	☐ Yes	☒ No	

Remarks:

1. *Possibly water of the U.S.?* ☒ *Yes* ☐ *No*
2. *Possibly exempt from Corps/EPA Regulation?* ☐ *Yes* ☒ *No (If yes, check item(s) below.)*
   - *(a)* ☐ *Non-tidal drainage and irrigation ditches excavated on dry land*
   - *(b)* ☐ *Artifically irrigated areas which would revert to upland if the irrigation ceased.*
   - *(c)* ☐ *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*
   - *(d)* ☐ *Artifical reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthic reasons.*
   - *(e)* ☐ *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see 33 CFR 328.3(a)).*

Approved by HQUSACE 3/92

Additional Comments/Remarks:

APPENDIX D

Cultural Resource Treatment Plan and Survey Report

Confidential

To review, contact:

Joan Oxendine
U.S. Bureau of Land Management
6221 Box Springs Boulevard
Riverside, CA 92507-2497
(909) 697-5365

APPENDIX E

North Baja Pipeline Submittal to FERC Regarding Air Quality Impacts

PG&E National Energy Group

North Baja Pipeline

1400 SW Fifth Avenue
Suite 900
Portland, OR 97201

503.833.4000
Fax: 503.833.4900
www.neg.pge.com

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OFFICE OF THE SECRETARY

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FEDERAL ENERGY
REGULATORY COMMISSION

November 13, 2001

INFORMATION HAS BEEN REMOVED FOR PRIVILEGED TREATMENT

David P. Boergers, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Re: *North Baja Pipeline, LLC*, Docket Nos. CP01-22-000 and CP01-23-000

Dear Mr. Boergers:

North Baja Pipeline, LLC ("North Baja") hereby submits for filing its Responses to DEIS/DEIR Conditions 10, 11, 15, 17, 18 and 19. North Baja also submits certain supplemental information concerning the East Side Alternative, the Spill Prevention, Containment and Control Plan and Air Quality regarding emissions from Mexican plants.

Certain of the Responses to DEIS/DEIR Conditions contain cultural resources information. Thus, North Baja seeks privileged treatment for such information pursuant to 18 C.F.R. §§ 380.12(f)(4) and 388.112. North Baja encloses a complete original of the filing and seven (7) copies of the filing without the information for which privileged treatment is sought.

If you have any questions regarding this matter, please contact the undersigned.

Sincerely,

Carl M. Fink

NBP Supplemental Filing
November 12, 2001

Air Quality Information regarding Emissions from Mexican Power Plants, including:

1. **NET emissions change in the Mexicali area due to the construction/modification of the power plants associated with NBP**
2. **Total emissions from the two generating units at the Intergen facility that will supply power to Mexico**
3. **Appropriate identification for the two Intergen units that will supply power to Mexico**
4. **Response to American Lung Association Comments from Sempra Energy Affiliate Termoelectrica De Mexicali**

B.5.a.

Emission impacts in Mexicali/ Imperial Valley

To determine the NET emission change in the Mexicali area we must consider the impacts with and without construction of the N Baja pipeline. The emissions associated with the Sempra and Intergen power plants proposed for the Mexicali area are shown in the table below.

Emission Source	NO_x, TPY	SO_2, TPY	Particulate, TPY	CO, TPY	Data Source
Sempra "Termoelectrica de Mexicali"	189	NA	238	188	1, 2
Intergen "La Rosita"	323	NA	428	1,458	3, 4, 5
Intergen "Energia de Baja California"	1,584	NA	428	486	6, 7
Total	2,096	NA	1,094	2,132	

Data Sources and notes:

1 NO_x and CO from Imperial County APCD letter to DOE dated September 26, 2001 (Table 1).
2 PM_{10} from Table A-1 of Environmental Assessment (EA) based on emission rate of 12.3 kg/hr used as modeling input for each of two units.
3 NO_x from Table B-2 of EA based on emission rate of 3.1 grams/second used as modeling input for each of three units.
4 CO from Imperial County APCD letter to DOE dated September 26, 2001 (Table 1).
5 PM_{10} determined from Table B-2 of EA based on emission rate of 6.17 grams/second used as modeling input.
6 NO_x and CO from Imperial County APCD letter to DOE dated September 26, 2001 (text of letter states that total Intergen NO_x emissions would be 1,907 TPY for both facilities).
7 PM_{10} estimated based on worse case assumption that emissions would same as La Rosita (see data source 1).
8 No information on SO_2 emissions were available. We would expect natural gas-fired emissions to be very low.
9 Information provided by Intergen indicates some differences with the table above, both in total emissions and which emissions come from which plants. Intergen's estimates are:

Emission Source	NOx, TPY	SO_2, TPY	Particulate TPY	CO, TPY
"La Rosita"	1654	NA	500	1435
"Energia de Baja California"	131	NA	244	445

If the N Baja pipeline were not constructed, the demand for power would still exist in the Mexicali area and it is reasonable to assume that power plants would be built firing heavy oil or diesel. For the sake of conservatism, we will assume

only one 500 MW, diesel fired combined cycle plant with H_20 injection to control NOx, would be built to serve the Mexican load contracted by CFE . (It is highly likely that other plants would also be built since two are already under construction. This is meant only to be a conservative assumption.)

The estimated emissions associated with that single plant would be:

Emission Source	NOx, TPY	SO2, TPY	Particulate TPY	CO, TPY
500 MW Diesel Combined Cycle	4100	8626	205	1298

These were calculated using EPA's AP-42 emission factors for diesel fired turbines with H2O injection. These factors are: NOx—0.24 lb/mmbtu; CO—0.076 lb/mmbtu; SO2—0.505 lb/mmbtu and PM10—0.012lb/mmbtu. The calculations were also based on an estimated heat rate of 7,800 btu/kwh, an annual heat input of 34,164,000 mmBtu/yr and an assumed diesel fuel sulfur content of 0.5%. (Typical diesel fuel in Mexico tends to be closer to 1%, so this is a conservative assumption.)

Based on these assumptions, the NET emissions impact with the construction of N Baja pipeline in the Imperial County/ Mexicali area would be:

	NOx, TPY	SO_2, TPY	Particulate TPY	CO, TPY
Change in total emissions	-2,004	-8,668	889	834

The reduction in total emissions in the region as a result of the N Baja project would be over 8,900 tons per year.

Emission Impacts in Rosarito/ Tijuana/ San Diego County

To look at the impacts of the entire N Baja project, one must also look at what happens in the Rosarito/ Tijuana/ San Diego area. Without the N Baja project, the existing power plants at Rosarito, and the power plants in San Diego, will be subject to increasing curtailments due to inadequate capacity on the SoCal Gas/ SDG&E gas transmission systems. Curtailments of these power plants have already occurred, before several plants at Rosarito had converted from oil only to gas burn capability. As San Diego continues to grow, and as the power plants under development in San Diego come on line and start to consume gas, the situation will get worse. (In fact, the local Air Pollution Control District has testified before the California CPUC in a proceeding on the adequacy of the gas transmission system in San Diego, that they are concerned there will be inadequate pipeline capacity for San Diego even if the North Baja Pipeline is built.)

If one assumes conservatively that only the fuel switching capable plants at Rosarito are curtailed (i.e. existing and future plants in San Diego are not

curtailed, and the new 550 MW combined cycle plant at Rosarito is not curtailed) and that curtailment requiring fuel switching happens only 30% of the time, the following emissions would occur from those plants during the time they were burning oil.

Emission Source	NOx,TPY	SO_2,TPY	Particulate TPY	CO, TPY
Rosarito Plant boilers burning oil	1,575	7,889	620	168
Rosarito Plant CT burning diesel	2,904	1,667	40	11
Total	4,479	9,556	660	179

With the North Baja pipeline in service, there would be no curtailment to these plants and they would burn gas instead of oil during these periods. The emissions that would occur burning gas are shown in the table below.

Emission Source	NOx,TPY	SO2,TPY	Particulate TPY	CO, TPY
Rosarito Plant boilers burning gas	940	3	38	416
Rosarito Plant CT burning gas	1060	2	22	272
Total	2000	5	60	688

These emissions estimates are based on the following Rosarito operating information and assumptions and the following EPA AP-42 boiler and combustion turbine emission factors.

Rosarito Operating Information and Assumptions

Boilers	320 MW	
Combustion Turbines(CT)	180 MW	
Fuel Sulfur, %	1.5	(This is a conservative estimate. Typical fuel sulfur content in the region is closer to 2.0%.)
Boiler Heat Rate, Btu/KWR	12,000	Typical of plant built in the 1960's
Simple Cycle CT Heat Rate, Btu/kwhr	14,000	Typical of simple cycle CT
Fuel Oil Heat content, Btu/gallon	150,000	Taken from AP-42
Fuel Oil burned in boiler, gallons/year	67,000,000	
Diesel burned in CT, gallons/year	44,000,000	
Natural gas burned in boiler, $mmft^3$/year	9,894	
Natural gas burned in CE, $mmft^3$/yr	6,493	

EPA AP-42 Factors used for analysis

Pollutant	AP-42 Boiler Emission Factors		AP-42 Combustion Turbine Emission Factors	
	Fuel oil, lb/1000 gal	Natural Gas, $lb/mmft^3$	Diesel, lb/mmBtu	Natural Gas, lb/mmBtu
NO_x	47.0	190	0.88	0.32
CO	5.0	84	0.0033	0.082
SO_2	235.S	0.6	0.505	0.0006
PM_{10}	18.5	7.6	0.012	0.0066

The Net Impact in the Rosarito/ Tijuana/ San Diego region would be:

	NOx, TPY	SO_2, TPY	Particulate, TPY	CO, TPY
Change in total emissions	-2479	-9551	-600	509

The reduction in total tons of emissions in this region as a result of the N Baja project would be over 12,000 tons per year.

Total North Baja emission impacts

The overall combined impact in the San Diego/ Rosarito/ Imperial Valley/ Mexicali trans-border region with construction of the N Baja pipeline would be:

	NOx, TPY	SO_2, TPY	Particulate TPY	CO, TPY
Change in total emissions	-4,483	-18,177	289	1,342

The total reduction in emissions in the entire trans border region from the North Baja project would be over 21,000 tons per year.

B.5.b.

Refer to the emissions in the table above.

B.5.c.

The original Intergen project, known as Energia Azteca X or "La Rosita", was a 750 MW facility with 500 MW dedicated to serving CFE and 250 MW for export. Intergen later added a new 250 MW project for export at the same site that is known as Energia de Baja California. Energia de Mexicali was a proposed project that never signed a Precedent Agreement with North Baja, and to our knowledge has ceased development efforts.

Termoeléctrica De Mexicali

Octávio Simões
Director

101 Ash St.
San Diego, CA 92101-3017

Tel: 619.696.2287
Fax: 619.696.2911
Cellular: 619.540.5345
osimoes@sempra-res.com

October 16, 2001

Ms. Jan Cortez, Vice President, Research and Environmental Health
Ms. Susanna Concha Garcia, Environmental Health Coordinator
American Lung Association of San Diego and Imperial Counties
2750 Fourth Avenue
San Diego, CA 92103

Dear Jan and Susanna:

We would like to thank you for the opportunity afforded to us on September 28th to meet. The primary purpose of this meeting was to address the concerns of the American Lung Association ('ALA') and clear up misinformation regarding Sempra Energy's power plant project in Mexicali. One of the action items we had from this meeting was to provide a written response to the letter sent by ALA to Presidents Bush and Fox on September 5, 2001.
In the referenced letter, nine points are presented regarding the direction that the ALA would like to see taken when power plants are developed in the border region. As a sponsor of one of the new power plants being developed in the region, specifically, the 600 MW Termoeléctrica De Mexicali ('TDM') project in Mexicali, we would like to address those nine points.

1. ***That all new power plants built along the Mexico-USA border should meet simultaneously with Mexican and US air emission standards for NO_x, CO, VOCs, $SO_{2,}$, PM_{10} and ammonia.***

TDM is voluntarily complying with this requirement. TDM is not only meeting all the Mexican law requirements, but also installing the exact same equipment being required of plants that have been most recently licensed in California and Arizona. Specifically, dry low NOx combustors and Selective Catalytic Reduction for NO_x control to a level of 2.5 ppm @15% O_2 and oxidizing catalyst for CO control to a level of 4 ppm @15% O_2. All other levels of emissions for the TDM project are the same as those most recently permitted projects in the United States.

2. ***Install continuous emission monitors and share the data with authorities on both sides of the border on a regular basis.***

TDM is voluntarily complying with this requirement. In May of 2001, TDM sent the Imperial County Board of Supervisors a written proposal wherein TDM committed to install and operate continuous emission monitors at the power plant, share the data with the Imperial County Air Pollution Control District ('ICAPCD'), and allow access to the plant by officials of Imperial County. We are disappointed that we have not received any feedback from the Imperial Valley

on that proposal to date. That notwithstanding, we will proceed with the installation, operation and sharing of this information with interested parties.

3. ***That air pollution offsets be required to match the new pollution generated from power plants on a ton for ton basis.***

The Mexican government, like many others around the world, does not recognize the emission offsets concept. Furthermore, even in the United States, not all air contaminants are required to be "offset". Only those pollutants that are considered to be in non-attainment or are precursors to non-attainment air contaminants are required to be offset. For example, CO emissions are rarely required to be offset (this is the case even in many areas considered to be in non-attainment for CO). The position adopted by TDM from the beginning was to build the cleanest plant possible instead of building a plant that complied solely with Mexican law and mitigate the higher emissions with offsets. Additionally, TDM has discussed this issue with the ICAPCD. During those conversations, it was clear that their preference was to build the cleanest plant possible. This approach is significantly more expensive to the project when compared to not installing additional emission controls, meeting Mexican regulatory requirements only, and seeking emission offsets from Mexican sources for the higher emission rate. It is also interesting to note that one of TDM's affiliate companies is the owner of the gas distribution company in Mexicali - ECOGAS. Based on the actual conversion of existing customers from fuel and diesel oil to natural gas, we have calculated the reductions in emissions achieved from the conversions to natural gas of ECOGAS customers. The results show annual estimated reductions in excess of 250 tons of NO_x, 75 tons of PM_{10}, and 2,450 tons of SO_2. These NOx and PM_{10} and PM_{10} precursor reductions would be more than enough to "offset" TDM's emissions. The calculation is attached for your reference.

4. ***To fund Sustainable Development Projects as mitigation for air pollution generated by power plants.***

TDM is building a US $20 million water treatment plant to help Mexicali deal with a critical environmental problem. The existing sewage treatment plant cannot handle Mexicali's sewage treatment needs, which results in sewage being discharged to local water bodies. Furthermore, the existing sewage treatment facility provides primary treatment before discharging. TDM's sewage treatment facility will provide secondary and tertiary water treatment to the water that will be used by the project. TDM has also sought proposals from the Imperial County Board of Supervisors to address projects that can benefit the environment in Imperial County. This approach is consistent with the approach that our company takes when developing generation anywhere in the world.

5. ***Air-monitoring stations located in Mexicali and Calexico should be fully functional.***

TDM agrees that ensuring fully functional air monitoring stations is very important in providing documentation of existing air quality and future changes to air quality. However, the responsibility for ensuring that the stations are functional lies with the pertinent country agencies and is not a function that can be undertaken by individual entities.

6. That power plant companies put in writing that they will burn only natural gas, unless an emergency condition occurs.

TDM is voluntarily complying with this requirement. TDM is designed and being built to burn only gas. TDM's permit application states that it will burn natural gas only.

7. Mexico to adopt new regulations for the border area to require facilities to employ the best available control technology for air emissions.

TDM is voluntarily complying with this requirement. Whether Mexico adopts this requirement or not is an issue that TDM has no control over; however, if Mexico were to adopt this requirement, no modifications would be required at TDM.

8. California to create legislation that requires all power plants exporting electricity to the state to meet California Air Quality Emission Standards for air emissions.

TDM is voluntarily complying with this requirement. Whether California adopts this requirement or not is an issue that TDM has no control over; however, if California were to adopt this requirement, no modifications would be required at TDM.
For clarification, we assume that the ALA is proposing to impose this requirement on all the plants exporting power to California, whether they are located in Mexico, Canada, or any of the neighboring states.

9. Both countries to support alternative methods of energy production, reduce energy demand, and support efficient use of energy.

We agree. TDM and its affiliated companies have one of the strongest records in supporting these principles. At our El Dorado Energy facility, Sempra Energy Resources owns approximately 200 kw of solar powered electrical generation facilities. We are continually evaluating other alternative methods of energy production and retain an open mind to their use.

As documented above, we share your concerns and have implemented the TDM project in a way that meets all the points suggested in the ALA letter, especially those that TDM can address directly. We believe that TDM is leading the way as a model for the environmentally responsible development of power plants in the border region. Since TDM is meeting all the ALA requirements, we would like to take this opportunity to ask for your public support of our project.

During our meeting, we also discussed the North Baja pipeline that is being developed by one of our affiliates. The pipeline will bring natural gas to Baja California and to San Diego. This is the first major source of clean fuel supply to the region in years. As the regional economy continues to grow, the demand for energy will increase. If natural gas is not available, the alternative is likely to be oil, especially in Mexico. Supporting the pipeline development will yield a significant improvement in air quality to both Mexico and the United States, as the emissions from oil will be significantly higher than emissions from gas. We have also included a calculation that

illustrates this point. Given the tangible benefits to air quality for the region, we would also like to request that the ALA consider publicly supporting the execution of the pipeline project.

Please call us if you have any questions or comments. Thank you,

Very truly yours,

Octavio Simões, Director

cc:
M. Nelson
K. Prasser

YEAR 2000

CALCULATION OF EMISSION REDUCTIONS IN MEXICALI ACHIEVED BY SEMPRA ENERGY

Actual Emission Reductions in Mexicali Resulting from Sempra Energy Natural Gas Sales in Year 2000

Background

- Sempra Energy's local natural gas distribution company in Mexicali, ECOGAS, has approximately 11,700 residential and industrial customers.
  - Approximately 140 of these are commercial customers.
- Prior to ECOGAS's existance, all current ECOGAS customers used either propane, fuel oil #6 or fuel oil #2.
  - Residential customers used propane.
  - Industrial customers used propane, fuel oil #6 and, to a lesser extent, fuel oil #2.
  - Industrial customers include Sidek, a steel manufacturing facility; San Francisco, a paper mill; Fabrica de Envases de Vidrio, a glass manufacturing facility; VITRO, also a glass manufacturing facility; Zahary, an asphalt roof shingle manufacturer, and others.
  - The fuel consuming equipment at these sources consists of external combustion sources such as boilers and combustion ovens.
- In the year 2000, Ecogas supplied a total of 3,977,456 MMBtu of natural gas in Mexicali.
  - 69,440 MMBtu was consumed by residential customers.
  - 3,908,016 MMBtu was consumed by industrial sources.
    - 1,406,886 MMBtu was consumed by industrial sources previously utilizing propane.
    - 2,501,130 MMBtu was consumed by industrial sources previously utilizing fuel oil #6 and fuel oil #2.
      - 2,346,810 MMBtu displaced fuel oil #6 usage
      - 154,320 MMBtu displaced diesel oil #2 usage

2000 Mexicali Natural Gas Sales by Sector and Fuel Displaced

		Fuel Displaced	MMBtu
1	Total natural gas usage – Mexicali	Propane, fuel oil #6 and fuel oil #2	3,977,456
2	Residential customers	Propane	69,440
3	Industrial customers	Propane, fuel oil #6 and fuel oil #2.	3,908,016
4	Industrials firing fuel oil	Fuel oil #6 and fuel oil #2	2,501,130
5	Industrials firing fuel oil #6	Fuel oil #6	2,346,810
6	Industrials firing fuel oil #2	Fuel oil #2	154,320

YEAR 2000 EMISSIONS REDUCED IN MEXICALI BY SEMPRA ENERGY NATURAL GAS SALES

Based on the numbers above and the assumptions detailed below, the amount of emissions reduced as a result of the year 2000 sales of natural gas in Mexicali by Sempra Energy can be calculated.

Given:

- 2,346,810 MMBtu of fuel oil #6 usage from industrial sources was displaced in 2000.
- 154,320 MMBtu of fuel oil #2 usage from industrial sources was displaced in 2000.

Assumptions:

- EPA AP-42 emission factors are applicable.
- All of the fuel oil displaced was consumed by external combustion sources, consisting of boilers < 100 MMBtu/hr of heat input.
- Emission factors for fuel oil are from AP-42, Chapter 1.3 – Fuel Oil Combustion, Table 1.3-1.
  - ⇨ Fuel oil #6:
    AP-42 emission factors:
    - NOx – 55 lb/1000 gal
    - PM – 10 lb/1000 gal
    - SO_2 – 157S lb/1000 gal
  - ⇨ Fuel Oil #2
    AP-42 emission factors
    - NOx – 20 lb/1000 gal
    - PM – 2 lb/1000 gal
    - SO_2 – 142S lb/1000 gal
- Emission factors for natural gas are from AP-42, Chapter 1.4 – Natural Gas Combustion, Table 1.4-1 and Table 1.4-2; note that sulfur content is unspecified in AP-42, therefore, assume 2000 grains/MMcf.
  - ⇨ Natural Gas
    AP-42 emission factors
    - NOx – 100 lb/MMcf
    - PM – 1.9 lb/MMcf
    - SO_2 – 2000 grains/MMcf
- Fuel oil #6 heating content = 150 MMBtu/1000 gal (see AP-42, page 1.3-8)
- Fuel oil #2 heating content = 140 MMBtu/1000 gal (see AP-42, page 1.3-8)
- Fuel oil #6 sulfur content = 2% by weight
- Fuel oil #2 sulfur content = 0.05% by weight
- Assume natural gas heating content of 1035 Btu/cf

Calculations:

1. Convert natural gas consumed to liquid fuel equivalent on a BTU basis:

   Fuel oil #6: (2,346,810 MMBtu)(1/150 MMBtu/1000 gal) = 15,645,400 gallons

   Fuel oil #2: (154,320 MMBtu)(1/140 MMBtu/1000 gal) = 1,102,286 gallons

   This represents the amount of fuel oil displaced by natural gas sales.

2. Calculate the amount of emissions that would have been generated in 2000 if natural gas sales had been in liquid fuel form:

   Fuel Oil #6:

NOx:	(55 lb/1000 gal)(15,645,400 gallons) =	860,497 lb NOx
PM:	(10 lb/1000 gal)(15,645,400 gallons) =	156,454 lb PM
SO_2:	(157 lb/1000gal)(2)(15,645,400 gallons) =	4,912,656 lb SO_2

   Fuel Oil #2:

NOx:	(20 lb/1000 gal)(1,102,286 gallons) =	22,046 lb NOx
PM:	(2 lb/1000 gal)(1,102,286 gallons) =	2,205 lb PM
SO_2:	(142 lb/1000 gal)(0.05)(1,102,286 gallons) =	7,828 lb SO_2

   Total Displaced Fuel Oil Emissions Avoided in 2000 by Natural Gas Sales:

	Fuel Oil #6 (lb)	Fuel Oil #2 (lb)	Total (lb)	Total Fuel Oil Fired Emissions (TPY)
NOx:	860,497	22,046	882,543	441
PM:	156,454	2,202	158,656	79
SO_2:	4,912,656	7,828	4,920,482	2,460
Totals:	5,929,607	32,074	5,961,681	2,981

3. In order to calculate NET emissions displaced, the amount of natural gas emissions have to calculated:

   Convert the amount of MMBtu's of natural gas consumed to cubic feet:

   - As noted, 3,908,016 MMBtu was consumed by industrial sources, assuming 1035 Btu/cf:

     (3,908,016 MMBtu)(1/1035 Btu/cf) = 3,776 MMcf in 2000

4. Calculate amount of emissions generated by natural gas fuel usage in 2000:

NOx:	(100 lb/MMcf)(3776 MMcf) =	377,600 lb NOx
PM:	(1.9 lb/MMcf)(3776 MMcf) =	7,174 lb PM
SO_2:	(2000 gr/MMcf)(1 lb/7000 gr)(3776 MMcf) =	1,079 lb SO_2

Total Natural Gas Fired Emissions in 2000:

	Total Natural Gas Fired Emissions (lb)	Total Natural Gas Fired Emissions (TPY)
NOx:	377,600	189
PM:	7,174	4
SO_2:	1,079	0.5

5. Net emissions reduction, therefore, is the difference between the displaced fuel oil emissions (item 2) and the natural gas fired emissions (item 4) above:

YEAR 2000 NET EMISSION REDUCTIONS DUE TO NATURAL GAS SALES IN MEXICALI BY SEMPRA ENERGY

	Oil Fired Emissions (TPY)	Natural Gas Fired Emissions (TPY)	Net Emissions Reduction (TPY)
NOx:	441	189	252
PM:	79	4	75
SO_2:	2460	0.5	2460
Total:	2980	194	2787

CONCLUSIONS

- Sempra Energy's natural gas distribution company in Mexicali, ECOGAS, supplies natural gas to residential and industrial customers in Mexicali.
- In the Year 2000, ECOGAS sold 3,977,456 MMBtu's of natural gas in Mexicali.
- Sempra Energy's natural gas sales in Mexicali resulted in the displacement of 2,885,913 of fuel oil usage in Mexicali from industrial sources.
- This displacement of fuel oil usage has resulted in a net reduction of 2785 tons of total emissions in the year 2000, consisting of 252 tons of NOx, an ozone precursor, 75 tons of PM and 2458 tons of SO_2, a PM precursor.

CALCULATION OF EMISSION REDUCTIONS IN BAJA CALIFORNIA NATURAL GAS PIPELINE VS. FEASIBLE ALTERNATIVES

COMPARISON OF NATURAL GAS AND OIL FIRED EMISSIONS

Assumptions

- EPA AP-42 emission factors are applicable.
- All of the fuel oil and natural gas is consumed by external combustion sources, consisting of boilers < 100 MMBtu/hr of heat input.
- Emission factors for fuel oil are from AP-42, Chapter 1.3 – Fuel Oil Combustion, Table 1.3-1.
  - Fuel oil #6:

    AP-42 emission factors:
    - NOx – 55 lb/1000 gal
    - PM – 10 lb/1000 gal
    - SO_2 – 157S lb/1000 gal

  - Fuel Oil #2

    AP-42 emission factors
    - NOx – 20 lb/1000 gal
    - PM – 2 lb/1000 gal
    - SO_2 – 142S lb/1000 gal
- Emission factors for natural gas are from AP-42, Chapter 1.4 – Natural Gas Combustion, Table 1.4-1 and Table 1.4-2; note that sulfur content is unspecified in AP-42, therefore, assume 2000 grains/MMcf.
  - Natural Gas

    AP-42 emission factors
    - NOx – 100 lb/MMcf
    - PM – 1.9 lb/MMcf
    - SO_2 – 2000 grains/MMcf
- Fuel oil #6 heating content = 150 MMBtu/1000 gal (see AP-42, page 1.3-8)
- Fuel oil #2 heating content = 140 MMBtu/1000 gal (see AP-42, page 1.3-8)
- Natural gas heating content = 1035 Btu/cf
- Fuel oil #6 sulfur content = 2% by weight
- Fuel oil #2 sulfur content = 0.05% by weight

Convert Emission Factors to Energy Basis

Natural Gas

NOx:	(100 lb/MMcf)(1/1035 Btu/cf) =	0.0966 lb NOx/MMBtu
PM:	(1.9 lb/MMcf)(1/1035 Btu/cf) =	0.0018 lb PM/MMBtu
SO_2:	(2000 gr/MMcf)(1 lb/7000 gr)(1/1035 Btu/cf) =	0.0003 lb SO_2/MMBtu

Fuel Oil #6

NOx:	(55 lb/1000 gal)(1/150 MMBtu/1000 gal) =	0.3667 lb NOx/MMBtu
PM:	(10 lb/1000 gal)(1/150 MMBtu/1000 gal) =	0.0066 lb PM/MMBtu
SO_2:	(157 lb/1000gal)(2)(1/150 MMBtu/1000 gal) =	2.0933 lb SO_2/MMBtu

Fuel Oil #2

NOx:	(20 lb/1000 gal)(1/140 MMBtu/1000 gal) =	0.1429 lb NOx/MMBtu
PM:	(2 lb/1000 gal)(1/140 MMBtu/1000 gal) =	0.0143 lb PM/MMBtu
SO_2	(142 lb/1000 gal)(0.05)(1/140 MMBtu/1000 gal) =	0.0507 lb SO_2/MMBtu

Calculate Mexicali Weighted Basis Oil Emission Factor:

- Assume 50% of new fuel oil usage would utilize fuel oil #6 and 50% would utilize fuel oil #2, instead of historical ratios of 95% fuel oil #6 to 5% fuel oil #2:

NOx:	(0.50)(0.3667) + (0.50)(0.1429)	0.2548 lb NOx/MMBtu
PM:	(0.50)(0.0066) + (0.50)(0.0143)	0.0105 lb PM/MMBtu
SO_2:	(0.50)(2.0933) + (0.50)(0.0507)	1.0720 lb SO_2/MMBtu

Calculate Difference in Emissions Natural Gas Fired vs. Fuel Oil Fired

	Natural Gas	Fuel Oil	Difference
NOx:	0.0966 lb NOx/MMBtu	0.2548 lb NOx/MMBtu	2.64
PM:	0.0018 lb PM/MMBtu	0.0105 lb PM/MMBtu	6
SO_2:	0.0003 lb SO_2/MMBtu	1.0720 lb SO2/MMBtu	3573

Thus, assuming 50% fuel oil #6 firing and 50% fuel oil #2, fuel oil produces 2.6 times more NOx, 6 times more PM and 3500 time more SO2 emissions than natural gas.

Convert Emission Factors to Energy Basis

Natural Gas

NOx:	(100 lb/MMcf)(1/1035 Btu/cf) =	0.0966 lb NOx/MMBtu
PM:	(1.9 lb/MMcf)(1/1035 Btu/cf) =	0.0018 lb PM/MMBtu
SO_2:	(2000 gr/MMcf)(1 lb/7000 gr)(1/1035 Btu/cf) =	0.0003 lb SO_2/MMBtu

Fuel Oil #6

NOx:	(55 lb/1000 gal)(1/150 MMBtu/1000 gal) =	0.3667 lb NOx/MMBtu
PM:	(10 lb/1000 gal)(1/150 MMBtu/1000 gal) =	0.0066 lb PM/MMBtu
SO_2:	(157 lb/1000gal)(2)(1/150 MMBtu/1000 gal) =	2.0933 lb SO_2/MMBtu

Fuel Oil #2

NOx:	(20 lb/1000 gal)(1/140 MMBtu/1000 gal) =	0.1429 lb NOx/MMBtu
PM:	(2 lb/1000 gal)(1/140 MMBtu/1000 gal) =	0.0143 lb PM/MMBtu
SO_2	(142 lb/1000 gal)(0.05)(1/140 MMBtu/1000 gal) =	0.0507 lb SO_2/MMBtu

Calculate Mexicali Weighted Basis Oil Emission Factor

- Assume 50% of new fuel oil usage would utilize fuel oil #6 and 50% would utilize fuel oil #2, instead of historical ratios of 95% fuel oil #6 to 5% fuel oil #2:

NOx:	(0.50)(0.3667) + (0.50)(0.1429)	0.2548 lb NOx/MMBtu
PM:	(0.50)(0.0066) + (0.50)(0.0143)	0.0105 lb PM/MMBtu
SO_2:	(0.50)(2.0933) + (0.50)(0.0507)	1.0720 lb SO_2/MMBtu

Calculate Difference in Emissions Natural Gas Fired vs. Fuel Oil Fired

	Natural Gas	Fuel Oil	Difference
NOx:	0.0966 lb NOx/MMBtu	0.2548 lb NOx/MMBtu	2.64
PM:	0.0018 lb PM/MMBtu	0.0105 lb PM/MMBtu	6
SO_2:	0.0003 lb SO_2/MMBtu	1.0720 lb SO2/MMBtu	3573

Thus, assuming 50% fuel oil #6 firing and 50% fuel oil #2, fuel oil produces 2.6 times more NOx, 6 times more PM and 3500 time more SO2 emissions than natural gas.

APPENDIX F

North Baja Pipeline Submittal to FERC Regarding Natural Gas Demand

PG&E National Energy Group
North Baja Pipeline

1400 SW Fifth Avenue
Suite 900
Portland, OR 97201

503.833.4000
Fax: 503.833.4900
www.nbpg.pge.com

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OFFICE OF THE SECRETARY
01 NOV 13 PM 4:13
FEDERAL ENERGY
REGULATORY COMMISSION

November 13, 2001

INFORMATION HAS BEEN REMOVED FOR PRIVILEGED TREATMENT

David P. Boergers, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Re: *North Baja Pipeline, LLC*, Docket Nos. CP01-22-000 and CP01-23-000

Dear Mr. Boergers:

North Baja Pipeline, LLC ("North Baja") hereby submits for filing its Responses to DEIS/DEIR Conditions 10, 11, 15, 17, 18 and 19. North Baja also submits certain supplemental information concerning the East Side Alternative, the Spill Prevention, Containment and Control Plan and Air Quality regarding emissions from Mexican plants.

Certain of the Responses to DEIS/DEIR Conditions contain cultural resources information. Thus, North Baja seeks privileged treatment for such information pursuant to 18 C.F.R. §§ 380.12(f)(4) and 388.112. North Baja encloses a complete original of the filing and seven (7) copies of the filing without the information for which privileged treatment is sought.

If you have any questions regarding this matter, please contact the undersigned.

Sincerely,

Carl M. Fink

and economic development projects that can be constructed and operated including the potential long term air quality deterioration and human health impacts on Imperial and Mexicali Valley residents.

Mexicali is one of the fastest growing regions in Mexico. This growth will continue to occur with or without the installation of NBP.

Until the local LDC in Mexicali was developed in the 1990's, all fuel use for commercial and industrial purposes in Mexicali was either #6 fuel oil or #2 diesel, both of which are readily available. When the LDC was established in Mexicali, a limited number of existing commercial and industrial facilities converted from liquid fuels to natural gas. It is estimated by the owner of the LDC that the emission reductions in 2000 from those conversions from oil to gas was over 250 tons of NO_x, 75 tons of PM, and 2400 tons of SO_2 (a PM precursor). LDC is rapidly approaching its capacity to receive natural gas from the Southern California Gas Company pipeline that supplies it. When that capacity is reached, and if NBP is not built, all future industrial and commercial development will require the use of #2 or #6 fuel oils. If that mix were on a 50%/50% basis, then NO_x emissions would be 2.6 times more than they would on natural gas, PM emissions would be 6 times more than they would be on natural gas, and SO_2 emissions would be 3500 times more than they would be on natural gas.

Clearly, the "worst case scenario" is the one where NBP is not built.

Comment 12 c): The County states: "The stated purpose of the natural gas pipeline is to build a number of new power plants, and "<u>but for</u>" these power plants, there would be no gas pipeline proposed at this time."

The stated purpose of the Proposed Project "is to serve *existing* and incremental electric power generation, local distribution company (LDC), and other market loads in two specific locations along the California/Western Arizona and Mexico border:

1. in the Tijuana and Rosarito, Baja California, Mexico area, south of San Diego, California; and

2. in the Mexicali, Mexico area, south of El Centro, California." (NBP Application, Resource Report 1, p. 1-3)

NBP has signed contracts with shippers to supply over half of the pipeline capacity to existing facilities or a new power plant (Otay Mesa) that are not in the Mexicali region. In addition, it has a contract to supply gas to the LDC in the Mexicali region. These contracts alone are sufficient to justify construction of the pipeline. There is no "but for" connection between the pipeline and these two power plants.

It is also important to point out that while Imperial County is concerned about potential air quality impacts of facilities served by NBP, San Diego County is strongly in support of NBP. This is because NBP will allow for full fuel switching from oil to gas at the Presidente Juarez

facility in Rosarito, and will effectively eliminate the constraint on pipeline capacity serving San Diego and reduce significantly the potential for curtailment of gas supply in San Diego, which causes the power plants in the county to have to burn oil.

Comment 12(d): The county comments that criteria pollution, e.g. PM10 and ozone, transport due to heavy industrial, commercial and economic development projects resulting from the new power plants could occur.

While it is reasonable to assume that development will occur near the new power plants, it is very difficult to predict the impact on air quality that these sources may or may not have in Imperial County. It is clear, however, that if NBP is not built, any development in Mexicali will need to be fueled by liquid fuels with significantly higher emissions impacts than if they were fueled by natural gas.

Comment 13: Un-addressed Project Alternatives

The power plants that are being built to take gas from NBP and GB in Mexico will be state of the art and among the most fuel efficient in the west. As a result they are unlikely to be closed as a result of economic changes in the power industry because they will be able to produce some of the cheapest power available in the area. Also, no one is projecting any sustained reduction in electric demand in either California or North Baja in Mexico.

Comment 14: The County comments that "The environmental document needs to identify and address offsets for air pollution, growth-inducement in the Mexican Valley, such as explanation of businesses and residential and other uses, as well as other impacts identified in the Draft EIS/EIR caused both directly and indirectly (secondary impacts) by the project.

The draft EIS/DEIR addresses cumulative impacts at the appropriate level of detail. Response to comment 28(c) pertaining to comments of the Imperial County Planning Department shows that the pipeline provides access to natural gas and displaces more polluting fuels.

Comment 15: Need to identify and designate where Imperial County and all other applicable jurisdiction/agencies will have control over the remediation of offsets and recourse to the project impacts, and identify all laws and permitting processes

Table 1.7-1 of the draft EIS/EIR lists major permits, approvals and consultations that govern the design, construction and operation of the North Baja pipeline.

APPENDIX G

Applicants' Submittals Regarding Possible Alternate Fuel Supply

BAJA CALIFORNIA POWER, INC.
2 Alhambra Plaza, Suite 1100
Coral Gables, FL 33134
Tel: (305) 461-6950
Fax: (305) 461-6977

November 28, 2001

Tony Como
Deputy Director, Electric Power Regulation
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Re: Alternative Fuel Sources for power generation facilities supplying power to Baja California Power, Inc.

Dear Tony:

As you are aware, the La Rosita Power Complex (LRPC) will generate approximately 1060 MW of power, approximately 560 MW of which will be exported to the U.S. The remaining 500 MW are under contract to the Comisión Federal de Electricidad (CFE), Mexico's National electric utility. The LRPC, which includes the turbines that will generate power for Mexico's domestic consumption and for export, is planning on receiving natural gas from the North Baja Pipeline. Baja California Power is a special purpose company that will transmit the power that will be exported from Mexico to the US.

The LRPC has looked at alternatives to supplying natural gas to the generation facilities in case the North Baja Pipeline is not available, and the purpose of this letter is to explain these alternatives. While supply of clean burning natural gas through the North Baja Pipeline remains our preferred choice of fuel supply, the three main available alternatives that we have considered are: 1) supply through Southern California Gas' (SoCal Gas) system in Imperial County, California, 2) back-hauling supply through Sempra's Transportadora de Gas Natural (TGN) and Gasoducto Bajanorte (GBN) systems in Mexico, and 3) equipping the generation facilities to process diesel, and obtaining diesel supply from Pemex, Mexico's national oil company.

1) Supply through SoCal Gas System. SoCal gas currently supplies gas to Mexicali's local gas distribution company. This system terminates approximately 20 miles from the LRPC. SoCal's existing system would have to be expanded to allow the transportation of the natural gas volumes needed for power generation. While we have studied this option and believe that this expansion is technically feasible, any modification to the SoCal gas system would require approval from the California Public Utilities Commission (CPUC). The approval process would be lengthy,

thereby resulting in a delay in the delivery of power from the LRPC to Mexico and California.

2) Back-hauling supply through TGN and GBN. This option would obtain the gas supply from San Diego Gas & Electric's (SDG&E) system in San Diego, transport it first through Sempra's TGN pipeline to Rosarito, Baja California, then through Sempra's GBN pipeline to Mexicali. Our review indicated that this option also is technically feasible, but would be more costly than NBP as it would require the upgrade of the TGN system. Worth noting is that during the summer and fall of 2000, the San Diego area suffered from gas supply curtailments due to lack of capacity upstream. Thus, if the LRPC were to avail itself of this alternative, the LRPC would run the risk of having its gas supply curtailed. This would also affect the delivery of power to CFE, the Mexican national electric company. As an alternative, gas could be obtained from the proposed new LNG terminal near Ensenada, Baja California, and back-hauled over GBN.

3) Liquid fuels. The combustion turbines at the LRPC can be retrofitted to burn diesel fuel. Pemex has a liquid fuels terminal in Mexicali, located approximately 5 km from the LRPC, which would facilitate the delivery of diesel. For this option, the generation facilities would have to be modified to accept diesel fuel and the diesel handling facilities installed. Our review indicated that these modifications would delay commercial operation of the LRPC beyond the California peak demand period in 2003, as well as delaying delivery of power to Mexico. In addition, this option is disfavored by the LRPC, as emissions from diesel-fired generation would be substantially higher than when combusting natural gas.

The options mentioned above are not the optimal choice for delivering timely, environmentally sound and inexpensive power to both Mexico and the United States. Nevertheless, Energia Azteca X (EAX) and Energía de Baja California (EBC), which together make-up the LRPC, have commenced construction of the power generation facilities and will find alternate fuel supply if the NBP is not available within the time periods necessary. As of October 2001, EAX and EBC have jointly spent or committed to spending approximately $600 million out of a total of $765 million.

We appreciate the diligent work of the Department of Energy in processing the Presidential permit application for the Baja California Power transmission line, which will make power available to California as early as summer of 2002. If you require any additional information, please do not hesitate to call me at (305) 461-6945. Thank you.

Yours very truly,

Orlando Martinez

Sempra Energy Resources

Octavio M.C. Simoes, P.E.
Director
Project Development

101 Ash Street
San Diego, CA 92101-3017

Tel: 619.696.2287
Fax: 619.696.2911
Cell: 619.540.6345
osimoes@sempra-res.com

November 26, 2001

Anthony Como
U.S. Department of Energy
Office of Fossil Energy, FE-27
1000 Independence Avenue, S.W.
Washington, DC 20485

Dear Mr. Como:

The DOE has requested information pertaining to Sempra Energy Resource's intent to construct or not construct Termoeléctrica de Mexicali (TDM) if the North Baja Pipeline (NBP) is not approved and constructed. In summary, Termoeléctrica de Mexicali will be constructed regardless of whether or not the US portion of NBP is constructed. Below is a discussion regarding this matter.

Background on natural gas supply

There are currently two natural gas interconnections into Baja California. The first is located at San Diego/Tijuana and connects the San Diego Gas & Electric (SDG&E) system to the Transportadora de Gas Natural (TGN) system in Mexico. The second is located at El Centro/Mexicali and connects the Southern California Gas Company (SCG) system to the Distribuidora de Gas Natural (DGN) system in Mexico.

NBP is a joint venture between PG&E National Energy Group, and Sempra Energy International. PG&E is developing the US portion of NBP, while Sempra Energy International is developing the Mexican portion of the pipeline. NBP will bring natural gas from the United States and supply the DGN and TGN systems as well as new customers in Baja California and the United States. The Mexican portion of the pipeline has received all of its Mexican regulatory approvals and is already under construction. The Mexican portion of the pipeline will be completed in July 2002.

Fuel supply to TDM

Sempra Energy has all regulatory approvals to construct and operate TDM in Mexico and has already initiated construction of the power plant.

TDM has entered into a 20-year contractual agreement with NBP for fuel transportation rights on the North Baja pipeline. This fuel source is the cleanest, most economical, and provides the most efficient fuel source available to the TDM project.

Sempra Energy has entered into an electricity supply contract with the California Department of Water Resources (CDWR). TDM is an important part of the portfolio of assets that will supply the power required under the CDWR contract.

TDM has made well over $280 million in construction contractual commitments of which $120 million has been paid to date. Total construction cancellation costs for TDM are currently estimated to be $200 million. It may not be financially prudent to cancel the project given the sunk costs that would occur if it were cancelled at this point in time. In order to recover these investments, should the US portion of the North Baja pipeline not be constructed, various fuel alternatives have been explored as contingency.

If the U.S. portion of the pipeline is not built, and TDM is forced to fuel the plant from alternative sources, TDM would seek to obtain fuel supplies from other sources that may be available. Possible sources would include existing connections to the United States at the border with Mexico and the future LNG facility proposed recently by Sempra Energy. Natural gas from either of these sources would flow to TDM via the Mexican portion of the pipeline.

Conclusion

Sempra Energy remains committed to the TDM project and to satisfy the contractual obligations to supply power to the state of California. The preferred and most economical fuel supply to TDM is through the North Baja Pipeline; however, if NBP is not constructed, TDM would still be built and be forced to use alternative fuel supplies in order to satisfy the contractual commitments and protect the financial investments made to date.

Should you have any questions, please contact me at (619) 696-2287 or Alberto Abreu at (619) 696-2121.

Very truly yours,