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# Environmental Assessment

## Southern California Gas Company
## Natural Gas Transmission Line 6902 Project
## Riverside and Imperial Counties, Califonia

September 1993

Prepared for:
Bureau of Land Management
California Desert District
U.S. Department of the Interior
6221 Box Springs Boulevard
Riverside, CA 92507

Cooperating Agency:
United States Marine Corps
Marine Corps Air Station
Box 99220
Yuma, AZ 85369

Prepared by:
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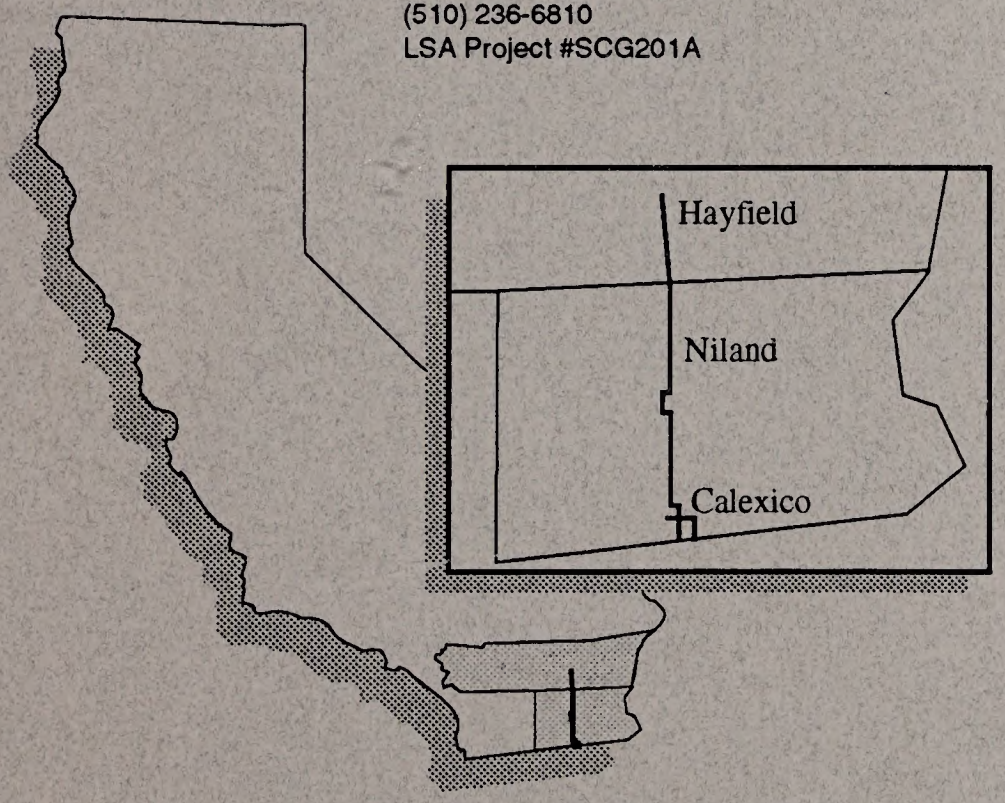
LSA Project #SCG201A

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# United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California Desert District Office
6221 Box Springs Boulevard
Riverside, California 92507-0714

IN REPLY REFER TO:

CA-30646
1790, 2880
(CA-060.5)

Dear Reader:

This Environmental Assessment (EA) for the proposed replacement of an existing natural gas pipeline by the Southern California Gas Co. has been prepared in compliance with the National Environmental Policy Act (NEPA). We request your review and written comments, if any. Any written comments must be received by November 5, 1993, and should be sent to:

USDI, Bureau of Land Management
ATTN: Stephen L.Johnson
6221 Box Springs Blvd.
Riverside, CA 92507-0741

It is important that we receive your comments in writing since no public meetings will be held. All comments received will be evaluated and considered in arriving at a decision. Those who comment on the proposed pipeline replacement will be notified of my decison or further action required.

Sincerely,

for Henri R. Bisson
District Manager

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# ENVIRONMENTAL ASSESSMENT

## SOUTHERN CALIFORNIA GAS COMPANY
## NATURAL GAS TRANSMISSION LINE 6902 PROJECT
## RIVERSIDE AND IMPERIAL COUNTIES, CALIFORNIA

## VOLUME I: ENVIRONMENTAL ASSESSMENT

*September 1993*

*Prepared for:*

*Bureau of Land Management*
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## SUMMARY

The Southern California Gas Company (Gas Company) proposes to construct a maximum 36-inch-diameter natural gas transmission pipeline. The proposed line 6902 would partially replace its existing line 6000.

## *A. PROJECT DESCRIPTION*

The proposed pipeline would extend from Interstate 10 (I-10), south through the Chocolate Mountains, past Niland, to the U.S.-Mexico border near Calexico. The line would extend across land administered by the Bureau of Land Management (BLM) and the U.S. Department of the Navy (Navy), through existing easements on county roads and state highways, and through private property.

Two alternatives are under consideration for the southern end of the pipeline. The western alternative would be 75.6 miles long; the eastern alternative would be 77.6 miles long.

Under either alternative, the pipeline would traverse approximately 68 desert washes and the Alamo River. It also would cross approximately 40 road intersections. It would be bored under Interstate 8 (I-8), I-10, State Highway 111, and County Highway S80. Five new valve stations and a 3.6-mile long, 16-inch-diameter lateral pipeline near El Centro would be constructed as part of either alternative.

The proposed project would be capable of supplying approximately 700 million cubic feet of natural gas per day to Imperial Valley customers and potential new customers in Mexico. It also would improve the level of natural gas service and reduce existing and potential use of fuel oil by electrical generating facilities.

## *B. POTENTIAL IMPACTS*

### *Land Use*

Lands traversed by either pipeline alternative would include private lands subject to the jurisdiction of Riverside and Imperial counties, and public lands administered by the BLM and the Navy. Land uses in the project vicinity include California Desert Conservation Area open space and Chuckwalla Crucial Habitat Area north of the Chocolate Mountains, military exercise areas used by the Navy and Marine Corps within the Chocolate Mountains, and agricultural lands between Niland and Calexico.

The proposed project would require the cessation of aerial target practice during the four- to six-week construction period through the gunnery range. Because the pipeline would be largely located within existing roadway and

pipeline easements, and is a replacement for an existing line, the project would be consistent with permitted and existing land use in the California Desert Conservation Area, Chuckwalla Crucial Habitat Area, and agricultural land uses along the alignment. Some short-term land use disruptions may occur to the Bravo Ranch, Meadows Union School, and Imperial Irrigation District office on Bowker Road during project construction. Mitigation measures identified in the Environmental Assessment (EA) minimize these impacts to below a level of significance.

### *Socioeconomic Considerations*

The employment of from 50 to 300 workers for project construction (either alternative) is not expected to have significant long-term socioeconomic impacts. During the 17- to 22-week construction period, the project would have a significant short-term impact on the availability of temporary housing (e.g., motels, hotels, rented housing units, trailers, and campers) in the Imperial Valley. Although the project would generate construction jobs, it would not result in a direct or long-term impact on existing employment in the area because one-half of the jobs would probably be filled by workers from across the country.

Impacts on local trade and taxes resulting from the proposed project would be beneficial. The total estimated annual property tax of $653,000 for the western alternative and $670,000 for the eastern alternative would be divided between Riverside and Imperial counties, proportionate to the value of pipeline within each county.

### *Visual Resources*

Short-term impacts would occur as a result of pipeline construction activities and construction of the Niland railspur staging area, while long-term impacts would result from clearing of vegetation from the working strip and the construction of ancillary valve stations. The Calexico valve station would be located in the more populated area. Mitigation measures, such as the limitation of the construction zone, preservation of existing vegetation, set-back of staging areas and construction equipment from roads, and painting of valve stations, are identified to minimize visual quality impacts.

### *Traffic*

Under either alternative, line 6902 would be bored underneath I-10, I-8, State Highway 111, County Highway S80, and two Southern Pacific Railroad (SPRR) railroad tracks. Pipeline construction would require trenching through State Highways 78 and 98, County Highways S26, S27, and S28, and up to 35 other smaller county roads. Travel along facilities proposed for boring would not be disrupted. Construction equipment and material staging areas near the

boring and cutting sites could indirectly affect travel speeds and cause minor temporary congestion. Trenching through roads would require short-term traffic control on these roadways. This control could result in temporary backups and delays on these roadways during the construction period.

No long-term traffic-related impacts would be generated after the proposed underground pipeline is constructed. To offset potential adverse effects during construction, several mitigation measures are identified to ensure adequate traffic control and traffic safety.

### *Vegetation and Wildlife*

The razorback sucker could potentially be present, although its occurrence is unlikely. The sucker is listed proposed for federal listing as an endangered species and is a state-listed endangered species. The project would avoid potential habitat in the form of perennial streams, and no impacts are anticipated.

The desert tortoise was found along the northern 27 miles of the project route (either alternative) in relatively natural desert habitat. The tortoise is state-listed and federally listed as a threatened species. Potential impacts on the tortoise include direct mortalities from construction activities, destruction of burrows, and loss of habitat. Mitigation measures include acquisition of land to compensate for the temporary loss of habitat and clearing the construction zone of tortoises prior to ground-disturbing activities.

A single pair of Gila woodpeckers was found nesting along the project route (either alternative). Impacts on this state-listed endangered species would be avoided by suspending construction during the nesting season or taking other measures to avoid disturbance around the nest.

Flat-tailed horned lizard is a federal candidate species category 1, which could be elevated to formal status in the life of the project. Although initial surveys indicated that its presence is unlikely, an additional survey for the species in potential habitat will be conducted in the late summer. If found, standard BLM mitigation measures for flat-tailed horned lizard shall be incorporated into the project.

A number of other informally listed plants and animals could potentially be adversely affected by the project: foxtail cactus, winged cryptantha, California barrel cactus, spearleaf, black-tailed flycatcher, Le Conte's thrasher, loggerhead shrike, and American badger. Impacts on the following habitat types are also anticipated: Sonoran Creosote Bush Scrub, Sonoran Mixed Woody and Succulent Scrub, Desert Dry Wash Woodland, Arrowweed Scrub, and Tamarisk Scrub. Mitigation measures are identified to reduce these impacts to below the level of significance.

### *Wetlands*

The proposed project would cross 68 desert washes, all of which occur along the northern portion of the alignment. Of this total, 43 washes are considered significant in terms of defined bed and bank systems and observable differences in upland and wash plant communities. Based on the historical recovery of the desert wash systems from former pipeline installation activities along the route, the plant communities are anticipated to reestablish within 10 to 25 years after line 6902 is completed. Mitigation measures are identified which would minimize impacts during construction, as well as improve the overall habitat value by requiring removal of exotic woody vegetation.

Five wetland areas would be crossed by the route, which support limited wetland vegetation. Impacts would be minor. Preconstruction grades would be restored with original topsoil. The Alamo River would be crossed by attaching line 6902 to an existing but upgraded bridge span over the river. Therefore, no impacts would occur on the Alamo River and adjacent riparian wetlands.

The proposed pipeline would cross numerous agricultural laterals, ditches and canals along the southern portion of the route. Agricultural laterals, composed of concrete-lined channels, would be crossed by trenching over the siphon within the roadway easement. Agricultural ditches crossed by the route are composed of earthen ditches with from 0 to 75 percent cover of ruderal wetland vegetation. These provide limited wildlife habitat value. These areas would experience temporary impacts due to open cut trenching procedures for pipe installation. All areas would be restored to their original contours and hydroseeded where necessary and feasible. Agricultural canals would be crossed by boring under the watercourse; no impacts on the canals would occur. The routes of the western and eastern alternatives would be similar, except that the eastern route would cross an additional 13 laterals and five ditches and two fewer canals. These differences would not be significant because most construction impacts on canals would be avoided and the ditches do not provide valuable wildlife habitat.

### *Geology, Soils, and Seismicity*

The primary geologic, soils, and seismic concerns within the northern half of the proposed route include a localized area of potential slope instability and erosion potential. Within the southern half of the proposed route, potential seismic hazards associated with the Imperial fault are considered to be high (either alternative). A major earthquake along the Imperial fault could rupture the pipeline, resulting in a release of gas, and, in the worst-case event, a fire could occur at the point of rupture. The Meadows Union School, directly across the street from the proposed alignment, would be subject to substantial hazards should the pipeline rupture and a fire occur at that point. Mitigation measures identified to offset potential adverse seismic impacts include the provision of an additional valve station along the south side of the Imperial

fault and the relocation of the proposed McConnell/Ralph roads valve station to allow a more immediate cut off of the gas supply in the event of an emergency.

### *Hydrology*

The proposed pipeline would cross approximately 68 ephemeral desert washes between Hayfield and Niland. Trenching activities would temporarily alter natural drainages. After construction, these drainages would be restored to original contours.

Approximately 82 canals, laterals, and drains, and one perennial stream under Imperial Irrigation District control would be traversed under the Western Route Alternative. Under the Eastern Route Alternative, approximately 99 canals, laterals, and drains, and one perennial stream, would be crossed. The Gas Company would reconstruct the existing support system, which spans line 6001 across the Alamo River, so that it could support both line 6902 and line 6001. Local siltation and erosion effects near construction areas are expected to be minimal.

Up to 17 acre-feet of water would be required during the hydrostatic testing of the line. Test water would most likely be obtained from the Coachella Canal and would either be discharged by spreading according to Regional Water Quality Control Board (RWQCB) regulations or returned to irrigation canals for use. Test water may contain trace amounts of rust and other particulate matter from the pipe. Gas testing may be used in the Chocolate Mountains Aerial Gunnery Range, which would reduce water use and discharge.

Mitigation measures to offset potential adverse hydrologic impacts include control of discharged hydrostatic test waters, scheduling of construction within intermittent waterways during the dry season, and incorporation of erosion control measures.

### *Noise*

The proposed project would result in short-term noise impacts from construction activities and release of pressure (blowdown) events. Most of the impacts would occur at the few residences near the Niland valve station and at the Imperial Irrigation District office, Meadows Union School, and Bravo Ranch, all located on Bowker Road, during the final ten- to 12-week construction period. During a worst-case condition, these receptors would be subject to maximum noise levels of between 70 and 80 DBA and low to mid-70 CNEL during construction activities. These noise levels would periodically exceed county standards and could cause disturbance at any of these structures/uses, which are occupied during closest approach of construction. Noise associated with the venting of gas during two-minute annual valve

station checks or during 30-minute pipeline venting activities could result in short-term impacts on nearby receptors. Noise impacts under the eastern and western alternatives would be similar.

Mitigation measures to minimize noise impacts at vulnerable receptors are identified.

### *Air Quality*

Long-term local air quality impacts are not expected to occur as a result of the project. $NO_x$ and $PM_{10}$ emissions would exceed the South Coast Air Quality Management District's daily thresholds by a wide margin, regardless of the intensity with which the work proceeds. ROG, $NO_x$, and $PM_{10}$ emissions would exceed the quarterly thresholds by a wide margin during the first three months of construction, primarily because of the round-the-clock work by multiple crews in the gunnery range. Only the $NO_x$ and $PM_{10}$ quarterly thresholds would be exceeded during the last three months of work. Air quality impacts would be similar for both the eastern and western alternatives.

The Gas Company would comply with all applicable local air quality control ordinances. Specific mitigation measures to control fugitive dust and equipment and vehicle emissions are identified to offset potential adverse air quality impacts.

### *Cultural Resources*

The cultural resources assessment confirmed the location of one (CA-RIV-4884) of the three previously recorded sites along the northern portion of the pipeline route. No evidence of sites CA-IMP-68 or CA-IMP-118 between the Coachella and East Highline canals was found. Between I-10 and the gunnery range, two additional lithic processing areas and two historical can scatters were recorded. Remnants of one potential village site (CA-IMP-1698) may exist in the southern portion of the route. No additional investigation is recommended for the historic resources. The two additional lithic sites and remnants of CA-IMP-1698 could be adversely affected by the project if not mitigated. The EA specifies that a qualified archaeologist be retained to monitor grading and construction activities and, if buried resources are found, trenching shall halt until the finds are evaluated and a data recovery program is implemented.

### *Paleontological Resources*

Along the northern portion of the pipeline route, two fossil localities were found during the paleontological field survey. Rocks along the project corridor have paleontological sensitivity ratings which range from high, low, no, and indeterminate. Trenching in the high-sensitivity areas would adversely

affect existing paleontological resources. Mitigation measures for the northern portion of the pipeline route are identified to lower any paleontological impacts to an acceptable level and to make fossils that are salvaged and curated available for public education and scientific study.

For the southern portion of the pipeline route, the proposed eastern and western alternatives and lateral rights-of-way are underlain entirely by Quaternary lake deposits. These deposits have a low potential for yielding fossil remains. Therefore, the paleontological resources of the alignment south of Niland (either alternative) are considered to be of low paleontologic importance. Adverse impacts on paleontological resources resulting from excavation of the pipeline trench would be of low paleontologic significance because of the low potential for the disturbance or loss of fossil remains, associated geologic and geographic site data, and unrecorded fossil sites in the Quaternary lake deposits. No mitigation measures would be necessary to reduce the adverse impacts of excavation of paleontological resources of the southern portion of the pipeline except in the unlikely event that fossil remains were uncovered by excavation.

### *Health and Safety*

Construction welding and grinding activities could result in fires near the pipeline. Corrosion, punctures, or ruptures to the line, once the line is in operation, could result in release of gas and potential for fire or explosion. Additional worker safety impacts could result from trenching within a live ordnance area through the Chocolate Mountains Aerial Gunnery Range.

As part of the proposed project, the pipeline would be designed, constructed, operated, maintained, and monitored to conform with all applicable federal and state orders and regulations. Prior to the commencement of construction within the gunnery range, the pipeline route would be swept for live ordnance and pipeline workers would be briefed on worker safety within the ordnance area and provided with explosive ordnance disposal (EOD) escorts during their work in the range. With the exception of the seismic issues described in the geology impacts section, project consistency with these requirements is expected to minimize the danger to persons and structures to a level of insignificance in either the eastern or western alternative.

# I. INTRODUCTION

## A. *BACKGROUND*

The Southern California Gas Company (Gas Company) proposes to construct a 36-inch natural gas transmission pipeline to replace its existing line 6000 between Hayfield and Niland. The proposed pipeline 6902 would extend from Interstate 10 (I-10), south through the Chocolate Mountains, past Niland, and on to the U.S.-Mexico border near Calexico. A 3.6-mile lateral line would extend west from the main line at Chick Road. The lateral would be 16 inches in diameter.

Two possible alternative terminus routes for the project are under consideration, a western and an eastern alternative. Line 6902 would extend 75.6 miles under the western alternative and 77.6 miles under the eastern alternative. The pipeline would extend across land administered by the Bureau of Land Management (BLM), the U.S. Department of the Navy's (Navy) Chocolate Mountain Aerial Gunnery Range, county roads, state highways, and private property. Approximately one-half of the proposed project would be located in the California Desert Conservation Area. Two additional alternative routes for the northern portion of the alignment and an increased-pressure alternative were considered and rejected by the applicant.

The proposed line 6902 would parallel existing Gas Company lines 6000 and 6001 for most of the route. Line 6000 is an eight-inch-diameter pipeline that was installed in 1948 to carry natural gas from west of Desert Center to the El Centro area. Line 6001 is a ten-inch-diameter line that was installed in 1964 as a parallel reinforcement to line 6000 and that extends south to El Centro.

## B. *PURPOSE AND NEED FOR THE REPLACEMENT PROJECT*

The Gas Company is a California public utility subject to the jurisdiction of the California Public Utilities Commission (CPUC). The existing pipelines provide approximately 57 million cubic feet per day of natural gas to the Imperial Valley, but are not of sufficient size to supply projected natural gas demands in the future. The proposed project would have the capability of supplying approximately 700 million cubic feet per day of natural gas to the Imperial Valley and customers south of the international border in Mexicali. Increased natural gas service would help reduce the use of fuel oil, which is a greater contributor to air pollution.

The anticipated increase in demand for natural gas service is based upon potential market projections for both existing customers with increased demand and new customers. The actual level of demand and the timing of these customers' requirements is not now known precisely. Thus, the diameter and length of pipe installed would depend on the customers' cumulative demand for increased gas service.

The 36-inch-diameter, approximately 77-mile-long, pipeline is evaluated in this document is the largest and longest pipeline presently anticipated. Thus, the impacts assessed are the greatest that may result from the installation of this pipeline. Similarly, the Environmental Assessment (EA) discusses the construction schedule as if the entire length of the pipeline were being installed at one time. However, various sections of the line likely will be constructed in phases over a period of years.

## C. *PREPARATION OF THE ENVIRONMENTAL DOCUMENT*

This EA has been prepared by LSA Associates, Inc. (LSA) for the BLM. This EA has been prepared in compliance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA, and BLM guidelines.

The EA serves as an objective informational document to be used by lead and responsible agencies in their consideration of this project. An EA may not be used as an instrument to rationalize approval of a project, nor by findings of adverse impacts require that a project be disapproved. The EA also is intended to provide an adequate level of environmental documentation for use by state agencies as the basis of their evaluation of environmental impacts.

The EA identifies potential adverse environmental impacts that may result from the project and identifies mitigation measures that can be implemented to reduce impacts to a level of insignificance. The EA analyzes land use, socioeconomic factors, visual resources, wetlands, vegetation and wildlife, geology, soils, seismicity, hydrology, noise, air quality, cultural resources, paleontology, and health and safety.

The BLM is the Lead Agency for this EA. The information in this document is subject to review by the other responsible agencies and the public.

## D. *JURISDICTIONAL AND PERMIT-GRANTING AGENCIES*

The resources potentially affected by the project fall under the jurisdiction of the agencies and regulations described in Table I-1. The project as proposed, and incorporating the mitigation measures, is designed to be consistent with the applicable regulations.

**Table I-1 - Agencies and Required Permits**
**SoCalGas Line No. 6902**

| Federal Agencies | Permits/Jurisdictional Responsibilities |
|---|---|
| U.S. Bureau of Land Management | • Right-of-way grant for crossing of federal land. |
| U.S. Department of the Navy and the Marine Corps | • Clearance during construction/ maintenance within the Chocolate Mountains Aerial Gunnery Range. |
| U.S. Fish and Wildlife Service | • Incidental Take Permit for threatened and endangered species under Section 7 of the federal Endangered Species Act. |
| U.S. Army Corps of Engineers (COE) | • Nationwide Permit for fill in waters of the U.S. and adjacent wetlands under COE jurisdiction of Section 404 of the Clean Water Act. |
| U.S. Bureau of Reclamation | • Crossing easement for Coachella Canal (in coordination with the Coachella Valley Water District).<br>• Crossing easement for the All American Canal (in coordination with the Imperial Irrigation District). |
| Federal Energy Regulatory Commission | • Section 3 authority for the transportation of gas in interstate commerce. |
| Office of the President | • Presidential Permit for export outside the country. Permit to be issued following the approval of the Department of State, the Department of Energy, and the Department of Defense. |
| **State Agencies** | **Permits/Jurisdictional Responsibilities** |
| California Department of Fish and Game | • Section 2081 management permit regarding state-listed threatened and endangered species. Alternatively, the department may adopt the federal Biological Opinion as the written findings required pursuant to Section 2090 of the Fish and Game Code.<br>• Section 1603 Streambed Alteration Agreement for stream crossings. |
| California Department of Transportation | • Highway encroachments for Interstate Highways 10 and 8, and State Highways 78, 98, and 111. |
| **Local/Regional Agencies and Organizations** | **Permits/Jurisdictional Responsibilities** |
| Regional Water Quality Control Board (Colorado River Basin Area) | • Waste Discharge Permit for release of hydrostatic test water.<br>• Stormwater Discharge Permit during construction. |

| | | |
|---|---|---|
| Riverside County Road Department | • | Roadway Encroachment Permits. |
| Imperial County Public Works Department | • | Roadway Encroachment Permits. |
| Imperial Irrigation District (IID) | • | Crossing Permit for E. Highline Canal, All American Canal, numerous other smaller canals, laterals, drains. |
| | • | Permission for crossing under IID electrical facilities. |
| Coachella Valley Water District | • | Crossing permit for Coachella Canal. |
| Southern Pacific Railroad | • | Easements for crossing of railroad tracks in Niland and El Centro. |
| Southern California Edison Company | • | Permission for construction within aerial electrical facilities rights-of-way. |

# II. PROJECT DESCRIPTION

## A. *PROJECT LOCATION*

### *Introduction*

The proposed Southern California Gas Company (Gas Company) natural gas pipeline replacement project would originate at the Hayfield valve station on the north side of Interstate 10 (I-10) in Riverside County, approximately 10 miles west of Desert Center. The proposed pipeline 6902 would run south through the Chocolate Mountains along Gas Line Road to the Niland valve station in Imperial County. The pipeline would then parallel agricultural roads to the U.S.-Mexico border (Figure PD-1). A 3.6-mile lateral extension would extend west from the main line at Chick Road.

The southernmost portion of the pipeline would extend along one of two alternative routes, the Western Route Alternative and the Eastern Route Alternative (Figure PD-2). The total length of line 6902 under the Western Route Alternative would be 75.6 miles, which would terminate approximately two miles east of the U.S.-Mexico International Customs in Calexico. The total length of the Eastern Route Alternative would be 77.6 miles, which would terminate approximately four miles east of the U.S.-Mexico International Customs.

The Hayfield valve station is connected to the 36-inch Gas Company natural gas line 5000 which traverses east to west along I-10 (Figure PD-3). The Gas Company maintains two natural gas lines that emanate south of the Hayfield valve station, and are supplied by line 5000; the 10-inch line 6001 and the eight-inch line 6000. Gas Company lines 2001 and 2000 are located along the north side of line 5000 and the Hayfield valve station. Lines 2001 and 2000 are both 30 inches in diameter.

### *Western Route Alternative*

At its north end, the proposed line 6902 would closely parallel Gas Line Road and existing lines 6000 and 6001. Gas Line Road is an access road maintained by the Gas Company and used for quarterly patrols and by the Bureau of Land Management (BLM) and others. Within one-half mile of I-10, the pipelines and Gas Line Road cross underneath high-voltage electrical transmission lines owned by the Southern California Edison Company. Shortly thereafter, the existing lines 6000 and 6001 cross Gas Line Road and parallel its eastern easement. At this point, the proposed line 6902 would cross Gas Line Road and parallel its western easement, maintaining a maximum distance of 25 feet from the existing lines. The pipeline would cross Red Cloud Mine Road approximately 2.5 miles south of I-10.

The proposed line would then parallel Gas Line Road another 8.7 miles south to the northern boundary of the Chocolate Mountains Aerial Gunnery Range,

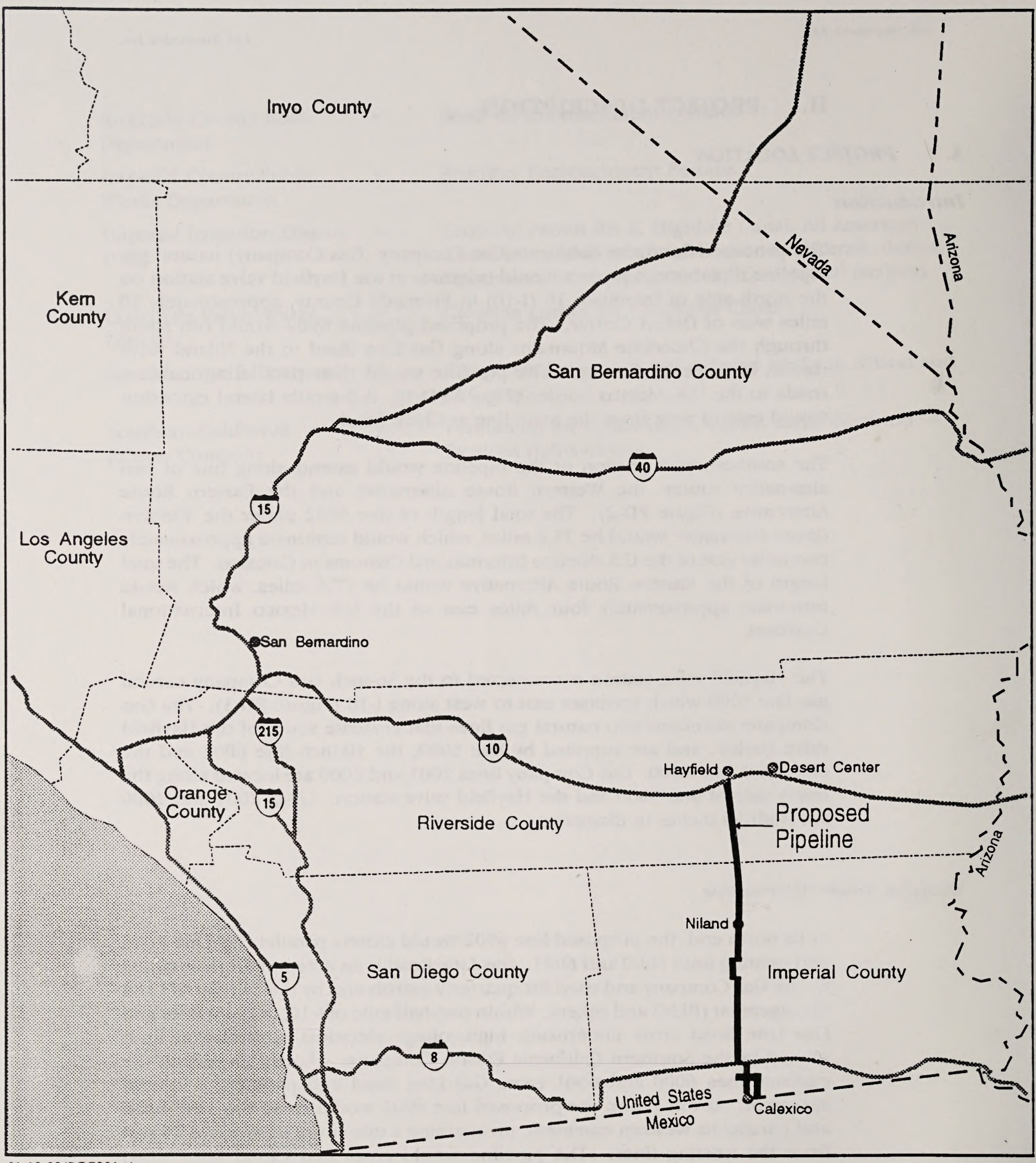


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Figure PD-1

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LSA

Scale in miles

0 28

Regional Project Vicinity
SoCalGas Line No. 6902


1-26-93(SCG201A)

NORTHERN SECTION

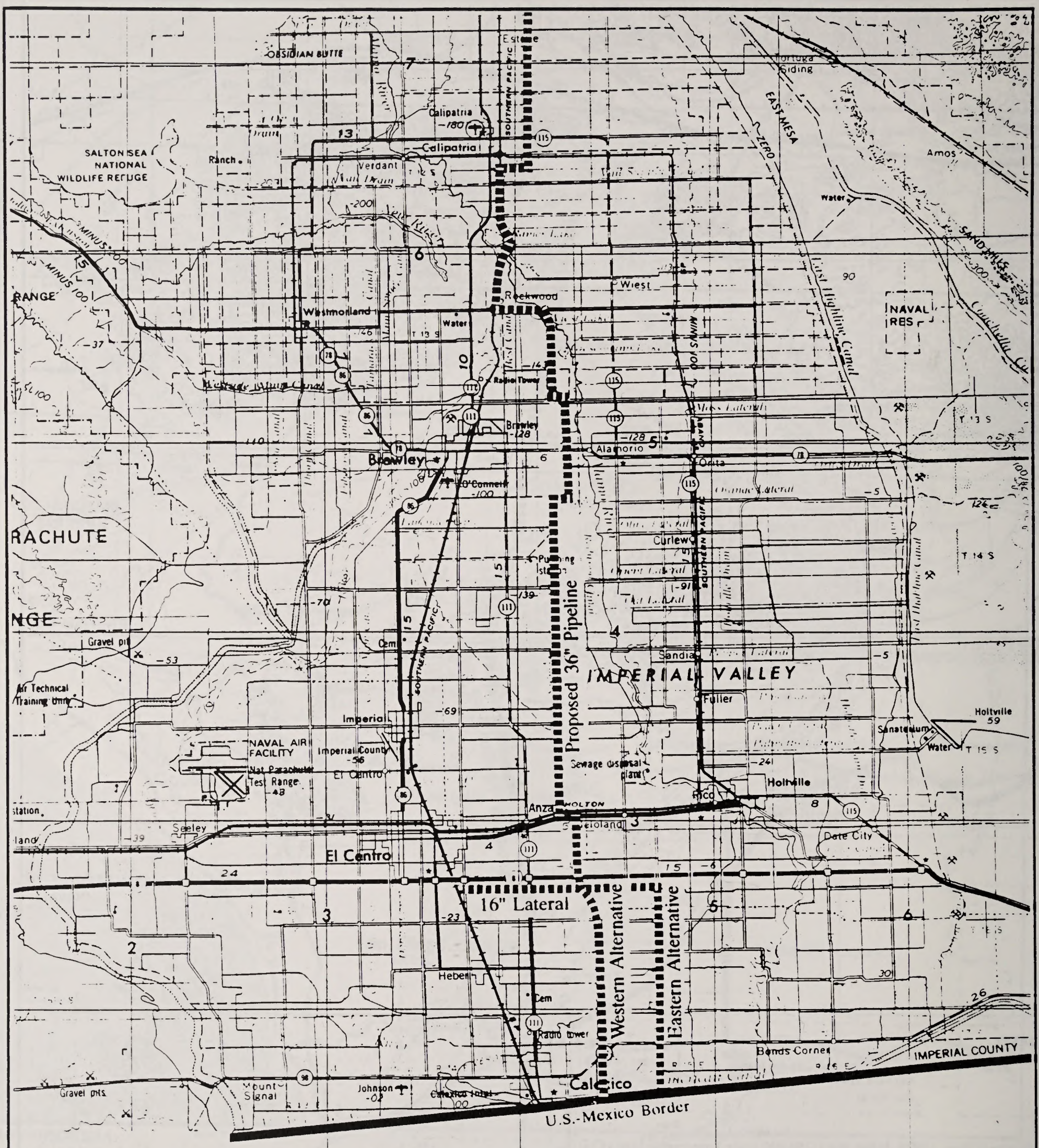
Figure PD-2
(page 1 of 2)

Proposed Pipeline Route

LSA

Scale in miles
0 4.5

Project Location
SoCalGas Line No. 6902




Source of Base: USGS El Centro 1:250,000 Scale Topographic Map

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SOUTHERN SECTION

Figure PD-2

(page 2 of 2)

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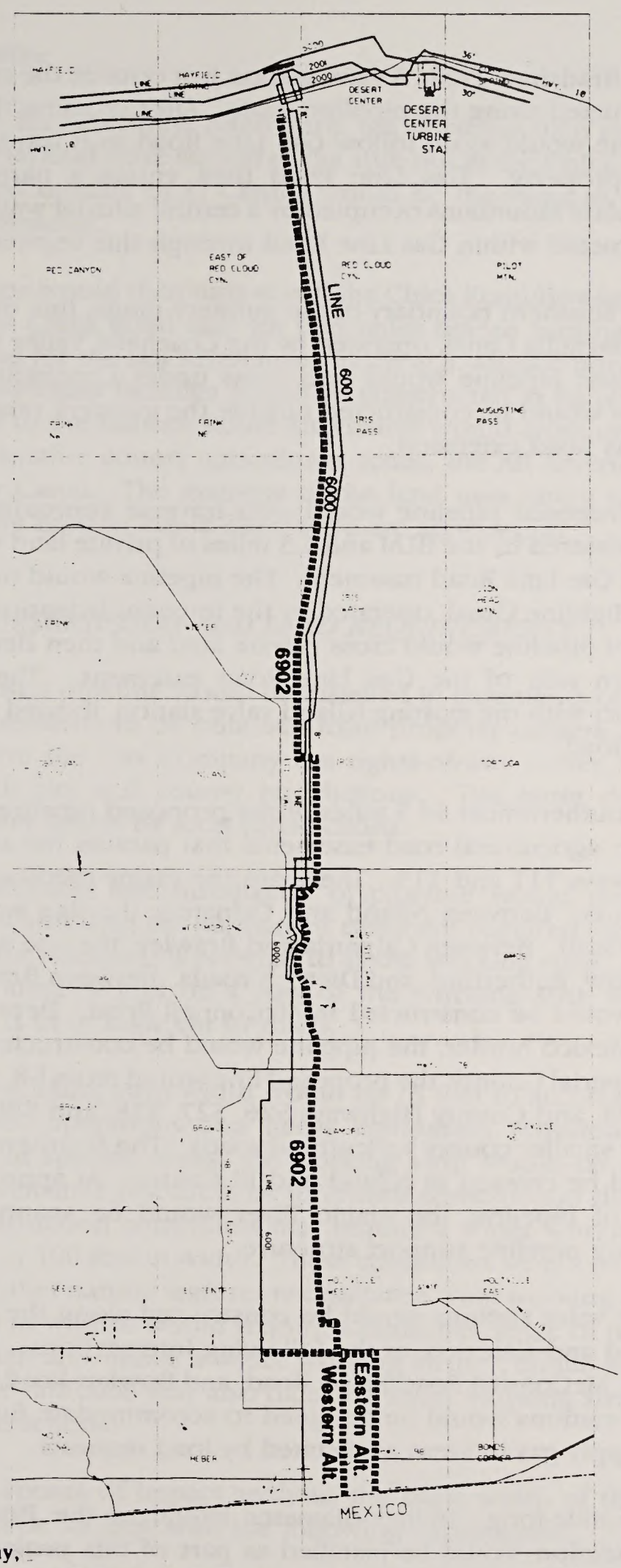
Proposed Pipeline Route

LSA

Scale in miles

0 4.5

Project Location
SoCalGas Line No. 6902




Source: Southern California Gas Company, Engineering-Property Management and Information Services

04-01-93(SCG201A)

Figure PD-3

Existing SoCalGas Lines
Proposed Line No. 6902

LSA

Scale in Miles
0 8.5

Existing SoCalGas Natural Gas Pipelines and Proposed Line 6902

at the Bradshaw Trail. A valve station just outside the military range would be constructed along the pipeline route. After crossing the Bradshaw Trail, the pipeline would again follow Gas Line Road as it traverses 16.8 miles of U.S. Navy property. Gas Line Road then enters a narrow pass through the Chocolate Mountains occupied by a central alluvial wash. Line 6902 would be constructed within Gas Line Road through this segment.

At the southern boundary of the gunnery range, line 6902 would cross under the Coachella Canal, operated by the Coachella Valley Irrigation District. The proposed pipeline would next cross under Coachella Canal Road. A valve station would be constructed outside the gunnery range, near the end of the Wilkins Road extension.

The proposed pipeline would next traverse approximately 0.6 mile of land administered by the BLM and 1.5 miles of private land within the western side of the Gas Line Road easement. The pipeline would then be bored under the East Highline Canal, operated by the Imperial Irrigation District. The next 1.0 mile of pipeline would cross private land and then Beal Road, still within the western side of the Gas Line Road easement. The pipeline would then connect with the existing Niland valve station, located along the south side of Beal Road.

The southernmost 44.5 miles of the proposed pipeline would be constructed within agricultural road easements that parallel the southerly route of State Highways 111 and 115. These are the major roadways between Niland and Calexico. Between Niland and Calpatria, the line would be constructed in Blair Road. Between Calpatria and Brawley, the line would be constructed in Kershaw, Rutherford, and Dietrich roads. Between Brawley and El Centro, the line would be constructed in McConnell Road. Between El Centro and the U.S.-Mexico border, the pipeline would be constructed within Bowker Road. In Imperial County, the proposed line would cross I-8, State Highways 111, 78, and 98, and County Highways S26, S27, S28, and S80 and approximately 35 other smaller county agricultural roads. The Southern Pacific Railroad tracks would be crossed in Niland and El Centro. At approximately the forty-fifth mile of pipeline, the Alamo River would be spanned using an upgraded existing pipeline support structure.

Three valve stations would be constructed along the proposed line between Niland and Calexico, at the following intersections: Kershaw Road/Groshen Road, McConnell Road/Ralph Road, and Bowker Road/U.S.-Mexico border. All valve stations would be designed to accommodate future lateral connections to supply gas in areas as dictated by load requests.

A 3.6-mile-long, 16-inch-diameter lateral at the Bowker Road/Chick Road intersection would be installed as part of this project. The lateral pipeline would serve the Imperial Irrigation District electrical generating plant in El Centro. The new lateral would reinforce existing natural gas capacity to the plant and other potential customers in the vicinity (Figure PD-2).

### *Eastern Route Alternative*

Under the Eastern Route Alternative, the northern 68.6 miles of the pipeline from the Hayfield valve station to the stub-out at the Chick Road/Bowker Road intersection outside of El Centro would be the same as under the Western Route Alternative.

The pipeline would then turn east at the Chick Road/Bowker Road intersection and follow Chick Road east for two miles before turning south on Barbara Worth Road for the last seven miles to the U.S.-Mexico border. A valve station and measurement facilities would be constructed at its terminus. These last nine miles of the Eastern Route Alternative would cross under State Highway 98, eight smaller county agricultural roads, the All American Canal, and the New Briar Canal. The majority of the land uses along these southernmost miles of the Eastern Route Alternative are agricultural.

## *B. RIGHT-OF-WAY DESCRIPTION AND LAND REQUIREMENTS*

The proposed pipeline would be installed in easements of existing pipelines, in new easements to be obtained from property owners, and in streets and roads where the Gas Company has rights-of-way under its franchise agreements with city and county jurisdictions. The latter do not require any discretionary action by local jurisdictions.

The construction and installation of pipeline would require an easement greater in width than the permanent easement required for the pipeline. This construction easement is referred to as the working strip. Existing roads and disturbed areas would be a part of the working strip where the pipeline alignment is in or adjacent to roads.

The basic working strip width would be 75 feet to accommodate the various construction operations and heavy equipment required to construct the pipeline. In specific areas, the working strip would be narrower to avoid identified sensitive resources or to reduce construction difficulties. In other areas, construction constraints may require a wider working strip of up to a maximum of 100 feet in width. These conditions would be anticipated where terrain or other natural features necessitate a wide working area. For example, loose sand in washes would require a shallower angle of repose for the sides of the trench and hence a wider working strip. Human-made facilities such as canals or railroads may also dictate a wider working strip in order to bore under obstructions.

For the purposes of impact analysis, the basic width of the working strip is assumed to be 75 feet, with the following exceptions:

- The working strip would be approximately 50 feet wide in the one-half-mile-long desert tortoise mitigation area at mile 15. Because area has highly constrained topography, the 50-foot width is a guideline to be

approached. Geotechnical considerations may dictate that a working strip of up to 75 feet wide may be required in portions of this area.

- The working strip would be 100 feet wide in areas that have been identified as sandy washes, which constitute a total of approximately 5.5 miles.

This approach is conservative because it overestimates the potential for use of a 100-foot-wide working strip (not all sandy wash areas would need the wider working area). At the time that the engineering drawings for the project are drafted, a more precise delineation of areas requiring a 100-foot-wide working strip would be made and submitted to the BLM. This submittal would take the 5.5 miles of 100-foot-wide working strip as a ceiling to be reduced to a lesser level of impact. At the time of construction, additional physical constraints may be discovered requiring a 100-foot-wide working strip. These final refinements would be negotiated with the BLM, would likely entail only minor increments of the total area of impact, and would not cumulatively exceed the ceiling of 5.5 linear miles.

## *C. PIPELINE DESCRIPTION*

### *Pipe and Valve Descriptions*

The pipe used would be 36-inch outside diameter (O.D.) X-65 low alloy steel, ranging in wall thickness from 0.328 inch to 0.500 inch. The thickness of the pipe would conform with California Public Utilities Commission (CPUC) General Order Number 112-D. The thickness used would vary depending on the density of human habitation and structures along the route.

The outside of the pipe and all field joints would be coated with fusion-bonded epoxy to prevent corrosion. The entire pipeline would be cathodically protected to Department of Transportation (DOT) standards. Electrolysis test stations (ETS) would be placed above ground at a maximum of 2,000-foot intervals along the pipeline route for corrosion monitoring and surveillance.

All valves would be at least ANSI Class 400 or 600 and have a design pressure of 960 or 1,440 psi respectively. These valves would be manufactured per API 6D specifications and would be full opening, trunnion-mounted ball valves. These valves would be gear or pneumatic operated. Valve bodies would be buried with their operators extending approximately 24 to 36 inches above existing grade. Operators vary in size but would occupy an average space of 15 cubic feet. Blowdown stacks extend eight to ten feet above grade and would be constructed of 12-inch-diameter pipe with end closures. All valve stations would be within an area enclosed by a chain link fence.

All fittings (tees, ells, reducers, etc.) would be of the welded type, manufactured per MSS-SP75 specifications. These would have a pressure rating equal to or greater than the line pipe.

Line markers would be installed at various locations as required by government codes and at other appropriate points along the line. These locations would include all road crossings.

### *Compliance With Regulations*

Before construction, individual parcels of land required for the construction of the pipeline would be identified. Easements and permits would be secured from property owners and managing agencies, including the BLM. Required easements, permits, and regulatory approvals are summarized in Table I-1 in the Introduction to this EA.

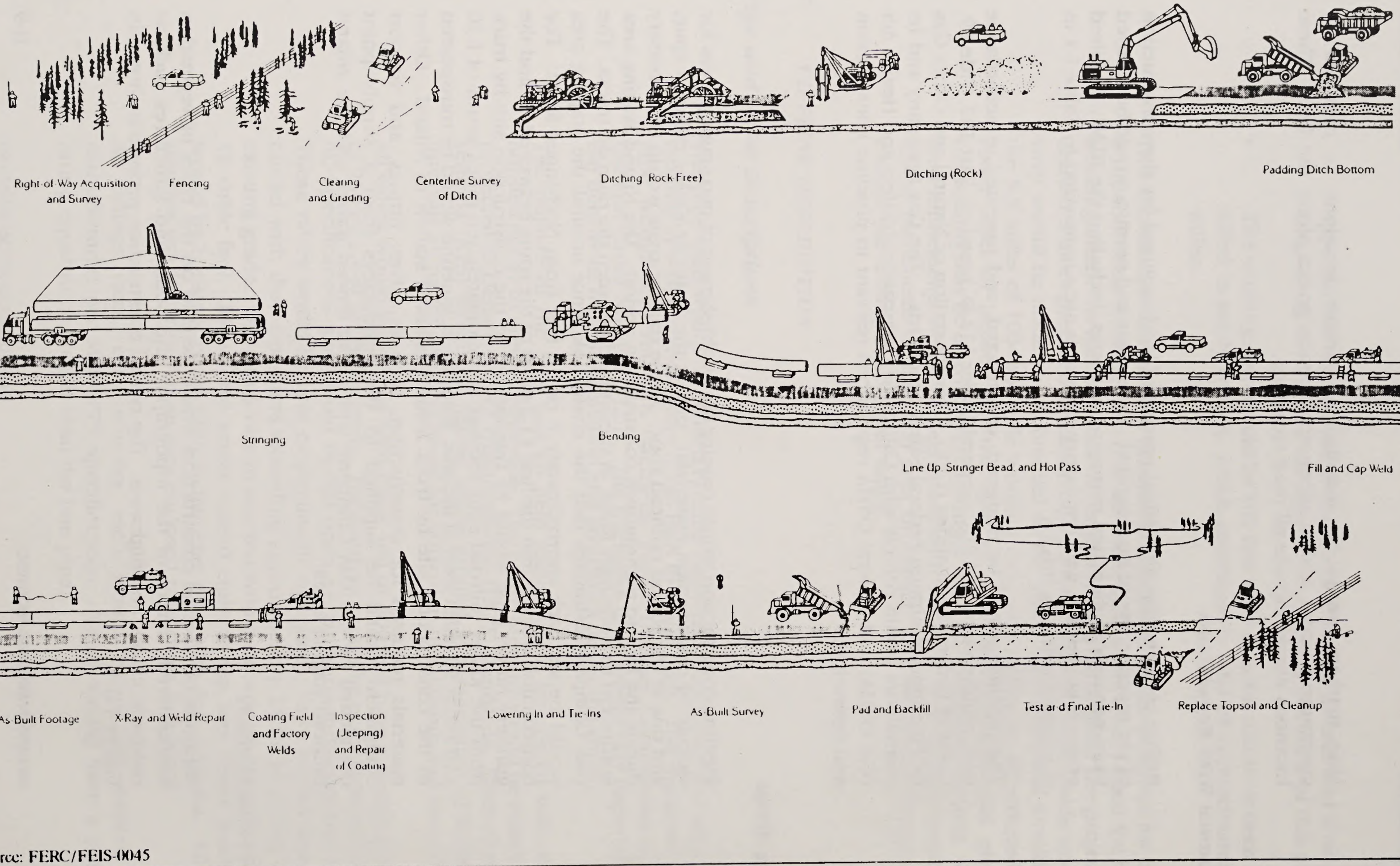
The pipeline would be designed, constructed, and operated in accordance with requirements of CPUC General Order 112-D, based on Part 192, Title 49, Code of Federal Regulations (CFR), "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards." The Gas Company and its contractors would comply with California Occupational Safety and Health Act (Cal OSHA) and Federal OSHA regulations relevant to pipeline construction and operation.

### *Staging Areas*

Pipeline construction would require the establishment of two staging areas for storage of construction materials: one at the Indio or Kaiser railhead spur, and one at the Niland railhead spur. These staging areas would be necessary during the five- to eight-month construction period. The Niland staging area is adjacent to Noffsinger Road, in vacant land between the railroad tracks. The Gas Company estimates that the chain link fence around the staging area would be set back approximately 8 or 10 feet from Noffsinger Road. For construction work within the first 11.2 miles of the route between I-10 and the gunnery range, pipe would be transported to the construction site by truck from the Kaiser railroad spur located approximately ten miles south of I-10 and about 50 miles west of the site. Elsewhere, pipeline would be transported to the construction site by truck from a railhead station in Niland. Other materials required for construction, such as valves, fittings, and support equipment would be supplied to the contractors from a supply point designated by the Gas Company within the fenced Kaiser and the Niland railhead staging areas.

### *Construction Methods*

Methods of pipeline construction would depend on the types of vegetation encountered, nature of the topography and soils, and structures such as railroads, canals, and highways. The typical construction process is shown in Figure PD-4.




Source: FERC/FEIS-0045

01-26-93(SCG201A)

Figure PD-4

LSA

Typical Pipeline Construction Sequence
SoCalGas Line No. 6902

Overland installation of the 36-inch-diameter pipe would require a trench with a minimum width of 48 inches, allowing six inches of clearance on each side of the pipe. The width of the working strip would usually be 75 feet, but may need to be increased in sandy areas that would require a wider trench to support the necessary angle of repose or within areas in which the trench width is controlled by geographic or topographic features such as narrow canyons or deep ravines. Approximately three feet of clearance is needed on each side where the pipeline makes major directional changes.

In most desert areas, the trench and related areas would be cleared and grubbed (i.e., "right-of-wayed"), but the rest of the corridor would have the vegetation crushed down. This procedure would leave topsoil and roots intact and encourage an accelerated revegetation. Fences in the construction zone may be temporarily removed to accommodate construction equipment and facilitate pipeline installation. Centerlines and outside borders of the working strip would be staked. Mechanical trenching machines would be used. If use of these machines is not feasible, a backhoe would be used.

Trenching through rock may require an alternate approach. Loose or unconsolidated rock would be broken up. A track-hoe would then be employed to remove the loose rock and soil from the trench. If the rock to be removed is consolidated, it could be loosened using small buried explosive charges.

Individual sections of pipe would be laid along the right-of-way parallel to the trench to be easily accessible to pipe handling equipment for subsequent bending and welding operations. A mechanical pipe-bending machine would be used to bend individual sections of pipe.

Welding of the pipe would follow the trenching operation. All welding would be conducted in conformance with CPUC General Order 112-D and API standards. Each welding operation would be visually inspected by the proponent's inspectors. Nondestructive testing of the completed welds would be performed in accordance with General Order 112-D and API Standard 1104. If any weld inspected either visually or radiographically fails to comply with these specifications, it would be repaired or cut out of the pipeline, and a new weld would be made to meet the standards.

Welding of factory-made "ells" or segments of ells would be used where excessive changes in the natural ground contours occur or where the route of the pipeline makes major directional changes. After welding, the pipe would be lowered into the trench.

Where terrain permits, as much as 4,000 feet of pipe could be placed in the trench at one time. In general, the trencher would be approximately one mile ahead of the pipe-laying process.

All trenching spoils would be temporarily placed to the side of the trench. Gaps in the spoils would be spaced at convenient locations for passage of

landowners and for adequate drainage and erosion control. Temporary trench crossings would be provided through the use of steel plates or earth plugs.

The pipe would be covered with relatively fine material before final backfilling of the trench. The minimum coverage would be 42 inches from the top of the pipe. This procedure will require a trench of at least eight feet deep to accommodate the pipe, pipe padding, and over-burden. In places, the pipe will be buried deeper.

Surplus spoils would be crowned over the trench and tapered from the center and/or spread uniformly over the right-of-way. As the backfill compacts, the crown would approximate natural surface contours. The entire disturbed area would then be fine graded. All remaining trash, brush, or debris would be disposed of in an approved manner.

### *Chocolate Mountains Aerial Gunnery Range*

Within the Chocolate Mountains Aerial Gunnery Range, pipeline construction workers would be briefed by the Marine Corps prior to the commencement of work regarding worker safety within a live ordnance area. If ordnance is encountered, pipeline construction within the gunnery range would cease until the area has been cleared by the Marine Explosive Ordnance Disposal (EOD) team. EOD technicians would clear the route prior to construction and accompany construction crews while in the gunnery range.

### *Crossings at Roads and Railroad Beds*

Pipeline crossings at unsurfaced, lightly traveled, or rural roads would be made with mechanical trenching machines in a manner similar to that for open terrain. Provision would be made to detour or to allow passage of traffic while construction is underway.

The proposed pipeline would be bored under I-10, I-8 east of El Centro, and County Highway S80. The pipeline will be cased under I-10 and I-8, and may be cased under S-80. The proposed lateral extension would be bored under State Highway 111 at Chick Road. The proposed line would be trenched through County Highway S26 between Calpatria and Brawley, State Highway 78 east of Brawley, County Highway S27 between Brawley and Imperial, County Highway S28 east of Imperial, State Highway 98 east of Calexico, and approximately 35 other smaller County roads.

The proposed pipeline route would be bored and cased under the Southern Pacific Railroad (SPRR) tracks in two places; south of the Niland valve station and outside of El Centro north of the I-8 crossing. Pipeline construction would take place in accordance with applicable SPRR requirements.

### *Crossings at Irrigation Canals, Drainage Trenches, and Rivers*

Four miles north of Niland, the pipeline would be bored under the Coachella Canal and the East Highline Canal. Between Calpatria and Brawley, line 6902 would span the Alamo River, paralleling the crossings for lines 6000 and 6001. Near the U.S.-Mexico border, the pipeline would be bored under the New Briar and All American canals. An encroachment permit from the Imperial Irrigation District would be obtained for spanning the Alamo River, if required. Canal crossing permits from the Coachella Valley Water District, the Imperial Irrigation District, and the U.S. Bureau of Reclamation, would be obtained.

### *Pipeline Tie-Ins to Valve Stations*

Improvements to the Hayfield valve station would involve the installation of a bypass line around line 5000 to accommodate the proposed new pipeline. Additional land would be needed for the pig receiver and launcher equipment at the Niland valve station, and for a new pig launcher at Hayfield. A pig receiver also would be installed at the pipeline's Calexico terminus.

### *Pressure Testing*

After construction is completed, the pipeline would be hydrostatically tested by filling the line with water and pressurizing the pipe to a predetermined level to verify its integrity. A gas test may be used for the section of the pipe from Hayfield to Niland to minimize activity within the gunnery range. This test would be performed in accordance with CPUC General Order 112-D. The test pressure would vary depending on pipe wall thickness.

The pipeline would be tested in lengths of from 10 to 12 miles as dictated by elevation differentials. Approximately 0.265 million gallons of water per mile of pipe would be required. The water would be directed from one pipeline section to the next to permit reuse in each testing increment of the pipeline. This test water would most likely be drawn from the Coachella and All American canals.

After completion of hydrostatic testing, the test water would be evacuated from the pipe segment by forcing an inflatable rubber ball (known as a "pig") down the line with natural gas. The test water would either be discharged by spreading and percolation/evaporation in accordance with appropriate local, state, and federal regulations or returned to irrigation canals for reuse. For spreading, the rate of discharge of the test water would be controlled to prevent erosion of local terrain.

### *Postconstruction Activities*

All debris and surplus materials would be removed from the site and disposed of in accordance with the requirements of agencies having jurisdiction. The terrain surface traversed by the pipeline would be restored, as much as is practical, to its original contours, with the following two exceptions. On steep slopes the construction zone would be protected against erosion by grading the cut areas during construction. In other areas with significant erosion potential, erosion control measures may include use of contours, bulkheads, culverts, and sack-breakers.

Permission would be obtained from the property owner in cases where construction procedures require the removal of private structures such as gates or fences. Temporary structures would be erected to replace the original ones during construction. After construction has been completed, the temporary structures would be removed and property restored to its original condition.

Warning signs would be placed at all points where the pipeline intersects with public rights-of-way and at other appropriate locations. These signs would customarily be placed at the edge of, and facing, the public right-of-way to indicate the presence of the high-pressure gas line, and would include the Gas Company's emergency telephone number. Additional markers would be installed to facilitate aerial surveillance.

### *Operation and Maintenance*

Operation and maintenance procedures already established by the Gas Company would apply to the new pipeline. These procedures incorporate the requirements of appropriate federal, state, and local codes, regulations, and ordinances. Included are U.S. Department of Transportation regulations contained in 49 CFR, Part 192, the California Occupational Safety and Health Act, and CPUC General Order 112-D.

### *Postconstruction Inspection*

The pipeline would be regularly inspected by land to detect any condition that might require preventive maintenance or that could adversely affect the operation of pipeline facilities or the public. Ground inspections would be made semi-annually in the Class I and II areas (see Health and Safety section) and quarterly within the Class III areas. All valves would be inspected annually and maintained in operating condition. This timetable would be a minimal inspection schedule. Additional on-the-ground inspections would be made after extreme storm events, seismic events, and other disturbances.

### *Repairs*

Any leaks, imperfections, or damage would be repaired or cut out and replaced by pretested materials of equal or greater strength and toughness. In making repairs, all safety precautions would be observed. Welders would be qualified by testing and approved welding procedures would be employed.

If a malfunction or failure should occur, the defective piece of equipment or section of line would be properly repaired. Priority would be given to the protection of lives and property, returning the pipeline to service, and effecting permanent repairs as well as to protecting the environment. Adequate procedures manuals, maps, diagrams, and records would be maintained to ensure that operating personnel could immediately determine the best responses and contingency actions.

### *Blowdowns*

"Blowdowns" are ventings of natural gas either during routine maintenance procedures, pipeline construction and relocation, or for emergency purposes.

As part of the annual valve station inspection and maintenance procedures, natural gas is vented from a pipe at the valve station, for approximately two minutes. This relief of pressure allows the Gas Company to make necessary repairs. The valves are remotely opened by the maintenance crew at a distance of approximately 30 feet from the valve station. The gas is vented from stacks eight to ten feet high. Prior to venting, the Gas Company notifies all local authorities, airports, and fire departments as to when and where venting would occur and informs them of the typical noise and odors associated with the procedure.

Blowdowns for emergency reasons, planned pipeline shutdowns and relocations, or the isolation at two valve stations typically last 30 minutes. The need for this kind of pipeline blowdown cannot be predicted. Some pipelines have required multiple ventings per year while others have never needed the procedure (J. Adams, pers. comm.).

### *Labor and Equipment*

Construction equipment would consist of the following machinery:

| Construction Stage | Equipment |
|---|---|
| Clearing and grading | Bulldozer |
| Hauling and stringing | Truck, tractor |
| Ditching | Ditcher/track-hoe |
| Bending pipe | Bender |
| Pipe laying | Tractor, welder, grinder |

| | |
|---|---|
| Lowering | Side boom, crane |
| Finishing | Bulldozer, grader |
| Worker shuttles | Pick-up truck, van |
| Dust control | Water truck |

Approximately 50 people constitute a construction crew or "spread." One spread would be employed to install the first 11.2 miles of pipeline between I-10 and the gunnery range. Between 200 and 300 people (four or six construction crews) would be employed to work along the 16.8 miles through the gunnery range. Approximately 50 people (one crew) would be employed in the 3.1 miles between the gunnery range and the Niland valve station. Approximately 100 people (two crews) would be employed to install the last 44.5 miles (western alternative) or 46.5 miles (eastern alternative) through rural agricultural areas. A pipeline inspection force of three or four people per spread would also be required throughout pipeline construction.

The pipeline construction contractor is expected to recruit about 50 percent of the necessary labor from the Los Angeles/Bakersfield area. The remainder of the labor force probably could come from across the country. Construction personnel would commute to the work site daily from interim residences in the Coachella and Imperial Valley areas. Gas Company employees would come from the existing bases within the service territory in southern California.

### *Construction Schedule*

If the pipeline were to be constructed as one continuous facility, construction would be scheduled to begin in January or February 1994. However, periodic construction might occur in noncontiguous segments. Pipeline construction would begin at the northern end of the line at the Hayfield valve station. The northern 11.2-mile segment of pipeline installation would be expected to be completed within six weeks. The 16.8 miles of the pipeline through the gunnery range would be installed in four to six weeks. The 3.1 miles of the pipeline between the gunnery range and the Niland valve station would be installed in a three- to four-week period. The remaining 44.5 miles of pipeline between Niland and Calexico would be installed in a ten- to 12-week period.

Outside the gunnery range, construction would generally be from Monday through Friday. Typically, construction would not take place outside daylight hours. Weekend work may occur as needed.

All pipeline work within the gunnery range would be performed during the construction period approved by the Marine Corps. During pipeline work within the gunnery range, construction may occur around the clock, seven days a week, to minimize disruption of aerial gunnery operations by the U.S. Navy and Marine Corps.

## D. OTHER ALTERNATIVES

The Western Route Alternative and the Eastern Route Alternative were introduced in the discussion of the Project Location above. These alternatives affect the southernmost part of the proposed pipeline. In addition, two other alternative routes for the northern part of the pipeline, an increased pressure alternative and a no-action alternative, were considered. The proposed route, with its western and eastern alternatives and the No-Action Alternative, are considered throughout this document. The two route alternatives for the northern part of the pipeline and the increased pressure alternative are briefly discussed and then dropped from further consideration for the reasons stated below.

### *Box Canyon Alternatives*

Two alternative routes for the northern half of the pipeline were considered. Both would originate at the Gas Company's Cactus City compressor station, approximately 20 miles west of the Hayfield valve station, and would pass through Box Canyon located on SR 195, just south of I-10, west of Hayfield. One alternative follows the SPRR right-of-way; the other follows the Coachella Canal right-of-way. Both alternative routes are approximately 54 miles long and rejoin the preferred route at the Niland valve station. The preferred route, in comparison, would be 31.1 miles long from I-10 to the Niland valve station.

These alternative routes are within the Chuckwalla Crucial Habitat Area. This area is designated by the California Department of Fish and Game (CDFG) and recognized in the BLM's Desert Plan. Both alternative routes would pass through Box Canyon, a relatively pristine area with no existing utility corridors. Based on a preliminary biological opportunities and constraints analysis, these route alternatives would traverse approximately five to six miles of category I desert tortoise habitat, would disturb an undetermined but substantial amount of desert washes, would intersect more streambeds, and would affect a greater acreage of potential wetlands than the direct Hayfield-Niland pipeline route. Based on these findings the two Box Canyon route alternatives were not evaluated further, in favor of the shorter and less environmentally damaging preferred route.

### *Increased Pressure Alternative*

The increased pressure alternative would increase the pressure on the existing pipelines so that a greater rate of natural gas could be delivered. This alternative was rejected by the Gas Company at an early stage because the allowable pressure increase would not result in a capacity increase great enough to meet future loads. First, the diameter of the existing pipe limits the physical capacity of the system. Second, the supply source pressure is limited by the design factors of line 5000. Finally, the design level of line 6000, which

is only 400 pounds per square inch south of Niland, limits the flow rate in this line.

### *No-Action Alternative*

Under this alternative, the Gas Company would not construct the proposed line 6902. Gas flows from lines 6000 and 6001 would continue serving Imperial Valley customers and would not be increased. Demands for energy could be met by alternative fuels, primarily oil and other petroleum products with potentially greater air pollutant emissions than natural gas. Additional electrical generating capacity may also be necessary to meet existing peak and future demands. Intermittent service interruptions for maintenance of lines 6000 and 6001 would continue to affect certain customers in the Gas Company's service area and may increase without additional energy supplies.

## *E. OPERATIONS AND MAINTENANCE*

The proposed line 6902 would replace existing SoCalGas line 6000, in the desert portion of the project area. Line 6000 would be abandoned in place. Maintenance activities for line 6902 as well as the existing lines include inspection and repair of cathodic protection equipment, roads, and valves along with regular patrols on the pipeline.

### *Cathodic Protection*

Testing the cathodic protection involves driving along the pipeline and evaluating the status of the equipment. The existing SoCalGas cathodic protection rectifiers would be used for line 6902 in the desert portion of the project area. To the south, a minimum of two new rectifiers would be installed and maintained. Meters would be read on a monthly basis to check the voltage on the cathodic protection and to adjust if needed. Other ETS (electric test stations) would be read annually.

### *Road Maintenance*

Gas Line Road in the desert portion of the project site would continue to be maintained by the Gas Company. Depending on weather conditions, the dirt road would normally be graded annually or more frequently when needed to maintain access to the facilities. To the south, the pipeline would be serviced along existing county roads.

### *Valve Maintenance*

Valve stations would be visited semi-annually at a minimum to inspect and test the automatic line break controls. Valves would be greased and manually operated not less than once a year.

### *Patrols*

Inspection of the pipeline would be accomplished by semi-annual vehicle surveys. The line would be surveyed with leakage detection equipment every four years.

# III. ENVIRONMENTAL SETTING

## A. *LAND USE*

### *Introduction*

The proposed pipeline, including both the western and eastern alternatives, would be located in Riverside and Imperial counties. Lands traversed by the pipeline would include private lands and public lands administered by the BLM and the U.S. Department of the Navy (Navy) (Figure A-1). Land uses in the project vicinity include vacant Desert Conservation Areas north of the Chocolate Mountains, military exercise areas used by the Navy and Marine Corps within the Chocolate Mountains, and agricultural lands between Niland and Calexico.

### *Western Route Alternative*

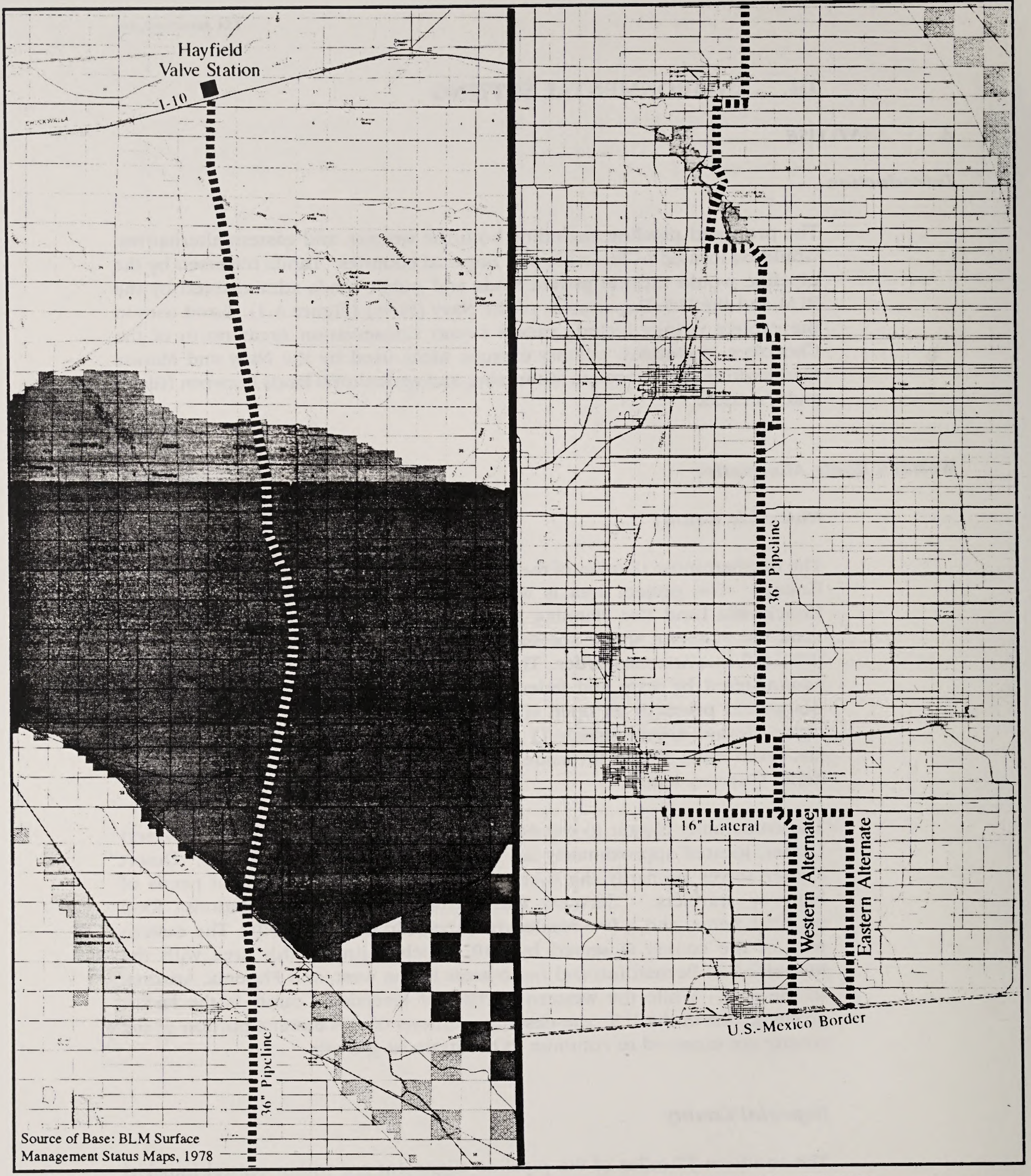
#### *Riverside County*

The northernmost 18 miles of the proposed alignment are in eastern Riverside County. The project area is within the Riverside County General Plan's Chuckwalla Land Use Planning Area. Development within the Chuckwalla Land Use Planning Area is sparse, outside the incorporated area of Blythe, at the California/Arizona border. The majority of the area is publicly owned and administered by state and federal agencies. This planning area has been designated primarily as open space. Mining claims exist in the proposed rights-of-way. Approximately 11 mines are in the surrounding foothills. The last seven miles within Riverside County is within the Chocolate Mountains Aerial Gunnery Range.

The community closest to the north end of the project alignment is Desert Center, located approximately ten miles east of the site along I-10. Desert Center serves primarily the tourist, commercial, and recreational needs of highway travelers. Services and facilities include gas stations, food establishments, and a few residences (Riverside County 1990). The eastern part of the county is served by I-10, which connects this area with the Riverside/San Bernardino and Indio areas to the west, and Phoenix, Arizona, to the east. While the western portion of Riverside County is the fastest growing area in the U.S., the desert conditions of this eastern portion of the county are expected to continue to constrain its growth.

#### *Imperial County*

The southern 57 miles of the pipeline alignment are within central Imperial County. The first ten miles of this portion of the pipeline alignment are within the gunnery range; the remainder is located in the Imperial Valley. Imperial Valley is irrigated for agricultural purposes by an extensive system of




03-02-93(SCG201A) NORTHERN SECTION SOUTHERN SECTION Figure A-1

N

LSA

Scale in miles

0 4.5

Private Lands
Public Lands Administered by BLM
Military Reservation
Gas Line Road

Land Ownership and Jurisdiction
SoCalGas Line No. 6902

canals, drains, and laterals operated by the Imperial Irrigation District. The county's limited urban areas are located primarily one to two miles west of the route and include Niland, Calpatria, Brawley, Imperial, El Centro, Heber, and Calexico. Holtville is located east of the route. Other nearby land uses include a few rural residences, the Imperial Irrigation District Western Division's All American Canal field office, the Meadows Union School, and the Bravo Ranch; all are in the vicinity of El Centro. The proposed pipeline alignment would be primarily within county rights-of-way and would avoid crossing agricultural fields.

### *Bureau of Land Management*

The pipeline would traverse approximately 8.6 miles of BLM land. Within the BLM lands, the pipeline would closely parallel the two existing gas pipelines along Gas Line Road. As noted previously, this portion of the pipeline is within the California Desert Conservation Area (CDCA), locally administered by the BLM. The CDCA plan establishes goals for both protection and use of the desert, designates multiple use classes for the lands involved, and establishes a framework for managing the various resources within these classes. As identified in the CDCA plan, the pipeline route is not within a designated utility corridor. However, the two existing pipelines that were in place prior to the 1980 CDCA plan have an existing right-of-way that was allowed in the CDCA (Brady pers. comm.). The project is a replacement for one of those pipelines and is, therefore, consistent with the CDCA plan. A right-of-way grant would be required under section 28 of the Mineral Leasing Act.

The northern half of the proposed line is also within the Chuckwalla Bench. This area has been designated as an Area of Critical Environmental Concern (ACEC) in the CDCA Plan, in recognition of unique wildlife and vegetation values that require special management attention.

### *U.S. Department of the Navy and the Marine Corps*

The Marine Corps administers the gunnery range. For safety and security reasons, the gunnery range is inaccessible to the general public under any conditions. Throughout the gunnery range, Gas Line Road is within a no-ordnance zone. Clearance from the Marine Corps' Yuma Arizona Air Station would be required prior to site visitations and construction within the gunnery range area.

## *Eastern Route Alternative*

### *Riverside County*

The Riverside County land uses traversed by the Eastern Route Alternative would be the same as those described for the Western Route Alternative.

### *Imperial County*

Under the Eastern Route Alternative, the pipeline would follow the same route in Imperial County as the Western Route Alternative, except for the southernmost nine miles. Land uses along this nine-mile segment would be primarily agricultural. The most populated area along this portion of the alternative is located due south of the State Highway 98 intersection with Barbara Worth Road where a restaurant and four residences exist.

### *Bureau of Land Management*

As with the Western Route Alternative, the Eastern Route Alternative would traverse eight miles of BLM lands. The alignment's location with the CDCA and ACEC is the same as is described under the Western Route Alternative.

### *U.S. Department of the Navy and the Marine Corps*

The location of the pipeline within lands administered by the Navy would be the same as described in the Western Route Alternative.

## B. SOCIOECONOMIC CONSIDERATIONS

Socioeconomic effects associated with the project would be concentrated in two regions: first, in the I-10 corridor of Riverside County and, then, in the Imperial Valley in Imperial County. The major communities located in the I-10 corridor include Blythe, Coachella, and Indio, along with smaller towns such as Desert Center and Chiriaco Summit. Communities in the Imperial Valley include Brawley, Calpatria, El Centro, Holtville, and Imperial. The Imperial Valley region includes the urban areas in the county except for Calexico at the southern boundary of the county. Crews would not likely be housed in Calexico because ample housing is available in towns more centrally located to the project.

### *Western Route Alternative*

#### *Population*

From 1980 to 1990, population in the I-10 corridor increased 80 percent and is expected to grow to 131,000 in the year 2000 (Riverside County 1989) (Table B-1). The population of Imperial County increased 30 percent (California Almanac 1991). Imperial Valley comprises approximately 82 percent of the total county population. Countywide growth trends can be expected to be representative of growth trends in the Imperial Valley, and the total population of the Imperial Valley can be predicted to be approximately 117,000 in the year 2000.

#### *Employment and Income*

As shown in Table B-1, the I-10 corridor had a total civilian labor force of 47,000 in 1990, an unemployment rate of 9.8 percent (approximately three percent higher than the county average), and a median household income of $25,233. Imperial Valley had a total civilian labor force of 35,000 in 1990, an unemployment rate of 13.4 percent (approximately 6.6 percent lower than the county average), and a median household income of $24,015.

#### *Housing*

##### *I-10 Corridor*

*Housing Units*. The most recent aggregate data on housing for the I-10 corridor are from the 1990 census. The I-10 corridor had 34,200 total housing units, which represent seven percent of the housing units in Riverside County at 2.89 persons per unit. Approximately 81 percent of the units were occupied. Of the vacant units, approximately 1,200 were rental units. Assuming that housing expanded commensurate with population

**Table B-1. Economic Indicators**
**SoCalGas Pipeline No. 6902**

| Indicator | I-10 Corridor | Imperial Valley |
|---|---|---|
| Population | 99,000 | 89,000 |
| Annual Population Growth Rate (1980-1990) | 2.8% | 2.8% |
| Total Housing Units | 34,200 | 31,300 |
| Civil Labor Force | 47,000 | 35,000 |
| Unemployment Rate | 9.8% | 13.4% |
| Median Household Income in 1989 | $25,233 | $24,015 |

Source: 1990 U.S. Census Summary Tape Files 1A and 3A.

growth, approximately 37,200 housing units and 1,300 rental units are in the region in 1993.

*Hotels and Motels.* The American Automobile Association (AAA) lists nine hotels and motels in Indio, Blythe, and Coachella with a total of approximately 670 rooms and an average rate of $39 per night. The list does not include lodgings not recommended by AAA. This analysis assumes 2.5 times as many accommodations available for construction crews than listed by AAA. For example, while AAA lists approximately 475 rooms in El Centro and 39 in Brawley, approximately 1,200 and 100 rooms are in each city, respectively (Skillman pers. comm.). The vacancy rate for hotels and motels varies from approximately ten percent in summer to three percent in winter (LSA Associates 1989). Because construction is scheduled to take place in both winter and spring, a vacancy rate of five percent is assumed, which equates to approximately 84 available rooms in the I-10 corridor region.

*Imperial Valley*

*Housing Units.* Imperial Valley had approximately 31,300 total housing units in 1990, comprising approximately 85 percent of the total housing units in Imperial County. Average occupancy was 2.84 persons per unit. Approximately 88 percent were occupied. Of the vacant units, approximately 700 were available for rent. Using the extrapolation described above, Imperial Valley had 34,000 total units and 760 rental units in 1993.

*Hotels and Motels.* The AAA list includes six lodgings with a total of approximately 512 rooms in the Imperial Valley region. Using the above assumptions and a five percent vacancy rate, approximately 64 rooms are available. The average nightly room rate is $31.

### *Eastern Route Alternative*

The socioeconomic setting for this alternative would be the same as for the Western Route Alternative.

## C. VISUAL RESOURCES

### Introduction

Visually, the pipeline route can be grouped into four segments, from north to south: northern low desert (elevations 1,400 to 2,000 feet above mean sea level [msl]), the Chocolate Mountains (elevations 2,000 to 2,400 feet above msl), southern low desert (elevations 1,000 feet above to 50 feet below msl), and agricultural areas (10 feet above to 175 feet below msl).

### Western Route Alternative

#### Northern Low Desert

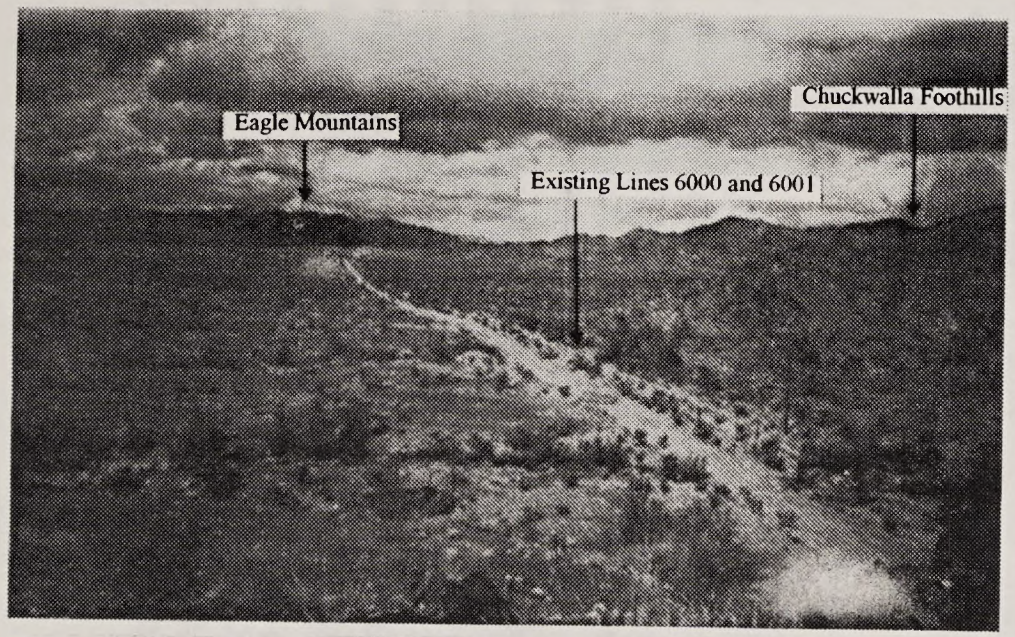
The visual character of this section of the pipeline route is characterized as a flat to gently sloping, sparsely vegetated desert bench. The portion of the corridor begins at the Hayfield valve station, located north of I-10 (Figure C-1, photograph 1). At the northern edge of this segment, the Hexie and Eagle mountain ranges are visible in the background north of I-10, while the Orocopia and Chuckwalla mountain ranges are visible south of I-10. According to the Riverside County General Plan, the I-10 corridor within this area is eligible for designation as a Scenic County Highway.

The route between I-10 and the Chocolate Mountains gradually rises as it parallels Gas Line Road. The existing gas lines 6000 and 6001 share a utility corridor alongside Gas Line Road and may be discerned as two parallel linear berms. An electric utility line is prominent in views as it parallels Gas Line Road. Spoils from small mine claims, old remains of campsites, and trash are visible in views along Gas Line Road.

The vegetation consists of low-lying desert scrub with a low to moderate density of taller vegetation such as smoke trees (*Dalea spinosa*), creosote bushes (*Larrea tridentata*), and ocotillo (*Fourquieria splendens*) (Figure C-1, photographs 2 and 3). Patches of desert pavement form a dark mosaic of soil and rocks and are visible over approximately one-quarter of the surface soils in this area.

The Chocolate Mountains become more prominent in views of and from the alignment as it heads south. The base of the Chuckwalla Mountains is located close to the eastern side of Gas Line Road. Many small dirt roads are visible from the route as they lead toward numerous mining claims in the foothills. Numerous other smaller trails created by off-highway vehicles (OHVs) are also prominent in the landscape. The Orocopia Mountains are visible in the distance to the west.


Photograph 1. View of Hayfield valve station in relation to the westbound lane of I-10. The Hexie and Eagle mountain ranges are seen in the background.




Photograph 2. View looking north of Bureau of Land Management land along the Gas Line Road pipeline route approximately five miles south of I-10.


Photograph 3. View of Bureau of Land Management land along pipeline route looking south toward the Chocolate Mountains in the distance.

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Figure C-1

Site Photographs—I-10 Corridor and
Bureau of Land Management Land
SoCalGas Line No. 6902

LSA

### *Chocolate Mountains*

The most impressive visual resources along the proposed pipeline route are within the Chocolate Mountains (Figure C-2, photograph 4). Access through the Chocolate Mountain Aerial Gunnery Range is restricted by the U.S. Marines and therefore views of the gunnery range are limited to authorized personnel and pilots. The canyon followed by the pipeline route in the Chocolate Mountains widens to about 5,000 feet as it opens out on the south side of the range into a broad desert alluvial apron. Trees and shrubs are visible within the numerous sand and gravel bars that occur along the drainages within the meandering desert wash system.

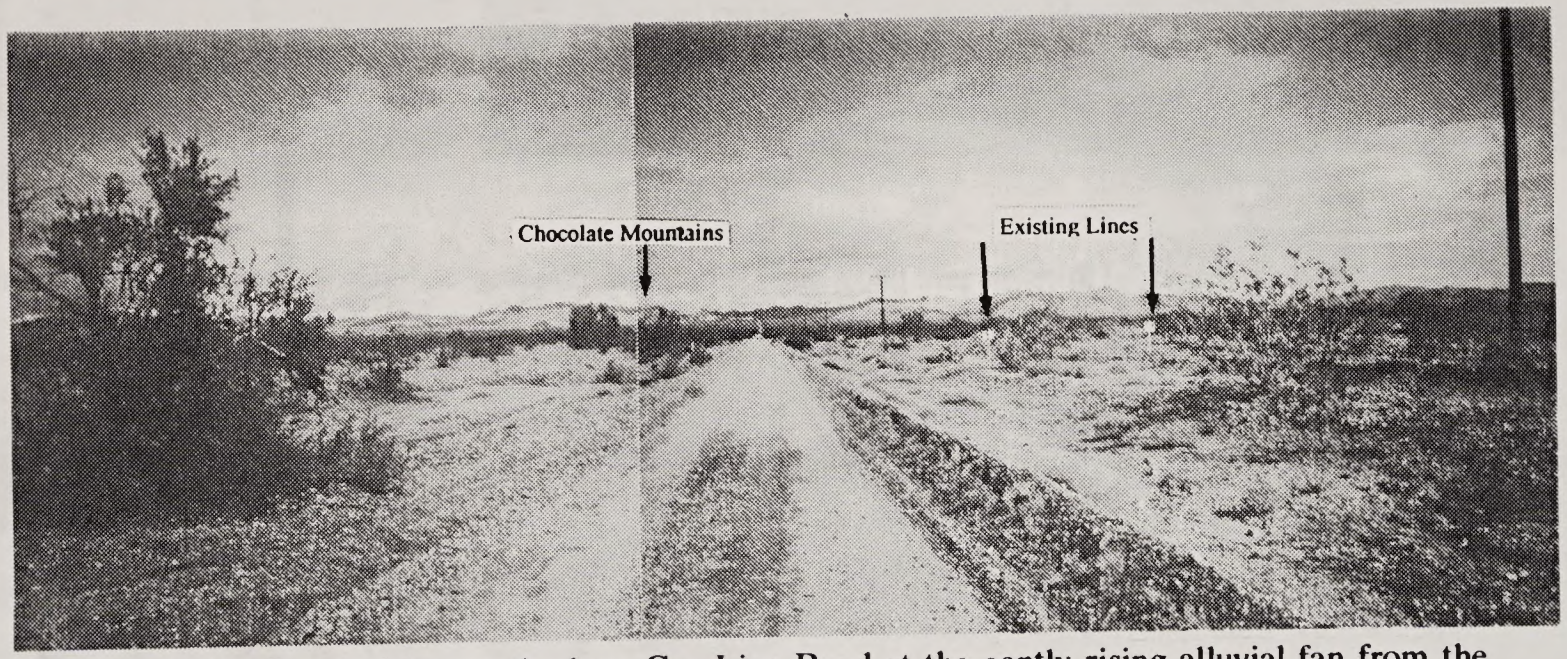
### *Southern Low Desert*

The general appearance of the south side of the Chocolate Mountains is similar to that of the north side. However, the vegetation cover is less dense and the desert pavement appears more disturbed. This area is characterized by a gently sloping alluvial fan (Figure C-2, photograph 5). No mountains are visible in views south down this fan. At the base of this fan, the pipeline would traverse under the Coachella Canal, representing the boundary of the restricted access area along Gas Line Road (Figure C-3, photograph 6). Portions of the next 0.6 miles on either side of Gas Line Road have been altered due to sand and gravel removal operations. South of the Coachella Canal, areas of tree and shrub cover are visible within wash and canal areas (Figure C-3, photograph 7). South of the East Highline Canal crossing, a few agricultural parcels (orchards and fields) are visible. Several rural residences and one trailer park are visible across Beal Road from the Niland valve station.

### *Agricultural Areas*

The visual resources along the 44.5 miles between Niland and Calexico are characterized by agricultural fields in various phases of cultivation. The pipeline passes by a few residences in the vicinity of the East Highline Canal and Beal Road intersection. A few isolated stands of mature trees, typically *Eucalyptus*, can be seen along the routes associated with homesites. Approximately 82 canals, laterals, and/or drains are visible along the route (Figure C-3, photograph 8). North of Brawley, the existing pipelines are visible as they traverse the Alamo River (Figure C-3, photograph 9). The communities of Calpatria, Brawley, Imperial, El Centro, Holtville, and Calexico are barely visible from the pipeline alignment. The closest habitable and most populated buildings with views of part of the corridor are located east of El Centro. These areas include the Imperial Irrigation District office near the All American Canal, the Meadows Union School south of S80, and the Bravo Ranch near the U.S.-Mexico border (Figure C-4, photographs 10, 11, and 12).


Photograph 4. View of Gas Line Road looking north as it passes through the center of the Chocolate Mountains. Existing lines are located east of the road.




Photograph 5. View looking north along Gas Line Road at the gently rising alluvial fan from the Chocolate Mountains. Existing gas lines are located along the east side of the road.

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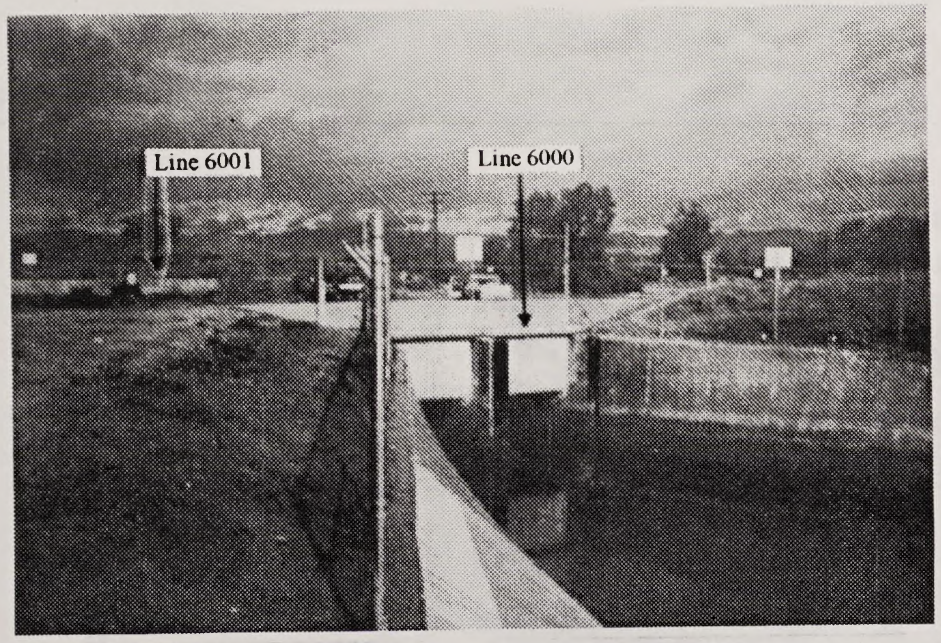
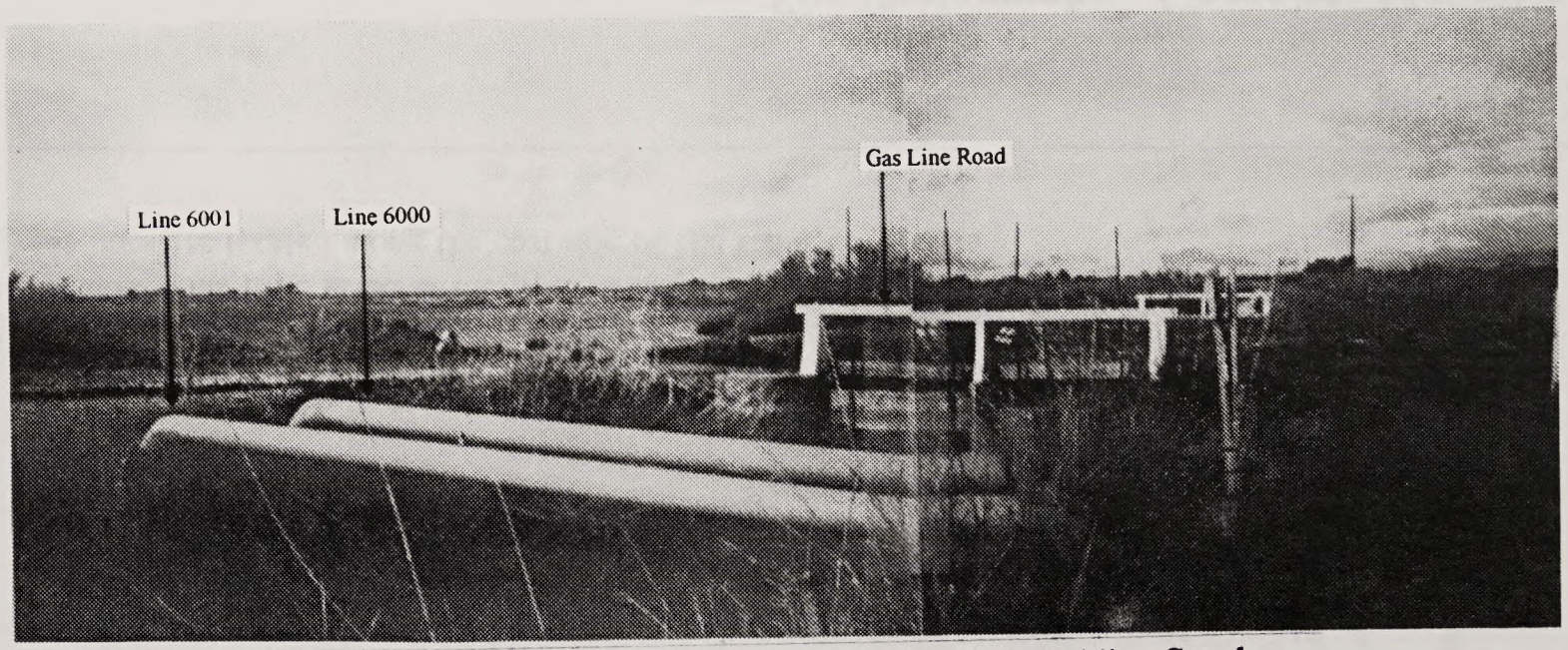
Figure C-2

Site Photographs—Chocolate Mountains
Aerial Gunnery Range
SoCalGas Line No. 6902

LSA

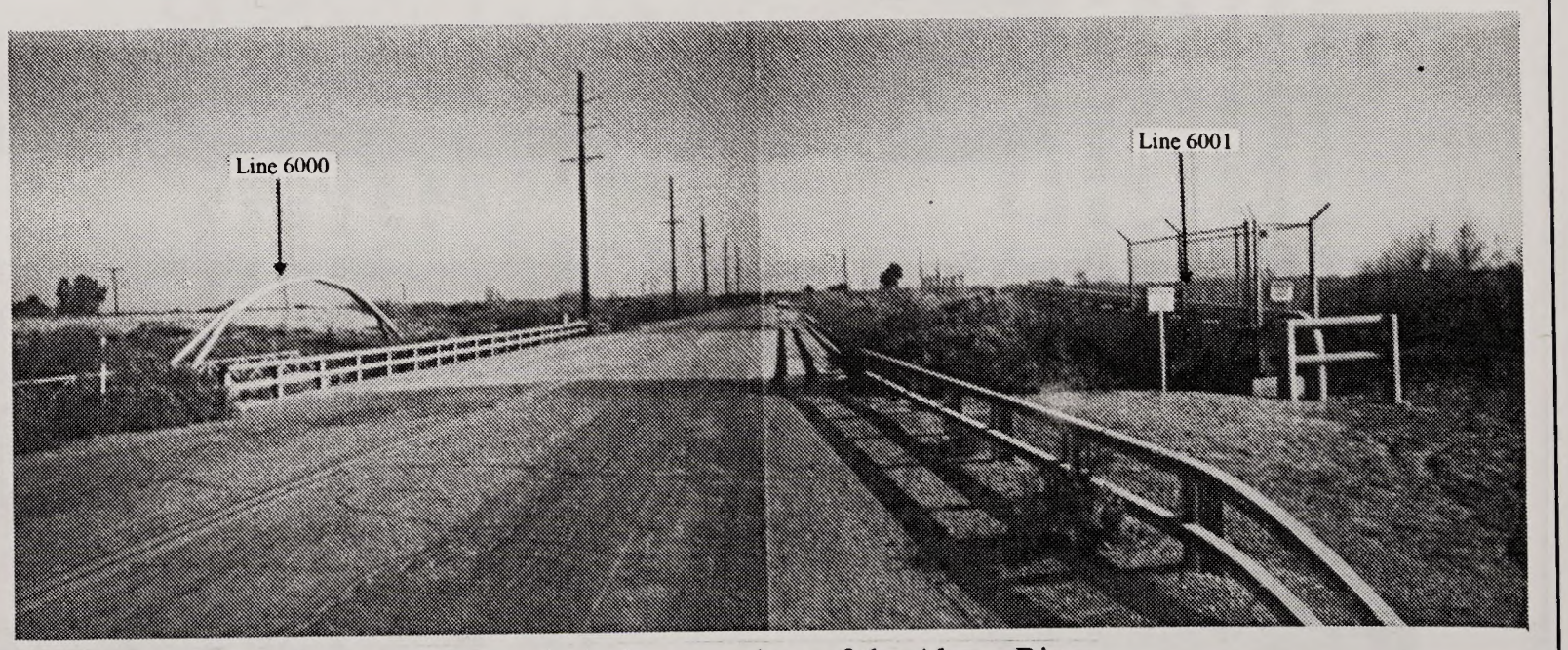



Photograph 6. Gas Line Road and existing pipelines crossing the Coachella Canal.




Photograph 7. Gas Line Road and existing pipelines crossing the East Highline Canal.

Photograph 8. Bowker Road crossing the Main Canal.




Photograph 9. The Kershaw Road and pipeline crossings of the Alamo River.

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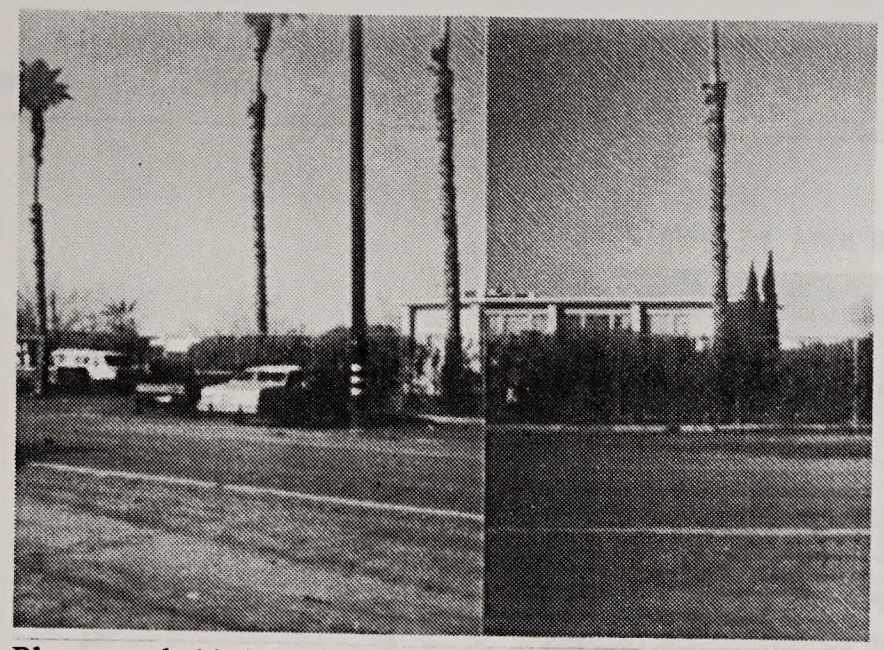
Figure C-3

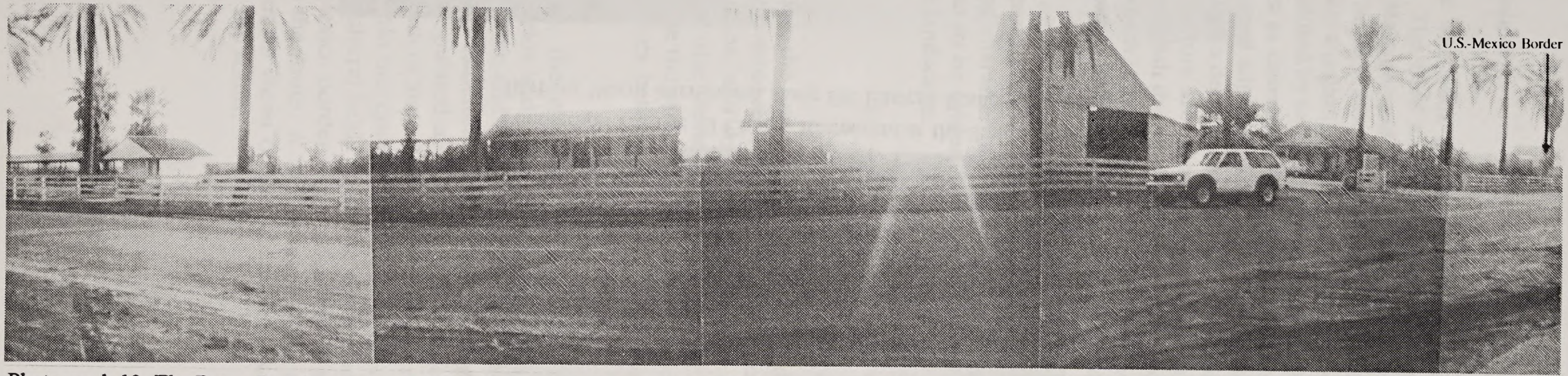
LSA

Site Photographs—Waterway Crossings
SoCalGas Line No. 6902



Photograph 10. Meadows Union School on Bowker Road.

Photograph 11. Imperial Irrigation District's Western Division All American Canal Office along the Western Route Alternative.




Photograph 12. The Bravo Ranch at the end of Bowker Road and the Western Route Alternative.

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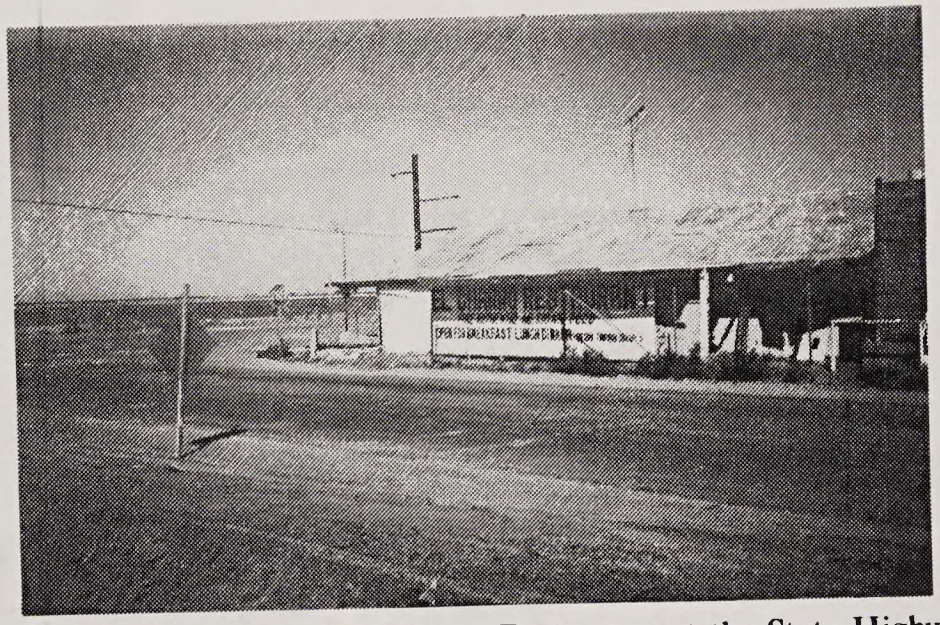
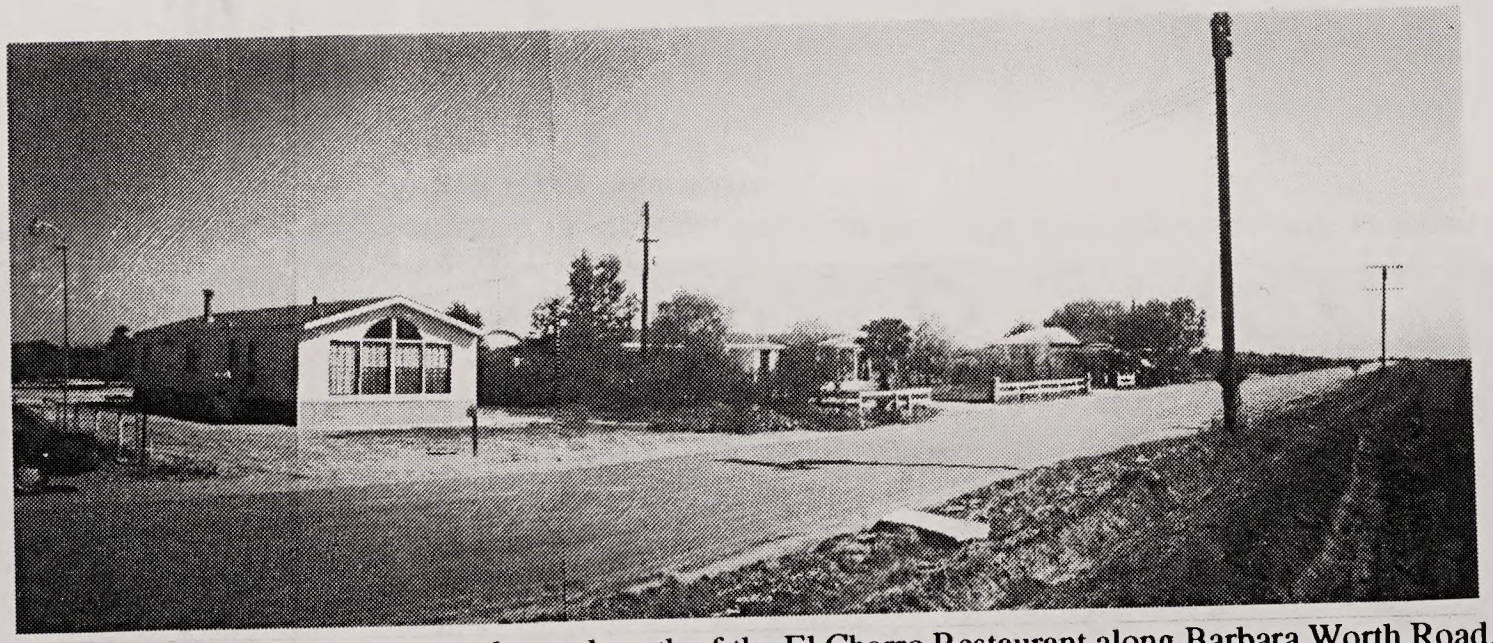
Figure C-4
(page 1 of 2)

LSA

Site Photographs—Sensitive Visual Receptors
SoCalGas Line 6902



Photograph 13. The El Charro Restaurant at the State Highway 98/ Barbara Worth intersection along the Eastern Route Alternative.



Photograph 14. Four residences located south of the El Charro Restaurant along Barbara Worth Road.

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Figure C-4
(page 2 of 2)

LSA

Site Photographs—Sensitive Visual Receptors
SoCalGas Line 6902

### *Visual Resource Management*

A total of 8.6 miles of the line 6902 pipeline route are on federal lands administered by the BLM. The BLM employs a visual management system known as Visual Resource Management (VRM). VRM is used for both land management and project impact assessment. In this system, landscape character types are defined for a region. Areas are rated in one of three scenic quality classes which are modified by sensitivity level, representing an estimate of public concern for an area as determined by a number of variables such as type of user, amount of use, and adjacent land uses. The classifications of an area are further defined through a determination of distance zones from which an area is viewed. These factors are combined to make up several VRM Classes, which are used to establish the VRM Objective for a specific land area. Classes range from Class I, which is most restrictive of visual modifications, to Class IV, which allows the most changes to the existing landscape.

Through the land administered by the BLM, the proposed alignment is in an area of VRM Class III. Class III allows moderate levels of change while partially retaining the existing character of the landscape. Under this class, a managed activity is permitted to be evident, but not bring attention to itself as a dominant feature in the landscape.

### *Eastern Route Alternative*

In the Eastern Route Alternative, the first 68.6 miles would be the same as the Western Route Alternative. The visual resources described under the northern low desert, Chocolate Mountains, and southern low desert visual resource segments would be identical to the Western Route Alternative. The Eastern Route Alternative would traverse the same BLM VRM Class III land. The only difference in the visual resources between route alternatives is within the agricultural areas.

Between Niland and Calexico, the eastern route traverses lands visually characterized by agricultural fields and sparse housing. Between the Chick/ Bowker roads intersection and the end of the Eastern Route Alternative, the route is characterized by sparse residential uses and one isolated commercial (restaurant) use. The most populated area along this last segment of the Eastern Route Alternative is south of State Route 98, where the restaurant and four residences are located within one quarter mile of each other (Figure C-4, Photographs 13 and 14). Agricultural fields dominate views along the Eastern Route Alternative to the U.S.-Mexico border. Approximately 99 canals, lateral, and/or drains are visible from the route. A 15-foot levee along the New Briar and All American canals separates views of the agricultural fields from the urban Mexican community to the south.

## D. TRAFFIC

### *Introduction*

Regional access to the project alignment within Riverside County is provided by I-10 from the northern point of the site, while north-south access is provided by Gas Line Road. Regional access to the project site within Imperial County is provided by I-8 and State Highways 111, 78, and 98.

### *Western Route Alternative*

The proposed pipeline would originate at the Hayfield valve station on the north side of the I-10 easement, approximately ten miles west of Desert Center. It would extend southward under the I-10 and parallel along the east side of Gas Line Road for approximately 31.2 miles until tying into the Niland Valve Station on Noffsinger Road.

The southern 44.5 miles of pipeline would be constructed within the rights-of-way of paved and unpaved roads that roughly parallel the southerly route of State Highways 111 and 115, major roadways between Niland and Calexico. Table D-1 lists all the roads paralleled and intersected by the first 68.6 miles of the pipeline route and by the Western and Eastern Route Alternative endings.

The proposed alignment would require a construction right-of-way 75.6 miles long. Line 6902 would traverse through Caltrans rights-of-way including the I-10 right-of-way, I-8, and State Highways 78, 98, and 115. Local traffic rights-of-way include four County Highways: S26, S27, S28, and S80. The Southern Pacific Railroad tracks would be crossed twice, once in Niland and once in El Centro.

### *Eastern Route Alternative*

The northern 68.6 miles of the pipeline road(s) traversed by the Eastern Route Alternative would be the same as described under the Western Route Alternative. The eastern route would then turn east on Chick Road and travel two miles before turning south for seven miles along Barbara Worth Road. Table D-1 lists roads paralleled and intersected by the route.

**Table D-1 - Summary of Road Crossings**
**SoCalGas Pipeline No. 6902**

| Area | Main Road Paralleled | Road Intersections Traversed |
|---|---|---|
| Hayfield | Gas Line Road (dirt) | I-10 (westbound lanes), I-10 (eastbound lanes), Red Cloud Mine Road (dirt), Bradshawtrail (dirt) |
| Niland | Gas Line Road (dirt) | Coachella Canal Road (dirt), Beal Road |
| | Cross Country | Southern Pacific Railroad, Noffsinger Road, Welch Road, Pound Road |
| | Blair Road | McDonald Road, Simpson Road, Merkley Road, Sinclair Road, Hoober Road, Peterson Road, Montgomery Road, Lindsey Road |
| Calpatria | Kershaw Road | Young Road, Main Street, Bowles Road, Yocum Road, Albright Road, Brownell Road, Dowden Road |
| | Rutherford Road (S26) | |
| Brawley | Dietrich Road | Shank Road, State Highway 78 (Main Street), Mead Road |
| | McConnell Road | Carey Road, Keystone Road (S27), Harris Road, Ralph Road, Robinson Road |
| Imperial | McConnell | Worthington Road (S28), Huston Road, Holton Road |
| El Centro | Bowker Road | Southern Pacific Railroad, Main Street (S80), Ross Road, Dealwood Road, I-8 |
| **Western Route Alternative** | | |
| El Centro | Bowker Road | Chick Road, McCabe Road, Correll Road, Heber Road, Fawcett Road |
| Calexico | Bowker Road | Jasper Road, Cole Road, State Highway 98, Anza Road |
| **Eastern Route Alternative** | | |
| El Centro | Chick Road<br>Barbara Worth Road | Melloland Road, Hilfiker Road, McCabe Road, Abbatti Road, Heber Road, Fawcett Road |
| Calexico | Barbara Worth Road | Jasper Road, State Highway 98 |

Note: Table lists all through-road intersections. Additional roads could be affected by the pipeline route if construction occurs across those roads which "T" at the main road.

## E. VEGETATION AND WILDLIFE

This section is based upon and summarizes the Biological Assessment, which is included as a technical report to this Environmental Assessment (Volume II). Please refer to the Biological Assessment for greater detail.[1] Wetlands are addressed separately in Section F of this Environmental Assessment.

### *Introduction*

#### *Regulatory Context*

Special status species are those which are state or federally listed as endangered or threatened, are candidates for listing, are state Species of Special Concern, or are on lists prepared by the California Native Plant Society. Definitions of these categories of special status species are listed at the end of Table E-1.

An incidental take permit may be granted by the USFWS for the "take" of a federally listed species, in the course of performing an otherwise lawful activity. Take is defined at the federal level as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." If there is the potential for take of a state listed species, a management agreement, as provided for under Section 2081 of the Fish and Game Code, may be required. Alternatively, CDFG may adopt the federal Biological Opinion as the written findings required pursuant to Section 2090 of the Fish and Game Code (Hoover and Sudduth, pers. comms.).

#### *Methods*

Existing published and unpublished literature sources were researched. Locally knowledgeable persons and biologists from the Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG) were consulted. A records search of the California Natural Diversity Data Base (CNDDB 1993) for element occurrences within the project area was conducted. Based upon this input, a list of potentially occurring special status species was compiled (Table E-1).

Prior to the biological field investigation, the pipeline route had been surveyed and marked with lath stakes and flagging. The biological survey was conducted between February 17 and 26, 1993. The weather was generally dry and mild with temperatures between 50° and 70° F. Winds were generally 2

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[1]Scientific names are not included in the text for the purposes of brevity and to make this section more readable for the non-technical reader. See Table E-1 for scientific names of special status species; otherwise, see the Biological Assessment.

**Table E-1 - Potentially Occurring Special Status Species**
**SoCalGas Pipeline No. 6902**
**Riverside and Imperial Counties, California**

| Species | Source | Status | Habitat | Season |
|---|---|---|---|---|
| Special Status Habitats | | | | |
| Creosote Rings<br>*Larrea tridentata* | Range | | Creosote Bush Scrub | Perennial<br>May-June |
| Desert Fan Palm Oasis Woodland<br>*Washingtonia filifera* | NDDB | NDDB | Palm Oasis | Perennial<br>June |
| Plants | | | | |
| Peirson's Milk-vetch<br>*Astragalus magdalanae* var. *peirsonii* | NDDB<br>Range | CE, CNPS1b | Mobile Dunes | Perennial<br>Dec.-April |
| Foxtail Cactus<br>*Coryphantha (Escobaria) vivipara* var. *alversonii* | NDDB | F2, CNPS1b | Desert Scrub<br>Rocky Slopes | Perennial<br>May-June |
| Winged Cryptantha<br>*Cryptantha holoptera* | Range | CNPS4 | Desert Wash; Gravelly or Rocky Areas | Annual<br>March-April |
| California Ditaxis<br>*Ditaxis californica* | NDDB | F2, CNPS1b | Desert Wash<br>Alluvial Fan | Perennial<br>March-May<br>Oct.-Dec. |
| California Barrel Cactus<br>*Ferocactus acanthodes* var. *acanthodes* | Range | CNPS3 | Creosote Bush Scrub<br>Rocky Slopes, Gravelly Fans | Perennial<br>March-May |
| Spearleaf<br>*Matela parvifolia* | NDDB | F2, CNPS1b | Dry Rocky Areas 2,000' - 3000'; Creosote Bush Scrub | Perennial<br>March-May |

| Species | Source | Status | Habitat | Season |
|---|---|---|---|---|
| Munz's Cholla<br>*Opuntia munzii* | NDDB | F2, CNPS1b | Desert Scrub | Perennial<br>May |
| Orocopia Sage<br>*Salvia greatai* | NDDB | F2, CNPS1b | Gravelly Alluvial Fan<br>Rocky Desert Slopes | Perennial<br>March-April |
| Fish | | | | |
| Razorback Sucker<br>*Xyrauchen texanus* | NDDB | CE | Rivers, Streams, Canals; spawning in gravel beds | Permanent Resident |
| Desert Pupfish<br>*Cyprinodon macularis* | NDDB | FE, CE | Pools in Marshes and Streams | Permanent Resident |
| Reptiles | | | | |
| Desert Tortoise<br>*Gopherus (Xerobates) agassizii* | NDDB | FE, CT | Desert Scrub | Permanent Resident |
| Flat-tailed Horned Lizard<br>*Phrynosoma mcallii* | NDDB | F1, CSC | Desert Wash<br>Desert Dune | Permanent Resident |
| Birds | | | | |
| Western Least Bittern<br>*Ixobrychus exilis hesperis* | Range | F2, CSC | Marsh<br>Flooded Fields | Summer Resident |
| White-faced Ibis<br>*Plegadis chihi* | Range | F2, CSC | Marsh<br>Flooded Fields | Permanent or Summer Resident |
| Wood Stork<br>*Mycteria americana* | Range | CSC | Marsh<br>Flooded Fields | Summer Visitor |
| Fulvous Whistling Duck<br>*Dendrocygna bicolor* | Range | F2, CSC | Marsh<br>Flooded Fields | Summer Resident |

| Species | Source | Status | Habitat | Season |
|---|---|---|---|---|
| Ferruginous Hawk<br>*Buteo regalis* | Range | F2, CSC | Grassland<br>Agricultural Fields | Winter Visitor |
| Golden Eagle (breeding and winter)<br>*Aquila chrysaetos* | Range | CSC, CFP | Grassland<br>Desert Scrub | Winter Visitor or<br>Permanent<br>Resident |
| Prairie Falcon<br>*Falco mexicanus* | Range | CSC | Grassland<br>Agricultural Fields | Winter Visitor or<br>Permanent<br>Resident |
| California Black Rail<br>*Laterallus jamaicensis coturniculus* | NDDB | CT, CFP | Marsh | Permanent<br>Resident |
| Yuma Clapper Rail<br>*Rallus longirostris yumanensis* | NDDB | FE, CT, CFP | Marsh | Permanent<br>Resident |
| Western Snowy Plover (interior population)<br>*Charadrius alexandrinus nivosus* | Range | F2, CSC | Flooded Fields | Summer Visitor |
| Mountain Plover<br>*Charadrius montanus* | Range | F2, CSC | Agricultural Fields | Winter Visitor |
| Long-billed Curlew<br>*Numenius americanus* | Range | F3C, CSC | Grassland<br>Agricultural Fields | Winter Visitor |
| Gila Woodpecker<br>*Melanerpes uropygialis* | Range | CE | Riparian Corridors | Permanent<br>Resident |
| Southwest Willow Flycatcher<br>*Empidonax traillii extimus* | NDDB | F1, CE | Willow Riparian | Summer Resident |
| Vermilion Flycatcher<br>*Pyrocephalus rubrinus* | Range | CSC | Willow Riparian<br>Agricultural Fields | Winter Visitor or<br>Permanent<br>Resident |

| Species | Source | Status | Habitat | Season |
|---|---|---|---|---|
| Black-tailed Gnatcatcher<br>*Polioptila melanura* | NDDB | CSC, F2 | Desert Wash | Permanent Resident |
| Crissal Thrasher<br>*Toxostoma crissale* | NDDB | CSC | Riparian Woodland<br>Desert Wash | Permanent Resident |
| Le Conte's Thrasher<br>*Toxostoma lecontei* | Range | CSC | Desert Scrub | Permanent Resident |
| Loggerhead Shrike<br>*Lanius ludovicianus* | Range | F2 | Desert Wash | Winter and Fall Visitor or Permanent Resident |
| Yellow Warbler<br>*Dendroica petechia* | NDDB | CSC | Willow Riparian | Permanent Resident<br>Spring Fall Transient |
| Yellow-breasted Chat<br>*Icteria virens* | NDDB | CSC | Riparian | Summer Resident |
| Mammals | | | | |
| American Badger<br>*Taxidea taxis* | Range | CSC | All Native Habitats | Permanent Resident |
| Bighorn Sheep (peninsular population)<br>*Ovis canadensis* | NDDB | FP,CT | Desert Scrub<br>Desert Wash | Permanent Resident |

***Source:***

| | |
|---|---|
| NDDB | California Natural Diversity Data Base has recorded occurrence on a USGS quadrangle through which a route intersects. |
| Range | Species or habitat within the published range of the route alternatives; records may or may not exist. |

***Status:***

| | |
|---|---|
| FE | Federally endangered. |
| FT | Federally threatened. |
| FPE | Federally proposed as endangered. |
| FPT | Federally proposed as threatened. |
| F1 | Federal candidate category 1, indicating species for which information supports a proposal to list. |
| F2 | Federal candidate category 2, indicating species for which conclusive data on biological vulnerability and threat are not currently available. |
| CE | California endangered. |
| CT | California threatened. |
| CSC | California species of special concern. |
| CFP | California fully protected. |
| CNPS1b | Plants rare, threatened, or endangered in California and elsewhere according to the California Native Plant Society. |

calm. A total of 57 work-days were spent conducting on-foot transects of the northern desert portion.

Additional time was spent conducting site reconnaissance surveys, specific botanical surveys, and investigation of the southern agricultural portion of the project area. Because the southern section of the pipeline route traverses largely agricultural fields, reconnaissance level surveys were conducted. Stream crossings and riparian areas adjacent to watercourses in the southern portion, such as the Alamo River, were surveyed on foot.

***Desert Tortoise.*** One hundred percent coverage of the northern desert portion of the study area was achieved by a team of five biologists walking parallel transects, each 30 feet wide (the standard established by USFWS) along first one side and then the other side of the centerline. The survey corridor was 300 feet wide. Data sheets were completed for each linear mile of pipeline. Data collected included but was not limited to: the width, length, and condition class (as defined by USFWS) of burrows; size and condition class (as defined by USFWS) of scats; size, sex, and activity of live tortoises; and size, sex, cause of death, and time since death of carcasses. In addition to identifying desert tortoise sign, existing impacts and occurrences of other special status species were recorded and mapped. Berry and Nicholson's (1984) techniques were adapted to estimate densities of desert tortoises.

***Flat-tailed Horned Lizard.*** The activity period for the flat-tailed horned lizard is usually May through August, although they may remain active on the surface for as long as April through September in some years (Wright pers. comm.). Because the flat-tailed horned lizard would not have been active on the surface in February, surveys for the species were scheduled for summer 1993. Results of those surveys will be reported to the BLM within 30 days of completion of the surveys. Mitigations are included in this document for the flat-tailed horned lizard in the contingency that it is found on-site. The flat-tailed horned lizard survey report will be forwarded by the BLM to the USFWS and CDFG.

***Other Special Status Species.*** While conducting the surveys for desert tortoise, the presence of other special status wildlife was determined either by direct observation or by identification of diagnostic sign, such as scats, tracks, and burrows. A cumulative list was maintained of all vertebrate species observed. The study site was examined for the presence of special status plant species while walking transects. In areas of particularly suitable habitat for special status plants, a team of two botanists conducted intensive species-specific surveys.

***Habitat Assessment.*** A description of habitat was included on each data sheet, including geomorphology, substrate sizes, dominant soil type, slope, aspect, a list of all perennials, and the number of perennial species observed. The botanists identified and mapped major plant communities applying the general classification scheme of Holland (1986), which is used by the California Natural Diversity Data Base.

## *Western Route Alternative*

### *Habitat Types*

The northern desert portion of the project area supports valuable natural habitat types, although these have been affected to varying degrees by human caused disturbance. South of the Coachella Canal much of the vegetation has been heavily affected by clearing and agricultural conversion. The route south of the East Highline Canal is predominately agricultural fields. The southern portion of the route has little or none of its native plant community remaining.

Habitat types were identified along the proposed route, classified according to the types used by CDFG's Natural Diversity Data Base (Holland 1986). In order of initial occurrence from north to south, habitat types are Sonoran Creosote Bush Scrub, Sonoran Mixed Woody and Succulent Scrub, Desert Dry Wash Woodland, Arrowweed Scrub, Tamarisk Scrub, and Disturbed and Agricultural (not included by Holland).

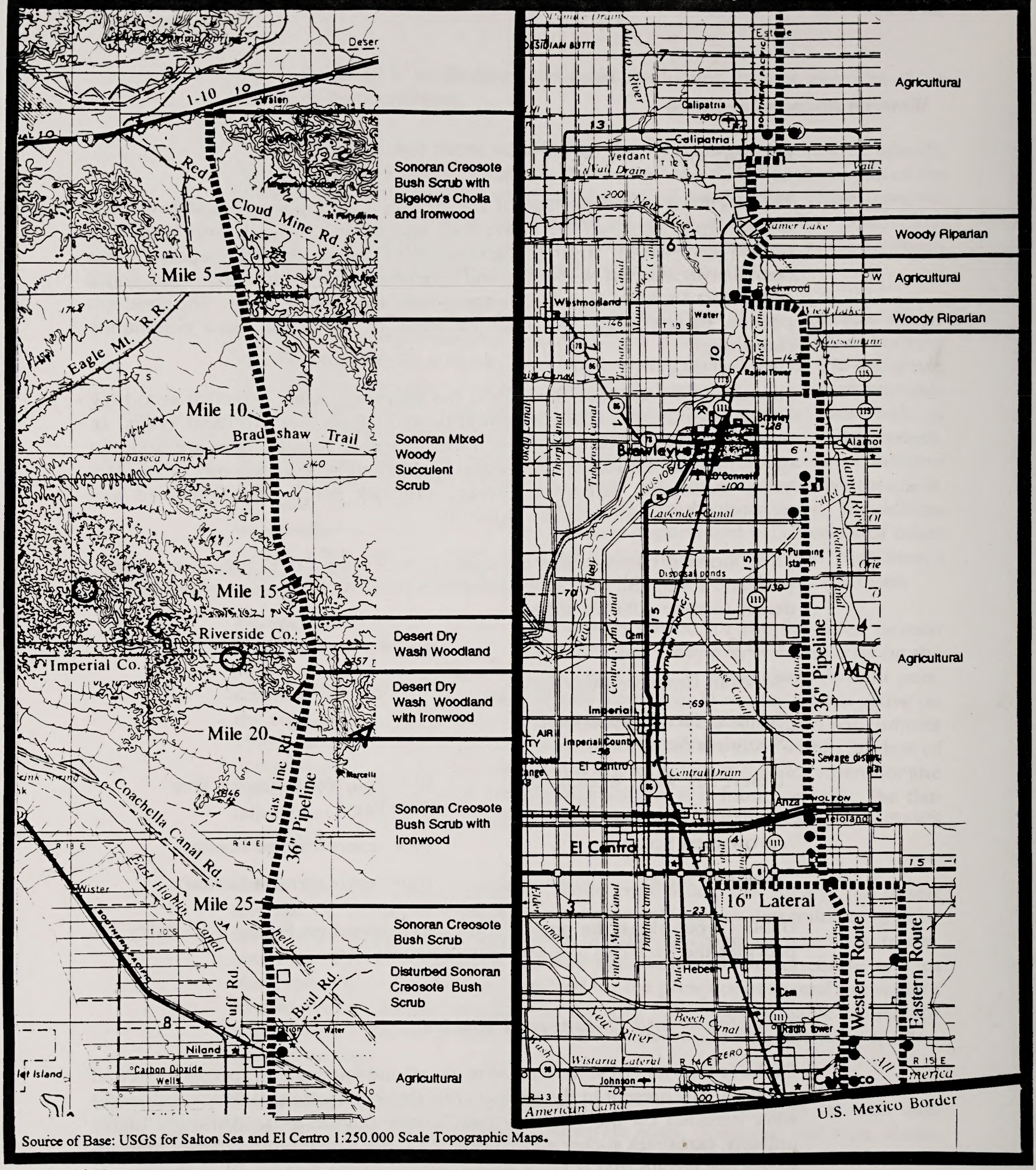
The following correspondences apply between the CDFG habitat categories (Holland 1986) and the USFWS categories from the draft recovery plan for the desert tortoise (USFWS 1993a):

| CDFG | USFWS |
|---|---|
| Sonoran Creosote Bush Scrub | Creosote Bush Scrub |
| Sonoran Mixed Woody and Succulent Scrub | Succulent Scrub |
| Desert Dry Wash Woodland | Blue Palo Verde-Smoke Tree Woodland |
| Arrowweed Scrub | (not desert tortoise habitat) |
| Tamarisk Scrub | (not desert tortoise habitat) |

Habitat types along the project route are mapped on Figure E-1. Table E-2 provides the locations and acreages of habitat types.

### *Threatened and Endangered Species*

Of the federal and/or state listed threatened and endangered species identified as potentially present in the project area, desert tortoise and Gila woodpecker were detected on the February field survey (Figure E-2). Although highly unlikely, razorback sucker may be present in the East Highline Canal. Bighorn sheep use terrain that is more steeply sloping than that found in the project area and are therefore unlikely to use the site unless on an incidental basis. Desert pupfish are known to travel one-half to a mile up irrigation drains off

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NORTHERN SECTION

SOUTHERN SECTION

Figure E-1

N

LSA

Scale in miles

0 4.5

● Developed Area

□ Ruderal Wetlands

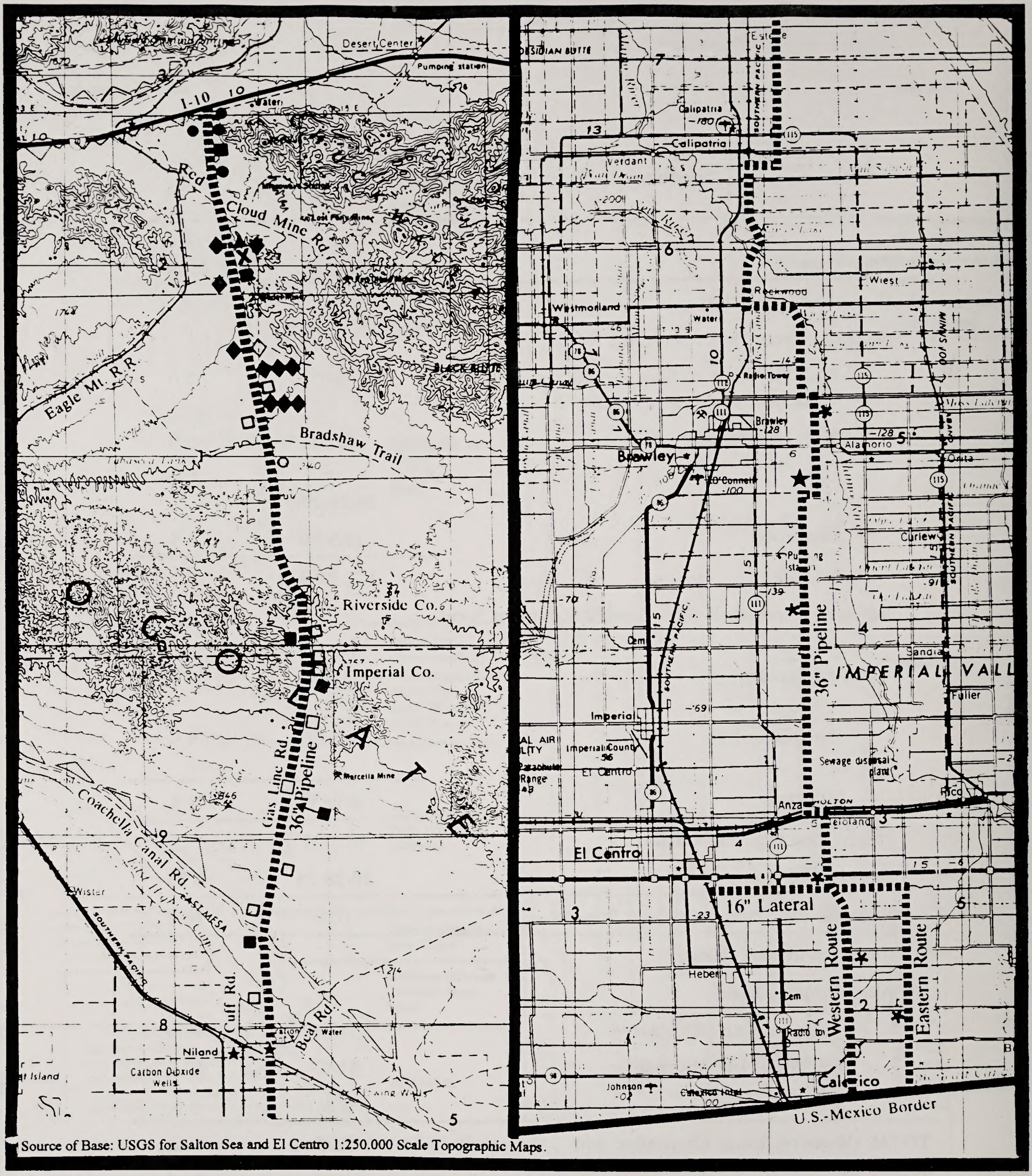
Habitat Types

SoCalGas Line No. 6902

**Table E-2 - Habitat Types**
**Southern California Gas Company Line 6902**

| Habitat Type | Mile Number | Linear Miles |
|---|---|---|
| Northern Desert Portion | | |
| Sonoran Creosote Bush Scrub | | |
| With elements of Sonoran Microphyll Woodland and Succulent Scrub | 1-7 | 7.0 |
| With Ironwood | 22-26 | 5.0 |
| Open | 27, 28.25-29.5 | 2.25 |
| Disturbed | 29.5-30 | 1.5 |
| Subtotal | 1-7, 22-30 | 15.75 |
| Sonoran Microphyll Woodland & Succulent Scrub | | |
| On bajadas | 8-10 | 3.0 |
| On rolling hills | 11-16.5 | 5.5 |
| Subtotal | 8-16.5 | 8.5 |
| Desert Dry Wash Woodland | 16.5-21 | 5.5 |
| Arrowweed Scrub | 28-28.25 | 0.25 |
| Subtotal for Northern Desert Portion | 1-30 | 30.0 |
| Southern Nondesert Portion | | |
| Altered/Agricultural | | |
| Western Route Alternative | 31-75 | 45.6 |
| Eastern Route Alternative | 31-77 | 47.6 |
| 15" Lateral | N.A. | 3.6 |
| TOTAL (Western Route Alternative with 15" Lateral) | 1-75 | 79.2 |
| TOTAL (Eastern Route Alternative with 15" Lateral) | 1-77 | 81.2 |

09/10/93(P:\SCG201A\HABITAT.TAB)




Source of Base: USGS for Salton Sea and El Centro 1:250.000 Scale Topographic Maps.

03-02-93(SCG201A)

NORTHERN SECTION

SOUTHERN SECTION

Figure E-2

N

LSA

Scale in miles

0 4.5

- ○ Golden Eagle
- X Loggerhead Shrike Nest
- ✱ Burrowing Owl
- ✶ Mountain Plover
- ◆ Badger Hole
- ● Foxtail Cactus
- ■ Black-tailed Gnatcatcher
- □ Loggerhead Shrike
- ▲ Red-tailed Hawk Nest
- ◇ Gila Woodpecker

Special Status Species
SoCalGas Line No. 6902

of the Salton Sea (Nicol pers. comm.), but none are expected to travel as far east as the study area (Remmington pers. comm.) where brackish water habitat is not present. Peirson's milk-vetch, California black rail, Yuma clapper rail, willow flycatcher are assumed to be absent based on the lack of suitable habitat in the project area. Desert tortoise findings are discussed in further detail below.

### *Desert Tortoise*

Desert tortoise is listed as threatened at both the federal and state levels. A draft recovery plan under the federal Endangered Species Act has recently been issued (USFWS 1993a).

#### *Desert Tortoise Management Areas*

The entire desert portion of the project area is within the Eastern Colorado Recovery Unit according to the federal recovery plan for the desert tortoise (USFWS 1993a). Within this area, desert tortoises tend to be active on the surface in the spring, but sometimes also in late summer and early fall if the area experiences summer rains.

The northerly approximately 11 miles of the project area are managed by the BLM as the Chuckwalla Bench ACEC (BLM 1988a) and classified by the BLM as category 1 desert tortoise habitat (1988b). CDFG also considers this same area to be within the Chuckwalla Desert Tortoise Crucial Habitat (Hoover pers. comm.). The habitat immediately to the south is in the Chocolate Mountains Aerial Gunnery Range and is not classified by the BLM.

The USFWS has not designated critical habitat for the desert tortoise under the federal Endangered Species Act, although the Service has indicated that it will do so this year. The proposed Chuckwalla DWMA (Desert Wildlife Management Area) for the desert tortoise is within the USFWS's Eastern Colorado Recovery Unit. Although the map of the proposed Chuckwalla DWMA (USFWS 1993b) is at too small a scale to be interpreted precisely, it appears to encompass the northern approximately 20 miles of the project area. Within the Chuckwalla DWMA, the USFWS (1993b) proposes to establish EMZs (Experimental Management Zones) for desert tortoise in parts of the northern Chuckwalla Bench, northern and eastern edges of the Chocolate Mountains Aerial Gunnery Range, and parts of the Chuckwalla Valley. Although locations of these proposed EMZs are not provided, one or more could be within the vicinity of the proposed pipeline.

*Survey Findings*

Figure E-3 illustrates the desert tortoise survey findings. Figure E-4 summarizes the tortoise sign counts, habitat type, and geomorphology for each mile. A summary of tortoise sign found per mile is in Table E-3.

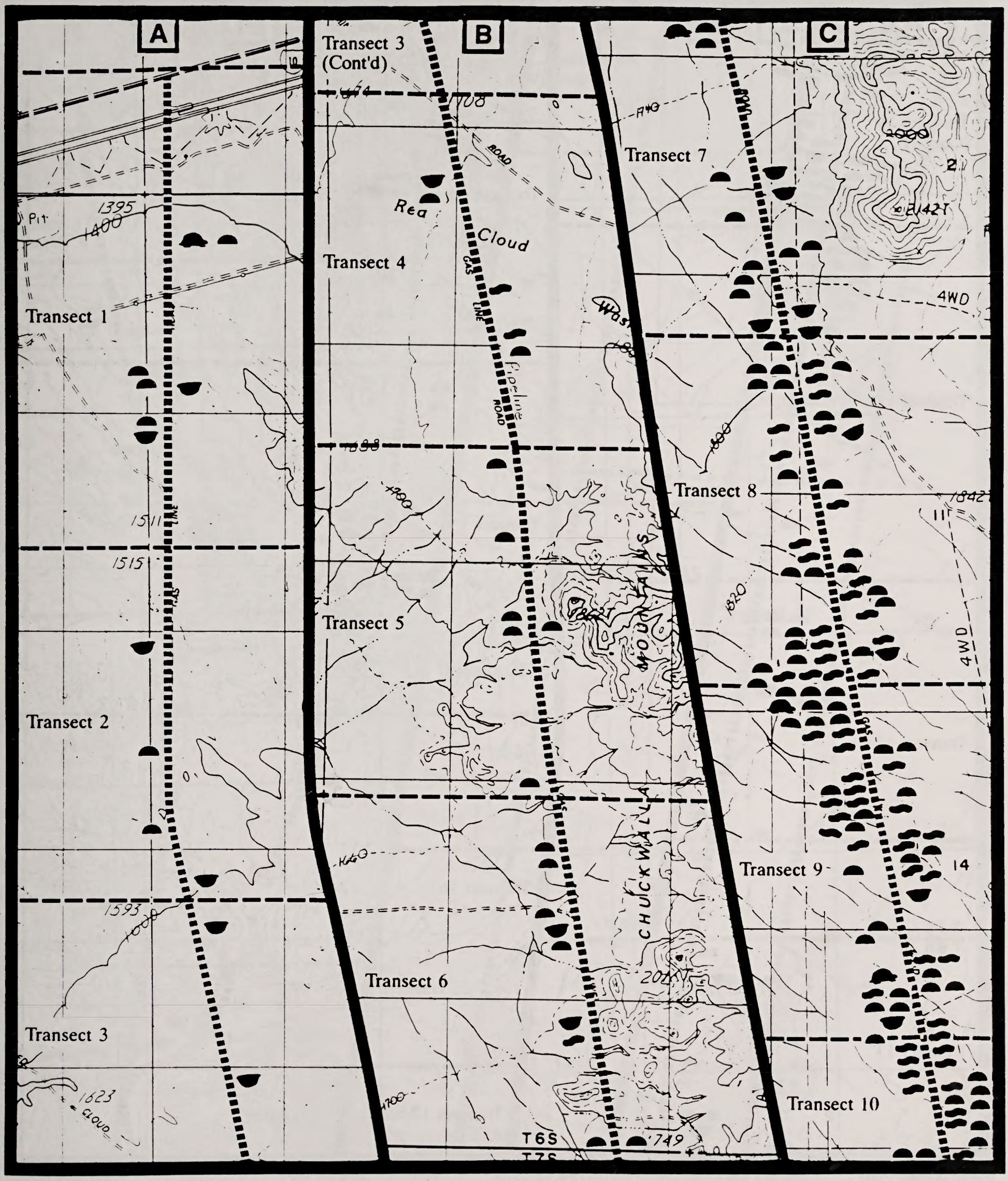
Based on our field survey, the northerly 27 miles of the project area were identified as habitat or potential habitat for the desert tortoise. Changes in sign counts along the proposed working strip correspond closely with changes in habitat and geomorphology.

- Miles 1 through 7 occur in Sonoran Creosote Bush Scrub grading into Sonoran Microphyll Woodland and Succulent Scrub in Mile 7. Sign counts were low in this segment but increased through Miles 5, 6, and 7. Large areas of desert pavement are in Mile 3 and probably account for the lower sign count.

- Miles 8 through 16.5 are Sonoran Microphyll Woodland and Succulent Scrub. Sign counts increased markedly with the habitat change in Mile 8 but drop again in Mile 11. The geomorphology changes from a gentle bajada to rolling hills with incised washes in Miles 11 through 16.5. Perennial diversity is the same as in Miles 8-10 except that larger microphyllous trees are absent and total vegetation cover on the hills is approximately 15 percent less. Less vegetation cover in conjunction with rockier soils probably accounts for the decrease in tortoises from Mile 10 to Mile 11. In Mile 15 sign counts increase again. A steep, south-facing bluff occurs in this mile with numerous caliche caves weathered out of the rock layers. Tortoises in the Mojave Desert in California (Karl pers. comm.) and in the Sonoran Desert in Arizona (Bailey pers. comm.) have been found to utilize specific burrows as wintering hibernacula, sometimes traveling more than 0.75 miles each year to get to a specific hibernacula. The fact that the caliche dens were numerous, on a south-facing slope, and harbored at least four tortoises at the time of this survey, suggests these are winter hibernacula, accounting for the increase in sign counts.

- Miles 16.5 through 21 occur in Desert Dry Wash Woodland. Sign counts were low and limited to bone fragments and deteriorating scat and burrows. Some of these may have been carried in from upslope and side canyons during floods.

- Within the Sonoran Creosote Bush Scrub in Miles 22 to 27, sign was more recent but limited to isolated pockets suggesting low tortoise densities.

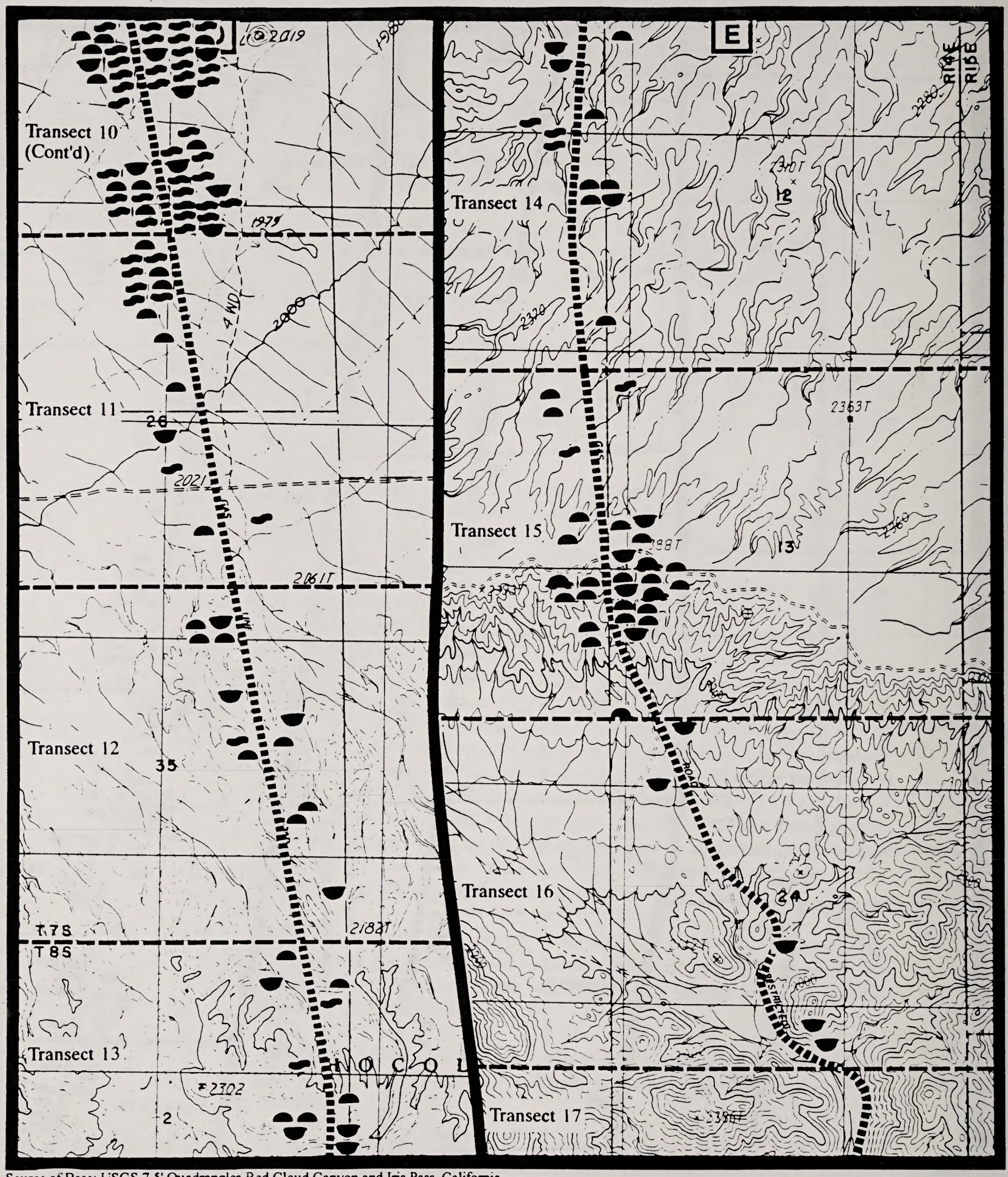



Source of Base: USGS 7.5' Quadrangles Hayfield Spring, East of Red Canyon, and Red Cloud Canyon, California
03-02-93(SCG201A)

Figure E-3
(page 1 of 4)

Desert Tortoise Survey Results
SoCalGas Line No. 6902
Segments A, B, and C

LSA




Source of Base: USGS 7.5' Quadrangles Red Cloud Canyon and Iris Pass, California
03-02-93(SCG201A)

Figure E-3
(page 2 of 4)

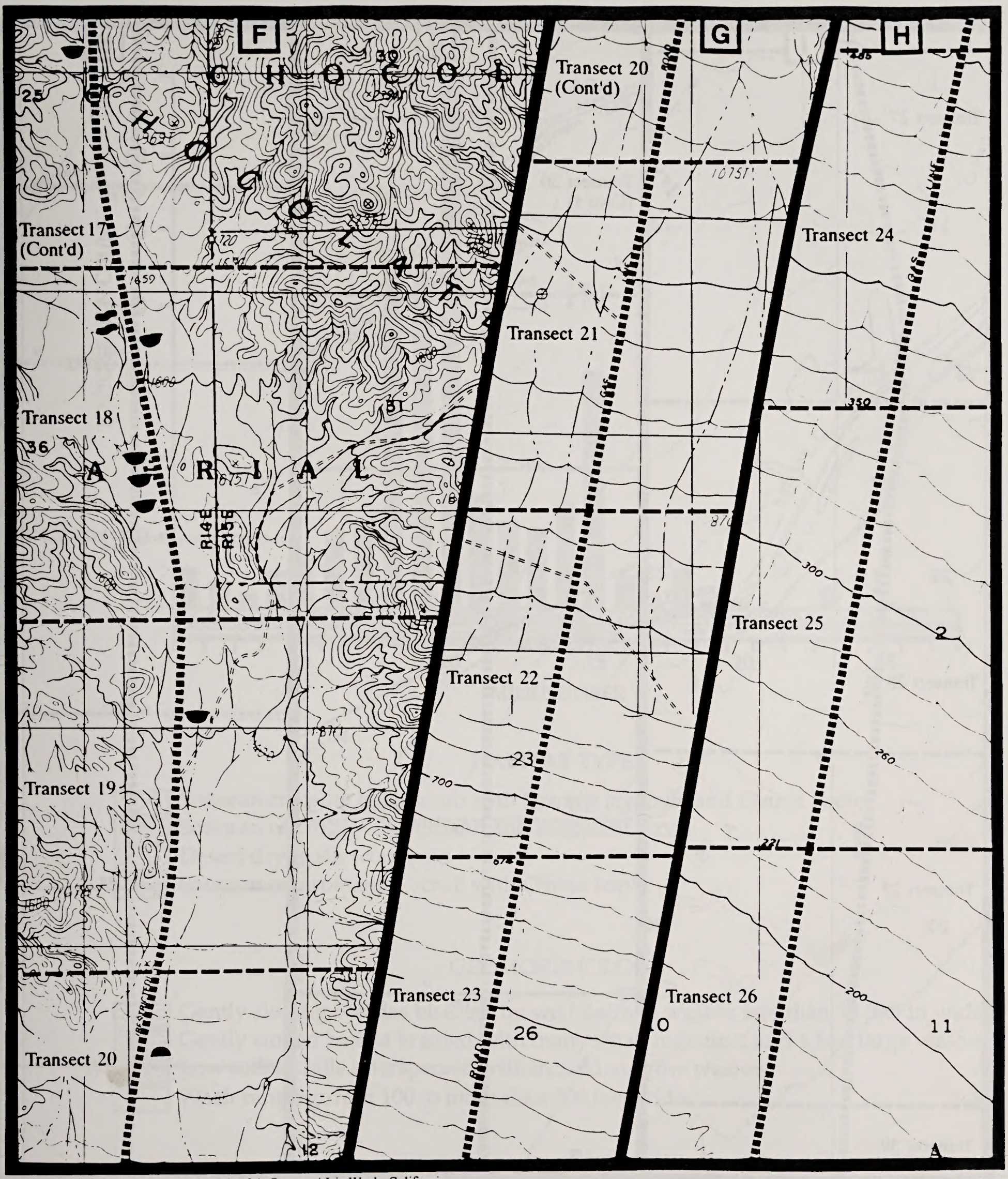
Desert Tortoise Survey Results
SoCalGas Line No. 6902
Segments D and E

N

LSA

Scale in feet
0 2000

Tortoise
Carcass
Burrow
Scat

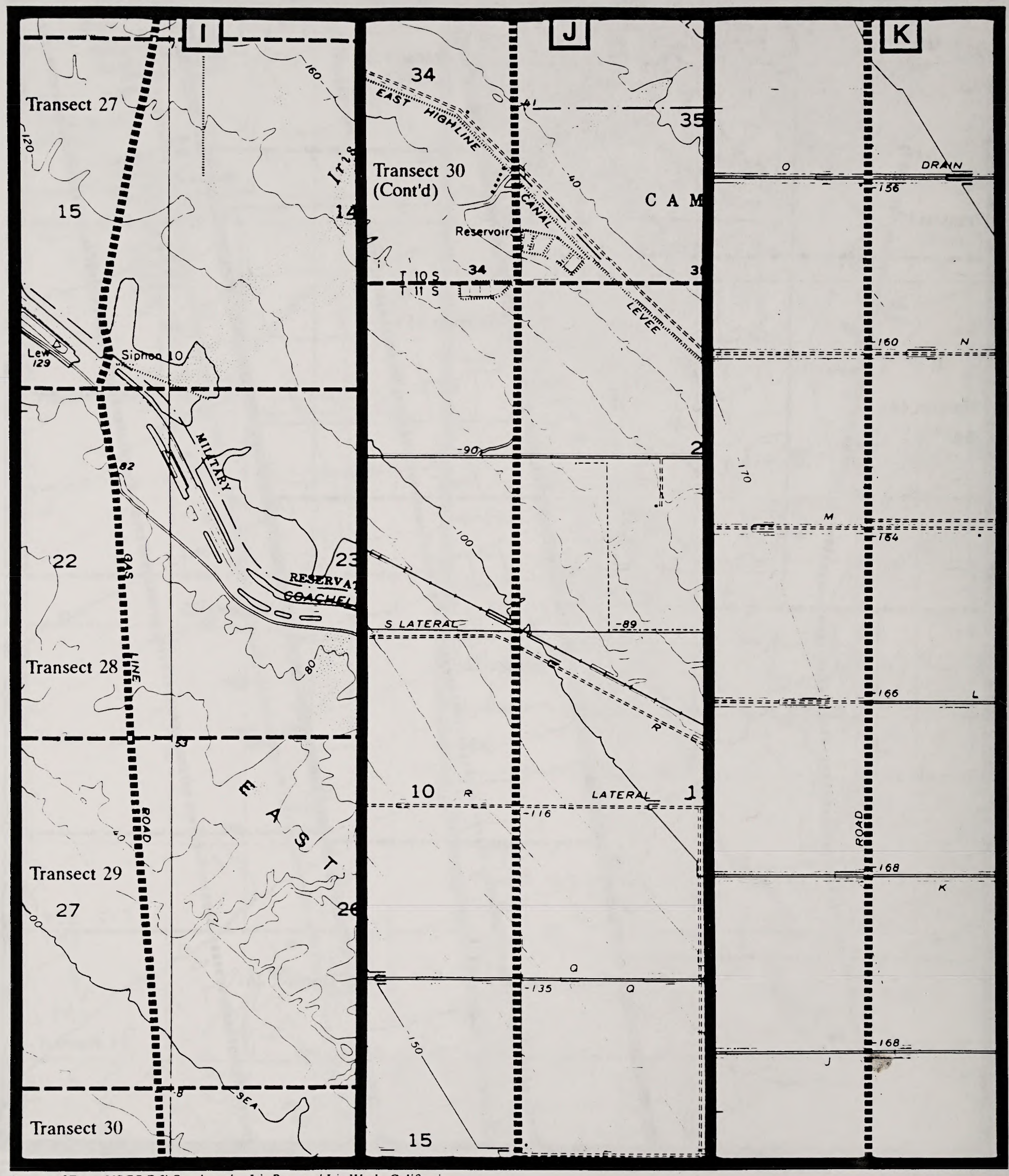



Source of Base: USGS 7.5' Quadrangles Iris Pass and Iris Wash, California
03-02-93(SCG201A)

Figure E-3

(page 3 of 4)

Desert Tortoise Survey Results
SoCalGas Line No. 6902
Segments F, G, and H




Source of Base: USGS 7.5' Quadrangles Iris Pass and Iris Wash, California
03-02-93(SCG201A)

N

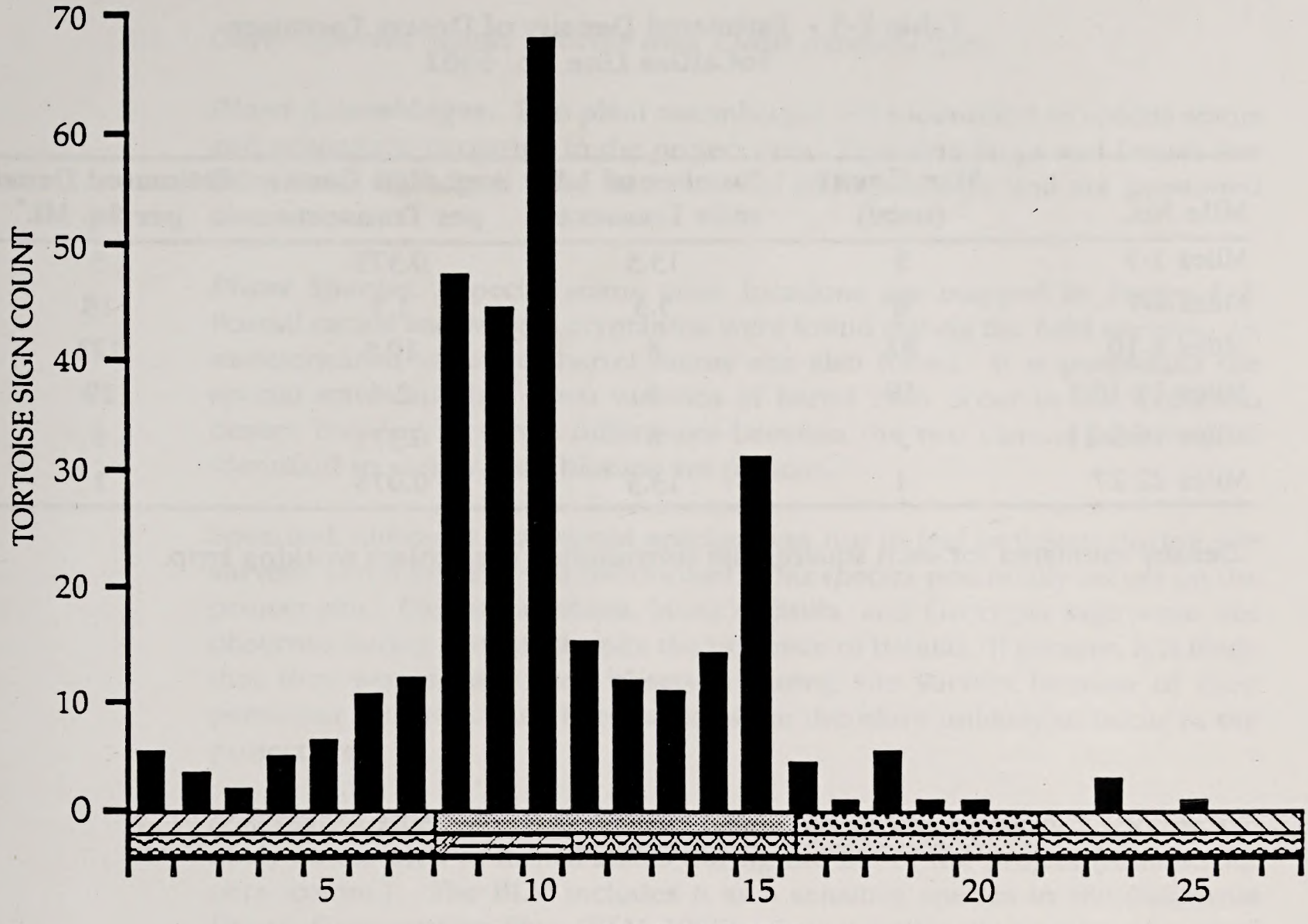
LSA

Scale in feet
0 2000

Tortoise
Carcass
Burrow
Scat

# Figure E-3
(page 4 of 4)

## Desert Tortoise Survey Results
## SoCalGas Line No. 6902
## Segments I, J, and K




HABITAT TYPES

- Sonoran creosote bush scrub with *Opuntia bigelovii* and *Olneya tesota*
- Sonoran microphyll woodland and succulent scrub
- Desert dry wash woodland
- Sonoran creosote bush scrub with *Olneya tesota*

GEOMORPHOLOGY

- Gently sloping bajadas bisected by well-defined washes less than 30 feet in width
- Gently sloped bajada braided with many small indistinct and a few large washes
- Low rolling hills interspersed with incised, narrow washes
- Wash ranging from 100 to more than 300 feet wide

04-02-93(SCG201B)

Figure E-4

LSA

Summary of Tortoise Sign Count,
Habitat, and Geomorphology
SoCalGas Line No. 6902

## Table E-3 - Estimated Density of Desert Tortoises SoCalGas Line No. 6902

| Mile No. | Sign Count (total) | Number of 1.5-mile Transects | Avg. Sign Count per Transect | Estimated Density per Sq. Mi.* |
|---|---|---|---|---|
| Miles 1-5 | 5 | 13.3 | 0.375 | 5 |
| Miles 6-7 | 8 | 5.3 | 1.5 | 18 |
| Miles 8-10 | 82 | 8 | 10.5 | 123 |
| Miles 11-16.5 | 19 | 8 | 2.4 | 29 |
| Miles 16.5-21 | 3 | 8 | 0.375 | 5 |
| Miles 22-27 | 1 | 13.3 | 0.075 | 1 |

*Density estimated for each square mile surrounding the project working strip.

### *Other Special Status Species and Plant Assemblages*

***Plant Assemblages***. Two plant assemblages were identified as special status and potentially occurring in the project area. Creosote Rings and Desert Fan Palm Oasis Woodland were not observed during surveys and are presumed absent.

***Plant Species***. Special status plant locations are mapped in Figure E-2. Foxtail cactus and winged cryptantha were found during the field surveys. An undetermined variety of barrel cactus was also found. It is potentially the special status species. Two varieties of barrel cacti occur in the Colorado desert, but due to subtle differences between the two cannot positively be identified to variety until blooms are present.

Spearleaf, although a perennial species, was not in leaf or flower during site surveys, and if present, was overlooked. This species potentially occurs on the project site. California ditaxis, Munz's cholla, and Orocopia sage were not observed during surveys, despite the presence of habitat. If present, it is likely that they would have been observed during site surveys because of their persistent growth habit. These species are therefore unlikely to occur in the project area.

***Flat-tailed Horned Lizard***. This federal candidate category 1 species will likely be elevated to formal status during the life of the project (Armentrout pers. comm.). The BLM includes it as a sensitive species in the California Desert Conservation Plan (BLM 1980). It is a California species of special concern.

The flat-tailed horned lizard has a restricted a range, which has been impacted by agricultural development, mineral exploration and development, and intensive recreational use (BLM 1990). The species is now mainly confined to desert areas south of the Salton Sea in Imperial County, with scattered records of occurrences in the Palm Springs area of Riverside County (BLM 1990). No records are known for locations less than 10 miles of the project area (Watkins and Keeney pers. comms.). The desert portion of the study area is largely north and east of the recorded range of this lizard (Zeiner et al. 1988).
This lizard is typically found in areas of fine wind-blown sand and sparse vegetation in desert washes and flats (Stebbins 1985, Zeiner et al. 1988) and also sparsely vegetated "mud hill" habitat (Watkins pers. comm.). The Desert Dry Wash Woodland habitat in Miles 16.5 to 21 of the study area is considered to be desert horned lizard (*Phrynosoma platyrhinos*) habitat because of its upland character (Wright pers. comm.). The two species of horned lizards are not known to be found sympatrically (Wright pers. comm.). Although the study area extends across historic flat-tailed horned lizard range south of Niland, habitat along the right-of-way is entirely inhospitable agricultural and other developed land uses. The BLM (Wright pers. comm.) identified the disturbed Creosote Bush Scrub habitat in Miles 28 and 31 between the Coachella Canal and the East Highline Canal to the south as potential flat-tailed horned lizard habitat if suitable substrate is present.

The flat-tailed horned lizard is presumed unlikely in the study area based on range and on lack of appropriate habitat. However, an additional survey dedicated solely to flat-tailed horned lizards will be conducted by a wildlife biologist trained by the BLM. This survey will be conducted in September 1993. If found, the BLM's standard mitigation measures for the species shall be incorporated into the project (cf. BLM 1990).

***Other Wildlife Species***. Figure E-2 illustrates locations of special status wildlife findings. Of the target animal species potentially occurring along the project route, evidence was observed of golden eagle, burrowing owl, black-tailed gnatcatcher, and loggerhead shrike. Two additional species, American badger, and prairie falcon, have been seen on the Gas Line Road in previous years.

Le Conte's thrasher was not observed, but is likely to occur in low numbers based on the presence of suitable habitat. Incidental use of the area would be expected from snowy plover, mountain plover, long-billed curlew, and white-faced ibis. Ferruginous hawks use areas to the west of the project area so the presence of this species would be incidental, if at all.

Habitat was not observed along the pipeline corridor for least bittern, white-faced ibis (rookeries), wood stork, fulvous whistling duck, vermilion flycatcher, and willow flycatcher. These species are presumed absent.

### *Eastern Route Alternative*

The setting under this alternative would be the same as described under the Western Route Alternative.

## F. WETLANDS

This section discusses the wetlands, desert washes, and agricultural watercourses along the proposed pipeline corridor. Regulatory implications of the proposed project are also reviewed. This section is supplemented by a complete Wetlands Assessment Technical Report to this Environmental Assessment (Volume III).

### *Regulatory Context*

Activities associated with construction of the proposed pipeline that could affect desert washes, wetlands, and selected agricultural watercourses would require permits from a number of agencies. The relevant agencies and their respective jurisdiction and permits are summarized in Table F-1.

#### *California Department of Fish and Game*

Crossing of desert washes and unlined watercourses would require a Streambed Alteration Agreement under Section 1603 of the State Fish and Game Code from the California Department of Fish and Game (CDFG). This regulation generally applies to "blue line" streams noted on USGS quadrangle maps, as well as watercourses identified in the field as having defined beds and banks. Concrete-lined agricultural irrigation laterals are usually granted a waiver from CDFG and earthen agricultural drains are not typically considered by CDFG to provide significant wildlife habitat values (Kinney pers. comm.). Mitigation is typically required if aquatic or wildlife values would be affected by the proposed project. Removal of exotic vegetation, as opposed to direct revegetation efforts, is often required for mitigation of impacts on desert washes (Kinney pers. comm.).

#### *U.S. Army Corps of Engineers*

The desert washes, isolated/adjacent wetlands, and selected agricultural watercourses would be under the jurisdiction of the U.S. Army Corps of Engineers (ACOE). These areas would be considered "waters of the U.S" by the Corps and a permit would be required to discharge material into such areas. Projects such as the line 6902 project typically qualify for Nationwide Permit (NWP) #12 under Section 404 of the Clean Water Act for utility and backfill operations which occur in waters of the U.S., provided that the project meets specific permit conditions. A nationwide permit is a type of general permit issued on a nationwide basis that allow minor activities to proceed with little or no delay. Depending on the final project design, a Section 10 permit under the Rivers and Harbors Act from the Corps may be necessary for crossing the Alamo River with an upgraded bridge span (Zoutendyk pers. comm.).

**Table F-1 - Regulatory Jurisdiction**
**SoCalGas Line No. 6902**

| Agency | Regulations | Jurisdiction | Permit |
|---|---|---|---|
| California Department of Fish and Game | Section 1603 of State Fish and Game Code | USGS bluelines and other watercourses with a bed and bank | Streambed Alteration Agreement |
| Army Corps of Engineers | Section 404 of the Clean Water Act | Waters and wetlands of the U.S. | Nationwide Permit #12 |
| Army Corps of Engineers | Section 10 of the Rivers and Harbors Act | Navigable waters of the U.S. | Section 10 Letter of Permission |
| Regional Water Quality Control Board | Section 401 of the Clean Water Act | Waters and wetlands of the U.S. | Water Quality Certification or waiver |
| State Water Resources Control Board | General construction activity storm water permit | Working strip | General Permit |
| Regional Water Quality Control Board | State level NPDES discharge requirements implementing federal Clean Water Act | Non-water directed discharge of hydrostatic testing water | Waste Discharge Permit |

* Further consultation with the Corps and refinement of project design are necessary to determine whether a Section 10 permit will be required.

### *Regional Water Quality Control Board*

In order to receive NWP #12, the Gas Company would have to obtain either individual water quality certification or a waiver from the Regional Water Quality Control Board (RWQCB). A Waste Discharge Permit would be required from the RWQCB for the discharge of hydrostatic testing water. Finally, a General Construction Activity Storm Water Permit from the State Water Resources Control Board would be required because more than five acres of land would disturbed during the pipeline installation.

## *Methods*

A team of biologists surveyed the proposed pipeline corridor during February 10-11, 22-26, and March 22, 1993. All desert washes and wetlands which the proposed pipeline would cross were surveyed on foot. Desert washes were evaluated where there were readily observable evidence of water flow and differences in the upland from wash vegetation. The desert wash and wetland analyses focussed on the 100-foot working strip, as well as upland habitat within 150 feet upstream and downstream of the crossing location. The *1987 Wetlands Delineation Manual* (Environmental Laboratory 1987) was used to determine the presence of wetland areas under the jurisdiction of the Corps. A complete description of the survey methodology is presented in Wetlands Assessment Technical Report to this Enivornmental Assessment.

## *Western Route Alternative*

### *Desert Washes*

A total of 68 desert washes were identified along the northern portion of the pipeline project. Locations of the desert washes are shown on Figure 2 of the Wetlands Assessment Technical Report. A total of 43 washes were considered significant desert wash systems, and complete physical and vegetation evaluations were conducted in the field (Wetlands Assessment Technical Report:Table B). Vegetation in these areas was generally dominated by microphyllous trees and showed sediment substrates typical of wash hydrologic patterns. Photographs of representative desert wash systems are presented in Figure F-1.

Bank and bed substrates were variable in the desert wash systems, depending on their width and degree of channel braiding. In most cases, the bed substrates were composed of coarse sand, interspersed with fine sand and rock/cobble deposits. Banks were composed of the above substrates, although they often included patches of silt and fine sands.

Woody vegetation within desert wash areas included burrobush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*), smoke tree (*Psorothamnus spinosa*), and palo verde (*Ceridium floridum*). Vegetation cover ranged from 0 percent

Photograph 1: Map No. 8 — view to the west from Gas Line Road.

Photograph 2: Map No. 55 view to the east from Gas Line Road.

03-15-93(SCG201A)

Figure F-1

LSA

Typical Desert Washes
SoCalGas Line No. 6902

to 50 percent, although average cover was around 10 percent. All of the wash systems showed evidence of disturbance due to use of the Gas Line Road by the Gas Company and other users, including the military and off-road vehicles (ORVs). However, outside the unpaved road area, the desert washes were relatively undisturbed, with the exception of evidence of military activities in the northern portion of the route. The desert wash systems between Siphon 10/East Highline Canal and the Niland valve station were disturbed outside the roadway area, due to former sand and gravel quarries.

Several of the desert wash systems were characterized by extremely broad meandering channel networks. For example, a large desert alluvial fan system began in the northern Chocolate Mountains and flowed in a southerly direction along the Gas Line Road. It originated within the narrow canyon in the Chocolate Mountains area and broadened to a wide alluvial fan to the south along the gradual slope leading to the Imperial Valley. While woody vegetation was sparse within the narrow Chocolate Mountains portion of the wash, trees such as smoke trees and catclaw acacias became more common as the alluvial fan widened.

### *Wetlands*

In general, wetland areas were limited along the length of the proposed pipeline. They were subject to human disturbance in the Imperial Valley and have had limited inputs of water. Five wetland areas characterized by woody riparian and ruderal vegetation lie along the pipeline route. The locations and descriptions of the areas are shown in the Wetlands Assessment Technical Report to this Environmental Assessment.

Vegetation in the wetland systems on either side of the Southern Pacific Railroad near the Niland Valve Station was composed of native and exotic vegetation, including honey mesquite (*Prosopis glandulosa*), tamarisk (*Tamarix* sp.) and arrow weed shrubs (*Pluchea sericea*). Portions of the wetland in the proposed alignment exhibited little vegetation cover, though mottles and gleyed (grey, leached soil) conditions were present in several wetlands within eight inches of the soil surface. The Alamo River crossing location (Figure C-3, photograph 9) was composed of relatively steep banks 10 to 15 feet in height, dominated by common reed (*Phragmites australis*) and saltgrass (*Distichlis spicata*) ranging in cover from 60 to 90 percent.

### *Agricultural Watercourses*

A total of 82 agricultural watercourses (i.e., canals, laterals, and ditches) would be crossed. These watercourses are part of the extensive agricultural water distribution network serving the Imperial Valley. Typical examples of these watercourses are shown in Figure H-1.

These watercourses included 28 laterals (concrete-lined channels approximately three feet wide and two feet deep) (Figure H-1, photograph 1). The laterals typically had flowing water approximately four inches deep at the time of the field surveys. Due to the lack of vegetation, agricultural laterals provide limited wildlife habitat beyond the provision of water sources.

Other types of agricultural watercourses along the alignment included 39 earthen-lined drainage ditches ranging in width from 10 to 35 feet and eight to 15 feet in depth (Figure H-1, photograph 2). Flowing water at depths of 12 to 24 inches was present in most ditches during the time of field surveys. Vegetation cover along the steep banks ranged from 0 percent to 75 percent cover and was dominated by curly dock (*Rumex crispus*), Russian thistle (*Salsola kali*), common reed, and saltgrass. Only saltgrass is a native species.

The pipeline route also would cross 15 canals. A typical canal is shown in Figure H-1, photograph 3. These areas include major water distribution canals for the Imperial Valley agricultural areas and had flowing water at the time of field surveys. Several of the canals had concrete-lined or unvegetated earthen banks. When vegetation was present, it was composed primarily of common reed and saltgrass, ranging in cover from 10 percent to 50 percent.

***Eastern Route Alternative***

The desert washes and wetlands crossed in this alternative would be the same as described above for the Western Route Alternative. However, 99 agricultural watercourses would be crossed in this alternative as compared to 82 crossings in the Western Route Alternative. These crossings comprise 41 laterals, 45 drainage ditches, and 13 canals.

## G. GEOLOGY, SOILS, AND SEISMICITY

### Western Route Alternative

#### Topography

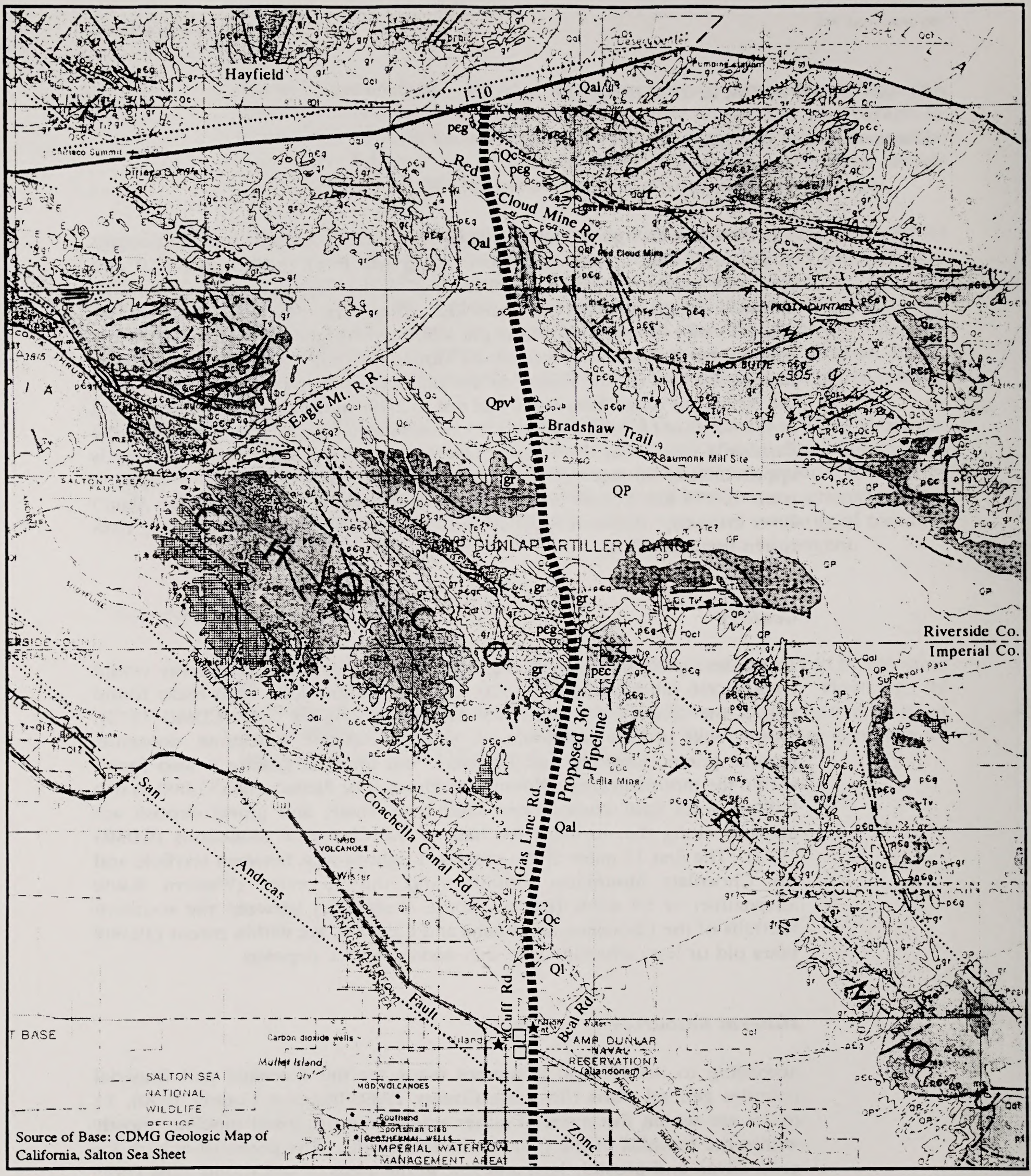
The elevation along the northern segment of the proposed alignment begins at approximately 1,400 feet above mean sea level (msl) along I-10 and gradually rises to elevation 2,000 feet msl at the Chocolate Mountain Aerial Gunnery Range northern boundary line. These first eleven miles traverse an alluvial valley between the Orocopia Mountains (highest elevation 3,800 feet msl) to the west and the Chuckwalla Mountains (highest elevation 4,500 feet msl) to the east (USGS 1986). As the alignment traverses the gunnery range, the elevations range from 2,000 feet msl to 2,400 at the crest, to 1,000 feet msl at the southern foothills of the Chocolate Mountains, to zero feet msl at the Coachella Canal. At the Niland valve station, the proposed right-of-way is approximately 90 feet below msl. The lowest elevation along the pipeline route is 175 feet below msl at approximately two miles north of the Alamo River crossing. Between Brawley and Calexico, the elevation gradually rises to ten feet above msl.

#### Geology

The oldest geologic units through which the proposed right-of-way would traverse are the Precambrian (570 to 4,500 million years ago) rocks found within the crest of the Chocolate Mountains (Figure G-1) (CDMG 1972). These rocks include conglomerate, shale, sandstone, limestone, dolomite, marble, gneiss, hornfels, and quartzite. An undated granite is also found within the mountain crest. Nonmarine Pliocene or Pleistocene (11,000 to two million years ago) consolidated sandstone, shale, and gravel deposit are mapped along the northern foothills of the Chocolate Mountains (CDMG 1972). The first 11 miles of the proposed right-of-way, between Hayfield and the Chocolate Mountains foothills, and the 56 miles (Western Route Alternative) or 58 miles (Eastern Route Alternative) between the southern foothills of the Chocolate Mountains and Calexico, are within recent (10,000 years old or less) alluvium, lake, clay and/or terrace deposits.

#### Mineral Resources

According to the Mineral Resources maps for the Riverside and Imperial counties general plans (Riverside County 1989; Imperial County 1990), 11 mines are within five miles of either side of the proposed pipeline, mostly within the foothills of the Chuckwalla Mountains. The potential is high for gold, silver, and possibly lead and zinc in the areas of Red Cloud, Lost Pony, and Model Mines (BLM 1988a). Also reported in the area are occurrences of

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NORTHERN SECTION

Figure G-1
(page 1 of 2)

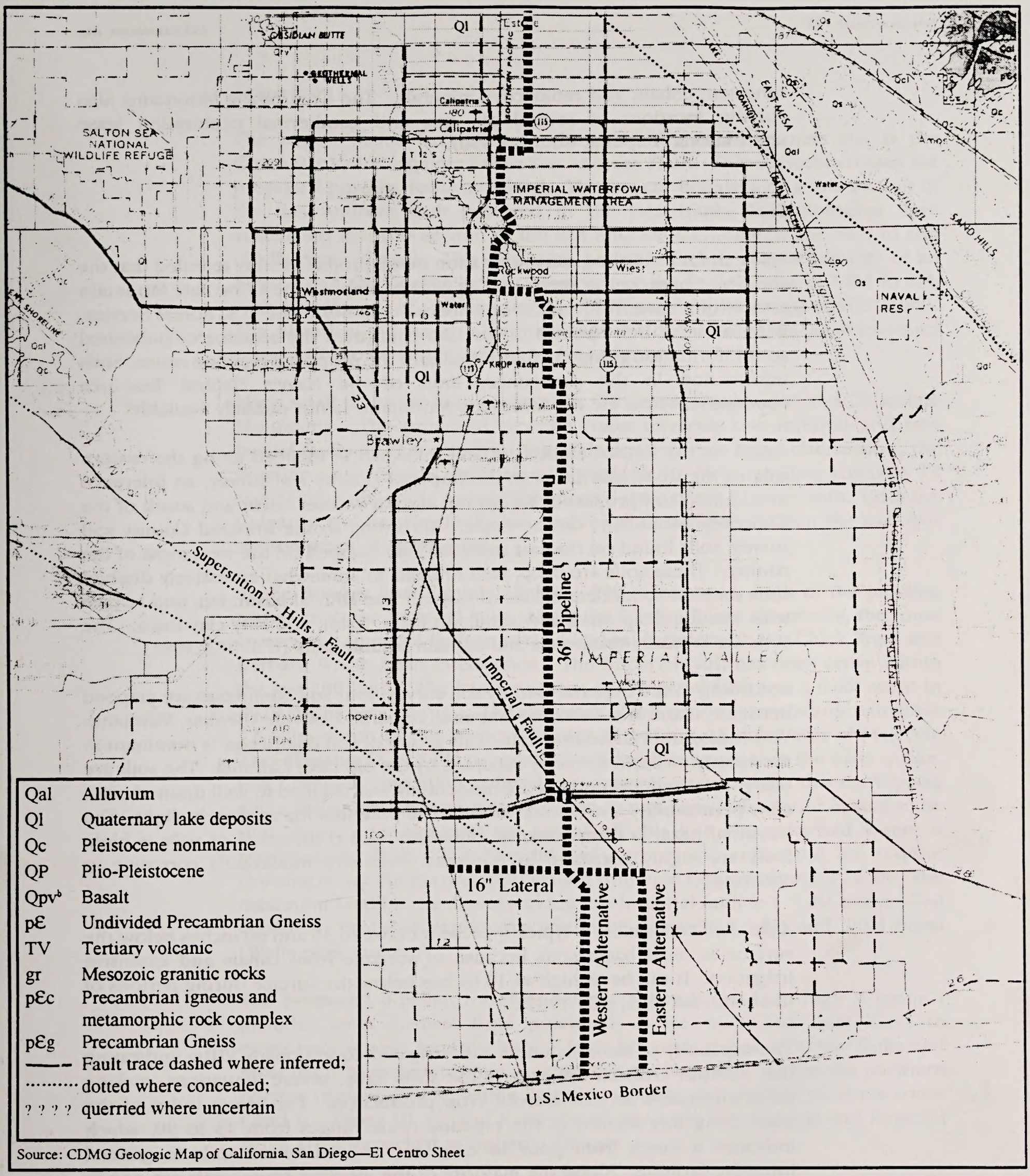
N

Proposed Pipeline Route

LSA

Scale in miles
0 4.5

Geology of Project Area
SoCalGas Line No. 6902




Source: CDMG Geologic Map of California, San Diego—El Centro Sheet

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SOUTHERN SECTION

Figure G-1

(page 2 of 2)

LSA

Geology of Project Area
SoCalGas Line 6902

tungsten, cobalt, and radioactive minerals. The Chuckwalla Mountains also contain locations of several oil, gas, and geothermal exploration lease applications (Imperial County 1990).

### *Soils*

A search for published soil information in the project vicinity revealed that the U.S. Soil Conservation Service (SCS) has not mapped the Chocolate Mountain area within eastern Riverside or Imperial counties. The U.S. Forest Service, BLM, and the U.S. Marines Corps also confirmed the absence of published soils information along the first 31 miles of the proposed pipeline route. Soils information in the preliminary draft of the Navy's Natural Resource Management Plan for the Chocolate Mountains is not publicly available.

Based on the limited amount of soil information mapped along the eastern side of the Coachella Canal in the Imperial County soil survey, an inference of common soil properties within the alluvial washes north and south of the Chocolate Mountains can be made. According to the Imperial County soil survey, soils found on the east mesa are also mapped on the west mesa of the county. These soils are deep, well drained to somewhat excessively drained soils on level to moderately steep slopes. The alluvial basin, fan, and terrace soils include deep sand, silty sand, silt loam, loam, and silty clay loam. The soils are typically calcareous and contain soluble salts (U.S. SCS 1981).

According to the Imperial County soil survey, four soil complexes are mapped between Niland and Calexico: Imperial, Imperial-Holtville-Glenbar, Meloland-Vint-Indio, and Niland-Imperial. This group of soil complexes is dominant in the lacustrine basin formerly occupied by the old Lake Cahuilla. The soils are nearly level and deep. They are moderately well drained to well drained, with slow permeability and surface runoff. The potential for erosion is slight. The potential hazards from seasonal expansion and contraction of soils is high. Soils are highly corrosive to uncoated steel and moderately corrosive to concrete.

A perched water table is typically present between 36 and 60 inches below the surface in most basin soils because of seepage from canals and extensive irrigation. It can be as high as 18 inches below the surface during periods of heavy rainfall (U.S. SCS 1981).

The capability of the soils under non-irrigated conditions is VIIIw, indicating that without artificial drainage, these soils have severe limitations, making them unsuitable for commercial crop production. The Storie Index of the soils along this section of the pipeline route ranges from 13 to 90, which indicates a range from poor to excellent or well suited soils to general intensive farming. Along the majority of the pipeline route, soils are poorly suited to intensive farming due to slow permeability, low water-holding capacity, a too-fine textured surface layer, or a problem or limitation caused by soil salinity (U.S. SCS 1981).

### *Seismicity*

The largest major fault zone in the proximity of the project site is the Coachella Valley segment of the San Andreas Fault. This segment crosses the proposed pipeline route at Niland. The last earthquake along this section of the San Andreas fault occurred in the late 1600s. Seismologists have speculated that this section of the San Andreas fault may be the next to slip (Wells pers. comm.). The maximum probable Richter magnitude (M) of an event along the Coachella Valley segment of the San Andreas is 7.8M to 8M, with an average recurrence interval of 220 years (± 13 years) (USGS 1988). The historical movement along this segment of the San Andreas is low-level creep with no certain historical surface rupture.

Many small faults are found within the Orocopia, Chuckwalla, and Chocolate Mountains. The proposed pipeline route traverses one inferred and one buried fault. In the vicinity of the Blair Road/Lindsey Road intersection, the pipeline route crosses the buried Calpatria fault. Near the State Highway 78 intersection, the route crosses the inferred trace of the Brawley fault. Both the Calpatria and Brawley faults have exhibited Quaternary (within the past two million years) displacement.

At the Bowker Road/County Highway S80 intersection, both of the pipeline routes cross the Imperial fault. Along the Eastern Route Alternative, the route crosses the Imperial fault in two additional locations at the Chick Road and Barbara Worth Road intersection. The Imperial fault has been active within the last 200 years. The latest event on the Imperial fault was a 6.6M event in 1979 (Wells pers. comm.). The epicenter of this earthquake was approximately 12 miles south of the Mexican border and about 12 miles east of Mexicali. Two aftershocks of 5.0M or greater occurred five hours after the main quake. Gas Company line 6001 suffered compressive stress during this earthquake and a fitting buckled, generating a leak. It was repaired without having to be shut down. An east-west gas lateral off this line was stretched where it traversed the fault. The line did not rupture and repair did not require shutting down the gas transport system (Imperial County Planning 1990). The maximum credible earthquake along the Imperial fault is a 7.0M event. The maximum probable earthquake would be between a 6.8M and 7.0M event (Wells pers. comm.).

The proposed pipeline traverses seismic safety zones I through V (zone I includes areas furthest from potentially active faults and least likely to experience seismic hazards; zone V includes areas closest to active faults and most likely to experience the greatest seismic hazards). Within the northern portion of the pipeline, within Riverside County, the pipeline traverses zones I and II. Zones III, IV, and V are traversed as the San Andreas and Imperial faults are approached in Imperial County.

## *Other Hazards*

### *Landslides*

According to the Imperial County landslide map, the potential for landslides and rockfall within the Chocolate Mountains is low to moderate. In addition, the irrigated valley (between East Highline and Westside Main Canals) and strips along the Coachella and All American canals and the New and Alamo rivers are subject to canal slope and river bluff failure/mud slides. The area of potential canal bluff failure is delineated at a distance of one-half the canal bank height beyond the toe of the slope of the canal bank (Imperial County Planning 1990). During a site visit in January 1993, it was noted that the western half of Gas Line Road at the East Highline Canal crossing had sloughed into the canal (Figure G-2, photograph 1). This failure occurred after three weeks of intense storms and has since been repaired.

### *Subsidence*

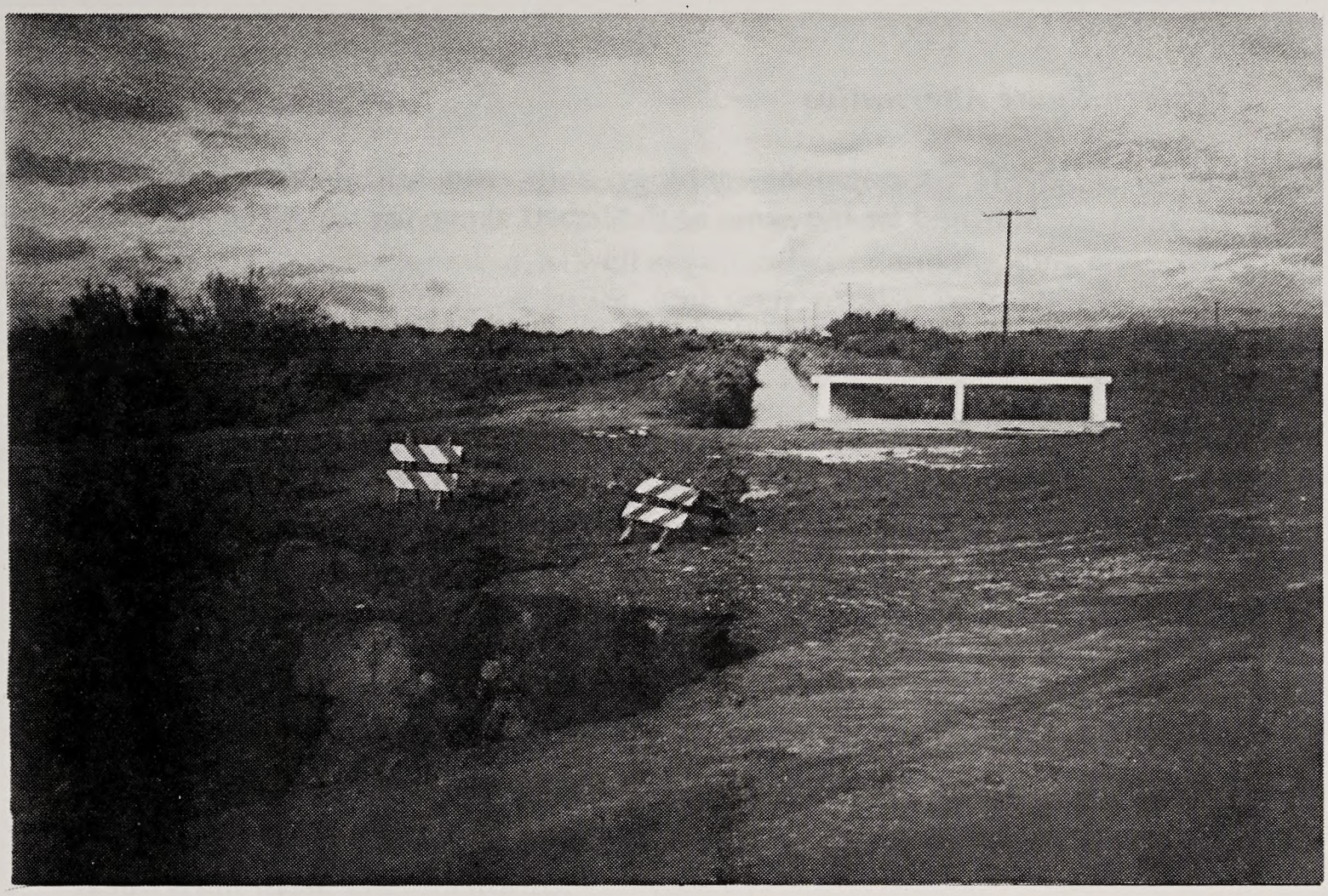
Subsidence is the gradual, local settling, or sinking of the earth's surface. It is usually the result of gas, oil, or water extraction, hydrocompaction, or peat oxidation. Surface effects related to subsidence are generally restricted to long surface structures such as canals, drains, and sewers, which are sensitive to slight changes in elevations. The Imperial Valley experiences a continuous natural subsidence toward the Salton Sea (Imperial County Planning 1990).

### *Erosion*

According to the General Plans for Riverside and Imperial counties, the erosion potential within the eastern mountain areas is extreme in high intensity rain storms except in areas of volcanic rock, where the hard surface of desert pavement provides protection. Desert pavement is present within the desert area north of the Chocolate Mountains. However, once this pavement is breeched, the potential for continued erosion and gullying is high.

During extremely heavy rainfall and/or flash floods through the desert, erosion in gullies does occur. Line 6000 is exposed in several deeply incised gullies within the northern BLM land along the proposed pipeline route, extending roughly four feet above the gullies (Figure G-2, photograph 2). In some areas, low intensity rains result in little erosion due to the moderately rapid permeability of the materials. Almost none of these soils are cultivated or urbanized. The potential for erosion is low within the nearly level to gently sloping surfaces of alluvial fans, basins, and terraces south of the Chocolate Mountains. Although some of these areas are dissected by gullies and washes, the dense gravel pavement and desert varnish protect the soils from wind and water erosion. No erosion along the existing pipelines 6000 and 6001 between Niland and El Centro was observed during a February 1993 site visit.

Photograph 1: Erosion of Gas Line Road crossing the East Highline Canal in January 1993. Road was reconstructed in February 1993.



Photograph 2: Line 6000 exposed in desert wash along Gas Line Road.

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Figure G-2

LSA

Erosion Areas
SoCalGas Line No. 6902

### *Eastern Route Alternative*

The topography, geology, soils, and seismic conditions of this alternative would be the same as described above for the Western Route Alternative.

## *H. HYDROLOGY*

This section describes the regional and local hydrology attributes of the proposed pipeline corridor. It includes an overview of drainage patterns along the proposed alignment, as well as groundwater and flooding concerns. All wetlands and watercourse issues, and their regulatory implications, are presented in the Wetlands section.

### *Western Route Alternative*

#### *Precipitation*

Precipitation throughout this region normally ranges between 4 and 5 inches per year. Local topography can also have a strong influence on rainfall totals from place to place. Relative humidity is low, averaging 30 to 50 percent in the early morning and 10 to 20 percent during the late afternoon.

Intense summertime thunderstorms can occur, accompanied by high winds and rain that can measure several inches per hour. Local flash flooding can result from these thunderstorms.

#### *Drainage*

The first five miles of the pipeline route near the I-10 corridor are relatively flat, draining toward the north to an eastward-flowing tributary to Ford Dry Lake. The next 10 miles of moderately sloping alluvial wash north of the Chocolate Mountains is drained by a series of incised gullies which direct runoff northwest to Salt Creek, which empties into the Salton Sea. Throughout the Chocolate Mountains, the pipeline route would be located within a confined alluvial wash system which drains southward. At the base of the Chocolate Mountains, the alluvial wash opens into a wide and gently sloping desert alluvial fan. Several other alluvial washes emanating from the Chocolate Mountains form coalescing alluvial fans. Runoff from within the alluvial fan meanders in wide and shallow washes. The courses of these washes fluctuate and dissipate (bed and banks become unrecognizable) before the end of the alluvial fan is reached. Prior to the installation of the bisecting Coachella and East Highline canals, these drainages extended further westward toward the Salton Sea.

Between Niland and Calexico, the regional drainage is controlled by the Imperial Irrigation District's canals and drainages system (Figure H-1, photographs 1, 2, and 3). The main source of Imperial Irrigation District water is from the Colorado River via the All American Canal. Because of the lower elevation of the valley, this flow is by gravity. Water is diverted to agricultural areas in the valley via a system of canals, laterals, and farm ditches. Excess flows and agricultural return flows are fed into drainage ditches that flow into the New and Alamo rivers, or directly into the Salton Sea (Imperial

Photograph 1. Typical concrete-lined lateral along agricultural roads.

Photograph 2. Earthen drain along agricultural roads.

Photograph 3. Bowker Road crossing over Main Canal.

01-26-93(SCG201A)

Figure H-1

LSA

Waterways Along Route
SoCalGas Line 6902

County Planning 1990). The Alamo River also receives natural runoff. The Alamo River flows from Mexico northwest to the Salton Sea. All surface water not consumed within the valley eventually drains into the Salton Sea.

The Western Route Alternative crosses approximately 68 intermittent streams, and 82 canals, laterals, and drains, and one perennial stream. The Eastern Route Alternative crosses approximately 68 intermittent streams, and 99 canals, laterals, and drains, and one perennial stream. These waterways are summarized in the tables and maps provided in the Wetlands Assessment Technical Report to this Environmental Assessment.

### *Groundwater*

Little is known about the quality and quantity of groundwater in the project vicinity. Good quality domestic water has been found at scattered locations (Imperial County Planning 1990). Communities on both sides of the Salton Sea are served by the Coachella Valley County Water District from wells in the Coachella Valley. The best known supply of fresh groundwater is in the area surrounding the community of Ocotillo in southwest Imperial County (Imperial County Planning 1990).

### *Water Quality*

According to the State Water Resources Control Board's 1990 Water Quality Assessment, the water quality of the Alamo River is "impaired", indicating that it cannot reasonably be expected to attain or maintain applicable water quality standards. The problem sources of pollutants include fertilizer, pesticides, and herbicides in irrigation runoff, accumulated soil salts, mercury in runoff emanating from past mining areas (State Water Resources Control Board 1990) partially treated sewage from the valley communities, and untreated sewage from Mexicali (Imperial County Planning 1990).

### *Flooding*

While floods in eastern Riverside and central Imperial counties are rare, they can be caused by heavy rains that occur along dormant creeks and washes. The Colorado River, which is generally well controlled, has in the past caused flooding along the river areas due to unforeseen large releases of water. Along the pipeline route, only one Federal Emergency Management Agency (FEMA) mapped floodplain is traversed and that is along the Alamo River, outside the community of Brawley (Imperial County Planning 1990).

### *Eastern Route Alternative*

The climate, drainage, and flooding setting for this alternative would be the same as the Western Route Alternative. The same intermittent streams and one perennial stream would be crossed as those in the Western Route Alternative. The Eastern Route Alternative crosses approximately 99 canals, laterals, and drains.

# I. NOISE

## Environmental Noise Standards and Guidelines

### Absolute Noise Standards

*Riverside County*. The noise element of the Riverside County's *Comprehensive General Plan* incorporates a version of the land use compatibility chart prepared by the State Department of Health Service's Office of Noise Control (ONC). According to this chart, the maximum acceptable noise level for residential uses, schools and office buildings is 60 A-weighted decibels (dBA) CNEL[2]. For recreational uses where tranquility is important (e.g., open space areas), 55 dBA CNEL is the maximum normally acceptable level. For other recreational uses and commercial uses, the maximum normally acceptable level is 65-70 dBA CNEL.

*Imperial County*. The noise element of the Imperial County's *Comprehensive General Plan* also incorporates a version of the land use compatibility chart prepared by the ONC. According to Imperial County's version, the maximum acceptable noise level for residential and office zones is 65 DBA CNEL. For recreational and open space zones, 70 DBA CNEL is the maximum normally acceptable level. For commercial and industrial zones, the maximum normally acceptable level is 75-80 dBA CNEL.

### Incremental Noise Standards

For the purposes of this analysis, an increase of three dBA or more in CNEL constitutes a significant noise impact whether or not it causes or contributes to an exceedance of any of the standards discussed above. An increase in one dBA or more in CNEL will constitute a significant noise impact if it causes or contributes to an exceedance of any of the standards discussed above. These increments are based upon studies of the minimum noise increase distinguishable by the human ear.

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[2]CNEL, the community noise equivalent noise level, is a 24-hour average noise energy level with a 10 dBA "penalty" added to noise during the hours of 10:00 PM to 7:00 AM to account for the greater nocturnal noise sensitivity of people, and a 5 dBA penalty is added to noise during the evening hours, 7:00 PM to 10:00 PM.

## *Western Route Alternative*

### *Noise Sources*

*Hayfield to North End of Gunnery Range*. The most potent sustained noise source within this segment of the project study area is traffic on I-10 at the route's northern end.

*Gunnery Range Segment*. The intermittent detonation of ammunition and jet aircrafts are the primary noise source in this portion of the study area.

*South End of Gunnery Range to Calexico*. Noise sources include traffic, such as that along State Highways 111, 115, 78, 8 and 98 and, to a lesser extent, Kershaw, Rutherford, Dietrich, Bowker, Chick, and Barbara Worth roads. Aircraft operations, associated with the U.S. Naval Air Facility at El Centro and the Brawley Municipal Airport, represent a more intermittent noise source. Railroad operations also influence the noise environment; Southern Pacific trackage crosses the proposed pipeline alignment at Niland and parallels it from south of Calpatria to north of Brawley.

### *Noise-Sensitive Receptors*

*Hayfield to North End of Gunnery Range*. No permanent noise-sensitive uses occur adjacent to the proposed pipeline alignment along this segment of the project area.

*Gunnery Range Segment*. No permanent noise-sensitive uses occur adjacent to the proposed pipeline alignment along this segment of the project area.

*South End of Gunnery Range to Calexico*. Areas designated Class III for purposes of assessing safety hazards (see Health and Safety section) are also noise-sensitive and potentially vulnerable to project noise impacts. These areas include residences near Beal Road east of Niland, the Meadows Union School along Bowker Road south of County Road S80, the Imperial Irrigation District office along Dietrich Road north of County Road S80, and the Bravo Ranch along Bowker Road just north of the U.S.-Mexico border. Setbacks of these receptors from the proposed pipeline alignment vary from about 100 feet to over 300 feet.

### *Noise Levels*

*Hayfield to North End of Gunnery Range*. At the northern end of this segment, traffic on I-10 results in fairly high noise levels for a rural area. Traffic noise modelling based upon the Caltrans vehicle counts updated through 1991 on I-10 indicates that CNEL may exceed 70 dBA within about 200 feet of the highway centerline, 65 dBA within about 400 feet, and 60 dBA within about 800 feet. However, the vast majority of this segment of the

project area experiences CNELs considerably lower, probably in the 40-50 dBA range.

*Gunnery Range Segment*. Existing noise levels within this segment are highly variable over time, but are generally characterized by quiet punctuated by brief noise events associated with detonation of ammunition. The intensity of these events at any location depends upon such variables as the proximity to the detonation, the size of the ammunition, intervening topography, etc. During normal operations, noise due to aircraft is also occasionally evident.

*South End of Gunnery Range to Calexico*. This segment passes nearer to small urban areas than any of the others, but still remains outside city and town limits. Along its alignment, it parallels several roadways (mentioned above under *Noise Sources*). All of these carry only sparse traffic; however, what little traffic there is includes a substantial proportion of heavy trucks, resulting in high peak noise levels near roadside. At intervals, it is crossed by somewhat more substantial traffic noise sources, the highways mentioned above. Traffic noise modelling based upon the Caltrans vehicle counts updated through 1991 on these highways indicates that CNEL may exceed 65 dBA within about 70 feet (State Highway 98) to 170 feet (I-8) of highway centerlines and 60 dBA within about 120 feet (State Highway 98) to 350 feet (I-8) of centerline. However, the vast majority of the southern project area does not experience noise from these sources.

Noise from aircraft operations probably has only a small to moderate influence on CNELs along this segment of the project area. The proposed pipeline alignment is well outside of the modelled 60 dBA CNEL contours for both the U.S. Naval Facility at El Centro and the Brawley Municipal Airport.

During a site visit on February 11, 1993, brief (two-minute) noise measurements were performed at the Meadows Union School (along Bowker Road just south of County Road S80) and at Bravo Ranch (along Bowker Road just north of the U.S./Mexico border). To assure the accuracy of these measurements, the instrument was calibrated before and after each measurement period.

At the school, noise levels were recorded 50 feet from the edge of Bowker Road, equivalent to the minimum setback of the school buildings. Noise levels varied from 45 to 76 dBA, with an $L_{50}$[3] of 61 dBA. Buses, trucks, and school activities were responsible for peak noise levels. At the Bravo Ranch, noise levels were recorded in front of offices and homes, near the curb of Bowker Road. Noise levels again varied from 45 to 76 dBA, with an $L_{50}$ of 59 dBA. No traffic was observed along Bowker; dominant noise sources included loud construction activities across the border in Mexico, as well as animal activity nearby.

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[3] $L_{50}$ is the noise level that is exceeded 50 percent of the time.

CNEL was not directly measured at the above-described locations, and it would be difficult to model due to the complexity of the noise environments. However, the measurement data considered along with the nature of the activities at these land uses suggest that, in the absence of short-term anomalies such as construction activities, CNELs at both locations are likely to be in the 50 to 60 dBA range. The typical CNELs at the residences near Beal Road east of Niland and at the Imperial Irrigation District office is also likely to be in the 50 to 60 dBA range. (Rail operations near the Niland-area homes are probably the dominant noise source at this location; traffic is probably the dominant source at the office use.)

## *Eastern Route Alternative*

### *Environmental Noise Standards and Guidelines*

Environmental noise standards and guidelines applying to the Eastern Route Alternative are the same as those applying to the Western Route Alternative.

### *Existing Noise Environment*

#### *Noise Sources*

Primary noise sources for the eastern route alternative are the same as for the western route alternative, except that Chick Road and Barbara Worth Road replace Bowker Road as the minor traffic noise sources adjacent to the southernmost portion of the proposed pipeline alignment. Furthermore, the Eastern Route Alternative parallels Highway 8 for about two and one-half miles rather than simply crossing it, making Highway 8 a more important noise source for the Eastern Route Alternative.

#### *Noise-Sensitive Receptors*

Because the Eastern and Western Route Alternatives are identical through the *Hayfield to North End of Gunnery Range* and *Gunnery Range* segments, noise-sensitive receptors within these segments are the same for the Eastern Route Alternative as for the Western Route Alternative. For the *South End of Gunnery Range to Calexico* segment, the Eastern Route Alterative avoids Bravo Ranch, but passes alongside seven residences and one restaurant along Barbara Worth Road south of State Route 98.

#### *Noise Levels*

Since the Eastern and Western Route Alternatives are identical through the *Hayfield to North End of Gunnery Range* and *Gunnery Range* segments, noise levels within these segments are the same for the Eastern Route Alternative as

for the Western Route Alternative. For the *South End of Gunnery Range to Calexico* segment, noise levels at the Bravo Ranch are not relevant, since the Eastern Route Alternative avoids this receptor. During a site visit on March 22, 1993, a brief (two-minute) noise measurement was performed near the homes and restaurant along Barbara Worth Road. Noise levels here varied from 39 to 57 dBA, with and $L_{50}$ of 48 dBA. These noise levels were the lowest recorded at any of the measurement locations for either of the alternatives. Typical CNELs at this location are likely to be in the high 40's or low 50's dBA.

## J. AIR QUALITY

### Regulatory Background

Five air pollutants have attracted the greatest regulatory concern nationwide: ozone, carbon monoxide (CO), small-diameter suspended particulate matter ($PM_{10}$; the "10" denotes the upper bound on the particle diameter, 10 microns), nitrogen dioxide ($NO_2$), and sulfur dioxide ($SO_2$). Ambient air quality standards have been established for these pollutants by both the federal government and the State of California. Data collected at permanent monitoring stations are used by federal agencies or the state to classify regions as "attainment," if the federal or state standards have been achieved, respectively, or "non-attainment" if otherwise.

The California Air Resources Board (CARB) coordinates and oversees both federal and state air pollution control programs in California. Significant authority for air quality control within the state's eleven air basins has been given to local Air Pollution Control Districts or Air Quality Management Districts, which regulate air pollutant emissions and develop non-attainment plans within their jurisdictions.

The project would be located in the Southeast Desert Air Basin (SEDAB), a five-county region that includes all of Imperial County and the interior desert portions of Kern, Los Angeles, San Bernardino, and Riverside counties. The pipeline route traverses only a portion of eastern Riverside County and the entire length of Imperial County. Air pollutant control in Riverside County is the responsibility of the South Coast Air Quality Management District (SCAQMD), while Imperial County is under the jurisdiction of the Imperial County Air Pollution Control District (ICAPCD).

### Existing Regional Air Quality

#### Western Route Alternative

Ozone is the most severe regional air quality problem in the SEDAB. Unlike many air pollutants, ozone is not emitted directly into the atmosphere, but is produced therein by a complex series of photochemical reactions involving reactive organic compounds (ROG) and nitrogen oxides ($NO_x$) as precursors. The SEDAB's intense sunlight and generally high temperatures during the summer months are ideal for formation of ozone. ROG and $NO_x$ emission sources are spread throughout the SEDAB; motor vehicles are the most important single source category. Peak ozone levels in the SEDAB usually occur in areas adjacent to the South Coast Air Basin, because ozone and its precursors from this extreme non-attainment area are transported through the connecting mountain passes.

Suspended particulate matter is a composite of natural and man-made materials, including soil, biological materials, sulfates, nitrates, organic compounds,

and lead. $PM_{10}$ concentrations in southern California attain their highest ambient concentrations in the SEDAB because it is downwind of the South Coast Air Basin and because of the region's dry climate.

Indications of pollutant levels along the pipeline route were obtained by reviewing recent data collected at nearby monitoring stations (*California Air Quality Data*, CARB 1989, 1990, and 1991). The three stations which give the most accurate representation of the range in local air quality to be found in and near the pipeline route are the Indio, Blythe, and El Centro stations (the latter located near the southern end of the project alignment). A recent three-year summary of these data are presented in Table J-1.

The SEDAB is a non-attainment area for both federal and state ozone and $PM_{10}$ standards.

### *Eastern Route Alternative*

Air quality in the Eastern Route Alternative is similar to that of the Western Route Alternative.

## *Air Quality Improvement Programs*

In response to the 1988 California Clean Air Act (CCAA) and the 1990 federal Clean Air Act Amendments (CAA), both the SCAQMD and the ICAPCD have produced plans to improve air quality and, for some pollutants, attain federal and state ambient air quality standards.

Compliance with the provisions of the CCAA is the primary motivation behind the 1991 *Air Quality Management Plan* (AQMP) developed by SCAQMD and the Southern California Association of Governments (SCAG). The AQMP proposes a stringent set of new emission control measures which both agencies believe are sufficient to guarantee attainment of federal standards for all pollutants by the year 2010. Attainment will not come easily, however. Region-wide ROG emissions reductions of almost 90 percent will be necessary to meet the federal ozone standard. State ozone and $PM_{10}$ standards would not be achieved by the year 2010, even with the full implementation of all measures proposed in the AQMP. Future revisions of the AQMP will seek to identify additional control measures which would guarantee their attainment as well.

The ICAPCD has also compiled an *Air Quality Attainment Plan* (AQAP) recently (April 1992). Its aim is to bring the county into compliance with the state ambient air quality standard for ozone by the earliest practicable date. The AQAP does not predict attainment of the state ozone standard and does not quantify the effect of inter-basin transport on county ozone levels. However, it does require Best Available Control Technology (BACT) and emission offsets for all new, modified, or relocated pollutant sources, and

# Table J-1 - Air Pollutant Data Summary 1989-1991
# SoCalGas Line No. 6902

| POLLUTANT | 1989 | | | 1990 | | | 1991 | | |
|---|---|---|---|---|---|---|---|---|---|
| | INDO* | BLYH* | CENT* | INDO* | BLYH* | CENT* | INDO* | BLYH* | CENT* |
| OZONE | | | | | | | | | |
| Highest 1-hour | 0.16 | NM | 0.11* | 0.16 | NM | 0.11 | 0.18 | 0.08* | 0.11* |
| Days > 0.12 ppm | 16 | NM | 0 | 10 | NM | 0 | 13 | 0 | 0 |
| Days > 0.09 ppm | 76 | NM | 4 | 47 | NM | 6 | 48 | 0 | 3 |
| CARBON MONOXIDE | | | | | | | | | |
| Highest 1-hour | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| Days > 35.0 ppm | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| Days > 20.0 ppm | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| Highest 8-hour | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| Days > 9 ppm | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| NITROGEN DIOXIDE | | | | | | | | | |
| Highest 1-hour | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| Days > 0.25 ppm | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| SULFUR DIOXIDE | | | | | | | | | |
| Highest 24-hour | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| Days $\geq$ 0.05 ppm | NM | NM | NM | NM | NM | NM | NM | NM | NM |
| PARTICULATES ($PM_{10}$) | | | | | | | | | |
| Highest 24-hour | 712 | NM | 287 | 520 | NM | 100 | 340 | 112 | 243 |
| Days > 50 UG/$M^3$ | 39 | NM | 31 | 41 | NM | 22 | 37 | 9 | 31 |
| Annual average | 66.4* | NM | 59.0* | 64.9 | NM | 41.0 | 59.8 | 41.0 | 50.3 |
| Years > 30 ug/$m^3$ | Yes | NM | Yes | Yes | NM | Yes | Yes | Yes | Yes |

*Stations: Indio (INDO), Blythe (BLYH) and El Centro (CENT)

**These data are based upon only a partial year of monitoring.

includes strategies to reduce vehicle trips, vehicle miles traveled, and traffic congestion. The AQAP does not address $PM_{10}$ standard attainment; this will be handled at the state level at a later date.

## K. CULTURAL RESOURCES

This section includes an inventory of known historic and cultural resources within the project area that are listed in, or potentially eligible for, listing in the *National Register of Historic Places*, according to Section 106 of the National Historic Preservation Act. Two cultural resources studies were conducted for this project. LSA Associates, Inc. (March 1993) studied the portion of the site north of Niland. C. A. Singer and Associates (April 1993) studied the site alignment south of Niland. Potential cultural resources are identified on or near the proposed route. More detailed analyses of cultural resources are presented in the Cultural Resources Technical Appendices C and D to this Environmental Assessment.

### *Methods*

Prior to the field work, a records search was conducted at the Eastern Information Center at the University of California, Riverside for Riverside County, and at Imperial Valley College Museum for Imperial County. The archival research included a review of the *National Register of Historic Places*, the *California Historic Landmarks*, the *Points of Historical Interest*, and the *California Inventory of Historical Resources*.

The field survey of the northern portion of the route was conducted from February 22 through 27, 1993. The proposed route was walked in 33-foot-wide transects, south to north. Three transects (total of about 100 feet) were conducted on the west side of Gas Line Road; one field investigator surveyed about 60 feet to the east of the road/ existing pipeline/power line corridor. This formation varied in the narrowed route through Iris Pass. Although the proposed working strip would be up to 100 feet in width, a survey corridor of approximately 160 feet was inventoried to allow flexibility in planning. A vehicle reconnaissance survey was conducted for the route south of Niland with a walkover at the site CA-IMP-1698.

### *Prehistoric Background*

This area was first occupied by humans approximately 12,000 years ago, with human concentrations from 12,000 to 6,000 years ago associated primarily with lake shores, drainages, alluvial fans, and terraces. Hunting and gathering became prevalent in the drier period from 3,000 to 6,000 years ago. Hunting continued in the region from 1,500 to 3,000 years ago. Increasing aridity forced many people to emigrate from the area from 800 to 1,500 years ago. From 300 to 800 years ago, the region was sparsely inhabited. Artifacts previously found in the region range from stone tools and chips in the earliest periods of human habitation, to projectile points, and, more recently (i.e. 300-800 years ago), ceramics.

### *Ethnography*

The project area was occupied by the Kamia and Quechan (Yuma) peoples in the south and the Desert Cahuilla to the north. Kamia villages were primarily campsites, located near water or shelter. Cachilla villages were usually located at the mouths of canyons. Both Cahuilla and Kamia peoples were primarily hunters and gatherers, although both practiced some horticulture. Quechan peoples were primarily growers and gatherers who lived near rivers and floodplains.

### *History*

Although the desert was considered an inhospitable environment, several early explorers passed through the region starting with the Coronado expedition forays up the Colorado River in 1540. Early European explorers and settlers entered the region by either the Sonora Road or Old Spanish Trail through the early 1800s. Settlement increased with military activity in the 1840s, discovery of gold along the Colorado in 1848, and railroad surveys in 1853-60. A smallpox epidemic in 1864 decimated many Desert Cahuilla. Mining flourished from the late 1880s and continues through the present time. The railroad was completed in 1876 and it, along with the Bradshaw Trail, provided access to the mines. Mining has remained an economic activity through the present time. Settlements around railroad trailheads began around 1885. The Salton Sea was created by flooding of the Colorado River in 1903-1907. Large scale irrigated agriculture began in the region in 1914, when the East Highland Canal reached Niland, and has continued to grow in the region. The use of the desert for military training began during World War II and continues through the present.

Each of these activities has resulted in different types of historic artifacts being left in the region, in the form of structures, trails, refuse, old mines, agricultural facilities, and military debris.

### *Western Route Alternative*

#### *Archival Findings*

The closest California Historic Landmark is the Desert Training Center near Desert Center, California (Landmark No. 985), which is 7.2 miles east of the proposed pipeline origin. The Bradshaw Trail, which crosses the proposed pipeline alignment 10.3 miles south of the origin, is known locally as a historic road. BLM has designated the Bradshaw Trail to its National Backcountry Byways list. This administrative designation by the BLM is in recognition of its local significance. The trail may be eligible for the National Register; no formal eligibility study has been condcuted. The trail is graded twice-weekly by the county. No properties in the pipeline alignment are listed on the federal or state inventories.

The archival review also indicated known prehistoric and historic sites and localities, and listed previous cultural resource surveys for the region. No previous surveys are listed for the alignment itself. However, a few surveys have been conducted nearby. These surveys include the Dames and Moore (1986), Westec (1982), and Archaeological Research Unit (1977) surveys along the I-10 freeway, the RECON (1991) survey for the Eagle Mountain Mine and Kaiser Industrial Railroad, the Caltrans District 11 report (1982) on the Skylark Site, and the Earth Technology Corporation (1992) report on a portion of the Chocolate Mountain Aerial Gunnery Range. These reports document several lithic scatters and quarries, as well as historic resources for the region.

Site record forms supplied additional information for this study. These records indicate the presence of three previously recorded prehistoric sites near or along the route. These records include one in Riverside County, CA-RIV-4884, and three in Imperial County, CA-IMP-68, CA-IMP-118, and CA-IMP-1698. The Imperial County sites are mapped in the archives as within the proposed project corridor, and the Riverside County site is adjacent to the corridor.

*CA-RIV-4884*. This site contains 15 to 20 chipping stations on a low north to south trending ridge that is covered with angular gravels (Dames and Moore 1986, Peterson and Wahoff 1992).

*CA-IMP-68*. This site has been described as a village with pottery, shell, bone, metate, manos, points, and other artifacts on the surface (Rogers 1929). The site extends along the terrace above the former Lake Cahuilla for 3/4 of a mile.

*CA-IMP-118*. This site and CA-IMP-68 may be one site. Both sites are located along the terrace above the former Lake Cahuilla, and approximately 1,000 feet separates the two sites. This site has been described as a village site with house pits, pottery, and stone tools (Rogers, 1929).

*CA-IMP-1698*. Site CA-IMP-1698 is a late period (post 1500 A.D.) site. This site is unique in that it probably reflects habitation in association with Mesquite Lake and Alamo River. This site was recorded in 1854 as a deserted Indian village and had not been revisited until this survey. Site CA-IMP-1698, if located and recorded properly in 1854, is a major site which could yield information for site dating, dietary practices, and adaption to a diminishing resource base.

### *Field Findings*

From Beal Road in Niland to the East Highline Canal, the area is semi-developed with trailer parks, a county maintenance yard, a water treatment facility, and agriculture. Previously recorded sites CA-IMP-68 and CA-IMP-118 were reported within the working strip (and are crossed by existing roads) between the East Highline and Coachella canals. This area is furrowed with

previous agriculture fields, crossed by roads, a power line and scattered with trash. No evidence of these sites could be found in the 1993 survey.

Site CA-IMP-1698 has been extensively modified by agricultural uses and the development of a water canal on the west side of McConnell Road. Although no artifacts were noted in this area, there appeared to be a direct correlation between the recorded site area and the density of well-rounded rocks in the field and along the road shoulder (i.e., rock density suddenly drops off to the north and south). This phenomenon may represent the natural edges of historic Mesquite lake, which is currently drained through Rose Outlet to the Alamo River, or the result of more recent factors such as soil importation. Other archaeological sites are known to exist around the shoreline of historic Mesquite Lake.

Previously recorded site CA-RIV-4884 was located in good condition. This site is a prehistoric lithic scatter/chipping station complex. Two additional lithic processing areas were recorded, as well as two historic can scatters. These are described below.

*Newly Found Prehistoric Sites.* One site (CA-RIV-5123) is a 700-square-meter area located just outside the working strip about 108 feet west of Gas Line Road, approximately two miles south of Bradshaw Trail. A small cave in the volcanic breccia is located 20 feet up the cliff. This site contains an extensive scatter of flakes and tools. The second site (CA-RIV-5122) is a lithic scatter of flakes and tools about 72 feet west of Gas Line Road near site CA-RIV-4884.

*Newly Found Historic Sites.* Two historic can scatters were recorded, one 30 to 100 feet west of Gas Line Road (CA-RIV-5121) , and one in the Red Cloud Wash to the west of Gas Line Road and south of Red Cloud Mine Road (CA-RIV-5124). Because these deposits are on the surface, lack integrity, and lack association with a known mine or other historical activity, they do not meet any of the *National Register* criteria.

*Newly Found Isolated Artifacts.* Six isolated finds were also recorded within the working strip. These finds included prehistoric artifacts, a scraper, a mano and a metate, and historic artifacts (e.g., cans and pipe remains).

### *Eastern Route Alternative*

Cultural resources along this alternative would be the same as for the Western Route Alternative.

## L. PALEONTOLOGICAL RESOURCES

Two paleontological studies were prepared for this Environmental Assessment. The northern segment of this project alignment (from Hayfield to Niland) was studied by LSA Associates, Inc. (March 1993), and the southern portion of the route was surveyed by Paleo Environmental Associates (March 1993). Detailed analyses of paleontological resources are presented in the Paleontological Resources Technical Appendices E and F to this Environmental Assessment.

### *Methodology*

An archival records review was conducted at the Regional Data Base at the San Bernardino County Museum; the Los Angeles County Museum of Natural History, which includes the fossil recovery data of the University of California at Los Angeles; the California Institute of Technology; and the Museum of Paleontology, University of California, Berkeley. Pertinent published and unpublished paleontological/geological literature was reviewed. Pre-survey visits and field surveys were conducted.

A pre-survey visit to the northern portion of the corridor was conducted in February 1993 to view the physical conditions and develop a survey plan. The corridor was examined for evidence of paleontologic resources, exposed rock outcrops in the area, including gullies, washes, and road cuts. The paleontological field survey was conducted March 22 through March 27, 1993. Over a period of six days, the crew walked transects of 30 feet in a corridor 150 feet wide from Interstate 10 through the Chocolate Mountains and south to Beal Road east/northeast of Niland. Along the route, geologic units were inspected for exposed fossil materials and potential paleontologic sensitivity.

No field survey was conducted for the Niland to Calexico portion of the alignment because the disturbed nature of the agricultural lands in that segment, and the presence of paved roadways minimize the likelihood of finding useful surface indicators of paleontological resources.

### *Paleontologic Sensitivity/Significance*

Paleontologists have developed a sensitivity rating for the paleontologic potential or sensitivity of rock units. The paleontologic sensitivity rating is based on a combination of factors: 1) the past history of the rock unit in producing scientifically significant fossils, 2) the presence of recorded fossil localities and/or exposed fossils in the study area, and 3) the degree of systematic scientific study, exploration, and outcrops and/or excavation in the area.

The rating scheme is divided into five classes: no, low, moderate, high, and indeterminate:

- "No sensitivity" is for rocks of a crystalline origin or those heavily metamorphosed.

- "Low sensitivity" is applied to rocks that are too young geologically to produce scientifically significant fossils *in situ*, are moderately metamorphosed, or have a poor history of fossil finds even after extensive excavation and study.

- "Moderate sensitivity" is for rock units where a good possibility exists that fossil material will be exposed during earth moving activities.

- "High sensitivity" is the rating given to rocks that have a past history of yielding numerous significant fossils and/or have fossil localities recorded within the study area.

- "Indeterminate sensitivity" is applied to rocks where systematic scientific study has not been conducted, rock exposures are poor or infrequent, and/or little excavation has taken place.

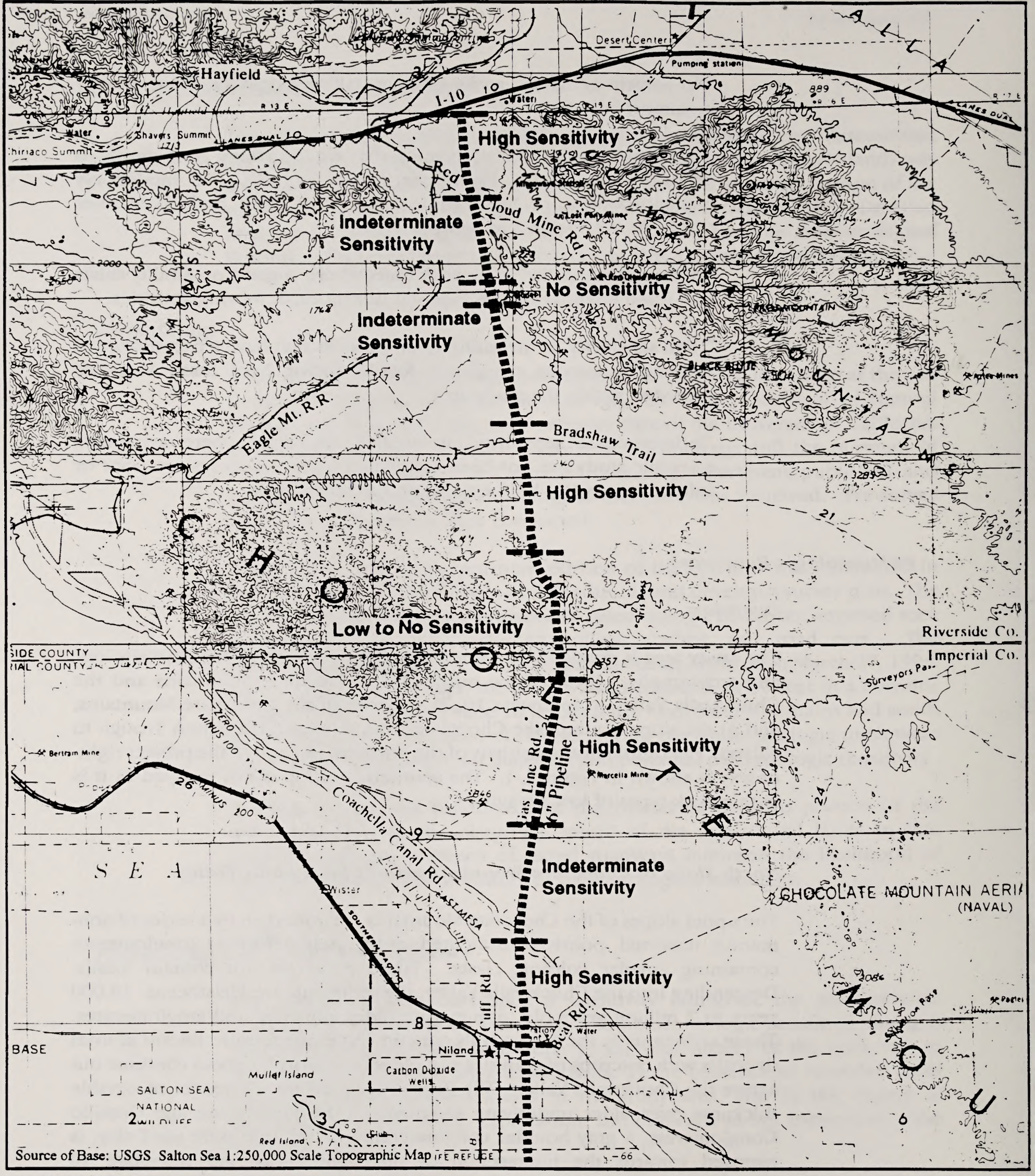
## *Paleontologic Resources*

### *Overview*

The study area is divided into three areas for discussion of the paleontology and stratigraphy: 1) the slope north of the Chocolate Mountains and the Chuckwalla Valley to Interstate 10, 2) the core of the Chocolate Mountains, and 3) the slope south of the Chocolate Mountains and the Salton Trough to Niland. Paleontological sensitivity of the northern portion of the project right-of-way is shown in Figure L-1. The southern portion is not mapped as it is within rock types of low sensitivity.

### *North Slope of Chocolate Mountains and Chuckwalla Valley*

The upper slopes of the Chocolate Mountains are underlain by a series of non-marine, unsorted, poorly consolidated, moderately deformed conglomerate containing angular volcanic clasts. These rocks do not contain fossils. Descending into the Chuckwalla Valley, the sediments are Pleistocene, 10,000 years to 2 million years old, non-marine older alluvium, and fanglomerates. These sediments in the Mecca Hills contain vertebrate fossils. Recent alluvial deposits with outcrops of granitics and older metamorphic rocks continue out across the Chuckwalla Valley. The Recent materials form a veneer of variable thickness over older underlying sediments. The Pleistocene age Ocotillo Conglomerate, a gray boulder conglomerate grading into pink sand clay, is exposed towards the intersection of the right-of-way and Interstate 10 (Jennings 1967). This unit has yielded Pleistocene vertebrate fossils in outcrops west of the project area.




01-26-93(SCG201A)

Figure L-1

N

LSA

Scale in miles

0 4.5

Generalized Paleontologic Sensitivity Map
Interstate 10 to Beal Road
SoCalGas Line No. 6902

The Ocotillo Conglomerate is fossiliferous west of the project area. It is rated as having high potential to contain fossils. The Older Alluvium is rated as having an indeterminate sensitivity because they have not been systematically studied in detail. This lack of systematic study precludes a more exact sensitivity determination.

### *Chocolate Mountains*

The core of the Chocolate Mountains is composed of a series of granitics, metamorphics, and sedimentary rocks. The project right-of-way travels through a pass in the Chocolate Mountains, which is floored by thick Recent alluvial sands, silts, and conglomerates. Rocks along the sides of the pass primarily are crystalline metamorphic and igneous units. They do not typically contain fossils (Jennings 1967).

The thick sequence of alluvium and sands in the pass at the crest of the Chocolate Mountains is Recent in age. Because of its young geologic age and thickness, the young alluvium is considered to have a low paleontologic sensitivity.

The Recent alluvium is too young geologically to contain scientifically significant fossils *in situ*. However, these deposits may only form a surface veneer over older and more sensitive units, or may have been included on maps with older material. Also, the use of the Chocolate Mountains as a gunnery range has precluded intensive geologic mapping. Therefore, in certain areas of the project, such as the Chuckwalla Valley and the south slope of the Chocolate Mountains, these sediments have been rated as having an indeterminate potential.

### *South Slope Chocolate Mountains to Niland*

The crest of the Chocolate Mountains forms the northern edge of the Salton Trough. Recent alluvial materials or fan deposits associated with isolated outcrops of metavolcanic rocks occur extending south from the Chocolate Mountains. Small outcrops of older alluvial materials are also present on these fans (Jennings 1967).

Recent sands and silts are exposed at the southernmost point of the study area near Niland. The Pleistocene, possibly Pliocene, aged Brawley Formation (lacustrine sediments) and ancient terrace deposits are visible at the base of the fans, south slope of the Chocolate Mountains (Waters 1983). These rocks represent the ancient shoreline of Lake Cahuilla and have a history of producing large numbers of late Pleistocene fresh water invertebrates and vertebrates as well as terrestrial vertebrates. Numerous paleontologic localities are recorded in these beds.

The Brawley Formation is rated as high paleontologic sensitivity. The presence of both terrestrial and fresh water vertebrates and snails discovered on the survey, as well as the recorded localities, indicates the high fossil potential for these beds.

### *Niland to Calexico*

Geologic mapping of the pipeline rights-of-way and vicinity is provided by Dibblee (1954), Jennings (1967), Loeltz et al. (1975), and Strand (1967). Only one rock unit, Quaternary lake deposits or Lake Cahuilla, is recognized in the rights-of-way.

Although no fossil site is recorded from the pipeline rights-of-way in this reach, a number of vertebrate fossil sites are recorded from Imperial Valley (Lander 1986, Jefferson 1991). However, most of these sites are from the Brawley Formation (see Jefferson 1991), which is exposed beyond the highest shoreline associated with the Quaternary lake deposits of Lake Cahuilla in the most peripheral portions of the Imperial Valley, and underlies the Quaternary lake deposits in the more central portions of the valley, where it has limited exposure. However, the two rock units cannot be distinguished in the subsurface (Loeltz et al. 1975).

The proposed, eastern and western alternatives, and lateral are all underlain entirely by Quaternary lake deposits. No fossil remains are definitely known from this rock unit and no fossil site is recorded from the pipeline rights-of-way. The Quaternary lake deposits in the pipeline rights-of-way and within the proposed depth of excavation for the pipeline trench (eight feet) have only a low potential for yielding fossil remains and, therefore, are considered to be of low paleontologic importance.

### *Field Survey Findings*

Two fossil localities were found during the survey of the northern section of the right-of-way for the proposed project. The localities are in Section 27 of the USGS Iris Wash 7.5' Series Quadrangle south of the Chocolate Mountains in sediments east of the Salton Sea. The fossils were observed weathering out of the Brawley Formation, a late Pleistocene non-marine unit. The fossil material includes the snail *Physa (Physella) humerosa*, two species of a medium-spired snail, a high-spired snail, a planorbid snail, the fresh water clam *Anodonta (cf.) californiensis*, and bone fragments. The bone fragments are either fish or terrestrial vertebrates. The initial find of these fossils indicates a rich deposit of fossil material is likely present at the localities and in these sediments. The records of the San Bernardino County Museum contain several additional fossil localities in the immediate area of the proposed pipeline in the Brawley Formation. The most fossiliferous sediments follow the 40-foot elevation contour of the shoreline of the Salton Sea.

## *M. HEALTH AND SAFETY*

Health and safety issues related to acquisition of pipeline rights-of-way, construction, operation, and maintenance are regulated by several federal and state agencies through applicable statutes and orders. These agencies have been identified in the Introduction to this Environmental Assessment. Following is an expanded discussion of regulations pertinent to health and safety implications of pipeline design, construction, operation, maintenance, and monitoring.

### *Federal Regulations*

The BLM is authorized to grant a right-of-way for pipelines traversing federal lands in accordance with 43 CFR, Part 2800, Subparts 2880 pertaining to oil and natural gas pipelines and related facilities. Under this statute, the applicant must meet pertinent pipeline system construction, operation, and maintenance criteria, and all additional state and federal laws. The applicant is also required to suppress fires on or near the right-of-way and related facilities, and control or prevent damage to the environment, public or private property, and hazards to public health and safety. The holder of the right-of-way grant is further liable for any damage or injury incurred in connection with use or occupancy of the right-of-way.

To prevent corrosion, each buried pipeline must also be electrically isolated from other underground metallic structures unless the pipeline and other structures are electrically interconnected and cathodically protected as a single unit. When a pipeline is located close to electrical transmission tower footings, or in other areas where fault currents or unusual risk of lightning may be anticipated, protection must be provided against damage due to fault currents or lightning, and protective measures must also be taken at insulating devices.

The U.S. Department of Transportation regulates the design and operation of natural gas pipelines through 49 CFR, Parts 190, 191, and 192. Part 190 includes procedures of the Office of Pipeline Safety for implementing their responsibilities under the Natural Gas Pipeline Safety Act of 1968. Part 191 outlines reporting requirements for incidents and annual pipeline summary data by operators of gas pipeline facilities. The operator must report any incident that involves a release of gas from a pipeline which results in a death or injury, property damage, or significant loss of gas.

Requirements for minimum safety for pipeline facilities and the transportation of gas are contained in Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards." Design and safety standards (e.g., wall thickness, pressure, valve spacing, and cover) for pipelines are determined, in part by relative location to human-made structures. Classes have been defined as described below. These areas extend 220 yards on either side of the centerline of any continuous one-mile length of pipeline.

The standards for pipeline installation become more stringent from Class I to Class IV. Maximum distances between valve stations are less (from 20 miles to five miles apart).

- ***Class I.*** Any class location unit that has ten or fewer buildings intended for human occupancy.

- ***Class II.*** Any class location unit that has more than ten but fewer than 46 buildings intended for human occupancy.

- ***Class III.*** Any class location unit that has 46 or more buildings intended for human occupancy or an area where the pipeline lies within 100 yards of a building or well-defined outside area that are occupied by 20 or more persons during normal use.

- ***Class IV.*** Any class location unit where buildings with four or more stories above ground are prevalent.

### *State Regulations*

Public Utilities Commission General Order (G.O.) 112-D contains State of California rules governing design, construction, testing, maintenance, and operation of utility gas gathering, transmission, and distribution piping systems. The rules were established to protect the health, property, and welfare of the public. These rules are based upon the requirements established in 49 CFR, Part 192.

As required by G.O. 112-D, a pipeline operator must have a continuous surveillance program to observe surface conditions on and adjacent to the pipeline right-of-way for indications of leaks, construction activity, and other factors that might affect safety and operation. The maximum allowable frequency between patrols is listed as follows:

| *Class* | *At Road & Rail Crossings* | *At All Other Places* |
|---|---|---|
| I & II | 6 months | 1 year |
| III | 3 months | 6 months |
| IV | 3 months | 3 months |

### *Gas Company Procedures*

As discussed in the Project Description, Gas Company procedures for design, construction, testing methods, operation, and maintenance of the pipeline would conform with or would be more stringent than the requirements of California PUC General Order 112-D, based upon 49 CFR Part 192. Personnel experienced in pipeline construction work would be employed. Federal Occupational Safety and Health Administration (OSHA) and Cal OSHA

requirements would be followed to protect worker safety. Surveillance would be performed at intervals which either meet or exceed the frequencies mandated in G.O. 112-D.

### *Existing Class III Land Uses*

#### *Western Route Alternative*

With respect to health and safety, the pipeline route is located in proximity to several areas of land uses under Class III. These uses include: (1) the Meadows Union School south of County Road S80 and two residences near the Southern Pacific railroad tracks where the alignment occurs across from the school; (2) the Imperial Irrigation District Office on Bowker Road north of State Highway 98 in which the pipe would be installed in the adjacent roadway; and (3) the Bravo Rancheria at the southern end of the pipeline just north of the border with Mexico.

In the three existing sensitive areas, the pipeline would be designed, constructed, and monitored to meet or exceed the standards and requirements for Class III locations. Standards would be met for up to a distance of 660 feet from the school facilities, the office building, and the rancheria.

#### *Eastern Route Alternative*

The Class III land uses traversed by the Eastern Route Alternative include the Meadows Union School south of County Road S80, two residences near the Southern Pacific railroad tracks north of the school, and one restaurant and four residences along Barbara Worth Road, just south of State Highway 98. As with the Western Route Alternative, pipeline design, construction, and monitoring through these areas would be consistent with requirements for Class III locations.

# IV. POTENTIAL IMPACTS AND MITIGATION MEASURES

## A. *LAND USE*

Land use impacts can be defined as effects that would result if the pipeline adversely affected existing land uses, or conflicted with adopted land use plans and policies.

### *Western Route Alternative*

#### *Conflicts With Existing Land Uses*

Throughout a four- to six-week period, project construction would require that aerial bombing exercises along the project route within the Chocolate Mountains Aerial Gunnery Range cease. Pipeline construction through this segment could occur around the clock to minimize disruption of military exercises. Once the buried pipeline is installed, use of the range for aerial target practice would resume.

Because the pipeline would be located within existing roadway easements, no permanent or significant impacts on open space or agricultural land uses along the alignment are anticipated. The construction zone between Niland and Calexico, however, could result in temporary agricultural impacts. The working strip right-of-way could encroach as much as 20 feet within the adjacent agricultural land uses for up to a total of nine miles. This construction may prevent agricultural activities within this encroachment area for up to one growing season. The loss of up to 22 agricultural acres for one growing season would be considered a negligible impact when compared to the total available agricultural land base within the project vicinity.

During construction in the area between Hayfield and Niland, temporary access inconveniences may result for individuals with mineral claims off of Gas Line Road. Because most vehicles used in this area are for off-road use, the detours around project construction and equipment during these individuals' infrequent visits would not represent a significant problem. The project itself would not adversely affect existing mining claims.

During the construction period, the Imperial Irrigation District's Western Division field office, Meadows Union School, and Bravo Ranch may experience traffic, visual, and noise impacts. However, their operation would continue during pipeline construction. Once in place, the buried pipeline would not affect their operations.

#### *Planned Uses and Land Use Policies*

According to the General Plans of Riverside and Imperial counties, future land uses along the proposed route include open space, military reservation, and agriculture. The proposed project would conform with these uses.

Because the pipeline construction within BLM lands would be a replacement project within an existing right-of-way allowed in the California Desert Conservation Area (CDCA), the project would be in conformance with the CDCA plan. In accordance with the CDCA plan, the proposed project would require a Mineral Leasing Act right-of-way grant under Section 28 of the Mineral Leasing Act from the BLM. The project plans must conform with the Desert Tortoise Compensation Guidelines for work performed within the Chuckwalla Crucial Habitat Area.

### *Eastern Route Alternative*

#### *Conflicts With Existing Land Uses*

The potential impacts of this route would be similar to those of the Western Route Alternative. Approximately 23 acres of agricultural land could potentially be prevented from being used due to the construction right-of-way encroachment. The Eastern Route Alternative would not pass by the Imperial Irrigation District office or the Bravo Ranch. It would, however, pass by approximately seven residences and one restaurant near the State Highway 98/ Barbara Worth Road intersection. During the construction period, these occupants may experience traffic, visual, and noise impacts.

#### *Planned Uses and Land Use Policies*

Similar to the Western Route Alternative, this route would conform with the planned uses of the area.

### *No-Action Alternative*

This alternative would have no impact on existing and future land uses in the alignment.

### *Mitigation Measures*

1. To minimize potential land use conflicts resulting from short-term visual, traffic, and noise impacts associated with pipeline construction adjacent to several residences; the Imperial Irrigation District office; Meadows Union School; Bravo Ranch; and El Charro Restaurant, located closest to the pipeline alternative routes, the Gas Company shall undertake measures identified in the respective sections of the EA (see pages IV-10, IV-12, and IV-55).

## B. SOCIOECONOMIC CONSIDERATIONS

### Introduction

The proposed pipeline would result in both positive and negative socioeconomic impacts. Construction workers would require housing, receive an income, and generate taxable revenues. Beyond property taxes paid by the operator, no local socioeconomic effects would be associated with subsequent operation of the pipeline. The only potentially significant adverse impact would be a temporary decrease in the availability of temporary housing in the Imperial Valley.

Socioeconomic impacts are analyzed for the I-10 corridor and Imperial Valley regions and are assumed to be concentrated in urbanized areas which have the greatest availability of temporary housing. An impact may be considered significant if it results in a 10% or more variation in the existing condition of the socioeconomic indicator (LSA 1989).

### Western Route Alternative

#### Timing of Impacts

If the project segments are constructed sequentially, socioeconomic impacts in the I-10 corridor in the first four to six weeks of construction would occur during construction from I-10 to the gunnery range. Construction crews working on this segment from I-10 to the gunnery range would be housed in the vicinity of the I-10 corridor, most likely in the cities of Indio, Coachella, and Blythe. Crews would commute to the construction site. Once construction enters the gunnery range, crews would relocate to temporary housing in the Imperial Valley. They would likely remain in rented housing units, hotels, or motels in the Imperial Valley through completion of the project.

#### Population

The majority of the workers would be recruited from southern and central California with the remainder being recruited from across the country (Adams pers. comm.). Crews would relocate to the project area and reside in temporary housing near the project construction sites.

A crew of 50 people could reside in the I-10 corridor during construction of the northern segment. This number of people would be an insignificant increase in the population of approximately 99,000 people (as of 1990). The population in the Imperial Valley would increase by as many as 200 people during construction of the final segments of the proposed project. This temporary increase would also be insignificant to the population of 89,000 people in the Imperial Valley (as of 1990).

### *Employment and Income*

Neither the I-10 corridor, with a total civil labor force of 47,000 people in 1990, nor the Imperial Valley, with a total civil labor force of 43,000, would be significantly affected by the employment of from 50 to 200 workers for the project. Although the project would generate construction jobs, it would not have a direct or long-term impact on existing employment in the area because construction workers would be imported from throughout the country for the 17- to 22-week construction period.

### *Housing*

Construction crews typically stay in motels, hotels, rented housing units, trailers, or campers. Less than 5% of the crew could be expected to use trailers or campers, and the majority would seek accommodations in hotels and motels. Thus, potential impacts on motels and hotels would be greater than on rental units.

#### *I-10 Corridor*

The need to house workers for from four to six weeks in the I-10 corridor would not significantly affect available temporary housing in the area. Available housing would decrease by 1.3% (Table B-2).

#### *Imperial Valley*

Available housing in Imperial Valley would be temporarily adversely affected impacted during the 17 to 22 weeks of construction of the final three segments of pipeline. As shown in Table B-2, approximately 9% of available housing would be occupied by project crews during the six to eight weeks of peak construction employment. This increase in use would likely last no longer than eight weeks. This impact, therefore, would not be long term. Because only approximately 38 vacant hotel and motel rooms are estimated to be available in the Imperial Valley (excluding Calexico), the crews could occupy all available hotel and motel space. Project workers would need to find alternative temporary housing, such as housing unit rentals or trailers.

### *Local Trade*

Expenditures on local trade resulting from the proposed project would be insignificant compared to total sales in the region. Expenditures are estimated based on each worker spending $30 per night on lodging and $30 per day on food and entertainment. The shortest predicted construction period and smallest predicted number of workers were used to avoid overestimating these project benefits.

**Table B-2 - Available Temporary Housing**
**SoCalGas Line No. 6902**

| Housing | I-10 Corridor | Imperial Valley |
|---|---|---|
| Vacant Housing Rooms For Rent (Assumes 60% of housing rentals are one-bedroom units and the remainder are two-bedroom units.) | 1,820 | 1,064 |
| Vacant Hotel/Motel Rooms (10% Vacancy Rate) | 50 | 38 |
| Total Available Rooms | 1,870 | 1,102 |
| (Minus) Project Demand For Rooms (Assumes double occupancy and no use of campers.) | (25) | (100) |
| Remaining Rooms | 1,845 | 1,002 |
| Change In Available Units | 1.3% | 9% |

Total local expenditures in the I-10 corridor would equal $84,000 during the four-week construction period, compared to combined total taxable sales of approximately $505,000,000 for Blythe, Coachella, and Indio in 1991. Local expenditures in the Imperial Valley would total approximately $735,000, compared to combined total taxable sales of $469,000,000 for the five major communities in 1991.

### *Agriculture*

The construction right-of-way south of Beal Road would include agricultural land uses. Construction may prevent agricultural activities within the working strip for up to one growing season, which would result in the potential loss of revenues to landowners. Assuming that a portion of the working strip, 20 feet wide and 9 miles in cumulative length, would be used for agricultural purposes, approximately 23 and 22 acres of active agriculture would be potentially affected under the Eastern Route Alternative and Western Route Alternative, respectively. The Gas Company has proposed to reimburse landowners for loss of agricultural land values.

In 1991, agricultural land uses covered 561,000 acres in Imperial County. The loss of up to 23 acres for one growing season represents a negligible impact.

### *Tax Benefits*

Construction of the proposed project would result in positive impacts on local trade revenue because additional taxes would be paid by vendors selling goods and providing services to the crews. Construction expenditures for items such as fuel would generate sales and fuel taxes. Wages paid to the crews would result in additional income taxes. Franchise fees would be generated for portions of the pipeline located in the public right-of-way.

Construction of the proposed project would result in increased property values, which would result in payment of new state property taxes. For the purposes of estimating property tax revenues, the construction cost of the pipeline is assumed to be equal to its cash value (Howard pers. comm.).

The total annual property tax of $653,000 for the Western Route Alternative or $670,000 for the Eastern Route Alternative would be divided between Riverside and Imperial counties, proportionate to the value of pipeline within each county (Table B-3). Each county's general fund would receive approximately 40%, schools would receive approximately 50%, and special districts such as hospital, water, and fire districts would receive the remainder. Because the pipeline passes through only unincorporated areas, no municipalities would receive revenues from property taxes.

## *Eastern Route Alternative*

The potential socioeconomic impacts associated with construction of the Eastern Route Alternative pipeline would be comparable to those described for the Western Route Alternative. Socioeconomic impacts would be dependent primarily on the number of construction workers and the location of temporary housing for the crew. These project characteristics would not vary measurably between the two alternatives. Estimated property taxes generated by this alternative would be $670,000 (Table B-3). Estimated property tax revenues would be greater than those generated by the Western Route Alternative because this alternative would be two miles longer.

## *No-Action Alternative*

This alternative would have no temporary significant adverse impacts on housing supply in the Imperial Valley region. Benefits to local trade from sales and tax revenues would not occur if the proposed project is not implemented. These benefits are estimated at $819,000 in sales and between $653,000 and $670,000 in taxes (Table B-3).

**Table B-3 - Estimated Property Tax Revenue**
**SoCalGas Line No. 6902**

| | Western Route Alternative | Eastern Route Alternative |
|---|---|---|
| Pipeline Cost Per Mile | $800,000 | $800,000 |
| Pipeline Miles | 75.6 | 77.6 |
| Cash Value of Pipeline | $60,480,000 | 62,080,000 |
| Tax Rate[1] | 1.08% | 1.08% |
| Estimated Total Annual Property Tax[2] | $653,184 | 670,464 |

Sources: California Board of Equalization and the Gas Company

### *Mitigation Measures*

Where the construction right-of-way constrains agricultural activities, the Gas Company shall reimburse landowners for the temporary loss of agricultural revenues.

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[1] Assumes the California average property tax rate. Actual tax rates are likely to vary.

[2] Estimate does not take into account lost property value associated with abandonment of the existing pipeline 6000.

## C. VISUAL RESOURCES

### *Western Route Alternative*

The proposed project would have both short- and long-term visual quality impacts. Short-term visual impacts would occur as a result of construction activities, while long-term impacts would result from clearing of vegetation from part of the working strip, approximately 20 feet of which is Gas Line Road. In visually sensitive areas, clearing would be limited to that amount needed to facilitate construction.

The Niland staging area, if not set back or effectively screened from Noffsinger Road, could result in short-term visual impacts on travelers along the road.

During construction, an increase in debris and surplus materials, such as welding rod, pipe sections, discarded equipment, paper, plastic, and metal fragments, could occur along the right-of way. This debris would be cleaned up immediately behind the equipment as construction progresses. These materials could be aesthetically unpleasant during the construction period, but would have no long-term impact after debris is removed. The Gas Company would monitor the clean-up of the project site and conduct follow-up inspections. Therefore, an increase in debris and surplus materials is not likely to result in a significant visual impact. Except for a few localized areas described below, construction would not result in significant short-term visual impacts along the alignment.

A basic construction zone of 75 feet in width would be required along the majority of the route. This working strip may need to be increased to a maximum of 100 feet in width in sandy areas and where geographic or topographic features control the alignment. Except in a few localized areas, described below, construction would not result in significant short-term visual impacts along the alignment. This is due to the low population in areas through which the pipeline traverses. No significant long-term visual impacts would be expected, as demonstrated by the prior construction of lines 6000 and 6001.

The Gas Company would bore under I-10 for pipeline installation. The Gas Company estimates that construction equipment along I-10 would be set back approximately 30 to 40 feet from the I-10 right-of-way boundaries during this period (Adams pers. comm.). While construction along the highway would be visible from both the west- and eastbound lanes, no long-term effects would be anticipated.

Pipeline construction on land administered by the BLM and within the gunnery range would take place adjacent to Gas Line Road. Pipeline 6902 would be located along Gas Line Road parallel to existing gas line easements and may require that vegetation be removed. The cleared portions of the working strip would remain visible until vegetation reestablishes itself. Two fenced valve stations would be constructed on either end of the military

property. Line markers indicating the presence of the line would be installed at regular intervals. Based on the restricted access to this area, visual impacts along this section of the pipeline (including the two valve stations) would be below a level of significance. Moreover, based on the ability of desert vegetation to reestablish itself after previous gas line construction activities, visual impacts would be temporary and below a level of significance.

Between Niland and the international border, the pipeline would be bored under I-8, State Highway 111, County Highway S80, and two Southern Pacific Railroad (SPRR) railroad tracks. The pipeline would be trenched through State Highways 78 and 98; County Highways S26, S27, and S28; and all other small county roads traversed by the alignment. Three new fenced valve stations would be visible alongside the pipeline route adjacent to the road easements. The McConnell/Ralph and Kershaw/Groshen valve stations would be within the agricultural areas and are not expected to create significant visual impacts. Existing similar 30- by 60-foot-wide valve stations located along this route do not detract from the visual character of the expanse of agricultural fields. The proposed valve station and associated measuring facilities at the U.S.-Mexico border would be adjacent to a shrub-lined corrugated metal and cyclone fence that delineates the border. The Bravo Ranch office, barn, and single story house are located north of the border. Two- and three-story multiple family housing units and a busy road are located on the opposite side of the fence. Unless screened, this valve station could impose long-term visual impacts on the viewers at the Bravo Ranch.

Two other sensitive visual receptors along this section of the route, the Meadows Union School and the Imperial Irrigation District office, would be temporarily adversely affected during pipeline construction. No impacts would be associated with loss of vegetation along this section because the road easements are typically bare or composed of scattered patches of ruderal (weedy) plants. Such plants are expected to rapidly recolonize the disturbed areas.

### *Eastern Route Alternative*

Under the Eastern Route Alternative, short-term impacts of construction could be very similar to those described previously under the Western Route Alternative. The potential visual impacts along the first 68.6 miles of this route would be identical to those under the Western Route Alternative. Beyond the Chick Road/Bowker Road intersection, the short-term impacts would be visible to the restaurant and seven houses along Barbara Worth and Chick roads.

Long-term impacts would be minimal. Viewers in the vicinity could see the pipeline right-of-way as a cleared area until vegetation reestablishes itself. The valve station at the end of Barbara Worth Road would be located adjacent to agricultural fields and the canal levees, out of view of residences. It would not affect the Bravo Ranch.

### *No-Action Alternative*

Under this alternative, the existing visual quality of the right-of-way would remain unchanged. Additional right-of-way would not be cleared of vegetation. No short- or long-term visual quality impacts would occur.

### *Mitigation Measures*

The following mitigation measures would offset potential adverse impacts for the pipeline route alignment:

1. All valves, operators, and other exposed materials shall be painted in an earth-tone color, such as light brown (Munsell soil color chart matrix color 10 YR, 6/6 or 10 YR, 7/6), so that they would blend with the environment.

2. The area cleared of vegetation for the construction zone shall be as narrow as possible (less than 75 feet) so that visual quality impacts are minimized. The Gas Company shall develop a Construction Operations Maintenance (COM) plan that, when approved by the BLM, will designate the areas where this measure will be required.

3. Vegetation shall be preserved as identified in the Vegetation and Wildlife section of this document and incorporated into the COM plan.

4. The Niland staging area shall be set back a minimum of ten feet from the road and railroad tracks.

5. The Calexico valve station at the end of the Western Route Alternative shall be screened with shrub plantings or a block wall to reduce long-term visual impacts on the surrounding residents.

## D. TRAFFIC

### *Western Route Alternative*

No long-term traffic-related impacts would be generated after construction of the proposed underground pipeline. However, some short-term construction-related impacts would be created along roadway rights-of-way within Imperial County.

Line 6902 would be bored underneath I-10, I-8, State Highway 111, County Highway S80, and two SPRR railroad tracks. Travel along facilities proposed for boring would not be disrupted. However, construction activities near the boring and excavation sites could indirectly affect travel speeds.

Trenching through State Highways 78 and 98; County Highways S26, S27 and S28; and approximately 35 other small and often unpaved county roads would require short-term traffic control on these roadways (i.e., closure of one lane). This could result in temporary delays on these roadways during the construction period.

The pipeline would bore under the SPRR tracks in two places: south of the Niland valve station and outside of El Centro north of the I-8 crossing. This would not interrupt rail service. Pipeline construction would take place in accordance with applicable SPRR requirements. A permit would be required from SPRR for an encroachment on the railroad right-of-way.

Temporary minor increases in peak-hour congestion on the local streets may occur as a result of traffic from construction crews during the construction period. A maximum of 200 persons would work during one shift; this would not result in significant congestion. During the first three weeks, temporary local congestion may occur between the staging area and the project site in Niland, off Noffsinger Road, because pipes and materials would be loaded and transported from the staging area to the job site.

Another impact associated with the construction process is increased traffic in local communities due to commuting personnel, local and intercity deliveries of construction supplies and machinery, and regular construction activities and detours.

### *Eastern Route Alternative*

The potential traffic impacts along the first 68.6 miles of the Eastern Route Alternative pipeline route would be identical to those described for the Western Route Alternative. The last nine miles of the Eastern Route Alternative would trench through seven county roads and State Highway 98. Temporary minor increases in peak-hour congestion on the local roads may occur as a result of traffic from construction crews during the construction period.

### *No-Action Alternative*

No impacts would be anticipated from the No-Project Alternative.

### *Mitigation Measures*

The following measures are identified to offset potential temporary adverse circulation impacts during construction in Riverside and Imperial counties for pipeline 6902:

1. Prior to the start of construction, the Gas Company shall negotiate with SPRR for permission to cross under the railroad beds south of the Niland valve station and outside El Centro north of the I-8 crossing. The Gas Company shall comply with SPRR and California Public Utility Commission (CPUC) requirements for this crossing.

2. The Gas Company shall provide adequate signage and/or flag personnel at all major intersections to warn and redirect commuters to the satisfaction of the Riverside County Roads Department and the Imperial County Public Works Department. These plans shall be submitted to applicable county departments for review prior to construction. No street shall be completely blocked during the construction process except for short periods, and never overnight. In addition, existing public and private roads shall be used as much as possible for access to the pipeline right-of-way.

3. At the end of each work day, the Gas Company shall provide that all trenches in or adjacent to roadways be completely protected, covered, or filled in, in coordination with the Imperial County Public Works Department. This procedure is meant to prevent traffic hazards and ensure flow of traffic.

4. The Gas Company shall return all paved and unpaved roads to their original condition, to the satisfaction of the Riverside County Roads Department and the Imperial County Public Works Department, immediately after each section of the pipeline is constructed.

## E. VEGETATION AND WILDLIFE

This section is based on and summarizes the Biological Assessment, which is included as a technical report to this Environmental Assessment. Please refer to the Biological Assessment for greater detail.[3] Wetlands are addressed separately in Section F of this Environmental Assessment.

### Introduction

#### Existing Impacts

***Northern Portion***. Existing human impacts on biotic resources are moderate throughout the northern portion of the project area from Hayfield to Niland. Two existing natural gas pipelines, an electrical utility distribution line, and a dirt access road parallel the proposed project alignment from the origin south to Niland. North of the Bradshaw Trail (miles 1 to 11.75), the primary sources of habitat disturbance have been World War II-era military maneuvers and recent recreational and mining activities. The pipeline route crosses Chocolate Mountains Aerial Gunnery Range from south of the Bradshaw Trail to the Coachella Canal (miles 11.75 to 27.9). This area is a live bombing range. Although the targets are located away from Gas Line Road, bombs and other ordnance are common in the study area. Military construction and vehicle operations have been a major source of habitat alteration along the pipeline route in the southern part of the gunnery range. Other sources of habitat disturbance include vehicle traffic, shooting and hunting, and unauthorized disposal of garbage. Impacts associated with human habitation include removal of vegetation and compaction of soil.

***Southern Portion***. Existing human impacts on biotic resources are heavy throughout the southern portion of the project area from Niland south to the U.S.-Mexico border. Agricultural fields and residences are south of the East Highline Canal. Little native habitat exists in the southern portion of the proposed pipeline alignment south of Beal Road, with the exception of wetland vegetation at the Alamo River and a few other stream crossings.

#### Revegetation Timing

***Desert Tortoise Habitat***. A period of from 10 to 25 years is projected for the natural recovery of desert tortoise habitat after the initial clearing of vegetation. This projection is based on three lines of evidence. Direct field evidence on the project site indicates that most woody vegetation has recovered since line 6000 was installed in 1947. The literature review of

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[3]Scientific names are not included in this section for the purposes of brevity and to provide more readable text for the nontechnical reader. See Table E-1 for scientific names of special status species; otherwise, see the Biological Assessment.

Bainbridge and Virginia (1990) found recovery times of from 10 to 100 years for Sonoran Desert wash habitat. In a parallel situation, the California Department of Fish and Game (1990) determined that construction of the Kern River/Mojave gas pipeline in the Mojave Desert would reduce the habitat value of Mojave Creosote Bush Scrub for desert tortoise for a period of 50 years. The reduced value of Sonoran Creosote Bush Scrub along the proposed line 6902 would be expected for a lesser period due to the increased amount of rainfall, especially in summer, which would result in a shorter recovery period.

This does not suggest that complete natural restoration of habitat will be accomplished in 10 to 25 years. Rather, the essential components of desert tortoise habitat, such as annual forage plants and sufficient woody cover plants, should naturally reestablish in the projected period.

***Other Habitat Types***. Arrowweed Scrub and Tamarisk Scrub are both disturbance-induced habitat types associated with mesic soil conditions. The former should naturally reestablish within five years and the latter within ten years. Agricultural lands should reestablish in one growing season.

### *Western Route Alternative*

All impacts would be temporary; no permanent impacts were identified. Table E-4 quantifies the amount of desert habitat that would be affected.

#### *Habitat Types*

***Sonoran Creosote Bush Scrub.*** This is the most common natural habitat type in the study area, covering 15.75 linear miles, or about one-half of the desert habitat.

***Microphyll Woodland and Succulent Scrub.*** This habitat supports the greatest density of desert tortoises of any habitat type in the study area. Within this habitat type, the bajada subcommunity, because it is braided with many small washes, would probably begin to revegetate more rapidly than the low rolling hills subcommunity. The large microphyllous trees and buckthorns, however, would be the most sensitive to disturbance and would take many years to become reestablished. Precise delineation of the proposed pipeline route will be conducted prior to the preconstruction survey, when impacts on specific trees will be determined. Loss of any large trees (e.g., $\geq$ 4 inches diameter at breast height [DBH]) would be significant.

Erosion may be of concern in the low rolling hills. Although vegetation is sparse, soils on the hillsides are not eroding noticeably. The integrity of the surface and subsurface soil and soil percolation rates may be affected by compaction and trenching, which may reduce plant establishment and increase erosion.

**Table E-4 - Desert Habitat Affected**
**SoCalGas Line No. 6902**

| Habitat Type | Linear Miles | Gross Acres* | Net Acres Affected** | Percent of Total |
|---|---|---|---|---|
| Sonoran Creosote Bush Scrub | | | | |
| With elements of Sonoran Microphyll Woodland and Succulent Scrub | 7.0 | 63.6 | 46.7 | 21.7 |
| With Ironwood | 5.0 | 45.5 | 33.3 | 15.5 |
| Open | 2.25 | 20.5 | 15.0 | 7.0 |
| Disturbed | 1.5 | 13.6 | 10.0 | 4.6 |
| Subtotal | 15.75 | 143.2 | 105.0 | 48.8 |
| Sonoran Microphyll Woodland and Succulent Scrub | | | | |
| On bajadas | 3.0 | 27.3 | 20.0 | 9.3 |
| On rolling hills without caliche caves | 5.0 | 45.5 | 33.3 | 15.5 |
| On rolling hills with caliche caves | 0.5 | 3.0 | 1.8 | 0.8 |
| Subtotal | 8.5 | 75.8 | 55.1 | 25.6 |
| Desert Dry Wash Woodland | 5.5 | 66.7 | 53.3 | 24.8 |
| Arrowweed Scrub | 0.25 | 2.3 | 1.7 | 0.8 |
| TOTAL | 30.0 | 288.0 | 215.1 | 100.0 |

* This is based on a 75-foot wide working strip for all habitat types except for the 5.0 miles of Desert Dry Wash Woodland (100-foot wide working strip) and a 0.5-mile portion of the Sonoran Microphyll Woodland and Succulent Scrub on with caliche caves (approximate 50-foot wide working strip).

** The amounts for "net acres" are calculated by subtracting out the 20-foot wide Gas Line Road.

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***Desert Dry Wash Woodland.*** This habitat is one of the most ecologically productive of the native habitats in the study area. The large microphyllous trees, which take many years to mature and provide indispensable habitat to native wildlife in the Colorado Desert, are the most biologically valuable resource of the Desert Dry Wash Woodland. The proposed pipeline route will be precisely delineated during the preconstruction survey, when impacts on specific trees will be determined. Loss of any large trees (e.g., $\geq$ 4 inches DBH) would be significant. In general, the Desert Dry Wash Woodland is likely to revegetate more rapidly than the other habitats, because of the water that flows in the washes and the greater availability of plant propagules.

Another potential impact of the construction activities might be the introduction of non-native tamarisk to the washes. Tamarisk is an aggressive pioneer species that readily colonizes disturbed areas. It is capable of establishing a deep root system that taps underground water sources to the detriment of native species. Tamarisk was not found along the project route north of the Coachella Canal.

***Arrowweed and Tamarisk Scrubs.*** These habitats are "disturbance maintained" communities. Project impacts would be minor and temporary because the dominant plant species would rapidly reestablish themselves.

***Human-altered Habitats.*** Native vegetation has been mostly eliminated from agricultural and developed areas. These habitats have marginal value as cover for some species of birds, especially migrants. Project impacts on this habitat would be insignificant.

### *Threatened and Endangered Species*

Peirson's milk-vetch, desert pupfish, California black rail, Yuma clapper rail, willow flycatcher, and bighorn sheep are presumed absent or incidentally present in the study area and, therefore, would not likely be subject to impacts. Razorback sucker is possibly present, but not likely. Desert tortoise and Gila woodpecker were found onsite. The latter four species are discussed below.

***Razorback Sucker***. This fish species is highly unlikely to be in the project area (Nicol pers. comm.). Even if present, the pipeline would bore under potential fish habitat and would thus avoid impacts on this species.

***Desert Tortoise***. Approximately 27 miles of project right-of-way is within desert tortoise habitat. Desert tortoise habitat appears to be absent south of mile 27 due to disturbance of the native vegetation, unsuitable altered habitats, and cultivated fields. Tortoise density estimates vary from fewer than 20 to more than 100 tortoises per square mile. Table E-5 identifies the estimated minimum number of tortoises (11 tortoises) that would be adversely affected within the working strip. Some take of tortoises may occur in addition to temporary alteration of habitat. These estimates assume a homogeneous

**Table E-5 - Estimated Number of Tortoises**
**SoCalGas Line No. 6902**

| Mile No. | Habitat Type | Width of Working Strip (feet) | Net Number of Square Miles (acres) | Estimated Tortoises per Square Mile | Estimated Tortoises per Habitat Type |
|---|---|---|---|---|---|
| 1-5 | Sonoran Creosote Bush Scrub with Microphyll Woodland | 75 | 0.05 $mi^2$ (33.3 acres) | 5 | 1 |
| 6-7 | Sonoran Creosote Bush Scrub with Microphyll Woodland | 75 | 0.02 $mi^2$ (13.5 acres) | 18 | 1 |
| 8-10 | Sonoran Microphyll Woodland & Succulent Scrub on Bajadas | 75 | 0.03 $mi^2$ (20.0 acres) | 123 | 4 |
| 11-15.5, 16-16.5 | Sonoran Microphyll Woodland & Succulent Scrub on Rolling Hills | 75 | 0.05 $mi^2$ (33.3 acres) | 29 | 2 |
| 15.5-16 | Sonoran Microphyll Woodland & Succulent Scrub on Rolling Hills with Caliche Cave Habitat | ≈50 | 0.01 $mi^2$ (1.8 acres) | 5 | 1 |
| 16.5-21 | Desert Dry Wash Woodland | 100 | 0.08 $mi^2$ (53.3 acres) | 5 | 1 |
| 22-27 | Sonoran Creosote Bush Scrub with Ironwood/Open | 75 | 0.06 $mi^2$ (40.0 acres) | 1 | 1 |
| TOTAL | | -- | 0.30 $mi^2$ (195.0 acres) | -- | 11 |

distribution within each square mile. Nevertheless, the distribution of desert tortoises in the Colorado Desert is patchy and the estimates therefore represent a minimum number of animals.

***Gila Woodpecker***. One adult female Gila woodpecker was seen during the survey at a site where a pair was observed during spring 1988 and 1992 (Woodman pers. comm.). The pair was believed to have bred during both years. Several woodpecker nest holes are located in the power pole on which the adult female was seen. If construction were to occur during the breeding season, the nest could be abandoned, constituting take under the California Endangered Species Act. Impacts of winter construction are likely to be minimal.

***Nelson's Bighorn Sheep***. Wild sheep were not observed in the study area and are not expected to be present (Armentrout pers. comm.). Ungulate droppings were observed in the study area, but these were most likely those of deer. If sheep were present, open trenches may be a temporary movement barrier. Significant impacts are not likely because of the absence of observations of sheep or sheep sign.

### *Special Status Plant Assemblages*

Creosote Rings and Desert Fan Palm Oasis Woodland were not observed in the study area and are therefore not likely to be subject to impacts.

### *Special Status Plant Species*

California ditaxis, Munz's cholla. and Orocopia sage were not observed during site surveys and are therefore not likely to be subject to impacts. Winged cryptantha, foxtail cactus, and barrel cactus grow in the working strip. Spearleaf, although not found, is potentially present. Impacts on these species are discussed below.

***Spearleaf***. Spearleaf potentially grows in the working strip and would be subject to impacts if present. This plant is a category 2 candidate for federal listing and a California Native Plant Society (CNPS) list 1B species. Because it may be elevated to formal listed status in the course of the project, impacts on this plant would be considered significant.

***Winged Cryptantha***. Although winged cryptantha was found within the proposed working strip, impacts should be minimal. This species is an annual and it grows in washes, thus seeds disperse down washes and should recolonize disturbed portions of the construction corridor. Impacts on winged cryptantha, a CNPS list 4 species, would not be significant.

***Foxtail Cactus***. Four foxtail cacti were found in miles 1 and 2 of the project right-of-way, two of which were in the working strip. The two cacti in the

working strip are likely to be subject to significant impacts from construction activity. Foxtail cactus is a category 2 candidate for federal listing and a CNPS list 1B species.

***California Barrel Cactus***. Barrel cacti were uncommonly found from mile 2 to mile 16. Those growing in the working strip would be subject to impacts due to construction activity. Even if these cacti are the special status taxon, California barrel cactus, impacts would not be significant. The California barrel cactus is a CNPS list 3 species, which is a review list.

### *Special Status Wildlife*

Use of the proposed pipeline corridor by the following species would be unlikely due to the lack of habitat: flat-tailed horned lizard, least bittern, white-faced ibis (rookeries), wood stork, fulvous whistling duck, and crissal thrasher. The following species may occur in the study area on an incidental basis: ferruginous hawk, western snowy plover, mountain plover, white-faced ibis, long-billed curlew, vermilion flycatcher, yellow warbler, and yellow-breasted chat. The species discussed below would potentially be subject to project-related impacts.

***Flat-tailed Horned Lizard***. Although unlikely to be present based on range and habitat, an additional late summer survey for this species will be conducted in potential habitat between the Coachella and East Highline canals. If found, standard BLM mitigation measures for this species will be incorporated into the project (BLM 1990).

***Red-tailed Hawk***. A pair of red-tailed hawks has nested on a power pole adjacent to the right-of-way for a number of years. Although this species does not have special status, direct take of a hawk or destruction of an active nest would be a violation of the California Fish and Game Code and the federal Migratory Bird Treaty Act and, thus, would be considered a significant impact.

***Golden Eagle***. One golden eagle was observed flying along the project route. Potential impacts would include temporary loss of foraging habitat. Considering the availability of foraging habitat in the vicinity of the study area, this impact is not significant.

***Prairie Falcon***. Prairie falcons have been seen in the Chuckwalla Bench area and are likely to reside in the project area. Potential impacts would consist of temporary loss of foraging habitat where habitat is destroyed. Considering the availability of foraging habitat in the vicinity of the study area, this impact is not significant.

***Burrowing Owl***. Burrowing owls were observed along the right-of-way in the southern agricultural portion of the project site. Burrowing owls were observed along both the western and eastern route alternatives. Habitat for burrowing owls also occurs in the study area in the northern portion of the

project site. The proposed project may result in impacts on the burrowing owl. Direct take of an owl or destruction of an active nest would be a significant impact and would be a violation of the California Fish and Game Code and the federal Migratory Bird Treaty Act.

***Black-tailed Gnatcatcher***. Black-tailed gnatcatchers were moderately common residents along the project route. Their nesting season is April through May. Construction activity could adversely affect this species. Direct take of a gnatcatcher or destruction of an active nest would be a significant impact and would be a violation of the California Fish and Game Code and the federal Migratory Bird Treaty Act.

***Le Conte's Thrasher***. Le Conte's thrashers were not observed during this survey. Potential habitat is present in much of the desert portion of the project route for Le Conte's thrashers. Construction activity during the spring breeding period could potentially affect Le Conte's thrashers, if present. Direct take of a thrasher or destruction of an active nest would be a significant impact and would be a violation of the California Fish and Game Code and the federal Migratory Bird Treaty Act.

***Loggerhead Shrike***. Loggerhead shrikes were moderately common along the desert portions of the project route. Several pairs and one active nest were found in the study area. Construction activity during the spring breeding period could adversely affect this species. Direct take of a shrike or destruction of an active nest would be a significant impact and a violation of the California Fish and Game Code and the federal Migratory Bird Treaty Act.

***American Badger***. Numerous shallow badger burrows and excavations were observed along the project route north of the Chocolate Mountains. None of these burrows appeared recently active. Impacts on American badgers are not likely because of the absence of active burrows. Individual badgers and their burrows could be buried by construction-related activity, if present.

### *General Wildlife Values*

The project site supports a typical array of wildlife species associated with the habitats present. The potential impacts discussed below apply to wildlife in general, including special status wildlife species.

- ***Timing of Construction.*** The most vulnerable period for most desert wildlife is in spring, when breeding usually takes place and reptiles are most active. Winter and mid-summer construction activities would reduce the potential disruption that these activities can have on wildlife. However, larger tortoises may be active in the early morning and evening hours, even during midsummer. Most desert tortoises would be active after a summer rain. Some birds may have multiple clutches and may extend their breeding season into the summer months.

- ***Vehicle Operation.*** Operation of construction equipment onsite and operation of private vehicles to and from the project site might crush individual animals and destroy wildlife habitat. This impact would be particularly critical if construction were conducted during the spring activity period, because tortoises would cross access roads and the working strip and rest in the shade of parked vehicles. They would be more vulnerable to impacts from construction activity during this period.

- ***Working Strip Clearing.*** Clearing for the construction corridor may destroy wildlife habitat as well as directly affect wildlife. This impact is particularly true of burrowing animals that may be entombed during clearing activities. Clearing the working strip may inadvertently encourage use of off-highway vehicles in the area adjacent to the existing access road.

- ***Trenching and Backfilling.*** Trenches could trap wildlife. Wildlife trapped in trenches could be buried in the backfilling operation or, depending on the time of year in which construction occurs, may die from exposure to heat during summer or cold during winter. Construction during winter or summer dormancy would minimize the likelihood of impacts on vulnerable species such as desert tortoise. Construction between July and early February would also reduce impacts on sensitive birds that may nest within or near the construction corridor. However, significant losses could occur at any time of year.

- ***Hydrostatic Testing.*** Release of water from hydrostatic testing could drown burrowing animals if the water is released into a desert wash that had not been previously surveyed and found clear. If the water is released into existing concrete-lined canals, this impact would be avoided.

- ***Pipeline Inspection.*** The proposed pipeline would be periodically inspected by vehicle in the course of inspecting the two other lines in the right-of-way. Thus, no increase in pipeline inspection is expected to be associated with this project.

- ***Pipeline Maintenance.*** Because an old line will be replaced by a new line, maintenance activities would be expected to be substantially reduced.

### *Eastern Route Alternative*

This alternative supports the same special status species and other biological resources. Impacts would be expected to be substantially the same as those under the Western Route Alternate.

### *No-Action Alternative*

No impacts on vegetation or wildlife would occur under this alternative.

### *Mitigation Measures*

Biological impacts in the agricultural areas and other developed habitats are anticipated to be minimal. Mitigation measures discussed below are primarily for the desert portions of the project site and for the few wetland areas south of Beal Road. These mitigation measures are designed to reduce the impacts to the level of nonsignificance.

#### *Personnel*

1. ***Contact Person***. The Gas Company shall designate an official contact person who shall be responsible for the compliance of the mitigation requirements agreed on by the BLM and the Gas Company. This person shall be responsible for providing project schedules, compliance reports, and other documentation as agreed on.

2. ***Biological Monitors***. Designated biological monitors shall be available to assist the Gas Company and the contractors in complying with the measures designed to avoid impacts on biological resources. Numbers of monitors and their tasks shall be refined during consultations with the BLM and are discussed below. Resumes shall be provided and be acceptable to the BLM. All biological monitors shall attend a comprehensive education program.

   a. ***Authority***. The biological monitors shall determine compliance with mitigation agreed on by the BLM and the Gas Company. They shall have the authority to stop construction and maintenance activities if this decision is necessary to meet mitigation requirements and not jeopardize a listed or proposed species unnecessarily.

   b. ***Activities***. The biological monitors shall conduct pre-construction and postconstruction surveys of the entire pipeline alignment. The preconstruction survey shall be conducted 30 days or less before project construction begins. The function of this survey is to document new occurrences of special status species in the study area to ensure that special status species shall be subject to as few impacts as possible. Observations of any special status species shall be documented and appropriate measures taken.

      Biological monitors shall be present at all times during construction in desert tortoise habitat (miles 1-27), the portion

of the project site north of the Coachella Canal. Biological monitors shall be present during the initial grading and clearing of the remaining desert portion between the Coachella and East Highline canals (miles 28-30). Open trenches shall be monitored two times per day, morning and evening, throughout the desert portion of the project area (i.e., miles 1-30).

One or more biological monitors shall be present during the initial grading and clearing of the southern portion of the project site, south of Beal Road in habitat that can potentially support burrowing owls and in wetland areas. Biological monitors are not needed elsewhere, such as in developed areas.

3. ***Worker Education Program***. This program shall consist of printed materials and briefing sessions conducted by the biological monitor to familiarize personnel with biological resources along the route, particularly special status species.

Prior to initiation of construction, a worker education program shall be presented to all workers who would be onsite during construction activities. This group shall include Gas Company employees and construction inspectors and supervisors, and employees of contracting and subcontracting companies. Sensitive species briefings shall also be conducted for personnel who would be onsite prior to construction, such as surveyors and construction engineers. The worker education program shall be an ongoing process as new employees and subcontractors begin work.

An outline for the worker education program shall be submitted to the BLM for review and approval. A handbook shall be developed. The BLM shall receive draft copies of the mitigation handbook for its review and comments. The handbook shall be distributed to all project personnel, including biological monitors.

### *Construction Procedures*

*Restricted Activities*

1. ***Camping***. No overnight camping by project personnel shall be permitted on the construction corridor. Only authorized camping areas may be utilized.

2. ***Fires***. No trash-burning fires or warming fires shall be permitted in any construction area.

3. ***Pets***. To prevent harassment, mortality, or destruction of dens and burrows of wildlife, pets shall not be allowed on the working strip,

staging areas, access roads, and other sites required for construction activities.

4. ***Firearms***. Firearms shall be prohibited on the working strip, staging areas, access roads, and other sites required for construction activities.

5. ***Authorized Access***. Construction workers shall be permitted on the working strip only during job-related tasks.

6. ***General Plant and Animal Protection***. No intentional killing or collection of either plants or wildlife shall be permitted. If potentially dangerous wildlife species (e.g., rattlesnakes) enter the construction corridor, they may be removed by the biological monitor. No intentional damage to trees or other vegetation shall be permitted outside the working strip, including the collection of plants such as cacti.

*Construction Corridor*

Measures shall be taken to minimize permanent and temporary construction disturbances. Construction shall stay inside the flagged construction area. If the biological monitor documents habitual violation of the flagged work area, (1) the project shall shut down until the Biological Opinion is amended and (2) the damage to habitat outside the flagged area could be considered loss and unauthorized take, which could result in the project being stopped.

1. ***Designated Construction Zone***. Project-related vehicle traffic, construction activity, and equipment storage shall be restricted to established roads, designated access roads, the working strip, storage areas, staging and parking areas, and other designated project areas. This includes the placement of portable toilet facilities.

2. ***Staking***. The outside boundaries of the construction corridor shall be staked prior to construction with at least 24-inch-tall flagged lath at a maximum interval of 300 feet.

3. ***Additional Flagging.*** If in the judgment of the biological monitor, construction activities are repeatedly documented outside these flagged areas, the outer boundaries of the working strip must be delineated by a continuously taped boundary. (Also see the introductory paragraph to this section above.)

4. ***Storage Areas***. To minimize permanent and temporary construction disturbances, storage facilities shall be located at sites that have previously been disturbed. Two recommendations for storage areas would be at the Red Cloud Road exit on I-10 near the north end of the project and at Siphon 10 at the Coachella Canal, near the south end of desert portion of the project.

Parking, storage, and other areas shall be marked by flagged lath stakes at least 24 inches aboveground and placed in line of sight with a maximum spacing of 300 feet. These areas shall be examined during preconstruction surveys for all state-listed and federally listed species and other special status species.

5. ***Avoidance Areas***. Prior to construction, the site shall be surveyed to determine locations of tortoise burrows and other occurrences of sensitive species or their essential habitat. Occurrences in the working strip shall be flagged, mapped, and recorded. No persons, vehicles, spoils, equipment, or other materials shall be allowed to enter, spill, or otherwise encroach on the flagged avoidance areas.

6. ***Pipe***. The open ends of all in-place pipeline segments shall be capped, until backfilled, to prevent animals from entering. The inside of all pipe shall be inspected before being moved.

*Vehicle Operation*

1. ***Access Roads***. Only the working strip, public roads, or approved routes of travel shall be used. The only unpaved access roads shall be Red Cloud Road, Bradford Trail, and Gas Line Road. All other access to the project working strip shall be via the working strip itself. This measure pertains to the portion of the project north of Beal Road. No new access roads shall be pioneered. Off-road traffic outside designated areas shall be prohibited.

2. ***Speed Limit***. Project-related vehicles shall observe a 20-mph speed limit in all project areas within listed species habitat, except on paved county, state, or federal highways. Speed limits shall be assessed by the biological monitors and violations reported to the appropriate personnel for corrective action.

3. ***Turn Arounds***. All project vehicles shall turn around only within the working strip or on designated access roads.

4. ***Checking Under Vehicles***. Checking the area beneath and adjacent to vehicles and other equipment, for sensitive species, before driving, moving, or otherwise operating equipment shall be a standard operating procedure. If a state-listed or federally listed species is identified during these inspections, only a biological monitor may remove the animal. An animal shall be removed from under a vehicle only when absolutely necessary. Deciding when to handle and when not to handle an animal must take the conservation direction.

*Sanitation, Hazardous Materials, and Fire*

1. ***Sanitation.*** Food items may attract wildlife onto the project site at night, consequently exposing them to construction-related or other hazards. Construction sites shall be maintained in a clean condition. This duty shall be the responsibility of the Gas Company and its contractors. All trash (e.g., food scraps, containers, wrappers, cigarette butts, and equipment) shall be properly disposed of offsite. To avoid attracting sensitive species and potential predators, all food-related trash and litter (e.g., wrappers, cans, bottles, food scraps, and cigarette butts) shall be placed in closed containers and disposed of daily. The working strip shall be inspected daily to remove trash or litter that may not have been disposed of properly.

2. ***Hazardous Materials.*** Hazardous materials that are most likely to be used in construction areas include explosives, fuels (gasoline and diesel), lubricants, and solvents. If hazardous material is discharged from the system or from containers or vehicles during any phase of construction, operation, or termination of the pipeline, the control, removal, disposal, and cleanup shall be the responsibility of the Gas Company. Refueling of these materials shall not be allowed within 200 yards of a perennial stream. The storage of these materials near streams shall be consistent with California Fish and Game Code Section 5650 and all other federal and local regulations.

3. ***Fire Management***. Construction equipment shall be equipped with shovels and fire extinguishers. Workers shall be trained in their use. Fire resistant mats and/or wind screens shall be placed on the ground below welding and grinding operations whenever dry vegetation is present. Supervisors shall have the names of local fire fighting agencies and ready access to telephones to make contact. In the event of an accidental fire that cannot be quickly contained with fire suppressants on hand, fire fighting agencies shall be contacted and their directions followed.

***Habitat and Species Protection Measures***

*Habitat Protection for the Desert Portion*

1. ***Limiting Working Strip Width***. Inherent in the project description is minimizing impacts on native desert vegetation by limiting the width of the construction corridor where practical. In most desert areas, the trench and related areas would be cleared and grubbed (i.e., "right-of-wayed"), but the rest of the corridor would have the vegetation crushed down. This procedure would leave topsoil and roots intact and encourage an accelerated revegetation.

2. ***Windrowing Cleared Vegetation***. Areas with dense brush and/or boulders shall be cleared by construction machinery prior to trenching. Vegetation removed shall be windrowed within the working strip during construction and spread on the working strip after construction, for use as wildlife cover.

3. ***Reserving Topsoil***. The upper two to eight inches of topsoil from the portions of the working strip requiring grading shall be removed first. This topsoil shall be segregated by placing it at the bottom of the spoils pile. Spoils shall be respread at the completion of construction in progressive lifts, such that the topsoil on the bottom of the pile shall be evenly respread over the graded area. Reserving and respreading topsoil should help conserve the seed bank, aiding in natural revegetation.

4. ***Imprinting***. After topsoil has been respread over the graded areas at the completion of construction, these areas shall be imprinted with a sheepsfoot or similar device. The indentations created by the imprinter should catch seed and water, aiding in the natural revegetation of the site.

5. ***Large Native Trees***. Large native trees in the desert washes may be at risk from pipeline construction activities. Large trees are defined as > 4 inches DBH (i.e., 4.5 feet). Large native trees in the working strip shall be staked and flagged around the dripline. Included are trees with trunks outside the working strip, but with parts of the canopies within the working strip. Staking and flagging shall be conducted during the preconstruction survey. These trees shall be mapped and recorded (i.e., location, species, DBH).

   Construction activities shall avoid large native trees. This includes mechanical damage to the trunks or branches, deposition of spoils or equipment within the dripline circumference, or blading greater than 30% of the dripline area.

   In instances where some roots, but less than 30%, are affected by construction activity, an arborist shall be retained to prune an equivalent amount of limbs from the tree. Water stress would be reduced if trees are pruned. The remaining dripline of trees whose roots are cut also shall be staked and avoided.

6. ***Tamarisk Removal***. Non-native tamarisk trees shall be eradicated to reduce colonization of the disturbed areas of the construction corridor. Eradication shall take place in the 300-foot-wide study area in desert tortoise habitat. South of the Coachella Canal, tamarisk shall not be removed because the trees may provide wildlife habitat (Rosenberg et al. 1991). Tamarisk plants shall be identified during the pre-construction surveys. All tamarisk, regardless of size, shall be identified

in the working strip area. All tamarisk over 4.5 feet high shall be identified in the 300-foot-wide study area.

If possible, eradication should occur prior to the set of seeds to reduce the risk of dispersal. Tamarisk small enough to be pulled out by hand shall be removed when found. Larger specimens shall be mechanically removed either during the preconstruction surveys or during project construction. All identified tamarisk shall be removed by the end of project construction. Disposal of tamarisk shall be in a manner that shall prevent the spread of seed.

*Threatened and Endangered Species*

***Desert Tortoise***. Populations of and potential habitat for the desert tortoise were found between miles 1 and 27. Mitigation requirements and procedures outlined in this section are intended to reduce impacts on the desert tortoise, thus minimizing take. This protocol provides for the handling of tortoises encountered under a variety of conditions.

1. ***Compensation Land***. Although no permanent impacts are anticipated, the site would need an estimated 10 to 25 years to naturally revegetate to the approximate preproject habitat value for desert tortoise. The BLM (1988c) has determined that compensation is a valid method for mitigating residual impacts on tortoises after other mitigation measures are incorporated into proposals. The Gas Company shall provide compensation lands to compensate for the temporary loss of desert tortoise habitat, according to the standard Desert Tortoise Compensation Team (1991) formula as approved by the Desert Tortoise Management Oversight Group. The BLM, USFWS, and CDFG are signatories to the Desert Tortoise Compensation Team formula.

   a. ***Category I Land***. Miles 1 to 11 are classified as BLM category I land. Miles 12 to 21 are in the Chocolate Mountains Aerial Gunnery Range and are not categorized by the BLM, but have similar habitat value as the initial 11 miles (Table E-5). Thus, miles 1 to 21 are considered category I for compensation purposes (Hoover pers. comm.). The term of effect would be from 10 to 25 years for natural revegetation. Little or no habitat disturbance exists, except for the approximately 20-foot-wide Gas Line Road. Accordingly, the acreage accounted for by the Gas Line Road is not considered in the compensation calculations. The proposed action would have no growth-inducing effects in desert tortoise habitat, nor would adjacent habitat be subjected to direct or indirect deleterious impacts due to the project.

Category is I (C = 3), term of effect is long (T = 1), existing disturbance is lacking (E = 1), growth inducement is non-existent (G = 0), and adjacent lands are not affected (A = 0). According to the formula: C+T+E+G+A = 3+1+1+0+0 = 5. This calculates to a rate of 5 to 1; compensation for category I habitat shall be at a ratio of 5:1. A net acreage of 155 acres would be affected in category I habitat or its equivalent (Table E-5). Thus, 5 x 155 acres = 775 acres compensation.

b. ***Category III Land***. Although not officially categorized, miles 22 to 27 would correspond to category III desert tortoise habitat with an estimated density of one desert tortoise per square mile (Table E-5). The net acreage of land affected in miles 22 to 26 is 40 acres (Table E-5). At a compensation rate of 1:1 for category III lands, 40 acres would be needed to compensate.

c. ***Total Compensation Acres***. A total of (775 + 40 =) 815 acres is calculated to compensate for residual impacts on category I and III land. The remainder of the project site is not considered tortoise habitat. The Gas Company shall provide compensation within one year of completion of construction.

Offsite compensation for residual impacts shall be provided through acquisition of lands at a 5:1 ratio for category I habitat and a 1:1 ratio for category III habitat. The acquired lands shall be within category I habitat for the Chuckwalla Bench desert tortoise population. To provide the applicant with greater flexibility in meeting this offsite compensation requirement, the applicant shall have the option of acquiring such land directly or contributing a comparable per-acre dollar amount, based on appraised value of the affected lands, to a BLM contributed-funds account. This account would be used exclusively for acquiring compensation lands for the desert tortoise. Such an arrangement would allow conservation objectives to be achieved more efficiently on projects with small acreage compensation requirements because compensation funds could be pooled for a number of small projects. If the applicant prefers to purchase the compensation lands directly, a one-year limit would be set for acquiring such lands and transferring title to the BLM.

If fewer acres are adversely affected at the completion of project construction than originally anticipated, the compensation requirement would be reduced according to the formula. If additional acreage is accidentally affected, the BLM shall be advised immediately. The BLM will then make a determination as to whether consultation will be reinitiated.

2. ***Width of Working Strip***. Impacts can be reduced most effectively by minimizing the amount of habitat cleared. This can be accomplished by reducing the width of the working strip in areas of high tortoise density.

   In mile 15, the right-of-way goes down a steep slope in an area with caliche caves that are extensively utilized by desert tortoises. The working strip shall be approximately 50 feet wide from the road at the top of the hill (labeled 2388T on the U.S. Geological Survey (USGS) Iris Pass quadrangle map) to the southern section line of Section 13 (T8S, R14E) to minimize impacts on the caliche caves. Because the caves are in an area with highly constrained topography, the 50-foot width is a recommended guideline. Geotechnical considerations may dictate that a working strip of up to 75 feet wide may be required in portions of this area. The rest of the working strip in desert tortoise habitat shall not exceed 75 feet in width.

3. ***Biological Monitors***. Biological monitors shall be utilized to protect desert tortoises from being injured by equipment and to ensure that agreed-upon mitigation measures are incorporated into construction practices.

   Activities requiring biological monitors shall include, but are not limited to, initial clearing, final clearing and grading, ditching, pipe stringing, pipe bending, welding, taping, backfilling of ditch, monitoring the open trench, hydrostatic testing, tie-in, final cleanup, and rehabilitation. All personnel handling desert tortoises shall be approved by the BLM. Each monitor shall hold a current permit from the USFWS and a Memorandum of Understanding (MOU) with the CDFG for handling of the species. Additionally, each monitor shall undergo a training program specifically to handle desert tortoises. Only monitors who have been approved will handle tortoises.

   If construction activities are conducted during the winter dormant period (November to early or mid-February), activities requiring biological monitors will be minimized. If construction takes place during summer dormancy, the number of biological monitors will be reduced. A maximum number of biological monitors will be necessary during the spring activity period because desert tortoises will most likely be encountered near construction personnel and equipment on the working strip during this time. During tortoise inactive periods, fewer biologists will be able to monitor more activities.

4. ***Preconstruction Surveys***. The working strip shall be surveyed by qualified biologists a minimum of two times prior to clearing. One survey shall be conducted within seven days of clearing (seven-day survey). This seven-day survey serves the same function as the 30-day survey discussed below under general wildlife values. These two surveys may be combined in desert tortoise habitat.

To ensure maximum avoidance of impacts on desert tortoises and their burrows, a final preconstruction survey shall be conducted within 48 hours and not less than eight hours (48-hour survey) before construction activities (i.e., grubbing, grading, trenching) begin.

5. ***Inspection of Desert Tortoise Burrows***. All desert tortoise burrows, as well as large mammal burrows that could be used by desert tortoises, shall be inspected. A fiberoptic scope, or similar equipment, should be utilized to determine each burrow's length, number of tunnels, and active status. The scope can also be used to observe the ends of long burrows and determine the presence of tortoises prior to excavation. Biologists using the scope shall be trained in its use. The cable and tip will be wiped with alcohol after each use.

6. ***Inactive Burrows***. Inactive burrows shall be collapsed during either of the preconstruction surveys (seven-day or 48-hour).

7. ***Active and Special Resource Burrows***. Two other types of burrows shall be identified and marked during the seven-day survey; active burrows and "special resource burrows." An active burrow is a burrow with a tortoise inside. A special resource burrow is a burrow that, because of soil types and/or historical use, represents a major energy expenditure by desert tortoises for construction. An example of a special resource burrow would be a caliche cave that has been modified and occupied by desert tortoises.

   The ends of potential special resource burrows shall be inspected prior to excavation attempts. Construction engineers shall be provided with the locations of active and special resource burrows in order to determine the feasibility of modifying the working strip to avoid these burrows. Minor rerouting of the pipeline within the right-of-way to avoid these burrows shall be implemented for the purpose of avoidance. Minor rerouting does not entail placing the trench outside the designated working strip.

8. ***48-hour Preconstruction Survey***. During the 48-hour pre-construction survey, active desert tortoise burrows that cannot be avoided shall be excavated by hand by qualified biologists. Special resource burrows shall be avoided and left intact. Tortoises excavated from active burrows shall be relocated to unoccupied natural burrows immediately following excavation. Preferably, an unoccupied natural burrow shall be found 150 to 300 feet from the edge of the working strip, in which the tortoise can be placed. The burrow must be of a similar width and at least as long as the burrow from which the tortoise was removed (see 9. below).

   If an unoccupied natural burrow cannot be found, an artificial burrow shall be constructed. The artificial burrow shall be constructed approximately 300 feet from the edge of the working strip and shall be

a similar size, shape, and orientation to the original burrow. The artificial burrow shall be located in desert tortoise habitat in topography similar to that of the original burrow.

9. ***Relocation of Live Tortoises***. Information shall be recorded on desert tortoises that are encountered during initial clearing activities. (Initial ground-disturbing activities entail the use of heavy equipment to clear or crush vegetation prior to grading.)

After pertinent information has been recorded, the tortoise shall be moved a minimum of 300 feet off the working strip and placed under a shrub in the shade. If a desert tortoise is encountered when the temperature (at 4 feet above ground) exceeds 90°F, or is likely to exceed 90°F within one hour of release, the tortoise shall be held either until temperatures are below 90°F and decreasing or overnight and released the following morning shortly after sunrise.

Desert tortoises encountered within 0.5 hour before sunset shall also be held overnight. Desert tortoises held overnight shall be placed in clean cardboard boxes of appropriate size with one tortoise per box. The tortoises shall be placed in a cool and protected location. The box shall be covered and kept by a designated monitor until the desert tortoise is released the following morning. The original location of each tortoise that is held overnight shall be accurately located by flagging or other means. The tortoise shall be released as close as possible to the location from which it was removed.

If desert tortoises are encountered outside a burrow on the working strip during construction, each desert tortoise shall be processed, then moved a minimum of 300 feet from the edge of the working strip in the direction of its travel and placed in the shade of a shrub. If appropriate shade cannot be found, the desert tortoise shall be held overnight and released as detailed above.

Desert tortoises that are found on the working strip more than three times shall be penned in a temporary 10-foot by 10-foot enclosure around a burrow next to the working strip. This fencing shall be removed after construction activities have ceased. Alternatively, a portion of the working strip may be fenced temporarily with tortoise-proof fence.

10. ***Processing Tortoises***. Each desert tortoise that is moved during clearing and construction activities shall be given an identifying number and have its sex, weight, and maximum carapace length recorded.

Identification numbers for the project shall be written on the fourth right costal. The number shall be written in indelible black ink and shall not cover more than 10% of the total area of the scute. After

processing, a 35-mm slide shall be taken from directly above the animal to show a full view of the carapace. A label with the tortoise identification number, date, and project name shall be in each photograph. The data sheet shall include the above information plus the location, date, time, and name of the individual collecting the data. All information shall be submitted to the official contact person for the BLM in the postconstruction report.

Tortoises shall not be permanently marked because marking them may confound a BLM permanent trend study plot that is located two miles east of the right-of-way at the intersection with Bradshaw Trail. Several hundred tortoises have been marked on this plot since 1977. Tortoises from the BLM study plot may be found on the proposed project working strip; conversely tortoises from the working strip may be found at the BLM plot. The monitor shall wear disposable gloves when handling each desert tortoise. These gloves shall be disposed of after each tortoise is handled.

11. ***Tortoise Fencing***. The Gas Company has the option to place temporary tortoise-proof fencing around the working strip in areas of high tortoise density. This fencing would reduce the potential for a fatal take of a desert tortoise by precluding entry into the construction corridor.

    If tortoise-proof fencing is used, its length shall be minimized to high-density habitat and shall be removed as soon as backfilling is completed. The fencing would be constructed in such a way that a minimum of 12 inches would rise from grade and a minimum of 12 inches would be buried. Monitors shall inspect the fence on a daily basis to ensure proper installation.

12. ***Open Trenches in Desert Tortoise Habitat***. Open trenches shall be monitored two times per day, morning and evening, throughout the desert portion of the project area. Trenches shall be inspected in the morning before construction activities begin in the trench. A maximum of 1,000 feet of trench with pipe installed, but not backfilled, shall remain exposed overnight. Open pipe ends shall be capped.

***Gila Woodpecker***. Construction in the vicinity of the Gila woodpecker nest shall avoid disrupting the nesting behavior and successful fledging of offspring. Avoidance shall be accomplished either by implementing construction in the non-nesting season or by taking measures to minimize disturbance around the nest site in the nesting season.

If construction in the vicinity of the nest site occurs in the active nesting season and the biological monitor determines during the preconstruction survey that the nest is active, avoidance shall be achieved by minor rerouting of the pipeline within the right-of-way to avoid the nest site by a minimum of 25 feet, establishing an approximately 25-foot buffer around the nest where

no grading shall occur, establishing a zone of 100 feet around the nest where no vehicles shall be parked, and placing spoils on the opposite side of the trench from the nest.

*Other Special Status Plant Species*

These species are informally listed and are not currently protected by the state or federal Endangered Species Acts. Both species are federal category 2 candidate species and on the CNPS list 1B.

1. ***Spearleaf.*** Preconstruction surveys shall include specific searches for spearleaf in the appropriate season. If found, specimens of spearleaf shall be avoided. Suitable habitat along the pipeline corridor shall be seeded with spearleaf, if either of the two conditions listed below apply. The reseeding may be done in conjunction with the post-construction survey. An area of approximately 1,000 square feet shall be seeded. Conditions: (1) Seasonal constraints on the construction schedule do not allow a preconstruction survey in the appropriate time of the year to detect spearleaf. (2) Spearleaf is detected in the working strip, but cannot be avoided by minor rerouting of the trench within the designated working strip.

2. ***Foxtail Cactus***. Two specimens of foxtail cactus were found in the working strip during field surveys conducted in February 1993. If avoidance is practical, then flagged lath stakes at least 36 inches above the ground will mark the plants with a 5-foot buffer. Avoidance should be achieved by minor rerouting of the trench within the designated working strip. If avoidance cannot be achieved without moving the trench outside of the designated working strip, avoidance would be considered impractical.

   If avoidance of these plants is impractical, they shall be transplanted from the working strip to immediately adjacent suitable habitat. Alternatively, the cacti may be temporarily removed, stored in a manner that shall keep them in viable condition, and replanted in the working strip after construction is completed. The preferred relocation time would be during late winter, after any possibility of a freeze, and when the soil is more likely to be moist from winter rains. This would give the plants the best chance to reestablish themselves during spring. If the ground is dry, then all relocated cacti would be watered once at the time of relocation. Care shall be taken to dig up an adequate root system for each cactus. If transplanting the cacti in winter is not possible, then the plants shall be irrigated for 30 days after translocation.

*Other Special Status Wildlife Species*

These species are informally listed and are not currently protected by the state or federal Endangered Species Acts. However, the flat-tailed horned lizard is a federal candidate category 1 species and may become listed in the life of the project.

1. ***Flat-tailed Horned Lizard***. If the September survey for the species determines flat-tailed horned lizard is present, the standard BLM mitigation measures in the *Flat-tailed Horned Lizard Management Plan* (BLM 1990) shall be incorporated into the project.

2. ***Burrowing Owl***. Construction activity shall avoid burying active burrowing owl nests. Soil stockpiles and vegetation stockpiles shall not be placed on any active burrows. In the nonbreeding season, active burrows shall be identified in the preconstruction survey. These burrows shall be fitted with one-way doors approximately 72 hours before ground-clearing activities, to allow owls to escape from the burrows but not return. Burrows in or within ten feet of the area to be cleared shall be fitted with one-way doors. After pipeline construction is completed, the one-way doors shall be removed.

   In the breeding season, active burrows shall be identified in the preconstruction survey. A fiber optic scope shall be used to determine the contents of the burrows. Those with young or eggs inside shall be avoided. Those burrows being used by burrowing owls, but without eggs or young, shall be fitted with one-way doors as described above.

3. ***Red-tailed Hawk, Black-tailed Gnatcatcher, Le Conte's Thrasher, and Loggerhead Shrike***. Construction in the vicinity of these species' nests shall avoid disrupting the nesting behavior and successful fledging of offspring. Avoidance shall be accomplished either by implementing construction in the non-nesting season or by taking measures to minimize disturbance around the nest site in the nesting season.

   If construction in the vicinity of the nest site occurs in the active nesting season and the biological monitor determines during the pre-construction survey that the nest is active, avoidance shall be achieved by minor rerouting of the pipeline within the right-of-way to avoid the nest site by a minimum of 25 feet, establishing an approximately 25-foot buffer around the nest where no grading shall occur, establishing a zone of 100 feet around the active nest where no vehicles shall be parked, and placing spoils on the opposite side of the trench from the nest.

4. ***American Badger***. Active dens of American badger shall be identified during the preconstruction surveys. Active dens shall be avoided by the pipeline construction activity, if possible. If avoiding an active den

is not possible, then the entrance to the den shall be blocked, when the badger is absent, to prevent entry. Absence will be determined, if after two days of monitoring, no sign of recent activity is observed at the den. Examination of diatomaceous earth placed at the den entrance will allow the biological monitor to determine whether the den is occupied.

***Postconstruction Phase***

1. ***Hydrostatic Test Water Discharge***. Water shall be discharged into an existing wash or canal. As part of the preconstruction survey, the biologists shall survey the identified areas where water would be discharged after hydrostatic testing. Occurrences of sensitive species shall be documented and appropriate measures (see above) taken to avoid impacts.

2. ***Cleanup***. After construction is completed, a final construction corridor cleanup shall include removal of all stakes, flagging, barrels, cans, drums, accidental spills, and other refuse generated by construction. No shrub material or other plant cover shall be disturbed during this process.

3. ***Recontouring***. Once construction is complete and the pipeline trench backfilled, the pipeline alignment and access roads shall be recontoured to approximate the original contour. Recontouring to natural lines and grade shall be accomplished without disruption to adjacent undisturbed habitat.

4. ***Revegetation***. After the corridor is returned to its approximate natural contours, revegetation should be allowed to proceed naturally. Ample sources of native plant propagules are present alongside the pipeline corridor as evidenced by the natural revegetation of the 1947 and 1964 pipelines. Artificial revegetation in the desert is rarely successful (Johnson and Foreman pers. comms.) and runs the risk of introducing alien gene sources. Planting trees in a desert wash does not appear to be practical mitigation because of the poor success of desert revegetation programs, the abundance of propagule sources in the vicinity of the construction corridor, and the ability of disturbed areas to naturally revegetate.

5. ***Stockpiled Topsoil***. Stockpiled topsoil shall then be placed on the surface in a manner to reduce disturbance and compaction. In addition to the replacement of topsoil, rock and natural plant debris shall also be replaced to reduce erosion potential.

6. ***Discouraging Off-highway-vehicles***. Off-highway-vehicle (OHV) users might use the newly cleared pipeline construction zone. The Gas Company shall take measures to discourage this unauthorized use,

including physical barriers and signing. The installation of berms parallel to the access road, berms perpendicular to the access road, and strategically placed rock piles shall be evaluated and appropriate measures implemented. Berms and other physical barriers shall be installed a minimum of every one-quarter of a mile.

7. ***Tamarisk Removal***. The Gas Company shall inspect the pipeline corridor in desert wash areas for newly established tamarisk seedlings, which shall be uprooted. The inspection shall take place in late spring once a year for three years. This mitigation addresses the pipeline construction's impact of temporarily creating disturbed areas that are favored by tamarisk.

8. ***Biological Monitor***. Restoration activities shall be monitored by qualified biologists in the same manner as other construction activities.

9. ***Final Inspection***. A biologist also shall make a final inspection of the completed construction project to assess compliance by the Gas Company.

10. ***Postconstruction Report***. Within 90 days after completion of construction and postconstruction cleanup, a postconstruction compliance report shall be prepared to describe and document all monitoring efforts, mitigation compliance, and deviations from the mitigation plan; outline followup surveys; and provide recommendations for future projects of this type.

## *F. WETLANDS*

Construction of line 6902 would result in short- to medium-term impacts on wetlands and watercourses along the route. Once the pipeline is placed in trenches, backfilled, and hydrostatically tested, no further potentially disturbing activities would occur.

This section is based on the wetlands assessment (Appendix B). Refer to the wetlands assessment for more detailed information, particularly to Tables A and B for a delineation of specific wetlands and watercourses.

### *Existing Disturbances*

Desert washes, wetlands, and watercourses along the pipeline corridor have been previously disturbed to varying degrees. Desert washes within the northern section have been previously disturbed due to installation of Gas Company lines 6000 and 6001 in 1948 and 1964, respectively, and an unimproved 20-foot-wide service road. An electrical utility line also parallels the unpaved roadway for the entire northern portion of the pipeline route.

Watercourses in the southern portion of the pipeline route have been disturbed by agricultural practices. For most of the southern route, the pipeline would parallel existing pipelines along agricultural roads. Little undisturbed wetland and watercourse habitat exists throughout the cultivated portions of the Imperial Valley. In most crossings, the pipeline would be installed directly within the paved and unpaved portions of roadways over watercourse siphons or culverts.

### *Revegetation*

Disturbed desert wash areas may take long periods of time to fully recover from human activities. Human activities along the proposed route have included former pipeline installations, OHV use, and Navy bombing activities. Bainbridge and Virginia (1990) found in their review of revegetation in Sonoran Desert washes that recovery periods took from 10 to 100 years. Field observations for this project area suggest that most desert wash areas have recovered from impacts due to former pipeline construction activities. Desert washes in the project area were disturbed 28 years ago during installation of line 6001. For most desert wash areas, no differences in wash vegetation were observable between previously disturbed and undisturbed wash areas outside the former construction zones. For the purposes of this study and based on the evidence of previous disturbance in the project area, recovery of shrubby vegetation is assumed to take approximately 10 years. Full recovery of wash areas with trees would take approximately 25 years.

## *Western Route Alternative*

### *Desert Washes*

The pipeline would cross 43 desert washes that are considered significant resources on the basis of the field surveys. Up to 53.3 acres of desert wash habitat would be altered within the working strip. In some cases, microphyllous trees, such as palo verde (*Ceridium floridum*), desert ironwood (*Olynea tesota*), and smoke trees (*Psorothamnus spinosus*), would potentially be at risk from construction activities. In several desert washes, such as the long alluvial wash in the Chocolate Mountains, primarily sand with little vegetation cover would be disturbed and a few mature trees would be removed.

The desert wash areas are expected to be dry during the construction period. Due to the ephemeral nature of all the desert washes, no instream and downstream aquatic resources are present that could be affected by the project. Impacts are expected to be minor, and the washes would eventually revert back to near-normal conditions.

### *Wetlands*

Wetland areas immediately north and south of the SPRR tracks would be crossed by the pipeline. These areas, as well as the railroad right-of-way, are within the alignment of existing lines 6000 and 6001. The construction process through this area would involve boring under the railroad, the two adjacent wetland areas, and the S lateral watercourse immediately to the south (Adams pers. comm.). Therefore, this entire segment of the pipeline route, including riparian wetlands, the railroad, ruderal wetlands, and the "S" lateral, would be crossed underground with no aboveground impacts.

The Alamo River crossing location is bordered to the north and south by wetlands. This crossing would be accomplished by attaching the pipeline to an upgraded existing bridge structure associated with line 6001 (Figure C-3, photograph 9). Wetland areas exist immediately north and south of the span location over the Alamo River. The pipe would be trenched through these wetland areas before emerging from the ground and attaching to the upgraded span crossing the river. Approximately 0.4 acre (17,500 square feet) of wetland would be adversely affected by the pipeline trenching on either side of the river, so 0.8 acre of wetland would be altered. These areas have limited vegetation cover and represent marginal wetland habitat; therefore, these project impacts would not be significant.

### *Agricultural Watercourses*

Impacts on many of the agricultural canals, drains, and laterals would be avoided by construction procedures proposed for each crossing. For example, agricultural laterals would be crossed by trenching over siphons within the roadway easement and, therefore, no impacts would occur. Major canals, including the All American Canal and the Coachella Canal, would be crossed by boring under or spanning the watercourse. This construction procedure would avoid disturbance to water in the canals, as well as eliminate the potential for sediment input and associated impacts on instream and downstream aquatic resources.

Space between the roadway and the underlying culvert may not be sufficient to permit the installation of the pipeline at all agricultural drain crossings. For these situations, the pipeline alignment would be shifted to the side off the roadway pavement. Open cut trenching procedures through the agricultural drains would be used to cross such watercourses. Based on a five-foot-wide trench through the drain for pipe placement (representing a four-foot-wide trench with an additional one foot for side slopes) and an average bank-to-bank width of 15 feet, a total of approximately 0.07 acre (2,850 square feet) would be altered due to the crossing of 39 drains. Because these areas exhibit limited cover of ruderal vegetation and provide little wildlife value, impacts on agricultural drains would not be significant.

### *Pressure Testing*

A maximum of approximately 5.7 million gallons of water, or 17 acre-feet, would be required for hydrostatic testing of the pipeline. The section of pipe through the Chocolate Mountains Aerial Gunnery Range may be gas tested. The water would most likely be obtained from the Coachella Canal and would be reused within the northern and southern test segments. The test water would either be discharged by spreading, in accordance with RWQCB regulations, or returned to irrigation canals for use if water quality parameters are within the specified regulatory levels.

## *Eastern Route Alternative*

Impacts on desert washes and wetlands resulting from this alternative would be similar to those described for the Western Route Alternative. Based on the same assumptions as discussed for the Western Route Alternative, alteration of agricultural watercourses would potentially total 0.08 acre (3,300 square feet) due to crossing 45 agricultural drains. This alteration would not be considered significant due to the limited vegetation cover provided by the drains.

### *No-Action Alterative*

Under this alternative, no desert washes, wetlands, or agricultural watercourses along the alignment would be crossed. The potential for impacts on wildlife habitat and the corresponding need for habitat mitigation measures would be eliminated under this alternative. In addition, without the necessity for hydrostatic testing, no discharge of water into natural watercourses or Imperial Irrigation District irrigation and drainage facilities would occur.

### *Mitigation Measures*

The following measures are identified to offset potential adverse impacts on desert washes, wetlands, and agricultural watercourses during construction and testing of the proposed pipeline. Based on prior recovery rates, desert wash vegetation should reestablish existing structure and composition patterns within approximately 10 to 25 years. Careful implementation of the following mitigation measures is anticipated to produce a similar type of habitat recovery in the desert wash areas after completion of the line 6902 pipeline project.

1. Appropriate erosion control measures, including but not limited to the use of mulching, sedimentation fence, and terracing, shall be employed during construction to control input of sediment into wetlands and agricultural drains.

2. Appropriate measures, such as defining the working strip with surveyors stakes and flagging material, shall be used to ensure that equipment and spoils do not enter the desert washes, wetlands, and agricultural drains outside the construction zone.

3. Following construction, grades around each crossing location shall be returned to their original topographic contours. For agricultural drains, hydroseeding with native seed shall be used only when necessary to control erosion.

4. Large ($\geq$ four inches DBH) native trees in desert wash areas, such as smoke trees, ironwood, and palo verde, may be at risk from pipeline construction activities. To protect mature woody vegetation present in sensitive desert washes, native trees of $\geq$ four inches DBH shall be staked and flagged around the dripline for avoidance by equipment and spoil piles.

5. In desert tortoise habitat, all non-native tamarisk trees in the 300-foot-wide study area shall be eradicated to reduce colonization of desert washes disturbed by construction. If possible, eradication should occur before seeds are set to reduce the risk of dispersal. Tamarisk plants shall be identified during the preconstruction surveys. All tamarisk over 4.5 feet high shall be identified in the 300-foot-wide study area. All tamarisk, regardless of size, shall be identified in the

working strip area. Tamarisk small enough to be pulled out by hand shall be removed when found. Larger specimens shall be mechanically removed either during the preconstruction surveys or during project construction. All identified tamarisk shall be removed by the end of project construction. Disposal of tamarisk shall be in a manner that shall prevent the spread of seed.

6. Following completion of construction in desert washes, appropriate measures to remediate compaction of soil shall be implemented if needed. Such measures include, but are not limited to, ripping, discing, and roughening the surface. These activities improve infiltration, increase root growth, and provide areas to trap seed and sediment. These factors help to increase natural processes of revegetation in desert washes (Bainbridge and Virginia 1990).

7. In desert tortoise habitat, the Gas Company shall inspect the pipeline corridor in the desert for newly established tamarisk seedlings and shall remove such plants. The inspections shall take place in late spring each year for three consecutive years following construction.

8. If water from the hydrostatic testing procedure exceeds RWQCB, Riverside County, or Imperial County effluent contaminant limits, the water shall be disposed of in a manner acceptable to the appropriate agencies. This procedure would most likely entail onsite treatment.

## G. GEOLOGY, SOILS, AND SEISMICITY

The primary geologic, soils, and seismic hazards within the northern half of the proposed project route include a localized area of potential slope instability and erosion concerns. Within the southern half of the proposed route, the Imperial fault poses seismic hazards.

### *Western Route Alternative*

#### *Slope Instability*

The overall potential for slope instability hazards is low because the majority of the northern half of the proposed pipeline alignment follows the gradual gradient of Gas Line Road as it ascends and descends the alluvial washes north and south of the Chocolate Mountains. The one localized area along the pipeline route where slope instability could result is approximately 17 miles south of the Hayfield valve station. At this point, the route crosses a relatively steep slope. Along this section of the line, the pipeline would be installed parallel to the two existing lines that diverge from the road and follow down the adjacent ridge. Over the past 45 and 29 years that lines 6000 and 6001, respectively, have descended this portion of the range, they have not experienced damage from slope instability. However, excessive erosion would pose a threat by uncovering and potentially damaging the pipes along this slope.

#### *Erosion*

Erosion represents the most widespread potential geologic hazard along the northern half of the proposed pipeline route. Stripping of vegetation, especially along the steepest sections, could expose erosion-prone soils and increase erosion if not properly mitigated. Stripping of vegetation on relatively flat areas of the alignment in the desert would slightly increase erosion potential but, because of the flat terrain and infrequent rainfall in that area, is not expected to result in a significant impact.

Natural erosion in washes could potentially uncover pipe buried at insufficient depths. This occurred in a major storm in 1975, which exposed approximately 1,000 feet of pipeline within the gunnery range. The pipeline exposed during this storm was line 6000. Line 6000 has also become exposed in numerous washes within the lands administered by the BLM. Line 6902 would be buried at a minimum depth of 42 inches from the top of the pipe and possibly deeper under washes to avoid this risk.

*Erosion of Stockpiled Soil*

Project excavation would result in temporary piling of soil alongside the trench. This material would be subject to wind and rain erosion until recompacted. Because of the short duration of the storage of this material in piles (generally less than one week), this condition would not constitute a significant impact.

*Corrosive Soils*

Corrosive soils could damage the pipeline by corroding the pipe. Corrosion would be mitigated through use of cathodic protection and pipeline coatings.

*Seismic Damage*

Seismic impacts depend on many variables: earthquake magnitude, distance to epicenter, depth of focus, duration of shaking, intensity of shaking, near-surface soil and geologic conditions, and structural type and design. Earthquake-associated damage could be caused by moderate to strong ground motion (shaking), ground failure, and fault displacement.

*Strong Ground Motion.* Damage from strong ground motion (shaking) is caused by the transmission of earthquake vibrations from the ground into the structure. The proposed pipeline consists of a welded steel pipe buried below ground surface. Such a buried pipe performs well when subjected to ground shaking. The pipe may be damaged only if the ground around the pipe fails or ruptures. The sections of the pipeline that would be most vulnerable to seismic damage (similar to gas line damage caused by the 1979 Imperial fault earthquake) would be just south of the Niland valve station and at the County Highway S80 crossings, where the San Andreas and Imperial faults, respectively, would be traversed.

*Ground Failure.* Ground failure due to seismic shaking can take place in several forms: settlement, liquefaction, and landsliding. Settlement can occur when loose granular soils are subjected to shaking by the earthquake. Liquefaction can occur when these soils are saturated with water. County maps indicate that loose granular soils subject to liquefaction may be present in some of the ephemeral streambeds traversed by the pipeline route. These soils may be saturated at certain times of the year and may extend to some depth. These types of soils, when saturated, are highly susceptible to failure by liquefaction when subjected to significant cyclic loading generated by earthquake shaking. Liquefaction and settlement could potentially cause the pipe to float or sag, depending on the nature of the occurrence. Steel pipes are resistant to damage from differential settlement, but could be affected by severe liquefaction or settlement. In addition to liquefaction and settlement, lurching and slumping may result from strong ground shaking. Lurching and cracking of the ground surface occurs only during severe earthquakes and

generally in loose natural deposits such as geologically unconsolidated alluvium. Because the pipeline would be located well below the surface, it would be protected from most lurching and slumping.

The potential for seismically induced landslides is low due to the generally level to near-level topography along most of the alignment. The slopes of the Chocolate Mountains would be the primary project area subject to this hazard, which could occur during a severe earthquake, especially in a heavy rainfall season.

*Fault Displacement*. As noted in the Geology Setting subsection, both of the proposed pipeline alternative routes would cross the main traces of the San Andreas and Imperial faults, as well as the buried traces of the Calpatria and Brawley faults. The maximum probable earthquake event on the San Andreas and Imperial faults could result in surface rupture of sufficient magnitude to rupture all utility pipelines crossing it, including the proposed pipeline. A worst-case scenario in this event would be a fire at the point of rupture. The Meadows Union School, directly across the street from the proposed pipeline alignment, would be subject to substantial hazards should the pipeline rupture and a fire occur at that point.

As required by the CPUC, the Gas Company would conduct a hazards survey at these crossings. Measures to minimize hazards, such as loose backfilling of trenches and perimeter blocking valves to accommodate the translation of seismic energy along the pipeline during an earthquake, will be evaluated and appropriate corrective action taken. In the event of an earthquake on the San Andreas fault, the gas supply would be manually shut off at the Niland valve station within one mile to the north, and the proposed valve station at the Kershaw Road/Groshen Road intersection, approximately 15 miles south of the fault zone. It could also be remotely shut off at the Hayfield valve station by the Gas Company's central system control dispatcher. The area directly surrounding the San Andreas crossing is used for agriculture; therefore, the potential hazards to humans in the event of a break would be low.

The Imperial fault traverses both of the proposed pipeline routes within a Class III area. The pipeline construction material would be upgraded to 0.438-inch-thick X-60 low alloy steel in this area for the protection of those building occupants within 100 yards of the pipeline for a distance of up to 660 feet north of those structures along S80 and 660 feet south of the Meadows Union School located south of S80. In the event of a break caused by an earthquake generated on the Imperial fault, the gas supply would be shut off at the proposed valve station at the McConnell Road/Ralph Road intersection, approximately five miles to the north, and either of the proposed valve stations at the Mexico border, approximately 12 miles (Western Route Alternative) or 14 miles (Eastern Route Alternative) to the south. The potential hazards to humans in this area in the event of an earthquake and subsequent pipeline breakage is significant because of their proximity. The upgraded pipeline material along this section would serve to lessen this potential impact.

Those measures identified in the hazards survey would further reduce the impact.

It should be noted that breakage of the pipeline also could result in a fire in wildland areas. The significance of this impact would depend on the nature and location of the break, the density of vegetation, and climatic conditions.

### *Eastern Route Alternative*

In the Eastern Route Alternative, potential impacts from geology and soils are virtually identical to those from the Western Route Alternative. However, in this alternative, the proposed line would traverse the Imperial fault in two additional places. At the intersection of Chick Road and Barbara Worth Road, the Imperial fault crosses the southwest portion of the intersection on both frontage roads. One house is located at the northwest corner of this intersection. The potential for pipeline rupture and fire under this alternative is higher than under the Western Route Alternative due to the greater number of fault crossings.

### *No-Action Alternative*

This alternative would not expose a new pipeline to corrosion or seismic hazards. It would, however, maintain in use an older pipeline more susceptible to geologic and seismic hazards. It would not result in increased exposure of residents to potential explosions or fires in a major earthquake.

### *Mitigation Measures*

The following features have been incorporated into the pipeline design to minimize the effects of various potential hazards in the environment.

1. ***Seismic Shaking.*** The pipeline shall be designed so that it would not be adversely affected by moderate to severe seismic shaking.

2. ***Ground Failure.*** It is normally neither practical nor economical to eliminate or reduce the potential for liquefaction in pipeline construction. The location and extent of problem areas shall be identified and these areas shall be avoided. Appropriate designs shall be used to minimize potential damage from liquefaction.

3. ***Landslides.*** Portions of the route crossing the Chocolate Mountains shall receive appropriate design considerations to minimize possible landslide problems.

4. ***Erosion.*** Erosion control procedures (such as sufficient burial and grading) shall be used to minimize potential problems. Scour depths

of the intermittent and ephemeral streams shall be determined and the pipeline shall be buried to depths below these levels.

5. ***Corrosive Soils.*** The pipeline shall be coated and cathodically protected to minimize the effects of highly corrosive soils.

The following additional measures are identified for incorporation into the project design.

6. ***Ground Rupture.*** To minimize the potential fire hazards associated with pipeline breakage in the event of an earthquake and the potential impacts on students at the Meadows Union School, the gas supply shall be automatically shut off at locations as close to either side of the Imperial fault as possible. An additional valve station or other protection acceptable to the BLM shall be added along the south side of the fault, and the McConnell/Ralph valve station shall be located farther south than currently proposed. Valve stations shall be no more than one mile from either side of the Imperial fault. In addition, pipeline crossing this fault shall be designed to resist potential lateral movement associated with the maximum probable earthquake.

7. ***Inspection.*** Pipeline maintenance crews shall inspect potential rupture areas and report any fires to the appropriate fire protection agency. Crews shall be trained to respond appropriately to fires, and shall carry fire extinguishers in their vehicles.

8. ***Hazards Survey.*** All measures identified in the hazards survey shall be considered for inclusion in the project design to reduce potential hazards, and appropriate corrective actions shall be taken.

## H. HYDROLOGY

The main hydrologic concerns regarding the proposed project involve the number of water bodies (desert washes and irrigation canals) that would be disturbed during project construction and the associated erosion impacts and disruption of irrigation operations.

### *Western Route Alternative*

Trenching activities would temporarily alter natural drainages and could subject affected areas to increased erosion. After construction, however, the alignment would be restored to its original drainage contours.

The proposed pipeline would cross approximately 68 ephemeral desert washes of varying lengths and widths (see the wetlands section above in this chapter for details on the ephemeral desert washes). If not buried to a sufficient depth, the pipeline could become exposed in the incised gullies north of the Chocolate Mountains, similar to line 6000. However, line 6902 is proposed to be buried up to 96 inches in critical areas to avoid exposure. Downstream surface runoff would not be significantly affected by the project because such water is present only during heavy storms and a capacity silt load (both bed local and suspended local) is reached whether or not minor soil disturbances occur.

Irrigation, irrigation runoff, and stormwater runoff between Niland and Calexico is controlled by the Imperial Irrigation District's series of canals, laterals, and drains, which ultimately empty into the Alamo River and the Salton Sea. The proposed pipeline would traverse approximately 82 of these waterways (refer to the table and maps in Appendix B). To avoid impacts on the local irrigation system, the Gas Company would either trench through the road above the siphon or, in some situations where sufficient space does not exist between the road and the siphon, move the pipeline alignment a short distance away from the paved surface to bore at shallower depths under the irrigation watercourse or cut through the watercourse. The Gas Company would reconstruct the existing support system that spans line 6001 across the Alamo River so that it could support both lines 6902 and 6001. Local siltation and erosion effects may occur near the construction area. These effects on surface hydrology are expected to be minimal.

Approximately 5.7 million gallons of water, or 17 acre-feet, would be required for hydrostatic testing of the pipeline. The Hayfield to Niland section may be gas tested, if feasible, which would reduce total water used for hydrostatic testing. This water would most likely be obtained from the Coachella Canal and would be reused within the first 31.1-mile test segment and within the southern 44.5-mile test segment. The test water would either be discharged by spreading in accordance with RWQCB regulations, or returned to irrigation canals for use. For spreading, the rate of discharge of the test water would be controlled to prevent erosion of local terrain. Without mitigation, test waters

discharged into unlined drainages could result in high erosion hazards. In addition, this test water may contain trace amounts of rust and particles that are products of factory steel pipe construction.

### *Eastern Route Alternative*

In the Eastern Route Alternative, the impacts on desert washes and the Alamo River would be the same as those of the Western Route Alternative. In this alternative, approximately 99 canals, drains, and laterals would be traversed by the pipeline. The additional two miles of pipeline length in this alternative would not require additional hydrostatic test water. Recycled water from within the last test segment of pipeline could be used.

### *No-Action Alternative*

Under this alternative, no natural intermittent or ephemeral streams or washes, or Imperial Irrigation District canals, laterals, or drains, along the alignment would be crossed. Erosion hazard and the need for erosion control measures would be eliminated under this alternative. Also, without hydrostatic testing, natural flood channels and Imperial Irrigation District irrigation and drainage facilities would not be affected.

### *Mitigation Measures*

The following measures are identified to offset potential adverse effects during construction and testing of the proposed pipeline (note that additional measures are included in section F, "Wetlands").

1. The rate of discharge of the test water shall be controlled by use of an energy dissipator/flow disperser to minimize erosion of local terrain in accordance with RWQCB requirements.

2. Portions of the route that cross intermittent waterways shall be scheduled for completion during the dry season, if possible. The disturbed materials in the construction right-of-way shall be stabilized by mechanical methods.

3. Construction methods across abrupt arroyos shall incorporate erosion control measures to ensure minimal erosion damage. These measures may include reducing the slope and mulching.

# I. NOISE

## Western Route Alternative

### Sources of Impacts

Potential sources of project noise impacts include construction activities and project operation and maintenance activities. Operation of the project would produce only negligible noise impacts; the pipeline and valve stations would generate minimal noise, and vehicle trips associated with pipeline maintenance would be inconsequential. The only maintenance activity that could produce potentially significant noise impacts would be the venting of natural gas. Therefore, this analysis focuses on construction impacts and blowdown events.

### Construction Noise

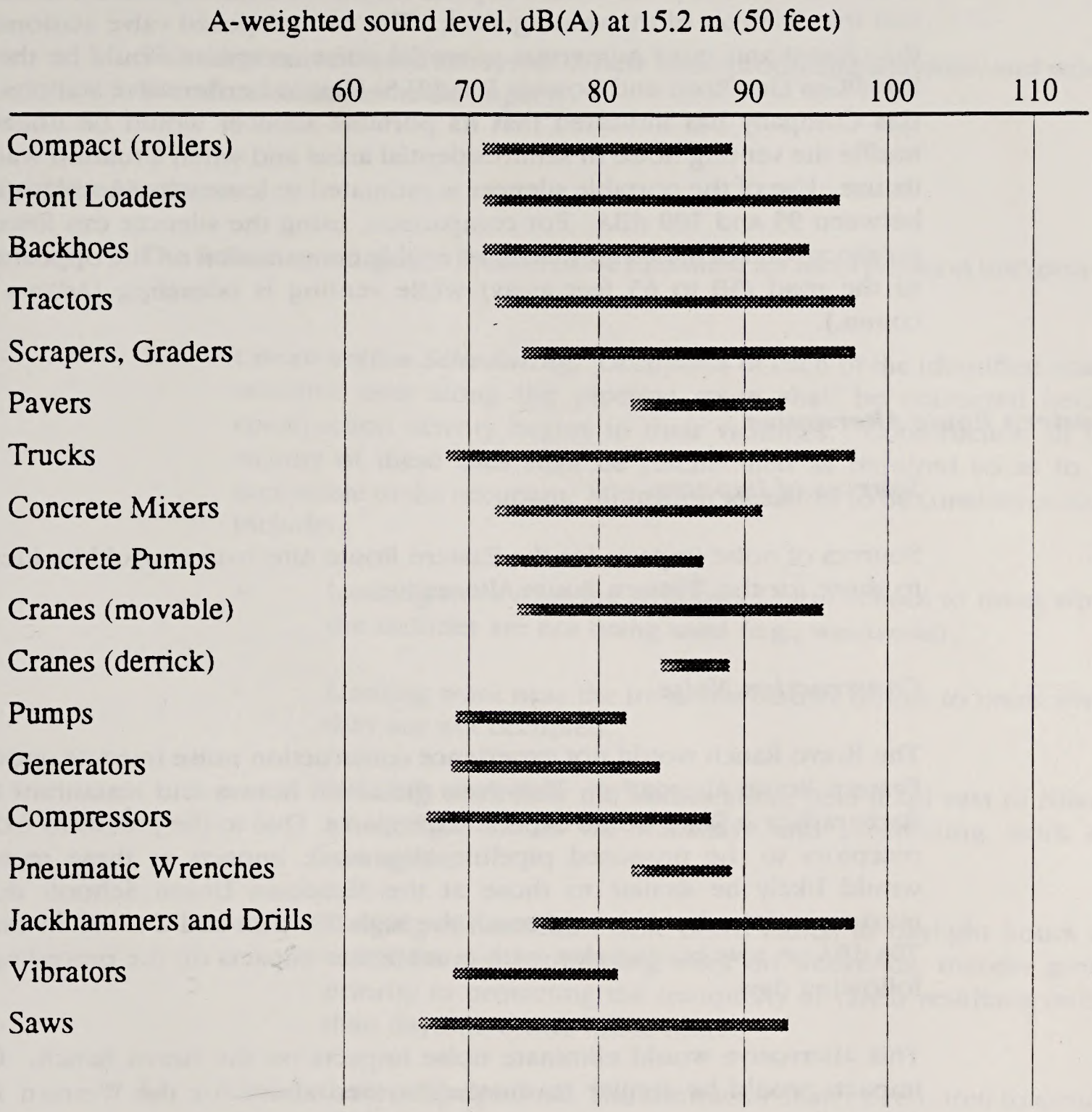
In a worst-case scenario of project construction noise impacts, noise from construction activities would overwhelm background ambient sources at all worst-case receptor locations. Noise emission data for relevant types of construction equipment have been obtained from a manufacturer (Caterpillar Inc.), and from Environmental Protection Agency (EPA) data (Figure I-1). At the residences near Beal Road east of Niland, maximum noise levels could reach approximately 70 dBA, while the worst-case CNEL could approach 70 dBA. At the Imperial Irrigation District office, maximum noise levels could reach 80 dBA and worst-case CNEL could reach approximately 75 dBA. The Meadows Union School could experience maximum noise levels in the high-70s dBA and a CNEL in the low-70s dBA on a day. The homes and offices at the Bravo Ranch could be exposed to maximum noise levels in the mid-70's dBA and a CNEL in the low 70's dBA. In addition to exceeding CNEL standards, these noise levels are likely to cause disturbance at these structures, which are occupied during closest approach of construction.

It should be noted that project plans do not call for pavement breaking in the vicinity of these receptors. However, if pavement breaking is required, it could raise peak noise levels at nearby locations several decibels and could influence CNEL slightly.

Because noise levels at each of these locations would likely exceed Imperial County CNEL standards for at least one day and as many as a few days, project impacts at these locations would be considered significant but short term.

### Blowdown Noise

During the annual two-minute blowdowns at the venting stations, residents within one block would be adversely affected. During 30-minute blowdowns, adverse noise impacts would be expected at receptors two to three miles away. Noise levels during a blowdown are estimated to range between 110 and 125




Source: *Handbook of Noise Control*, by Cyril M. Harris, editor, 1979.

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Figure I-1

LSA

Noise Levels Typical of Construction Equipment

dBA. Actual noise levels would depend on the amount of pressure in the line and the diameter of the venting stack. The two proposed valve stations with the closest and most numerous potential noise receptors would be the Beal Road/Gas Line Road and Bowker Road/U.S.-Mexico border valve stations. The Gas Company has indicated that its portable silencer would be utilized to muffle the venting noise in semiresidential areas and when situation warrants its use. Use of the portable silencer is estimated to lower the venting noise to between 95 and 100 dBA. For comparison, using the silencer can lower the nuisance level of the venting noise to enable conversation on the opposite side of the road (50 to 65 feet away) while venting is occurring (Adams pers. comm.).

## *Eastern Route Alternative*

### *Sources of Impacts*

Sources of noise impacts for the Eastern Route Alternative would be identical to those for the Western Route Alternative.

### *Construction Noise*

The Bravo Ranch would not experience construction noise impacts under the Eastern Route Alternative. However, the seven homes and restaurant along Barbara Worth Road would experience impacts. Due to the proximity of these receptors to the proposed pipeline alignment, impacts at these receptors would likely be similar to those at the Meadows Union School; that is, maximum noise levels would reach the high 70s dBA and a CNEL in the low 70s dBA on a worst-case day, with much lesser impacts on the preceding and following days.

This alternative would eliminate noise impacts on the Bravo Ranch. Other impacts would be similar to those described above for the Western Route Alternative.

### *Blowdown Noise*

Under this alternative, blowdowns at the Beal Road/Gas Line Road and Barbara Worth Road/U.S.-Mexico border valve stations would have the greatest potential for resulting in adverse effects at nearby noise receptors. At the U.S.-Mexico border, the nearest sensitive receptors would be within Mexico. Use of the portable silencer during blowdowns would reduce these impacts.

### *No-Action Alternative*

This Alternative would not result in new noise-producing activities, and would therefore cause no noise impacts.

### *Mitigation Measures*

The following mitigation measures are identified for incorporation into project plans.

1. ***Construction Scheduling.*** Occupants of each of the identified noise-sensitive uses along the pipeline route shall be contacted before construction activity begins in their vicinities. Construction in the vicinity of these uses shall be rescheduled as required so as to be acceptable to the occupant. Mitigation measures to be considered shall include:

   - Limiting work near the Meadows Union School to times when the facilities are not being used (e.g., weekends).

   - Limiting work near the irrigation district offices to times when they are not occupied.

   - Limiting work near the homes along Beal Road east of Niland to daylight hours on weekdays and prohibiting work on weekends.

   - Limiting construction near Bravo Ranch to daylight hours on weekdays and prohibiting work on weekends, thereby giving priority to protecting the tranquility of ranch residents rather than daytime onsite office users.

2. ***Construction Equipment.*** The contractor shall be required to ensure that mufflers/noise controls on available equipment are in good working condition.

3. ***Minimize Use of Loud Signals.*** The use of loud signals shall be avoided in noise-sensitive areas in favor of warning lights, except those required by state law for the protection of personnel.

4. The Gas Company shall utilize a silencer during blowdowns within semiresidential areas or when a situation warrants its use.

## J. AIR QUALITY

Adverse long-term local air quality impacts are not expected to occur as a result of the project. The project would likely have beneficial long-term impacts as the use of gas is substituted for oil in future development. However, the project could have significant short-term impacts during the construction phases.

### *Western Route Alternative*

The Southern California Air Quality Management District (SCAQMD) has established criteria whereby the significance of construction-phase air pollutant emissions is to be judged (California Environmental Quality Act (CEQA) *(CEQA Air Quality Handbook, Final Draft*, SCAQMD, September 1992). Project construction air pollutant emissions that equal or exceed the following threshold levels would be considered significant and need to be mitigated:

| | | |
|---|---|---|
| • ROG | 75 lbs./day | 2.5 tons/quarter |
| • $NO_x$ | 100 lbs./day | 2.5 tons/quarter |
| • $PM_{10}$ | 150 lbs./day | 6.75 tons/quarter |

The Imperial County Air Pollution Control District (ICAPCD) has not established similar thresholds in its jurisdiction. For the purposes of this analysis, however, the SCAQMD thresholds have been used to determine project significance.

Construction vehicle and equipment exhaust contains ROG and $NO_x$. Emissions of ROG and $NO_x$ are of concern because of their adverse effect on regional ozone levels. About 50% of the dust generated during clearing, excavation, grading, construction, and other operations would be $PM_{10}$. $PM_{10}$ emissions are of concern because of their adverse effects on local ambient air quality along the project alignment; the following would be particularly vulnerable to such $PM_{10}$ impacts:

1. The Meadows Union School south of County Road S80, and two residences near the SPRR tracks.

2. The Imperial Irrigation District office on Bowker Road north of State Highway 98.

3. The Bravo Ranch at the southern end of the pipeline route just north of the Mexican border.

Table J-2 shows the emission rates associated with the various types of construction equipment and activities for nonattainment pollutants in the Southeast Desert Air Basin (SEDAB). Emissions totals over daily and quarterly averaging times during all phases of construction are displayed in Table J-2. $NO_x$ and $PM_{10}$ emissions would exceed the daily thresholds by a wide margin

**TABLE J-2: CONSTRUCTION PHASE AIR POLLUTANT EMISSIONS**
**SoCalGas Line No. 6902**

| Equipment/ Activity | Units | Emission Factor TOG | NOx | PM10 |
|---|---|---|---|---|
| Tractor (Tracked) | lbs/hr | 0.12 | 1.26 | 0.11 |
| Tractor (Wheeled) | lbs/hr | 0.19 | 1.27 | 0.14 |
| Dozer (Wheeled) | lbs/hr | 0.19 | 4.17 | 0.17 |
| Scraper | lbs/hr | 0.28 | 3.84 | 0.41 |
| Grader | lbs/hr | 0.04 | 0.71 | 0.06 |
| Loader (Wheeled) | lbs/hr | 0.25 | 1.89 | 0.17 |
| Loader (Tracked) | lbs/hr | 0.10 | 0.83 | 0.06 |
| Truck (Off-Road) | lbs/hr | 0.19 | 4.17 | 0.26 |
| Roller | lbs/hr | 0.07 | 0.86 | 0.05 |
| Backhoe | lbs/hr | 0.16 | 2.01 | 0.14 |
| Compactor | lbs/hr | 0.08 | 0.06 | 0.02 |
| Paver | lbs/hr | 0.15 | 1.69 | 0.14 |
| Crane | lbs/hr | 0.15 | 1.70 | 0.14 |
| Welding Machine | lbs/hr | 0.16 | 2.01 | 0.143 |
| Truck (Heavy On-Road) | lbs/mi | 0.007 | 0.030 | 0.004 |
| Truck (Light On-Road) | lbs/mi | 0.004 | 0.003 | 0.000 |
| Auto (Worker Commute) | lbs/mi | 0.002 | 0.002 | 0.000 |
| Fugitive Dust | lbs/acre/ | 0.00 | 0.00 | 55.00 |

Emission factors for construction equipment and fugitive dust were taken from Compilation of Air Pollution Emission Factors, AP-42, EPA, September 1985

Emission factors for on-road trucks were calculated with EMFAC7PC, a motor vehicle emissions estimation program developed by the California Air Resouces Board.

**TABLE J-2: CONSTRUCTION PHASE AIR POLLUTANT EMISSIONS**
**SoCalGas Line No. 6902**

**Section #1 (between I-10 and the Gunnery Range)**
**Duration: 3 to 4 weeks**

| Equipment/ Activity | # Units | Daily Use | # Crews | Daily Emissions TOG | NOx | PM10 |
|---|---|---|---|---|---|---|
| Bulldozer | 2 | 30% | 1 | 3.1 | 60.0 | 2.4 |
| Truck (Off-Road) | 1 | 30% | 1 | 1.6 | 33.7 | 2.1 |
| Ditcher | 1 | 30% | 1 | 1.3 | 16.3 | 1.2 |
| Backhoe | 1 | 30% | 1 | 1.3 | 16.3 | 1.2 |
| Bender | 1 | 30% | 1 | 1.0 | 10.2 | 0.9 |
| Crane | 2 | 30% | 1 | 2.4 | 27.5 | 2.3 |
| Grader | 1 | 30% | 1 | 0.3 | 5.8 | 0.5 |
| Loader (Wheeled) | 2 | 30% | 1 | 4.1 | 30.6 | 2.8 |
| Welding Machine | 8 | 30% | 1 | 10.4 | 130.2 | 9.3 |
| Truck (Light On-Road) | 11 | 10 mi | 1 | 0.5 | 0.3 | 0.0 |
| Employee Commute | 50 | 100 mi | 1 | 8.0 | 11.5 | 1.0 |
| Fugitive Dust | 9.2 | 33% | 1 | 0.0 | 0.0 | 504.9 |
| Total (lbs/day) | | | | 33.9 | 342.5 | 528.4 |

**Section #2 (in the Gunnery Range)**
**Duration: 4 to 6 weeks**

| Equipment/ Activity | # Units | Daily Use | # Crews | Daily Emissions TOG | NOx | PM10 |
|---|---|---|---|---|---|---|
| Bulldozer | 2 | 90% | 4 | 37.3 | 719.9 | 28.5 |
| Truck (Off-Road) | 1 | 90% | 4 | 18.7 | 404.9 | 24.9 |
| Ditcher | 1 | 90% | 4 | 15.6 | 195.4 | 13.9 |
| Backhoe | 1 | 90% | 4 | 15.6 | 195.4 | 13.9 |
| Bender | 1 | 90% | 4 | 11.8 | 122.5 | 10.9 |
| Crane | 2 | 90% | 4 | 29.2 | 330.5 | 27.2 |
| Grader | 1 | 90% | 4 | 3.9 | 69.3 | 5.9 |
| Loader (Wheeled) | 2 | 90% | 4 | 48.6 | 367.4 | 33.4 |
| Welding Machine | 8 | 90% | 4 | 124.4 | 1563.0 | 111.2 |
| Truck (Light On-Road) | 11 | 10 mi | 4 | 1.8 | 1.2 | 0.1 |
| Employee Commute | 50 | 100 mi | 4 | 32.0 | 46.0 | 4.0 |
| Fugitive Dust | 9.2 | 100% | 4 | 0.0 | 0.0 | 6059.4 |
| Total (lbs/day) | | | | 338.8 | 4015.4 | 6333.4 |

**TABLE J-2: CONSTRUCTION PHASE AIR POLLUTANT EMISSIONS**
**SoCalGas Line No. 6902**

**Section #3 (between the Gunnery Range and the Niland Valve Station)**
**Duration: 3 to 4 weeks**

| Equipment/ Activity | # Units | Daily Use | # Crews | Daily Emissions TOG | NOx | PM10 |
|---|---|---|---|---|---|---|
| Bulldozer | 2 | 30% | 1 | 3.1 | 60.0 | 2.4 |
| Truck (Off-Road) | 1 | 30% | 1 | 1.6 | 33.7 | 2.1 |
| Ditcher | 1 | 30% | 1 | 1.3 | 16.3 | 1.2 |
| Backhoe | 1 | 30% | 1 | 1.3 | 16.3 | 1.2 |
| Bender | 1 | 30% | 1 | 1.0 | 10.2 | 0.9 |
| Crane | 2 | 30% | 1 | 2.4 | 27.5 | 2.3 |
| Grader | 1 | 30% | 1 | 0.3 | 5.8 | 0.5 |
| Loader (Wheeled) | 2 | 30% | 1 | 4.1 | 30.6 | 2.8 |
| Welding Machine | 8 | 30% | 1 | 10.4 | 130.2 | 9.3 |
| Truck (Light On-Road) | 11 | 10 mi | 1 | 0.5 | 0.3 | 0.0 |
| Employee Commute | 50 | 50 mi | 1 | 4.0 | 5.8 | 0.5 |
| Fugitive Dust | 9.2 | 33% | 1 | 0.0 | 0.0 | 504.9 |
| Total (lbs/day) | | | | 29.9 | 336.7 | 527.9 |

**Section #4 (between the Niland Valve Station and Calexico)**
**Duration: 6 to 8 weeks**

| Equipment/ Activity | # Units | Daily Use | # Crews | Daily Emissions TOG | NOx | PM10 |
|---|---|---|---|---|---|---|
| Ditcher | 1 | 30% | 2 | 2.6 | 32.6 | 2.3 |
| Backhoe | 2 | 30% | 2 | 5.2 | 65.1 | 4.6 |
| Bender | 1 | 30% | 2 | 2.0 | 20.4 | 1.8 |
| Crane | 2 | 30% | 2 | 4.9 | 55.1 | 4.5 |
| Grader | 1 | 30% | 2 | 0.6 | 11.6 | 1.0 |
| Loader (Wheeled) | 2 | 30% | 2 | 8.1 | 61.2 | 5.6 |
| Welding Machine | 8 | 30% | 2 | 20.7 | 260.5 | 18.5 |
| Truck (Light On-Road) | 11 | 10 mi | 2 | 0.9 | 0.6 | 0.0 |
| Truck (Heavy On-Road) | 3 | 10 mi | 2 | 0.4 | 1.8 | 0.2 |
| Employee Commute | 50 | 50 mi | 2 | 8.0 | 11.5 | 1.0 |
| Fugitive Dust | 9.2 | 33% | 2 | 0.0 | 0.0 | 1009.8 |
| Total (lbs/day) | | | | 53.4 | 520.4 | 1049.5 |

**TABLE J-2: CONSTRUCTION PHASE AIR POLLUTANT EMISSIONS**
**SoCalGas Line No. 6902**

**First Quarter Emissions**

| Activity Location | # Weeks | Quarter Use | Quarterly Emissions (tons) TOG | NOx | PM10 |
|---|---|---|---|---|---|
| Section #1 | 4 | 33% | 0.3 | 3.4 | 5.3 |
| Section #2 | 6 | 50% | 7.1 | 84.3 | 133.0 |
| Section #3 | 2 | 17% | 0.1 | 1.7 | 2.6 |
| Total | 12 | 100% | 7.6 | 89.4 | 140.9 |

**Second Quarter Emissions**

| Activity Location | # Weeks | Quarter Use | Quarterly Emissions (tons) TOG | NOx | PM10 |
|---|---|---|---|---|---|
| Section #3 | 2 | 17% | 0.1 | 1.7 | 2.6 |
| Section #4 | 8 | 67% | 1.1 | 10.4 | 21.0 |
| None | 2 | 17% | 0.0 | 0.0 | 0.0 |
| Total | 12 | 100% | 1.2 | 12.1 | 23.6 |

regardless of the intensity with which the work proceeds, while the ROG threshold would not be exceeded. ROG, $NO_x$, and $PM_{10}$ emissions would exceed the quarterly thresholds by a wide margin during the first three months of the work, primarily because of the round-the-clock work by multiple crews in the gunnery range. Only the $NO_x$ and $PM_{10}$ quarterly thresholds would be exceeded during the last three months of work.

The natural gas released during blowdown activities is largely composed of methane, which is not an ozone precursor. Therefore, no significant air quality problems would result from these venting occurrences.

### *Eastern Route Alternative*

Impacts would be similar to those under the Western Route Alternative, but with slightly increased emissions due to the additional two miles of construction.

### *No-Action Alternative*

Because this alternative would rely on two existing pipelines to deliver natural gas to the region, the proposed pipeline would not be built and the construction impacts identified above would not occur. Project benefits to air quality associated with the use of natural gas instead of oil would not occur.

### *Mitigation Measures*

The following mitigation measures are identified.

1. The Gas Company shall implement effective fugitive dust control measures required by SCAQMD Rule 403[4], which prohibits a visible plume of dust at the boundary of the project. Such measures should include the following:

    - Use water trucks or sprinkler systems to prevent airborne dust from leaving the site. Increased watering frequency shall be required whenever wind speeds exceed 15 mph.

    - Limit the speed for all construction equipment to 25 mph on any unpaved surface.

    - Water or securely cover all excavated material transported offsite.

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[4]Although only Riverside County is within the SCAQMD, this EA recommends its application to the project's Imperial County segment as well.

- As work progresses to areas where there are paved roads, sweep adjacent streets as needed to remove accumulated silt.

2. Limit ROG and $NO_x$ emissions from equipment and vehicles by implementing the following:

   - Maintain existing gasoline-powered equipment per manufacturer instructions.

   - Substitute electric-powered equipment for internal combustion-powered equipment, where feasible.

   - Substitute gasoline-powered equipment (preferably, with catalytic converters installed) for diesel-powered equipment, where feasible.

3. The Gas Company shall conform with all local ordinances. If the contractor is ordered to shut down by any agency, the Gas Company shall comply.

4. While backfilling the pipeline, the Gas Company shall ensure dust reduction by stabilizing the graded area. It shall use techniques including, but not limited to, watering or paving to reduce fugitive dust generation onsite in a manner meeting the approval of the public works director for each county.

## K. CULTURAL RESOURCES

### *Western Route Alternative*

The cultural resources survey for the northern portion of the project from I-10 to Niland identified four previously unrecorded cultural resource sites along the proposed route and one previously recorded prehistoric site. In addition, six isolates were found.

Recorded Imperial County sites CA-IMP-68 and CA-IMP-118 are mapped in the archives as being within the working strip. Because they could not be located in the field survey, they are assumed to have been destroyed. Remnants of site CA-IMP-1698 may be extant under the agricultural fields and could be destroyed by the project if not mitigated. The two new sites found in this survey are 72 and 108 feet west of Gas Line Road (CA-RIV-5122 and CA-RIV-5123). These sites could potentially be disturbed by project construction. Impacts could be potentially significant if not mitigated. The Riverside County site (CA-RIV-4884) may be affected by the project, but is outside the working strip and could reasonably be avoided.

Field documentation has exhausted the research potential for historic sites. Therefore, the project would not have a significant impact on these sites.

No further work is recommended for isolated artifacts found because the recording has exhausted their research potential. The site records for the isolates will be submitted to the regional archaeological information centers located at Imperial Valley College and at the University of California, Riverside, for the files and future research. The project would, therefore, not significantly affect the resources.

The project would intersect the Bradshaw Trail. The applicant will return the trail to its original condition; therefore no significant impact is expected.

### *Eastern Route Alternative*

Impacts on cultural resources of this alternative would be the same as for the Western Route Alternative.

### *No-Action Alternative*

This alternative would not disturb historic or prehistoric resources.

***Mitigation Measures***

The following measures take into consideration the proposed pipeline construction and are intended to reduce direct impacts on the identified sites.

1. A qualified archaeologist shall be retained to monitor the grading for the pipeline throughout the entire area north of Niland and in the vicinity of site CA-IMP-1698.

2. If buried artifacts or midden soils are found, the archaeologist shall halt the grading until the finds can be evaluated and a data recovery program implemented. Screening of soils may be appropriate mitigation at site CA-IMP-1698 if cultural resources are discovered.

3. Adjustment of construction within the working strip will avoid the two newly discovered prehistoric sites and CA-RIV-4884. This would eliminate direct impacts on these sites. These sites can be avoided. However, because of the proximity of the sites to the alignment, the following should be done:

    a. Before construction begins in these areas, a qualified archaeologist shall be retained to flag and stake the two new sites found in the survey and the previously recorded site Cal-RIV-4884.

    b. Archaeological monitoring along the pipeline in these areas shall assist in keeping construction equipment and activities out of these sites, including parking of vehicles.

4. If avoidance of any as-yet undiscovered cultural resource in the Area of Potential Effects (APE) is not possible, a treatment plan shall be required. This plan shall include additional fieldwork testing for any subsurface deposits and further documentation of the surface artifacts observed. The plan would need to be submitted to the BLM and, if found acceptable, would be forwarded to the State Historical Preservation Office (SHPO) for approval. Until a treatment plan is approved by the SHPO and implemented, no construction would be permitted that could jeopardize the resource.

5. The Gas Company shall record the Bradshaw Trail where crossed prior to the start of construciton, and shall return the portion of the Bradshaw Trail affected by the project to its original pre-construction condition.

## L. PALEONTOLOGICAL RESOURCES

### *Western Route Alternative*

Trenching in the high-sensitivity areas, such as lake deposits associated with the Brawley Formation and the Ocotillo Formation at the northern end of the proposed alignment, could negatively affect existing paleontological resources. However, implementation of appropriate mitigation measures would lower impacts to an acceptable level and may provide a benefit if fossils are salvaged, curated, and made available for public education and scientific study.

The route south of Niland is underlain entirely by Quaternary lake deposits. No fossil remains are definitely known from this rock unit and no fossil site is recorded from the pipeline rights-of-way. Therefore, excavation of the pipeline trench to a depth of eight feet probably would not extend to sufficient depth in the Quaternary lake deposits to encounter rocks old enough to contain fossil remains. Therefore, adverse impacts resulting from excavation of the pipeline trench would be of low paleontologic significance because of the low potential for disturbance or loss of any scientifically important fossil remains, associated geologic and geographic site data, or unrecorded fossil site.

### *Eastern Route Alternative*

Impacts associated with the Eastern Route Alternative would be similar to those of the Western Route Alternative.

### *No-Action Alternative*

This alternative would not affect paleontologic resources.

### *Mitigation Measures*

The following mitigation measures shall be implemented during the construction phases of the proposed pipeline project to lower impacts on paleontological resources to an insignificant level.

#### *Northern Segment (Hayfield to Niland)*

1. Full-time monitoring shall be conducted during earthmoving activities within high-sensitivity sediments. Wet screening for remains of small vertebrates shall be conducted in the appropriate sediments such as the Brawley Formation and paleosols. Crystalline rocks and recent alluvial materials or sands have no to low paleontologic sensitivity and shall not require monitoring. The sediments rated as having

indeterminate sensitivity shall require full-time monitoring until their true potential can be assessed. If fossils are found, monitoring efforts shall remain full time; accordingly, if no fossils are encountered, monitoring efforts shall be reduced in the vicinity of these sediments.

2. Specimens shall be identified and curated into a suitable repository that has a retrievable storage system, such as the San Bernardino County Museum.

3. A final report summarizing findings shall be prepared at the end of earthmoving activities. The report shall include an itemized inventory of recovered fossils and appropriate stratigraphic and location data. This report shall be sent to the BLM, signifying the end of mitigation. Another copy shall accompany the fossils, along with field logs and photographs, to the designated repository.

***Southern Segment (Niland to Calexico)***

Excavation of the pipeline trench for line 6902 is unlikely to cause disturbance or loss of scientifically important fossil remains, associated geologic and geographic site data, or unrecorded fossil sites in the Quaternary lake deposits. Therefore, a mitigation program for reducing impacts on paleontologic resources, as specified in recently issued guidelines for mitigating construction-related adverse impacts on paleontologic resources, would not be required during excavation of the pipeline trench.

However, in the unlikely event that fossil remains were uncovered by excavation of the pipeline trench, impacts on the remains would be stopped until a paleontologist, approved by the BLM, has been called to the site to evaluate and, if appropriate, remove the remains, and has developed additional mitigation measures, if warranted. These measures could include paleontologic monitoring of excavation.

## M. HEALTH AND SAFETY

### Western Route Alternative

#### Construction

Construction operations such as grinding and welding could result in fires near the pipeline. In addition, certain materials that may be used during pipeline construction could present a hazard. Fuels, which would be delivered to the site in tank trucks, are a potential concern. The Gas Company would implement measures that would minimize this potential hazard to a level of insignificance.

Pipeline construction in the gunnery range could expose work crews to danger from potential unexploded ordnance. As part of the project, work crews might work 24 hours a day in the area of the range so that this section could be completed in the shortest time possible. During the pipeline construction period along this section, the gunnery range would be closed to all aerial military exercises. The pipeline crew would be provided with EOD escorts during their work in the range. Before work begins within the range, pipeline workers would be briefed by the Marine Corps regarding worker safety within a live ordnance area. Further, military personnel operating in the range would be notified of the construction project. These measures would minimize danger to work crews.

#### Operation

Implementation of the project would result in the transport of natural gas under a typical pressure of 600 to 700 psi, with peaks of up to 788 psi. The gas could form liquid condensates. To minimize this potential, the gas would be of pipeline quality and any liquid condensate would be removed by drip valves. Potential adverse impacts from pressure and condensate during transport of gas within the pipeline would be nonexistent.

Heavy excavation equipment may crack or punch a hole in a large diameter pipeline, but would not likely sever it. To minimize the possibility of future construction adversely affecting the line, signage would be included to clearly delineate the alignment. As part of the project, warning signs at intersections with public rights-of-way and other locations would be placed to indicate the high-pressure gas line along with additional markers to facilitate aerial surveillance. With this signage and the isolation of the line, damage from future heavy excavation equipment would be relatively insignificant.

A remote potential hazard of pipeline leaks or breakage exists where the pipeline crosses canals, drainage ditches, and watercourses. In addition, seismic hazards associated with the San Andreas and Imperial faults occur along the pipeline route. Crossing of canals, drainage ditches, and watercourses are addressed above in the hydrology section of this chapter.

Geologic hazards and mitigation are evaluated above in the geology, soils, and seismicity section of this chapter.

Accidents from leaks or external damage to the pipeline could result in the release of natural gas. If the released gas is ignited, it could burn and/or explode and pose a risk to structures or persons living in or traveling through the area. The significance of this impact would depend on its location along the route.

The potential hazards to pipeline maintenance personnel during blowdown events are expected to be below a level of significance because of the safety procedures that are incorporated into the activity. During blowdowns, all maintenance personnel are equipped with safety gear and ear protection. The valves are opened remotely at a distance of at least 30 feet from the discharge point. The gas is released straight upward from stacks that are between eight and ten feet high.

Because much of the pipeline would be placed along vacant land and away from human habitation, hazards would be minimal along most of the alignment. Structures along the route would include irrigation canals, drainage ditches, railroad crossings, and public roads as described above under "Project Description." Trains, which may carry freight and/or passengers, cross the pipeline in two places, though they are not on a regular schedule (Prince pers. comm.). Facilities in the pipeline right-of-way could be damaged as a result of a rupture in the pipeline.

Damage to the pipeline could result from the operation of the gunnery range. As part of the proposed project, however, the pipeline would be buried approximately four to six feet below ground (30 inches is required in Class I and Class II areas) to reduce risk of external damage, and valve stations would be constructed on either side of the range. If a rupture were to occur due to Marine Corps activity, it would not likely pose a health and safety hazard, because the gunnery range is uninhabited and valve stations would be constructed at its boundaries. Gas Line Road, plus an additional buffer area on either side of the road, is designated as a "nodrop" zone by the Marine Corps.

Adverse impacts from a pipeline rupture would be greatest in the three Class III areas that occur along the pipeline alignment. These areas include the Meadows Union School south of County Road S80, two residences near the SPRR tracks, the Imperial Irrigation District office on Bowker Road north of State Highway 98, and the Bravo Ranch at the southern end of the pipeline just north of the border with Mexico.

As part of the proposed project, the pipeline would be designed, constructed, operated, maintained, and monitored to conform with previously discussed orders and regulations. With the exception of seismic issues described above in the geology section of this chapter, consistency with these requirements is

expected to minimize to a level of insignificance the danger to persons and structures.

### *Eastern Route Alternative*

The potential effects on health and safety in the first 68.6 miles of the Eastern Route Alternative would be the same as those under the Western Route Alternative. In the last nine miles, the Eastern Route Alternative would cross primarily agricultural lands with one Class III area just south of State Highway 98. The potential adverse impacts from a pipeline rupture would be greatest in this area, where a restaurant and four residences are located. There are also several isolated residences and a number of canal crossings (20 on the Eastern Route Alternative versus eight on the Western Route Alternative).

As with the Western Route Alternative, the pipeline would be designed, constructed, operated, maintained, and monitored to conform with previously listed pertinent orders and regulations. In the Class III area, pipe specifications and construction and monitoring requirements would be more stringent. Consistency with these regulations is expected to minimize to a level of insignificance the danger to persons and structures.

### *No-Action Alternative*

Under this alternative, the risk of hazard to health and safety from pipeline construction and possible leaks or ruptures from subsequent operation of the existing pipeline would be present. The potential for leakage with the older pipeline would be greater than with the proposed project.

### *Mitigation Measures*

No further mitigation measures are recommended. The project as proposed, with implementation of identified mitigation measures related to safety in the geology, soils, and seismicity and hydrology sections of this chapter, would mitigate potentially adverse impacts on health and safety issues identified above to below a level of significance.

# V. CUMULATIVE IMPACTS AND GROWTH INDUCEMENT

## A. *INTRODUCTION*

NEPA Guidelines (BLM, 1992) define a cumulative impact as an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or persons undertake such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Incremental activities and multiple sources combine to create cumulative impacts.

## B. *CUMULATIVE DEVELOPMENT*

Based on information provided by the Riverside (Gearing pers. comm.) and Imperial (Gray pers. comm.) County Planning Departments, the BLM (Johnson pers. comm.), and the Imperial Irrigation District (King pers. comm.), five major projects are planned in the project vicinity in the next five years. Two regional landfills are proposed; the Eagle Mountain Landfill, in Riverside County north of I-10 and the Mesquite Landfill in the southern Chocolate Mountains. The Eagle Mountain Landfill project is currently undergoing environmental review and is proposed to be in operation by 1994. The Mesquite Landfill is at least two years from the completion of the environmental analysis (Johnson pers. comm.).

The Imperial Irrigation District has proposed a major power line transmission project to be under construction by 1995. The Southern Arizona Transmission Line project would run from Palo Verde, Arizona and extend westward through Yuma, into Holtville, California, and follow northwesterly along the East Highline Canal to the electrical plant in Devers. The construction of this powerline in the vicinity of the project corridor is not expected to occur concurrently with the proposed project. A second, smaller transmission line is planned between El Centro and Calexico. Details regarding the schedule for this line have not been formalized and it is not expected that its construction will take place during the six months of the proposed project construction.

Locally, the Imperial Irrigation District has plans to complete the Modified East Lowline Interceptor project. This project involves the construction of a series of "stepped" interceptor canals between State Highways 111 and 115 between the D and Mulberry laterals and a reservoir near the intersection of Kershaw Road and the Vail Supply Canal. Construction is expected to begin as early as the fall of 1993 and will take between nine months and a year to complete. Construction of this project would coincide with the proposed project construction.

Imperial County Public Works Department has indicated that, although the construction schedule for 1994 has not yet been prepared, it is possible that road paving projects along the southern portion of the pipeline route could

take place at the same time as the proposed project. Road improvements could be either minor pavement overlay projects or major road reconstruction projects (Gray pers. comm).

In addition to these projects, the existing Southern California Gas Company pipeline 6001 will continue to be operated and maintained. Potential cumulative impacts of these aforementioned projects that could be expected on resources assessed in the EA are described below.

## C. CUMULATIVE IMPACTS

### *Land Use*

The land uses of the area would not be altered by the proposed project, the power line, irrigation canal, or other road projects planned in the vicinity. The two proposed landfills would incrementally replace mining areas with landfill along with other undetermined effects.

### *Socioeconomic Considerations*

The proposed project and cumulative impacts would potentially add incrementally to the beneficial and negative socioeconomic impacts associated with construction in the I-10 Corridor and Imperial Valley. The potential negative impacts on available temporary housing would be exacerbated if the power line, irrigation canal, road improvement or landfill projects require importation of workers during times that coincide with peak construction of the proposed project. However, only the IID canal project and Imperial County road improvement projects are expected to coincide. These construction workers would have minor impacts on local housing availability. Cumulative projects would add to the beneficial impacts on employment, income, local trade, and tax revenue.

### *Visual Quality*

The proposed project, irrigation canal, and roadway improvements would not significantly increase cumulative visual quality impacts. However, the Southern Arizona Transmission project and the landfills (depending on their locale) would increase the regional cumulative visual quality impacts.

### *Traffic*

The proposed project and power and irrigation projects would not significantly increase cumulative traffic in the area. However, the two landfills could significantly increase regional traffic. This traffic would not coincide with the project's construction traffic.

### *Vegetation and Wildlife*

The proposed project would not result in significant permanent loss of desert habitat. Construction of line 6902 is not anticipated to coincide with any of the other major projects discussed above that have been proposed for the desert areas. Even if the timing projects do not coincide, they may still result in cumulative impacts. These impacts may be due to repeated disturbance that can keep vegetation in arrested seral development, alter animal behavior patterns, and prevent critical reproduction of species with low reproductive potential. In the instance of the line 6902 project, disturbance to desert habitat would be localized, temporary, and in an already largely disturbed utility corridor. These impacts would not be additively significant when taken in conjunction with other proposed projects in the region.

### *Wetlands*

The proposed project and irrigation projects would not significantly increase cumulative wetland impacts in the area. Wetlands in the area of the proposed irrigation project are limited and characterized by low vegetation coverage of ruderal wetland plants. Some of these wetland areas may be affected by the irrigation project, though the proposed project would avoid the wetlands in the vicinity of Kerslaw and the Vail Supply canals. Both projects would result in impacts on the agricultural drains in the area. However, due to low vegetation cover and limited wildlife habitat value, impacts would be insignificant.

### *Geology, Soils, and Seismicity*

The proposed project and other local projects would not result in significant cumulative soils, seismic, or geologic impacts because of the limited amount of required grading activities and the relatively level topography. The future landfills would utilize abandoned mines and therefore might not require extensive grading of the surrounding mountains.

### *Hydrology*

Seepage from leachate produced in the proposed landfills could potentially significantly affect ground water quality if not mitigated. This would not occur until well after pipeline construction and testing are complete. No significant cumulative hydrologic impacts would be created as a result of the proposed project or other regional projects.

### *Noise*

Noise impacts associated with construction activities and blowdown events associated with the proposed project, the irrigation interceptor canal/reservoir, and the road improvements could result in a cumulative short-term impact. Because the probability of overlapping activities is low, this is not considered significant. In the long term, the only projects which would result in significant noise impacts would be landfills because of increased truck activity. These projects would not coincide with the proposed project construction.

### *Air Quality*

The ROG, $NO_x$, and $PM_{10}$ emissions associated with construction activities of the proposed project, the irrigation canal/reservoir, and local road improvements could exceed established regulatory thresholds in the short-term. However, no long-term air quality impacts are expected through operation of these projects. The two proposed landfills and associated truck traffic could significantly contribute to future ROG, NOx, and $PM_{10}$ levels in the area but would not coincide with the impacts of the project.

### *Cultural Resources*

The project and cumulative development would incrementally impact cultural resources in the project region. The extent of these cumulative impacts cannot be determined until studies associated with cumulative development have been completed. However, mitigation would be required for those projects.

### *Paleontological Resources*

Excavation of the pipeline trench for the project, in combination with other past, current, and future developments in the pipeline vicinity, would not contribute significantly to the progressive loss of fossiliferous rocks and fossil sites that can be investigated for fossil remains because of the low potential for the disturbance or loss of any scientifically important fossil remains, associated geologic and geographic site data, or as-yet unrecorded fossil site in the Quaternary lake deposits and crystalline rocks of the Chocolate Mountains. Cumulative impact of proposed construction in the Brawley formation could potentially adversely affect paleontologic resources, however this could be mitigated by proper surveys and avoidance, if necessary.

### *Health and Safety*

Only the construction of the proposed Imperial Irrigation District interceptor canal project and the county road projects are expected to coincide with

project construction. Based upon the mitigation measures provided by the project regarding pipeline location, construction, and identification, and the fact that the pipeline would not be transmitting natural gas during this construction period and that operation of the proposed facilities could not conflict with operation of the project, no significant cumulative impacts on health and safety are expected.

## *D. GROWTH INDUCEMENT*

The project would be one of a number of infrastructure improvements necessary for growth in the region. A new vehicular border crossing proposed for a site eight miles east of Mexicali also could stimulate growth on both sides of the border. That crossing is proposed to handle commercial vehicle traffic to and from Baja California. Other infrastructure improvements that would be necessary to accommodate growth include improved water systems, sanitary sewer pipeline and treatment systems, electricity, and roadway systems.

The North American Free Trade Agreement (NAFTA) is another "reasonably foreseeable" project that could result in environmental impacts on the region. The implications of NAFTA approval on the physical and cultural environment of the Imperial Valley are not known. It has been postulated that the area may experience development pressures as a transportation corridor for trade with Mexico.

The State of California Employment Development Department (Annual Planning Information, Imperial County, June 1992) has the following observations regarding the economic growth inducement of NAFTA:

> "The North American Free Trade Agreement (NAFTA), which has yet to be ratified by Congress, is expected to be in operation by 1995. NAFTA, which will bring into being a Common Market composed of the United States, Canada, and Mexico will, in the view of some people in Imperial County, send some jobs over the border into Mexico including agricultural installations and retail operations, thereby reducing employment in Imperial County. However, as the effect of NAFTA on the economy of Imperial County cannot be gauged at all accurately until it starts, it was not taken into account when making this forecast."

It should be noted that rapid growth in the region is forecast and taken into account in the new Imperial County General Plan. That plan assumes a population increase from 119,600 in 1990 to 145,000 in the year 2000, an average growth rate of over two percent annually. The growth projections in the County General Plan assume some development pressures in the County as a result of increasing industrial development in Mexicali. That industrial development is expected to occur with or without NAFTA (Mooney pers. comm.).

The project is not expected to have a significant growth-inducing effect. The growth inducing effects of NAFTA may or may not be significant; those effects would be required to be analyzed in the NEPA review of that proposal.

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