ENVIRONMENTAL ANALYSIS

NATURAL GAS TRANSMISSION LINES 109 AND 132

REPLACEMENT PROJECT

in the Cities of

Daly City, South San Francisco, San Bruno

PREPARED BY

BUILDING AND LAND SERVICES
Permits and Environmental Planning Unit

PACIFIC GAS AND ELECTRIC COMPANY

NOVEMBER 1992

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0
EXECUTIVE SUMMARY

The Pacific Gas and Electric Company (PG&E) is replacing aging natural gas pipelines throughout its service territory in northern and central California with a 25-year program called the Gas Pipeline Replacement Program (GPRP). The purpose of this system-wide replacement is to increase customer reliability by installing higher quality pipe with more advanced welding techniques. One component of the GPRP is the replacement of segments of Gas Transmission Lines 109 and 132.

The purpose of this report is to convey to the interested public what environmental effects might occur as a result of pipeline construction to replace sections of Lines 109 and 132 in the Cities of Daly City, South San Francisco, San Bruno and on San Francisco Water Department property in 1993. These two pipelines are located on the Peninsula between San Francisco and Milpitas. They serve these two cities as well as the communities in-between.

PG&E studied several routes, including the existing pipeline alignments, before choosing the preferred routes described in this report. In developing routing alternatives, PG&E sought to balance the goals of public safety, minimal environmental impact, long-term system reliability and cost. The process of developing and analyzing route alternatives involved specialists in the disciplines of pipeline engineering, gas operations, construction, geosciences, biological and wildlife resources, cultural resources and hazardous substances. In addition, staff members of the affected cities provided suggestions. The preferred routes described in this report reflect the routes being pursued by PG&E at the time this document was written. The final routes may change based on results of further agency consultation.

As this document reflects, most of the impacts due to this project are temporary impacts which will occur during pipeline construction. Noise, traffic and visual disruptions all fall in this category. Some of these temporary disruptions cannot be avoided, but where feasible, measures will be taken to minimize these impacts. The preferred route was specifically chosen to avoid any adverse impacts to known biologically or culturally sensitive areas. To the greatest extent possible, the preferred route was also chosen to avoid areas of seismic activity. Where avoidance is infeasible, the pipeline will be designed to withstand seismic hazards in accordance with the California Public Utilities Commission's (CPUC) General Order No. 112-D.

2.0
PROJECT PURPOSE AND NEED

2.1 BACKGROUND

In 1985, Pacific Gas and Electric Company (PG&E) implemented the Gas Pipeline Replacement Program to replace aging natural gas pipe throughout the PG&E system. As part of this 25-year program approved by the California Public Utilities Commission (CPUC), plans were formulated to replace the three natural gas transmission pipelines which serve every community along the Peninsula between San Francisco and Milpitas. These are Lines 109, 132 and 101. The program calls for replacing the gas pipelines with higher quality pipe and for employing modern welding techniques. The new pipelines will have slightly higher operating pressures to enhance operating flexibility.

These three pipelines were originally installed between 1929 and 1947. The replacement of Line 101 was complete by 1989. Portions of Lines 109 and 132 were replaced between 1960 and 1990 in conjunction with the construction of Interstate 280 and other new development. The majority of the original sections of Lines 109 and 132 will be replaced on the Peninsula between San Francisco and Palo Alto over a seven-year period.

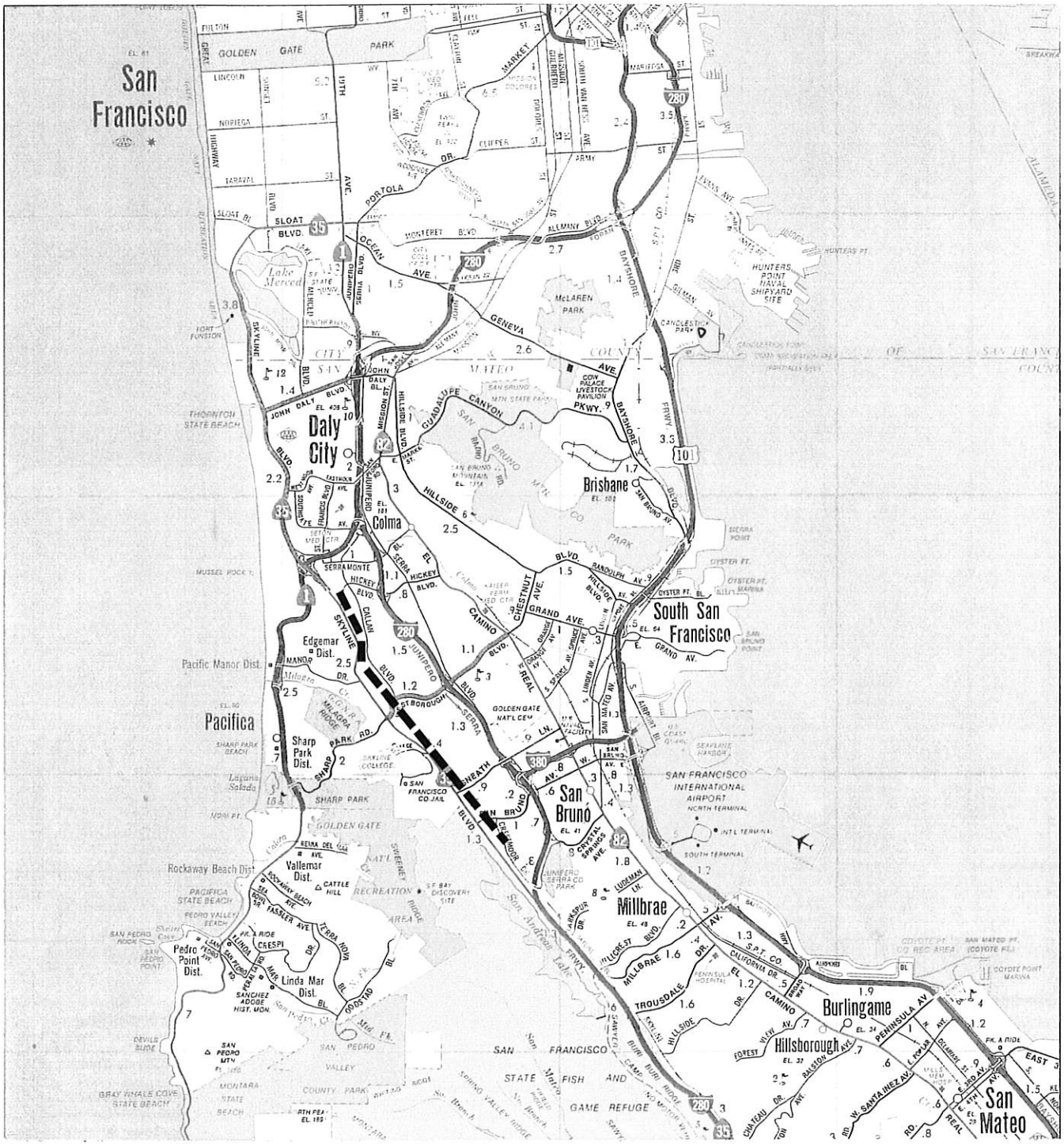
2.2 STUDY PURPOSE

The purpose of this Environmental Analysis is to address the environmental impacts of replacing Lines 109 and 132 through the Cities of Daly City, South San Francisco and San Bruno and on San Francisco Water Department property. Construction is scheduled for 1993. See Figure 1 for a Vicinity Map of the project. The topics of study include: land use, traffic and circulation, noise, cultural resources, geology and soils, hazardous substances, biology, visual resources and public safety. These topical areas, as well as the impact analysis format, are consistent with the California Environmental Quality Act (CEQA) guidelines.

2.3 JURISDICTION OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION

The California Constitution vests in the CPUC exclusive jurisdiction to regulate the design and siting of public utility facilities. (CA. Constitution, Article 12, Section 5.) In addition, a county or city "may not regulate matters over which the Legislature grants regulatory power to the Commission." (CA. Constitution, Article 12, Section 7.) In this capacity, the CPUC approved a Gas Pipeline Replacement Program for PG&E and determined that no environmental review under the California Environmental Quality Act (CEQA) is necessary. In a letter from the CPUC to the City of South San Francisco dated September 14, 1992, the CPUC explained its oversight of the GPRP. A copy of the letter is contained in Appendix A. This letter also explains that CEQA is

not triggered by the GPRP since a Certificate of Public Convenience and Necessity (CPCN) is not required for this project, or for an extension within any city or city and county within which a utility has lawfully commenced operations.



PG&E

Natural Gas Transmission
Lines 109 and 132

Vicinity Map

Figure 1

3.1 PROJECT COMPONENTS

The replacement project for Lines 109 and 132 calls for the replacement of the high priority original sections of both pipelines. Line 109 will be replaced in the Cities of Daly City, South San Francisco and San Bruno. The total length of Line 109 which will be reconstructed is 31,456 feet. Line 132 will be replaced in the City of San Bruno. The total length of Line 132 which will be replaced is 2,600 feet. These total lengths include replacement of a short segment for both pipelines on property owned by the San Francisco Water Department (SFWD).

The starting and ending points for this project are determined by the age of the pipe. Both Lines 109 and 132 will be connecting to newer segments of pipe which do not need replacing. The northern connection for Line 109 occurs in Daly City at the intersection of St. Francis Boulevard and Hickey Boulevard. The northern connection for Line 132 occurs in San Bruno at the intersection of San Bruno Avenue and Skyline Drive. The southern connection for both pipelines occurs on SFWD property west of San Bruno.

A 2,000-foot section of Line 109 on Hickey Boulevard in Daly City was reconstructed in the summer of 1992. This section, between Gellert Boulevard and Imperial Way, was originally scheduled for 1993 as part of this project. However, it was re-scheduled to accommodate road re-paving planned by Daly City for the fall of 1992. Prior to construction of this section of Line 109, PG&E prepared a Hickey Boulevard Environmental Analysis which addresses the environmental impacts of constructing 2,000 feet of Line 109 in Hickey Boulevard in Daly City.

Pipe Size/Pressure

The size of Line 109 currently varies between 22-inches and 30-inches in diameter. Line 132 is currently 30-inches in diameter. The replacement pipe will be 24-inches for all phases of the project. This is PG&E's new standardized pipe size for these lines.

Currently, the pressure of Line 109 is a maximum of 375 psig (pounds per square inch gravity) and the pressure of Line 132 is a maximum of 390 psig. The pressure of the replacement pipelines will be a maximum of 400 psig. The increase in pressure is necessary in order to standardize the pressures in the gas transmission facilities which allows the flexibility of running the natural gas through other pipelines. The change in pipe size and pressure will have a minimal change on the overall capacity of these pipelines.

Valve Lot

Because Lines 109 and 132 will be installed in a new alignment, an existing valve lot will be relocated. The valve lot contains manual valves to stop and start the flow of gas. The existing valve lot is located on SFWD property, west of the City of San Bruno. The proposed valve lot location will be 800 feet south of the existing valve lot, also located on SFWD property (see Figure 2). The existing valve lot is a 125-foot by 75-foot fenced area. The proposed valve lot will be a 40-foot by 30-foot fenced area. The only above-ground structures will be the extensions for two main line valves and four blow-down valves, and a control box.

3.2 ROUTE SELECTION CRITERIA

In determining a preferred route for the replacement of Lines 109 and 132, PG&E conducted research and field surveys and consulted with local agencies. Many factors were considered in selecting the preferred routes, including:

- Seismic hazards and seismic design requirements.
- Biological and cultural resources.
- Construction impacts on residential areas.
- Construction feasibility.
- Locations of known or potential hazardous substance sites.
- Construction or paving moratoria.
- Cost to PG&E ratepayers.
- Operating needs (valve locations, access requirements, maintaining minimum distance between lines, etc.)

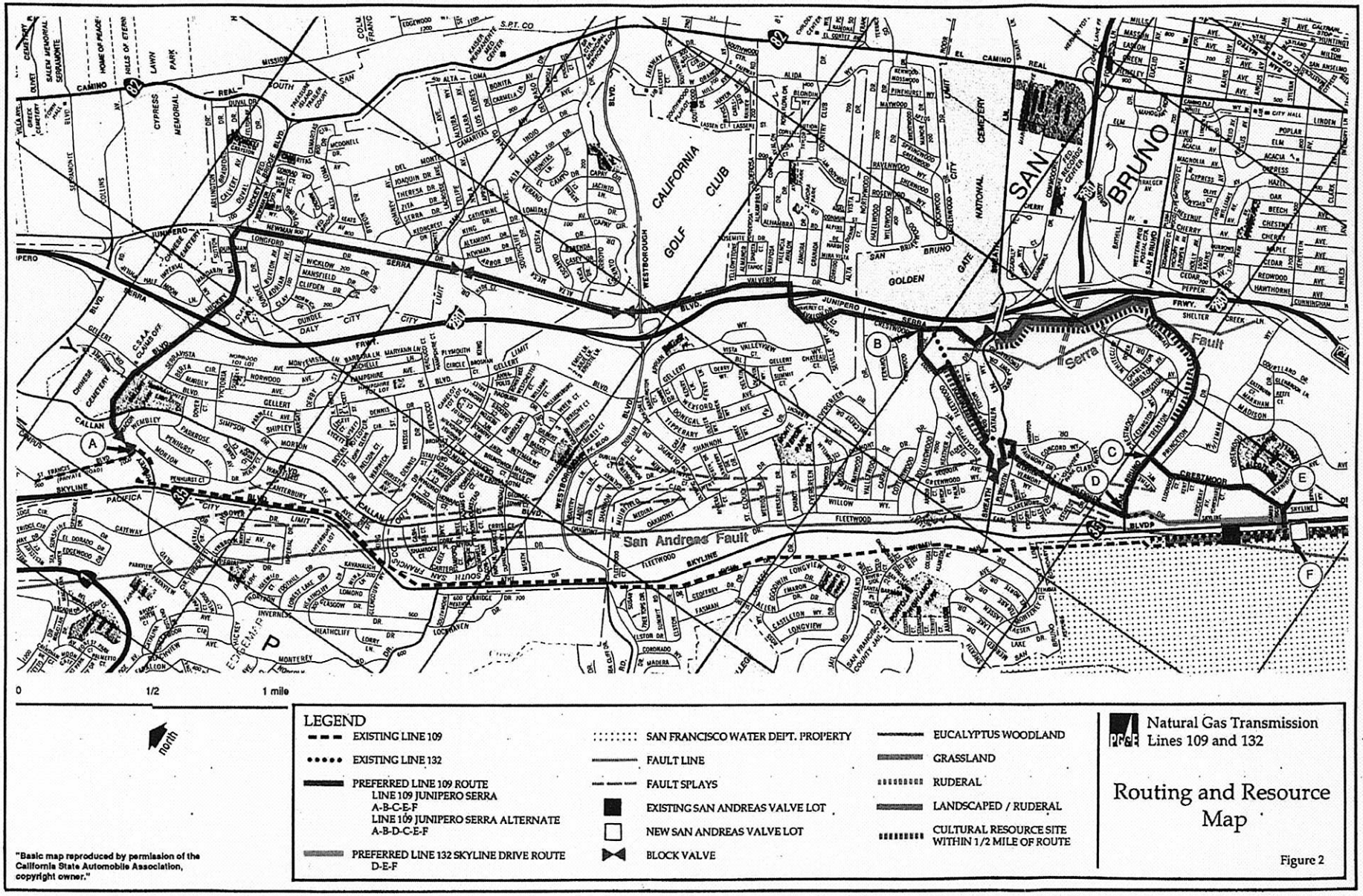
All of these factors must be balanced to determine a route that allows for PG&E to fulfill its duty, in accordance with the CPUC rules and regulations, to provide safe reliable gas service to its customers on the Peninsula and in San Francisco at a reasonable cost and with minimum environmental impact.

3.3 PREFERRED ROUTE

The preferred routes for the replacement of Line 109, along with its alternate, and Line 132 are shown on Figure 2.

Line 109 Junipero Serra Route

The preferred route, also called the Junipero Serra Route, starts at the intersection of Hickey Boulevard and Saint Francis Boulevard in Daly City. It continues east on Hickey Boulevard and crosses under Interstate 280 (I-280) to Junipero Serra Boulevard. It turns south on Junipero Serra Boulevard to Avalon Drive. The pipeline route heads west on Avalon which becomes Crestwood Drive as the street turns south. The pipeline continues along Crestwood, past Sneath Lane and onto the I-280 frontage road until it


0
1/2
1 mile
north
LEGEND
EXISTING LINE 109
EXISTING LINE 132
PREFERRED LINE 109 ROUTE
LINE 109 JUNIPERO SERRA
A-B-C-E-F
LINE 109 JUNIPERO SERRA ALTERNATE
A-B-D-C-E-F
PREFERRED LINE 132 SKYLINE DRIVE ROUTE
D-E-F
SAN FRANCISCO WATER DEPT. PROPERTY
FAULT LINE
FAULT SPLAYS
EXISTING SAN ANDREAS VALVE LOT
NEW SAN ANDREAS VALVE LOT
BLOCK VALVE
EUCALYPTUS WOODLAND
GRASSLAND
RUDERAL
LANDSCAPED / RUDERAL
CULTURAL RESOURCE SITE WITHIN 1/2 MILE OF ROUTE
"Basic map reproduced by permission of the California State Automobile Association, copyright owner."
PG&E
Natural Gas Transmission Lines 109 and 132
Routing and Resource Map
Figure 2

reaches San Bruno Avenue. The pipeline will turn west on San Bruno Avenue to Crestmoor Drive. It will continue south on Crestmoor Drive to Cambridge Lane, then head west to Highway 35. PG&E will bore under Highway 35 to reach SFWD property. It will turn east on SFWD property for approximately 100 feet and terminate in a proposed valve lot.

This route was suggested by the Cities of Daly City, South San Francisco and San Bruno. After studying this route, PG&E agreed that it is the best route since it minimizes potential impacts on residences, has fewer construction restrictions, and avoids crossing the San Andreas fault and the failing sub-surface drainage system.

Line 109 Junipero Serra Route Alternate

This alternate to the preferred route will only be chosen if Caltrans does not grant a longitudinal encroachment permit along the I-280 frontage road. This route is the same as the Junipero Serra Route up to the intersection of Crestwood Drive and Fleetwood Drive. At this intersection, Line 109 will turn west onto Fleetwood to Rollingwood Drive. The pipeline heads east a short distance on Rollingwood Drive and turns down PG&E-owned property behind the houses facing Fleetwood. Line 132 is already located on this property. When the pipeline reaches Catalpa, Line 109 will turn west and re-join Fleetwood down to Sequoia Avenue. It will continue south on Sequoia to Sneath Lane, head east on Sneath to Claremont Drive and south on Claremont to Plymouth Way. From here, it turns west onto Plymouth, then south onto Glenview Drive. When the pipeline reaches San Bruno Avenue, it will turn north to Crestmoor Drive. From the corner of Crestmoor Drive and San Bruno Avenue, the route continues the same as the Junipero Serra Route.

This alternate affects more residences and is closer to the San Andreas fault than the Junipero Serra Route. It will only become the preferred route if PG&E is unable to obtain a longitudinal encroachment permit from Caltrans along I-280.

Line 132 Skyline Drive Route

Only a short segment of Line 132 requires replacement since most of this pipeline was installed with welding methods which meet the current standard. Line 132 will be placed in Skyline Drive between San Bruno Avenue and Cambridge Lane. At Cambridge, PG&E will bore under Highway 35 to reach SFWD property. It will turn east on SFWD property for approximately 100 feet and terminate in a proposed valve lot.

3.4 ROUTING ALTERNATIVES

The factors listed in Section 3.2 were used to select and evaluate alternative alignments. A brief description of some of the alternatives which were considered and rejected follows:

Replacement in Existing Alignments (Lines 109 and 132)

The existing pipeline alignment is shown on Figure 2. As a result of the studies mentioned above, it was determined that existing conditions, including seismic hazards and potential for rare and endangered species, cause replacement in place to be undesirable. It was determined that three types of geologic hazards exist along the current alignment. These include landslides, liquefaction and surface rupture. Seismic risk factors are higher in this alignment than in the preferred alignment. The existing routes for Lines 109 and 132 cross the San Andreas fault two times each, plus there is one landslide area where Line 109 is presently exposed.

Skyline Drive Alternative (Line 109)

The Skyline Drive Alternative is the same as the preferred route (see Section 3.3) through the Cities of Daly City and South San Francisco. This alternative deviates from the preferred route at Crestmoor Drive in the City of San Bruno. Instead of turning south onto Crestmoor from San Bruno Avenue, the pipeline would turn east onto Skyline Drive from San Bruno Avenue. Skyline Drive is a short street which parallels Highway 35. When Skyline Drive dead ends, the pipeline will continue along the California Department of Transportation (Caltrans) right-of-way for Highway 35 until it reaches Cambridge Lane. At this point, PG&E will bore under Highway 35 to reach SFWD property. It will turn east on SFWD property for approximately 100 feet and terminate in a proposed valve lot.

This route was studied as an alternative to the preferred route since it would impact fewer residences. The drawbacks are that Skyline Drive is already the preferred route for Line 132. Because Skyline Drive is a narrow street, PG&E would be unable to maintain the standard minimum separation between the lines. Also, this route would place Line 109 closer to the fault than it would be under the preferred route.

Madison Avenue Alternative (Line 109)

The Madison Avenue Alternative is the same as the preferred route (see Section 3.3) through the Cities of Daly City and South San Francisco. This alternative deviates from the preferred route at the intersection of San Bruno Avenue and Princeton Drive in the City of San Bruno. It turns onto Princeton and then onto Madison Avenue. From Madison, it turns onto Bennington which connects to Crestmoor Drive. The pipeline will be in Crestmoor for a short distance before it turns down Cambridge Lane. Line 109 will then head west on Cambridge Lane to Highway 35. PG&E will bore under

Highway 35 to reach SFWD property. It will turn east on SFWD property for approximately 100 feet and terminate in a proposed valve lot. This alternative is not the preferred since it impacts more residences with no significant decrease in potential seismic hazard. It also is approximately one mile longer than the preferred route which significantly increases the cost of the project.

Gellert Boulevard Alternative (Line 109)

The primary difference between the Gellert Boulevard Alternative and the preferred route is that this alternative utilizes Gellert Boulevard rather than Junipero Serra Boulevard as the main thoroughfare through Daly City and South San Francisco. The advantages of the Gellert Alternative are that it avoids the San Andreas fault, and is largely in city streets which minimizes environmental impacts. The drawbacks to the Gellert Boulevard alternative are the failing sub-surface drainage system in this area and potential temporary construction-related impacts to the residences along this route.

Callan Boulevard/Skyline Route Alternative (Line 109)

This alternative closely parallels the existing alignment except it stays primarily in city streets to minimize environmental impacts. It was originally considered since it would utilize some sections of the existing pipe which do not require replacement. However, this alternative was not selected because it crosses the main trace of the San Andreas fault twice and crosses several fault splays. The route also has ground subsidence concerns due to the failing sub-surface drainage system and potential impacts on the residences along this route.

3.5 PERMITS

Permits from the following agencies will be required for the Junipero Serra Route:

California Department of Transportation (Caltrans)

This project requires four permits from the California Department of Transportation (Caltrans). First, PG&E will obtain an encroachment permit to route Line 109 under Interstate 280 (I-280) on Avalon Drive in the City of South San Francisco. Second, PG&E will obtain a longitudinal encroachment permit for Line 109 on the west side of I-280 in the frontage road between Sneath Lane and San Bruno Avenue. It is Caltrans policy not to grant longitudinal permits along Interstate Highways. If PG&E is unable to obtain this permit, the Junipero Serra Route Alternate will become the preferred. Third, PG&E will obtain an encroachment permit for a longitudinal encroachment for Line 132 on the east side of Highway 35 between Skyline Drive and Cambridge Lane and for a bore under Highway 35 for both Lines 109 and 132 at Cambridge Lane. Fourth, an encroachment permit is required to route Line 109 under I-280 on Hickey Boulevard in the City of Daly City. This permit was already obtained.

San Francisco Water Department (SFWD)

This project culminates on SFWD property where Lines 109 and 132 will reconnect with the existing Lines 109 and 132 which do not require replacement. A new valve lot will also be constructed. PG&E will obtain all necessary approvals from the SFWD.

Cities of Daly City, South San Francisco and San Bruno

PG&E will obtain encroachment permits from the Cities of Daly City and South San Francisco for Line 109. An encroachment permit will be obtained from the City of San Bruno for Lines 109 and 132.

This replacement will primarily occur within city streets where PG&E has existing franchise rights. Franchise rights allow the project to proceed within city streets with no requirement for additional land rights. Franchise rights were granted under the Franchise Act of 1937, Daly City Ordinance 249, South San Francisco Ordinance 197 and San Bruno Ordinance 436.

3.6 PUBLIC INFORMATION

PG&E will provide the appropriate information requested by each agency and city to keep the staff and public informed of this project. Methods of informing the public may include informational presentations to the City Planning Commissions and/or Councils, local neighborhood workshops and flyers mailed to residents within the project area. The public awareness program may vary from city to city depending on individual needs and desires.

During construction, there will be signs posted describing the project and providing a PG&E representative to call with questions. PG&E will also provide an on-site contact to ensure that all permit conditions are met and to handle public concerns or complaints.

4.0
CONSTRUCTION METHODS

4.1 INTRODUCTION

The Gas Transmission Lines 109 and 132 Replacement Project will be constructed in accordance with the CPUC Order No. 112-D, which specifies design standards, and with all other applicable local, state and federal codes, standards and permits.

4.2 STANDARD CONSTRUCTION METHODS

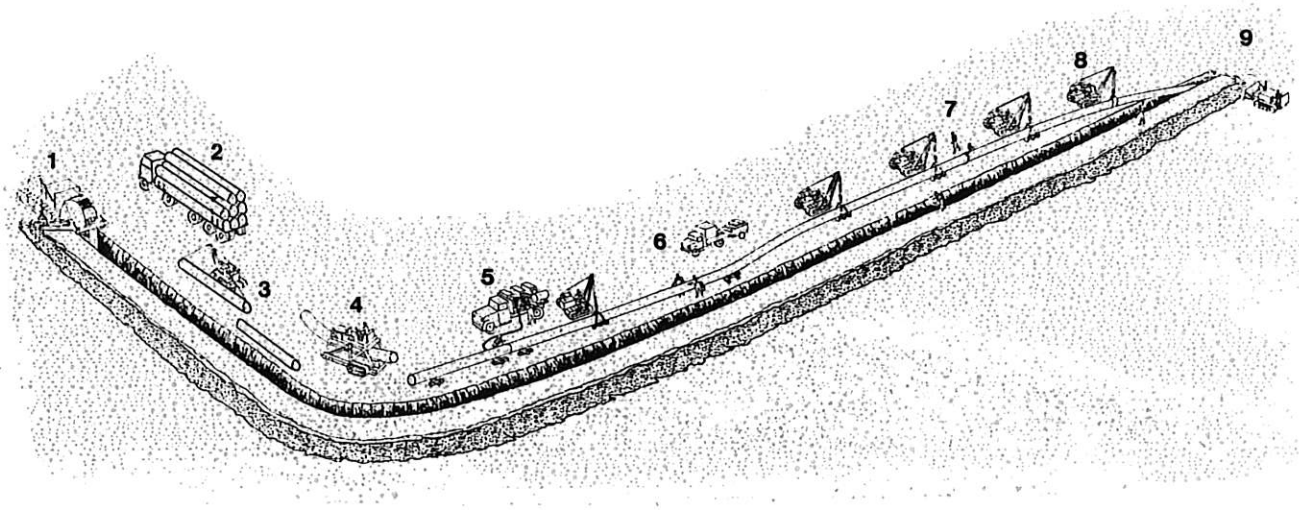
Construction will occur from March 1993 through November 1993. Construction at each residence will last approximately one week from the time trenching begins until the street is permanently paved. Driveways will be made accessible as needed during the work period. The exact hours and days of construction will be dependent upon final permit conditions stipulated by each city. Construction will most likely be limited to weekdays during daylight hours. More than one area may be under construction at any one time. The number of crews assigned to this project is dependent upon crew availability. A planned construction schedule will be discussed with the cities prior to construction.

A typical pipeline construction sequence is illustrated in Figure 3. Figures 4 and 5 are photographs depicting steps in the construction process. These photographs were taken in May 1992 during the construction of Line 109 in Skyline Boulevard in the City of Burlingame.

The equipment required at each construction site for trenching, pipe laying, hauling and backfilling are 2 welding trucks, 2 dump trucks, an x-ray truck, cranes, sweepers, trenchers, backhoes and pick-ups. Each step in the construction sequence will begin as soon as the prerequisite activity has sufficiently progressed so that construction delays are avoided. As a result, most activities will be simultaneously underway after the first few days of construction.

During construction, staging areas are needed to store equipment and supplies. If PG&E does not own any appropriate property near the construction site, areas are usually leased from a property owner. Vacant lots or large parking lots are those considered suitable for staging areas. Staging areas are usually determined one month before construction.

1 Ditching
2 Hauling
3 Stringing
4 Bending
5 Welding
6 Field Joint Wrapping
7 Electrical Inspection of Coating
8 Lowering-in
9 Backfilling and Clean-up



Not shown are various operations including: right-of-way surveying; right-of-way clearing; tie-ins at road crossings; ditching in rocky areas; weld radiographic examination; hydrostatic testing; logistic support; and right-of-way restoration.

PG&E Natural Gas Transmission
Lines 109 and 132

Typical Pipeline Construction Sequence Map

Figure 3

Trench excavation

Welding pipeline segments together

Natural Gas Transmission
Lines 109 and 132

Construction Photographs

Figure 4

Lowering pipeline into trench

Backfilling and steel-plating trench

PG&E

Natural Gas Transmission
Lines 109 and 132

Construction Photographs

Figure 5

Prior to construction, the location of all underground utilities will be verified by prospecting certain areas. Notification will be given to Underground Services Alert (USA), and all utility owners not under USA, at least 72 hours before construction. All reasonable precautions will be taken to avoid damage to or disturbance of these other underground facilities.

The construction area will typically be 25 feet wide in residential zones and will vary in other areas depending on terrain. At the request of the three cities, PG&E will submit a photograph or video record of existing conditions.

The trench for the pipeline will be excavated by rotary wheel ditching machines or backhoes. Hand digging will be used to locate and cross existing buried utilities. The trench will be at least three feet wide and six and a half feet deep. The trenched material which is not used as backfill will be hauled off in dump trucks for disposal and recycling at a certified disposal site.

The length of the open trench will vary within the different areas in each city. Based on traffic conditions, each city will limit the amount of trench which may be open at any one time. On Junipero Serra, for example, up to 1,200 feet of open trench can be anticipated. Within residential areas, the number of feet of open trench will be up to 250 feet at any one time. The trench will be backfilled and compacted, or steel-plated at the end of each working day. No equipment or construction material shall be stored on city streets after work hours.

The pipe will be delivered in lengths of 40 and 80 feet. The pipe segments will be placed alongside the open trench and welded together. The welds will be 100 percent radiographically inspected. Welded joints will be coated in the field with a fusion bonded epoxy coating before the pipes are placed in the trench. The pipes will be placed under cathodic protection (by inducing current) per the CPUC Order No. 112-D to prevent corrosion.

In accordance with the CPUC Order No. 112-D, a hydrostatic test or pressure test will be conducted on the pipeline using reclaimed water from the local Sanitation or Public Works Department. The water will be pressurized for a set period of time to verify the integrity of the pipe. Water will remain in the pipe during testing and will not come in contact with the ground.

Upon completion of the pressure test, the pH level of the water will be tested. The water will be tested per the requirements of the Sanitation or Public Works Department. After testing the water, a report will be submitted to the Sanitation or Public Works Department for a permit to dispose of the used water. All discharges will be made specifically in accordance with the requirements of the permit. The water will then be treated as normal sewer water.

Petroleum products for operation and fueling heavy equipment will be temporarily available on-site. Small amounts of a primer used for field pipeline coating will be used at the construction site. This primer is routinely used throughout PG&E's service system in gas pipeline construction. The primer will be used and handled according to federal, state and local regulations. Procedures will include radiographic testing of all welds by certified technicians. A mini-lab for film processing will also be present on-site.

Upon completion of construction, paving on the trench will be installed in accordance with each city's permit requirements. All debris associated with construction activities will be removed. In the event any landscaping is damaged by construction, it will be reasonably restored to a condition similar to the original.

After the new pipelines are placed into service, the original sections of Lines 109 and 132 will be abandoned in the ground and will be cut and capped with steel at approximately 2000-foot intervals. The points at which the lines are cut and capped will be selected to minimize impact on the environment. On SFWD property, PG&E will cut and cap at the existing San Andreas valve lot. Also, all above ground facilities at the existing valve lot will be removed. The pipelines will be capped after all natural gas has been evacuated.

The following environmental analysis focuses on the Junipero Serra route which is the preferred route.

5.1 LAND USE

Existing Conditions

Major adjacent land uses in the three cities along the pipeline corridor include residential, commercial and open space. In addition, the John Muir Elementary School lies at the intersection of Crestmoor Drive and Cambridge Lane. I-280 access ramps are located at Hickey Boulevard and Sneath Lane. No fire stations are located along the proposed routes.

The majority of the pipeline will be constructed in city streets. The exception to construction in city streets is the construction within SFWD property, within a Caltrans right-of-way, and on PG&E-owned property (if the Junipero Serra Route Alternate is constructed).

The SFWD property crossed by this project is part of the Crystal Springs Watershed. This area is fenced to protect the water supply. PG&E proposes to construct Lines 109 and 132 next to the existing pipelines. A gas valve lot also exists on this property.

All of the Caltrans crossings and encroachments will occur in streets except one. The preferred route for Line 132 (as well as the Junipero Serra Route Alternate for Line 109) will traverse a Caltrans right-of-way along Highway 35. This right-of-way is densely planted with eucalyptus trees.

If the Junipero Serra Route Alternate is constructed, the pipeline will be placed in PG&E-owned property behind houses on Fleetwood Drive between Rollingwood Drive and Catalpa Way. This property is covered with weeds and grass. On the south end of this property is a city-maintained basketball court. The City of San Bruno has a permit with PG&E that was signed on July 14, 1978 which allows the city the use of this parcel for recreational uses.

Impacts

In paved areas, the replacement will result in short-term construction-related land use impacts. On SFWD property, a portion of the existing pipeline and a valve lot will be abandoned. A new valve lot will be constructed east of the abandoned lot. On the

Caltrans right-of-way, at least one-third of the eucalyptus trees will be removed. On the PG&E-owned property, the weeds and grass will be removed. Construction will temporarily disrupt the use of the basketball court.

Mitigation Measures

Traffic control measures stipulated in the encroachment permits will be implemented to ease congestion and for public safety (see Section 5.2). On SFWD property, all above-ground structures will be removed at the abandoned valve lot. The new valve lot will be smaller in size than the old and have fewer above-ground structures. Disturbed ground will be re-seeded. On the Caltrans right-of-way, any mature trees removed will be replaced at a ratio of three to one. On the PG&E-owned property, PG&E will re-seed the grassy areas and restore the basketball court after construction. Construction staging areas will be temporarily fenced during construction and restored to original land use after construction is complete.

5.2 TRAFFIC/CIRCULATION

Existing Conditions

Four classes of roads exist within the project area. These are freeways, arterials, collector streets and local streets. Freeways are routes designed to carry large traffic volumes over long distances. Arterials are designed to carry heavy traffic volumes at lower speeds and may have medians to control access. Collector streets are designed to channel traffic from local streets into the arterial street system and to handle short trips within neighborhoods.

Following are tables which provide the classification of the streets along the pipeline alignments:

Table 1 - Line 109 Junipero Serra Route

Street Name	Street Class
Hickey Boulevard	Arterial
Junipero Serra Boulevard	Arterial
Avalon Drive	Local
Crestwood Drive	Collector
I-280 frontage road	Not Applicable
San Bruno Avenue	Arterial
Crestmoor Drive	Collector
Cambridge Lane	Local

Table 2 - Line 109 Junipero Serra Route Alternate

Street Name	Street Class
Hickey Boulevard	Arterial
Junipero Serra Boulevard	Arterial
Avalon Drive	Local
Fleetwood Drive	Collector
Rollingwood Drive	Collector
Catalpa Lane	Local
Sequoia Avenue	Collector
Sneath Lane	Arterial
Claremont Drive	Collector
Plymouth Way	Collector
Glenview Drive	Collector
San Bruno Avenue	Arterial
Crestmoor Drive	Collector
Cambridge Lane	Local

Table 3 - Line 132 Skyline Drive Route

Street Name	Street Class
Skyline Drive	Local

Impacts

Impacts to traffic will occur in localized areas during construction. The specific placement of the pipelines in each street is dependent on what other facilities are already located in the street. PG&E will determine the exact placement of the pipelines in the streets after prospecting for other underground facilities prior to construction. Impacts include heavy equipment and materials in the construction area, closed traffic lanes and temporarily blocked driveways. As a result, there will be additional traffic using the roads and fewer lanes for the existing traffic. More time will be required to traverse the streets where construction is underway. After the pipeline reaches SFWD property, there will be no traffic impacts since this area is closed to the public.

Mitigation Measures

There are many methods to minimize traffic disruption during construction. PG&E has standard procedures that address traffic flow and worker safety. In addition, the encroachment permits issued by the cities will stipulate certain measures to keep traffic disruptions to a minimum, including hours of construction. The construction hours set by the city will likely avoid peak traffic times. The encroachment permit conditions will be adhered to at all times.

The three cities have provided draft permit conditions to PG&E for this project. The conditions include:

- Hours of work within Hickey Boulevard shall be restricted to 8:30 a.m. to 4:00 p.m.
- Hours of work within Junipero Serra Boulevard shall be restricted to 7:00 a.m. to 6:00 p.m.
- Hours of work within all other streets shall be from 8:00 a.m. to 4:00 p.m.
- Where applicable, parking shall be restored along both sides of street during non-working hours.
- If any traffic signals are rendered inoperable due to construction, PG&E shall provide a temporary signal system.
- At least 48 hours before beginning any operation on any street or part of a street, the residents shall be notified by PG&E in writing. Notification shall include nature of work, hours of work, restrictions on driveway access, utility shutdowns and PG&E contact.

Impacts to traffic patterns will also be minimized during construction by adhering to PG&E's Work Area Protection Guide standards. The objective of these standards is to maintain a free flow of vehicular and pedestrian traffic, consistent with safe working conditions. The standards provide the means to 1) provide for the orderly and safe flow of traffic, 2) minimize traffic congestion, 3) protect motorists, pedestrians, and workers, and 4) maintain emergency vehicle access.

In cases where the pipeline crosses public or private roads, one lane will always be left open for traffic. Turn lanes will remain open. Where a trench is dug across a road which is the only access to a property, steel plates will be placed over the open trench to provide access. Traffic will either be 1) detoured around the construction area, 2) directed along one-half of the roadway (where construction is underway on the adjoining half), or 3) routed across temporary trench plates. Signs, traffic cones or flag persons will guide vehicles around the work area. Existing traffic patterns at a specific crossing will be restored as construction is complete.

With the implementation of the above measures traffic circulation impacts will be temporary and will be minimized to the extent possible.

5.3 GEOLOGY AND SOILS

Existing Conditions

There are four ages of earth materials that are traversed by the relocation routes of Lines 109 and 132. From oldest to youngest, these are Franciscan Complex bedrock, the Merced Formation, the Colma Formation and a series of younger, largely

unconsolidated terrestrial deposits such as alluvium, slope wash and artificial fill. With the exception of locally hard blocks of Franciscan bedrock that could be difficult to excavate, and local ground settlement due to hillside grading and development, the geologic and geotechnical conditions that might affect gas transmission lines are all related to activity on the San Andreas fault. Research by A.C. Lawson and others following the earthquake in 1906 indicates that the San Andreas fault in this area is capable of producing surface displacements of nine to seventeen feet, and distortion of the ground within a few hundred feet of the fault displacement. Strong shaking could induce ground failures such as liquefaction and landsliding where there are earth materials susceptible to these effects. A repeat of the 1906 earthquake on the San Andreas fault also may cause some minor displacements on related subsidiary faults, such as the Serra fault, which is considered incapable of generating earthquakes independently. The Serra fault zone is parallel to and 0.5 to 1 mile east of the San Andreas fault zone; it extends approximately 6 miles from Hillsborough northwestward through San Bruno (see Figure 2).

The existing pipeline routes from Daly City to San Bruno cross the San Andreas fault four times, twice along each line, and Line 109 has been exposed by a landslide near the junction of King Drive and Skyline Boulevard, in Daly City.

Differential settlement of several inches to several feet has been observed in certain neighborhoods following development of the hillsides. After heavy rains in the early 1980's, a 50-foot deep sinkhole was reported along Olympic Drive west of Gellert and Westborough Boulevards. This was probably caused by the loss of soil due to piping into a sub-drain system installed during development along natural drainage channels.

Impacts

The preferred routes for Lines 109 and 132 will not cross the San Andreas fault, thus eliminating the impact of a large fault displacement. However, the Serra fault is related to the San Andreas fault at depth, and may experience coseismic ground rupture given a 1906-type earthquake on the San Andreas fault. Because the San Andreas is likely to slip during the lifetime of the pipelines, the relocated Line 109 may be exposed to surface faulting of as much as one foot where it crosses the Serra fault zone. This slip will be distributed across a wide zone, and is unlikely to pose a significant hazard to the pipeline. There is no liquefaction hazard along the pipeline relocation routes in the Golden Gate Region.

The performance of the pipe during a seismic event depends on the amount of displacement, the geometry of the displacement, the distance over which the displacement is distributed along the pipeline, the behavior of the soil in which the pipe is buried and the strength of the pipe. To analyze the potential for damage, PG&E has evaluated past pipeline performance in earthquakes. PG&E has used the quantification of these experiences along with the results of extensive testing programs in up-to-date computer analyses. Realistic, worst-case scenarios along the relocation routes have been

analyzed, representing crossings of secondary faults, zones of ground distortion and areas of slope failure and settlement. Minor fault displacement, minor slope failures and differential settlement are not significant hazards to buried welded steel pipe.

Mitigation Measures

The selection of the preferred route for the pipeline replacement serves as the principal mitigation. The preferred route for Line 109, the Junipero Serra Route, eliminates both existing pipeline crossings of the San Andreas fault, the landslide crossing in Daly City and avoids the sinkhole near Olympic Drive. The re-routing of Line 132 in San Bruno eliminates both of this line's existing crossings of the San Andreas fault.

The specific placement of the pipeline within the preferred route also serves as mitigation. For example, by placing the pipeline on the west side of the southbound lanes of Junipero Serra Boulevard, the locally steep slopes adjacent to the eastern, northbound lane are avoided.

Hazards of ground failure due to faulting can also be mitigated by pipeline design. PG&E will use heavier-walled pipe and specially engineered bends where it might be advantageous to enhance pipeline strength. Please refer to Section 5.6 for more information regarding seismic design.

5.4 HAZARDOUS SUBSTANCES

Existing Conditions

PG&E's Environmental Services Department has completed the following assessment along the preferred route and the alternate routes. First, a windshield (drive-by) survey of the route was done to determine areas of concern based on current land use. Second, the San Mateo County Department of Health Services was contacted, and their records of fuel leaks were reviewed. Third, a record search was conducted for selected areas of concern. The areas of concern were generated in 1990 from a database of specific government lists of hazardous waste sites.

As a former state highway, Junipero Serra Boulevard may be the location of former gasoline service stations or other property uses which may have affected soils in the construction area. However, no evidence of problems due to possible former uses was found along this section. The California Department of Transportation's maintenance station on Junipero Serra north of Avalon Drive was noted during the windshield survey. The station was not listed on the county's fuel leak list.

Gasoline stations are specific businesses of concern for potential hazardous substances. Only the Chevron Station at 2101 San Bruno Avenue West (and Shelter Creek) is listed by the county as the site of an unleaded gasoline leak which had affected soils. The site is currently in a post-cleanup monitoring phase and therefore is not expected to impact the pipeline construction area.

The database, mentioned previously, included a listing from California Environmental Protection Agency's (Cal EPA) Abandoned Site Program Information System, for 2131 Rollingwood Drive in San Bruno. Based on a preliminary assessment by Cal EPA, a determination was made that no further action is required at the site.

The Hickey Boulevard segment, which began construction in August 1992, is referenced in a separate report.

Impacts

Based on the information obtained, there is a low likelihood that hazardous substances will be found during construction. Therefore, no impacts due to hazardous substances are anticipated during construction.

Mitigation Measures

Standard procedures for handling soils potentially containing hazardous substances will be followed to ensure employee and public safety. If a hazardous substance is seen, smelled, or otherwise observed during excavation by a crew member, work will cease immediately. The crew member will notify the supervising foreman of the suspected hazardous substance. The supervising foreman will in turn contact PG&E's Golden Gate Region Environmental Coordinator who will conduct a field visit to determine the exact nature of the substance. The Environmental Coordinator will inspect the site for obvious signs of gasoline, diesel, oil, discoloration of the soil, etc. Based on the nature and estimated extent of the contamination, the Environmental Coordinator will contact the County Department of Health Services and inform them of the discovery. The County will be consulted and advised as to PG&E's plans.

5.5 CULTURAL RESOURCES

Existing Conditions

PG&E contracted with BioSystems Analysis, Inc. (1991, 1992) to conduct a cultural resources literature search and inventory of the preferred and alternative routes. Updating and expanding upon previous literature searches, BioSystems gathered information at the Northwest Information Center (NWIC) of the California Archaeological Inventory at Sonoma State University, where they identified the location and nature of recorded archaeological sites within one-half mile of the project area (see Figure 2).

The following four prehistoric sites and one historic site were listed:

- CA-SMa-95 is located approximately 1/4 mile southwest of San Bruno Avenue. It is described as an occupation site consisting of a shell mound. One large mortar was also found at the site.

- CA-SMa-96, located approximately 1/2 mile west of San Bruno Avenue, is an occupation site containing a shell midden and one small cobble mortar and a small pestle. This site is listed as having been destroyed.

- CA-SMa-100, located approximately 1/4 mile west of Junipero Serra, was excavated in the winter of 1969. It consisted of a low, domed midden with some shell content and only one obsidian flake.

- CA-SMa-101 was discovered during construction of the Junipero Serra Freeway (Interstate 280). It consists of a small shell mound containing abalone pendants.

- The only historic site, CA-SMa-209H, was a temporary detention camp for Japanese Americans. An application for registration of this site as a Historical Landmark has been filed.

None of the sites listed above will be affected by the project.

Impacts

The data obtained from this literature search were used to appraise the potential for the project to affect known and potentially important cultural resources and to assess the archaeological sensitivity (likelihood of encountering important unrecorded resources) in the project area as well. A great proportion of the project route was paved or landscaped in some manner, thus concealing the original ground surface. Consequently, BioSystems recommended and performed an inventory strategy based on archaeological sensitivity and spot checking open areas (primarily unpaved and not landscaped). No archaeological resources were identified during the spot checks.

Although no archaeological sites were identified, there is the possibility that undiscovered prehistoric and/or historic materials might be encountered during construction. Prehistoric archaeological deposits that could be encountered include, but are not limited to, obsidian or chert flakes or tools, ground stone mortars, slabs, and pestles, cultural deposits of shell or bone, locally darkened midden soils (dark black/brown, often greasy, soils that were refuse areas) and human interments. Historic

period archaeological materials could include, but also are not limited to, foundation or other structural remains, refuse deposits, backfilled wells or privies, square nails and sun-tinted glass.

Mitigation Measures

In the event cultural resources are encountered during grading or construction, work will cease, and a professional archaeologist will be contacted immediately to assess the site and make mitigation recommendations.

5.6 PUBLIC SAFETY

Existing Conditions

Today, natural gas pipelines are constructed with higher quality materials and methods than were available when older (pre-1947) segments of Lines 109 and 132 were installed. Although certain segments of the pipelines no longer meet current design standards, they are checked for safety on a regular basis by PG&E and are considered safe. However, as time progresses, the pipelines will gradually deteriorate resulting in an increased probability of leakage.

PG&E implemented a Gas Pipeline Replacement Program in 1985 to replace aging pipelines over an extended period in a manner that will maintain public safety and service reliability. In addition, the Safety Division of the CPUC prepared a Report on Seismic Safety Considerations of Various Investor-Owned Utilities in California. This report recommends that the CPUC should work with the gas utilities to ensure implementation of appropriate seismic preparedness programs and improvements, including review and consideration of measures as necessary. These measures include, "replacement of gas system components, including certain pipelines installed under earlier standards, based on prioritization of systems and pipelines, their anticipated performance and location in relation to anticipated seismic hazards." PG&E's Gas Pipeline Replacement Program complies with these CPUC recommendations by taking into account seismic hazards in prioritizing and scheduling pipeline segments for replacement.

Line 109 is being replaced and relocated as part of the Gas Pipeline Replacement Program to maintain public safety and service reliability. The planned relocation of Line 109 through Daly City, South San Francisco, and San Bruno will also eliminate two crossings of the San Andreas Fault. A small portion of Line 132 is also being replaced and relocated in San Bruno to eliminate two additional crossings of the San Andreas fault. The San Andreas fault in the project area is capable of producing surface displacements, and strong shaking that could induce ground failures such as liquefaction and land sliding where there are earth materials susceptible to these effects. The relocation of the pipelines and proposed mitigation measures will ensure that impacts associated with seismic activity are significantly reduced and public safety is

enhanced. Please refer to Section 5.3 for a complete discussion of existing conditions, impacts, and mitigation measures.

Impacts

As indicated above, the replacement and relocation of these pipelines will enhance public safety by installing modern pipe and significantly reducing seismic hazards.

The existing pipeline routes go through commercial and residential streets, backyard easements, and SFWD property. The new routes will be almost entirely within city streets, in both commercial and residential areas. Most pipeline accidents occur in rural agricultural areas. This is due to the fact that there is a greater likelihood of someone failing to notice or anticipate a buried pipeline in an open field rather than a city street. During construction activity, a pipeline in a commercial or residential area is much more likely to be noticed by street markings, manholes, signs and fences.

Pipelines in urban areas have more strict design, maintenance and operating requirements as specified in the CPUC General Order No. 112-D. These requirements include thicker wall and higher strength pipe, lower operating pressures, increased number of block valves, and more frequent inspections than pipelines in rural areas. As a result of these requirements and others explained below, no significant impacts are anticipated.

Mitigation Measures

Please refer to Section 5.3 for a discussion on seismic mitigation measures. Also, please refer to Section 5.2 for traffic safety mitigation measures.

Mitigation of risk associated with natural gas pipelines in more highly urbanized areas is accomplished by complying with federal and state codes which regulate pipeline design, operations and maintenance and emergency plans. In addition, PG&E has developed standards that are more strict than the federal and state codes.

Natural gas pipeline safety is regulated by the United States Department of Transportation (DOT). DOT design and testing criteria are contained in 49 CFR part 192. The CPUC has adopted this regulation as part of General Order No. 112-D. The CPUC General Order No. 112-D includes requirements for pipeline design, testing, operations, patrols, leak surveys, block valves, corrosion control, system monitoring and emergency plans. These requirements and many others are designed to ensure that public and worker safety is maintained. Below is a description of these requirements and PG&E policies which serve as public safety mitigation measures.

Design and Strength Testing

The CPUC General Order No. 112-D requires that pipelines in more densely populated areas be more conservatively designed and tested. This is accomplished by assigning various design factors for different "class locations." A class location is based on the number of habitable buildings located within 220 yards on either side of any one-mile length of pipeline (i.e., the number of structures within an eighty-acre area).

Lines 109 and 132 will be constructed to Class 3 standards. Class 3 is defined as an area where there are 46 or more buildings in the class location area. Pipelines in these areas are required to be strength tested to a pressure of at least 1.5 times their operating pressure, and are limited to operating at about 70 percent of the pressure that would be allowed for a pipeline of the same strength in a Class 1 area. This means that a Class 3 location pipeline must be almost 1.5 times as thick as a Class 1 pipeline of the same pressure. A Class 1 location is generally a rural area where there are ten or less buildings in the class location area. The following table illustrates the test and operating criteria for the four different class locations:

Table 4 - Class Location Test Criteria

Class	Test Factor	Operating Pressure (% of Class 1)	Number of Buildings
1	1.25	100%	0-10
2	1.25	83%	10-45
3	1.50	70%	46 or more
4	1.50	55%	4 or more story buildings are prevalent

PG&E has design and testing standards that are more strict than the CPUC General Order 112-D requirements. For example, PG&E will be strength testing the new pipelines to a pressure that is 3.5 times the maximum operating pressure rather than the 1.5 factor shown in the above table. Also, the actual operating pressure for the new pipelines will be 36% of the maximum allowable operating pressure for the same pipeline in a Class 1 location (versus 70% as shown in the above table).

Seismic Design

Please refer to Section 5.3 for a discussion of seismic mitigation measures. In summary, the placement of the pipelines within the preferred corridors mitigates geologic hazards and eliminates four existing crossings of the San Andreas fault. Minor fault displacements, slope failures and differential settlements do not pose a significant hazard to the buried welded steel pipelines. These minor hazards will be mitigated by pipeline design. Heavier-walled pipe (1.6 times heavier than standard wall pipe) and specially engineered bends will be used where it may be advantageous to enhance pipeline strength.

Pipeline Patrols and Leak Surveys

The pipelines are patrolled quarterly by vehicle or helicopter fly-overs. This allows for visual assessment of potential problems such as construction on the pipeline easement. In addition, annual leak surveys are performed on foot with leak detection equipment. In the event a leak is found, immediate steps are taken to maintain public safety. This may include shutting down the flow of gas in the pipeline segment (using block valves), lowering the gas pressure in the pipeline, excavating the section affected and welding on a patch or sleeve, and replacing a section of pipe.

Valves

Transmission line block valves are used to shut down the flow of gas in a section of transmission pipeline, and to reduce the gas pressure if necessary, in order to perform emergency repair work or scheduled replacement of the pipeline. Refer to Figure 2 for block valve locations.

Pursuant to the CPUC General Order No. 112-D, Section 192.455, each point on the pipelines must be within four miles of a transmission line block valve. In other words, the valves must be no more than eight miles apart. Between the start and end points of this project, the valves will be a maximum distance of two miles apart. Thus, this project significantly exceeds the CPUC standard.

Corrosion Control

PG&E will comply with the CPUC General Order No. 112-D, Section 192.455 which states that each new buried or submerged pipeline must be protected against corrosion. The pipelines will have an external protective coating consisting of high density polyethylene wrap and will have a catholic protection system (induced current) designed to protect the pipeline in its entirety.

The cathodic protection system will provide pipe-to-soil potential levels at least as negative as 850 millivolts with reference to a copper-copper sulfate electrode. All current flow will be accounted for.

PG&E's cathodic protection systems are designed and operated to minimize any adverse effects on adjacent underground metallic structures. Where stray currents from foreign cathodic protection systems (cathodic or anodic), i.e. transit systems, telluric earth currents, etc., are affecting PG&E gas pipelines, corrective measures will be taken to limit or eliminate the stray current condition.

To monitor cathodic protection, pipe-to-soil measurements are taken along the pipeline on a bi-monthly schedule, and rectifiers are checked annually. Any area found with potentials below adequate levels of protection will be restored within 30 calendar days

barring any extenuating circumstances (which must be thoroughly documented for the CPUC review).

On this project, PG&E will install thirty-one (31) pipe-to-soil test stations for monitoring purposes.

24-Hour Gas Transmission System Monitoring

Pressures and flows at certain points along the gas transmission pipelines from Milpitas to San Francisco are monitored remotely at PG&E's Gas Load Center in San Francisco on a 24-hour basis. Any unusual pressures or flows will trigger an alarm, and the Gas Operator on duty will immediately arrange for a crew to investigate in the field. If necessary, pressures can be lowered and certain valves can be closed remotely from the Gas Load Center.

Emergency Plan

The CPUC General Order No. 112-D, Section 192.615 states: "Each operator shall establish written procedures to minimize the hazard resulting from a gas pipeline emergency." Each local area within PG&E has an Emergency Plan that fully complies with the specific requirements of this Section 192.615. PG&E's Emergency Plans include:

(1) Information on receiving, identifying, and classifying notices of events which require immediate response by the operator.

(2) Instructions for prompt and effective response for each type of emergency. (Procedure for making safe any actual or potential hazard to life and/or property.)

(3) Home and office phone numbers (including pager and cellular numbers and radio call numbers) of supervisors and on-call personnel.

(4) Phone numbers of local fire, police and other public officials.

(5) Phone numbers and locations of hospitals.

(6) Information on the location and availability of tools, equipment and materials needed for emergency response.

(7) Contacts for obtaining utility personnel from other areas or outside of PG&E.

(8) Information on outside contractors that may be needed in an emergency.

(9) Emergency shutdown or pressure reduction procedures.

(10) Instruction to safely restore gas service after an outage.

In addition to these written plans, PG&E has local Emergency Operation Rooms and Central Emergency Operation Centers that are activated as appropriate. These rooms contain the Emergency Plans, gas facility and other maps, radios, phones, and other emergency supplies needed to coordinate emergency response. PG&E also performs emergency exercises to test and continuously improve emergency response plans.

Underground Services Alert (USA)

Notification of the location of the gas pipelines will be given to Underground Services Alert (USA), and all utility owners not participating in USA. This will help prevent other utilities from damaging PG&E's pipelines.

5.7 BIOLOGY

Existing Conditions

This section was prepared by PG&E biologists. Research methods included literature and computer database reviews, and field visits.

Habitat Types

Four habitat types are traversed by the preferred route and alternate. These include eucalyptus woodland, grassland, ruderal, and landscaped. Each habitat type is described briefly below.

Eucalyptus Woodland: This habitat is dominated by Blue Gum (*Eucalyptus globulus*) and contains a sparse understory of non-native grasses.

Grassland: Grassland areas are dominated by several annual grasses and herbs including wild oats (*Avena fatua*), soft chess (*Bromus mollis*), and English plantain (*Plantago lanceolata*). Within the grassland area west of Skyline Boulevard several wetland species were present as well, including rush (*Juncus* sp.), sedge (*Carex* sp.) and cat-tail (*Typha*sp.).

Ruderal: Ruderal areas are dominated by non-native, weedy species including rip gut grass (*Bromus diandrus*), Bermuda grass (*Cynodon dactylon*) and bur clover (*Medicago hispida*).

Landscaped: Landscaped areas consist of maintained landscaping including plantings of Monterey Pine (*Pinus radiata*), Blue gum (*Eucalyptus globulus*) and ice plant (*Mesembryanthemum edule*). These areas include residential neighborhoods.

Line 109 Junipero Serra Route

The preferred route, also called the Junipero Serra Route, starts at the intersection of Hickey Boulevard and Saint Francis Boulevard in Daly City. Landscaping exists along the side slopes and in the median which divides a portion of east and westbound Hickey. It continues east on Hickey Boulevard and crosses under Interstate 280 (I-280) to Junipero Serra Boulevard. It turns south on Junipero Serra to Avalon Drive. Landscaping exists within the median as well as on both shoulders of Junipero Serra Boulevard from Hickey Boulevard to Avalon Drive. The pipeline route heads west on Avalon which becomes Crestwood Drive as the street turns south. The pipeline continues along Crestwood, past Sneath Lane and onto the I-280 frontage road until it reaches San Bruno Avenue. The frontage road along I-280, crosses a landscaped zone intermixed with ruderal areas. The pipeline will turn west on San Bruno Avenue to Crestmoor Drive. San Bruno Avenue from the frontage road to Crestmoor is landscaped. The pipeline will continue south on Crestmoor to Cambridge Lane. Line 109 will then head west on Cambridge Lane to Highway 35. PG&E will bore under Highway 35 to reach SFWD property. After crossing Skyline Boulevard, the route traverses approximately 100 feet of grassland, terminating at the proposed valve lot on SFWD property. Although some wetland vegetation was present within this area, wetland soils and hydrology criteria were not met.

Line 109 Junipero Serra Route Alternate

This alternative to the preferred route will only be chosen if Caltrans does not grant a longitudinal encroachment permit along the I-280 frontage road. This route is the same as the Junipero Serra Route up to the intersection of Crestwood Drive and Fleetwood Drive. At this intersection, the pipeline turns west onto Fleetwood to Rollingwood Drive. The pipeline heads east a short distance on Rollingwood Drive and turns down PG&E-owned property. This portion of the route is ruderal. When the pipeline reaches Catalpa Way, Line 109 will turn west and re-join Fleetwood down to Sequoia Avenue. It will continue south on Sequoia to Sneath Lane, head east on Sneath to Claremont Drive and south on Claremont to Plymouth Way. From here, it turns west onto Plymouth, then south onto Glenview Drive. When the pipeline reaches San Bruno Avenue, it will turn north to Crestmoor Drive. From the corner of Crestmoor Drive and San Bruno Avenue, the route continues the same as the Junipero Serra Route.

Line 132 Skyline Drive Route

Line 132 will be placed in Skyline Drive between San Bruno Avenue and Cambridge Lane. At Cambridge, PG&E will bore under Highway 35 to reach SFWD property. Approximately 1000 feet of eucalyptus woodland adjacent to Skyline Boulevard will be crossed. This eucalyptus woodland makes up approximately 25 feet of the 55-foot wide strip between Highway 35 on the west and apartments and houses on the east side. At Cambridge Lane, the route bores under Skyline Boulevard and traverses approximately

100 feet of grassland, terminating at the proposed valve lot. Although some wetland vegetation was present within this area, wetland soils and hydrology criteria were not met.

Special Status Species

A literature review was conducted to determine if any special status plant or wildlife species potentially exist within the vicinity of the proposed routes. For the purposes of this review, special status species were defined as species listed, proposed, or under review as rare, threatened or endangered by the federal government or the State of California. Species lists reviewed included those published by the US. Fish and Wildlife Service (1990), California Department of Fish and Game (1990), California Native Plant Society (1988), and California Natural Diversity Data Base (1992).

Special Status Plants: The literature review revealed three rare plant species with known occurrences in the vicinity of the proposed routes (see Table 5). Along the proposed routes, suitable habitat for Marin dwarf flax, San Mateo woolly sunflower, and white-rayed pentachaeta was present within the grassland area west of Skyline Boulevard. Surveys for all three species were conducted in this area in the spring of 1992. No rare plants were observed during these surveys.

Special Status Wildlife: The literature review revealed four special status wildlife species with known occurrences in the vicinity of the proposed routes (see Table 5). Along the proposed routes, however, suitable habitat for these species was not present.

Table 5 - Special Status Species

Plants		**State/Federal Endangered Status**
Marin Dwarf Flax	*Hesperolinon congestum*	Primary candidate
San Mateo Woolly Sunflower	*Eriophyllum latilobum*	Primary candidate
White-rayed Pentachaeta	*Pentachaeta bellidiflora*	Secondary candidate
Wildlife		
Mission Blue Butterfly	*Icaricia icarioides missionensis*	Federal list
San Bruno Elfin	*Incisalia mossii bayensis*	Federal list
San Francisco Garter Snake	*Thamnophis sirtalis tetrataenia*	State/Fed. list
Tomales Isopod	*Caecidotea tomalensis*	*No current threat known*

A primary candidate is a species on which enough data exists on file to support a Federal listing but the species has not been officially listed yet due to an administrative backlog. A secondary candidate is a species on which the threat and/or distributed data are insufficient to support a Federal listing.

Impacts

Habitats

The majority of construction along the Junipero Serra Route and its alternate route will occur within roadways and will have no impact on natural areas. No significant impacts are anticipated within ruderal areas.

Line 132 Skyline Drive Route will traverse approximately 1000 feet of eucalyptus woodland east of Skyline Boulevard. This route will require removal of at least one third of the eucalyptus trees. Trees in which 30% or more of the root structure is destroyed by trenching (measured from the drip line in) will be removed.

Both Lines 109 and 132 will be bored across Skyline Boulevard at Cambridge Lane. Because there are fewer eucalyptus trees at this location, it was selected as the bore site. Trees typically have a root depth of approximately four feet deep. Boring will be at approximately eight feet which will avoid damaging tree roots. No eucalyptus tress will be damaged by boring.

Both the Junipero Serra Route and the alternate will impact approximately 100 linear feet of grassland west of Skyline Boulevard. Impacts to this area would be considered insignificant.

If the Junipero Serra Route Alternate is constructed, the PG&E-owned ruderal strip will be impacted and a drainage system will be disrupted. Impacts to this area would be considered insignificant.

Special Status Species

No biological assessment for rare and endangered species is necessary in landscaped areas along Hickey Boulevard. No impacts to special status plant or wildlife species are anticipated along the preferred route or the alternate route.

Mitigation Measures

Within woodland areas, PG&E will replace any mature trees removed with young trees at a ratio of three to one. Trees will be maintained for one year after construction. PG&E will consult with San Bruno and Caltrans to determine the type of tree to plant.

PG&E will re-seed the grassland area west of Skyline Boulevard with a native grassland seed mix in accordance with the San Francisco Water Department requirements following construction.

In the PG&E-owned property, PG&E will re-establish drainage features and re-seed with an erosion control mixture.

5.8 VISUAL RESOURCES

Existing Conditions

Lines 109 and 132 lie in the three cities of Daly City, South San Francisco, and San Bruno and run in a north/south direction. The significant visual elements along the proposed pipeline routes are the large trees along Junipero Serra, eucalyptus trees along Sneath Lane and Skyline Boulevard, the San Francisco Water Department property, occasional views of San Francisco Bay and airport and residential housing. The pipeline itself will not be visible and will generally be under the paved streets.

Line 109 Junipero Serra Route

The preferred route, also called the Junipero Serra Route, starts at the intersection of Hickey Boulevard and Saint Francis Boulevard in Daly City. It continues east on Hickey Boulevard and crosses under Interstate 280 to Junipero Serra Boulevard. Beginning at the Callan Boulevard/Hickey Boulevard intersection, Gellert Park and the Chinese Cemetery can be seen on either side of Hickey. The pipeline crosses under I-280 and heads downhill toward Junipero Serra. The freeway can be seen from Hickey before going downhill into a residential area. The intersection of Hickey and Junipero Serra does not contain any significant visual features. The hillside on the west side of Junipero Serra is weedy and not well-maintained. Further down Junipero Serra the median contains large trees and the slopes on both sides of the street are thick with trees and bushes. A residential development at King Drive can be seen on the west side of Junipero Serra. Toward the south, beyond King Drive, the tree-covered hills can be seen in the distance. Landscaping begins approximately 100 yards from the Westborough intersection where small trees appear in the median. Beyond this intersection, the California Golf Club course can be seen through the trees on the east side of Junipero Serra. From Junipero Serra the pipeline will turn west onto Avalon Drive into a single-family residential neighborhood. This is a two-way divided road. There is a large beige water tank surrounded by a barbed wire fence on the east side between Canyon Court and Valleywood. This is approximately where the City of San Bruno begins and where the street turns into Crestwood Drive.

The pipeline continues south along Crestwood. At the intersection of Rollingwood, the street is hilly and there is a convenience store, restaurant and a gas station. The view from this intersection is toward the east where the bay and airport can be seen. The route will cross Sneath to the I-280 frontage road, alongside a driving range. The pipeline will follow the frontage road until it reaches San Bruno Avenue. Along San Bruno Avenue, Crestmoor and Cambridge, the area is single-family residential. Crestmoor Drive is a two-lane divided road in a single-family residential area. At the intersection of Rosewood and Crestmoor Drives, Buckeye Park can be seen on the west side of Crestmoor. This area is shaded with trees along the outside of the park. The pipeline will turn onto Cambridge Lane. An elementary school is located at the corner

of Crestmoor and Cambridge. The pipeline will head west on Cambridge to Highway 35. PG&E will bore under Highway 35 to reach SFWD property. After crossing Skyline Boulevard, the route traverses approximately 100 feet of grassland on SFWD property, terminating at the proposed valve lot. The proposed valve lot will be fenced and contain above-ground structures, but will not have a small operations building which stands on the existing valve lot.

Line 109 Junipero Serra Route Alternate

This route is the same as the Junipero Serra Route up to the intersection of Crestwood Drive and Fleetwood Drive. At this intersection, Line 109 will turn west onto Fleetwood Drive to Rollingwood Drive. The pipeline heads south a short distance on Rollingwood and turns down PG&E-owned property behind the houses facing Fleetwood. This area contains trees and overhead power lines. The pipeline will emerge at Catalpa Way where it will turn west and re-join Fleetwood down to Sequoia Avenue. It will continue south on Sequoia to Sneath Lane. Sneath is lined with eucalyptus on the south side of the street and the median is landscaped. The north side of the street is sloped with shrubs and trees. The pipeline will turn south onto Glenview and remain in the street in a residential neighborhood.

Glenview is a hilly street in a single-family residential neighborhood. Beyond Estate Drive there is a church on the east side, an open field on the west side and a vacant lot. At the intersection of San Bruno Avenue and Glenview, there is the Skycrest Center shopping area, a gas station and vacant lot. The pipeline will turn west down San Bruno Avenue which is a four-lane divided road with landscaping on the south side. From San Bruno Avenue toward the north there is a view of South San Francisco and the hills behind the city.

The pipeline will turn south onto Crestmoor Drive which is a two-lane divided road in a single-family residential area. At the intersection of Rosewood Drive, Buckeye Park can be seen on the west side of Crestmoor. This area is shaded with trees along the outside of the park. The pipeline will turn onto Cambridge Lane. An elementary school is located at the corner of Crestmoor and Cambridge. The pipeline will head west on Cambridge to Highway 35. PG&E will bore under Highway 35 to reach SFWD property. After crossing Skyline Boulevard, the route traverses approximately 100 feet of grassland on SFWD property, terminating at a proposed valve lot. The proposed valve lot will be fenced and contain above-ground structures, but will not have a small operations building which stands on the existing valve lot.

Line 132: Skyline Drive Route

Line 132 will be placed in Skyline Drive between San Bruno Avenue and Cambridge Lane. Along Skyline Drive, there are apartments on the east side of this two-lane divided street and dense trees and shrubs on the west side. This is a dead end street with single-family residences on the east side and eucalyptus trees on the west side. At

Cambridge, PG&E will bore under Highway 35 to reach SFWD property. Approximately 1000 feet of eucalyptus woodland adjacent to Skyline Boulevard will be crossed. This eucalyptus woodland makes up approximately 25 feet of the 55-foot wide strip between Highway 35 on the west and apartments and houses on the east side. At Cambridge Lane, the route crosses Skyline Boulevard and traverses approximately 100 feet of grassland, terminating at the proposed valve lot. The proposed valve lot will be fenced and contain above-ground structures, but will not have a small operations building which stands on the existing valve lot.

Impacts

The pipeline will not be visible once construction is complete. The visual impacts associated with construction will be short term in all areas of the pipeline replacement. The construction equipment may affect the aesthetics of the residential areas for approximately one week. This means that from the time trenching begins in a given area, to the time it is permanently paved is about one week. No significant views will be impacted from or along Junipero Serra Boulevard.

The San Francisco Water Department property will contain a new and smaller valve lot than what currently exists. The visual impact of the proposed valve lot will be less since it will be smaller in size and will not include the small operations building. Construction impacts on this property will also be temporary.

Mitigation Measures

PG&E will replace any disturbed landscaping and vegetation, including the removed eucalyptus trees, upon completion of the project. PG&E will re-pave the pipeline trench in conformance with each city's permit requirements upon completion of construction.

5.9 NOISE

Existing Conditions

Each of the Cities of Daly City, South San Francisco, and San Bruno have Noise Elements as part of their General Plans. A Noise Element is designed as part of a General Plan to achieve noise compatible land uses when new development occurs. It also provides a guideline for planning in the city based on existing and projected levels of noise.

Each city's Noise Element includes existing noise sources. The San Francisco International Airport is a major noise source common to each city. Also described are the major arterials and highways. In South San Francisco, Highways 101, 280, 82 and the Southern Pacific Railroad corridor are described as transportation noise sources.

In Daly City, major traffic noise sources are Interstate 280, Cabrillo Freeway and Skyline Expressway, John Daly, Hickey, Serramonte, Callan, Gellert, San Pedro, South Hill, Bayshore, and Lake Merced Boulevards, Southgate, Eastmoor, St. Francis, Geneva, San Jose, El Camino, and Bellevue Avenues and King Drive.

The City of South San Francisco's Noise Ordinance states that construction activities authorized by a city permit shall be allowed on weekdays between the hours of 8:00 a.m. and 8:00 p.m. The ordinance also states that no individual piece of equipment shall produce a noise level exceeding 90 dB at a distance of twenty-five feet. An exception permit may be issued to allow exception from the provisions of the ordinance with appropriate conditions to minimize the public detriment caused by such exceptions.

In San Bruno, Junipero Serra is described as a transportation noise source and all other highway noise in the city is masked in terms of annual levels by aircraft noise.

The City of San Bruno's Noise Ordinance states that construction noise levels may not exceed 85 dB at a distance of 100 feet. Hours of construction are limited to between 7:00 a.m. and 10:00 p.m. The City of Daly City's Noise Element describes noise levels in terms of Community Noise Equivalent Level (CNEL). Construction noise in excess of 75 dB is unacceptable. This means that the standard conditions of approval for an encroachment permit will most likely regulate construction hours as a means of mitigating the noise affects.

The Environmental Protection Agency (EPA) has established 70 dBA LEQ (Noise Equivalent Level) as the average noise level requisite to protect the population from significant hearing damage. LEQ is the closest value to an average for a given period of time. The existing noise conditions vary in each city within each land use area. Residential areas, schools, and hospitals are considered "noise sensitive" land uses. The John Muir Elementary School is on Cambridge Lane, and there are no hospitals along the pipeline route.

Approximately 53% of Daly City is residential. Noise measurements were taken in the Serramonte area of Daly City and the background noise was measured at 50 to 55 dBA. The maximum noise from aircraft fly-overs reaches 90 to 100 dBA for those few seconds of the fly-over. In South San Francisco, residential areas in the center and western portions of the city are substantially exposed to noise from Interstate 280, Junipero Serra Boulevard, and El Camino Real. In San Bruno, approximately 96% of the houses are subject to noise levels of 60 dBA or greater. Residents in the northwesterly portion of the city are subject to highway noise levels above 60 dBA. Aircraft noise is the dominant noise factor, however.

Impacts

The construction of Line 109 will result in temporary construction noise. The equipment required for construction typically produces sounds ranging from 70-85 dBA at 50 feet from the source.

Typically, construction activities are limited to the daytime hours when people are less sensitive to noise. Given the current noise environment with aircraft noise, highways and major arterials, the short-term construction noise is minor. The greatest impact will be in the residential areas where construction takes place in fairly close proximity to homes.

Construction noise is an unavoidable impact. However, it will be short-term and within the existing levels in the surrounding areas.

Mitigation Measures

PG&E will limit construction to daytime hours when people are less sensitive to noise and will comply with each city's permit requirements.

REFERENCES

BioSystems Analysis, Inc. October 1991. Cultural Resources Sensitivity and Feasibility Study for Line 109 Replacement Project. MS prepared for Pacific Gas and Electric, San Francisco.

BioSystems Analysis, Inc. June 1992. Cultural Resources Field Reconnaissance for Segment 1 of Gas Pipeline 109 Replacement Project. MS prepared for Pacific Gas and Electric, San Francisco.

California Public Utilities Commission, General Order Number 112-D.

California Public Utilities Commission, September 14, 1992. Letter from Staff Counsel (CPUC) to Steve Solomon, City of South San Francisco Planning Department.

California Public Utilities Commission, Safety Division, October 23, 1991. Report on Seismic Safety Considerations of Various Investor-Owned Utilities in California.

City of Daly City General Plan, April 1989.
City of Daly City Zoning Ordinance.

City of San Bruno General Plan, June 25, 1984.
City of San Bruno Zoning Ordinance.

City of South San Francisco General Plan, September 26, 1990.
City of South San Francisco Zoning Ordinance.

City of South San Francisco, July 2, 1992. Letter from Richard Harmon, Senior Engineering Technician to Leslie Day, Pacific Gas and Electric Company.

Lawson, A.C., 1908. The California earthquake of April 18, 1906; report of the State Earthquake Investigation Commission (reprinted 1969): Carnegie Institution of Washington, Publication 87, two volumes, atlas.

Pacific Gas and Electric Company, January 14, 1992. Emergency Plan Gas and Electric Operations, Golden Gate Region, Skyline Division.

Pacific Gas and Electric Company, August 1992. Environmental Analysis Gas Line 109 Replacement, Hickey Boulevard, Daly City.

Pacific Gas and Electric Company. Work Area Protection Guide.

AGENCIES CONSULTED

Cities

Daly City:	City Manager City Engineer Planning Department
San Bruno:	City Manager City Engineer Planning Department
San Francisco:	Water Department
South San Francisco:	City Manager City Engineer Planning Department

County

San Mateo:	Department of Health Services

State

California Public Utilities Commission: Legal Division

Department of Transportation (Caltrans)

LIST OF PREPARERS

Pacific Gas and Electric Company: Building and Land Services Department

Jamie Bennett
Laurie Bohannon
Elisabeth Brokaw
Glenn Caruso
Herschell Larrick

Pacific Gas and Electric Company: Encon Gas Transmission & Distribution

Cameron Rowland

Pacific Gas and Electric Company: Environmental Services Department

Joan Peterkin

Pacific Gas and Electric Company: Golden Gate Region Transmission

Leslie Day

Pacific Gas and Electric Company: Technical and Ecological Services Department

Ken DiVittorio

Word Engineering: Geosciences Department

Janet Cluff

APPENDIX A

CALIFORNIA PUBLIC UTILITY COMMISSION LETTER

RECEIVED
SEP 16 1992

STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

PETE WILSON, Governor
KERMIT K. KUBITZ

September 14, 1992

Steve Solomon
Chief Planner
Planning Division
City of South San Francisco
P.O. Box 711
South San Francisco, California 94083

Dear Mr. Solomon:

This is in response to your letter dated July 31, 1992 regarding Pacific Gas and Electric Company's (PG&E's) natural gas pipeline replacement project. You have asked about the role of the California Public Utilities Commission (Commission) in any environmental review of this project pursuant to the California Environmental Protection Act (CEQA) (Pub. Resources Code § 21000 et seq.).

In 1984, PG&E established a major program to eliminate, under a systemwide schedule, deteriorating gas transmission and distribution pipelines. PG&E's program called for the replacement of the pipelines over a 20-year period. In PG&E's 1987 general rate case, the Commission adopted PG&E's program and assigned the Commission's Safety Division to oversee the program. (Re Pacific Gas and Electric Company, D.86-12-096 (1986) 23 Cal.P.U.C.2d 149, 198-199.)

The Commission did not undertake any environmental review as part of that decision because the Commission only approved the manner in which PG&E would recover the expenses of the program, rather than construction of the replacement pipelines. Pursuant to Public Utilities Code section 1001, PG&E is not required to obtain a certificate of public convenience and necessity (CPCN) for the replacement program. Section 1001 requires utilities to obtain a CPCN for the construction of "a line, plant, or system, or any extension thereof." However, section 1001 does not require a CPCN for "an extension within any city or city and county within which it has lawfully commenced operations." Because PG&E's program is for replacement of pipelines within cities and counties in which it has already commenced operations, PG&E is not required to obtain Commission approval in order to commence construction of the replacement pipelines. Therefore, CEQA is not triggered by the program. (See Pub. Resources Code § 21000 et seq.)

Nevertheless, the Commission does regulate safety aspects of the pipeline replacement program. Under the Commission's General Order 112-D, PG&E must comply with requirements governing safety and design of utility gas systems. It is the understanding of

Legal Division that PG&E has been consulting with the Safety Division on an ongoing basis regarding this project.

Regarding the role of the local government in this project, the California Constitution provides that "a county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws. (Cal. Const. Art. XI, § 7.) Furthermore, a county or city "may not regulate matters over which the Legislature grants regulatory power to the Commission." (Cal. Const. Art. XII, § 8.) Local legislation has been found to be preempted if it enters an area fully occupied by general law, either expressly or by legislative implication. (Candid Enterprise, Inc. v. Grossmont Union High School Dist. (1985) 39 Cal.3d 878, 885.) Where local jurisdictions have attempted to impose regulations on utilities which conflict with the Commission's regulation, or where there is a need for consistent statewide regulations, California courts have held clearly and consistently held that the local laws are preempted. (Los Angeles Ry. Corp. v. Los Angeles (1940) 16 Cal.2d 779, 783-788; Harbor Carriers, Inc. v. City of Sausalito (1974) 46 Cal.App. 3d 773, 775.)

Under the foregoing standards, it appears that a local government would not have discretionary authority to approve or disapprove the gas pipeline project. It is my understanding that PG&E has attempted to work with local government agencies on this project in order to address their concerns. However, if you believe that there are deficiencies in the program, or that PG&E is not carrying it out in a reasonable manner, the appropriate course of action would be to bring the matter to the attention of the Commission, either informally or by way of a formal complaint against PG&E. (See H.B. Ranches, Inc. v. Southern California Edison Company, D.83-04-090 (1983) 11 Cal.P.U.C.2d 400.)

I hope that this information is of assistance to you. The informal opinions contained in this response are those of the Commission's Legal Division staff and are not binding on the Commission, which issues opinions only in formal proceedings. Please feel free to contact me at (415) 703-2053 if you have further questions regarding this matter.

Sincerely,

[redacted]

Judith Allen
Staff Counsel

cc: Steve Carlson, City of South San Francisco
Russell Copeland, CPUC Safety Division
Kermit Kubitz, PG&E