EXHIBIT D – PG&E Line 406/407 Natural Gas Pipeline Project

STATEMENT OF FINDINGS

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

(THE PROPOSED PROJECT AS MODIFIED BY OPTIONS I AND L)

NOVEMBER 16, 2009

CEQA FINDINGS

These findings on the Line 406/407 Natural Gas Pipeline Project (proposed Project) proposed by the Pacific Gas & Electric Company (PG&E) are made by the California State Lands Commission (CSLC), pursuant to the *Guidelines* for the California Environmental Quality Act (the CEQA) (California Code of Regulations, Title 14, section 15091). All significant adverse impacts of the project identified in the Revised Final Environmental Impact Report (Revised Final EIR) for the environmentally superior alternative, which incorporates Options I and L, are included herein and organized according to the resource affected.

The CEQA Findings are numbered in accordance with the impact and mitigation numbers identified in the Mitigation Monitoring Program (see Exhibit C).

For discussion of impacts, significance is classified according to the following definitions:

- **Class I** (significant adverse impact that remains significant after mitigation);
- **Class II** (significant adverse impact that can be eliminated or reduced below an issue's significance criteria);
- **Class III** (adverse impact that does not meet or exceed an issue's significance criteria); or
- **Class IV** (beneficial impact).

Class III and Class IV impacts require neither mitigation nor findings.

For each significant impact (i.e., Class I or II) a finding has been made as to one or more of the following, as appropriate:

a) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the Revised Final EIR.

A discussion of the facts supporting them follows the findings.

Whenever Finding (b) occurs, the agencies with jurisdiction have been specified. These agencies, within their respective spheres of influence, have the responsibility to adopt, implement, and enforce the mitigation discussed within each type of impact that could result from project implementation. However, under the CEQA (Public Resources Code section 21081.6), the CSLC, as the CEQA Lead Agency, has the responsibility to ensure that the mitigation measures contained are effectively implemented. Other specified state, local, and regional public agencies include, but are not necessarily limited to the following:

- U.S. Army Corps of Engineers (USACE);
- U.S. Fish and Wildlife Service (USFWS);
- National Oceanic and Atmospheric Administration (NOAA) Fisheries;
- California Central Valley Regional Water Quality Control Board (CVRWQCB);
- California Department of Fish and Game (CDFG);
- California Department of Transportation (Caltrans);
- Central Valley Flood Protection Board;
- Feather River Air Quality Management District (FRAQMD);
- Sacramento Metropolitan Air Quality Management District (SMAQMD);

- Placer County Air Pollution Control District (PCAPCD);
- Yolo-Solano Air Quality Management District (YSAQMD); and
- Reclamation Districts 730, 1000, 1600, and 2035.

Whenever Finding (c) is made, the CSLC has determined that sufficient mitigation is not practicable to reduce the impact to a less than significant level and, even after implementation of all feasible mitigation measures, there will or could be an unavoidable significant adverse impact due to the Project. Class I impacts requiring Finding (c) were identified in the Revised Final EIR. The Statement of Overriding Considerations applies to all such unavoidable impacts as required by the CEQA *Guidelines* sections 15092 and 15093.

These Findings are based on the information contained in the Revised Final EIR for the Project, as well as information provided by PG&E and gathered through the public involvement process, all of which is contained in the administrative record as noted below.

The location of the administrative record is in the Sacramento office of the California State Lands Commission, 100 Howe Avenue, Suite 100-South, Sacramento, CA 95825.

CEQA FINDING NO. AES-1

DEGRADE VISUAL CHARACTER OF THE SITE

Impact: **Impact AES-1: Degrade the Existing Visual Character or Quality of the Site and Its Surroundings**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

Construction of the Project would require the removal of vegetation prior to trenching activities. APM BIO-17 specifically ensures that impacts to vegetation are minimized and adequately mitigated to the satisfaction of the permitting agencies, property owners, and/or habitat managers. Restoration of vegetation in agricultural fields and landscaped

areas would be negotiated with the landowners and would result in restoration of temporarily disturbed areas to conditions similar to preconstruction conditions, thereby minimizing affects to visual resources caused by the removal of vegetation. Furthermore, if native trees are removed or impacted during construction they would be replaced according to MM BIO-2b, MM BIO-2c, and MM BIO-2d.

The replanting of deep-rooted vegetation, such as orchards and vineyards, would not be allowed within 10 feet on either side of the pipeline (20 feet total in the permanent easement). This restriction may result in a substantial impact to the visual character of an area where deep-rooted vegetation currently exists. Of specific concern is the removal of vegetation that currently screens rural residences along the proposed pipeline.

Mitigation Measures for Impact AES-1: Degrade the Existing Visual Character or Quality of the Site and Its Surroundings

MM AES-1 **Replanting of Screening Vegetation.** If deep-rooted vegetation that provides visual screening or acts as a visual resource to adjoining residences is removed, it shall be replaced in accordance with APM BIO-17. If the replanting of deep-rooted vegetation is not allowed within the permanent easement of the proposed pipeline, appropriate vegetation shall be replanted in a location outside the permanent easement but in a location that would recreate the visual screening and visual quality previously provided by the removed vegetation.

Summary. The mitigation measure described above, along with APM BIO-17, MM BIO-2b, MM BIO-2c, and MM BIO-2d, would ensure the replanting of deep-rooted vegetation in a location outside the permanent easement but in a location that would recreate the visual quality provided by the removed vegetation. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. AES-2

LIGHT AND GLARE IMPACTS

Impact: **Impact AES-2: Create New Source of Light or Glare**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

At the 12 locations along the proposed pipeline where HDD would be implemented, lighting would be utilized to allow continuous, 24-hour construction operations. A light plant would be stationed at the entry and exit points of each HDD section and would consist of four 1,000-watt fixtures. Each site would be continuously under construction between two to four weeks. While the majority of HDD sites are located within rural agricultural areas, some sites may be located in proximity to rural households. Continuous construction requiring the use of light plants (mobile pole lighting) could result in light trespass onto nearby homes. While light trespass would be temporary, the contrast to rural lighting conditions typically found along the pipeline would result in a significant source of light.

Mitigation Measures for Impact AES-2: Create New Source of Light or Glare

MM AES-2 **Light Shielding and Positioning Away from Residences.** HDD, hydrostatic testing and tie-in sites within close proximity of rural residences that would utilize lighting and operate between dusk and dawn shall be required to appropriately shield and direct all lighting away from nearby rural residences in order to reduce light trespass to the maximum extent feasible. Lighting shall be positioned and shielded to provide adequate nighttime illumination for construction workers while minimizing affects on nearby homes.

Summary. Implementation of directional and shielded lighting would reduce light trespass onto nearby residences thereby reducing the temporary intrusion of construction lighting. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. AQ-1

REGIONAL AIR EMISSION IMPACTS

Impact: **Impact AQ-1: Construction or Operation Emissions Exceeding Regional Thresholds**

Class: I

Finding:

a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of the air districts (SMAQMD, YSAQMD, FRAQMD, or PCAPCD) and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

None of the operational thresholds are anticipated to be exceeded. Construction emissions for all four major segments of the proposed Project would exceed the local air districts significance thresholds for NO_X. In addition, Line 407 East, the DFM, and Line 407 West would exceed the FRAQMD's threshold for ROG.

The construction of Line 406 would occur in Yolo County under the jurisdiction of the YSAQMD. The construction of Line 407 West would occur in Yolo County and Sutter County under the jurisdiction of the YSAQMD and the FRAQMD, respectively. The construction of Line 407 East and the DFM are expected to overlap temporarily. Line 407 East construction would occur in Sutter County and Placer County under the jurisdiction of the FRAQMD and the PCAPCD, respectively. The DFM construction would occur in Sutter County and Sacramento County, under the jurisdiction of the FRAQMD and the SMAQMD, respectively.

APMs AQ-1 through AQ-11 reduce potential emissions from project construction. However, implementation of these APMs would not reduce construction impacts to a less than significant level. Implementation of APM AQ-1 will reduce expected NO_x

emissions by 20 percent, but due to the magnitude of NO_x emissions, a 20 percent reduction would not reduce the impact to a less than significant level. Insufficient details and/or lack of a methodology prevent the quantification of reductions under APM AQ-2, APM AQ-3, APM AQ-4, APM AQ-5, APM AQ-7, APM AQ-8, and APM AQ-11. APM AQ-10 is an enhanced compliance measure for an existing registration requirement. As a result, MMs AQ-1a through AQ-1d are required to be implemented to further reduce air emission impacts.

Mitigation Measures for Impact AQ-1: Construction or Operation Emissions Exceeding Regional Thresholds

MM AQ-1a. **Fugitive PM10 Control.** The following components shall be incorporated into the Dust Control Plan specified in APM AQ-3:

- Reduce speed on unpaved roads to less than 15 mph; and
- Apply soil stabilizers to inactive areas.

MM AQ-1b. **NO_X Mitigation Menu.** If, after completing the comprehensive inventory list identified in APM AQ-1 and associated fleet-wide NO_x and PM emission reductions, Project emissions still exceed the air district thresholds for NO_x, PG&E shall implement one or a combination of the following mitigation measures (as directed by the applicable air district) to achieve a reduction in NO_x to less than the applicable air district's daily threshold of significance for construction:

- Install diesel catalytic reduction equipment (Cleaire Lean NO_X Catalyst or equivalent) on some or all of the fleet of construction equipment during the construction Project;
- Install the same Lean NO_X Catalyst on third-party diesel equipment operating within the Yolo-Solano/Sacramento nonattainment area for a period not less than one year of operation; or
- Pay a mitigation fee to the respective local air districts to offset NO_X emissions which exceed the applicable thresholds after all other mitigation measures have been applied.

MM AQ-1c. **PCAPCD Mitigation.** In addition to the applicable APMs and MM AQ-1a and MM AQ-1b, the following measure shall be implemented for all construction activities occurring in Placer County:

a) PG&E shall submit a Construction Emission / Dust Control Plan to the PCAPCD. This plan must address the minimum Administrative Requirements found in section 300 and 400 of the PCAPCD Rule 228, Fugitive Dust. PG&E shall not break ground prior to receiving PCAPCD approval of the Construction Emission / Dust Control Plan.

b) PG&E shall submit to the PCAPCD a comprehensive inventory (i.e. make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 or more hours for the construction project. The inventory shall be updated, beginning 30 days after any initial work on the site has begun, and shall be submitted on a monthly basis throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the PCAPCD with the anticipated construction timeline including start date, and name and phone number of the property owner, project manager, and on-site foreman.

c) PG&E shall provide a plan to the PCAPCD for approval by the PCAPCD demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

d) PG&E shall suspend all grading operations when fugitive dust exceeds PCAPCD Rule 228, Fugitive Dust, limitations. The prime contractor

shall be responsible for having an individual who is CARB-certified to perform Visible Emissions Evaluations (VEE). This individual shall evaluate compliance with Rule 228 on a weekly basis. It is to be noted that fugitive dust is not to exceed 40 percent opacity and not go beyond property boundary at any time. If lime or other drying agents are utilized to dry out wet grading areas, they shall be controlled as to not exceed PCAPCD Rule 228, Fugitive Dust, limitations.

e) PG&E shall prepare an enforcement plan and submit to the PCAPCD for review, in order to weekly evaluate project-related on- and off-road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180-2194. The CARB-certified individual that is hired by PG&E to perform VEE, shall routinely evaluate project-related off-road and heavy-duty on-road equipment emissions for compliance with this requirement. Operators of vehicle and equipment found to exceed opacity limits will be notified by the PCAPCD and the equipment must be repaired within 72 hours.

f) PG&E shall suspend all grading operations when wind speeds (including instantaneous gusts) exceed 25 miles per hour and dust is impacting adjacent properties.

g) PG&E shall use CARB ultra low sulfur diesel fuel for all diesel-powered equipment. In addition, low sulfur fuel shall be utilized for all diesel-fueled stationary equipment.

MM AQ-1d. **SMAQMD Mitigation.** In addition to the applicable APMs and MM AQ-1a and MM AQ-1b, the following measure shall be implemented for all construction activities occurring in Sacramento County:

a) PG&E shall provide a plan, for approval by CSLC and SMAQMD, demonstrating that the heavy-duty (>50 horsepower) self-propelled off-road vehicles to be used in construction, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet average of 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at the time of construction.

(SMAQMD provides that acceptable options for reducing emissions may include use of newer model year engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.)

b) PG&E shall submit to CSLC and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horse power rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the construction, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, PG&E shall provide SMAQMD with the anticipated construction timeline including start date, and the name and phone number of the project manager and on-site foreman.

c) PG&E shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and SMAQMD shall be notified within 48 hours of identification of non-compliance equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other SMAQMD or state rules or regulations.

And/or: If at the time of construction, the SMAQMD has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation.

Consultation by PG&E with SMAQMD prior to construction will be necessary to make this determination.

MM AQ-1a reduces the estimated fugitive PM (dust) emissions from the Project construction to a less than significant level. MM AQ-1b reduces NO_x emissions to a less than significant level. MM AQ-1c and MM AQ-1d were requested by the PCAPCD and SMAQMD, respectively, to further reduce air quality impacts associated with construction of the project in their respective jurisdictions. MM AQ-1c is applicable to all construction activities that would occur in Placer County, and would further reduce fugitive PM emissions (dust) and equipment exhaust emissions from project construction. MM AQ-1d is applicable to all construction activities that would occur in Sacramento County, and would further reduce construction equipment-generated emissions.

Although implementation of the mitigation measures would substantially reduce impacts related to fugitive PM (dust) emissions and NO_x emissions, the construction of the proposed Project is likely to adversely affect air quality due to ROG emissions exceeding an established regional threshold. As such, impacts related to ROG emissions would be considered significant (Class I). This Class I impact would be short term. Approval of the Project would be subject to a Statement of Overriding Considerations under the CEQA.

Summary. This impact remains potentially significant following application of all feasible mitigation.

CEQA FINDING NO. AQ-2

STATE OR FEDERAL AIR STANDARD EMISSION IMPACTS

Impact: **Impact AQ-2: Construction or Operation Emissions Exceeding State or Federal Standards**

Class: I

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of the air districts (SMAQMD, YSAQMD, FRAQMD, or PCAPCD) and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

Construction emissions would exceed local air district's significance thresholds for ROG and NO_X (ozone precursors) and PM_{10}. The Project area is currently in nonattainment for Federal and State ozone standards and PM_{10}. Although construction emissions are short-term, the generation of emissions exceeding the recommended thresholds would substantially contribute to existing exceedance of Federal and State standards. APM AQ1 through APM AQ-11 would reduce potential emissions from project construction. However, implementation of these APMs is not adequate to reduce construction impacts to less than significant. As a result, MMs AQ-1a through AQ-1d are required to be implemented to further reduce air emission impacts.

Mitigation Measures for Impact AQ-2 Construction or Operation Emissions Exceeding State or Federal Standards

MM AQ-1a: Fugitive PM_{10} Control.

MM AQ-1b: NO_X Mitigation Menu.

MM AQ-1c: PCAPCD Mitigation.

MM AQ-1d: SMAQMD Mitigation.

MM AQ-1a reduces the estimated fugitive PM (dust) emissions from the Project construction to a less than significant level. MM AQ-1b reduces NO_x emissions to a less than significant level. MM AQ-1c and MM AQ-1d were requested by the PCAPCD and SMAQMD, respectively, to further reduce air quality impacts associated with construction of the project in their respective jurisdictions. MM AQ-1c is applicable to all construction activities that would occur in Placer County, and would further reduce fugitive PM emissions (dust) and equipment exhaust emissions from project construction. MM AQ-1d is applicable to all construction activities that would occur in

Sacramento County, and would further reduce construction equipment-generated emissions.

Although implementation of the mitigation measures would substantially reduce impacts related to fugitive PM (dust) emissions and NO_x emissions, the construction of the proposed Project is likely to result in exceeding State or federal air quality standards due to ROG emissions exceeding an established regional threshold. As such, impacts related to ROG emissions would be considered significant (Class I). This Class I impact would be short term. Approval of the Project would be subject to a Statement of Overriding Considerations under the CEQA.

Summary. This impact remains potentially significant following application of all feasible mitigation.

CEQA FINDING NO. AQ-3

GREENHOUSE GAS EMISSION IMPACTS

Impact: **Impact AQ-3: Increase in Greenhouse Gas Emissions**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

The Project would emit exhaust of maintenance vehicles during operation. In year 2010, Project-related annual $MTCO_2e$ resulting from annual inspection and maintenance would be approximately 2.94 $MTCO_2e$. This project would generate a small amount of operational GHG emissions from periodic maintenance activities. Therefore, operational GHG emissions are less than significant.

The Project would emit GHGs such as carbon dioxide, methane, and nitrous oxide from the exhaust of equipment used during construction. The total metric tons of carbon dioxide equivalents ($MTCO_2e$) produced during construction of the Project are 2,681.94. APM AQ-1, APM AQ-4, APM AQ-7, APM AQ-8, and APM AQ-10 have the potential to reduce construction-generated GHG emissions. While the construction emissions would

occur only during the brief construction period, the emissions would result in a net increase in the production of GHG.

Mitigation Measures for Impact AQ-3 Construction or Operation Emissions Exceeding State or Federal Standards

MM AQ-3 **GHG Emission Offset Program.** PG&E shall participate in a Carbon Offsets Program with the Climate Action Registry (CAR), the Chicago Climate Exchange, or another provider of carbon offsets. Prior to the beginning of construction, PG&E shall purchase carbon offsets equivalent to the projected project's GHG emissions to achieve a net zero increase in GHG emissions during the construction phase. Carbon offsets must occur within the State of California, preferably in the project region. The applicant will provide verification to the CSLC demonstrating compliance with this measure for each segment prior to the start of construction for that segment.

Summary. By participating in an Emissions Offset Program, these emissions will be offset through implementation of an established emissions reduction program. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. BIO-1

WETLAND IMPACTS

Impact: **Impact BIO-1: Wetlands**

Class: II

Finding:

a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of the USACE, CDFG, or the RWQCB and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING

The Project site was defined as the area that may be disturbed during construction, including a maximum 100-foot right-of-way, pipe storage yards, staging and laydown areas, and permanent aboveground facilities. The Project has the potential to directly and indirectly impact vernal pools, vernal swales, and vernal pool/vernal swale complexes through alteration of surface hydrology, or subsurface hydrology through disruption of impermeable soil layers. Long-term hydrologic change to vernal pools and other wetlands could result from trenching activities. Temporary impacts to adjacent wetlands and waters of the U.S. could be caused by the interception and detention of groundwater or surface water within excavated trenches, reducing the hydrologic input to adjacent wetlands. Backfill material and methods would affect wetland hydrology by altering surface and subsurface flow.

Of the 796.97 acres of federally jurisdictional wetlands and other waters of the U.S. that occur within the Project study area, up to 65.95 acres (2.17 acres of other waters of the U.S., and 63.55 acres of wetlands) would potentially be disturbed due to construction of the proposed Project.

Specifically, up to 0.04 acre of NRPW, 1.55 acres of RPW, 0.58 acre of TNW (Sacramento River), 0.1 acre of fresh emergent wetland, 0.79 acre of riparian wetland, 0.71 acre of seasonal swale, 6.52 acres of seasonal wetland, 0.1 acre of vernal pool, 0.04 acre of willow riparian, and 55.28 acres of rice would be disturbed.

Of the non-federally jurisdictional water features in the Project study area, approximately 3.07 acres may be subject to CDFG jurisdiction. These features include five irrigation canals (Hungry Hollow Canal, Acacia Canal, and three unnamed irrigation canals), and one agricultural drainage ditch along Line 406. The proposed project has the potential to affect portions of these features.

Of the locations proposed for constructing the six aboveground facilities, two (the Powerline Road Main Line Valve and the Powerline Road Pressure Regulating Station) contain wetlands or water features (see Revised Final EIR Table 4.4-1). Construction of these aboveground stations would result in the permanent conversion of 0.62 acre of jurisdictional rice field.

There are several APMs incorporated into the Project design that reduce potential direct impacts to federal and State jurisdictional wetlands and water, including APM BIO-1,

APM BIO-2, APM BIO-3, APM BIO-5, APM BIO-7, APM BIO-12; APM BIO-13, APM BIO-14, APM BIO-16, APM BIO-17, APM BIO-18, APM BIO-19, APM BIO-20, APM BIO-21, APM BIO-22, APM BIO-23, APM BIO-24, and APM BIO-35. PG&E will consider the locations of sensitive wetland habitats and waterways during final routing and, where possible, the pipeline would be routed to avoid these features. APM BIO-22 stipulates that where wetland and/or vernal pool avoidance is not possible, PG&E will develop and implement a Wetland Restoration and Monitoring Plan that would describe restoration methods and compensatory mitigation. For vernal pool habitat suitable for special-status crustaceans, APM BIO-24 requires that direct, unavoidable impacts be mitigated through preservation and creation of additional habitat at an approved mitigation bank, which is available locally. While implementation of the APMs is required to reduce impacts to wetlands and waters, additional mitigation is necessary to reduce impacts to a less than significant level.

Mitigation Measures for Impact BIO-1: Wetlands

MM BIO-1a. **Wetland Avoidance and Restoration.** PG&E shall avoid, minimize, and/or compensate for damage and/or loss of wetland vegetation types due to pipeline construction activities by completing the following:

- Maximum avoidance of jurisdictional wetlands by fencing wetlands and appropriate buffer zones within 100 foot ROW and a 50-foot wide buffer on either side of the ROW or as determined in consultation with USACE.
- Restricted vegetation removal and topsoil storage and replacement.
- Consultation with the USACE and RWQCB for any unavoidable wetland impacts, obtaining the appropriate permits, and implementation of the conditions of those permits.
- Preparation and implementation of wetlands restoration for any unavoidable impacts to wetlands.
- Supervision and verification of the implementation of these measures by the Environmental Monitor (see APM BIO-6).

Avoidance will consist of fencing any wetlands that are to be avoided within the ROW, including appropriate buffer zones, to minimize impacts to wetland vegetation types. If construction work areas and/or associated overland travel in wetlands in a saturated or ponded condition is unavoidable, all equipment, vehicles and associated construction materials shall be placed on protective mats to avoid soil compaction, such that they do not make direct contact with the wetland. This requirement is not intended for use in dry soils, where the risk of compaction is low. Vegetation clearing and/or installation of mats shall be conducted only from areas scheduled for immediate construction work (within 10 days) and only for the width needed for completion of activities within each active construction area. Mats shall be removed immediately following completion of activities within each active construction area. During pipeline construction, the 12 inches of topsoil shall be salvaged (or less where topsoil is less than 12 inches deep, as verified by the construction monitor), stored in an upland location, and replaced wherever the pipeline is trenched in wetlands. Prior to permit issuance and final design, project construction plans shall depict appropriate measures for topsoil protection and storage that will allow survival of existing seed within the topsoil. Topsoil shall be placed at the surface on top of fill material and not be used to backfill the trench, and excavated trench spoils or excess fill shall be placed on top of the pipeline under topsoil and not dispersed onto the surface of the ROW. Implementation of these measures prior to and during construction will be supervised and verified by the Environmental Monitor (see APM BIO-6).

Unavoidable direct impacts to wetland vegetation types during construction and/or associated overland travel will require consultation with the appropriate jurisdiction (USACE, RWQCB, CDFG) and will likely require a permit. These impacts shall be mitigated by restoration of the affected area to pre-construction conditions in accordance with permits issued by the USACE, RWQCB, and CDFG. Consistent with requirements set forth in permits issued by the USACE, RWQCB, and CDFG for work in wetlands and waters, and with other plans developed for the pipeline construction project, including (but not

limited to) the Restoration and Monitoring Plan (see APM BIO-17), the following procedures shall be implemented:

- A delineation of potentially affected wetlands for any areas not included in the jurisdictional delineation performed by CH2MHill (2008) and Galloway (2007a; 2008a; 2008b).

- A discussion demonstrating how maximum practicable avoidance has been accomplished and why the wetlands proposed to be impacted cannot be avoided.

- Methods proposed for restoring the affected wetlands, including topsoil preservation (inclusive of restoration of an impermeable layer, i.e., hardpan, if approved) and backfilling, soil and grade preparation such that there is no change in pre-construction contours, regionally native seed and/or plant materials to be used and installation methods, and maintenance measures, including weed control (with the exception of work within cropped wetlands, such as rice fields).

- Minimum 1:1 replacement ratio (in-kind, on-site) for area and function of temporarily damaged wetland areas.

- A minimum five-year monitoring program with detailed success criteria regarding species cover, species composition, species diversity, wetland area and depth as compared with pre-construction conditions documented prior to construction by a qualified biologist such that the function of the affected wetland and hydrology is fully restored, the methods and results of which shall be described in the Plan. (These measures and the monitoring program below do not apply to work within cropped wetlands, such as rice fields, since those will be returned to their agricultural crops).

- Annual monitoring over a minimum five-year period to evaluate whether the pipeline installation is substantially altering surface or subsurface flow of water as determined through (1) topographic assessments of the pipeline sites and (2) assessments of vegetation and hydrology conditions within adjacent wetlands (as compared to pre-construction conditions).

- Methods for correcting observed alterations to surface or subsurface flows.
- Annual reporting requirements to responsible agencies.
- Detailed contingency measures in case of restoration failure, as determined by the responsible agencies following the five-year monitoring period, requiring additional off-site wetland creation at a minimum ratio of 2:1 for created wetland acreage or as otherwise determined in the USACE 404 and RWQCB 401 water quality certification.

MM BIO-1b. **Trench Backfill and Topographic Restoration.** The purpose of this measure is to prevent temporary and permanent hydrologic alteration to wetlands and associated sensitive vegetation from backfill activities associated with pipeline installation by requiring:

- Appropriately-timed work so that trenches are not excavated or backfilled during the wet season.
- Preparation and implementation of soil and grade restoration measures including backfill and compaction methods and an annual monitoring program.
- Supervision and verification of the implementation of these measures by the Environmental Monitor.

Prior to construction, responsible agencies (including the RWQCB, CDFG, and USACE) shall evaluate soil and grade restoration measures to be implemented along the ROW. Restoration of wetlands directly impacted by pipeline construction is addressed in MM BIO-1a. To prevent hydrologic impacts to wetlands and associated vegetation resulting from pipeline backfill activities the following procedures shall, at a minimum, be addressed in accordance with any permit conditions issued by responsible agencies:

- Excavation, soil storage and backfill methods to ensure that topsoil returned to the surface and is not be used to backfill the trench, and subsoil is not be dispersed onto the surface.
- Requirements for the separation of topsoil and subsoil in upland storage locations.
- Methods to ensure existing seed survival within stored topsoil.
- Circumstances requiring use of imported soils, proposed source of soil.
- Backfill compaction specifications to ensure that changes in infiltration and lateral flow do not substantially alter subsurface hydrology.
- Specifications for the restoration of pre-construction surface topography to ensure that mounds or berms, due to overfill, or trenches, due to soil settling, are not created that will substantially alter surface hydrology.

Implementation of these measures during and after construction shall be supervised by the Environmental Monitor.

MM BIO-1c. **Riparian Avoidance and Restoration.** PG&E shall avoid, minimize, and compensate for impacts to riparian habitat during construction due to trenching, open cut crossings of streams, and pit excavation for bore crossings of streams by:

- Identification and avoidance of riparian forest by boring under streams where feasible.
- Consultation with CDFG for any unavoidable impacts to riparian vegetation.
- Fencing riparian vegetation within the 100-foot ROW and a 50-foot wide buffer on either side of the ROW or as determined in consultation with CDFG to prevent impacts.

- Preparation and implementation of riparian restoration, including replanting and monitoring elements.

- Supervision and verification of implementation of these measures by the Environmental Monitor.

Riparian habitat within the ROW shall be identified by a qualified ecologist, mapped on construction plans, and where avoidable fenced prior to construction. These areas should be avoided to the maximum extent feasible. If riparian habitat cannot be avoided by boring under the stream, the following impact minimization measures, at a minimum, shall be implemented during construction in accordance with any permit conditions imposed by responsible agencies:

- The work area shall be limited to the minimum necessary and shall be fenced prior to construction.

- Vegetation within the work area shall be cleared in a manner that does not damage the root system of adjacent remaining vegetation.

- The upper 12 inches of topsoil shall be salvaged (or less where topsoil is less than 12 inches deep, as verified by the construction monitor), stored at an upland location, and returned to the surface after trench backfilling is complete.

- Existing vegetation shall be cleared only from areas scheduled for immediate construction work (within 10 days).

The Environmental Monitor shall supervise compliance with these protective measures prior to and during construction activities.

Unavoidable direct impacts to riparian vegetation during construction will require consultation with the appropriate jurisdiction (CDFG) and will likely require a permit (portions of riparian habitat, specifically riparian wetland and willow riparian, are federally jurisdictional wetlands and impacts to these areas would need to be addressed in consultation with USACE). These impacts shall be mitigated by restoration of the affected area to pre-construction conditions in

accordance with permits issued by CDFG. A qualified ecologist shall dictate the following procedures to ensure that they will be consistent with any additional permit conditions imposed by CDFG and other State or federal agencies. If a tree within the riparian forest to be removed qualifies as a Protected Tree under the local jurisdiction, MM BIO-2a and 2b shall be applied and any mitigation standards shall default to the one requiring the higher standard. Riparian habitat removal shall not be permitted until the following procedures are documented:

- Identification of proposed riparian habitat removal (and subsequent restoration) locations from CH2MHill and Galloway Consulting, Inc. Jurisdictional Delineation Reports (see Appendix E-1).
- A discussion demonstrating how maximum avoidance has been accomplished and why the riparian habitat proposed for removal cannot be avoided.
- Methods to restore streambanks to pre-construction conditions.
- Discussion of appropriate replacement ratios (in accordance with issued permit conditions, or, at a minimum, a 1:1 replacement ratio of habitat acreage and at least 3:1 replacement ratio of the number of trees and shrubs present prior to construction).
- Proposed native tree and shrub species matching pre-construction conditions, where appropriate. (Pre-construction conditions may include undesirable non-native species, and therefore matching those conditions will not always be appropriate).
- Proposed understory native seed mix composition and application methods.
- Planting methodology, including spacing and proper timing of plant installation.
- Description of protective staking and caging measures for installed plants.

- Description of irrigation and plant maintenance regime.
- Description of five-year monitoring effort to measure replacement success.
- Success criteria (including survival rates and habitat function as compared to pre-construction conditions) and contingency measures for off-site habitat creation in case of mitigation failure.
- Submission of an annual monitoring report to responsible agencies evaluating mitigation success.

Successful implementation of the riparian restoration procedures shall be evaluated five years after all human support (e.g., replanting, fertilization, irrigation) has ceased. At that time, a report shall be submitted to the responsible agencies summarizing the results and a determination will be made by these agencies as to whether continued monitoring is required and/or whether implementation of contingency measures is required.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. BIO-2

VEGETATION IMPACTS

Impact: **Impact BIO-2: Reduce or Alter Vegetation**

Class: II

Finding:

a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of the CDFG and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING

Temporary impacts to upland vegetation communities such as annual grassland / ruderal (134.16 acres), riparian woodland (1.04 acres), valley oak woodland (0.59 acre), orchard (22.75 acres), irrigated row and field crops (238.86 acres), and developed/disturbed areas (118.05 acres) would occur due to vegetation removal within the 100-foot right-of-way during grading, trenching, pit excavation, and staging.

Based on conservative estimates made using recent aerial photography (NAIP 2005), approximately 206 trees occur within the Project site and would be removed to accommodate project construction within the temporary and permanent rights-of-way. An additional 1,967 trees occur within 250 feet of the Project site, some of which may require removal or pruning/trimming in order to construct the Project. None of these trees are designated as Heritage or Landmark trees (Sacramento County Code Chapter 19.12 (Kent Reeves, Principal Natural Resources Planner, personal communication; Breann Sober, Planner, personal communication). However, these trees would be directly and/or indirectly impacted by Project construction. Direct and indirect impacts to native oak trees within the Project site would conflict with both state and county protection ordinances. In addition, the Project passes through a small, mature valley oak woodland. This is a rare habitat type and is suitable for nesting by a variety of raptor species, including Swainson's hawk.

APM BIO-4 limits the area within which vegetation can be removed during construction, and APM BIO-17 requires PG&E to prepare a Restoration and Monitoring Plan to address post-construction vegetation. While these APMs reduce impacts to treed habitats, additional mitigation measures are necessary to reduce impacts to a less than significant level.

<u>Mitigation Measures for Impact BIO-2: Reduce or Alter Vegetation</u>

MM BIO-2a. **Tree Avoidance and Replacement.** PG&E shall avoid, minimize, and compensate for impacts to trees, including those protected by local ordinances, by:

- Pre-construction identification (including species, size, and condition of trees), fencing and avoidance of trees to the maximum extent during construction within the 100-foot ROW and a 50-foot wide

buffer on either side of the ROW or as determined in consultation with CDFG.

- Consultation with local jurisdiction if unavoidable impacts to locally protected trees ("Protected Trees") are likely to occur.
- Development and implementation of a Tree Replacement Plan for loss and/or significant damage to trees.
- Supervision and verification of the implementation of these measures by the Environmental Monitor.

The initial step for this measure shall be to determine the size and location of all trees located within and adjacent to the project right-of-way, work areas, staging areas, and launcher/receiver stations. These trees will be then assessed by a qualified arborist to identify and map Protected Trees. If it is determined that the project will trim, remove, or damage the roots of Protected Trees, avoidance measures shall be taken. Avoidance will consist of installing protective fencing around the dripline of any Protected Tree. All construction activities, including excavation, grading, leveling, and disposal or deposition of harmful materials will be prohibited inside the dripline fence. Attachment of wires, ropes, or signs to Protected Trees shall also be prohibited. The approved Environmental Monitor shall supervise compliance with these protective measures prior to and during construction activities.

If trimming, removal or root damage to a Protected Tree is unavoidable, the appropriate jurisdiction will be consulted. Further actions may require a permit that will include fees and/or replacement for affected trees. For example, Placer County's permit application requires, in part, a site plan map, an arborist report, and a justification statement. Mitigation measures are required for trees designated to be saved that are located within 50 feet of any development activity. Permit approval may require replacement of trees removed, implementation of a revegetation plan, or payment into a tree preservation fund.

Proposed trimming or other damage to Protected Trees along the proposed route shall be evaluated by a qualified arborist, who shall identify appropriate measures to minimize tree loss and shall supervise all associated activities in accordance with permit conditions issued by the responsible jurisdiction.

If the Proposed Project requires removal of trees (Protected Trees or others), a qualified forester, arborist, or restoration ecologist shall evaluate the tree replacement procedures to ensure that the replacement will be consistent with applicable local jurisdiction requirements, such as the Placer County Tree Ordinance, and with additional permit conditions imposed by the local agency (e.g., local oak tree protection requirements). Within Yolo County, consultation with the Natural Communities Conservation Plan / Habitat Conservation Plan Joint Powers Agency manager prior to the removal or disturbance of trees or vegetation and before construction of above ground facilities is required to ensure tree removal does not conflict with the Natural Heritage Program and Swainson's Hawk Interim Mitigation requirements. Additional mitigation may be required by CDFG for impacts to riparian trees (refer to MM BIO-1c). Tree removal shall not be permitted until a qualified forester, arborist, or restoration ecologist has reviewed the following procedures (see also MM BIO-2b):

- Identification of proposed tree removal locations, including suitable Swainson's hawk nest trees that cannot be avoided.
- A discussion demonstrating how maximum avoidance has been accomplished and why the trees proposed for removal cannot be avoided.
- Discussion of appropriate tree replacement ratios, as defined by the local jurisdiction, or, at a minimum, a 3:1 replacement to removed/impacted ratio for non-protected trees. Removed potential Swainson's hawk nesting trees will be replaced at a minimum 3:1 ratio to offset the temporary loss of nesting habitat associated with the loss of mature trees, and the significant amount of time required

for mitigation plantings to attain similar canopy size as those trees removed.

- Identification of suitable tree replacement locations within or immediately adjacent to the original tree impact area.
- Tree species and size specifications. Potential Swainson's hawk nesting trees that are removed shall be appropriately mitigated for with a mix of native tree species typical of those utilized by Swainson's hawk for nest sites (valley oak, cottonwood, sycamore, black walnut, willow).
- Proposed understory native seed mix composition and application methods.
- Planting methodology, including spacing and proper timing of plant installation.
- Description of protective staking and caging measures.
- Description of irrigation and plant maintenance regime.
- Description of five-year monitoring effort to ensure 100 percent survival of replacement trees.
- Success criteria (including survival rates) and contingency measures in case of mitigation failure.
- Submission of an annual monitoring report to responsible agencies evaluating mitigation success.

Successful implementation of tree replacement shall be evaluated five years after all human support (e.g., replanting, fertilization, irrigation) has ceased. At that time, a report shall be submitted to CDFG, if requested, summarizing the results. A determination will be made by these agencies as to whether continued monitoring is required and/or whether contingency measures are required.

MM BIO-2b. **Avoidance of Valley Oak Woodland.** Direct and indirect impacts to the valley oak woodland located adjacent to State Route 113 would be minimized by employing trenchless excavation techniques through this area. Trenchless techniques shall be implemented west of the valley oak woodland at the point where the right-of-way (ROW) enters the dripline of the woodland. Trenchless techniques can be terminated only when the ROW exits the dripline of the woodland in the east. Either guided or unguided trenchless techniques can be employed.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. BIO-3

INVASIVE SPECIES IMPACTS

Impact: **Impact BIO-3: Invasive Species or Soil Pests**

Class: II

Finding:

a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of the California Department of Food and Agriculture (CDFA), Control and Eradication Division, and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING

Construction-related disturbance of habitats could allow invasion of weeds. Weeds are non-native opportunists that have developed reproductive features that give them a competitive advantage over many native plants. The introduction or expansion of exotic species is deleterious to native vegetation types. The introduction or expansion of exotic species may cause an impact to native species in the Project study area.

New, invasive aquatic species are not anticipated to be introduced to any wetlands or waterways as a result of Project construction. Due to limited staging requirements, invasive aquatic vegetation and animals would not be expected to be conveyed via construction vehicles or personnel working within wetlands and waterways. No construction vehicles or personnel would be working within any areas that contain invasive aquatic species that could potentially be introduced into the Project area from offsite sources.

Implementation of APM BIO-5, APM BIO-16, APM BIO-17, APM BIO-18, APM BIO-22, and MM BIO-3 include measures that would ensure that direct and indirect impacts to habitat are avoided and minimized to the maximum extent feasible. Required long-term maintenance would ensure that invasive species remain absent from restored areas throughout the course of the effort.

Mitigation Measures for Impact BIO-3: Invasive Species or Soil Pests

MM BIO-3. **Prepare and Implement an Invasive Species Control Program.** Prior to Project initiation, all construction equipment shall be cleaned to remove potential soil and/or water-borne contaminants before the equipment comes onto the Project site and again if the equipment is used off-road before returning to the Project site. Equipment shall be made available for inspection by any State or county agricultural officials upon request. The California Department of Food and Agriculture, Control and Eradication Division shall be notified before equipment crosses into the state (if equipment for the Project is coming from outside of California) and county agricultural commissioners shall be notified before equipment enters their counties.

Plant materials and mud shall be cleaned from construction equipment regularly in a controlled area to avoid the spread of noxious weeds in sensitive areas (prime agricultural land, special native plant communities, and rare plant habitats).

Weed management procedures will be developed and implemented to monitor and control the spread of weed populations along the pipeline.

The following measures shall be implemented to control the introduction of weed species within areas disturbed during pipeline

construction; implementation of these measures during construction will be verified by the Environmental Monitor:

- Vehicles used in pipeline construction will be cleaned prior to operation off maintained roads.
- Existing vegetation shall be cleared only from areas scheduled for immediate construction work (within 30 days for agricultural areas and other non-sensitive habitat features and within 10 days for wetlands and riparian areas) and only for the width needed for completion of activities within each active construction area.
- During pipeline construction, the upper 12 inches of topsoil (or less depending on existing depth of topsoil, as verified by the construction monitor) shall be salvaged and replaced wherever the pipeline is trenched through open land (not including graded roads and road shoulders).
- Disturbed soils shall be revegetated with an appropriate seed mix that does not contain weeds.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. BIO-4

HABITAT AND SPECIAL-STATUS SPECIES IMPACTS

Impact: **Impact BIO-4: Habitat Removal or Loss of Special-Status Species**

Class: II

Finding:

a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of the USFWS and CDFG, and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING

Twenty-nine special-status wildlife species were identified as having a moderate or high likelihood of occurring within the Project study area and being impacted by Project construction.

Construction of the Project has the potential to impact intact vernal pool, vernal swale, and vernal pool/vernal swale complex habitat suitable for several special-status species, including western spadefoot toad and listed vernal pool branchiopods. Implementation of MM BIO-1a would reduce impacts to this habitat and the wildlife species that inhabit it. Implementation of APM BIO-24 would also reduce impacts to vernal pool branchiopods.

The Project has the potential to impact the valley elderberry longhorn beetle. Although no individuals were observed during protocol-level surveys, 23 elderberry shrubs are located within 100 feet of the Project site and exit holes were identified in several shrubs located just west of the Sacramento River.

The larger canals, sloughs and creeks throughout the Project study area provide habitat for western pond turtle, and habitat for California tiger salamander is present in the ephemeral pools and waterways and adjacent upland habitats.

The Project would traverse areas designated as Mitigation Lands by the Natomas Basin Conservancy. The Project would also traverse the Sacramento River Ranch Conservation Bank, which is owned and operated by Wildlands, Inc. Implementation of APM BIO-25 through APM BIO-28 would reduce impacts to these lands.

Installation of the pipeline has the potential to significantly impact Swainson's hawk nesting habitat. There are several large, native trees within the Project site, many of which have recorded occurrences of nesting by Swainson's hawk. Implementation of MM BIO-2a and MM BIO-2b would reduce impacts to avoided native trees. APM BIO-29 and APM BIO-30 would also reduce impacts to nesting bird species.

Western burrowing owl was observed during surveys and has a high potential to forage and nest throughout the open grasslands and agricultural areas within the Line 406 and Line 407 West segments. Implementation of APM BIO-31 through 35 would reduce impacts to burrowing owl.

Three bat species have potential to roost and forage in the Project site. Implementation of MM BIO-1c, MM BIO-2a, and MM-BIO-2b would reduce impacts to bat species.

American badger has the potential to occur within the proposed alignment for Line 406 West near the Dunnigan Hills.

Numerous bird species, including those protected under the Migratory Bird Treaty Act, have the potential to nest and forage in the Project study area. Temporary loss of foraging habitat is not considered a significant impact because implementation of MM BIO-1a, BIO-1b, BIO-1c, BIO-2a, and BIO-2b would ensure that disturbed habitats are returned to pre-construction conditions. However, impacts to nesting species would be potentially significant (Class II). Implementation of APM BIO-29 and BIO-30 would reduce impacts to nesting species.

Implementation of MM BIO-4a through BIO-4d are required to reduce impacts to less than significant.

Mitigation Measures for Impact BIO-4: Habitat Removal or Loss of Special-Status Species

MM BIO-4a. **Protect Special-status Wildlife.** Where construction will occur within or near known or potential special-status species habitat, PG&E shall perform the actions defined in the following paragraphs.

General Wildlife Protection During Construction. PG&E shall provide all excavated, steep-walled holes and trenches in excess of three feet in depth with one or more escape ramps constructed of earthen fill or a wood/metal plant. If wildlife-proof barricade fencing is available, it will also be used where appropriate. Escape ramps shall be less than a 45 degree angle. Trenches and pits shall be inspected for entrapped wildlife each working day before construction activities resume. Before such pits and trenches are filled, they shall be thoroughly inspected for entrapped animals. If any wildlife species are discovered, they should be allowed to escape voluntarily, without harassment, before construction activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded. All construction pipes, culverts, or similar structures that are stored at a construction site overnight shall be thoroughly

inspected for trapped animals before the pipe is buried, capped, or otherwise used or moved. Pipes laid in trenches overnight shall be capped. If an animal is discovered inside a pipe, that section of the pipe shall not be capped or buried until the animal has escaped. PG&E shall not use plastic mono-filament netting (erosion control matting) or similar material because amphibians and snakes may become entangled or trapped in it. Acceptable substitutes include coconut hair matting or tackified hydroseeding compounds.

Valley Elderberry Longhorn Beetle. Prior to initiating construction, focused surveys for elderberry shrubs will be conducted within any areas not included in the Valley Elderberry Longhorn Beetle Survey performed by Galloway Consulting, Inc. (2007f) (Appendix E-11).

Elderberry shrubs shall be avoided to the greatest extent feasible. According to the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999), complete avoidance is assumed when a 100-foot (or wider) buffer is established and maintained around elderberry shrubs. PG&E biological surveys indicate that the pipeline route will not come closer than 30 feet to any elderberry shrub, and the buffer zones in Temporary Use Areas will be coordinated with the USFWS. For all shrubs that would be avoided, the following measures are required:

1. Protective fencing shall be erected around each elderberry shrub or group that would be avoided that occurs within the 100-foot ROW and a 50-foot wide buffer on either side of the ROW, unless USFWS requires additional fencing. The fencing shall be located no greater than 100 feet from the greatest dripline of the shrub.

2. Contractors shall be briefed on the need to avoid damage to elderberry shrubs and the possible penalties for not complying with requirements. In addition, work crews shall be instructed on the status of the beetle and the need to protect its host plant.

3. Signs shall be erected every 50 feet along the edge of the avoidance areas with the following information: “This area is

habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be readable from a distance of 20 feet and must be maintained for the duration of construction.

For any activities that inadvertently impact avoided elderberry shrubs, the following measures are required:

1. Restore any damage done to the buffer area. Provide erosion control and revegetate with native plants.

2. No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant shall be used in the buffer areas during either construction or maintenance activities.

3. Mowing to reduce fire hazard may occur from July through April. No mowing should occur within 5 feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants.

The USFWS must be contacted if encroachment within the 100-foot buffer is expected, and Section 7 Federal Endangered Species Act consultation is required if elderberry bushes will be disturbed as a result of project activities. Typically, the USFWS requires a minimum setback of at least 20 feet from the dripline of each elderberry plant. If complete avoidance of elderberry plants is not possible, transplantation may be necessary as prescribed by the Guidelines. However, at the discretion of the USFWS, a plant that would be extremely difficult to move because of access problems may be exempted from transplantation (USFWS 1999). Planting of additional seedlings or cuttings may be required under the mitigation guidelines, depending upon the absence or percentage of elderberry plants with emergence holes found in the project area. The Conservation Guidelines require that each elderberry stem measuring 1 inch or greater in diameter that is impacted must be replaced, and additional native species planted. Replacement ratios for replaced shrubs and planting of native species

varies depend on the diameter of the stems impacted and whether or not they are located in a riparian area. Mitigation shall occur in accordance with the mitigation ratios outlined in the guidance, and shall be approved by USFWS prior to Project implementation.

Western Pond Turtle. Where construction is to occur near known or potential habitat for western pond turtle (i.e., pipeline water crossing and near ponds), pre-construction surveys shall be conducted to determine the presence or absence of this species. If pond turtles are observed, a determination shall be made in consultation with CDFG as to whether or not construction will adversely impact this species and what measures shall be implemented. Potential impacts to this species shall be minimized through implementation of the proposed water crossing techniques (HDD, bore) outlined in Table 2-5.

California Tiger Salamander. Where construction is to occur near known or potential habitat for California tiger salamander (i.e., ephemeral pools and waterways and adjacent upland habitats), pre-construction surveys shall be conducted to determine the presence or absence of this species. If California tiger salamanders are observed, a determination shall be made in consultation with CDFG as to whether or not construction will adversely impact this species and what measures shall be implemented.

Swainson's Hawk. If project activities will occur during the breeding period (February 15 to September 15) qualified biologists shall conduct pre-construction surveys within a 0.5 mile radius of the project right-of-way, within 15 days prior to construction. If any occupied Swainson's hawk nests are found within 0.5 mile that could potentially be impacted by construction activities, a no-construction buffer zone of at least 0.25 mile will be maintained by construction personnel at all times around any occupied Swainson's hawk nest tree. These no-construction buffer zones will be clearly delineated, with construction personnel instructed to maintain all construction activities and staging areas outside of the 0.25 mile buffer until all Swainson's hawk young have fledged, as verified by CDFG. Swainson's hawk nest sites within 0.5 mile of active construction will be monitored by a qualified biologist to

evaluate whether the construction activities are disturbing nesting hawks. If the nesting birds appear distressed, the monitor shall halt all construction activities within 0.5 mile of the nest site and CDFG will be contacted to identify appropriate contingency measures. PG&E will implement any additional necessary protection measures as required by the CDFG in the Section 2018 Incidental Take Permit, to prevent nest abandonment or forced fledging as a result of Project activities. If construction occurs between September 15 and February 15, no pre-construction surveys or other mitigation measures for Swainson's hawk will be necessary.

American Badger. Pre-construction surveys for burrows suitable for American badger shall be conducted within suitable habitat along the proposed alignment for Line 406 West near the Dunnigan Hills no more than 30 days prior to initiation of ground disturbing activities. If no burrows are identified, no additional mitigation is required. If suitable burrows are identified, they shall be mapped and CDFG shall be consulted to determine the avoidance measures necessary to prevent direct impacts to this species.

MM BIO-4b. **Mitigation for Potential Impacts to Natomas Basin Conservancy Mitigation Lands.** Prior to Project construction, PG&E shall provide a detailed Project Description to the Natomas Basin Conservancy and shall discuss with the Conservancy the potential for impacts to Mitigation Lands. The following mitigation is required for project implementation:

1. Under APM BIO-16 and APM BIO-17, PG&E shall ensure that Mitigation Lands are restored to pre-construction conditions;

2. No tree located on Mitigation Lands or with canopy extending into Mitigation Lands and that is suitable for nesting by Swainson's hawk shall be directly or indirectly impacted by Project construction; and

3. If the above measures cannot be met, PG&E shall notify CDFG and the Natomas Basin Conservancy, and shall implement MM BIO-1,

BIO-2, and BIO-4a and any other measures determined by CDFG and the Natomas Basin Conservancy to be required to protect resources. If agreements regarding mitigation of impacts to resources within the Conservancy cannot be reached, PG&E shall implement Alternative Option H, which avoids Natomas Basin Conservancy Mitigation Lands (Figure 3-2).

MM BIO-4c. **Mitigation for Potential Impacts to Sacramento River Ranch Conservation Bank Mitigation Lands.**

1. Under APM BIO-16 and APM BIO-17, PG&E shall ensure that Mitigation Lands are restored to pre-construction conditions;

2. No tree located on Mitigation Lands or with canopy extending into Mitigation Lands and that is suitable for nesting by Swainson's hawk shall be directly or indirectly impacted by Project construction;

3. Project construction shall not directly or indirectly impact wetlands located in the wetlands mitigation area; and

4. If the above measures cannot be met, PG&E shall notify CDFG and the Sacramento River Ranch, and shall implement MM BIO-1, BIO-2, and BIO-4a and any other measures determined by CDFG and the Sacramento River Ranch to be required to protect resources. If agreements regarding mitigation of impacts to resources within the Sacramento River Ranch cannot be reached, PG&E shall implement Alternative Option H, in consultation with Sacramento River Ranch, which crosses only a very small corner of Sacramento River Ranch Conservation Bank (Figure 3-2).

MM BIO-4d. **Protect Special-status Bird Species.** Where construction is proposed to occur near riparian or wetland habitats (e.g., riparian wetland, willow riparian) that support special-status bird species, PG&E shall limit construction periods to outside the respective breeding season of the affected species.

- Tricolored Blackbird, western yellow-billed cuckoo, loggerhead shrike, bank swallow. Within 15 days prior to construction between

February 15 and September 15, for project activities within 250 feet of potential nesting habitat of the tricolored blackbird, western yellow-billed cuckoo, loggerhead shrike, and bank swallow, pre-construction surveys shall be conducted to determine the presence of nesting birds. If pre-nesting or nesting activity is identified, a determination shall be made in consultation with CDFG as to whether or not construction will adversely impact nesting birds. If it is determined that construction will impact nests or nesting behavior, construction within 250 feet of the nesting locations shall be delayed until juvenile birds have fledged. The 250-foot buffer is considered an initial guideline that may be modified at specific sites following consultation with CDFG.

Protect Raptor Nests. PG&E shall avoid disturbance to active raptor nests at all locations. Pre-construction surveys shall be performed in all areas to identify potential raptor nesting sites within or near the ROW.

No pre-construction surveys shall be required if construction activities are to occur only during the non-breeding season (September 15 through February 15). If, however, construction activities are scheduled to occur during the breeding season (February 15 through September 15), within 15 days prior to construction, pre-construction surveys of all potentially active nest sites within 500 feet of the construction corridor shall be conducted in areas that may potentially have nesting raptors, including ground nesting raptor species such as northern harrier and short-eared owl. If surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation shall be required.

If active nests are found, a 500-foot, no-disturbance buffer shall be established around the active nest(s). The size of individual buffers can be adjusted, following a site evaluation by a qualified raptor biologist, which shall depend upon the presence of topographical features that obstruct the line of site from the construction activities to the nest or observations of the nesting pair during construction based on the level of ongoing disturbance (e.g., farming activities or road

traffic) and the observed sensitivity of the birds. Site evaluations and buffer adjustments shall be made in consultation with the local CDFG representative. The portion of the project that is within the designated buffer shall be identified in the field by staking and flagging.

Consultation to Minimize Impacts. If avoidance of sensitive wildlife species habitat is not feasible (e.g., by modifying the route or boring), PG&E shall develop appropriate mitigation in consultation with the resource agencies (CDFG and USFWS). No construction activity shall be permitted until the applicable resource agencies determine that the proposed mitigation (in the Biological Opinion) will result in less than significant impacts to the affected species.

Summary. With the mitigation described above, the impacts are reduced to less than significant levels.

CEQA FINDING NO. BIO-5

SPECIAL-STATUS PLANT SPECIES IMPACTS

Impact: **Impact BIO-5: Construction Impacts on Special-status Plant Species**

Class: II

Finding:

a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of the CDFG or USFWS, and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING

There are 23 special-status plant species that have the potential to occur within the areas crossed by Option A. Construction and related activities causing direct impacts to special-status plant species or its habitat would be considered potentially significant (Class II). Implementation of MM BIO-5, requiring appropriately timed pre-construction

surveys to map and flag locations supporting these species (if located) for avoidance during construction, would reduce this impact to less than significant levels.

Alternative Option I would include the Mitigation Measure for Impact BIO-5: Special-status Plant Species

MM BIO-5. **Rare Plant Avoidance.** PG&E shall avoid impacts to special-status plant species by:

- Having a qualified biologist conduct habitat classification surveys along unsurveyed portions of the alignment.
- Conducting pre-construction surveys during the appropriate flowering period for special-status plant species with potential to occur within un-surveyed locations of the proposed right-of-way.
- Flagging, mapping, and fencing to protect any special-status plant species within the 100-foot-wide right-of-way and a 50 foot-wide buffer zone on each side of the right-of-way during construction.

Prior to construction, the location of special-status plant species will be determined through appropriately-timed surveys according to established botanical protocol (e.g., CNPS, CDFG). Determination of potential habitat for rare species, and surveys conducted for presence of rare plant species will be performed by a qualified botanist. These surveys will be appropriately timed to cover the blooming periods of the special-status plant species with the potential to occur in the area.

Any rare plant species within the study area (including the 100 foot-wide right-of-way and a 50 foot-wide buffer zone on each side of the right-of-way, work areas, staging areas, and/or launcher/receiver stations), excluding areas adjacent to the 100 foot right-of-way where access permission has not been granted by landowners, will be flagged, accurately mapped on construction plans, and fenced to protect the area occupied by the species during construction, per APM BIO-3.

Compliance with these measures prior to and during construction will be supervised and verified by the Environmental Monitor per APM BIO-6.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. PALEO-1

FOSSIL IMPACTS

Impact: **Impact PALEO-1: Fossils**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

The Project transects a relatively flat area in the Central Valley where five sedimentary rocks units, and some Sierra basement rocks, are mapped. Project construction or operation could result in damage or loss of vertebrate or invertebrate fossils that are considered important by paleontologists and land management agency staff.

Upon implementation of APM CR-1 through CR-5 and APM PALEO-1 through PALEO-5, all significant fossils that would otherwise have been adversely impacted by the Project would have been salvaged and removed from the Project site. Further mitigation is required for proper curation of any fossil.

Mitigation Measures for Impact PALEO-1: Fossils

MM PALEO-1. **Proper Curation of Fossil Collection.** The Project paleontologist shall ensure that the fossil collection is properly curated to the point of identification and complete a data recovery report that includes a map plotted with fossil localities and detailed lists or tables of all specimens and localities.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. PALEO-2

SCIENTIFIC OR EDUCATIONAL VALUE OF PALEONTOLOGICAL RESOURCES

Impact: **Impact PALEO-2: Scientific or Educational Value**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

The Project transects a relatively flat area in the Central Valley where five sedimentary rocks units, and some Sierra basement rocks, are mapped.

Because of the infrequency of fossil preservation, fossils (particularly vertebrate fossils) are considered to be nonrenewable resources. Because of their rarity and the scientific information they can provide, fossils are highly significant records of ancient life. Upon implementation of APM CR-1 through CR-5 and APM PALEO-1 through PALEO-5, all significant fossils that would otherwise have been adversely impacted by the Project would have been salvaged and removed from the Project site. Further mitigation is required for proper delivery of any fossil to an accredited repository.

Mitigation Measures for Impact PALEO-2: Scientific or Educational Value

MM PALEO-2. **Delivery of Fossil Collection to Appropriate Location.** The Project paleontologist shall ensure that the fossil collection, with a copy of the report, is delivered to an accredited paleontological repository, such as the University of California Museum of Paleontology (UCMP) in Berkeley. Any artifacts found on lands under the jurisdiction of the CSLC are considered the property of the state of California. Any disposition of these artifacts requires the approval of the CSLC and a potential transfer of title will be required.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. GEO-1

HABITAT AND SPECIAL-STATUS SPECIES IMPACTS

Impact: **Impact GEO-1: Known Earthquake Faults / Ground Motion**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

Seismicity (which includes active faults, ground shaking, and soil liquefaction) is the primary geologic hazard that could affect the proposed Project facilities. A portion of the proposed Project pipeline facilities would be located in a seismically active region. Three faults are identified crossing the proposed pipeline alignment, the Great Valley, Dunnigan Hills, and Willows faults. All three faults are believed to exist at depth and do not reach the surface. The Great Valley and Dunnigan Hills faults are considered active.

Due to the regional tectonic setting, the Project area is subject to ground shaking due to earthquakes. Historically, the area has experienced a low to moderate seismicity. The Project could be exposed to ground motion due to a seismic event or any resulting phenomenon such as liquefaction or settlement that could substantially damage structural components.

Mitigation Measure for Impact GEO-1: Site Specific Seismic Analysis

MM GEO-1 Site Specific Seismic Analysis

During the detailed design phase for the proposed project, PG&E shall perform a site specific field investigation, including, but not limited to, geophysical investigation, such as seismic surveys. The report of field investigation certified by a California certified engineering geologist shall be submitted to CSLC for review and comments. The field investigation would determine whether any engineering/design solutions are needed to mitigate against any hazards of seismic displacements along the fault crossings. If the field investigation

determines the presence of any active faults in project location, then the following shall be completed:

PG&E shall determine the engineering/design solutions that are appropriate to mitigate against the hazard of seismic displacements along any active faults.

PG&E shall develop a computer model to determine the soil-pipe interaction with the proposed applied displacement. The model would evaluate various combinations of pipe wall thickness and pipe grade to determine which pattern yields the best performance under displacement conditions. The design shall also incorporate additional methods as necessary.

PG&E shall design the proposed pipelines and any other proposed facilities using current industry standards for seismic-resistant design for seismic wave propagation in liquefaction-prone areas.

PG&E shall provide a copy of the final design, as well as any related geotechnical information, to the CSLC before construction of the proposed Project.

A certified engineering geologist shall observe the construction excavation in the vicinity of the fault crossings to verify the presence or absence of surface deformation due to fault movement displacement. If the certified engineering geologist determines there is the presence of fault movement under the proposed project alignment, then PG&E shall modify the design of the pipeline in that area.

To determine the traveling wave effects, PG&E shall develop calculations for the pipeline bending stresses due to traveling seismic waves in long straight runs of the pipeline using industry accepted procedures (American Lifelines Alliance “Guidelines for the Design of Buried Steel Pipe”, PRCI “Guidelines for the Seismic Design and Assessment of Natural Gas and Liquid Hydrocarbon Pipelines”, and ASCE “Guidelines for the Seismic Design of Oil and Gas Pipeline Systems”).

To determine the effect of liquefaction, PG&E shall undertake buried pipeline deformation analysis to assess the effects of liquefaction-induced permanent ground displacements for various scenarios. The various scenarios will be dependent on soil conditions and depth of cover, pipe-soil spring properties, amplitude and distribution of the ground displacement profile due to liquefaction and the location of any significant geometry change features along the alignment in the areas of interest. The maximum pipe tension and compression strains developed in the analysis models will be compared to appropriate strain limits (PRCI "Guidelines for the Seismic Design and Assessment of Natural Gas and Liquid Hydrocarbon Pipelines") to develop a demand vs. capacity assessment.

If the analysis yields results below the designed pipelines specified minimum yield strength, the analysis will be summarized and concluded. If the stresses are above the SMYS, further review will be required. Further review may include reviewing the current pipeline design criteria or performing further site-specific seismic field investigations.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. HAZ-1

EMERGENCY PLANS / WILDLAND FIRE IMPACTS

Impact: **Impact HAZ-1: Emergency Plans/Wildland Fires**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; but could expose people or

structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

During pipeline construction, the greatest potential for fire hazard comes from welding activities and using internal combustion engines or sparking equipment in grass covered areas along the Project route. The CDF regulations and local ordinances would reduce to the risk of grass fires. APM HAZ-6 and APM HAZ-8 would not adequately reduce construction impacts to a less than significant level because there are insufficient details in APM HAZ-6 and APM HAZ-8 to ensure that potential impacts would be minimized. As a result, MM HAZ-1 is required to be implemented during construction activities to reduce the impact of wildland fires to a less than significant level.

Mitigation Measures for Impact HAZ-1: Emergency Plans/Wildland Fires

MM HAZ-1. **Minimize Risk of Fire.** During all construction activities, PG&E shall implement the following:

- Maintain all areas clear of vegetation and other flammable materials for at least a 50-foot-radius, or to the outside edge of the permanent right-of-way or the temporary use area if a 50-foot radius would extend beyond the limit of the land rights obtained to support construction, of any welding or grinding operations, or the use of an open flame;

- Spray nearby vegetation with water, using a water truck or other suitable equipment, prior to any welding or grinding operations or the use of an open flame;

- All equipment, gasoline-powered hand tools, and vehicles shall be equipped with spark arresters;

- Equip all vehicles entering the right-of-way, welding trucks or rigs with minimal fire suppression equipment (e.g., ax, bucket, 5-pound fire extinguisher, shovels, etc.);

- Park vehicles equipped with catalytic converters only in cleared areas;

- Maintain at least one half-full water truck or water tanker at each rural work site during all periods of work and for one-hour after all work has ceased for the day; and

- Require the contractor to use dedicated fire watch during all hot work within existing operational stations (e.g., Capay or Yolo Station).

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. HAZ-2

SYSTEM SAFETY IMPACTS

Impact: **Impact HAZ-2: System Safety and Risk of Serious Injuries and Fatalities Due to Project Upset**

Class: III

Finding: No Finding is required (Class III)

DISCUSSION

Natural gas could be released from a leak or rupture. If the natural gas reached a combustible mixture and an ignition source was present, a fire and/or explosion could occur, resulting in possible injuries and/or deaths.

Probability of a Pipeline Release: A fire could result from a natural gas release with two conditions present: 1) a volume of natural gas must be present within the combustible mixture range (5% to 15% methane in air); and 2) a source of ignition must be present with sufficient heat to ignite the air/natural gas mixture (1,000 degrees F). In order for an explosion to occur, a third condition must be present: the natural gas vapor cloud must be confined, to a sufficient degree.

Over the life of the pipeline, the probability of a pipeline release that would result in a fire varies from 3.2% for a rupture to 7.5% for a puncture (1-inch diameter hole); while the probability of a pipeline release that would result in an explosion varies from 2.0% for a rupture to 4.7% for a puncture. The probability of a puncture or rupture over the 50-year life of the pipeline is very low.

Societal Risk: Societal risk is the probability that a specified number of people will be affected by a given event. Several release scenarios were used that could impact both building occupants and vehicle passengers.

The California Department of Education (CDE) uses a simplified approach for evaluating the risk to the student population. The CED uses two calculated parameters: an average individual risk across the depth of the campus site, and a site population risk indicator parameter. The CED does not specify numerical criteria of acceptability or unacceptability for these indicators (CDE Guidance Protocol for School Site Pipeline Risk Analysis, 2007).

The threshold values for societal risk vary greatly, depending on the agency or jurisdiction. There are no prescribed societal risk guidelines for the United States or the State of California. The Committee for the Prevention of Disasters and the Netherlands use an annual probability of 1.0×10^{-3} (1:1,000) or less. This criteria has been used to evaluate the proposed project.

The societal risk posed by the proposed project is less than the significance threshold of 1:1,000 or less.

Individual Risk of Serious Injuries or Fatalities: As stated above, the probability of a release over the 50-year life of the pipeline is very low. The individual risk is defined as the frequency that an individual may be expected to sustain a given level of harm from the realization of specific hazards, at a specific location, within a specified time interval (measured as the probability of a fatality per year). During operation, there would be individual risks to building occupants, residential, commercial, and school sites, as well as to vehicle occupants if a release from the pipeline were to happen. The individual risk significance threshold used in the Revised Final EIR is an annual likelihood of one in one-million (1:1,000,000) for fatality (used by the California Department of Education for school sites). The risk level is typically determined for the maximally exposed individual (assumes that a person is present continuously—24 hours per day, 365 days per year).

The highest risk along a segment of pipeline is to persons located immediately above the pipeline, and the risk decreases as a person is farther away from the pipeline. The maximum risk posed by Line 406 before mitigation is 1:2,137,000, and after mitigation it is 1:4,274,000 chance of fatality per year. The maximum risk posed by Line 407 before

mitigation is 1:2,062,000, and after mitigation it is 1:4,115,000 chance of fatality per year. The maximum risk posed by Line DFM before mitigation is 1:4,255,000, and after mitigation it is 1:8,475,000. Because the calculated individual risk is less than the threshold of 1:1,000,000, the risk is considered to be less than significant.

PG&E has proposed, as a part of their project, to install the pipeline to meet or exceed the current pipeline regulations (49 CFR 192). Some of the particulars of the project include:

- Thicker Pipe Wall Thickness – PG&E intends to install minimum 0.375-inch wall thickness pipe on the 30-inch diameter segments. A large proportion of the proposed pipeline would consist of 0.375-inch-wall thickness steel pipe (Grade X-65) designed for a Maximum Allowable Operating Pressure (MAOP) of 975 pounds per square inch gauge (psig). For Class 1 areas, the minimum regulated pipe wall thickness is 0.3125-inch; a 0.375-inch wall thickness is proposed, 20 percent greater than the minimum required. For Class 2 areas, the minimum regulated pipe wall thickness is 0.375-inch; a 0.406-inch wall thickness is proposed, 8 percent greater than the minimum required. For Class 3 areas, the minimum regulated wall thickness is 0.4875-inch; a 0.500-inch wall thickness is proposed, 3 percent greater than the minimum required. For example, the 0.375-inch to 0.406-inch thick wall would resist a 73 ton machine, and the 0.500-inch thick wall would resist a 120 ton machine.

- Weld Inspection - PG&E proposes to “butt-weld” all pipeline sections (pipes are welded together without the ends overlapping). The project as proposed would include radiographic inspection of all circumferential welds. The minimum regulations (49 CFR 192.243) require only 10 percent, 15 percent and 100 percent nondestructive testing of welds in Class 1, Class 2, and Class 3 / 4 areas respectively. Welds that do not meet American Petroleum Institute 1104 specifications would be repaired or removed. Once the welds are approved, the welded joints would be covered with a protective coating and the entire pipeline would be electronically and visually inspected for any faults, scratches, or other damage. This additional testing will help to ensure structural integrity.

- Other Inspection - The project as proposed would include inspections and testing for cathodic protection, valve testing, pipeline patrols, and leak surveys on a regular basis.

- Greater Depth of Cover – PG&E has proposed a minimum depth of cover of 60 inches (5-feet). 49 CFR 192.327 establishes the minimum depths of required cover. For Class 1 areas, a minimum of 30 inches of cover is required. For Class 2, 3, and 4 areas, a minimum depth of cover of 36 inches is required. As noted in the Revised System Safety and Risk of Upset report, which was prepared by EDM Services, Inc. for the proposed Project included as Appendix H-3 of the Revised Final EIR, "Pipelines with a depth of cover of 48-inches or greater experienced a 30% reduction in third party caused incidents" (p. 88).

The proposed Project would reduce the risks to a planned elementary school to be located south of Base Line Road and within 1,500 feet of the proposed pipeline by extending the proposed HDD approximately 1,400 feet to the east along Base Line Road. This option would help reduce the risk of upset to a planned elementary school by burying the pipeline deeper (depth of cover at 35 feet) and reducing the potential for third-party incidents. The maximum risk posed by Line 407 in the area of the planned school before mitigation is 1:2,062,000, and after mitigation is 1:4,115,000 chance of fatality per year. The highest risk along a segment of pipeline is to persons located immediately above the pipeline, and the risk decreases as a person is farther away from the pipeline. The risk analysis shows that the impacts are very minor at distances greater than 1,000 feet. The following Applicant Proposed Measure would also apply to the Project.

APM ALT-L PG&E would partner with the Center Unified School District to jointly develop a risk analysis in accordance with section 14010(h) of Title 5 of the California Code of Regulations regarding the location of a school site within 1,500 feet of a pipeline. The risk analysis would include a quantitative risk assessment to evaluate potential pipeline impacts to the school. If the assessment determines that there is a risk of serious injury or fatality presented by the pipeline, corrective measures would be recommended to reduce the probability and/or consequence such that the risk is reduced to an acceptable level per the above mentioned regulation.

The required DOT regulations, APM ALT-L, and PG&E Project features that exceed the minimum requirements, would reduce risks of project upset. Even though the project risk impacts are less than significant, the following additional measures shall be implemented to further reduce risks of project upset.

Mitigation Measures for Impact HAZ-2: Unacceptable Risk of Existing or Potential Hazards

MM HAZ-2a. Corrosion and Third Party Damage Mitigation. The following shall be required:

- Line pipe shall be manufactured in the year 2000 or later;
- Before placing the pipeline into service, PG&E would perform post-construction geometry pig surveys, which would locate any construction related dents.
- PG&E shall prepare and implement an Operation and Maintenance Plan in accordance with the requirements in Title 49 CFR Part 192. Within the first 6 months of placing the pipeline into operation, PG&E shall conduct a baseline internal inspection with a high resolution instrument (smart pig) of the pipeline in order to obtain baseline data for the pipeline.
- Following the baseline inspection, internal inspections with a high resolution instrument (smart pig) would be conducted on a periodic basis, at a minimum of one inspection every 7 years, or sooner if the evidence suggests that significant corrosion or defects exist or if any new Federal or State regulations require more frequent or comparable inspections.
- PG&E shall prepare an Emergency Response Plan that would be coordinated and tested (through drills and exercises) with local fire/police departments and emergency management agencies.

MM HAZ-2b Installation of Automatic Shutdown Valves.

PG&E shall install automatic shutdown valves at all locations: Capay Station No. 0+00, Yolo Junction Station No. 732+00, Power Line Road MLV Station No. 752+00 (which includes the Riego Road Regulating Station), Power Line Road Regulating Station No. 129+00, Baseline Road/Brewer Road MLV Station No. 1107+00, and Baseline Road Pressure Regulating Station No. 1361+00. These remotely operated

automatic shut down valve locations would enhance public safety protection in the planned populated areas, which include schools and other existing and planned developments. The automatic shutdown valves shall be controlled such that they will automatically go to the closed position should the parameters associated with a line rupture be identified by the local control system (e.g., rapid rate of pressure loss or line pressure falling below an established set point). If deemed necessary by PG&E, the automatic closure feature may be over-ridden by the pipeline controller, if the controller determines that the impacts can be minimized by operating in another manner.

Corrosion has been found to be one of the main causes of leaks or ruptures. Studies have shown that corrosion occurs more often in older pipes, therefore using pipe manufactured after 2000 would help reduce corrosion. In addition, corrosion can be slowed down by increasing the thickness of the coating on the outside of the pipe, increasing the thickness of the pipe, and by increased surveillance through cathodic protection. The corrosion mitigation measure would reduce the incidence of leaks and therefore would reduce the individual risk of serious injury or fatality. Increased wall thickness allows more time to pass before a leak may result. During that time inspections may be able to identify the potential leak and take precautionary measures. Close interval cathodic protection surveys can identify coating defects and potential metal loss before an incident occurs. Internal inspections using modern techniques can identify external corrosion and other possible causes for an incident.

Another cause of pipeline incidents are outside forces, which accounted for 54 percent of the incidents (see Revised Final EIR Table 4.7-3). These included equipment operated by an outside party, equipment operated by or for the operator, earth movement, and weather. With implementation of the mitigation measures, the incidence of leaks and possible explosion due to outside forces would be reduced, thereby reducing the individual risk of serious injury or fatality. Studies from western Europe have shown that increased wall thickness reduced the frequency of unintentional releases by third parties by 80 percent, increased depth of cover of 48 inches or more reduced third party-caused incidents by 30 percent, and pipelines protected by some form of warning device reduced third-party caused incidents by 10 percent (see Revised Final EIR Appendix H-3, p. 88).

Summary. The highest risk along a segment of pipeline is to persons located immediately above the pipeline, and the risk decreases as a person is farther away from the pipeline. The maximum risk posed by Line 406 before mitigation is 1:2,137,000, and after mitigation it is 1:4,274,000 chance of fatality per year. The maximum risk posed by Line 407 before mitigation is 1:2,062,000, and after mitigation it is 1:4,115,000 chance of fatality per year. The maximum risk posed by Line DFM before mitigation is 1:4,255,000, and after mitigation it is 1:8,475,000. Because the calculated individual risk is less than the threshold of 1:1,000,000, the risk is considered to be less than significant. The required DOT regulations, along with PG&E Project features that exceed the minimum requirements, and the additional mitigation would reduce the individual risk by fifty percent (50%). Impacts would remain less than significant (Class III).

CEQA FINDING NO. HWQ-1

WATER QUALTIY STANDARD IMPACTS

Impact: **Impact HWQ-1: Federal or State Water Quality Standards**

Class: II

Finding:

a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

b) Such changes or alterations are within the responsibility and jurisdiction of the USACE, CDFG, or the CVRWQCB and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING

Inadvertent erosion that results in increased sediment in streams or discharge of other materials into water bodies as a result of Project construction activities could result in adverse impacts to water quality. As proposed in APM HWQ-1 and APM BIO-7, PG&E would implement BMPs during the construction phase to avoid and minimize potential adverse impacts to water quality. Implementation of the PG&E Water Quality Construction Best Management Practices Manual and the Erosion Control and Sediment Transport Plan would ensure the avoidance and minimization of potential impacts to water quality. As proposed in APM BIO-5, PG&E would acquire all

necessary permits from the USACE, the CVRWQCB, and the CDFG, and would implement additional avoidance or mitigation measures that are required by the CVRWQCB, the CDFG and/or the USFWS during the permitting process related to protection of water quality. Discharge associated with dewatering activities would be strictly regulated by Project permit conditions. Permits include the General Construction Permit (99-08-DWQ) which is required for discharges of storm water associated with construction activity and includes a site specific SWPPP and a list of BMPs to be implemented. Prior to construction, a discharge permit (Order No. 5-00-175) would be required of and adhered to by PG&E. The permit would require that the flow rates be limited to 0.25 million gallons per day during dry months. Limiting the flow rates during dry months would minimize impacts to downstream channel characteristics.

Improper use and storage of hazardous materials and pollutants associated with Project construction could potentially result in adverse impacts to water quality. As proposed in APM HWQ-1 and APM BIO-13, hazardous materials and pollutants near water bodies that could result in a threat to life or damage to property would be stored and handled in accordance with the Project's Hazardous Substances Control and Emergency Response Plan. Implementation of this plan, in addition to implementation of Project construction BMPs, would ensure that potential impacts to water quality are either avoided or minimized.

A frac-out is possible during HDD, which could degrade water quality as a result of drilling muds being discharged into a stream or river. As proposed in APM HWQ-5 and APM BIO-23, PG&E would develop an HDD Fluid Release Contingency Plan that would require mitigation in the unlikely event of a frac-out resulting in discharge of drilling mud that would potentially result in adverse impacts to water quality. The plan would include measures to contain and clean up any drilling mud inadvertently released into waterways. However, since there are insufficient details in APM HWQ-5 to ensure that potential impacts would be minimized, MM HWQ-1 is required to be implemented prior to any construction activities.

Mitigation Measures for Impact HWQ-1: Federal or State Water Quality Standards

MM HWQ-1. **Response to Unanticipated Release of Drilling Fluids.** Sixty days prior to the commencement of HDD activities near water crossings, PG&E shall prepare and submit for CSLC, RWQCB, and CDFG

approval, an HDD frac-out prevention and response plan that contains the following provisions:

- HDD crews shall strictly monitor drilling fluid pressures;
- Obtain site-specific geotechnical data at all water crossings where HDD is to be used to determine the appropriate depth below bed of waterway;
- Implement sizing techniques (move bores back and forth slowly to keep track of potential frac-outs);
- Consider potential application of surface casings to add a protective outer layer;
- Conduct Geotech bores in locations that would prevent drilling mud from escaping through boreholes;
- Prohibit nighttime drilling near sensitive noise receptors unless absolutely required;
- Maintain containment equipment for drilling fluids on site;
- Monitor turbidity downstream of the drill site;
- Monitor water quality including turbidity in accordance with applicable Regional Water Quality Control Board permit requirements;
- Cease work immediately if a seep into a stream is detected, such as by a loss in pressure or visual observation of changes in turbidity or surface sheen;
- Immediately report all bentonite seeps into waters of the State or sensitive habitat to the Project's resource coordinator, the CSLC, and the appropriate resource agencies (i.e., NOAA, USFWS, CDFG, USACE, applicable RWQCBs, local County, and DWR);
- Maintain onsite boats with monitors where appropriate;

- In the event of a release during construction, PG&E shall assess the extent of potential damage to fisheries and carry out appropriate mitigation/compensation procedures. Impacts to consider include curtailment of access to fishing areas, contamination of fish and habitat, and loss of income to commercial fishing interests and businesses. Procedures for assessing damage should include field surveys to determine the extent of damage during and soon after the release and long-term monitoring to determine long-term effects to habitat, fish, and fishing interests; and

- A 3,000-gallon vacuum truck shall be available on call in case a spill or frac-out occurs.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. HWQ-2

GROUNDWATER IMPACTS

Impact: **Impact HWQ-2: Groundwater for Private or Municipal Purposes**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

There are rural residences, agricultural properties and undeveloped properties located within the Project area. Private water wells, irrigation wells, and water pipelines may be located within and extend into the Project construction areas or construction staging areas. Mitigation is proposed below to determine well locations and to test each well located within 200 feet of construction. The criterion to test wells within 200 feet of the Project was established based upon the local soils, as well as construction methods. Since the Project trenching would be relatively shallow in comparison to the assumed well depths, the influence the Project may have on the aquifer supplying the wells drops

off drastically as a function of distance from the excavation. If, during monitoring, it is determined that wells are affected within the 200-foot separation distance, PG&E will extend the distance until it is determined that wells are no longer affected. Implementation of MM-HWQ-2 would reduce impacts to private wells to less than significant.

Mitigation Measure for Impact HWQ-2: Private Water Wells

MM HWQ-2. **Verify Well and Irrigation System Locations.** Prior to construction of the proposed Project, well locations within 200 feet of the excavation, construction staging areas, and aboveground facility locations shall be verified by PG&E through field surveys to determine if private water wells and water pipelines are currently in use and if their area of influence intersects the proposed Project site. This survey will be conducted by a licensed professional hydrogeologist, who will determine any potential impacts from construction. Based on his/her professional; opinion, wells will be tested as needed. If, through monitoring, it is determined that Project construction is affecting well production, PG&E shall cease construction activities or arrange to supply water at the well location and consult with the landowner. Surveys shall be conducted by PG&E prior to construction to ensure that any unidentified springs are avoided during construction.

PG&E shall work with landowners and their tenant farmers to identify and avoid damage to crop irrigation systems during the proposed pipeline construction. PG&E shall immediately repair any damage that does occur to irrigation systems, including temporary and permanent reconfiguration of the irrigation systems in order to maintain irrigation to crops adjacent to the pipeline right-of-way.

Summary. With the mitigation described above, the impact is reduced to a less than significant level

CEQA FINDING NO. HWQ-3

FLOOD IMPACTS

Impact: **Impact HWQ-3: 100-Year Floodplain**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

One-hundred-year special flood hazard areas exist in Hungry Hollow (north of Esparto), and a contiguous area beginning at the western end of the Yolo Bypass, extending east through the Natomas Basin area to Sorento Road (just west of the Placer/Sutter county boundary). Mitigation is proposed below to flood-proof any structures proposed to be constructed within a 100-year floodplain.

Mitigation Measures for Impact HWQ-3: 100-Year Floodplain

MM HWQ-3 **Flood-Proof Pump Houses Within 100-year Floodplain.** If any structures (pump stations, aboveground valve housing) associated with the buried pipeline are placed within the 100-year flood zone, the structure shall be "flood-proofed" in their design to reduce the risk that they would be damaged during such an event.

Summary. With the mitigation described above, the impact is reduced to a less than significant level.

CEQA FINDING NO. LU-1

LAND USE CONFLICTS

Impact: **Impact LU-1: Conflict with Adjacent Land Uses**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

The Project would not conflict with development plans for the Sutter Pointe Specific Plan Area, Placer Vineyards Specific Plan, the Sierra Vista Specific Plan, or the Curry Creek Specific Plan.

The project would cross lands included in the Natomas Basin Conservancy and River Ranch Conservation Bank.

The proposed Project could potentially conflict with operation of portions of the Olinda-Tracy 500 kV, Obanion-Elverta 230 kV, Cottonwood-Roseville 230 kV, and Roseville-Elverta/Roseville-Fiddyment 230kV transmission lines within Placer County.

Mitigation Measures for Impact LU-1: Conflict with Adjacent Land Uses

MM LU-1a. **Mitigation for Impacts to the Natomas Basin Conservancy Mitigation Lands.** Implement MM BIO-4b pertaining to mitigation for impacts to Natomas Basin Conservancy mitigation lands.

MM LU-1b. **Mitigation for Impacts to the Sacramento River Ranch Conservation Bank Mitigation Lands.** Implement MM BIO-4c pertaining to mitigation for impacts to Sacramento River Ranch Conservation Bank mitigation lands.

MM LU-1c **WAPA License Agreement.** Prior to initiating Project construction, PG&E shall submit Project plans to Western Area Power Administration (WAPA) and obtain approval for a license agreement to conduct work in the area covered by the WAPA easement.

MM LU-1d Potential Conflicts with Other Utilities

PG&E shall coordinate with Yolo County, Placer County, Sutter County, Sacramento County, and the City of Roseville regarding future utility crossings for water, sewer, drainage, and other underground utilities, in order to determine the location of these existing and planned utilities and the horizontal and vertical clearances required from the proposed pipeline and other project features. PG&E shall comply with the separation requirements as determined by the local agencies.

Summary. With the mitigation described above, the impacts are reduced to less than significant levels.

CEQA FINDING NO. LU-2

SAFETY RISKS TO NEARBY LAND USES

Impact: **Impact LU-2: Result in Safety Risk to Nearby Land Uses**

Class: III

Finding: No Finding is required (Class III)

DISCUSSION

Natural gas could be released from a leak or rupture. If the natural gas reached a combustible mixture and an ignition source was present, a fire and/or explosion could occur, resulting in possible injuries and/or deaths.

Probability of a Pipeline Release: A fire could result from a natural gas release with two conditions present: 1) a volume of natural gas must be present within the combustible mixture range (5% to 15% methane in air); and 2) a source of ignition must be present with sufficient heat to ignite the air/natural gas mixture (1,000 degrees F). In order for an explosion to occur, a third condition must be present: the natural gas vapor cloud must be confined, to a sufficient degree.

Over the life of the pipeline, the probability of a pipeline release that would result in a fire varies from 3.2% for a rupture to 7.5% for a puncture (1-inch diameter hole); while the probability of a pipeline release that would result in an explosion varies from 2.0%

for a rupture to 4.7% for a puncture. The probability of a puncture or rupture over the 50-year life of the pipeline is very low.

Societal Risk: Societal risk is the probability that a specified number of people will be affected by a given event. Several release scenarios were used that could impact both building occupants and vehicle passengers.

The California Department of Education (CDE) uses a simplified approach for evaluating the risk to the student population. The CED uses two calculated parameters: an average individual risk across the depth of the campus site, and a site population risk indicator parameter. The CED does not specify numerical criteria of acceptability or unacceptability for these indicators (CDE Guidance Protocol for School Site Pipeline Risk Analysis, 2007).

The threshold values for societal risk vary greatly, depending on the agency or jurisdiction. There are no prescribed societal risk guidelines for the United States or the State of California. The Committee for the Prevention of Disasters and the Netherlands use an annual probability of 1.0×10^{-3} (1:1,000) or less. This criteria has been used to evaluate the proposed project.

The societal risk posed by the proposed project is less than the significance threshold of 1:1,000 or less.

Individual Risk of Serious Injuries or Fatalities: As stated above, the probability of a release over the 50-year life of the pipeline is very low. The individual risk is defined as the frequency that an individual may be expected to sustain a given level of harm from the realization of specific hazards, at a specific location, within a specified time interval (measured as the probability of a fatality per year). During operation, there would be individual risks to building occupants, residential, commercial, and school sites, as well as to vehicle occupants if a release from the pipeline were to happen. The individual risk significance threshold used in the Revised Final EIR is an annual likelihood of one in one-million (1:1,000,000) for fatality (used by the California Department of Education for school sites). The risk level is typically determined for the maximally exposed individual (assumes that a person is present continuously—24 hours per day, 365 days per year).

The highest risk along a segment of pipeline is to persons located immediately above the pipeline, and the risk decreases as a person is farther away from the pipeline. The

maximum risk posed by Line 406 before mitigation is 1:2,137,000, and after mitigation it is 1:4,274,000 chance of fatality per year. The maximum risk posed by Line 407 before mitigation is 1:2,062,000, and after mitigation it is 1:4,115,000 chance of fatality per year. The maximum risk posed by Line DFM before mitigation is 1:4,255,000, and after mitigation it is 1:8,475,000. Because the calculated individual risk is less than the threshold of 1:1,000,000, the risk is considered to be less than significant.

PG&E has proposed, as a part of their project, to install the pipeline to meet or exceed the current pipeline regulations (49 CFR 192). Some of the particulars of the project include:

- Thicker Pipe Wall Thickness – PG&E intends to install minimum 0.375-inch wall thickness pipe on the 30-inch diameter segments. A large proportion of the proposed pipeline would consist of 0.375-inch-wall thickness steel pipe (Grade X-65) designed for a Maximum Allowable Operating Pressure (MAOP) of 975 pounds per square inch gauge (psig). For Class 1 areas, the minimum regulated pipe wall thickness is 0.3125-inch; a 0.375-inch wall thickness is proposed, 20 percent greater than the minimum required. For Class 2 areas, the minimum regulated pipe wall thickness is 0.375-inch; a 0.406-inch wall thickness is proposed, 8 percent greater than the minimum required. For Class 3 areas, the minimum regulated wall thickness is 0.4875-inch; a 0.500-inch wall thickness is proposed, 3 percent greater than the minimum required. For example, the 0.375-inch to 0.406-inch thick wall would resist a 73 ton machine, and the 0.500-inch thick wall would resist a 120 ton machine.

- Weld Inspection - PG&E proposes to “butt-weld” all pipeline sections (pipes are welded together without the ends overlapping). The project as proposed would include radiographic inspection of all circumferential welds. The minimum regulations (49 CFR 192.243) require only 10 percent, 15 percent and 100 percent nondestructive testing of welds in Class 1, Class 2, and Class 3 / 4 areas respectively. Welds that do not meet American Petroleum Institute 1104 specifications would be repaired or removed. Once the welds are approved, the welded joints would be covered with a protective coating and the entire pipeline would be electronically and visually inspected for any faults, scratches, or other damage. This additional testing will help to ensure structural integrity.

- Other Inspection - The project as proposed would include inspections and testing for cathodic protection, valve testing, pipeline patrols, and leak surveys on a regular basis.

- Greater Depth of Cover – PG&E has proposed a minimum depth of cover of 60 inches (5-feet). 49 CFR 192.327 establishes the minimum depths of required cover. For Class 1 areas, a minimum of 30 inches of cover is required. For Class 2, 3, and 4 areas, a minimum depth of cover of 36 inches is required. As noted in the Revised System Safety and Risk of Upset report, which was prepared by EDM Services, Inc. for the proposed Project included as Appendix H-3 of the Revised Final EIR, "Pipelines with a depth of cover of 48-inches or greater experienced a 30% reduction in third party caused incidents" (p. 88).

The proposed Project would reduce the risks to a planned elementary school to be located south of Base Line Road and within 1,500 feet of the proposed pipeline by extending the proposed HDD approximately 1,400 feet to the east along Base Line Road. This option would help reduce the risk of upset to a planned elementary school by burying the pipeline deeper (depth of cover at 35 feet) and reducing the potential for third-party incidents. The maximum risk posed by Line 407 in the area of the planned school before mitigation is 1:2,062,000, and after mitigation is 1:4,115,000 chance of fatality per year. The highest risk along a segment of pipeline is to persons located immediately above the pipeline, and the risk decreases as a person is farther away from the pipeline. The risk analysis shows that the impacts are very minor at distances greater than 1,000 feet. The following Applicant Proposed Measure would also apply to the Project.

APM ALT-L PG&E would partner with the Center Unified School District to jointly develop a risk analysis in accordance with section 14010(h) of Title 5 of the California Code of Regulations regarding the location of a school site within 1,500 feet of a pipeline. The risk analysis would include a quantitative risk assessment to evaluate potential pipeline impacts to the school. If the assessment determines that there is a risk of serious injury or fatality presented by the pipeline, corrective measures would be recommended to reduce the probability and/or consequence such that the risk is reduced to an acceptable level per the above mentioned regulation.

The required DOT regulations, APM ALT-L, and PG&E Project features that exceed the minimum requirements, would reduce risks of project upset. Even though the project risk impacts are less than significant, the following additional measures shall be implemented to further reduce risks of project upset.

Mitigation Measures for Impact LU-2: Result in Safety Risk to Nearby Land Uses

MM LU-2a **Mitigation for Safety Risk to Nearby Land Uses.** Implement MM HAZ-2a, Corrosion Mitigation, pertaining to post-construction geometry pig surveys, baseline inspection and internal inspections with a high resolution instrument (smart pig) a minimum of once every 7 years, and development of an Operation and Maintenance Plan and an Emergency Response Plan.

MM LU-2b **Mitigation for Safety Risk to Nearby Land Uses.** Implement MM HAZ-2b, Installation of Automatic Shut-down Valves, pertaining to the installation of automatic shutdown valves in all locations: Capay Station No. 0+00, Yolo Junction Station No. 732+00, Power Line Road MLV Station No. 752+00 (which includes the Riego Road Regulating Station), Baseline Road/Brewer Road MLV Station No. 1107+00, and Baseline Road Pressure Regulating Station No. 1361+00.

Corrosion has been found to be one of the main causes of leaks or ruptures. Studies have shown that corrosion occurs more often in older pipes, therefore using pipe manufactured after 2000 would help reduce corrosion. In addition, corrosion can be slowed down by increasing the thickness of the coating on the outside of the pipe, increasing the thickness of the pipe, and by increased surveillance through cathodic protection. The corrosion mitigation measure would reduce the incidence of leaks and therefore would reduce the individual risk of serious injury or fatality. Increased wall thickness allows more time to pass before a leak may result. During that time inspections may be able to identify the potential leak and take precautionary measures. Close interval cathodic protection surveys can identify coating defects and potential metal loss before an incident occurs. Internal inspections using modern techniques can identify external corrosion and other possible causes for an incident.

Another cause of pipeline incidents are outside forces, which accounted for 54 percent of the incidents (see Revised Final EIR Table 4.7-3). These included equipment operated by an outside party, equipment operated by or for the operator, earth

movement, and weather. With implementation of the mitigation measures, the incidence of leaks and possible explosion due to outside forces would be reduced, thereby reducing the individual risk of serious injury or fatality. Studies from western Europe have shown that increased wall thickness reduced the frequency of unintentional releases by third parties by 80 percent, increased depth of cover of 48 inches or more reduced third party-caused incidents by 30 percent, and pipelines protected by some form of warning device reduced third-party caused incidents by 10 percent (see Revised Final EIR Appendix H-3, p. 88).

Summary. The highest risk along a segment of pipeline is to persons located immediately above the pipeline, and the risk decreases as a person is farther away from the pipeline. The maximum risk posed by Line 406 before mitigation is 1:2,137,000, and after mitigation it is 1:4,274,000 chance of fatality per year. The maximum risk posed by Line 407 before mitigation is 1:2,062,000, and after mitigation it is 1:4,115,000 chance of fatality per year. The maximum risk posed by Line DFM before mitigation is 1:4,255,000, and after mitigation it is 1:8,475,000. Because the calculated individual risk is less than the threshold of 1:1,000,000, the risk is considered to be less than significant. The required DOT regulations, along with PG&E Project features that exceed the minimum requirements, and the additional mitigation would reduce the individual risk by fifty percent (50%). Impacts would remain less than significant (Class III).

CEQA FINDING NO. NOI-1

CONSTRUCTION NOISE IMPACTS

Impact: **Impact NOI-1: Project Construction**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

Noise would be generated during the construction of the Project. At any given location, construction noise would be generated over a relatively short period, and would not

create a permanent addition to background noise levels. Sensitive noise receptors in the vicinity of the Project alignment may be affected by temporary construction noise.

Maximum construction noise levels could reach up to 86 dBA at the nearest residential receptors to the pipeline (representing a worst-case scenario for receptors in all four counties that are within 50 feet of the construction ROW). In Sutter County there are two residences located within 50 feet of the construction ROW. In Yolo County, which represents the most sensitive receptors along the pipeline, maximum sound levels from construction noise at the nearest sensitive receptors are expected to be approximately 58 dBA at both the Woodland Community School and the Yolo Branch Library. In Placer County, maximum sound levels from construction noise at the nearest sensitive receptors are expected to be approximately 61 dBA at the Alpha School and 64 dBA at the Coyote Ridge Elementary School. There are no existing noise sensitive receptors adjacent to the Project in Sacramento County.

For the work within Placer County, the predicted maximum exterior noise levels (61 to 64 dB exterior at the two nearest schools and 86 at the closest residential receptors) would exceed the land use noise standards for sensitive receptors (L_{eq} of 55 dBA between 7 a.m. and 10 p.m. and 45 dBA between 10 p.m. and 7 a.m.). For work within Sutter County, the predicted maximum exterior noise levels at the closest residential receptors would be 86 dBA. This would exceed the Sutter County land use noise standards for sensitive receptors (L_{eq} of 50 dBA between 7 a.m. and 10 p.m. and 45 dBA between 10 p.m. and 7 a.m). Yolo County does not have any standards directly related to construction or operation noise. These noise standards are intended to apply to permanent noise sources. Construction noise, however, is short-term and temporary in nature, and equipment is not in continuous operation at these maximum noise levels.

Mitigation Measures for Impact NOI-1: Project Construction

MM NOI-1a. **Limited Construction Hours.** Construction activities shall be limited to daytime hours (7 a.m. to 7 p.m.) when they occur within 1,000 feet of residences, except for the operation of horizontal directional drilling equipment and at tie-in locations.

MM NOI-1b. **Best Management Practices.** When construction activities occur within 1,000 feet of residences, the following best management practices shall be implemented:

1. All construction equipment shall be fitted with factory installed mufflers and enclosures.

2. All construction equipment shall be maintained in good working order.

3. Horizontal directional drilling equipment and tie-in operations shall be shielded from view of the nearest residences with temporary barriers (such as plywood or straw bales) that block line of sight from engines, pumps, and other noise emitting equipment to the windows of those residences.

4. PG&E shall provide a noise complaint hot line, staffed on a 24-hour basis, to allow nearby residents to submit complaints about construction-related noise. The hot line number shall be clearly posted at the construction site.

5. PG&E shall respond to noise complaints in a timely manner, so that residents may obtain any necessary relief before the construction is completed.

MM NOI-1c. **Noise Reduction Plan.** To minimize nighttime construction noise impacts, a noise reduction plan shall be developed by a qualified acoustical professional and submitted to the California State Lands Commission for review and approval. The Noise Reduction Plan shall include a set of site-specific noise attenuation measures that apply state of the art noise reduction technology to ensure that nighttime noise levels from Project sources do not exceed the applicable county's nighttime exterior noise threshold at nearby residences.

The attenuation measures shall include, but not be limited to, the control strategies and methods for implementation, as feasible, that are listed below and shall be implemented prior to commencement of any horizontal direction drilling (HDD) construction hydrostatic testing or tie-in activities. If any of the following strategies are determined by PG&E to not be feasible, an explanation as to why the specific strategy is not feasible shall be included in the Noise Reduction Plan:

- Plan horizontal direction drill activities to minimize the amount of nighttime construction.
- Offer temporary relocation of residents within 300 feet of nighttime construction areas.
- Install temporary noise barriers, such as shields and blankets, immediately adjacent to all nighttime stationary noise sources (e.g., drilling rigs, generators, pumps, etc.).
- Install a temporary noise wall that blocks the line of sight between all nighttime activities and the closest residences. The noise wall shall achieve an attenuation of at least 10 dBA.
- Fit all engines associated with nighttime activities with critical silencer muffler designs that achieve attenuation of at least 15 dBA compared to standard muffler designs.

Summary. With the mitigation described above, the impacts are reduced to less than significant levels.

CEQA FINDING NO. NOI-2

GROUNDBORNE VIBRATION AND NOISE IMPACTS

Impact: **Impact NOI-2: Groundborne Vibration or Noise**

Class: II

Finding: a) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the Revised Final EIR.

FACTS SUPPORTING THE FINDING

The majority of construction activity is expected to occur at distances greater than 60 feet from sensitive structures. Where construction activity involving heavy equipment occurs within 60 feet of residences (such as may occur along the pipeline route), the people in those homes may be annoyed, but no structural damage would be expected, provided that vibration-causing equipment is at least 25 feet from sensitive structures.

The use of heavy equipment that would produce the highest vibration levels would be limited to daytime hours. Groundborne vibration or groundborne noise from Project construction activities would have substantial direct or indirect effects on persons or structures.

Mitigation Measures for Impact NOI-2: Groundborne Vibration or Noise

MM NOI-2a. **Distance from Residences.** Avoid operating heavy equipment closer than 25 feet from any residences.

MM NOI-2b. **Heavy-loaded Trucks.** Route heavily-loaded trucks away from residential streets where possible. Select streets with the fewest homes if no alternatives are available.

MM NOI-2c. **Earth Moving Equipment/Distance from Vibration-Sensitive Sites.** Operate earth-moving equipment as far away from vibration-sensitive sites as possible, and no closer than 25 feet. Phase demolition, earth-moving and ground-impacting operations so as not to occur in the same time period.

MM NOI-2d. **Nighttime Construction.** Avoid conducting nighttime construction activities immediately adjacent to residences during non-HDD activities.

Summary. With the mitigation described above, the impacts are reduced to less than significant levels.