

1 **4.0 REVISIONS TO THE DRAFT EIR**

2 In accordance with section 15132 of the CEQA Guidelines, this section presents the
3 changes that were made to the Draft EIR to clarify or amplify its text in response to
4 comments received during the 45-day public review period.

5 The Revised Final EIR consists of the April 2009 Draft EIR, comments received
6 during the Draft EIR's 45-day public comment period, responses to those comments,
7 and changes to the text of the Draft EIR. The Revised Final EIR shows changes
8 made to the response to comments since release of the Final EIR on July 27, 2009,
9 as underline for new text, and ~~strike-out~~ for deleted text. The Revised Final EIR
10 shows changes made to the Draft EIR (in their final form by incorporating any
11 previous changes shown in the Final EIR dated July 27, 2009, and the changes
12 made as a result of the clarifications to the risk analysis) as underline for new text,
13 and ~~strike-out~~ for deleted text, and are organized by section of the Draft EIR.

14 In addition, clarifications have been made to the System Safety and Risk of Upset
15 Report prepared by EDM Services, Inc. that was previously included as an appendix
16 to the Draft EIR. The revised System Safety and Risk of Upset report shows
17 changes as underline for new text, and ~~strike-out~~ for deleted text, and is included as
18 Appendix H-3 to this Revised Final EIR.

19 Such changes to the Draft EIR are insignificant, as the term is used in section
20 15088.5 of the CEQA Guidelines, in that no new potentially significant impacts are
21 identified, and the effectiveness of identified mitigation is not reduced.

22 **EXECUTIVE SUMMARY**

23 Changes made to the Executive Summary of the Draft EIR are reflected in the
24 Executive Summary that has been reproduced in its entirety below.

25 **PROJECT OBJECTIVES, PURPOSE, AND NEED**

26 Pacific Gas and Electric Company (PG&E) is proposing to construct and operate
27 multiple natural gas transmission pipelines that would ultimately cross California's
28 Central Valley in the counties of Yolo, Sutter, Sacramento, and Placer. The
29 proposed Project would specifically involve the construction and operation of three
30 new transmission pipelines: Line 406, Line 407 (West and East), and the Powerline
31 Road Distribution Feeder Main (DFM). The Project would also include the
32 construction of six aboveground facilities. Fully constructed, the pipelines would
33 span the lower Sacramento Valley.

1 PG&E identified the following objectives for the proposed Line 406/407 Natural Gas
2 Pipeline Project (Project):

- 3 • Provide greater capacity and service reliability to the existing gas transmission
4 and distribution pipeline system while minimizing costs to PG&E's customers;
- 5 • Extend natural gas service to planned residential and commercial
6 developments in Placer, Sutter, and Sacramento counties;
- 7 • Install Project facilities in a safe, efficient, environmentally sensitive, and cost-
8 effective manner; and
- 9 • Locate the pipeline to minimize the potential of environmental impacts resulting
10 from damage by outside sources.

11 **DESCRIPTION OF PROPOSED PROJECT**

12 The Project would involve construction of approximately 40 miles of new pipeline, as
13 well as aboveground features. At its western terminus, the Project would add a new
14 major connection point to Lines 400 and 401, the Capay Metering Station, located
15 approximately 15 miles south of the Buckeye Pressure Limiting Station in Yolo
16 County. From this connection point, the Project would construct a large-diameter
17 (30-inch) transmission pipeline across the lower Sacramento Valley, essentially
18 bisecting the existing pipeline loop system. The Project would connect to existing
19 Line 172 and Line 123 to further reinforce the reliability of the region's natural gas
20 system by providing a second large-diameter connection point between Lines 400
21 and 401 and existing pipelines serving the area.

22 Six fenced, aboveground pressure limiting, pressure regulating, metering, and main
23 line valve stations would be constructed along the Project alignment to ensure that
24 proper pressures are maintained in the transmission system and to reduce the
25 pressure of the gas before delivering it to the distribution pipeline system. These
26 facilities would also require the installation of valve extensions, actuators, valve hand
27 wheels, risers, meters, Supervisory Control and Data Acquisition (SCADA) pipeline
28 system monitoring equipment, and other appurtenances within and adjacent to the
29 stations.

30 PG&E proposes a 100-foot-wide temporary use area (TUA) for general pipeline
31 trenching consisting of a 50-foot wide permanent easement and a 50-foot wide
32 temporary construction easement (TCE) to accommodate the equipment needed to

1 lay the 30-inch-diameter pipe in a 3.5- to 5-foot-wide trench, an equipment travel
2 lane, and a spoil pile for the excavated soils. ~~A 60-foot wide TUA would be used for~~
3 ~~construction in constricted workspaces and would require that excavated soil be~~
4 ~~transported to an adjacent TUA.~~ Each of the twelve proposed Horizontal Directional
5 Drilling (HDD) locations would require an additional 18,750-square-foot temporary
6 use area for equipment that would be set up at the proposed entry and exit points.
7 PG&E proposes to obtain a 50-foot wide permanent easement over the proposed
8 alignment. Restrictions in the easement would prohibit the planting of deep-rooted
9 plants such as trees and vines within ~~45~~ 10 feet of the pipeline centerline for
10 protection of the pipeline, but other agricultural uses would be allowed. The primary
11 staging areas for vehicles, equipment, materials, and other supplies required for the
12 construction of the pipeline and regulator stations would be near the Project right-of-
13 way (ROW) in existing industrial and commercial yards where accessible. Staging
14 areas would generally be approximately 300 feet by 200 feet. Two areas would be
15 used for pipe storage. One area is located in Arbuckle, and the other is located
16 north of the City of Woodland. Both of these areas are currently disturbed land in
17 commercial zones.

18 New pipeline construction would involve the following activities:

- 19 • Clearing and grading;
- 20 • Trenching and topsoil stockpiling;
- 21 • Horizontal Directional Drilling (HDD);
- 22 • Hammer boring;
- 23 • Auger boring/Jack-and-boring;
- 24 • Epoxy coating of pipe;
- 25 • Pipeline stringing and welding;
- 26 • Lowering in the pipeline and backfilling;
- 27 • Hydrostatic testing of the pipe sections; and
- 28 • Pigging.

29 The main travel routes that would be used for construction access and delivery of
30 pipe along Line 406 would include County Road (CR) 85, CR-87, CR-88A, CR-17,
31 CR-19, and some smaller roads on the east side of Interstate (I) 5. Travel routes to
32 be used for construction access and delivery of pipe along Line 407 would include
33 CR-16, CR-16A, CR-17, Baseline Road, Riego Road, and Powerline Road. Streets
34 and roads perpendicular to the main routes that may also be used to access the
35 Project area include Watt Avenue, West Elverta Road, Walerga Road, State Route
36 (SR) 70/99, and SR-113. During construction, the transporting of the required

1 amount of pipe and associated construction equipment could result in a temporary
2 increase of up to 40 trucks a day (80 trips per day) on these respective roadways.

3 The pipeline would be operated and maintained in accordance with all applicable
4 requirements included in the U.S., Department of Transportation (DOT) regulations
5 in 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum
6 Federal Safety Standards." Further, the proposed Project would be subject to
7 California Public Utilities Commission (CPUC) standards as embodied under
8 General Order 112E. Operations and maintenance activities that would occur at
9 regular intervals include the following: cathodic protection (protection against
10 pipeline corrosion), cathodic protection monitoring, valve testing, pipeline patrols,
11 and High Consequence Area (HCA) risk assessment.

12 A large proportion of the proposed pipeline would consist of 0.375-inch-wall
13 thickness steel pipe (Grade X-65) designed for a Maximum Allowable Operating
14 Pressure (MAOP) of 975 pounds per square inch gauge (psig). For Class 1 areas,
15 the minimum regulated pipe wall thickness is 0.3125-inch; a 0.375-inch wall
16 thickness is proposed, 20 percent greater than the minimum required. For Class 2
17 areas, the minimum regulated pipe wall thickness is 0.375-inch; a 0.406-inch wall
18 thickness is proposed, 8 percent greater than the minimum required. For Class 3
19 areas, the minimum regulated wall thickness is 0.4875-inch; a 0.500-inch wall
20 thickness is proposed, 3 percent greater than the minimum required.

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

31 **RISK OF UPSET**

32 **Probability of a Pipeline Release:** A fire could result from a natural gas release
33 with two conditions present: 1) a volume of natural gas must be present within the
34 combustible mixture range (5% to 15% methane in air); and 2) a source of ignition

1 must be present with sufficient heat to ignite the air/natural gas mixture (1,000
2 degrees F). In order for an explosion to occur, a third condition must be present: the
3 natural gas vapor cloud must be confined, to a sufficient degree.

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

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

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

18 **Individual Risk of Serious Injuries or Fatalities:** In the following paragraphs, the
19 impacts related to serious injuries and fatalities are described for individuals
20 exposed to a fire or explosion if a release from the pipeline were to occur. As stated
21 above, the probability of a release over the 50-year life of the pipeline is very low.
22 The risks associated with Line 406 were assessed using the existing conditions.
23 The risks associated with Line 407 and the DFM were assessed using existing
24 conditions, plus the impacts of the proposed land developments within Sutter County
25 and Placer County, including Sutter Pointe, Placer Vineyards, Sierra Vista, and
26 Curry Creek.

27 A revised System Safety and Risk of Upset report was completed by EDM Services,
28 Inc. (October 2009) for the proposed Project, and is included as Appendix H-3 of the
29 Revised Final EIR. The risk analysis was revised because the initial calculation of
30 aggregate risk was reported as individual risk. In addition, the initial risk analysis
31 incorrectly compared the aggregate risk to the individual risk threshold of an annual
32 likelihood of fatality of 1:1,000,000.

33 The individual risk is defined as the frequency that an individual may be expected to
34 sustain a given level of harm from the realization of specific hazards, at a specific

1 location, within a specified time interval (measured as the probability of a fatality per
 2 year). Aggregate risk is the total anticipated frequency of fatalities that one might
 3 anticipate over a given time period for all of the project components (the entire
 4 pipeline system). There is no known established threshold for aggregate risk, and it
 5 is not used in practice to determine individual risk.

6 The individual risk significance threshold used in the EIR is an annual likelihood of
 7 one in one-million (1:1,000,000) for fatality (used by the California Department of
 8 Education for school sites). The risk level is typically determined for the maximally
 9 exposed individual (assumes that a person is present continuously—24 hours per
 10 day, 365 days per year).

11 The highest individual risk along a segment of pipeline is to persons located
 12 immediately above the pipeline, and the risk decreases as a person is farther away
 13 from the pipeline. The maximum individual risks are summarized as follows:

- 14 • Line 406 – pre-mitigation individual risk is 1:2,137,000, and post-mitigation
 15 individual risk is 1:4,274,000.
- 16 • Line 407 – pre-mitigation individual risk is 1:2,062,000, and post-mitigation
 17 individual risk is 1:4,115,000.
- 18 • Line DFM: pre-mitigation individual risk is 1:4,255,000, and post-
 19 mitigation individual risk is 1:8,475,000.

20 Because the calculated individual risk is less than the threshold of 1:1,000,000, the
 21 risk is considered to be less than significant.

22 **ALTERNATIVES TO PROPOSED PROJECT**

23 The California Environmental Quality Act (CEQA) Guidelines (section 15126.6(a))
 24 require that a range of reasonable alternatives to the proposed Project be described,
 25 analyzed, and (1) would feasibly attain most of the basic objectives of the proposed
 26 Project, and (2) would avoid or substantially lessen any of the significant impacts of
 27 the proposed Project.

28 The CEQA Guidelines requires the selection of an environmentally superior
 29 alternative. The determination of an environmentally superior alternative is based on
 30 the consideration of how the alternative fulfills the Project objectives and how the
 31 alternative either reduces significant, unavoidable impacts or substantially reduces

1 the impacts to the surrounding environment. The CEQA Guidelines section
2 15126.6(e)(2) state, in part, that “If the environmentally superior alternative is the
3 “No Project” alternative, the EIR would also identify an environmentally superior
4 alternative among the other alternatives.”

5 Not all alternatives that were developed are completely analyzed in the EIR.
6 Feasible alternatives that did not clearly offer the potential to reduce significant
7 environmental impacts along with infeasible alternatives were removed from further
8 analysis. Four alternatives were eliminated from detailed analysis. These
9 alternatives include:

- 10 • Line 406 and 407 Northern Alternative was eliminated from further analysis
11 since this proposed pipeline alignment alternative would be exposed to the
12 greatest risk of fault rupture, and because a substantial segment of the
13 alignment would be located along side-hills adjacent to CR-13;
- 14 • Line 407 Southern Alternative was eliminated from further analysis because
15 this proposed pipeline alignment alternative would require more crossings of
16 tributaries of Steelhead Creek, and would affect more vernal pool habitat;
- 17 • Line 406 Central Alternative was eliminated from further analysis because this
18 proposed pipeline alignment alternative would be longer than the preferred
19 alternative, resulting in greater impacts, including requiring crossing a greater
20 amount of potential foraging habitat for Swainson’s hawk, nesting habitat for
21 burrowing owls, and other habitats utilized by special-status species. This
22 alternative would also require construction along sidehills, which would present
23 additional engineering, construction and maintenance consideration parallel an
24 ephemeral stream, passing through natural habitats to CR-14A; and
- 25 • Systems Alternatives was eliminated from further analysis because the
26 proposed alignment alternative would require 15 separate projects with
27 substantially greater amounts of pipeline resulting in greater construction
28 impacts.

29 Alternatives that were analyzed include the No Project Alternative, and twelve
30 different pipeline alignment options. Each option (or alternative) represented a
31 particular segment of alignment that differed in location from the Project so as to
32 attempt to reduce environmental impacts. The twelve options are briefly described
33 below. None of the twelve options reduce the significant and unavoidable
34 construction air quality impact associated with the proposed Project. While each of

1 the options may reduce the magnitude of one or more impacts associated with the
2 proposed Project, they may also increase the magnitude of other impacts.

3 **No Project Alternative.** Under the No Project Alternative, a natural gas pipeline
4 would not be constructed between existing Lines 400 and 401 in Yolo County and
5 the existing Line 123 in Placer County. PG&E's studies indicate that the natural gas
6 transmission and distribution system may not be able to serve customers reliably
7 and planned development in Yolo, Sacramento, Sutter, and Placer counties by 2009
8 (see Section 2, Project Description). Additionally, continued growth in those
9 counties would put further strain on existing natural gas infrastructure, and could
10 result in emergency restriction or interruption of services.

11 **Option A.** From Lines 400 and 401, Option A would follow CR-16 to I-505, then
12 head north through a grape vineyard to align with CR-15B on the west side of I-505.
13 The route would continue east on CR-15B through the Dunnigan Hills and across
14 Smith Creek until CR-15B becomes CR-93. From this juncture, this alternative
15 would continue east from the intersection of CR-15B and CR-93, and proceed cross-
16 country to Line 172A just south of the town of Dufour. It would then parallel Line
17 172A south to the tie-in point with Line 172A and Line 407, north of the town of Yolo.
18 This option would increase the overall pipeline length by approximately 2,200 feet.
19 Figure 3-2B shows Option A.

20 This option would result in a reduction in the magnitude of impacts to aesthetics and
21 noise due to the movement of a portion of the pipeline construction further away
22 from residences. This option would have similar impacts as the proposed Project in
23 the resource areas of air quality, hydrology and water quality, recreation, population
24 and utilities, and energy and mineral resources.

25 This option would result in a greater magnitude of impacts to agricultural resources,
26 biological resources, cultural resources, soils, seismic and risk of upset hazards,
27 land use, and traffic. These impacts would be increased in magnitude due to an
28 increase in the length of the pipeline along the boundaries of agricultural fields,
29 increased disturbance of soils, the potential for increased introduction of invasive
30 species, and the potential for increased disturbance of sensitive plants. The
31 difference in impacts to cultural resources is assumed to be greater since Option A
32 would increase the area of disturbance and occur outside of the corridor surveyed
33 for cultural resources. This option would increase the seismic impacts by crossing
34 the southern end of the Dunnigan Hills Fault in the vicinity of an apparent surface
35 fault rupture. Also, by placing the pipeline in close proximity to Durst Organic

1 Farmers, a new “high consequence area” or “HCA” would be created along the
2 pipeline as defined by DOT 192.903, based upon the number of employees and the
3 number of days they would congregate near the pipeline. Option A would affect
4 traffic during pipeline construction along roadways used by Durst for employees,
5 visitors, and workers transporting their produce.

6 Option A would not reduce the significant and unavoidable construction air quality
7 impacts associated with the proposed Project (~~construction air quality, hazards from~~
8 ~~the risk of pipeline upset, and land use compatibility~~).

9 **Option B.** From Lines 400 and 401, approximately 1.5 miles north of the proposed
10 Project, Option B would extend east along farm roads, crossing CR-86 and aligning
11 with CR-16. The route would continue along the south side of CR-16 for
12 approximately 3 miles to CR-86, and then turn south along farm roads to a point
13 intercepting the proposed I-505 crossing. This option would increase the overall
14 pipeline length by approximately 2,640 feet. Figure 3-2B shows Option B.

15 This option would not result in a reduction of any impacts associated with the
16 proposed Project. This option would have similar impacts as the proposed Project in
17 the resource areas of air quality, hydrology and water quality, noise, recreation,
18 population and utilities, and energy and mineral resources.

19 This option would result in a greater magnitude of impacts to agricultural resources,
20 aesthetics, biological resources, cultural resources, soils, risk of upset hazards, land
21 use, and traffic. These impacts would be increased in magnitude due to an increase
22 in the length of the pipeline along the boundaries of agricultural fields and the
23 placement closer to roadways where construction activities would be more visible.
24 Option B would also increase the potential for introduction of invasive species,
25 increase the potential for disturbance to sensitive plants, increase the number of
26 trees impacted (potential Swainson’s hawk nesting habitat), increase disturbance to
27 soils, and place the pipeline outside of the area surveyed for cultural resources.
28 Also, by placing the pipeline in close proximity to Durst Organic Farmers, a new
29 “high consequence area” or “HCA” would be created along the pipeline as defined
30 by DOT 192.903, based upon the number of employees and the number of days
31 they would congregate near the pipeline. Option B would affect traffic during
32 pipeline construction along roadways used by Durst for employees, visitors, and
33 workers transporting their produce.

1 Option B would not reduce the significant and unavoidable construction air quality
2 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
3 ~~the risk of pipeline upset, and land use compatibility~~).

4 **Option C.** Option C would follow the proposed alignment of Line 406 from the
5 Capay Metering Station to the Hungry Hollow Canal, which it would parallel
6 northeast until crossing to line up with an unnamed farm road to the east. This
7 alternative would cross CR-85 and extend east along the farm road and the northern
8 edge of Microp Limited Property, APN # 048-140-140-191. At the end of the
9 property, the route would turn south along another unnamed farm road until it
10 intersects the proposed Line 406 route, which it then would follow to the Yolo
11 Junction Station. This option would increase the overall pipeline length by roughly
12 1,150 feet. Figure 3-2C depicts Option C.

13 This option would not result in a reduction of any impacts associated with the
14 proposed Project. This option would have similar impacts as the proposed Project in
15 the resource areas of aesthetics, air quality, cultural resources, geologic and risk of
16 upset hazards, hydrology and water quality, land use and planning, noise,
17 recreation, population and utilities, energy and mineral resources, and
18 transportation. While Option C would result in similar impacts to agricultural
19 resources as the proposed Project, it would result in less segmenting of agricultural
20 fields.

21 This option would result in a greater magnitude of impacts to biological resources
22 and soils. These impacts would be increased in magnitude due to an increase in the
23 number of trees impacted, the increased disturbance of soils, and the increased
24 potential for introduction of invasive species.

25 Option C would not reduce the significant and unavoidable construction air quality
26 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
27 ~~the risk of pipeline upset, and land use compatibility~~).

28 **Option D.** Option D would involve a minor variation to the proposed Line 406 in the
29 vicinity of the Hungry Hollow area in north-central Yolo County, but it would maintain
30 Line 406 within CR-17 east of CR-87, and then extend south after crossing an
31 unnamed irrigation lateral where it would realign with the proposed Line 406 route,
32 just west of the I-505 HDD crossing. East of I-505, this alternative would follow the
33 same alignment as the proposed Project. This option would increase the overall
34 pipeline length by roughly 860 feet. Figure 3-2D shows Option D.

1 This option would not result in a reduction of any impacts associated with the
2 proposed Project. This option would have similar impacts as the proposed Project in
3 the resource areas of aesthetics, air quality, cultural resources, geologic hazards,
4 hydrology and water quality, land use and planning, noise, recreation, population
5 and utilities, energy and mineral resources, and transportation. While Option D
6 would result in similar impacts to agricultural resources as the proposed Project, it
7 would result in less segmenting of agricultural fields.

8 This option would result in a greater magnitude of impacts to noise, aesthetics,
9 hazards, biological resources, soils, and cultural resources. These impacts would
10 be increased in magnitude due to placing the construction of the pipeline closer to
11 residences and thereby increasing the construction noise, visibility of construction
12 activities, and the risk of upset hazards to a greater number of people. Option D
13 would also increase the number of trees impacted, and place the pipeline outside of
14 the area previously surveyed for cultural resources.

15 Option D would not reduce the significant and unavoidable construction air quality
16 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
17 ~~the risk of pipeline upset, and land use compatibility~~).

18 **Option E.** Option E would involve a minor realignment of the proposed Line 406
19 route. This would position the route to follow CR-19, east of CR-87. At CR-19A, it
20 would extend back to the north via an existing dirt road and underneath a large
21 electrical transmission corridor. This route alternative would then cross an irrigation
22 lateral and continue north where it would converge back with the proposed Line 406
23 route, just west of I-505. This alternative would then follow the same route as the
24 proposed Project east of I-505. This option would increase the overall pipeline
25 length by roughly 3,480 feet. Figure 3-2D shows Option E.

26 This option would not result in a reduction of any impacts associated with the
27 proposed Project. This option would have similar impacts as the proposed Project in
28 the resource areas of air quality, cultural resources, geologic hazards, hydrology and
29 water quality, land use and planning, noise, recreation, population and utilities,
30 energy and mineral resources, and transportation. While Option E would result in
31 similar impacts to agricultural resources as the proposed Project, it would result in
32 less segmenting of agricultural fields.

33 This option would result in a greater magnitude of impacts to aesthetics, noise,
34 biological resources, soils, and cultural resources. These impacts would be

1 increased in magnitude due to placing the construction of the pipeline closer to
2 residences and thereby increasing the construction noise, visibility of construction
3 activities, and the risks of upset hazards to a greater number of people. Option E
4 would also increase the number of trees impacted, increase the disturbance of soils,
5 and place the pipeline outside of the area previously surveyed for cultural resources.

6 Option E would not reduce the significant and unavoidable construction air quality
7 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
8 ~~the risk of pipeline upset, and land use compatibility~~).

9 **Option F.** Option F would follow the proposed alignment for Line 406 from Lines
10 400 and 401 to the eastern end of the Dunnigan Hills, where it would turn north off
11 CR-17 approximately 5,000 feet west of CR-95A. This alternative option would not
12 alter the length of the segment, but would turn north to align with the I-5 crossing
13 further east than the proposed alignment. Figure 3-2E shows Option F.

14 This option would result in a reduction in the number of trees impacted. This option
15 would also result in a reduced number of residences to evaluate for eligibility for
16 listing on the NRHP or the CRHR. This option would have similar impacts as the
17 proposed Project in the resource areas of aesthetics, agricultural resources, air
18 quality, cultural resources, hydrology and water quality, geologic and risk of upset
19 hazards, recreation, land use, noise, population and utilities, traffic, and energy and
20 mineral resources.

21 This option would increase the magnitude of impacts to biological resources by
22 bordering an ephemeral drainage with adjacent wetlands that the Project avoids.

23 Option F would not reduce the significant and unavoidable construction air quality
24 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
25 ~~the risk of pipeline upset, and land use compatibility~~).

26 **Option G.** Option G would be located at the western end of Line 407 West, just east
27 of the Yolo Junction Station and existing Line 172A. This alternative leaves the
28 proposed Yolo Junction Station and aligns with an unnamed farm road, which it
29 follows along a field edge until the intersection of CR-16A and CR-98. This
30 alternative option would not alter the length of the segment. Figure 3-2F shows
31 Option G.

32 This option would not result in a reduction of any impacts associated with the
33 proposed Project. This option would increase the magnitude of impacts to biological

1 resources due to an increase in the number of trees impacted. This option would
2 have similar impacts as the proposed Project in the resource areas of aesthetics,
3 agricultural resources, air quality, hydrology and water quality, geologic and risk of
4 upset hazards, recreation, land use, noise, population and utilities, traffic, cultural
5 resources, and energy and mineral resources.

6 Option G would not reduce the significant and unavoidable construction air quality
7 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
8 ~~the risk of pipeline upset, and land use compatibility~~).

9 **Option H.** Near the western levee of the Yolo Bypass, Option H would head
10 southeast through agricultural fields within the Yolo Bypass to a point on the
11 Sacramento River directly across from West Elverta Road. It would then cross the
12 Sacramento River and parallel West Elverta Road to Powerline Road. The route
13 would head north paralleling Powerline Road to Riego Road and would then parallel
14 Riego Road through the Natomas Basin Conservancy to Steelhead Creek. The
15 route would parallel the northern border of the Placer Vineyards Specific Plan area
16 along Baseline Road (Riego Road becomes Baseline Road in Placer County) until
17 the tie-in with Line 123 at the intersection of Baseline Road and Fiddymont Road.
18 This alternative option would reduce the overall pipeline length by roughly 2,900
19 feet. Figure 3-2G shows Option H.

20 This option would result in a reduction in the magnitude of impacts to aesthetics and
21 noise due to the movement of a portion of the pipeline further away from residences.
22 Because of the reduced length, this option would reduce impacts to soils and reduce
23 the potential for introduction of invasive species.

24 This option would have similar impacts as the proposed Project in the resource
25 areas of agricultural resources, air quality, hydrology and water quality, geologic and
26 risk of upset hazards, recreation, land use, population and utilities, traffic, and
27 energy and mineral resources.

28 This option would increase the magnitude of impacts to biological resources due to
29 an increase in the number of trees, wetlands, and riparian woodland communities
30 impacted. The difference in impacts to cultural resources is unknown since Option H
31 would occur outside of the corridor surveyed for cultural resources.

32 Option H would not reduce the significant and unavoidable construction air quality
33 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
34 ~~the risk of pipeline upset, and land use compatibility~~).

1 **Option I.** This option would follow the proposed alignment for Line 407-E along
2 Base Line Road to South Brewer Road, where the pipeline would extend north along
3 the west side of South Brewer Road, crossing one seasonal wetland, to a point
4 approximately 1,500 feet north of the intersection of Base Line Road and South
5 Brewer Road. This alternative would then extend east for approximately 1.0 mile
6 through agricultural land, crossing Steelhead Creek and two seasonal wetlands
7 before reaching Country Acres Lane. From this point, this alternative would turn
8 south and travel through pasture/fallow agricultural fields along the east side of
9 Country Acres Lane, crossing seasonal wetlands. At the intersection with Base Line
10 Road, the pipeline would join and follow the remainder of the proposed alignment for
11 Line 407-E along Base Line Road. This option would increase the overall pipeline
12 length by roughly 2,900 feet. Figure 3.2-H depicts Option I.

13 This option would result in a reduction in the magnitude of impacts to aesthetics and
14 noise due to the movement of a portion of the pipeline to a location with fewer
15 residences. This option would reduce the risk of upset hazards to a planned high
16 school site.

17 This option would have similar impacts as the proposed Project in the resource
18 areas of agricultural resources, air quality, cultural resources, hydrology and water
19 quality, geologic hazards, recreation, land use, population and utilities, traffic, and
20 energy and mineral resources.

21 This option would increase the magnitude of impacts to biological resources such as
22 seasonal wetlands and swales, a vernal pool, and an additional creek, though it
23 would reduce impacts to trees. This option would also increase the magnitude of
24 disturbance to soils, which may increase the potential for introduction of invasive
25 species.

26 Option I would not reduce the significant and unavoidable construction air quality
27 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
28 ~~the risk of pipeline upset, and land use compatibility~~).

29 **Option J.** This option would follow the proposed alignment for Line 407-E along
30 Base Line Road to South Brewer Road, where the pipeline would extend north along
31 the west side of South Brewer Road, crossing one seasonal wetland, a vernal pool,
32 and Steelhead Creek, to a point approximately 2,600 feet north of the intersection of
33 Base Line Road and South Brewer Road. This alternative would then extend
34 approximately 0.5 mile east through agricultural land and seasonal wetlands before

1 turning south for approximately 0.1 mile. This alternative would then turn east again
2 and extend approximately 0.5 mile along the edge of a rice field to Country Acres
3 Lane. From this point, this alternative would turn south and travel through
4 pasture/fallow agricultural fields along the east side of Country Acres Lane, crossing
5 a seasonal swale and seasonal wetlands. At the intersection with Base Line Road,
6 the pipeline would join and follow the remainder of the proposed alignment for Line
7 407-E along Base Line Road. This option would increase the overall pipeline length
8 by roughly 5,250 feet. Figure 3.2-I shows Option J.

9 This option would result in a reduction in the magnitude of impacts to aesthetics and
10 noise due to the movement of a portion of the pipeline to a location with fewer
11 residences. This option would result in a reduction in the magnitude of risk of upset
12 hazards to a planned high school by moving the pipeline to a location over 1,500
13 feet from the high school site. ~~This option also would reduce the risk of upset~~
14 ~~hazards to a planned high school site.~~

15 This option would have similar impacts as the proposed Project in the resource
16 areas of agricultural resources, air quality, cultural resources, hydrology and water
17 quality, geologic hazards, recreation, land use, population and utilities, traffic, and
18 energy and mineral resources.

19 This option would increase the magnitude of impacts to biological resources such as
20 seasonal wetlands and swales, and a vernal pool, though reduce impacts to trees
21 (potential Swainson's hawk nesting habitat). This option would also increase the
22 magnitude of disturbance to soils, which may increase the potential for introduction
23 of invasive species.

24 Option J would not reduce the significant and unavoidable construction air quality
25 impacts associated with the proposed Project. ~~(construction air quality, hazards from~~
26 ~~the risk of pipeline upset, and land use compatibility).~~

27 **Option K.** Option K would follow the proposed alignment for Line 407-E along Base
28 Line Road to a location approximately 3,300 feet east of Country Acres Lane. This
29 alternative would then extend northeast, at an angle, to a point approximately 150
30 feet north of Base Line Road. The pipeline would then turn and extend directly east
31 for approximately 0.2 mile, and then would turn southeast and extend, at an angle,
32 back to Base Line Road. The pipeline would then join and follow the remainder of
33 the proposed alignment for Line 407-E along Base Line Road. This alternative
34 would cross a vernal pool and seasonal wetlands, and would require the redesign or

1 relocation of the proposed HDD at this location in order to construct this alternative
2 alignment. This option would increase the overall pipeline length by roughly 70 feet.
3 Figure 3.2-J shows Option K.

4 This option would result in a reduction in the magnitude of impacts to aesthetics and
5 noise due to the movement of a portion of the pipeline to a location with fewer
6 residences. This option would help reduce the risk of upset to a planned elementary
7 school.

8 This option would have similar impacts as the proposed Project in the resource
9 areas of agricultural resources, air quality, hydrology and water quality, geologic
10 hazards, recreation, land use, population and utilities, traffic, and energy and mineral
11 resources.

12 This option would increase the magnitude of impacts to biological resources such as
13 seasonal wetlands and swales, and a vernal pool. Option K would not reduce the
14 significant and unavoidable construction air quality impacts associated with the
15 proposed Project. (~~construction air quality, hazards from the risk of pipeline upset,~~
16 ~~and land use compatibility~~).

17 **Option L.** Option L would follow the proposed alignment for Line 407-E along Base
18 Line Road, but would extend the proposed HDD approximately 1,345 feet to the
19 east. This alternative would increase the depth of cover through the buffer zone to
20 approximately 35 feet and reduce the risk potential to a planned elementary school
21 south of Base Line Road. Approximately 1,000 feet of trenching for Line 407 E
22 would be replaced by HDD construction. Figure 3.2-K shows Option L. This option
23 would include the following PG&E Applicant Proposed Measure:

24 **APM ALT-L**

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

1 This option would help reduce the risk of upset to a planned elementary school.
 2 This option would not result in an increase in the magnitude of any impacts
 3 associated with the proposed Project. This option would have similar impacts as the
 4 proposed Project in the resource areas of aesthetics, agricultural resources, air
 5 quality, hydrology and water quality, geologic and risk of upset hazards, recreation,
 6 land use, noise, population and utilities, traffic, cultural resources, and energy and
 7 mineral resources.

8 The maximum risk posed by Line 407 in the area of the planned school before
 9 mitigation is 1:2,062,000, and after mitigation it is 1:4,115,000 chances of fatality per
 10 year. This is less than the 1:1,000,000 threshold used by the California Department
 11 of Education for siting schools. The highest risk along a segment of pipeline is to
 12 persons located immediately above the pipeline, and the risk decreases as a person
 13 is farther away from the pipeline. Because the calculated individual risk is less than
 14 the threshold of 1:1,000,000, the risk is considered to be less than significant.

15 The planned elementary school is located 1,400 feet from the proposed pipeline,
 16 and the risk analysis shows no risk of fatality or serious injury at that distance.
 17 However, this option would help reduce the risk of upset by burying the pipeline
 18 deeper and reducing the potential for third-party incidents.

19 Option L would not reduce the significant and unavoidable construction air quality
 20 impacts associated with the proposed Project. (~~construction air quality, hazards from~~
 21 the risk of pipeline upset, and land use compatibility).

22 ENVIRONMENTAL IMPACTS AND MITIGATION

23 Table ES-1 presents a summary of impacts and mitigation measures for the
 24 proposed Project. This table is presented by issue area. Within each issue area,
 25 each impact that requires mitigation is described and classified, and recommended
 26 mitigation is listed, and the level of impact with mitigation is stated.

27 COMPARISON OF PROPOSED PROJECT AND ALTERNATIVES

28 The CEQA Guidelines (section 15126.6 (d)) requires that an EIR include sufficient
 29 information about each alternative to allow meaningful evaluation, analysis, and
 30 comparison with the proposed Project. A matrix displaying the major characteristics
 31 and significant environmental effects of each alternative may be used to summarize
 32 the comparison. Table ES-2 provides a comparison of the proposed Project with

- 1 each of the Alternatives evaluated in this document, including the No Project
- 2 Alternative.

1 **Table ES-1: Summary of Environmental Impacts for the Proposed Project**

2 **Impact**

3 **Class** **Description**

4 I Significant adverse impact that remains significant after mitigation.

5 II Significant adverse impact that can be eliminated or reduced below an issue's

6 significance criteria.

7 III Adverse impact that does not meet or exceed an issue's significance criteria.

8 IV Beneficial impact.

9

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
Section 4.1 Aesthetic/Visual Resources			
AES-1	The Project would substantially degrade the existing visual character or quality of the site and its surroundings.	II	AES-1 Replanting of screening vegetation.
AES-2	The proposed Project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	II	AES-2 Light shielding and positioning away from residences.
Section 4.2 Agricultural Resources (Less than Significant (Class III) - No Impact Statements or Mitigation Measures)			
Section 4.3 Air Quality			
AQ-1	The Project would result in construction or operational emissions that exceed quantitative significance thresholds (including quantitative thresholds for ozone precursors) established by air pollution control districts in which the Project would be constructed.	I	AQ-1a Fugitive PM ₁₀ Control. AQ-1b NO _x Mitigation Menu. AQ-1c PCAPCD Mitigation. AQ-1d SMAQMD Mitigation.
AQ-2	The Project would result in emissions that substantially contribute to an exceedance of a State or Federal ambient air quality standard.	I	AQ-1a Fugitive PM ₁₀ Control. AQ-1b NO _x Mitigation Menu. AQ-1c PCAPCD Mitigation. AQ-1d SMAQMD Mitigation.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
AQ-3	The Project would produce greenhouse gas emissions and contribute to climate change.	II	AQ-3 GHG Emission Offset Program.
Section 4.4 Biological Resources			
BIO-1	The proposed Project would fill or alter a wetland or vernal pool, resulting in a long-term change in its hydrology or soils, or the composition of vegetation of a unique, rare, or special concern wetland community.	II	BIO-1a Wetland avoidance and restoration. BIO-1b Trench backfill and topographic restoration. BIO-1c Riparian avoidance and restoration.
BIO-2	The Project would result in the long-term (more than 5 years) reduction or alteration of unique, rare, or special concern vegetation types, riparian vegetation, or natural communities.	II	BIO-2a Tree avoidance and replacement. BIO-2b Avoidance of valley oak woodland.
BIO-3	The Project would introduce new, or lead to the expanded range of existing, invasive noxious weed species or soil pests, so that they interfere with crop production or successful revegetation of natural communities.	II	BIO-3 Prepare and implement an invasive species control program.
BIO-4	The Project would cause a temporary loss or alteration of habitat important for one or more listed species that could result in avoidance by a listed species, or that could cause increased mortality or lowered reproductive success of the species.	II	BIO-4a Protect special-status wildlife. BIO-4b Mitigation for potential impacts to Natomas Basin Conservancy mitigation lands. BIO-4c Mitigation for potential impacts to Sacramento River Ranch Conservation Bank mitigation lands. BIO-4d Protect special-status bird species.
Section 4.5 Cultural Resources			
PALEO-1	Project construction or operation would result in damage or loss of vertebrate or invertebrate fossils that are considered important by paleontologists and land management agency staff.	II	PALEO-1 Proper curation of fossil collection.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
PALEO-2	The Project is considered to be a resource having scientific or educational value based on the significance criteria given in Section 4.6.3.	II	PALEO-2 Delivery of fossil collection to appropriate location.
Section 4.6 Geology and Soils			
GEO-1	The Project would result in a risk of damage to structures from ground motion due to a seismic event or resulting phenomenon such as liquefaction or settlement, or from rupture of a known earthquake fault as delineated on the most recent Alquist Priolo Earthquake fault Zoning Map.	II	GEO-1 Site specific seismic field investigation.
Section 4.7 Hazards and Hazardous Materials			
HAZ-1	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.	II	HAZ-1 Minimize risk of fire.
HAZ-2	<u>The calculated individual risk is less than the threshold of 1:1,000,000, therefore the risk is considered to be less than significant. Even though the project risk impacts are less than significant, additional measures would be implemented to further reduce risks of project upset.</u> The Project would expose people to an unacceptable risk of existing or potential hazards, including upset and accident conditions involving the risk for fires, explosions, or the release of natural gas into the environment.	III	HAZ-2a Corrosion and third party damage mitigation. HAZ-2b Installation of automatic shutdown valves.
Section 4.8 Hydrology and Water Quality			
HWQ-1	The Project could result in violation of Federal or State	II	HWQ-1 Response to unanticipated release of drilling

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
	Agency quantitative or qualitative water quality criteria, standards, or objectives (including objectives promulgated by the CVRWQCB and criteria set forth in the Proposed California Toxics Rule).		fluids.
HWQ-2	The Project could interrupt or degrade groundwater used for private or municipal purposes.	II	HWQ-2 Verify well <u>and irrigation system</u> locations.
HWQ-3	The Project would place permanent structures within the 100-year floodplain that would be damaged by flooding.	II	HWQ-3 Flood-proof pump houses within 100-year floodplain.
Section 4.9 Land Use and Planning			
LU-1	The proposed 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, but would cross lands included in the Natomas Basin Conservancy and River Ranch Conservation Bank. The Project could also conflict with operation of Western Area Power Administration (WAPA) power lines.	II	LU-1a Mitigation for impacts to the Natomas Basin Conservancy mitigation lands. LU-1b Mitigation for impacts to the Sacramento River Ranch Conservation Bank mitigation lands. LU-1c WAPA license agreement. <u>LU-1d Potential Conflicts with Other Utilities</u>
LU-2	<u>The calculated individual risk is less than the threshold of 1:1,000,000, therefore the risk is considered to be less than significant. Even though the project risk impacts are less than significant, additional measures would be implemented to further reduce risks of project upset.</u> The proposed Project would expose people to an unacceptable risk of existing or potential hazards, including upset and accident conditions involving the risk for fires, explosions, or the release of natural gas into the environment.	III	LU-2a Mitigation for safety risk to nearby land uses. LU-2b Mitigation for safety risk to nearby land uses.
Section 4.10 Noise			
NOI-1	Noise levels from Project construction would exceed	II	NOI-1a Limited construction hours.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
	criteria defined in a construction noise ordinance or general plan of the local jurisdiction in which the activity occurs.		NOI-1b Best management practices. NOI-1c Noise reduction plan.
NOI-2	Groundborne vibrations or groundborne noise from Project activities would have substantial direct or indirect effects on persons or structures.	II	NOI-2a Distance from residences. NOI-2b Heavy-loaded trucks. NOI-2c Earth-moving equipment/distance from vibration-sensitive sites. NOI-2d Nighttime construction.
Section 4.11 Recreation (Less than Significant (Class III) - No Impact Statements or Mitigation Measures)			
Section 4.12 Population and Housing/Public Services/Utilities and Service Systems (Less than Significant (Class III) - No Impact Statements or Mitigation Measures)			
Section 4.13 Transportation and Traffic (Less than Significant (Class III) - No Impact Statements or Mitigation Measures)			
Section 4.14 Energy and Mineral Resources (Less than Significant (Class III) - No Impact Statements or Mitigation Measures)			

1

2

Table ES-2: Summary of Environmental Impacts for Proposed Project and Alternatives

Impact Class	Description
I	Significant adverse impact that remains significant after mitigation.
II	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
III	Adverse impact that does not meet or exceed an issue's significance criteria.
IV	Beneficial impact.

Magnitude of Alternative Option Impact as compared to the Proposed Project is shown by the following:

- 0 = No Impact**
- / = Similar Impact**
- = Lesser Magnitude of Impact**
- + = Greater Magnitude of Impact**

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
Section 4.1 Aesthetics and Visual Resources															
AES-1	The Project substantially degrade the existing visual character or quality of the site and its surroundings.	II	No Impact 0	II -	II /	II /	II +	II +	II -	II /	II -	II -	II -	II /	II /

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
AES-2	The Project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	II	No Impact 0	II -	II /	II /	II +	II +	II -	II /	II -	II -	II -	II /	II /
Section 4.2 Agricultural Resources (No Impact)															
Section 4.3 Air Quality															
AQ-1	The Project would result in construction or operational emissions that exceed quantitative significance thresholds (including quantitative thresholds for ozone precursors) established by air pollution control districts in which the Project would be constructed.	II	No Impact 0	II /											
AQ-2	The Project would result in emissions that substantially contribute to an exceedance of a State or Federal ambient air quality standard.	I	No Impact 0	I /											

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
AQ-3	The Project would produce greenhouse gas emissions and contribute to climate change.	II	No Impact 0	II +	II +	II +	II +	II +	II /	II /	II -	II +	II +	II +	II +
Section 4.4 Biological Resources															
BIO-1	The Project would fill or alter a wetland or vernal pool, resulting in a long-term change in its hydrology or soils, or the composition of vegetation of a unique, rare, or special concern wetland community.	II	No Impact 0	II +	II +	II /	II /	II /	II /	II /	II +	II +	II +	II +	II -
BIO-2	The Project would result in the long-term (more than 5 years) reduction or alteration of unique, rare, or special concern vegetation types, riparian vegetation, or natural communities.	II	No Impact 0	II /											

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
BIO-3	The Project would introduce new, or lead to the expanded range of existing, invasive noxious weed species or soil pests, so that they interfere with crop production or successful revegetation of natural communities.	II	No Impact 0	II +	II +	II +	II +	II +	II -	II +	II -	II +	II +	II -	II -
BIO-4	The Project would cause a temporary loss or alteration of habitat important for one or more listed species that could result in avoidance by a listed species, or that could cause increased mortality or lowered reproductive success of the species.	II	No Impact 0	II -	II +	II +	II +	II +	II /	II +	II +	II +	II +	II -	II -
BIO-5	The Project would result in direct or indirect impact on special-status plant species that could reduce the abundance or substantially reduce the species numbers of	No Impact	No Impact 0	II +	II +	III /	II +	II +	III /	III /	II +	II +	II +	III /	III /

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
	special-status plant species.														
Section 4.5 Cultural Resources															
PALEO-1	Project construction or operation would result in damage or loss of vertebrate or invertebrate fossils that are considered important by paleontologists and land management agency staff.	II	No Impact 0	II /	II /	II /	II /	II /	II /	II /	II /	II /	II /	II /	II /
PALEO-2	The Project is considered to be a resource having scientific or educational value based on the significance criteria given in Section 4.6.3.	II	No Impact 0	II /	II /	II /	II /	II /	II /	II /	II /	II /	II /	II /	II /
CR-1	The Project would result in damage to, disruption of or otherwise adversely affect an important archeological or a listed important historic resource.	No Impact	No Impact 0	II +	II +	III /	II +	II +	III /-	III /	II +	III /-	III /-	III /	III /

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
Section 4.6 Geology, Soils, and Mineral Resources															
GEO-1	The Project would result in a risk of damage to structures from ground motion due to a seismic event or resulting phenomenon such as liquefaction or settlement, or from rupture of a known earthquake fault as delineated on the most recent Alquist Priolo Earthquake fault Zoning Map.	II	No Impact 0	II +	II +	II +	II +	II +	II /	II /	II -	II +	II /	II /	II /
Section 4.7 Hazards and Hazardous Materials															
HAZ-1	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	II	No Impact 0	II /											

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
	risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.														
HAZ-2	<u>The calculated individual risk is less than the threshold of 1:1,000,000, therefore the risk is considered to be less than significant. Even though the project risk impacts are less than significant, additional measures would be implemented to further reduce risks of project upset.</u> The Project would expose people to an unacceptable risk of existing or potential hazards, including upset and accident conditions involving the risk for	III	No Impact 0	III +/-	III +/-	III /	III +/-	III +/-	III +/-	III /	III /	III -/-	III -/-	III -/-	III -/-

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
	fires, explosions, or the release of natural gas into the environment.														
Section 4.8 Hydrology and Water Quality															
HWQ-1	The Project could result in violation of Federal or State Agency quantitative or qualitative water quality criteria, standards, or objectives (including objectives promulgated by the CVRWQCB and criteria set forth in the Proposed California Toxics Rule).	II	No Impact 0	II +	II /	II +	II -	II -	II /	II /	II +	II +	II +	II /	II /
HWQ-2	The Project could interrupt or degrade groundwater used for private or municipal purposes.	II	No Impact 0	II -	II +	II /	II +	II +	II -	II +	II -	II -	II -	II /	II /
HWQ-3	The Project would place permanent structures within the 100-year floodplain that would be damaged by flooding.	II	No Impact 0	II /											

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS												
				A	B	C	D	E	F	G	H	I	J	K	L	
Section 4.9 Land Use and Planning																
LU-1	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, but would cross lands included in the Natomas Basin Conservancy and River Ranch Conservation Bank. The Project could also conflict with operation of Western Area Power Administration (WAPA) power lines.	II	No Impact 0	II /	II /	II /	II /	II /	II /	II /	II +	II +	II -	II -	II -	II -
LU-2	<u>The calculated individual risk is less than the threshold of 1:1,000,000, therefore the risk is considered to be less than significant. Even though the project</u>	III	No Impact 0	III +/-	III +/-	III /	III +/-	III +/-	III +/-	III +/-	III /	III /	III -/-	III -/-	III -/-	III -/-

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
	<p>risk impacts are less than significant, additional measures would be implemented to further reduce risks of project upset. The Project would expose people to an unacceptable risk of existing or potential hazards, including upset and accident conditions involving the risk for fires, explosions, or the release of natural gas into the environment.</p>														
Section 4.10 Noise															
NOI-1	Noise levels from Project construction would exceed criteria defined in a construction noise ordinance or general plan of the local jurisdiction in which the activity occurs.	II	No Impact 0	II -	II /	II /	II +	II +	II -	II /	II /	II -	II -	II /	II /

Impact No.	Impact Description	Proposed Project	No Project	OPTIONS											
				A	B	C	D	E	F	G	H	I	J	K	L
NOI-2	Groundborne vibrations or groundborne noise from Project activities would have substantial direct or indirect effects on persons or structures.	II	No Impact 0	II -	II /	II /	II +	II +	II -	II /	II /	II -	II -	II /	II /
Section 4.11 Recreation (Less than Significant (Class III) – No Impact Statements or Mitigation Measures)															
Section 4.12 Socioeconomics (Less than Significant (Class III) – No Impact Statements or Mitigation Measures)															
Section 4.13 Transportation and Traffic															
TRANS-1	Project related traffic or other activities could restrict one or more travel lanes of a primary or secondary arterial during peak-hour traffic, thereby reducing the roadway's capacity and creating congestion.	III	No Impact 0	II +	II +	III /	III +	III +	III /	III /	III /	III /	III /	III /	III +
Section 4.14 Energy and Mineral Resources (Less than Significant (Class III) - No Impact Statements or Mitigation Measures)															

1
2

1 **ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

2 The CEQA Guidelines (section 15126.6 (d)) require that an EIR include sufficient
3 information about each alternative to allow meaningful evaluation, analysis, and
4 comparison with the proposed Project. The Guidelines (Section 15126.6 (e)(2))
5 further state, in part, that “*If the environmentally superior alternative is the “No
6 Project” alternative, the EIR shall also identify an environmentally superior
7 alternative among the other alternatives.*” (*Emphasis added*).

8 A narrative summary of the impacts associated with Alternative Options A through L,
9 as compared to the proposed Project impacts, is provided above. Table ES-2
10 summarizes the environmental impacts for the proposed Project, the No Project
11 Alternative, and the twelve alternative options analyzed in the Draft EIR. None of
12 the alternative options A through L that were analyzed would reduce the significant
13 and unavoidable (Class I) impacts associated with the proposed Project. These
14 That impacts are is associated with construction air quality, hazards from the risk of
15 pipeline upset, and land use compatibility.

16 While none of the alternative options A through L reduce ~~any of~~ the Class I
17 construction air quality impacts to less than significant, nor any of the Class II
18 impacts to less than significant without mitigation, some of the options do reduce the
19 magnitude of the impacts associated with the proposed Project. Table ES-2 also
20 depicts whether the impacts associated with the project are the same, reduced in
21 magnitude, or increased in magnitude by each alternative option.

22 Under the No Project Alternative, a natural gas pipeline would not be constructed
23 between existing Lines 400 and 401 in Yolo County and the existing Line 123 in
24 Placer County. PG&E’s studies indicate that the natural gas transmission and
25 distribution system may not be able to reliably serve current customers and planned
26 development in Yolo, Sacramento, Sutter, and Placer counties by 2009.
27 Additionally, continued growth in those counties would put further strain on existing
28 natural gas infrastructure, and could result in emergency restriction or interruption of
29 services. The No Project alternative would not result in any of the impacts
30 associated with the proposed Project. Therefore, the No Project alternative is
31 considered the environmentally superior alternative. It should be noted that the No
32 Project Alternative would not meet the Project objectives because PG&E would be
33 unable to meet its public utility obligations to provide natural gas service to its
34 customers in accordance with the California Public Utilities Code and associated
35 orders, rules and tariffs.

1 Among the other alternatives, the determination of an environmentally superior
2 alternative is difficult because of the many factors that must be balanced, and none
3 of the alternative options reduce the construction air quality Class I impacts. Some
4 of the impacts may be reduced in magnitude while, at the same time, others are
5 increased in magnitude. In general, there would be minor differences in the
6 magnitude of impacts between the proposed Project and the alternatives, but all
7 would result in the same impact significance levels within each environmental
8 resource area.

9 Some of the alternative options would reduce the number of agricultural fields that
10 would be segmented by the Project pipeline. However, this would result in the
11 movement of the pipeline closer to roadways, residences, and in some cases
12 businesses, thereby increasing the number of people that would be at risk if a leak
13 or rupture of the pipeline were to occur with a subsequent explosion and/or fire.

14 The following discussion includes alternative options that would help to reduce the
15 magnitude of some of the impacts associated with the proposed Project, even
16 though some of the other impacts would be greater in magnitude than the proposed
17 alignment in the same segment area.

18 Alternative Option I would reduce the risk of upset hazards to a planned high school
19 along Baseline Road by moving the pipeline to a location outside of the 1,500-foot
20 safety buffer required by state school regulations. This option would reduce impacts
21 to trees, and would reduce construction noise by moving the pipeline location further
22 from residences along Baseline Road. However, this option would increase the
23 magnitude of impacts to biological resources by impacting a seasonal wetland,
24 swale, vernal pool and a creek not associated with the proposed alignment. All of
25 these impacts would be mitigated in a manner similar to the proposed Project.

26 Alternative Option L would reduce the risk of upset hazards to a planned elementary
27 school south of Baseline Road. This option would not result in the increase or
28 decrease in the magnitude of any impacts associated with the proposed alignment.

29 The environmentally superior alternative would be incorporating Alternative Options I
30 and L into the proposed Project alignment. The decrease in the magnitude of
31 impacts to safety risks to planned schools would outweigh the additional impacts to
32 biological resources, and incorporation of Option I and Option L into the proposed
33 Project would better promote the objectives of the Project than the proposed
34 alignment because it would increase the safety of the pipeline. The increased

1 magnitude of wetland and vernal pool impacts would be mitigated by the measures
2 outlined in Sections 4.4.4 and 4.4.5.

3 **KNOWN AREAS OF CONTROVERSY OR UNRESOLVED ISSUES**

4 The comments received during the Notice of Preparation (NOP) public scoping
5 period raised issues related to impacts to aesthetic/visual, agricultural, air quality,
6 biological resources, geology and soils, hazards and safety, hydrology and water
7 quality, land use, socioeconomics, and traffic and transportation resources.
8 Appendix B provides a copy of the NOP, copies of comment letters received during
9 the NOP and scoping process, and copies of the transcripts taken at the scoping
10 meetings, and indicates the section of the EIR in which the issue is addressed.

11 **1.0 INTRODUCTION**

12 **Page Revision:**

13 **1-2** Curry Creek Community Plan – a mixed use development plan in
14 Placer County. The plan area covers 2,828 acres north of Base Line
15 Road, north of the Placer Vineyards Specific Plan and west of the
16 West Roseville Specific Plan.

17 **1-3** PG&E's current 10-year investment plan for meeting the customer load
18 growth projected for the Sacramento Valley Local Transmission
19 System includes a new transmission pipeline that extends from Lines
20 400 and 401 and travels in an east-west ~~north-south~~ direction
21 paralleling County Road (CR) 85 near Esparto to Line 172A (Line 406),
22 a new transmission pipeline that extends from Line 172A in the town of
23 Yolo east to Line 123 in Roseville (Line 407), and a new distribution
24 feeder main (DFM) that extends from Line 407 south to the
25 Sacramento Metro Air Park.

26 **1-4** The California Public Utilities Commission (CPUC) has exclusive
27 jurisdiction over the design and construction of the pipeline. The
28 proposed Project would also require approvals and/or review by a
29 number of Federal, State, and local agencies as noted in Section 1.4 -
30 Permits, Approvals and Regulatory Requirements. However, as a
31 CPUC-regulated public utility, PG&E is not subject to local land use
32 and zoning regulations, and no local discretionary permits are required
33 for the Project.

1 **1-8** As a CPUC-regulated public utility, PG&E is not subject to local land
 2 use and zoning regulations, and local discretionary permits are not
 3 required for the Project. However, ~~In addition to action by the CSLC,~~
 4 the proposed Project may ~~will~~ require permits or approvals from the
 5 following reviewing authorities and regulatory agencies:

- 6 **1-9** • ~~State Reclamation Board~~ Central Valley Flood Protection Board;

7 **2.0 PROJECT DESCRIPTION**

8 **Page Revision:**

9 **2-16** Use restrictions required in the permanent easement would prohibit the
 10 planting of deep-rooted plants, such as trees or vines within 1045 feet
 11 of the pipeline centerline for protection of the pipeline, but other
 12 agricultural uses would be allowed.

13 **2-16** The proposed pipeline traverses several different class locations,
 14 requiring different wall thicknesses and grades of steel pipe (~~Grade X-~~
 15 ~~60~~) designed for a Maximum Allowable Operating Pressure (MAOP) of
 16 975 pounds per square inch gauge (psig). The 10-inch DFM would be
 17 designed for a MAOP of ~~500 psig to~~ 975 psig. Industry standards for
 18 pipeline sections installed via Horizontal Directional Drill (HDD)
 19 technology require a pipe diameter to wall thickness ratio (D/t) of 50 or
 20 below. Refer to Table 2-2 for pipe wall thickness specifications
 21 required in each class location.

22 **2-17** The following changes have been made to Table 2-1:

Water Crossings	35	35 to <u>8060</u>	Prevention of unintentional drill mud release and to meet CSLC minimum depth requirements.	None
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23

1 **2-18** The following changes have been made to Table 2-2:

2 **Table 2-2: Pipeline General Area Class Specifications**

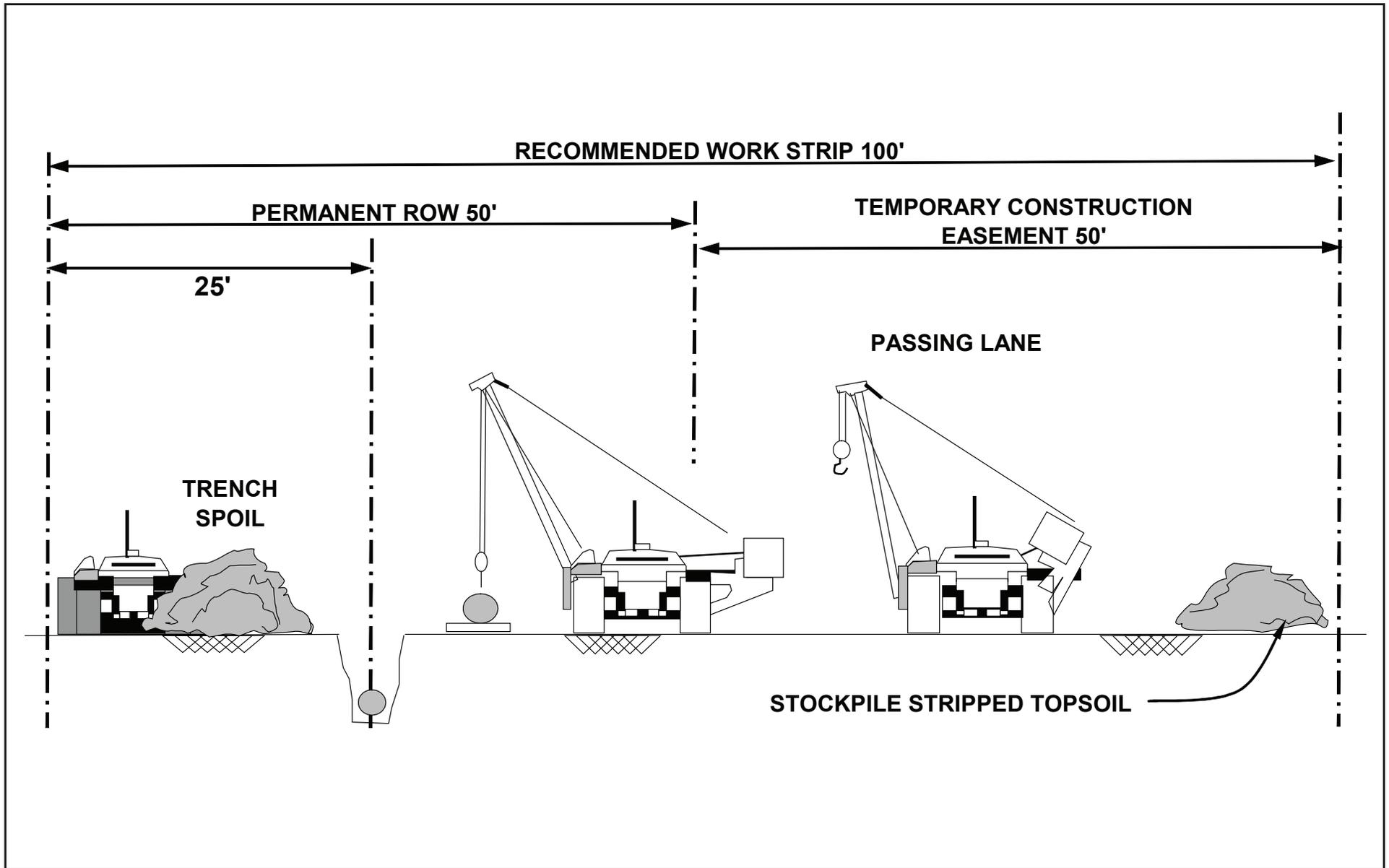
Pipeline Attribute	Class 1	Class 2	Class 3	DFM	HDD
Outside Diameter	30-inch	30-inch	30-inch	10-inch	30-inch
Grade	65,000	65,000/60,000 ³	60,000	52,000 60,000	65,000
Wall Thickness	0.375	0.406/0.438 ³	0.500	0.250	0.625
Seam Type ¹	DSAW	DSAW	DSAW	ERW DSAW	DSAW
Maximum Allowable Operating Pressure	975 psig	975 psig	975 psig	500 -975 psig	975 psig
Percent SMYS at MAOP	60.0%	55.4%/55.7%	48.8%	40. 30 %	36.0%
Maximum Operating Pressure (psig)	975	975	975	975	975
Normal Operating Pressure (psig)	625 to 975	625 to 975	625 to 975	500 to 975	625 to 975
Minimum Operating Pressure (psig)	625	625	625	500	625
ANSI Rating ²	ANSI 600	ANSI 600	ANSI 600	ANSI 600	ANSI 600
¹ DSAW - Double Submerged Arc Welding, ERW – Electric Resistance Welding. ² ANSI - American National Standards Institute. ³ Second values are for Alternate Class 2 Specifications Source: PG&E 2008.					

3

4 **2-20** The ~~targeted~~ proposed in-service date is ~~February~~ November 2010.

5 **2-31** The YJS would be no greater than 105 feet in height.

6 **2-35** Please see revised Figure 2-9 on page 4-~~408~~ of this section.



Source: CSLC 2007.



NOT TO SCALE

Michael Brandman Associates

23440005 • 09/2008 | 2-9_100_foot_construction_row.pdf

Figure 2-9
30-Inch Pipeline Construction ROW Configuration

CALIFORNIA STATE LANDS COMMISSION • PG&E LINE 406/407 NATURAL GAS PIPELINE
DRAFT EIR

- 1 **2-37** A 60-foot wide TUA would be used for construction of the 10-inch
 2 pipeline segments for the distribution feeder main in constricted
 3 workspaces and would require that excavated soil be transported to an
 4 adjacent TUA (see revised Figure 2-10 on page 4-43 of this section).
- 5 **2-37** Staging areas along the Project right-of-way would be within the TUA.
 6 would generally be approximately 300 by 200 feet.
- 7 **2-37** The exception to the 50-foot permanent easement occurs along the
 8 proposed Powerline Road DFMDMF, where PG&E would acquire a 35-
 9 foot permanent easement and an adjacent 25-foot TCE for a total 60-
 10 foot-wide TUA (revised Figure 2-10 on page 4-43 of this section).
- 11 **2-37** Restrictions in the easement would prohibit the planting of deep-rooted
 12 plants such as trees and vines within 1045 feet of the pipeline
 13 centerline for protection of the pipeline, but other uses would be
 14 allowed.
- 15 **2-38** The Arbuckle yard would be utilized for the Line 406 segment of the
 16 Project and would be used from Spring 2009 until the completion of
 17 Line 406 to June 2010 (Figure 2-13). The Woodland yard would be
 18 utilized during for the construction of Line 407 East and West
 19 segments of the Project, projected to begin in 2012 and would be used
 20 from January 2010 to June 2013.
- 21 **2-38** Vegetation maintenance would be as needed to maintain a 2030-foot-
 22 wide corridor centered on the pipe that is free of deep-rooted plants.
- 23 **2-39** Please see revised Figure 2-10 on page 4-43-44 of this section.
- 24 **2-49** Also, PG&E would hold a preconstruction meetings with ~~between~~
 25 permitting entities and ~~the~~ construction crews.
- 26 **2-49** The following changes were made to Table 2-3:

Horizontal Directional Drill	35 to <u>80</u> 60
------------------------------	--------------------

27

- 28 **2-50** If this could not be accomplished, PG&E would construct them during
 29 the allowable time period between May 1 and October 1, or would

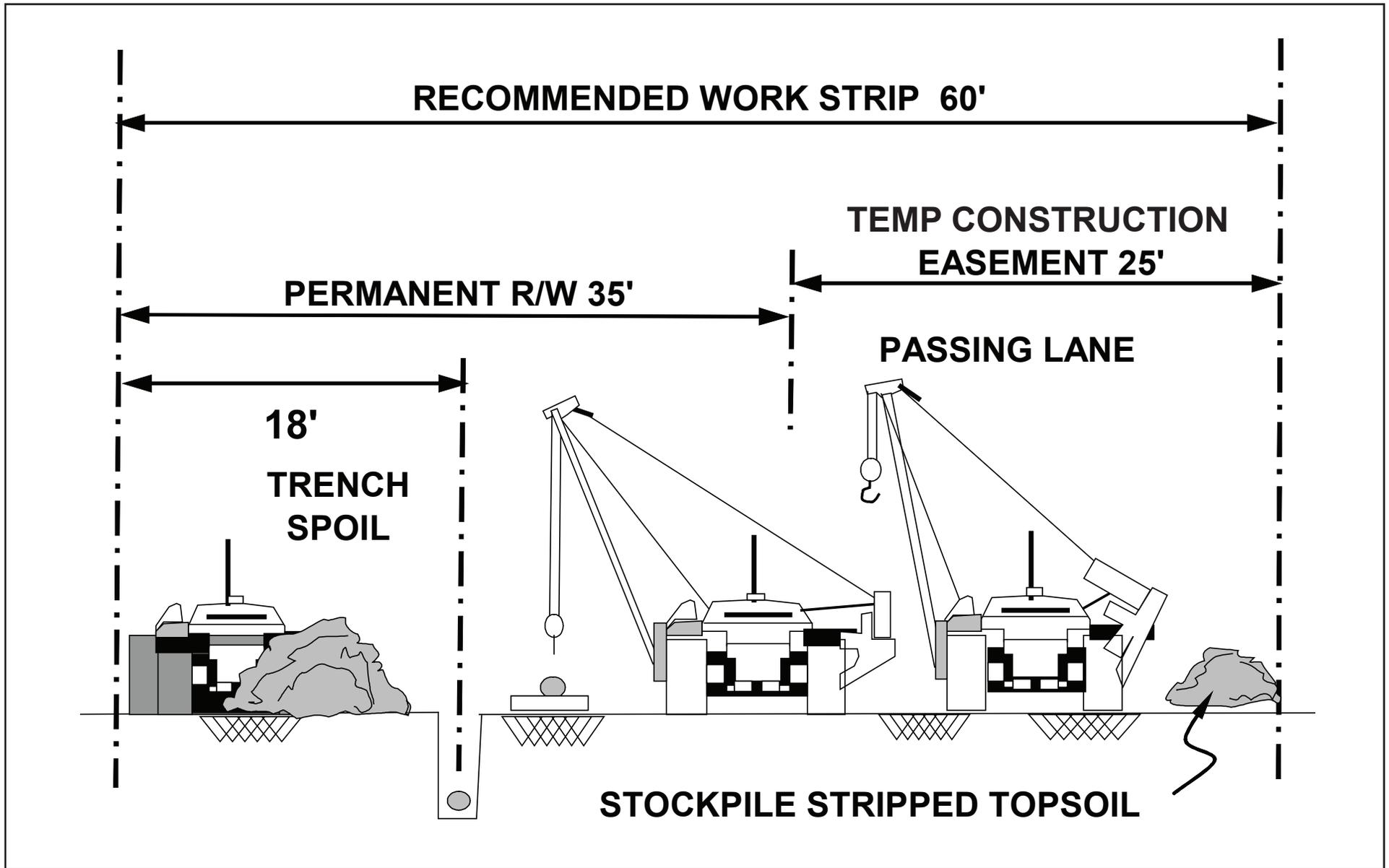
1 consult with the USFWS and CDFG to acquire permission to construct
2 the berms outside the GGS work window.

3 **2-55** The pipe sections would be welded together, x-rayed, and a protective
4 abrasion resistant coating epoxy applied to the joints.

5 **2-55** The Project pipeline would be located ~~installed~~ a minimum of 60 feet
6 underneath the bed and banks of any navigable water body and a
7 minimum of 35 feet below any ~~other~~ water feature to be crossed by
8 HDD technology.

9

10



Source: CSLC 2007.



NOT TO SCALE

Michael Brandman Associates

23440005 • 09/2008 | 2-10_60_foot_construction_row.pdf

Figure 2-10
10-Inch DFM Construction ROW Configuration

1 **2-56** The following changes were made to Table 2-5:

2 **Table 2-5: Pipeline Crossings Summary**

Feature Name¹	Project Segment/ Crossing #	Approximate Crossing Width (feet)	Type of Crossing²	Feature Acreage
Hungry Hollow Canal	Line 406/#1	124	TR or J/B	n/a
County Road (CR) 85	Line 406/#2	158	TR or J/B	n/a
CR-87	Line 406/#3	150	TR or J/B	n/a
CR-88A	Line 406/#4	59	TR or J/B	n/a
Drainage Canal (406 #1)	Line 406/#5	125	TR	n/a
I-505/CR-90A/Goodnow Slough	Line 406/#6	1,210	HDD	n/a
Yolo County Flood Control - Irrigation Canal	Line 406/#7	94	TR or J/B	n/a
CR-17	Line 406/#8	102	TR or J/B	n/a
CR-96/Acacia Canal	Line 406/#9	98	TR or J/B	n/a
CR-97 F/I-5/CR-99W	Line 406/#10	1,440	HDD	n/a
CR-98	Line 407 West/#1	51	TR or J/B	n/a
CR-16A	Line 407 West/#2	110	TR or J/B	n/a
CR-16A	Line 407 West/#2	100	TR or J/B	n/a
State Route (SR) 113	Line 407 West/#3	262	J/B	n/a
CR-100	Line 407 West/#4	123	TR or J/B	n/a
Dense Trees	Line 407 West/#4	423	TR or J/B	n/a
CR-101	Line 407 West/#5	136	TR or J/B	n/a
CR-102	Line 407 West/#6	151	J/B	n/a
CR-17	Line 407 West/#7	120	TR or J/B	n/a
Knights Landing Ridge Cut	Line 407 West/#8	2,400	HDD	n/a
West Yolo Bypass/Drainage	Line 407 West/#9	1,218	HDD	n/a

Feature Name¹	Project Segment/ Crossing #	Approximate Crossing Width (feet)	Type of Crossing²	Feature Acreage
East Yolo Bypass/Tule Canal	Line 407 West/#10	1,200	HDD	n/a
Drainage Canal (CR-16) #1	Line 407 West/#11	189	TR	n/a
Drainage Canal (CR-16) #2	Line 407 West/#12	184	TR	n/a
Drainage Canal (CR-16) #3	Line 407 West/#13	139	TR	n/a
Sacramento River	Line 407 West/#14	2,162	HDD	n/a
Riego Road	Line 407 West/#14	119	TR or J/B	n/a
Drainage Canal (Riego #1)	Line 407 West/#15	171	TR	n/a
Powerline Road/Irrigation Canal	Line 407 West/#16	n/a	TR	n/a
Riego Road	Powerline Road Distribution Feeder Main (DFM)/#1	148	TR or J/B	n/a
North Drainage Canal	Powerline Road DFM/#2	547	HDD	n/a
Irrigation Canal (Powerline #1)	Powerline Road DFM/#3	172	TR or J/B	n/a
Drainage Canal (Powerline #2)	Powerline Road DFM/#4	206	TR or J/B	n/a
Irrigation Canal (Powerline #3)	Powerline Road DFM/#5	184	TR or J/B	n/a
West Elverta Road	Powerline Road DFM/#6	n/a	TR	n/a
Irrigation Canal (Riego #2)	Line 407 East/#1	130	TR or J/B	n/a
North Drainage Canal (Riego #3)	Line 407 East/#2	191	TR or J/B	n/a
Irrigation Canal (Riego #4)	Line 407 East/#3	168	TR or J/B	n/a
SR 70/99/Irrigation Canals (Riego #5)	Line 407 East/#4	1,140	HDD	n/a
Irrigation Canal (Riego #6)	Line 407 East/#5	136	J/B	n/a

Feature Name¹	Project Segment/ Crossing #	Approximate Crossing Width (feet)	Type of Crossing²	Feature Acreage
Pacific Avenue	Line 407 East/#6	100	TR	n/a
Drainage Canal (Riego #7)	Line 407 East/#7	120	TR	n/a
Drainage Canal (Riego #8)	Line 407 East/#8	85	TR	n/a
Seasonal Wetlands	Line 407 East/#9	n/a	TR	n/a
East Levee Road, Steelhead Creek #1, Western Pacific Railroad	Line 407 East/#9	1,208	HDD	n/a
Pleasant Grove Road	Line 407 East/#10	100	TR	n/a
Riego Road Private Residence #1	Line 407 East/#11	296	TR or J/B	n/a
Vernal Pool/Vernal Swale #1	Line 407 East/#11	150	TR or J/B	0.03
Locust Road	Line 407 East/#12	60	TR	n/a
Seasonal Wetland #1	Line 407 East/#13	n/a	TR	0.05
Seasonal Wetland #2	Line 407 East/#14	n/a	TR	0.05
Seasonal Wetland #3	Line 407 East/#15	n/a	TR	0.09
Seasonal Wetland #4	Line 407 East/#16	n/a	TR	n/a
Brewer Road/ <u>Seasonal Wetland</u> Vernal Pool	Line 407 East/#17	123	TR or J/B	0.04
Seasonal Swale #1	Line 407 East/#17	n/a	TR	0.16
Riego Road Private Residence #2	Line 407 East/#18	150	TR or J/B	n/a
Seasonal Wetland #5	Line 407 East	225	TR or J/B	n/a
Riparian Wetland	Line 407 East/#19	n/a	TR	n/a
Seasonal Wetland #6	Line 407 East/#20	n/a	TR	n/a
Vernal Pool/ Vernal Swale #2	Line 407 East/#21	2,264	HDD	0.47

Feature Name ¹	Project Segment/ Crossing #	Approximate Crossing Width (feet)	Type of Crossing ²	Feature Acreage
Seasonal Wetland #7	Line 407 East/#20	n/a	TR	0.12
Seasonal Wetland #8/ Seasonal Swale #2	Line 407 East/#22	n/a	TR	n/a
Curry Creek #1/Vernal Pool/Vernal Swale #3	Line 407 East/#24a	1,872	HDD	n/a
<u>Seasonal Swale #3, 4/Vernal Pool #1</u>	<u>Line 407 East/#24b</u>	<u>n/a</u>	<u>HDD</u>	<u>n/a</u>
Curry Creek #2/ Vernal Pool Complex	Line 407 East/#25	1,900	HDD	n/a
Seasonal Swale #2	Line 407 East/#26	n/a	TR	0.1
Seasonal Wetland #9	Line 407 East/#27	n/a	TR	1.07
Notes: ¹ Final routing decisions may alter some of these crossings. ² (TR) Trenching, (HDD) Horizontal Directional Drill, (J/B) Jack and Bore, (n/a) Not Applicable or Not Available. Source: Adopted from PG&E 2007a (updated from information provided by PG&E 2008).				

1

2 **2-71** In response to these conditions, PG&E applied criteria specified in
 3 DOT 49 CFR Section 192.317 to protect the Project from flooding
 4 hazards. For those portions of the Project within the FEMA-designated
 5 100-year flood zone, PG&E would apply a factor of safety (FS) of 1.5.
 6 In other words, the downward force acting on the pipe would be 150
 7 percent of the upward force of buoyancy acting on the pipe. ~~to~~
 8 ~~decrease the downward force of backfill acting on the pipe. In addition,~~
 9 ~~a relative compaction of 80 percent would be required to ensure the~~
 10 ~~backfill will be stable during the first winter season.~~

11 **2-71** To address the potential for scour within the Yolo Bypass, cover would
 12 be increased from 5 feet to 7 feet, and a concrete coating would be
 13 applied to provide a downward force of 10 lbs/ft or 2-inch minimum
 14 thickness whichever is greater. Methods other than a concrete coating
 15 could be used if they are approved by a California licensed civil
 16 engineer, such as a slurry backfill placed in the ditch around the
 17 pipeline to a depth of 2 feet above the pipeline (5 feet below grade).

1 The slurry would have a minimum weight of 120 lbs/cubic foot to
 2 provide the required downward force to prevent buoyancy.

2-80

3 Construction of Line 406 would begin as soon as all agency approvals
 4 have been obtained in September or October 2009 with the targeted
 5 proposed in-service date scheduled for November February 2010. The
 6 Line 407 East, Line 407 West, and DFM segments may would be
 7 constructed in two ~~different~~ phases as dictated by the added load on
 8 the transmission system. ~~Current projections are that Phase 1,~~
 9 ~~consisting of Line 407 East and the DFM, would be constructed in May~~
 10 ~~2010 with an in-service date of September 2010. However, PG&E~~
 11 ~~acknowledges that Phase 1 installation may need to occur in advance,~~
 12 ~~as early as 2009, of several road improvement projects associated with~~
 13 ~~developments along Baseline Road and Riego Road. Phase 2,~~
 14 ~~consisting of Line 407 West, is projected to be required in 2012,~~
 15 Construction of the Line 407 segments is projected to begin in
 16 2012.but may be required earlier depending upon load growth in the
 17 area.

18 Construction would typically occur between 6:00 a.m. and 6:00 p.m.,
 19 Monday through Saturday, except for the HDD operations, tie-ins, and
 20 hydrostatic testing, which may occur around the clock.

2-83

21 As an additional measure, to prevent third-party damage to the
 22 proposed pipeline at a future date, PG&E would take Global
 23 Positioning System (GPS) coordinates periodically along the route and
 24 tie the as-built pipeline drawings back to the original survey. Locations
 25 with GPS coordinates include tie-ins, angle points, HDD entry and exit
 26 points, class location changes, wall thickness and pipe grade changes,
 27 and at a few reference pipeline welds in order to maintain an accurate
 28 location of the proposed pipeline once it is in the ground.

2-84

29 Operators are also required to devote additional efforts and analysis in
 30 HCAs to ensure the integrity of the pipelines. A potential HCA exists
 31 along Line 407 East and one HCA is confirmed at Fiddymont Road.
 32 ~~The portions of the Project within Class 3 areas, including Line 407~~
 33 ~~East and the Powerline Road DFM, would be within an HCA. When~~
 34 ~~HCAs are confirmed, or as population density increases creating new~~
 35 ~~HCAs, those~~ ~~Certain~~ portions of the Project would be required to be

1 included in PG&E's Pipeline Integrity Management Plan, which
 2 provides for the assessment and mitigation of pipeline risks in an effort
 3 to reduce both the likelihood and consequences of incidents.

4 **3.0 ALTERNATIVES AND CUMULATIVE PROJECTS**

5 **Page Revision:**

6 **3-12** Figures 3-2A through 3-2K show the twelve options. The
 7 environmentally superior alternative (other than the No Project
 8 alternative) is identified as incorporating Options I and L into the
 9 proposed Project alignment.

10 **3-58** The selected alternatives would accomplish the Project objectives of
 11 serving new growth areas within the region and providing greater
 12 capacity and service reliability to the existing natural gas transmission
 13 and distribution pipeline system in California's Central Valley. The
 14 CEQA Guidelines section 15126.6(e)(2) states that if the
 15 environmentally superior alternative is the "no project" alternative, then
 16 the EIR shall identify an environmentally superior alternative among
 17 the other alternatives. The environmentally superior alternative among
 18 the alternatives is the incorporation of Options I and L into the
 19 proposed Project alignment (refer to the Executive Summary for further
 20 discussion on the environmentally superior alternative).

21 **3-59** As provided in Section 2.0, Project Description, construction of line 406
 22 would begin as soon as agency approvals have been obtained with the
 23 targeted in-service date scheduled for November 2010. The line 407
 24 East, Line 407 West, and DFM segments may be constructed in two
 25 phases as dictated by the added load on the transmission system.
 26 Construction of the Line 407 segments is projected to begin in 2012. ~~in~~
 27 Summer or Fall 2009 with construction of the remaining pipeline
 28 segments continuing through 2012.

29

30

1 **3-63 & 64** Changes to Table 3-3 are as follows:

Sutter County		2. Riego Road Widening	<p>Riego Road is scheduled to be widened in phases <u>beginning in 2011</u>between 2009 and 2010. The first section of widening, from SR-99 to Placer County, is expected to occur in <u>2011</u>2009. This first section would widen Riego Road to 4 or 6 lanes. The following Riego Road improvements are expected to be completed in <u>2011 or later</u>2009 or 2010:</p> <ul style="list-style-type: none"> • From SR-99 to Power Line Road - widen to 4 lanes • From SR-99 to Pacific Avenue - widen to 6 lanes • From Pacific Avenue to Road F - widen to 6 lanes • From Road F to Pleasant Grove Road - widen to 6 lanes and include grade separation at railroad crossing • From SR-99 to 2 miles westward - widen to 4 lanes 	Agriculture, Air Quality, Biology, Cultural, Hazards, Noise, Traffic
---------------	--	------------------------	--	--

2 **3-65 to 67** Changes to Table 3-3 are as follows:

Placer County	8. Placer Vineyards Specific Area Plan (PVSP)	—	<p>The PVSP is a mixed-use plan encompassing approximately 5,230 acres in the southwest corner of Placer County. The PVSP is generally bounded by the Sacramento/Placer County line to the south, Dry Creek along the eastern edge, Baseline Road on the north, and the railroad to the west. CEQA requirements have been fulfilled for the PVSP. However, the pending requested entitlements include approval of the PVSP, rezoning, development agreements, and other actions. Several schools are proposed within the PVSP Area, of which two would be located within 1,500 feet of the proposed pipeline. Impacts to proposed schools are discussed in Sections 4.7, Hazards and Hazardous Materials; 4.9, Land Use and Planning; 4.10, Noise; 4.12, Population and Housing/Public Services/Utilities; and 4.13, Transportation and Traffic of this Draft EIR.</p> <p>The construction of PVSP is expected to occur over 30 years, starting in 2008. <u>Exact construction start dates are unknown due to litigation proceedings currently in progress</u></p>	Aesthetics, Agriculture, Air Quality, Biology, Cultural, Geology, Hazards, Noise, Traffic, Water Resources
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Placer County	9. Curry Creek Community Plan		The Curry Creek Community Plan is a mixed-use plan in Placer County. The plan covers 2,828 acres north of Base Line Road, north of the Placer Vineyards Specific Plan and west of the West Roseville Specific Plan. <u>Construction dates are unknown at this time.</u>	Aesthetics, Agriculture, Air Quality, Biology, Cultural, Geology, Hazards, Noise, Traffic, Water Resources
Placer County	Roadway Improvements Related to Placer Vineyards Specific Area Plan	10. Baseline Road Widening Project	Baseline Road will first be widened to 4 lanes near the PVSP, and will ultimately be expanded to 6 lanes (expected by 2015). Road improvements will occur in sections. First, Baseline Road will be widened from Fiddymont Road to Watt Avenue by 2009 . <u>Following that</u> , Baseline Road from Watt Avenue to the Sutter/Placer County line is expected to be widened to 4 lanes by 2009 .	Agriculture, Air Quality, Biology, Cultural, Hazards, Noise, Traffic
Placer County		10. 16 th Street Construction	Currently, 16th Street is located in Sacramento County and ends at the Sacramento/Placer County Line. The 16 th Street extension will be constructed between the end of 16 th Street in Sacramento County and Baseline Road in Placer County. Construction is expected to be completed by 2009.	Agriculture, Air Quality, Biology, Cultural, Hazards, Noise, Traffic
Placer County		12. Dyer Lane Widening and Extension	Dyer Lane, a 1-mile long road located south of Baseline Road and east of Watt Avenue, will be extended west and east. Both the west and east extensions will curve Dyer Lane north to Baseline Road. The east extension will intersect Baseline Road west of the Baseline/Fiddymont Road intersection. Dyer Lane will be widened to 4 lanes in accordance with the Placer Vineyards Specific Plan. Construction is expected to be completed by 2009.	Agriculture, Air Quality, Biology, Cultural, Hazards, Noise, Traffic
Placer County		13. Walerga Road Widening	Walerga Road will be realigned from Baseline Road to the Sacramento/Placer County boundary. In addition, Walerga Road will be widened from 2 to 4 lanes, with construction completed by 2009.	Agriculture, Air Quality, Biology, Cultural, Hazards, Noise, Traffic
Placer County		14. Watt Avenue Widening	Watt Avenue will be widened to 4 lanes from Baseline Road to the Sacramento/Placer County boundary by 2009 .	Agriculture, Air Quality, Biology, Cultural, Hazards, Noise, Traffic

1 **4.1 AESTHETIC/VISUAL RESOURCES**

2 **Page Revision:**

3 **4.1-13** Both the Powerline Road Pressure Regulating Station and the
 4 Powerline Road Main Line Valve structures would be constructed
 5 within the 100-year floodplain and would be no more than 10 feet in
 6 height ~~without the flood-proofing. The mitigation requires that the~~
 7 ~~structures be raised approximately 1 foot above the 100-year storm~~
 8 ~~flood profile level.~~

9 **4.1-14** The replanting of deep-rooted vegetation, such as orchards and
 10 vineyards, would not be allowed within 1045 feet on either side of the
 11 pipeline.

12 **4.1-15** While the majority of HDD sites are located within rural agricultural
 13 areas, some sites may be located in proximity to rural households.
 14 Continuous construction requiring the use of light plants (mobile pole
 15 lighting) could result in light trespass onto nearby homes. Similar
 16 lighting would also be utilized at hydrostatic testing and tie-in locations
 17 at which construction would take place continuously until complete.

18 **4.1-15** **MM AES-2 Light Shielding and Positioning Away from**
 19 **Residences.** HDD, hydrostatic testing and tie-in sites within close
 20 proximity of rural residences that would utilize lighting and operate
 21 between dusk and dawn shall be required to appropriately shield and
 22 direct all lighting away from nearby rural residences in order to reduce
 23 light trespass to the maximum extent feasible. Lighting shall be
 24 positioned and shielded to provide adequate nighttime illumination for
 25 construction workers while minimizing affects on nearby homes.

26 **4.2 AGRICULTURAL RESOURCES**

27 **Page Revision:**

28 **4.2-2** Within Yolo County, the Dunnigan Hills area is an appellation of origin
 29 for grapes used in wine making. The U.S. Department of the
 30 Treasury's Alcohol and Tobacco Tax and Trade Bureau (TTB) has
 31 designated the Dunnigan Hills appellation area as an American
 32 viticultural area. A viticultural area is defined by the TTB as a
 33 delimited, grape-growing region distinguishable by geographical

1 features. Designation of an appellation of origin as an American
2 viticultural area is intended to allow wine makers to indicate the
3 predominate region in which grapes used to produce a bottle of wine
4 were grown. The Dunnigan Hills area is referred to as a wine
5 appellation of origin by at least five vintners. No regulations regarding
6 the Project are imposed by the TTB in regards to the designated
7 Dunnigan Hills American viticultural area.

8 **4.2-19** As a CPUC-regulated public utility, PG&E is not subject to local land
9 use and zoning regulations. Nonetheless, as part of its environmental
10 review under the CEQA, the following county designated compatible
11 Williamson Act land use regulations have been considered in the
12 assessment of impacts on agricultural resources.

13 **4.2-22** ~~PG&E has not identified any Applicant Proposed Measures (APMs)~~
14 ~~that are relevant to agricultural resources.~~

15 **APM AGR-1. Advanced construction notification**

16 PG&E shall provide advance notice (between two and four weeks prior
17 to construction), by mail, to all landowners and tenant farmers along
18 the pipeline right-of-way to ensure that all landowners and tenant
19 farmers along the alignment are notified of pending construction
20 activity. A mechanism shall also be set up for contacting PG&E and/or
21 the construction contractor to ensure that landowners and tenant
22 farmers can work out timing concerns with their agricultural activities.

23 **4.2-22 & 23** Restrictions on land within the permanent easement of Line 406, Line
24 407, and the DFM would be limited to the planting of deep-rooted
25 vegetation within 1045 feet of the pipeline centerline (that is, 2030 feet
26 of the permanent easement).

27 **4.2-24 & 25** Restrictions within the permanent easement would prohibit the planting
28 of deep rooted plants, such as trees or vines, within 1045 feet in either
29 direction of the pipeline centerline (2030 feet of the permanent
30 easement) in order to minimize possible disturbances from the deep
31 roots of such vegetation. This would limit the future use of
32 approximately 101.88 ~~152.84~~ acres of farmland to row crops, field
33 crops, or any crops that do not involve deep rooted plants. However,

1 the land would not be converted to non-agricultural uses. The majority
 2 of the land within the proposed permanent easement is grassland, row
 3 crops or rice fields. These practices could continue within the
 4 permanent easement.

5 Project implementation would result in the permanent conversion of
 6 approximately 2.0 ~~3.4~~ acres of existing orchards, as replanting of those
 7 trees and other deep-rooted plants, would not be allowed; however,
 8 other agricultural practices could still be implemented. Because the
 9 majority of the route is currently grassland, row crops or rice fields, no
 10 other agricultural areas would experience a change of crop type over
 11 existing baseline conditions.

12 To summarize the above discussion, the amount of farmland that
 13 would be permanently converted to non-agricultural use by the
 14 construction of the six stations is 2.55 acres. The project would also
 15 result in the permanent conversion of approximately 2.0 ~~3.4~~ acres of
 16 existing orchards (because of restrictions related to replanting of trees
 17 and other deep-rooted plants) to other agricultural practices. The
 18 amount of farmland permanently impacted (2.55 acres), and the
 19 amount of farmland converted from deep rooted plants to other types
 20 of crops (2.0 ~~3.4~~ acres) does not represent a significant regional loss.
 21 Impacts related to the conversion of agricultural land are considered to
 22 be less than significant (Class III).

23 **4.2-31** The amount of farmland permanently impacted (2.55 acres) and the
 24 amount of farmland converted from deep rooted plants to other types
 25 of crops (2.0 ~~3.4~~ acres) does not represent a significant regional loss.

26 **4.3 AIR QUALITY**

27 **Page Revision:**

28 **4.3-5** The federal PM_{2.5} attainment status of Yolo, Sutter, Sacramento, and
 29 Placer Counties in Table 4.3-1 is revised as follows:

Particulate Matter (PM _{2.5})	<u>Unclassified/</u> <u>Attainment</u> <u>Partial Non-</u> <u>Attainment</u>	<u>Unclassified/</u> <u>Attainment</u> <u>Partial Non-</u> <u>Attainment</u>	<u>Unclassified/</u> <u>Attainment</u> <u>Non-Attainment</u>	<u>Unclassified/</u> <u>Attainment</u> <u>Partial Non-</u> <u>Attainment</u>
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2 **4.3-6** In addition, all the counties are designated nonattainment for the State
 3 PM₁₀ standard. Sacramento County is designated nonattainment for
 4 the State particulate matter (less than 2.5 microns [PM_{2.5}]) standard.
 5 EPA has recently recommended that Sacramento County and part of
 6 Yolo, Sutter and Placer counties be designated nonattainment for the
 7 federal PM_{2.5} standard.

8 **4.3-26** ~~Public workshops for the draft 8-hour Attainment Demonstration Plan~~
 9 ~~were held in September 2008 and it is expected that the draft plan will~~
 10 ~~go to the air districts' respective Board of Directors for adoption in early~~
 11 ~~2009.~~ The Sacramento Regional 8-hour Ozone Attainment and
 12 Reasonable Further Progress Plan (Plan) was adopted by the various
 13 air district boards during January and February 2009. The CARB
 14 adopted the Plan in March 2009.

15 **4.3-26** Concerning the Federal PM standards, the SMAQMD published a staff
 16 report November 2007, entitled the 2006 PM_{2.5} Standard: Evaluating
 17 the Nine Factors in Setting Nonattainment Area Boundaries for the
 18 Sacramento Region. The staff report evaluated ambient air quality
 19 monitoring results, population growth, traffic and commuting, and other
 20 metrics for the Sacramento Region. ~~The EPA is expected to issue a~~
 21 ~~final decision for Federal PM_{2.5} nonattainment boundaries by~~
 22 ~~December 2008. If an area is designated nonattainment, an~~
 23 ~~attainment plan must be submitted not later than 3 years after the~~
 24 ~~effective date of the designation.~~ On December 22, 2008, the EPA
 25 published a Federal Register notice that designated Sacramento
 26 County, and portions of El Dorado, Placer, Solano and Yolo counties
 27 as nonattainment of the federal 24-hour PM_{2.5} standard. The federal
 28 PM_{2.5} nonattainment area roughly corresponds with the Sacramento
 29 Federal Nonattainment Area for ozone. The effective date of the
 30 designation is 90 days after the publication of the notice. As such, the
 31 air districts are required to prepare a PM_{2.5} SIP within three years of
 32 the effective designation date (early 2012), with an attainment goal of
 33 five years after the effective designation date (early 2014).

34 **4.3-37** The construction and operational emissions thresholds in Table 4.3-4
 35 are revised as follows:

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Table 4.3-4: Daily Thresholds of Significance (pounds per day)

Air District	Construction	Operation
YSAQMD		
NO _x	82 <u>10 tons/year</u>	82 <u>10 tons/year</u>
ROG	82 <u>10 tons/year</u>	82 <u>10 tons/year</u>
PM ₁₀	150 <u>80 lbs/day</u>	150 <u>80 lbs/day</u>
SMAQMD		
NO _x	85 <u>lbs/day</u>	65 <u>lbs/day</u>
ROG	None	65 <u>lbs/day</u>
PM ₁₀	5 percent of CAAQS/NAAQS ¹	CAAQS/NAAQS ¹
FRAQMD		
NO _x	25 <u>lbs/day</u>	25 <u>lbs/day</u>
ROG	25 <u>lbs/day</u>	25 <u>lbs/day</u>
PM ₁₀	80 <u>lbs/day</u>	80 <u>lbs/day</u>
PCAPCD		
NO _x	82 <u>lbs/day</u>	10 <u>lbs/day</u>
ROG	82 <u>lbs/day</u>	10 <u>lbs/day</u>
PM ₁₀	82 <u>lbs/day</u>	82 <u>lbs/day</u>
CO	550 <u>lbs/day</u>	550 <u>lbs/day</u>
Notes ¹ SMAQMD does not have a daily emission threshold for PM10; however, the criteria of significance are based on the NAAQS and CAAQS.		

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4.3-38

1. For the construction analysis, the 'worst-case' construction day was determined for Line 406, 407E, 407W, and the DFM, and the air emissions were modeled for that worst-case scenario, for the years of construction estimated for the respective portion of the pipeline. The analysis years and construction timeframes used were based on the schedule provided by PG&E, in accordance with the *Air Pollutant Emissions Methodology and Calculations*. A new anticipated construction schedule was developed after completion of the air quality analysis. The new schedule reflects a delay in the start of construction of Lines 407 W, 407 E, and the DFM, moving construction of those

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1 lines to year 2012. However, the analysis completed reflects a
2 conservative, more aggressive construction schedule. In addition, the
3 project may still be developed under the schedule originally provided
4 by PG&E. Therefore, for the purposes of conservative analysis, the
5 original construction schedule was retained in the air emissions
6 analysis.

7 The construction analysis differentiates between the activities in each
8 air district in that only activities that would occur within each air district
9 were compared to that district's thresholds. For the construction
10 analysis for pipeline segments within Yolo County, the total annual
11 emissions of ROG and NO_x were calculated based on total
12 construction activities. The analysis was prepared using information
13 provided by PG&E. Data included the anticipated construction
14 equipment per phase of trenching, HDD and jack and bore installation.
15 This information was used to determine the off-road construction
16 emissions for the Project. The EMFAC2007 emission factors were
17 utilized to estimate emissions from the anticipated construction
18 equipment.

19 **4.3-40** APM AQ-11 On "spare the air" days within each county, PG&E will
20 enact measures to promote carpooling by Project employees and limit
21 emissions and equipment operation that do not otherwise impede
22 Project progress. Contractors will limit operation on "spare the air" days
23 within each County.

24 **4.3-42** The construction emissions associated with the Project are shown in
25 Table 4.3-5, Table 4.3-6, Table 4.3-7, and Table 4.3-8, and Table 4.3-
26 8a, and Table 4.3-9.

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1 **4.3-43**

2 **Table 4.3-5: Line 406 Construction Emissions (2009)**

	Pollutant Emissions (lbs/day)				
	tons/day		lbs/day		
	NO _x	ROG	CO	PM ₁₀	PM _{2.5}
Maximum Daily Emission- Project Emissions	373.31 8.65	36.46 0.81	107.07	80.38	14.44
YSAQMD Threshold	82 10	82 10	NA	80	NA
Exceed Significance Threshold?	Yes No	No	No	No Yes	No
Notes: Tons per year calculated using methodology in Appendix D-1 of this Final EIR. Calculations are contained in Appendix D-8 of this Final EIR. Pounds per day represents the maximum daily emissions that could occur, as provided in Appendix D-1 of this Final EIR, Table 8, and includes Trenching-18 Day Crew, Trenching-Remaining (includes Soil Hauling), and Pipe Hauling. Source: Michael Brandman Associates 2009.					

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4 **4.3-44**

5 **Table 4.3-8: Line 407W Construction Emissions (2012) Sutter County**

	Pollutant Emissions (lbs/day)				
	NO _x	ROG	CO	PM ₁₀	PM _{2.5}
Maximum Daily Emissions	300.69	30.58	89.58	77.10	14.19
YSAQMD Threshold	82	82	NA	150	NA
FRAQMD Threshold	25.00	25.00	NA	80.00	NA
Exceed Significance Threshold?	Yes	Yes	No	No	No
Notes: NA = Not Applicable Source: Michael Brandman Associates 2009.					

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1 **4.3-44**

2 **Table 4.3-8a: Line 407W Construction Emissions (2012) Yolo County Portion**

	Pollutant Emissions				
	tons/day		lbs/day		
	NO_x	ROG	CO	PM₁₀	PM_{2.5}
<u>Project Emissions*</u>	<u>6.68</u>	<u>0.68</u>	<u>89.58</u>	<u>77.10</u>	<u>14.19</u>
<u>YSAQMD Threshold</u>	<u>10</u>	<u>10</u>	<u>NA</u>	<u>80</u>	<u>NA</u>
<u>Exceed Significance Threshold?</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>
<p>Notes: <u>Tons per year calculated using methodology in Appendix D-1 in the Final EIR. Calculations are contained in Appendix D-8 in the Final EIR.</u> <u>Pounds per day represents the maximum daily emissions that could occur, as provided in Appendix D-1 in the Final EIR, Table 8, and includes Trenching-18 Day Crew, Trenching-Remaining (includes Soil Hauling), and Pipe Hauling.</u> <u>Source: Michael Brandman Associates 2009.</u></p>					

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4 **4.3-45** Although not required by the individual local air districts or thresholds
 5 of significance, the total construction emissions were also calculated
 6 for the construction of the Project and are presented for illustrative
 7 purposes in Table 4.3 10.

8 **4.3-46**

9 **Table 4.3-11: Operational Emissions (2010)**

	Pollutant Emissions (lbs/day)				
	NO_x	ROG	CO	PM₁₀	PM_{2.5}
<u>Maximum Daily Emissions (lbs/day, tons/year)</u>	<u>0.38₁</u> <u>0.01</u>	<u>0.08₁</u> <u>0.02</u>	<u>0.69₁</u> <u>0.01</u>	<u>0.26₁</u> <u>0.01</u>	<u>0.05₁</u> <u>0.00</u>
<u>YSAQMD Threshold</u>	<u>8210</u> <u>tons/year</u>	<u>8210</u> <u>tons/year</u>	NA	<u>45080</u> <u>lbs/day</u>	NA
<u>FRAQMD Threshold (lbs/day)</u>	25	25	NA	80	NA
<u>SMAQMD Threshold (lbs/day)</u>	65	65	NA	NA*	NA
<u>PCAPCD Threshold</u>	10	10	550	82	NA

	Pollutant Emissions (lbs/day)				
	NO _x	ROG	CO	PM ₁₀	PM _{2.5}
(lbs/day)					
Exceed Significance Threshold?	No	No	No	No	No
Notes: NA = Not Applicable Source: Michael Brandman Associates 2009.					

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2 **4.3-46 & 47 MM AQ-1b. NO_x Mitigation Menu.** If, after completing the
 3 comprehensive inventory list identified in APM AQ-1 and associated
 4 fleet-wide NO_x and PM emission reductions, Project emissions still
 5 exceed the air district thresholds for NO_x, PG&E shall implement one
 6 or a combination of the following mitigation measures (as directed by
 7 the applicable air district) to achieve a reduction in NO_x to less than the
 8 applicable air district's daily threshold of significance for construction:

- 9 ~~• Use PuriNOX reformulated diesel fuel in some or all of the fleet~~
 10 ~~of construction equipment;~~
- 11 • Install diesel catalytic reduction equipment (Cleaire Lean NO_x
 12 Catalyst or equivalent) on some or all of the fleet of construction
 13 equipment during the construction Project;
- 14 • Install the same Lean NO_x Catalyst on third-party diesel
 15 equipment operating within the Yolo-Solano/Sacramento
 16 nonattainment area for a period not less than one year of
 17 operation; or
- 18 • Pay a mitigation fee to the respective local air districts to offset
 19 NO_x emissions which exceed the applicable thresholds after all
 20 other mitigation measures have been applied.

21 **4.3-47** The following mitigation measures have been added for Impact AQ-1:

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

- 1 a) PG&E shall submit a Construction Emission / Dust Control Plan to the
2 PCAPCD. This plan must address the minimum Administrative
3 Requirements found in section 300 and 400 of the PCAPCD Rule 228,
4 Fugitive Dust. PG&E shall not break ground prior to receiving
5 PCAPCD approval of the Construction Emission / Dust Control Plan.
- 6 b) PG&E shall submit to the PCAPCD a comprehensive inventory (i.e.
7 make, model, year, emission rating) of all the heavy-duty off-road
8 equipment (50 horsepower or greater) that will be used an aggregate
9 of 40 or more hours for the construction project. The inventory shall be
10 updated, beginning 30 days after any initial work on the site has
11 begun, and shall be submitted on a monthly basis throughout the
12 duration of the project, except that an inventory shall not be required
13 for any 30-day period in which no construction activity occurs. At least
14 three business days prior to the use of subject heavy-duty off-road
15 equipment, the project representative shall provide the PCAPCD with
16 the anticipated construction timeline including start date, and name
17 and phone number of the property owner, project manager, and on-site
18 foreman.
- 19 c) PG&E shall provide a plan to the PCAPCD for approval by the
20 PCAPCD demonstrating that the heavy-duty (>50 horsepower) off-road
21 vehicles to be used in the construction project, including owned, leased
22 and subcontractor vehicles, will achieve a project-wide fleet-average
23 20 percent NOx reduction and 45 percent particulate reduction
24 compared to the most recent CARB fleet average. Acceptable options
25 for reducing emissions may include use of late model engines, low-
26 emission diesel products, alternative fuels, engine retrofit technology,
27 after-treatment products, and/or other options as they become
28 available.
- 29 d) PG&E shall suspend all grading operations when fugitive dust exceeds
30 PCAPCD Rule 228, Fugitive Dust, limitations. The prime contractor
31 shall be responsible for having an individual who is CARB-certified to
32 perform Visible Emissions Evaluations (VEE). This individual shall
33 evaluate compliance with Rule 228 on a weekly basis. It is to be noted
34 that fugitive dust is not to exceed 40 percent opacity and not go
35 beyond property boundary at any time. If lime or other drying agents

1 are utilized to dry out wet grading areas, they shall be controlled as to
2 not exceed PCAPCD Rule 228, Fugitive Dust, limitations.

3 e) PG&E shall prepare an enforcement plan and submit to the PCAPCD
4 for review, in order to weekly evaluate project-related on- and off-road
5 heavy-duty vehicle engine emission opacities, using standards as
6 defined in California Code of Regulations, Title 13, Sections 2180-
7 2194. The CARB-certified individual that is hired by PG&E to perform
8 VEE, shall routinely evaluate project-related off-road and heavy-duty
9 on-road equipment emissions for compliance with this requirement.
10 Operators of vehicle and equipment found to exceed opacity limits will
11 be notified by the PCAPCD and the equipment must be repaired within
12 72 hours.

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

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

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

23 a) PG&E shall provide a plan, for approval by CSLC and SMAQMD,
24 demonstrating that the heavy-duty (>50 horsepower) self-propelled off-
25 road vehicles to be used in construction, including owned, leased and
26 subcontractor vehicles, will achieve a project-wide fleet average of 20
27 percent NOx reduction and 45 percent particulate reduction compared
28 to the most recent CARB fleet average at the time of construction.
29 (SMAQMD provides that acceptable options for reducing emissions
30 may include use of newer model year engines, low-emission diesel
31 products, alternative fuels, engine retrofit technology, after-treatment
32 products, and/or other options as they become available.)

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

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

28 and/or:

29 If at the time of construction, the SMAQMD has adopted a regulation
30 applicable to construction emissions, compliance with the regulation
31 may completely or partially replace this mitigation. Consultation by
32 PG&E with SMAQMD prior to construction will be necessary to make
33 this determination.

34 **4.3-47** MM AQ-1a reduces the estimated fugitive dust emissions from the
35 Project construction. The mitigated output for Line 406 is provided in

1 Appendix D-9. The mitigated URBEMIS output for Line 407 East and
 2 the DFM is provided in Appendix D-4 and D-5. Incorporation of this
 3 measure reduces the maximum daily emissions of PM₁₀ to 29.19
 4 lbs/day for the DFM and to 29.69 lbs/day for Line 407 East, for a total
 5 of 58.87 lbs/day of PM₁₀, which is less than significant. Incorporation
 6 of this measure reduces the maximum daily emissions of PM₁₀ from
 7 Line 406 to 30.28 lbs/day.

8 **4.3-47** MM AQ-1c and MM AQ-1d were requested by the PCAPCD and
 9 SMAQMD, respectively, to further reduce air quality impacts
 10 associated with construction of the project in their respective
 11 jurisdictions. MM AQ-1c is applicable to all construction activities that
 12 would occur in Placer County, and would further reduce fugitive PM
 13 emissions (dust) and equipment exhaust emissions from project
 14 construction. MM AQ-1d is applicable to all construction activities that
 15 would occur in Sacramento County, and would further reduce
 16 construction equipment-generated emissions.

17 **4.3-48** **Mitigation Measures for Impact AQ-2 Construction or Operation**
 18 **Emissions Exceeding State or Federal Standards**

19 **MM AQ-1a: Fugitive PM₁₀ Control.**

20 **MM AQ-1b: NO_x Mitigation Menu.**

21 **MM AQ-1c: PCAPCD Mitigation.**

22 **MM AQ-1d: SMAQMD Mitigation.**

23 **4.3-48** The Rational for Mitigation for Impact AQ-2 has been revised as
 24 follows:

25 As described above in Impact AQ-1, ~~above, mitigation measure~~ MM
 26 AQ-1a reduces PM₁₀ and AQ-1b reduces NO_x emissions from the
 27 Project's construction. As described in Impact AQ-1 above, MM AQ-1c
 28 and AQ-1d further reduce construction equipment emissions from the
 29 Project's construction in Placer and Sacramento counties, respectively.
 30 In addition, MM AQ-1c further reduces fugitive PM (dust) from the
 31 Project's construction in Placer County.

1 **4.3-52** **MM AQ-3 GHG Emission Offset Program.** PG&E ~~The applicant~~
2 shall participate in a Carbon Offsets Program with ~~CCAE, CARB, or~~
3 ~~one of the local air districts, and will~~ the Climate Action Registry (CAR),
4 the Chicago Climate Exchange, or another provider of carbon offsets.
5 PG&E shall purchase carbon offsets equivalent to the projected
6 project's GHG emissions to achieve a net zero increase in GHG
7 emissions during the construction phase prior to the beginning of the
8 construction phase, or prior to the beginning of construction. Carbon
9 offsets must occur within the State of California, preferably in the
10 project region. PG&E will provide verification to the CSLC
11 demonstrating compliance with this measure for each segment prior to
12 the start of construction for that segment.

13 **4.3-53** As described above under Methodology, the construction-related
14 analysis used an estimate of peak construction activity to calculate the
15 maximum daily air pollutant emissions of concern, as well as annual
16 construction activity to estimate total tons of ROG and NO_x. The
17 maximum daily emissions calculated for Line 406 reflect the worst-
18 case construction scenario that could occur on any one day, on any
19 portion of Line 406. The maximum daily emissions for Line 406 were
20 calculated using the peak trenching activity, construction employee
21 trips, water truck emissions, fugitive dust emissions, soil hauling and
22 pipe hauling. Although lengthening the Project by approximately 2,200
23 feet under Option A may potentially lengthen the duration of
24 construction, Option A would not modify the estimated peak daily
25 construction activity scenario. Therefore, the amount of daily air
26 pollutant generation from construction activity from Option A would be
27 the same as the proposed alignment (Class I). The increased length
28 would increase construction-generated ROG and NO_x by increasing
29 the duration of construction activities. Implementation of MM AQ-1a
30 and AQ-1b would be required. Mitigated ~~M~~maximum daily construction
31 emissions from Option A and Line 406 are provided in Table 4.3 14.
32 The increase in Line 406 ROG and NO_x emissions under Option A are
33 provided in Table 4.3 14a.

1 **Table 4.3-14: Option A Maximum Daily Construction Emissions**

Line (Year of Construction)	Pollutant Emissions (lbs/day)				
	NO _x	ROG	CO	PM ₁₀	PM _{2.5}
Line 406 Portion (2009)	373.31	36.48	107.07	30.2880.38	14.44
Option A (2009)	373.31	36.48	107.07	30.2880.38	14.44

Source: Michael Brandman Associates 2009.

2

3 **Table 4.3-14a: Option A Increase in Total Construction Emissions**

	Pollutant Emissions (Tons)	
	NO _x	ROG
<u>Option A (2009) Increase</u>	<u>0.20</u>	<u>0.02</u>

Source: Michael Brandman Associates 2009, Appendix D-10, OFFROAD

4

5 **4.3-54** Although lengthening the Project by approximately 2,640 feet under
 6 Option B may potentially lengthen the duration of construction, thereby
 7 increasing the construction generated ROG and NO_x, Option B would
 8 not modify the estimated peak daily construction activity scenario.
 9 Therefore, the amount of daily air pollutant generation from
 10 construction activity from Option B would be the same as the proposed
 11 alignment (Class I). Implementation of MM AQ-1a and AQ-1b would
 12 be required. Mitigated mMaximum daily construction emissions from
 13 Option B and Line 406 are provided in Table 4.3 16. The increase in
 14 Line 406 ROG and NO_x emissions under Option B are provided in
 15 Table 4.3-16a.

16 **Table 4.3-16: Option B Maximum Daily Construction Emissions**

Line (Year of Construction)	Pollutant Emissions (lbs/day)				
	NO _x	ROG	CO	PM ₁₀	PM _{2.5}
Line 406 Portion (2009)	373.31	36.48	107.07	30.2880.38	14.44
Option A (2009)	373.31	36.48	107.07	30.2880.38	14.44

Source: Michael Brandman Associates 2009.

1 **Table 4.3-16a: Option B Increase in Total Construction Emissions**

	Pollutant Emissions (Tons)	
	<u>NO_x</u>	<u>ROG</u>
<u>Option B (2009) Increase</u>	<u>0.24</u>	<u>0.02</u>
Source: Michael Brandman Associates 2009, Appendix D-10, OFFROAD		

2

3 **4.3-56** Although lengthening the Project by approximately 1,150 feet under
4 Option C may potentially lengthen the duration of construction, thereby
5 increasing the construction generated ROG and NO_x. Option C would
6 not modify the estimated peak daily construction activity scenario.
7 Therefore, the amount of daily air pollutant generation from
8 construction activity from Option C would be the same as the proposed
9 alignment (Class I). Implementation of MM AQ-1a and AQ-1b would
10 be required. Mitigated M_{max} maximum daily construction emissions from
11 Option C and Line 406 are provided in Table 4.3 18. The increase in
12 Line 406 ROG and NO_x emissions under Option C are provided in
13 Table 4.3 18a.

14 **Table 4.3-18: Option C Maximum Daily Construction Emissions**

Line (Year of Construction)	Pollutant Emissions (lbs/day)				
	NO_x	ROG	CO	PM₁₀	PM_{2.5}
Line 406 Portion (2009)	373.31	36.48	107.07	30.2880.38	14.44
Option A (2009)	373.31	36.48	107.07	30.2880.38	14.44
Source: Michael Brandman Associates 2009.					

15 **Table 4.3-18a: Option C Increase in Total Construction Emissions**

	Pollutant Emissions (Tons)	
	<u>NO_x</u>	<u>ROG</u>
<u>Option C (2009) Increase</u>	<u>0.10</u>	<u>0.01</u>
Source: Michael Brandman Associates 2009, Appendix D-10, OFFROAD		

16

1 **4.3-58** Although lengthening the Project by approximately 860 feet under
 2 Option D may potentially lengthen the duration of construction, thereby
 3 increasing the construction generated ROG and NO_x. Option D would
 4 not modify the estimated peak daily construction activity scenario.
 5 Therefore, the amount of daily air pollutant generation from
 6 construction activity from Option D would be the same as the proposed
 7 alignment (Class I). Implementation of MM AQ-1a and AQ-1b would
 8 be required. Mitigated mMaximum daily construction emissions from
 9 Option D and Line 406 are provided in Table 4.3 20. The increase in
 10 Line 406 ROG and NO_x emissions under Option D are provided in
 11 Table 4.3 20a.

12 **Table 4.3-20: Option D Maximum Daily Construction Emissions**

Line (Year of Construction)	Pollutant Emissions (lbs/day)				
	NO _x	ROG	CO	PM ₁₀	PM _{2.5}
Line 406 Portion (2009)	373.31	36.48	107.07	30.2880-38	14.44
Option D (2009)	373.31	36.48	107.07	30.2880-38	14.44

Source: Michael Brandman Associates 2009.

13

14 **Table 4.3-20a: Option D Increase in Total Construction Emissions**

	Pollutant Emissions (Tons)	
	NO _x	ROG
<u>Option D (2009) Increase</u>	<u>0.08</u>	<u>0.01</u>

Source: Michael Brandman Associates 2009, Appendix D-10, OFFROAD

15

16 **4.3-59** Although lengthening the Project by approximately 3,480 feet under
 17 Option E may potentially lengthen the duration of construction, thereby
 18 increasing the construction generated ROG and NO_x. Option E would
 19 not modify the estimated peak daily construction activity scenario.
 20 Therefore, the amount of daily air pollutant generation from
 21 construction activity from Option E would be the same as the proposed
 22 alignment (Class I). Implementation of MM AQ-1a and AQ-1b would
 23 be required. Mitigated mMaximum daily construction emissions from

1 Option E and Line 406 are provided in Table 4.3 22. The increase in
 2 Line 406 ROG and NO_x emissions under Option E are provided in
 3 Table 4.3 22a.

4 **Table 4.3-22: Option E Maximum Daily Construction Emissions**

Line (Year of Construction)	Pollutant Emissions (lbs/day)				
	NO _x	ROG	CO	PM ₁₀	PM _{2.5}
Line 406 Portion (2009)	373.31	36.48	107.07	30.2880.38	14.44
Option E (2009)	373.31	36.48	107.07	30.2880.38	14.44

Source: Michael Brandman Associates 2009.

5

6 **Table 4.3-22a: Option E Increase in Total Construction Emissions**

	Pollutant Emissions (Tons)	
	NO _x	ROG
<u>Option E (2009) Increase</u>	<u>0.32</u>	<u>0.03</u>

Source: Michael Brandman Associates 2009, Appendix D-10, OFFROAD

7

8 **4.3-61** Option F would not alter the length of the segment or change the
 9 construction methods for Line 406. Therefore, Option F would result in
 10 the same construction-generated maximum daily air emissions, total
 11 annual emissions, and total GHGs as the proposed Project. The
 12 maximum daily construction emissions for Option F are the same as
 13 for Line 406. Option F would not increase or reduce the operational
 14 emissions. Impacts would be the same as the proposed Project.

15 **4.3-61** Option G would not alter the length of the segment or change the
 16 construction methods for Line 407 W. Therefore, Option G would
 17 result in the same construction-generated maximum daily air
 18 emissions, total annual emissions, and total GHGs as the proposed
 19 Project. The maximum daily construction emissions for Option G are
 20 the same as for Line 407 W. Option G would not increase or reduce
 21 the operational emissions. Impacts would be the same as the
 22 proposed Project.

1 **4.3-61** Under Option H, the length of Line 407 W would be reduced by
 2 approximately 2,900 feet. The portion of Line 407 W in Yolo County
 3 would be reduced by approximately 7,000 feet. Under Option H, the
 4 length of the DFM would not change.

5 **4.3-62** Although reducing the Project by approximately 2,970 feet under
 6 Option H may potentially reduce the duration of construction, Option H
 7 would not modify the estimated peak daily construction activity
 8 scenario. Therefore, the amount of daily air pollutant generation from
 9 construction activity from Option H would be the same as the proposed
 10 alignment (Class I). Implementation of MM AQ-1a, ~~and AQ-1b,~~ and
 11 AQ-1d would be required. Maximum daily construction emissions from
 12 Option H and Line 407 W are provided in Table 4.3 24. The decrease
 13 in Line 406 ROG and NO_x emissions under Option H in Yolo County
 14 are provided in Table 4.3-24a.

15 **Table 4.3-24: Option H Maximum Daily Construction Emissions**

Line (Year of Construction)	Pollutant Emissions (lbs/day)				
	NO _x	ROG	CO	PM ₁₀	PM _{2.5}
Line 407 W Portion (2012)	300.69	30.58	89.58	77.10	14.19
Option H (2012)	300.69	30.58	89.58	77.10	14.19

Source: Michael Brandman Associates 2009.

16
 17 **Table 4.3-24a: Option H Decrease in Total Construction Emissions in Yolo**
 18 **County**

	<u>Pollutant Emissions (Tons)</u>	
	<u>NO_x</u>	<u>ROG</u>
<u>Option H (2012) decrease</u>	<u>-0.52</u>	<u>-0.05</u>

Source: Michael Brandman Associates 2009, Appendix D-10, OFFROAD

19
 20 **4.3-63** Although lengthening the Project by approximately 2,900 feet under
 21 Option I may potentially lengthen the duration of construction, Option I
 22 would not modify the estimated peak daily construction activity
 23 scenario. Therefore, the amount of daily air pollutant generation from

1 construction activity from Option I would be the same as the proposed
2 alignment (Class I). Implementation of MM AQ-1a, ~~and~~ AQ-1b, and
3 AQ-1c would be required. Maximum daily construction emissions from
4 Option I and Line 407 E are provided in Table 4.3 26.

5 **4.3-65** Although lengthening the Project by approximately 5,250 feet under
6 Option J may potentially lengthen the duration of construction, Option J
7 would not modify the estimated peak daily construction activity
8 scenario. Therefore, the amount of daily air pollutant generation from
9 construction activity from Option J would be the same as the proposed
10 alignment (Class I). Implementation of MM AQ-1a, ~~and~~ AQ-1b, and
11 AQ-1c would be required. Maximum daily construction emissions from
12 Option J and Line 407 E are provided in Table 4.3 28.

13 **4.3-67** Although lengthening the Project by approximately 70 feet under
14 Option K may potentially lengthen the duration of construction, Option
15 K would not modify the estimated peak daily construction activity
16 scenario. Therefore, the amount of daily air pollutant generation from
17 construction activity from Option K would be the same as the proposed
18 alignment (Class I). Implementation of MM AQ-1a, ~~and~~ AQ-1b, and
19 AQ-1c would be required. Maximum daily construction emissions from
20 Option K and Line 407 E are provided in Table 4.3 30.

21 **4.3-69** Implementation of MM AQ-1a, ~~and~~ AQ-1b, and AQ-1c would be
22 required.

1 **4.3-73** The mitigation measures listed in Table 4.3-35 are revised as follows:

2 **Table 4.3-35: Summary of Air Quality Impacts and Mitigation Measures**

Impact	Mitigation Measure
AQ-1. Construction or operational emissions exceeding regional thresholds.	AQ-1a. Fugitive PM ₁₀ control. AQ-1b. NO _x mitigation menu. AQ-1c. PCAPCD mitigation. AQ-1d. SMAQMD mitigation.
AQ-2. Construction or operational emissions exceeding State or Federal standards.	AQ-1a. Fugitive PM ₁₀ control. AQ-1b. NO _x mitigation menu. AQ-1c. PCAPCD mitigation. AQ-1d. SMAQMD mitigation.
AQ-3. Increase in GHG Emissions.	AQ-3. GHG Emission Offset Program.
Source: Michael Brandman Associates 2009.	

3

4 **4.4 BIOLOGICAL RESOURCES**

5 **Page Revision:**

6 **4.4-21** Dwarf downingia (*Downingia pusilla*), a CNPS List 2 species, ~~strict~~
 7 ~~endemic of the vernal pool hydrologic regime~~, is a strict endemic of
 8 the vernal pool hydrologic regime and an annual member of the
 9 bellflower family (*Campanulaceae*).

10

1 **4.4-27 & 28** The following changes have been made to Table 4.4-3:

<p><i>Branchinecta lynchi</i> Vernal pool fairy shrimp</p>	<p>FT/—</p>	<p>Vernal pool fairy shrimp occur primarily in vernal pools, seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Typically, the majority of pools in any vernal pool complex are not inhabited by the species at any one time. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.</p>	<p>High.Moderate. Dry- and wet-season protocol surveys were conducted for the proposed Project on November 5, 6, and 18, 2006 by Helm Biological Consulting (2007), and between December 21, 2006 and May 18, 2007 by Gallaway Consulting, Inc (2007b), to determine the presence or absence of sensitive vernal pool branchiopods, including the vernal pool fairy shrimp. Similar to the conservancy fairy shrimp, the presence of this species (<i>Branchinecta lynchi</i>) could not be concluded based on the dry season survey alone. Wet season surveys were conducted to substantiate the findings of the dry season survey and complete USFWS protocol survey requirements. <u>This species was present in two wetland features during wet season surveys and unidentified <i>Branchinecta</i> sp. eggs were present in several features during the dry season surveys.</u> This species was not found during any of the wet season surveys and is presumed to be absent from the project site. There are several CNDDB-recorded occurrences of this species within 5 miles of the Project (CNDDB 2008).</p>
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2

1 **4.4-55** Local conservation plans and policies are included below. County
 2 General Plan goals, policies, and objectives were also evaluated in
 3 preparation of this Draft EIR; however, due to their length they are
 4 appended to this Draft EIR (see Appendix E-14). Although PG&E is
 5 not subject to local conservation plans, these plans and policies are
 6 taken into consideration in evaluating Project impacts and mitigation
 7 measures.

8 **4.4-57** The Yolo Natural Heritage Program is a Yolo county-wide Natural
 9 Communities Conservation Plan/Habitat Conservation Plan
 10 (NCCP/HCP) for the 653,820 acre planning area. The Yolo Natural
 11 Heritage Program will conserve the natural open space and agricultural
 12 landscapes that provide habitat for many special status and at-risk
 13 species found within the habitats and natural communities in the
 14 County.

15 The Yolo County NCCP/HCP Joint Powers Agency ("JPA") manages
 16 the Natural Communities Conservation Plan/Habitat Conservation Plan
 17 (NCCP/HCP), now known as the Yolo Natural Heritage Program. The
 18 JPA governing Board is composed of representatives from member
 19 Agencies, which include two members of the Yolo County Board of
 20 Supervisors, one member each from the City Councils of Davis,
 21 Woodland, West Sacramento and Winters, and one ex-officio member
 22 from UC Davis. The JPA recently completed the first phase of the Yolo
 23 Natural Heritage Program. The next major phase is underway and
 24 focuses on development of conservation strategies and preserve
 25 design alternatives. (<http://www.yoloconservationplan.org/index.html>).

26 **4.4-62** **APM BIO-8:** Workday Schedule: To the extent possible, PG&E will
 27 conduct all construction activity during daylight hours only, with the
 28 exception of the following: HDD, which will continue 24 hours per day,
 29 7 days per week to minimize the potential for frac-out; hydrostatic
 30 testing which may require holding test pressure in the pipelines past
 31 sundown; and tie-in locations which require natural gas service
 32 interruption. Where it is deemed necessary and feasible, night lighting
 33 and monitors will be used for work that occurs after sundown.

34 **4.4-81 & 83** **MM BIO-1a. Wetland Avoidance and Restoration.** PG&E shall
 35 avoid, minimize, and/or compensate for damage and/or loss of wetland

1 vegetation types due to pipeline construction activities by completing
2 the following:

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

16 Avoidance will consist of fencing any the wetlands that are to be
17 avoided within the ROW, including appropriate buffer zones, to
18 minimize impacts to wetland vegetation types. If construction work
19 areas and/or associated overland travel in wetlands in a saturated
20 or ponded condition is unavoidable, all equipment, vehicles and
21 associated construction materials shall be placed on protective
22 mats to avoid soil compaction, such that they do not make direct
23 contact with the wetland. This requirement is not intended for use
24 in dry soils, where the risk of compaction is low. Vegetation
25 clearing and/or installation of mats shall be conducted only from
26 areas scheduled for immediate construction work (within 10 days)
27 and only for the width needed for completion of activities within
28 each active construction areaactivities. Mats are not required for
29 work in rice fields. Mats shall be removed immediately following
30 completion of activities within each active construction area. During
31 pipeline construction, the 12 inches of topsoil shall be salvaged (or
32 less where topsoil is less than 12 inches deep, as verified by the
33 construction monitor), stored in an upland location, and replaced

1 wherever the pipeline is trenched in wetlands. Prior to permit
2 issuance and final design, project construction plans shall depict
3 appropriate measures for topsoil protection and storage that will
4 allow survival of existing ~~native~~ seed within the topsoil. Topsoil
5 shall be placed at the surface on top of fill material and not be used
6 to backfill the trench, and excavated trench spoils or excess fill shall
7 be placed on top of the pipeline under topsoil and not dispersed
8 onto the surface of the ROW. Implementation of these measures
9 prior to and during construction will be supervised and verified by
10 the Environmental Monitor (see APM BIO-6).

11 Unavoidable direct impacts to wetland vegetation types during
12 construction and/or associated overland travel will require
13 consultation with the appropriate jurisdiction (USACE, RWQCB,
14 CDFG) and will likely require a permit. These impacts shall be
15 mitigated by restoration of the affected area to pre-construction
16 conditions in accordance with permits issued by the USACE,
17 RWQCB, and CDFG. Consistent with requirements set forth in
18 permits issued by the USACE, RWQCB, and CDFG for work in
19 wetlands and waters, and with other plans developed for the
20 pipeline construction project, including (but not limited to) the
21 Restoration and Monitoring Plan (see APM BIO-17), the following
22 procedures shall be implemented:

- 23 • A delineation of potentially affected wetlands for any areas not
24 included in the jurisdictional delineation performed by CH2MHill
25 (2008) and Galloway (2007a; 2008a; 2008b).
- 26 • A discussion demonstrating how maximum practicable avoidance
27 has been accomplished and why the wetlands proposed to be
28 impacted cannot be avoided.
- 29 • Methods proposed for restoring the affected wetlands, including
30 topsoil preservation (inclusive of restoration of an impermeable
31 layer, i.e., hardpan, if approved) and backfilling, soil and grade
32 preparation such that there is no change in pre-construction
33 contours, regionally native seed and/or plant materials to be used
34 and installation methods, and maintenance measures, including

1 weed control (with the exception of work within cropped wetlands,
 2 such as rice fields).

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

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

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

- 21 • Methods for correcting observed alterations to surface or
 22 subsurface flows.

- 23 • Annual reporting requirements to responsible agencies.

- 24 • Detailed contingency measures in case of restoration failure, as
 25 determined by the responsible agencies following the five-year
 26 monitoring period, requiring additional off-site wetland creation at
 27 a minimum ratio of 2:1 for created wetland acreage or as
 28 otherwise determined in the USACE 404 permit and the RWQCB
 29 401 water quality certification.

30 **4.4-83 & 84 MM BIO-1b. Trench Backfill and Topographic Restoration.** The
 31 purpose of this measure is to prevent temporary and permanent
 32 hydrologic alteration to wetlands and associated sensitive vegetation
 33 from backfill activities associated with pipeline installation by requiring:

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

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

- 17 • Excavation, soil storage and backfill methods to ensure that
18 topsoil returned to the surface and is not be used to backfill the
19 trench, and subsoil is not be dispersed onto the surface.
- 20 • Requirements for the separation of topsoil and subsoil in upland
21 storage locations.
- 22 • Methods to ensure ~~native~~ existing seed survival within stored
23 topsoil.
- 24 • Circumstances requiring use of imported soils, proposed source
25 of soil.
- 26 • Backfill compaction specifications to ensure that changes in
27 infiltration and lateral flow do not substantially alter subsurface
28 hydrology.
- 29 • Specifications for the restoration of pre-construction surface
30 topography to ensure that mounds or berms, due to overfill, or

1 trenches, due to soil settling, are not created that will substantially
2 alter surface hydrology.

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

5 **4.4-84 & 87 MM BIO-1c. Riparian Avoidance and Restoration.** PG&E shall
6 avoid, minimize, and compensate for impacts to riparian habitat during
7 construction due to trenching, open cut crossings of streams, and pit
8 excavation for bore crossings of streams by:

- 9 • Identification and avoidance of riparian forest by boring under
10 streams where feasible.
- 11 • Consultation with CDFG for any unavoidable impacts to riparian
12 vegetation.
- 13 • Fencing riparian vegetation within the 100-foot ROW and a 50-
14 foot wide buffer on either side of the ROW or as determined in
15 consultation with CDFG ~~adjacent to work areas~~ to prevent
16 impacts.
- 17 • Preparation and implementation of riparian restoration, including
18 replanting and monitoring elements.
- 19 • Supervision and verification of implementation of these measures
20 by the Environmental Monitor.

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

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

- 1 • Vegetation within the work area shall be cleared in a manner that
2 does not damage the root system of adjacent remaining
3 vegetation.
- 4 • The upper 12 inches of topsoil shall be salvaged (or less where
5 topsoil is less than 12 inches deep, as verified by the construction
6 monitor), stored at an upland location, and returned to the surface
7 after trench backfilling is complete.
- 8 • Existing vegetation shall be cleared only from areas scheduled for
9 immediate construction work (within 10 days).

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

12 Unavoidable direct impacts to riparian vegetation during construction
13 will require consultation with the appropriate jurisdiction (CDFG) and
14 will likely require a permit (portions of riparian habitat, specifically
15 riparian wetland and willow riparian, are federally jurisdictional
16 wetlands and impacts to these areas would need to be addressed in
17 consultation with USACE). These impacts shall be mitigated by
18 restoration of the affected area to pre-construction conditions in
19 accordance with permits issued by CDFG. A qualified ecologist shall
20 dictate the following procedures to ensure that they will be consistent
21 with ~~applicable local jurisdiction requirements, such as County Tree~~
22 ~~Ordinances, and with any additional permit conditions imposed by the~~
23 ~~local agency as well as~~ CDFG and other State or federal agencies. If a
24 tree within the riparian forest to be removed qualifies as a Protected
25 Tree under the local jurisdiction, MM BIO-2a and 2b shall be applied
26 and any mitigation standards shall default to the one requiring the
27 higher standard. Riparian habitat removal shall not be permitted until
28 the following procedures are documented:

- 29 • Identification of proposed riparian habitat removal (and
30 subsequent restoration) locations from CH2MHill and Galloway
31 Consulting, Inc. Jurisdictional Delineation Reports (see Appendix
32 E-1).

- 1 • A discussion demonstrating how maximum avoidance has been
2 accomplished and why the riparian habitat proposed for removal
3 cannot be avoided.
- 4 • Methods to restore streambanks to pre-construction conditions.
- 5 • Discussion of appropriate replacement ratios (in accordance with
6 issued permit conditions, or, at a minimum, a 1:1 replacement
7 ratio of habitat acreage and at least 3:1 replacement ratio of the
8 number of trees and shrubs present prior to construction).
- 9 • Proposed native tree and shrub species matching pre-
10 construction conditions, where appropriate. (Pre-construction
11 conditions may include undesirable non-native species, and
12 therefore matching those conditions will not always be
13 appropriate.)
- 14 • Proposed understory native seed mix composition and application
15 methods.
- 16 • Planting methodology, including spacing and proper timing of
17 plant installation.
- 18 • Description of protective staking and caging measures for
19 installed plants.
- 20 • Description of irrigation and plant maintenance regime.
- 21 • Description of five-year monitoring effort to measure replacement
22 success.
- 23 • Success criteria (including survival rates and habitat function as
24 compared to pre-construction conditions) and contingency
25 measures for off-site habitat creation in case of mitigation failure.
- 26 • Submission of an annual monitoring report to responsible
27 agencies evaluating mitigation success.
- 28 Successful implementation of the riparian restoration procedures
29 shall be evaluated five years after all human support (e.g.,
30 replanting, fertilization, irrigation) has ceased. At that time, a report

1 shall be submitted to the responsible agencies summarizing the
 2 results and a determination will be made by these agencies as to
 3 whether continued monitoring is required and/or whether
 4 implementation of contingency measures is required.

5 **4.4-89 & 91 MM BIO-2a. Tree Avoidance and Replacement.** PG&E shall avoid,
 6 minimize, and compensate for impacts to trees, including those
 7 protected by local ordinances, by:

- 8 • Pre-construction identification (including species, size, and
 9 condition of trees), fencing and avoidance of trees to the
 10 maximum extent during construction within the 100-foot ROW and
 11 a 50-foot wide buffer on either side of the ROW or as determined
 12 in consultation with CDFG.
- 13 • Consultation with local jurisdiction if unavoidable impacts to
 14 locally protected trees (“Protected Trees”) are likely to occur.
- 15 • Development and implementation of a Tree Replacement Plan for
 16 loss and/or significant damage to trees.
- 17 • Supervision and verification of the implementation of these
 18 measures by the Environmental Monitor.

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

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

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

16 If the proposed Project requires removal of trees (Protected Trees or
17 others), a qualified forester, arborist, or restoration ecologist shall
18 evaluate the tree replacement procedures to ensure that the
19 replacement will be consistent with applicable local jurisdiction
20 requirements, such as the Placer County Tree Ordinance, and with
21 additional permit conditions imposed by the local agency (e.g., local
22 oak tree protection requirements). Within Yolo County, consultation
23 with the Natural Communities Conservation Plan / Habitat
24 Conservation Plan Joint Powers Agency manager prior to the removal
25 or disturbance of trees or vegetation and before construction of above
26 ground facilities is required to ensure tree removal does not conflict
27 with the Natural Heritage Program and Swainson's Hawk Interim
28 Mitigation requirements. Additional mitigation may be required by
29 CDFG for impacts to riparian trees (refer to MM BIO-1c). Tree removal
30 shall not be permitted until a qualified forester, arborist, or restoration
31 ecologist has reviewed the following procedures (see also MM BIO-
32 2b):

- 33 • Identification of proposed tree removal locations, including
34 suitable Swainson's hawk nest trees that cannot be avoided.

- 1 • A discussion demonstrating how maximum avoidance has been
2 accomplished and why the trees proposed for removal cannot be
3 avoided.

- 4 • Discussion of appropriate tree replacement ratios, as defined by
5 the local jurisdiction, or, at a minimum, a 3:1 replacement to
6 removed/impacted ratio for non-protected trees. Removed
7 potential Swainson's hawk nesting trees will be replaced at a
8 minimum 3:1 ratio to offset the temporary loss of nesting habitat
9 associated with the loss of mature trees, and the significant
10 amount of time required for mitigation plantings to attain similar
11 canopy size as those trees removed.

- 12 • Identification of suitable tree replacement locations within or
13 immediately adjacent to the original tree impact area.

- 14 • Tree species and size specifications. Potential Swainson's hawk
15 nesting trees that are removed shall be appropriately mitigated for
16 with a mix of native tree species typical of those utilized by
17 Swainson's hawk for nest sites (valley oak, cottonwood,
18 sycamore, black walnut, willow).

- 19 • Proposed understory native seed mix composition and application
20 methods.

- 21 • Planting methodology, including spacing and proper timing of
22 plant installation.

- 23 • Description of protective staking and caging measures.

- 24 • Description of irrigation and plant maintenance regime.

- 25 • Description of five-year monitoring effort to ensure 100 percent
26 survival of replacement trees ~~measure replacement success.~~

- 27 • Success criteria (including survival rates) and contingency
28 measures in case of mitigation failure.

- 29 • Submission of an annual monitoring report to responsible
30 agencies evaluating mitigation success.

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

8 **4.4-93 & 94 MM BIO-3. Prepare and Implement an Invasive Species Control**
9 **Program.** Prior to Project initiation, all construction equipment shall be
10 ~~steam cleaned before the equipment crosses any county border~~ to
11 remove potential soil and/or water-borne contaminants before the
12 equipment comes onto the Project site and again if the equipment is
13 used off-site before returning to the Project site. Equipment shall be
14 made available for inspection by any State or county agricultural
15 officials upon request. The California Department of Food and
16 Agriculture, Control and Eradication Division shall be notified before
17 equipment crosses into the state (if equipment for the Project is coming
18 from outside of California) and county agricultural commissioners shall
19 be notified before equipment enters their counties.

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

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

27 The following measures shall be implemented to control the
28 introduction of weed species within areas disturbed during pipeline
29 construction; implementation of these measures during construction
30 will be verified by the Environmental Monitor:

- 31 • Vehicles used in pipeline construction will be cleaned prior to
32 operation off maintained roads.

- 1 • ~~Fill material, soil amendments, gravel, etc. required for~~
2 ~~construction/restoration activities on land shall be obtained from a~~
3 ~~source that can certify the soil as being “weed free.”~~
- 4 • Existing vegetation shall be cleared only from areas scheduled for
5 immediate construction work (within 30 days for agricultural areas
6 and other non-sensitive habitat features and within 10 days for
7 wetlands and riparian areas) and only for the width needed for
8 completion of activities within each active construction area
9 activities.
- 10 • During pipeline construction, the upper 12 inches of topsoil (or
11 less depending on existing depth of topsoil, as verified by the
12 construction monitor) shall be salvaged and replaced wherever
13 the pipeline is trenched through open land (not including graded
14 roads and road shoulders).
- 15 • Disturbed soils shall be revegetated with an appropriate seed mix
16 that does not contain weeds (as defined below).

17 **4.4-102 MM BIO-4a Protect Special-status Wildlife.** Where construction will
18 occur within or near known or potential special-status species habitat,
19 as defined below, PG&E shall perform the actions defined in the
20 following paragraphs.

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

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

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

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

- 22 1. Protective fencing shall be erected around each elderberry
23 shrub that would be avoided that occurs within the 100-foot
24 ROW and a 50-foot wide buffer on either side of the ROW,
25 unless USFWS requires additional fencing. The fencing shall
26 be located no greater than 100 feet from the greatest dripline of
27 the shrub.
- 28 2. Contractors shall be briefed on the need to avoid damage to
29 elderberry shrubs and the possible penalties for not complying
30 with requirements. In addition, work crews shall be instructed
31 on the status of the beetle and the need to protect its host plant.
- 32 3. Signs shall be erected every 50 feet along the edge of the
33 avoidance areas with the following information: "This area is
34 habitat of the valley elderberry longhorn beetle, a threatened

1 species, and must not be disturbed. This species is protected
2 by the Endangered Species Act of 1973, as amended. Violators
3 are subject to prosecution, fines, and imprisonment.” The signs
4 should be readable from a distance of 20 feet and must be
5 maintained for the duration of construction.

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

- 8 1. Restore any damage done to the buffer area. Provide erosion
9 control and revegetate with native plants.
- 10 2. No insecticides, herbicides, fertilizers, or other chemicals that
11 might harm the beetle or its host plant shall be used in the buffer
12 areas during either construction or maintenance activities.
- 13 3. Mowing to reduce fire hazard may occur from July through April.
14 No mowing should occur within 5 feet of elderberry plant stems.
15 Mowing must be done in a manner that avoids damaging plants.

16 The USFWS must be contacted if encroachment within the 100-foot
17 buffer is expected, and Section 7 Federal Endangered Species Act
18 consultation is required if elderberry bushes will be disturbed as a
19 result of project activities. Typically, the USFWS requires a minimum
20 setback of at least 20 feet from the dripline of each elderberry plant. If
21 complete avoidance of elderberry plants is not possible, transplantation
22 may be necessary as prescribed by the Guidelines. However, at the
23 discretion of the USFWS, a plant that would be extremely difficult to
24 move because of access problems may be exempted from
25 transplantation (USFWS 1999). Planting of additional seedlings or
26 cuttings may be required under the mitigation guidelines, depending
27 upon the absence or percentage of elderberry plants with emergence
28 holes found in the project area. The Conservation Guidelines require
29 that each elderberry stem measuring 1 inch or greater in diameter that
30 is impacted must be replaced, and additional native species planted.
31 Replacement ratios for replaced shrubs and planting of native species
32 varies depend on the diameter of the stems impacted and whether or
33 not they are located in a riparian area. Mitigation shall occur in

1 accordance with the mitigation ratios outlined in the guidance, and
2 shall be approved by USFWS prior to Project implementation.

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

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

20 **Swainson's Hawk.** If project activities will occur during the breeding
21 period (~~February 15~~ ~~March 1~~ to September 15) qualified biologists shall
22 conduct pre-construction surveys within a 0.5 mile radius of the project
23 right-of-way, within 15 days at least two weeks prior to construction. If
24 any occupied Swainson's hawk nests are found within 0.5 mile that
25 could potentially be impacted by construction activities, a no-
26 construction buffer zone of at least 0.25 mile will be maintained by
27 construction personnel at all times around any occupied Swainson's
28 hawk nest tree. These no-construction buffer zones will be clearly
29 delineated, with construction personnel instructed to maintain all
30 construction activities and staging areas outside of the 0.25 mile buffer
31 until all Swainson's hawk young have fledged, as verified by CDFG.
32 Swainson's hawk nest sites within 0.5 mile of active construction will
33 be monitored by a qualified biologist to evaluate whether the
34 construction activities are disturbing nesting hawks. If the nesting birds
35 appear distressed, the monitor shall halt all construction activities
36 within 0.5 mile of the nest site and CDFG will be contacted to identify

1 appropriate contingency measures. PG&E will implement any
 2 additional necessary protection measures as required by the CDFG in
 3 the Section 2018 Incidental Take Permit, to prevent nest abandonment
 4 or forced fledging as a result of Project activities. If construction
 5 occurs between September 15 ~~16~~ and February 15 ~~28~~, no pre-
 6 construction surveys or other mitigation measures for Swainson's hawk
 7 will be necessary. ~~PG&E will consult with the CDFG to determine if~~
 8 ~~mitigation for the temporary loss of Swainson's hawk foraging habitat~~
 9 ~~will be required. CDFG considers loss of foraging habitat within a 10-~~
 10 ~~mile radius of any active nest as an impact to this species.~~

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

19 **4.4-104 & 105**

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

26 ~~1. Project construction within Mitigation Lands shall occur only~~
 27 ~~during the months of November through February when~~
 28 ~~Swainson's hawk is generally absent from the state;~~

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

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

1 34.If the above measures cannot be met, PG&E shall notify CDFG
2 and the Natomas Basin Conservancy and shall implement MM
3 BIO-1, BIO-2, and BIO-4a and any other measures determined
4 by CDFG and the Natomas Basin Conservancy to be required
5 to protect resources. If agreements regarding mitigation of
6 impacts to resources within the Conservancy cannot be
7 reached, PG&E shall implement Alternative Option H, which
8 avoids Natomas Basin Conservancy Mitigation Lands (Figure 3-
9 2).

10 **4.4-105 MM BIO-4c.** Mitigation for Potential Impacts to Sacramento River
11 Ranch Conservation Bank Mitigation Lands.

12 ~~1. Project construction within the Conservation Bank shall occur~~
13 ~~only during the months of November through February when~~
14 ~~Swainson's hawk is generally absent from the state;~~

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

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

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

23 45. If the above measures cannot be met, PG&E shall notify CDFG
24 and the Sacramento River Ranch and shall implement MM BIO-
25 1, BIO-2, and BIO-4a and any other measures determined by
26 CDFG and the Sacramento River Ranch to be required to
27 protect resources. If agreements regarding mitigation of
28 impacts to resources within the Sacramento River Ranch cannot
29 be reached, PG&E shall implement Alternative Option H, in
30 consultation with Sacramento River Ranch, which crosses only
31 a very small corner of Sacramento River Ranch Conservation
32 Bank (Figure 3-2).

33

1 **4.4-105 & 106**

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

- 7 • Tricolored Blackbird, western yellow-billed cuckoo, loggerhead
 8 shrike, bank swallow. Within 15 days ~~No more than two weeks~~
 9 prior to construction between February 15 and September 15
 10 ~~March 1 and August 31~~, for project activities within 250 feet of
 11 potential nesting habitat of the tricolored blackbird, western
 12 yellow-billed cuckoo, loggerhead shrike, and bank swallow, pre-
 13 construction surveys shall be conducted to determine the
 14 presence of nesting birds. If pre-nesting or nesting activity is
 15 identified, a determination shall be made in consultation with
 16 CDFG as to whether or not construction will adversely impact
 17 nesting birds. If it is determined that construction will impact
 18 nests or nesting behavior, construction within 250 feet of the
 19 nesting locations shall be delayed until juvenile birds have
 20 fledged. The 250-foot buffer is considered an initial guideline that
 21 may be modified at specific sites following consultation with
 22 CDFG.

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

27 No pre-construction surveys shall be required if construction
 28 activities are to occur only during the non-breeding season
 29 (September 15 ~~4~~ through February 15 ~~January 31~~). If, however,
 30 construction activities are scheduled to occur during the breeding
 31 season (February 15 through September 15 ~~August 31~~), within 15
 32 days prior to construction, pre-construction surveys of all potentially
 33 active nest sites within 500 feet of the construction corridor shall be
 34 conducted in areas that may potentially have nesting raptors,
 35 including ground nesting raptor species such as northern harrier
 36 and short-eared owl. If surveys indicate that nests are inactive or

1 potential habitat is unoccupied during the construction period, no
2 further mitigation shall be required.

3 If active nests are found, a 500-foot, no-disturbance buffer shall be
4 established around the active nest(s). The size of individual buffers
5 can be adjusted, following a site evaluation by a qualified raptor
6 biologist, which shall depend upon the presence of topographical
7 features that obstruct the line of site from the construction activities
8 to the nest or observations of the nesting pair during construction
9 based on the level of ongoing disturbance (e.g., farming activities or
10 road traffic) and the observed sensitivity of the birds. Site
11 evaluations and buffer adjustments shall be made in consultation
12 with the local CDFG representative. The portion of the project that
13 is within the designated buffer shall be identified in the field by
14 staking and flagging.

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

23 **4.4-120 & 121**

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

- 26 • Having a qualified biologist conduct habitat classification surveys
27 along unsurveyed portions of the alignment.
- 28 • Conducting pre-construction surveys during the appropriate flowering
29 period for special-status plant species with potential to occur within
30 un-surveyed locations of the proposed right-of-way.
- 31 • Flagging, mapping, and fencing to protect any special-status plant
32 species within the 100-foot-wide right-of-way and a 50-foot-wide

1 buffer zone on each side of the right-of-way-200-foot-wide study area
 2 during construction.

- 3 • ~~Limiting all proposed roadway construction to the existing roadway~~
 4 ~~surface(s) where adjacent special-status plant species occur.~~

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

12 Any rare plant species within the study area (including the 100 foot-
 13 wide right-of-way and a 50 foot-wide buffer zone on each side of the
 14 right-of-way, work areas, staging areas, and/or launcher/receiver
 15 stations), excluding areas adjacent to the 100 foot right-of-way where
 16 access permission has not been granted by landowners, will be
 17 flagged, accurately mapped on construction plans, and fenced to
 18 protect the area occupied by the species during construction, per APM
 19 BIO-3. Compliance with these measures prior to and during
 20 construction will be supervised and verified by the Environmental
 21 Monitor per APM BIO-6.

22 4.5 CULTURAL RESOURCES

23 Page Revision:

24 **4.5-1** SeveralThree separate cultural resources studies were conducted for
 25 the Project; the first was conducted by Garcia and Associates (see
 26 Appendix F-1) and included Line 406 from the western edge of the
 27 Project to a terminus near County Road (CR) 98 in Yolo County.

28 **4.5-3** Public Consulting

29 Public consulting letters and maps were sent by GPA to the following
 30 historical organizations and agencies on September 11, 2008:

31

1

Table 4.5-1: Public Consultation Mailing List

<u>Placer County</u>	
<u>Placer County Genealogical Society</u> Attn: Director P.O. Box 7385 Auburn, CA 95604	<u>Placer County Historical Society</u> Attn: Director P.O. Box 5643 Auburn, CA 95604
<u>Placer County Planning Department</u> Attn: Michael Johnson, Planning Director 3091 County Center Drive Auburn, CA 95603	<u>Rocklin Historical Society</u> Attn: Director P.O. Box 752 Rocklin, CA 95677
<u>Sacramento County</u>	
<u>The California Museum for History, Women and the Arts</u> Attn: Claudia French, Executive Director 1020 O Street Sacramento, CA 95814	<u>Planning & Community Development Dept. County of Sacramento</u> 827 7 th Street, Room 230 Sacramento, CA 95814
<u>Sacramento Historical Society</u> Attn: Director P.O. Box 160065 Sacramento, CA 95816-0065	<u>West Sacramento Historical Society</u> Attn: Director 324 Third Street West Sacramento, CA 95691
<u>Sutter County</u>	
<u>Community Memorial Museum of Sutter County</u> Attn: Julie Stark 1333 Butte House Road Yuba City, CA 95993	<u>Sutter County Historical Society</u> Attn: Phyllis Smith P.O. Box 1004 Yuba City, CA 95993
<u>Sutter County Planning Department</u> Attn: Danielle Stylos, Division Chief 1130 Civic Center Blvd. Yuba City, CA 95993	
<u>Yolo County</u>	
<u>Yolo County Historical Museum Gibson House</u> Attn: Barbara Shreve, Director 512 Gibson Road Woodland, CA 95695	<u>Yolo County Archives</u> 226 Buckeye Street Woodland, CA 95695
<u>Yolo County Historical Society</u> Attn: B.J. Ford, Director P.O. Box 1447 Woodland, CA 95776	<u>Yolo County Planning & Public Works</u> Attn: John Bencomo, Director 292 West Beamer Street Woodland, CA 95695

<u>Heidrick Ag History Center</u> <u>Attn: Colleen Thompson</u> <u>1962 Hays Lane</u> <u>Woodland, CA 95776</u>	
<u>Source: Galvin Preservation Associates 2008.</u>	

1

2 As of the date of this report, no responses have been received
3 regarding this Project or any historic resources associated with it.

4 **4.5-3** All of the field surveys were conducted by qualified archaeologists
5 meeting the Secretary of the Interior's Standards. Newly recorded
6 resources were documented on California Department of Parks and
7 Recreation (DPR) 523 forms. ~~Any p~~Previously documented cultural
8 resources within or immediately adjacent to the cultural study area~~Area~~
9 ~~of Potential Effects (APE)~~ were revisited during the surveys to confirm
10 their locations and assess their present status. In some cases, the
11 sites had been destroyed by modern development; in other instances,
12 they were found not to extend into the Project area. Existing site
13 records were updated, as necessary. Ten new site records were
14 created for ten buildings recorded during the architectural survey.
15 Existing site records were updated on DPR 523 forms, as necessary.

16 **4.5-3** Any previously documented cultural resources within or immediately
17 adjacent to the cultural study area ~~Area of Potential Effects (APE)~~ were
18 revisited during the surveys to confirm their locations and assess their
19 present status.

20 **4.5-4** While some of the archaeological and historical resources described in
21 this Section are not in the cultural study area ~~Project APE~~, they are
22 included here to help develop this context.

23 **4.5-8** Two homes in the Project vicinity date to this period: the Lewis Cramer
24 house (within the cultural study area ~~Project APE~~) and the John
25 Laugenour house (outside the cultural study area~~Project APE~~).

26 **4.5-11 & 12** ~~Public Consulting~~

27 ~~Public consulting letters and maps were sent by GPA to the following~~
28 ~~historical organizations and agencies on September 11, 2008:~~

1

Table 4.5-1: Public Consultation Mailing List

Placer County	
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Sutter County Planning Department Attn: Danielle Stylos, Division Chief 1130 Civic Center Blvd. Yuba City, CA 95993	
Yolo County	
Yolo County Historical Museum Gibson House Attn: Barbara Shreve, Director 512 Gibson Road Woodland, CA 95695	Yolo County Archives 226 Buckeye Street Woodland, CA 95695
Yolo County Historical Society Attn: B.J. Ford, Director P.O. Box 1447 Woodland, CA 95776	Yolo County Planning & Public Works Attn: John Bencomo, Director 292 West Beamer Street Woodland, CA 95695

Heidrick Ag History Center Attn: Colleen Thompson 1962 Hays Lane Woodland, CA 95776	
Source: Galvin Preservation Associates 2008.	

1

2 ~~As of the date of this report, no responses have been received~~
3 ~~regarding this Project or any historic resources associated with it.~~

4 **4.5-21** One Native American asserted that he knew of sites near the Project
5 corridor, but none within the cultural study area~~APE~~.

6 **4.5-22** The cultural study area~~Area of Potential Effects (APE)~~ for the Project
7 was established to include all resources that could potentially be
8 directly or indirectly affected by the proposed undertaking. All of the
9 resources are located within 50 feet of either side of the pipeline
10 centerline and are within Yolo County. Appendix F-5, APE map,
11 illustrates the boundaries delineating the cultural study area~~APE~~ and
12 notes the location of the ten properties evaluated during the historic
13 architectural survey.

14 During the course of the historic architectural survey, nine properties
15 located within the cultural study area~~Project APE~~ required evaluation.

16 **4.5-23** During the course of the architectural survey, nine farmstead
17 properties were identified within the cultural study area~~Project APE~~

18 **4.5-24** Of the nine farmstead properties identified within the cultural study
19 ~~area~~ ~~Project APE~~ that required consideration for inclusion on the
20 NRHP or the CRHR, only one historic property that may be affected by
21 the Project was considered to meet the NRHP and CRHR criteria.

22 **4.5-25** At this location, the section of pipeline within the cultural study area
23 ~~APE~~ involves 2,000 feet of horizontal directional drilling (HDD).

24 **4.5-28** In consultation with the SHPO/THPO and other entities that attach
25 religious and cultural significance to identified historic properties, the
26 lead agency shall apply the criteria of adverse effect to historic
27 properties within the cultural study area~~APE~~.

- 1 **4.5-35** **APM CR-1.** PG&E will evaluate all unavoidable unevaluated
2 resources in the project cultural study area~~APE~~ for their National
3 Register or California Register eligibility through test excavations (for
4 archaeological sites), archival research (for historic-era properties),
5 HABS/HAER recordation (for standing structures), or other means, as
6 appropriate. Resources determined through evaluation to be ineligible
7 will be dropped from further management; those determined eligible
8 will be subject to APM CR-2.
- 9 **4.5-36** **APM CR-2.** PG&E will protect all significant/eligible resources in the
10 project cultural study area~~APE~~ from project impacts, including all
11 contributing or potentially contributing features of RD 1000. Where
12 impacts cannot be avoided, a Finding of Effect will be prepared for
13 each significant/eligible resource. Where the Finding of Effect
14 identifies an adverse impact to a significant/eligible resource, the
15 impact(s) will be mitigated through data recovery excavations, archival
16 research, HABS/HAER recordation, or other means, as appropriate.
- 17 **4.5-36** **APM CR-3.** Prior to construction, PG&E will complete a geo-
18 archaeological study of areas identified as sensitive for buried
19 resources, as well as backhoe testing at ~~test~~ the reported location of
20 the historic Eagle Hotel, and other areas identified as sensitive for
21 buried archaeological remains by a geo-archaeologist, prior to
22 construction by backhoe trenching. If the geo-archaeological study is
23 not completed by the time of construction, an archaeologist or geo-
24 archaeologist will monitor any ground disturbing and all trenching
25 activities in the areas identified as sensitive for buried resources. If
26 resources are identified during either the geo-archaeological study or
27 during construction activities, work at the resource location will stop
28 temporarily until a qualified archaeologist can assess the resource and
29 determine the appropriate actions to be taken. All trenching will be
30 supervised by a qualified professional archaeologist and/or geo-
31 archaeologist. If any buried materials are uncovered, work will stop
32 temporarily at that location, until the monitor can assess the find and
33 determine the appropriate action.
- 34 **4.5-39** The Project pipeline route would be located approximately 100 feet
35 south of the Herman Richter historic residence. At this location, the

1 section of the Project pipeline within the cultural study area—APE
2 involves 2,000 feet of HDD operations.

3 **4.5-40** These tasks would enhance subsequent evaluation and curation by the
4 chosen repository. With incorporation of MM PALEO-1, impacts to
5 potential paleontological resources would be less than significant.

6 **4.5-41** The mitigation measure ensures that any fossil collection would be
7 permanently incorporated into the larger collection of an appropriate
8 curatorial facility so that the specimens would be properly curated and
9 available to present and future generations of research scientists and
10 students. With incorporation of MM PALEO-2, impacts to potential
11 paleontological resources would be less than significant.

12 **4.5-43** **MM CR-1 Alternative Option Pre-Construction Cultural**
13 **Resource Surveys.** If Alternative Option A, B, D, E or H becomes the
14 preferred route, ~~To~~ to ensure protection of undiscovered cultural
15 resources, pedestrian field surveys will be conducted for areas~~all~~
16 ~~Alternative Options~~ that were not included in the original field survey
17 efforts. The surveys will be conducted by qualified archaeologists
18 meeting the Secretary of the Interior's Standards and utilizing
19 appropriate transect intervals, typically 15 to 20 meters, walked in a
20 zigzag pattern to ensure complete coverage of the Alternative Options
21 Area of Potential Effects (APE). Previously recorded cultural
22 resources located within or immediately adjacent to the Alternative's
23 ~~APE~~ would be re-located and their current condition described and
24 recorded on Department of Parks and Recreation (DPR) update forms.
25 Any previously unknown cultural resources discovered during the
26 course of the Alternative Options surveys would be evaluated for
27 historic significance if the resource would be impacted by the Project.
28 ~~and recorded on appropriate DPR forms.~~ In cases where significant
29 impacts would be unavoidable, resource specific, appropriate
30 mitigation would be required to reduce the impacts to less than
31 significant levels as described in APMs CR-1 through CR-5.

32 **4.5-45** Potential impacts to cultural/historic resources ~~would be slightly fewer~~
33 under Option F would be similar to ~~than~~ for the proposed Project.
34 Cultural Resource impacts associated with Option F, similar to the
35 proposed Project, would be less than significant (Class III).

1 **4.5-47** The potential Cultural Resource impacts associated with Option I
 2 would be similar to ~~slightly fewer than~~ the proposed Project. Similar to
 3 the proposed Project, impacts associated with Option I would be less
 4 than significant (Class III).

5 **4.5-47** The potential Cultural Resource impacts associated with Option J
 6 would be similar to ~~slightly fewer than~~ the proposed project. Similar to
 7 the proposed project, impacts associated with Option J would be less
 8 than significant (Class III).

9 **4.5-48 Table 4.5-2: Comparison of Alternatives for Cultural Resources**

Alternative	Comparison with Proposed Project
No Project	No Impacts
Option A	Greater Impacts
Option B	Greater Impacts
Option C	Similar Impacts
Option D	Greater Impacts
Option E	Greater Impacts
Option F	<u>Similar</u> Slightly Fewer Impacts
Option G	Similar Impacts
Option H	Greater Impacts
Option I	<u>Similar</u> Slightly Fewer Impacts
Option J	<u>Similar</u> Slightly Fewer Impacts
Option K	Similar Impacts
Option L	Similar Impacts

Source: Michael Brandman Associates 2009.

10

11 **4.6 GEOLOGY AND SOILS**

12 **Page Revision:**

13 **4.6-5** A linear feature created by the displacement of this unit extends to
 14 within less than ~~then~~ 2 miles of the Project area.

1 **4.6-19** According to the elastic rebound theory, these stresses cause strain to
 2 build up in the earth's ~~crust~~ ~~crust~~ until enough strain has built up to
 3 exceed the strength along a fault and cause ~~cause~~ a brittle fracture.

4 **4.6-23** The Dunnigan Hills fault is considered to be a zone of discontinuous
 5 tonal ~~total~~ lineaments near the base of the northeast-facing
 6 escarpment of the Dunnigan Hills.

7 **4.6-39** Due to the regional tectonic setting, ~~proposed pipeline crossing of the~~
 8 ~~three faults~~, the Project area is subject to ground shaking due to
 9 earthquakes. Historically, the area has experienced a low to moderate
 10 seismicity. The Project could be exposed to ground motion due to a
 11 seismic event or any resulting phenomenon such as liquefaction or
 12 settlement that could substantially damage structural components.

13 **4.6-39 & 40 MM GEO-1 Site Specific Seismic Analysis ~~Field Investigation~~**

14 During the detailed design phase for the proposed project, PG&E shall
 15 perform a site specific field investigation, including, but not limited to,
 16 geophysical investigation, such as seismic surveys. The report of field
 17 investigation certified by a California certified engineering geologist
 18 shall be submitted to CSLC for review and comments. ~~PG&E shall~~
 19 ~~perform a site-specific seismic field investigation as part of its detailed~~
 20 ~~design phase for the proposed Project.~~ The field investigation would
 21 determine whether any engineering/design solutions are needed to
 22 mitigate against any hazards of seismic displacements along the fault
 23 crossings. If the field investigation determines the presence of any
 24 active faults in project location, then the following shall be completed:

- 25 • PG&E shall determine the engineering/design solutions that are
 26 appropriate to mitigate against the hazard of seismic displacements
 27 along any active faults.
- 28 • PG&E shall develop a computer model to determine the soil-pipe
 29 interaction with the proposed applied displacement. The model
 30 would evaluate various combinations of pipe wall thickness and pipe
 31 grade to determine which pattern yields the best performance under
 32 displacement conditions. The design shall also incorporate
 33 additional methods as necessary.

- 1 • PG&E shall design the proposed pipelines and any other proposed
2 facilities using current industry standards for seismic-resistant design
3 for seismic wave propagation in liquefaction-prone areas.
- 4 • PG&E shall provide a copy of the final design, as well as any related
5 geotechnical information, to the CSLC before construction of the
6 proposed Project.
- 7 • A certified engineering geologist shall observe the construction
8 excavation in the vicinity of the fault crossings to verify the presence
9 or absence of surface deformation due to fault movement
10 displacement. If the certified engineering geologist determines the
11 presence of fault movement under the proposed project alignment,
12 then PG&E shall modify the design of the pipeline in that area.
- 13 • ~~A certified engineer shall observe the construction excavation in the~~
14 ~~vicinity of the fault crossings to verify that the design assumptions~~
15 ~~are valid and the design measures (if any) are centered in the correct~~
16 ~~location.~~
- 17 • To determine the traveling wave effects, PG&E shall develop
18 calculations for the pipeline bending stresses due to traveling
19 seismic waves in long straight runs of the pipeline using industry
20 accepted procedures (American Lifelines Alliance “Guidelines for the
21 Design of Buried Steel Pipe”, PRCI “Guidelines for the Seismic
22 Design and Assessment of Natural Gas and Liquid Hydrocarbon
23 Pipelines”, and ASCE “Guidelines for the Seismic Design of Oil and
24 Gas Pipeline Systems”).
- 25 • To determine the effect of liquefaction, PG&E shall undertake buried
26 pipeline deformation analysis to assess the effects of liquefaction-
27 induced permanent ground displacements for various scenarios.
28 The various scenarios will be dependent on soil conditions and depth
29 of cover, pipe-soil spring properties, amplitude and distribution of the
30 ground displacement profile due to liquefaction and the location of
31 any significant geometry change features along the alignment in the
32 areas of interest. The maximum pipe tension and compression
33 strains developed in the analysis models will be compared to
34 appropriate strain limits (PRCI “Guidelines for the Seismic Design

1 and Assessment of Natural Gas and Liquid Hydrocarbon Pipelines”)
 2 to develop a demand vs. capacity assessment.

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

9 4.7 HAZARDS AND HAZARDOUS MATERIALS

10 **PLEASE NOTE: The revised System Safety and Risk of Upset report prepared**
 11 **by EDM Services, Inc. has been reproduced in its entirety, with changes**
 12 **shown as underline for new text, and ~~strike-out~~ for deleted text, and is**
 13 **included in Appendix H-3 of this Revised Final EIR.**

14 **4.7-7** During the next 15-year period between 1984 and 2001 there were
 15 2,845 incidents resulting in 1,523 injuries and 340 fatalities. As in the
 16 earlier data, the primary cause of the incidents are similar, namely
 17 damage by outside forces, which accounted for nearly 460 percent of
 18 the incidents.

19 **4.7-9** Most unintentional natural gas releases are small and do not cause
 20 injury or death. Only under the right conditions will leaks and ruptures
 21 result in fire and/or explosions causing injuries and/or fatalities. A fire
 22 or explosion could result when the natural gas has a sufficient mixture
 23 with air to be within the ~~or~~ combustible range, 5 to 15 percent methane
 24 in air. Another requirement is an ignition source with sufficient heat to
 25 ignite the air/natural gas mixture. In order for an explosion to occur the
 26 natural gas vapor cloud must be confined (EDM Services, Inc. 2009).

27 **4.7-9** Nevertheless, the average of 3.1 public fatalities per year is relatively
 28 small considering the approximately 300,000 miles of transmission and
 29 gathering lines in service nationwide, resulting in an annual risk of
 30 fatality by gas transmission and gathering lines of approximately $1 \times$
 31 10^{-5} fatalities per year (Entrix, Inc. 2007).

32 **4.7-14** The HCAs may be defined in one of two ways. Both methods are
 33 prescribed by 49 CFR 192.903. (PG&E has adopted method two,

1 Potential Impact Circle, as its chosen method for determining HCA's in
 2 relation to its transmission system.) The first includes:

3 **4.7-15** In the second method (PG&E's adopted method), an HCA includes any
 4 area within a potential impact circle that contains:

5 **4.7-31** **MM HAZ-1. Minimize Risk of Fire.** During all construction activities,
 6 PG&E shall implement the following:

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

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

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

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

21 • Park vehicles equipped with catalytic converters only in cleared
 22 areas;

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

26 • Require the contractor to use dedicated fire watch during all hot
 27 work within existing operational stations (e.g., Capay or Yolo
 28 Station Concord or Sacramento Station).

29 **4.7-32** **Impact HAZ-2: System Safety and Risk of Serious Injuries and**
 30 **Fatalities Due to Project Upset**

1 **The Project could expose people to an unacceptable a risk of**
 2 **existing or potential hazards, including upset and accident**
 3 **conditions involving the risk for fires, explosions, or the release**
 4 **of natural gas into the environment (Less Than Significant, Class**
 5 **III Significant, Class I).**

6 ~~An unacceptable risk is defined as a one in a million (1:1,000,000)~~
 7 ~~chance of a fatality (CDE 2007). The significance threshold used for~~
 8 ~~individual risk is an annual likelihood of one in a million (1:1,000,000)~~
 9 ~~chance of fatality. This threshold is used by the California Department~~
 10 ~~of Education as a part of their school siting criteria (CDE 2007).~~

11 **4.7-32** Probability of a Pipeline Release

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

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

25 **4.7-32** Societal Risk: Societal risk is the probability that a specified number of
 26 people will be affected by a given event. Several release scenarios
 27 were used that could impact both building occupants and vehicle
 28 passengers.

29 The threshold values for societal risk vary greatly, depending on the
 30 agency or jurisdiction. There are no prescribed societal risk guidelines
 31 for the United States or the State of California. The Committee for the
 32 Prevention of Disasters and the Netherlands used an annual

1 probability of 1.0×10^{-3} (1:1,000) or less. This criteria has been used
2 to evaluate the proposed project.

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

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

11 **4.7-32 & 33** Consequences of a Pipeline Release: Individual Risk of Serious
12 Injuries or Fatalities

13 In the following paragraphs, the impacts related to serious injuries and
14 fatalities are described for individuals exposed to a fire or explosion if a
15 release from the pipeline were to occur. As stated above, the
16 probability of a release over the 50-year life of the pipeline is very low.
17 The risks associated with Line 406 were assessed using the existing
18 conditions. The risks associated with Line 407 and the DFM were
19 assessed using existing conditions, plus the impacts of the proposed
20 land developments within Sutter County and Placer County, including
21 Sutter Pointe, Placer Vineyards, Sierra Vista, and Curry Creek.

22 The Revised Final EIR provides a clarifying analysis that accounts for
23 individual risks to the public if a pipeline release were to occur with a
24 subsequent fire or explosion. The earlier risk assessment included risk
25 measurement terminology that was not defined and has resulted in
26 some confusion. A revised System Safety and Risk of Upset report
27 was completed by EDM Services, Inc. (October 2009) for the proposed
28 Project, and is included as Appendix H-3 of this Revised Final EIR.

29 The risk analysis was revised because the initial calculation of
30 aggregate risk was reported as individual risk. In addition, the initial
31 risk analysis incorrectly compared the aggregate risk to the individual
32 risk threshold of an annual likelihood of fatality of 1:1,000,000. The
33 individual risk is defined as the frequency that an individual may be

1 expected to sustain a given level of harm from the realization of
2 specific hazards, at a specific location, within a specified time interval
3 (measured as the probability of a fatality per year). Aggregate risk is
4 the total anticipated frequency of fatalities that one might anticipate
5 over a given time period for all of the project components (the entire
6 pipeline system). There is no known established threshold for
7 aggregate risk, and it is not used in practice to determine individual
8 risk.

9 The individual risk significance threshold used in the EIR is an annual
10 likelihood of one in one-million (1:1,000,000) for fatality (used by the
11 California Department of Education for school sites). The risk level is
12 typically determined for the maximally exposed individual (assumes
13 that a person is present continuously—24 hours per day, 365 days per
14 year).

15 The highest risk along a segment of pipeline is to persons located
16 immediately above the pipeline, and the risk decreases as a person is
17 farther away from the pipeline. The maximum individual risk posed by
18 Line 406 before mitigation is 1:2,137,000, and after mitigation it is
19 1:4,274,000 chance of fatality per year. The maximum individual risk
20 posed by Line 407 before mitigation is 1:2,062,000, and after mitigation
21 it is 1:4,115,000 chance of fatality per year. The maximum individual
22 risk posed by Line DFM before mitigation is 1:4,255,000, and after
23 mitigation it is 1:8,475,000. Because the calculated individual risk is
24 less than the threshold of 1:1,000,000, the risk is considered to be less
25 than significant.

26 ~~as well as the total risk from the Project. As seen in Table 4.7-5 the~~
27 ~~risk to building occupants and vehicle occupants exceeds the~~
28 ~~1:1,000,000 acceptable risk threshold. The anticipated individual~~
29 ~~frequency of serious injury or fatality from the proposed project is~~
30 ~~approximately 6.1×10^{-5} . This represents a 1:16,000 likelihood of a~~
31 ~~serious injury or fatality annually, which is roughly sixty times greater~~
32 ~~than the generally accepted criteria of 1:1,000,000. The individual~~
33 ~~risks posed by each of the individual line segments are also~~
34 ~~summarized. As noted, the risk for each of the individual line~~
35 ~~segments, except Line DFM, exceeds the individual risk significance~~

1 ~~criteria. As a result the individual risk posed by the proposed Project is~~
2 ~~considered significant (Class I).~~

3 Table 4.7- 5 below summarizes the calculated individual risk for each segment of the
4 Project. These are maximum individual risk values, which would occur directly over
5 the top of each pipeline. As the distance from each pipeline increases, the individual
6 risk decreases. The individual risk for each pipeline segment would be less than the
7 significance threshold of 1:1,000,000. The individual risks have been evaluated
8 using two approaches: a simplified and an enhanced approach.

9 The individual risk for each of the three project components used the same
10 methodology that was used to determine the aggregate risk presented in Appendix
11 H-3 of the Revised Final EIR. (It should be noted that this aggregate risk was
12 incorrectly identified as individual risk in the Final EIR.) The July 2009 Final EIR
13 analysis was simplified by making the following assumptions:

14

- 15 • A single release angle at 45° above the horizon was used.
- 16 • All releases were assumed to be oriented downwind, which resulted in the
17 worst case impact footprint (e.g., greatest length of exposure measured
18 perpendicular to the pipeline).
- 19 • For flash fire impacts which were located overhead, the horizontal extent of
20 the hazard was projected to grade level. This results in some overstatement
21 of the impact since an overhead flash fire would not normally impact those on
22 the ground. However, if the release angle were lower than the single 45°
23 release angle assumed, the flash fire could impact those at ground level.

24

25 The enhanced analyses results in a worst case situation, and included the following
26 additional release modeling.

- 27 • Five different release angles were considered: 15° above the horizon
28 downwind, 45° above the horizon downwind, vertical, 45° above the horizon
29 upwind, and 15° above the horizon upwind. (Because the pipeline is buried,
30 15° above the horizon was assumed to be the lowest feasible release angle.)
31 Twenty percent (20%) of the releases were assumed to be directed at each of
32 these angles.

- 33 • The Final EIR used a single end point for torch fire impacts, 50% mortality at
34 8,000 btu/hr-ft² for a 30 second exposure. The enhanced analyses included

1 three torch fire end points – 100% mortality at 12,000 btu/hr-ft², 50% mortality
 2 at 8,000 btu/hr-ft², and 1% mortality at 5,000 btu/hr-ft² for 30 second
 3 exposures.

4 **4.7-5: Individual Risk Result Summary**

<u>Pipeline Segment</u>	<u>Pre-Mitigation Maximum Annual Risk of Fatality</u>	<u>Pre-Mitigation Maximum Annual Probability of Occurrence</u>	<u>Significance Threshold</u>
<u>Simplified Analysis</u>			
<u>Line 406</u>	<u>3.94 x 10⁻⁷</u>	<u>1:2,538,000</u>	<u>1:1,000,000</u>
<u>Line 407</u>	<u>3.83 x 10⁻⁷</u>	<u>1:2,610,000</u>	<u>1:1,000,000</u>
<u>Line DFM</u>	<u>1.61 x 10⁻⁷</u>	<u>1:6,219,000</u>	<u>1:1,000,000</u>
<u>Enhanced Analysis</u>			
<u>Line 406</u>	<u>4.68 x 10⁻⁷</u>	<u>1:2,137,000</u>	<u>1:1,000,000</u>
<u>Line 407</u>	<u>4.85 x 10⁻⁷</u>	<u>1:2,062,000</u>	<u>1:1,000,000</u>
<u>Line DFM</u>	<u>2.35 x 10⁻⁷</u>	<u>1:4,255,000</u>	<u>1:1,000,000</u>

7 Source: EDM Services, Inc. 2009.

8

9 **4.7-5: Individual Risk Summary**

	<u>Line 406</u>	<u>Line 407 E</u>	<u>Line 407 W</u>	<u>Line DFM</u>	<u>Total</u>
Building Occupants	1.05 X 10 ⁻⁶	1.99 x 10 ⁻⁵	4.54 x 10 ⁻⁶	7.00 x 10 ⁻⁷	2.62 x 10 ⁻⁵
Vehicle Occupants	1.84 x 10 ⁻⁶	2.94 x 10 ⁻⁵	3.21 x 10 ⁻⁶	2.06 x 10 ⁻⁷	3.46 x 10 ⁻⁵
Probability of Serious Injury or Fatality	2.89 x 10 ⁻⁶	4.93 x 10 ⁻⁵	7.75 x 10 ⁻⁶	9.06 x 10 ⁻⁷	6.08 x 10 ⁻⁵
Annual Likelihood of Serious Injury or Fatality	1:350,000	1:27,000	1:130,000	1:1,100,000	1:16,000
Percentage of Total Risk to Building Occupants	4.8%	81.1%	12.7%	1.4%	100%
Source: EDM Services, Inc. 2009.					

1 4.7-34 & 35

2 **Table 4.7-6: Consequence versus Distance Summary**

Distance to Impact (feet)	Description of Potential Consequence
35 feet	1.0 psig overpressure from 1-inch diameter release explosion, release 45° above horizon. Windows usually shattered and occasional damage to window frames. 1 percent probability of serious injury or fatality to occupants in reinforced concrete or reinforced masonry building from flying glass and debris.
50 feet	0.7 psig overpressure from 1-inch diameter release explosion, release 45° above horizon. Minor damage to residential structures. Some injuries to those indoors due to flying debris, but very unlikely to be serious.
<u>4850 feet</u>	8,000 btu/hr-ft ² heat flux from 1-inch diameter release torch fire, <u>downwind</u> release 45° above horizon. 50 percent mortality anticipated to those exposed <u>after 30 second exposure.</u>
<u>66 feet</u>	<u>8,000 btu/hr-ft² heat flux from 1-inch diameter release torch fire, downwind release 15° above horizon. 50% mortality anticipated to those after 30 seconds of exposure.</u>
70 feet	3,500 btu/hr-ft ² heat flux from 1-inch diameter release torch fire, <u>downwind</u> release 45° above horizon. Second degree skin burns after ten seconds of exposure.
90 feet	1,600 btu/hr-ft ² heat flux from 1-inch diameter release torch fire, <u>downwind</u> release 45° above horizon. Second degree skin burns after thirty seconds of exposure.
<u>367360 feet</u>	Distance to lower flammability limit (flash fire boundary) from full bore <u>downwind</u> release at 45° above horizon for flash fire. This would likely result in serious injury or death to those exposed to the ignited vapor cloud under typical conditions.
380 feet	1.0 psig overpressure from full bore release explosion, release 45° above horizon. Windows usually shattered and occasional damage to window frames. 1 percent probability of serious injury or fatality to occupants in reinforced concrete or reinforced masonry building from flying glass and debris.
420 feet	1.0 psig overpressure from full bore release explosion, horizontal release. Windows usually shattered and occasional damage to window frames. 1 percent probability of serious injury or fatality to occupants in reinforced concrete or reinforced masonry building from flying glass and debris.
<u>422 feet</u>	<u>12,000 btu/hr-ft² heat flux from full bore release torch fire, downwind release 45° above horizon. 100% mortality after 30 seconds of exposure.</u>

Distance to Impact (feet)	Description of Potential Consequence
<u>517</u> 520 feet	8,000 btu/hr-ft ² heat flux from full bore release torch fire, <u>downwind</u> release 45° above horizon. 50 percent mortality anticipated to those exposed <u>after 30 seconds of exposure</u> .
<u>534</u> feet	<u>Distance to lower flammability limit (flash fire boundary) from full bore downwind release at 15° above horizon for flash fire. This would likely result in serious injury or death to those exposed to the ignited vapor cloud under typical conditions.</u>
540 feet	0.7 psig overpressure from full bore release explosion, release 45° above horizon. Minor damage to residential structures. Some injuries to those indoors due to flying debris, but very unlikely to be serious.
600 feet	0.7 psig overpressure from full bore release explosion, horizontal release. Minor damage to residential structures. Some injuries to those indoors due to flying debris, but very unlikely to be serious.
600 feet	5,000 btu/hr-ft ² heat flux from full bore release torch fire, <u>downwind</u> release 45° above horizon. California Department of Education uses 1 percent mortality to those exposed <u>for 30 seconds</u> .
640 feet	Distance to lower flammability limit (flash fire boundary) from full bore release at horizontal for flash fire. This would likely result in serious injury or death to those exposed to the ignited vapor cloud under typical conditions.
<u>643</u> feet	<u>12,000 btu/hr-ft² heat flux from full bore release torch fire, downwind release 15° above horizon. 100% mortality after 30 seconds of exposure.</u>
<u>673</u> feet	<u>8,000 btu/hr-ft² heat flux from full bore release torch fire, downwind release 15° above horizon. 50% mortality after 30 seconds of exposure.</u>
730 feet	3,500 btu/hr-ft ² heat flux from full bore release torch fire, <u>downwind</u> release 45° above horizon. Second degree skin burns after ten seconds of exposure.
800 feet	8,000 btu/hr-ft² heat flux from full bore release torch fire, horizontal release. 50 percent mortality anticipated to those exposed.
<u>746</u> 820 feet	<u>5,000 btu/hr-ft² heat flux from full bore release torch fire, downwind release 15° above horizon</u> horizontal release. California Department of Education uses 1 % mortality after 30 seconds of exposure to those exposed.
	<u>Boundary of Serious Harm</u>
820 feet	Distance to lower flammability limit (flash fire boundary) from full bore <u>downwind</u> release at horizontal for flash fire. This would likely result in serious injury or death to those exposed to the ignited vapor cloud. This result is for the worst case modeling inputs, as defined by the United States Environmental Protection Agency.
	<u>Worst Case Boundary of Serious Harm</u>

Distance to Impact (feet)	Description of Potential Consequence
940 feet	1,600 btu/hr-ft ² heat flux from full bore release torch fire, <u>downwind</u> release 45° above horizon. Second degree skin burns after thirty seconds of exposure. No fatalities anticipated for reasonable exposure duration.
980 feet	1,600 btu/hr-ft ² heat flux from full bore release torch fire, <u>downwind</u> horizontal release. Second degree skin burns after thirty seconds of exposure. No fatalities anticipated for reasonable exposure duration.
1,260 feet	0.3 psig overpressure from full bore release explosion, release 45° above horizon. 10 percent window glass breakage. No injuries.
1,370 feet	440 btu/hr-ft ² heat flux from full bore release torch fire, <u>downwind</u> horizontal release. Prolonged skin exposure causes no detrimental effect.
1,540 feet	440 btu/hr-ft ² heat flux from full bore release torch fire, <u>downwind</u> release 45° above horizon. Prolonged skin exposure causes no detrimental effect.
1,890 feet	0.2 psig overpressure from full bore release explosion, release 45° above horizon. Some window glass breakage, no injuries to building occupants.
Notes: Psig = pounds per square inch gauge btu/hr-ft ² = British thermal units /hour-square foot Source: EDM Services, Inc. 2009.	

1

2 **4.7-36** Regulations required for the proposed Project include a minimum
3 0.375-inch pipe wall thickness. PG&E would meet those requirements,
4 and in some areas of the pipeline go beyond the required pipe
5 thickness for the proposed Project. A large proportion of the proposed
6 pipeline would consist of 0.375-inch-wall thickness steel pipe (Grade
7 X-6560) designed for a Maximum Allowable Operating Pressure
8 (MAOP) of 975 pounds per square inch gauge (psig). For Class 1
9 areas, the minimum regulated pipe wall thickness is 0.3125-inch; a
10 0.375-inch wall thickness is proposed, 20 percent greater than the
11 minimum required. For Class 2 areas, the minimum regulated pipe
12 wall thickness is 0.375-inch; a 0.406-inch wall thickness is proposed, 8
13 percent greater than the minimum required. For Class 3 areas, the
14 minimum regulated wall thickness is 0.4875-inch; a 0.500-inch wall
15 thickness is proposed, 3 percent greater than the minimum
16 required.The Project Class 2 locations would consist of 0.406 to
17 0.438-inch thickness steel pipe, Class 3 locations would consist of
18 0.500-inch wall thickness steel pipe, and HDD sections would consist

1 of 0.625-inch-wall thickness steel pipe, for added strength during the
2 installation.

3 **4.7-36** PG&E proposes to “butt-weld” all pipeline sections (pipes are welded
4 together without the ends overlapping). The project as proposed
5 would include radiographic inspection of all circumferential welds. The
6 minimum regulations (49 CFR 192.243) require only 10 percent, 15
7 percent and 100 percent nondestructive testing of welds in Class 1,
8 Class 2, and Class 3 / 4 areas respectively. This additional testing will
9 help to ensure structural integrity. All welds (100 percent) would be x-
10 rayed to ensure structural integrity and compliance with applicable
11 DOT regulations. This goes beyond the DOT Code of Federal
12 Regulations 49 Part 192.243 that requires a certain percentage of
13 welds to be tested. Welds that do not meet American Petroleum
14 Institute 1104 specifications would be repaired or removed. Once the
15 welds are approved, the welded joints would be covered with a
16 protective coating and the entire pipeline would be electronically and
17 visually inspected for any faults, scratches, or other damage.

18 **4.7-37** The required DOT regulations, along with PG&E Project features that
19 exceed the minimum requirements, would reduce risks of project
20 upset. Even though the project risk impacts are less than significant,
21 However, additional measures are required to attempt shall be
22 implemented to further reduce risks of project upset ~~be proposed~~
23 ~~Project impacts.~~

24 **4.7-37** **MM HAZ-2a Corrosion and Third Party Damage Mitigation.**

25 The following shall be required:

- 26 • Line pipe shall be manufactured in the year 2000 or later;
- 27 • Before placing the pipeline into service, PG&E would perform post-
28 construction geometry pig surveys, which would locate any
29 construction related dents.
- 30 • PG&E shall prepare and implement an Operation and Maintenance
31 Plan in accordance with the requirements in Title 49 CFR Part 192.
32 Required by regulation.

- 1 • Within the first 6 months of placing the pipeline into operation, PG&E
 2 shall conduct a baseline internal inspection with a high resolution
 3 instrument (smart pig) of the pipeline in order to obtain baseline data
 4 for the pipeline.
- 5 • Following the baseline inspection, internal inspections with a high
 6 resolution instrument (smart pig) would be conducted on a periodic
 7 basis, at a minimum of one inspection every 7 years, or sooner if the
 8 evidence suggests that significant corrosion or defects exist or if any
 9 new Federal or State regulations require more frequent or
 10 comparable inspections. ~~The existing pipeline system is monitored
 11 and controlled 24 hours a day for pressure drops in the pipeline that
 12 could indicate a leak or other operating problem through a
 13 Supervisory Control and Data Acquisition system, which is a
 14 computer system for gathering and analyzing real-time systems.
 15 The system is programmed to take appropriate immediate action
 16 when alarm conditions are present.~~
- 17 • PG&E shall prepare an Emergency Response Plan that would be
 18 coordinated and tested (through drills and exercises) with local
 19 fire/police departments and emergency management agencies.

20 **4.7-38 MM HAZ-2b Installation of Automatic-Shutdown Valves**

21 ~~PG&E plans to install remotely operated valves at the Capay Station
 22 and the Yolo Junction Station, which would help to control the flow of
 23 gas into Lines 406 and 407. PG&E shall install automatic shutdown
 24 valves in three at all locations: Capay Station No. 0+00, Yolo Junction
 25 Station No. 732+00, Power Line Road MLV Station No. 752+00 (which
 26 includes the Riego Road Regulating Station), Power Line Road
 27 Regulating Station No. 129+00, Baseline Road/Brewer Road MLV
 28 Station No. 1107+00, and Baseline Road Pressure Regulating Station
 29 No. 1361+00. These remotely operated automatic shut down valve
 30 locations would enhance public safety protection in the planned
 31 populated areas, which include schools and other existing and planned
 32 developments. The automatic shutdown valves shall be controlled
 33 such that they will automatically go to the closed position should the
 34 parameters associated with a line rupture be identified by the local
 35 control system (e.g., rapid rate of pressure loss or line pressure falling~~

1 below an established set point). If deemed necessary by PG&E, the
2 automatic closure feature may be over-ridden by the pipeline
3 controller, if the controller determines that the impacts can be
4 minimized by operating in another manner.

5 **4.7-38** Rationale for Mitigation

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

21 Another cause of incidents has been outside forces, which accounted
22 for 54 percent of the incidents (see Table 4.7-3). These included
23 equipment operated by an outside party, equipment operated by or for
24 the operator, earth movement, and weather. With implementation of
25 the mitigation measures, the incidence of leaks and possible explosion
26 due to outside forces would be reduced, thereby reducing the
27 individual risk of serious injury or fatality. Studies from western Europe
28 have shown that increased wall thickness reduced the frequency of
29 unintentional releases by third parties by 80 percent, increased depth
30 of cover of 48 inches or more reduced third party-caused incidents by
31 30 percent, and pipelines protected by some form of warning device
32 reduced third-party caused incidents by 10 percent (HSE 2001).

33 The highest risk along a segment of pipeline is to persons located
34 immediately above the pipeline, and the risk decreases as a person is
35 farther away from the pipeline. The maximum individual 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 individual 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 individual 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 meet and exceed the minimum requirements, and mitigation would reduce the individual risk by fifty percent (50%). The post-mitigation individual risk results are presented below.

Post Mitigation Individual Risk Result Summary

<u>Pipeline Segment</u>	<u>Post Mitigation Maximum Annual Risk of Fatality</u>	<u>Post Mitigation Maximum Annual Probability of Occurrence</u>	<u>Significance Threshold</u>
<u>Simplified Analysis</u>			
<u>Line 406</u>	<u>1.97 x 10⁻⁷</u>	<u>1:5,076,000</u>	<u>1:1,000,000</u>
<u>Line 407</u>	<u>1.92 x 10⁻⁷</u>	<u>1:5,220,000</u>	<u>1:1,000,000</u>
<u>Line DFM</u>	<u>8.04 x 10⁻⁸</u>	<u>1:12,440,000</u>	<u>1:1,000,000</u>
<u>Enhanced Analysis</u>			
<u>Line 406</u>	<u>2.34 x 10⁻⁷</u>	<u>1:4,274,000</u>	<u>1:1,000,000</u>
<u>Line 407</u>	<u>2.43 x 10⁻⁷</u>	<u>1:4,115,000</u>	<u>1:1,000,000</u>
<u>Line DFM</u>	<u>1.18 x 10⁻⁷</u>	<u>1:8,475,000</u>	<u>1:1,000,000</u>

Source: EDM Services, Inc. 2009.

4.7-39 Residual Impacts

The Project design features and the proposed mitigation measures reduce the risk by 50 percent; however, the individual risk would still be approximately 1:30,000, which exceeds individual risk significance thresholds by a factor of thirty. In addition, the sensitive receptors located within certain distances described in this section along the

1 ~~proposed Project alignment would be significantly impacted due to~~
2 ~~risks of explosion, torch fires, and flash fires. Therefore, impacts~~
3 ~~remain significant (Class I).~~

4 **4.7-40 Option A**

5 Option A would realign a portion of Line 406 along CR-16 and CR-15B.
6 This would increase the length of Line 406., ~~which would pose an~~
7 ~~impact to existing residences and roadways. The annual likelihood of~~
8 ~~serious injury or fatality along Line 406 would increase by 22 percent,~~
9 ~~from 2.89x10⁻⁶ to 3.52x10⁻⁶. The overall likelihood of serious injury or~~
10 ~~fatality for all of the proposed line segments would increase by 1~~
11 ~~percent, from 6.08x10⁻⁵ to 6.16x10⁻⁵ (EDM Services, Inc. 2009).~~
12 Impacts regarding fire risk, and the individual risk and societal risk
13 associated with Option A would increase the risk but the impacts would
14 be the same as for the proposed Project (less than significant).

15 **Option B**

16 Similar to Option A, Option B would realign a portion of Line 406. This
17 would increase the length of Line 406., ~~which would pose an impact to~~
18 ~~existing residences and roadways. The annual likelihood of serious~~
19 ~~injury or fatality along Line 406 would increase by 29 percent, from~~
20 ~~2.89x10⁻⁶ to 3.72x10⁻⁶. The overall likelihood of serious injury or~~
21 ~~fatality for all of the proposed line segments would increase by 2~~
22 ~~percent, from 6.08x10⁻⁵ to 6.18x10⁻⁵ (EDM Services, Inc. 2009).~~
23 Impacts regarding fire risk, and the individual risk and societal risk
24 associated with Option B would increase the risk but the impacts would
25 be the same as for the proposed Project (less than significant).

26 **Option C**

27 Option C would realign a portion of Line 406, but would not increase
28 the length of Line 406. , ~~and therefore would not pose an impact to~~
29 ~~existing residences and roadways. Impacts regarding fire risk, and the~~
30 ~~individual risk and societal risk associated with Option C would be the~~
31 ~~same as for the proposed Project (less than significant).~~ The annual
32 likelihood of serious injury or fatality along Line 406 would be the same

1 for Option C as for the proposed Project. Therefore, impacts would be
2 the same as for the proposed Project.

3 **Option D**

4 Option D would realign a portion of Line 406. The primary change
5 would be to extend the portion along CR-17. This would increase the
6 length of Line 406., which would pose an impact to existing residences
7 and roadways. The annual likelihood of serious injury or fatality along
8 Line 406 would increase by 30 percent, from 2.89×10^{-6} to 3.75×10^{-6} .
9 The overall likelihood of serious injury or fatality for all of the proposed
10 line segments would increase by 2 percent, from 6.08×10^{-5} to 6.18×10^{-5}
11 (EDM Services, Inc. 2009). Impacts regarding fire risk, and the
12 individual risk and societal risk associated with Option D would
13 increase the risk but the impacts would be the same as for the
14 proposed Project (less than significant).

15 **4.7-41 Option E**

16 Option E would realign a portion of Line 406. The primary change
17 would be to extend the portion along CR-19. This would increase the
18 length of Line 406., which would pose an impact to existing residences
19 and roadways. The annual likelihood of serious injury or fatality along
20 Line 406 would increase by 24 percent, from 2.89×10^{-6} to 3.57×10^{-6} .
21 The overall likelihood of serious injury or fatality for all of the proposed
22 line segments would increase by 1 percent, from 6.08×10^{-5} to 6.16×10^{-5}
23 (EDM Services, Inc. 2009). Impacts regarding fire risk, and the
24 individual risk and societal risk associated with Option E would
25 increase the risk but the impacts would be the same as for the
26 proposed Project (less than significant).

27 **Option F**

28 Option F would realign a portion of Line 407 West. The realignment
29 would result in minimal changes to the risks posed to the public. The
30 annual overall likelihood of serious injury or fatality along Line 407
31 would increase 3 percent, from 7.75×10^{-6} to 7.99×10^{-6} (EDM Services,
32 Inc. 2000). However, the overall likelihood of serious injury or fatality
33 for all of the proposed line segments would increase less than 1

1 percent from ~~6.08x10⁻⁵ to 6.12x10⁻⁵~~. Impacts regarding fire risk, and
 2 the individual risk and societal risk associated with Option F would
 3 increase the risk but the impacts would be the same as for the
 4 proposed Project (less than significant).

5 **Option G**

6 Option G would realign a portion of Line 407 West, but would not
 7 increase the length of Line 407. ~~, and therefore would not pose an~~
 8 ~~impact to existing residences and roadways.~~ Impacts regarding fire
 9 risk, and the individual risk and societal risk associated with Option G
 10 would be the same as for the proposed Project (less than significant).
 11 ~~The annual likelihood of serious injury or fatality along Line 407 would~~
 12 ~~be the same for Option G as for the proposed Project. Therefore,~~
 13 ~~impacts would be the same as for the proposed Project.~~

14 **Option H**

15 Option H would realign a portion of Line 407. Option H would extend
 16 the Project through the Sacramento Metropolitan Airport property
 17 about 0.5 mile north of the northernmost runway. Should a leak or
 18 rupture and a fire occur in this Section of the pipeline, there is potential
 19 to disrupt air traffic at the airport. However, impacts regarding fire risk,
 20 and the individual risk and societal risk associated with Option H would
 21 be the same as for the proposed Project (less than significant). ~~Option~~
 22 ~~H would result in slight changes to the risks posed to the public. The~~
 23 ~~annual likelihood of serious injury or fatality along Line 407 would~~
 24 ~~increase 28 percent, from 7.75x10⁻⁶ to 9.92x10⁻⁶. The overall~~
 25 ~~likelihood of serious injury or fatality for all of the proposed line~~
 26 ~~segments would increase less than 4 percent, from 6.08x10⁻⁵ to~~
 27 ~~6.31x10⁻⁵(EDM Services, Inc. 2009). Although the risk would increase~~
 28 ~~under Option H, the impacts would be the same as for the proposed~~
 29 ~~Project.~~

30 **4.7-42 Option I**

31 Option I would realign a portion of Line 407 to place the pipeline
 32 outside the 1,500-foot study buffer zone around a planned high school
 33 (PG&E 2009). This alternative would:

- 1 • Add approximately 3,000 feet of pipe to the overall pipeline
2 length.
- 3 • Remove one mile of line from potential impacts to vehicle
4 occupants and planned commercial development along Baseline
5 Road.
- 6 • Add 1,500 feet of potential impacts to vehicle occupants along
7 both South Brewer and Country Acres Roads.
- 8 • Add impacts to existing rural residences.

9 ~~The annual likelihood of serious injury or fatality along Line 407 would~~
10 ~~decrease 14 percent, from 1.99x10⁻⁵ to 1.71x10⁻⁵. The overall~~
11 ~~likelihood of serious injury or fatality for all of the proposed line~~
12 ~~segments would decrease 5 percent, from 6.08x10⁻⁵ to 5.80x10⁻⁵~~
13 ~~(EDM Services, Inc. 2009).~~

14 The California Education Code, section 17213 specifies that a school
15 district may not approve a project involving the acquisition of a school
16 site unless it determines that the property to be purchased or built
17 upon does not contain a pipeline situated underground or aboveground
18 that carries hazardous substances, acutely hazardous materials, or
19 hazardous wastes, unless the pipeline is a natural gas line used only to
20 supply that school or neighborhood. The California Code of
21 Regulation, Title 5, section 14010(h) states that, “the site shall not be
22 located near an above-ground water or fuel storage tank or within
23 1,500 feet of the easement of an above ground or underground
24 pipeline that can pose a safety hazard as determined by a risk analysis
25 study, conducted by a competent professional.” This realignment
26 would place the pipeline beyond the specified 1,500-foot school study
27 zone buffer.

28 Impacts regarding fire risk, and the individual risk and societal risk
29 associated with Option I would be the same as for the proposed
30 Project (less than significant).

31 ~~Although the risk would decrease under Option I, the impacts would be~~
32 ~~the same as for the proposed Project.~~

1 **4.7-43 & 4.7-44**2 **Option J**

3 Option J would realign a portion of Line 407 to place the pipeline
4 outside the 1,500-foot ~~buffer~~ study zone around a planned high school
5 (PG&E 2009). This alternative would:

6 • Add approximately 5,200 feet of pipe to the overall pipeline
7 length;

8 • Remove one mile of line from potential impacts to vehicle
9 occupants and planned commercial development along Baseline
10 Road;

11 • Add 2,600 feet of potential impacts to vehicle occupants along
12 South Brewer Road; and

13 • Add ~~roughly~~ 2,600 ~~lineal~~ feet of potential impacts to vehicle
14 occupants along Country Acres Road.

15 • Add impacts to existing rural residences.

16 Impacts regarding fire risk, and the individual risk and societal risk
17 associated with Option J would be the same as for the proposed
18 Project (less than significant).

19 ~~The annual likelihood of serious injury or fatality along Line 407 would~~
20 ~~decrease 10 percent, from 1.99×10^{-5} to 1.80×10^{-5} . The overall~~
21 ~~likelihood of serious injury or fatality for all of the proposed line~~
22 ~~segments would decrease 3 percent, from 6.08×10^{-5} to 5.89×10^{-5}~~
23 ~~(EDM Services, Inc. 2009). This realignment would place the pipeline~~
24 ~~line beyond the specified 1,500-foot school buffer.~~

25 ~~Although the risk would decrease under Option J, the impacts would~~
26 ~~be the same as for the proposed Project.~~

27 **Option K**

28 This alternative would realign a portion of Line 407, Phase I
29 approximately 150-feet further to the north, just beyond the 1,500-foot

1 ~~buffer study zone of a planned elementary school. Impacts regarding~~
2 ~~fire risk, and the individual risk and societal risk associated with Option~~
3 ~~K would be the same as for the proposed Project (less than~~
4 ~~significant). This alternative would reduce the length of line affecting~~
5 ~~vehicle occupants from the impacts of 1-inch diameter releases along~~
6 ~~Baseline Road. The annual likelihood of serious injury or fatality along~~
7 ~~Line 407, Phase I would decrease less than 2 percent, from 1.99×10^{-5}~~
8 ~~to 1.96×10^{-5} . The overall likelihood of serious injury or fatality for all of~~
9 ~~the proposed line segments would decrease less than 1 percent, from~~
10 ~~6.08×10^{-5} to 6.05×10^{-5} (EDM Services, Inc. 2009).~~

11 Although this realignment would place the proposed natural gas line
12 outside the 1,500-foot study zone ~~buffer~~, it is unlikely that serious risks
13 would be posed to the student body from the applicant proposed
14 pipeline location, which is approximately 1,400 feet from the school
15 boundary. The distances to various impacts from the proposed
16 pipeline are summarized below. As noted in Table 4.7-6 and in
17 Appendix H-3, the impacts would not be expected to cause serious
18 injuries or fatalities at distances greater than 1,000 feet.

19 It should be noted that the California Department of Education (CDE),
20 Guidance Document for School Site Pipeline Risk Analysis (Guidance
21 Document) considers 1 percent mortality (fatality probability of 1
22 percent) to be the reasonable estimate of the boundary of serious
23 harm. It is considered the demarcation between threat (1 percent
24 mortality) and no-threat (0 percent mortality). Using this criterion, the
25 following boundary distances could be established from the proposed
26 Line 407 to proposed school sites:

- 27 • Explosion – The peak overpressure level of an outdoor
28 explosion from any of the three pipeline segments is 0.38 psig
29 (medium fuel reactivity and low obstacle density). This overpressure is
30 less than the level required to cause serious injuries or fatalities. 420
31 feet. This is the distance to the 1.0 psig overpressure level from a full
32 bore, horizontal release. This level of overpressure is considered by
33 some sources to result in a 1 percent probability of serious injury or
34 fatality to occupants in reinforced concrete or reinforced masonry
35 building from flying glass and debris. It should be noted that this is a
36 conservative result. For reference, the CDE Guidance Document

1 indicates that an overpressure level of up to 2.3 psig will not result in
 2 any fatalities to persons inside buildings or outdoors; the maximum
 3 anticipated peak overpressure level from the proposed pipeline is 1.5
 4 psig at distances less than 420 feet from the source.

5 • Flash Fire – 534 ~~640~~ feet. This is the downwind distance to the
 6 lower flammability limit of an unignited vapor cloud from a full bore
 7 horizontal release at 15° above the horizon, under the typical
 8 conditions outlined in Table 4.7-6. It should be noted that the size of
 9 the combustible vapor cloud can vary significantly depending on
 10 atmospheric and other conditions. For example, if the wind speed was
 11 decreased from 2.0 to 1.5 meters per second and the stability class
 12 was changed from D to F, the downwind distance to the lower
 13 flammability limit of the unignited vapor cloud would increase to 820
 14 feet; these conditions are considered the worst case for off-site
 15 consequence modeling from stationary sources by the United States
 16 Environmental Protection Agency.

17 • Torch Fire - 746 ~~820~~ feet. This is the distance to the 5,000
 18 btu/hr-ft² heat flux which is considered by the CDE to be the level of
 19 exposure resulting in 1 percent mortality after a 30 second exposure.
 20 For reference, the CDE Guidance Document provides charts for
 21 determining radiant heat from torch fires. Although these charts were
 22 developed using a different modeling software, they show a distance of
 23 975 feet from the release to the 5,000 btu/hr-ft² heat flux. (CDE 2007).

24 ~~Although the risk would decrease under Option K, the impacts would~~
 25 ~~be the same as for the proposed Project.~~

26 4.7-45 Option L

27 Option L would involve installing the portion of Line 407, which is within
 28 the 1,500 foot study zone ~~buffer~~ of a planned elementary school, using
 29 horizontal directional drilling techniques. Impacts regarding fire risk,
 30 and the individual risk and societal risk associated with Option L would
 31 be the same as for the proposed Project (less than significant).
 32 However, Option L would reduce the likelihood of the line being
 33 damaged by third parties, since the line would be installed well below
 34 normal excavation depths. The estimated baseline risk of unintentional

1 ~~release would be reduced roughly one-third, from 1.96x 10⁻⁴ to~~
 2 ~~1.2x10⁻⁴. The annual likelihood of serious injury or fatality along Line~~
 3 ~~407 would decrease less than 3 percent, from 1.99x10⁻⁵ to 1.94x10⁻⁵.~~
 4 ~~The overall likelihood of serious injury or fatality for all of the proposed~~
 5 ~~line segments would decrease less than 1 percent, from 6.08x10⁻⁵ to~~
 6 ~~6.03x10⁻⁵ (EDM Services, Inc. 2009). However, although the risk~~
 7 ~~would decrease under Option I, the impacts would be the same as for~~
 8 ~~the proposed Project.~~

9 **4.7-46 4.7.7 Summary of Impacts and Mitigation Measures**

10 The potential to interfere with emergency plans and the potential for
 11 wildland fires during construction activities would be reduced to a less
 12 than significant level through the implementation of Mitigation Measure
 13 HAZ-1.

14 Between 1970 and 1984 there were 5,862 reportable gas pipeline
 15 incidents resulting in 438 injuries and 74 deaths. From 1984 to 2004
 16 there were 2,845 incidents causing 1,523 injuries and 340 deaths. The
 17 major causes of the incidents were corrosion and third party incidents.
 18 These two causes were responsible for 71 percent of the incidents
 19 between 1970 and 1984 and 63 percent of the incidents between 1986
 20 to 2001.

21 ~~The potential individual risk of serious injury or fatality attributed to the~~
 22 ~~proposed Project has been estimated to be one in 16,000 (1:16,000)~~
 23 ~~annually, roughly 60 times greater than the generally acceptable level~~
 24 ~~of one in one million (1:1,000,000) per year. Mitigation measures HAZ-~~
 25 ~~2a and HAZ-2b reduce the potential for leaks due to corrosion and~~
 26 ~~serve to enhance public safety, but they do not reduce the risk of upset~~
 27 ~~impact to a less than significant level. The impact is therefore~~
 28 ~~considered significant and unavoidable (Class I).~~

29 The Revised Final EIR provides an analysis that has been clarified to
 30 account for individual risks to the public if a pipeline release were to
 31 occur with a subsequent fire or explosion. The risk assessment
 32 included risk measurement that was not defined in earlier versions of
 33 the document, which has resulted in some confusion. A revised
 34 System Safety and Risk of Upset report was completed by EDM

1 Services, Inc. (October 2009) for the proposed Project, and is included
2 as Appendix H-3 of this Revised Final EIR.

3 The risk analysis was revised because the initial calculation of
4 aggregate risk was reported as individual risk. In addition, the initial
5 risk analysis incorrectly compared the aggregate risk to the individual
6 risk threshold of an annual likelihood of fatality of 1:1,000,000. The
7 individual risk is defined as the frequency that an individual may be
8 expected to sustain a given level of harm from the realization of
9 specific hazards, at a specific location, within a specified time interval
10 (measured as the probability of a fatality per year). Aggregate risk is
11 the total anticipated frequency of fatalities that one might anticipate
12 over a given time period for all of the project components (the entire
13 pipeline system). There is no known established threshold for
14 aggregate risk, and it is not used in practice to determine individual
15 risk.

16 The individual risk significance threshold used in the EIR is an annual
17 likelihood of one in one-million (1:1,000,000) for fatality (used by the
18 California Department of Education for school sites). The risk level is
19 typically determined for the maximally exposed individual (assumes
20 that a person is present continuously—24 hours per day, 365 days per
21 year).

22 The highest risk along a segment of pipeline is to persons located
23 immediately above the pipeline, and the risk decreases as a person is
24 farther away from the pipeline. Even though the project risk impacts
25 are less than significant, additional measures would be implemented to
26 further reduce risks of project upset. The required DOT regulations,
27 along with PG&E Project features that meet and exceed the minimum
28 requirements, and mitigation would reduce the individual risk by fifty
29 percent (50%).

30 The maximum risk posed by Line 406 before mitigation is 1:2,137,000,
31 and after mitigation is 1:4,274,000 chance of fatality per year. The
32 maximum individual risk posed by Line 407 before mitigation is
33 1:2,062,000, and after mitigation is 1:4,115,000 chance of fatality per
34 year. The maximum individual risk posed by Line DFM before
35 mitigation is 1:4,255,000, and after mitigation is 1:8,475,000. Because

1 the calculated individual risk is less than the threshold of 1:1,000,000,
 2 the risk is considered to be less than significant.

3 Table 4.7-9-9 summarizes the impacts and mitigation measures for
 4 hazards and hazardous materials.

5 **Table 4.7-9: Summary of Hazards and Hazardous Materials and Mitigation**
 6 **Measures**

Impact	Mitigation Measure
HAZ-1. Emergency plans/Wildland fires.	HAZ-1. Minimize risk of fire.
HAZ-2. System Safety and Risk of Serious Injuries and Fatalities Due to Project Upset.	HAZ-2a. Corrosion mitigation. HAZ-2b. Installation of automatic shut-down valves.
Source: Michael Brandman Associates 2009.	

7
 8 **4.8 HYDROLOGY AND WATER QUALITY**

9 **Page Revision:**

10 **4.8-17 to 19 MM HWQ-1. Response to Unanticipated Release of Drilling Fluids.**

11 Sixty days prior to the commencement of HDD activities near water
 12 crossings, PG&E shall prepare and submit for CSLC, RWQCB, and
 13 CDFG approval, an HDD frac-out prevention and response plan that
 14 contains the following provisions:

- 15 • HDD crews shall strictly monitor drilling fluid pressures;
- 16 • Obtain site-specific geotechnical data at all water crossings where
 17 HDD is to be used to determine the appropriate depth below bed of
 18 waterway;
- 19 • Implement sizing techniques (move bores back and forth slowly to
 20 keep track of potential frac-outs);
- 21 • Consider potential application of surface casings to add a protective
 22 outer layer;

- 1 • Conduct Geotech bores in locations that would prevent drilling mud
- 2 from escaping through boreholes;
- 3 • Prohibit nighttime drilling near sensitive noise receptors unless
- 4 absolutely required;
- 5 • Maintain containment equipment for drilling fluids on site;
- 6 • Monitor water quality including turbidity in accordance with applicable
- 7 Regional Water Quality Control Board permit requirements
- 8 ~~downstream of the drill site;~~
- 9 • Cease work immediately if a seep into a stream is detected, such as
- 10 by a loss in pressure or visual observation of changes in turbidity or
- 11 surface sheen;
- 12 • Immediately report all bentonite seeps into waters of the State or
- 13 sensitive habitat to the Project's resource coordinator, the CSLC,
- 14 and the appropriate resource agencies (i.e., NOAA, USFWS, CDFG,
- 15 USACE, applicable RWQCBs, local County, and DWR);
- 16 • ~~Use non-toxic fluorescent dye in the drilling mud to allow easier~~
- 17 ~~identification of frac-outs;~~
- 18 • Maintain onsite boats with monitors where appropriate;
- 19 • In the event of a release during construction, PG&E shall assess the
- 20 extent of potential damage to fisheries and carry out appropriate
- 21 mitigation/compensation procedures. Impacts to consider include
- 22 curtailment of access to fishing areas, contamination of fish and
- 23 habitat, and loss of income to commercial fishing interests and
- 24 businesses. Procedures for assessing damage should include field
- 25 surveys to determine the extent of damage during and soon after the
- 26 release and long-term monitoring to determine long-term effects to
- 27 habitat, fish, and fishing interests; and
- 28 • A 3,000-gallon vacuum truck shall be available on call in case a spill
- 29 or frac-out occurs.

30 **4.8-20 MM HWQ-2. Verify Well and Irrigation System Locations.** Prior to
 31 construction of the proposed Project, well locations within 200 feet of

1 the excavation, construction staging areas, and aboveground facility
 2 locations shall be verified by PG&E through field surveys to determine
 3 if private water wells and water pipelines are currently in use and if
 4 their area of influence intersects the proposed Project site. This survey
 5 will be conducted by a licensed professional hydrogeologist, who will
 6 determine any potential impacts from construction. Based on his/her
 7 professional opinion, wells will be tested as needed. With the
 8 landowner's permission, PG&E shall test the wells to determine
 9 baseline flow conditions and monitor these wells during construction of
 10 the proposed Project. If, through monitoring, it is determined that
 11 Project construction is affecting well production, PG&E shall cease
 12 construction activities or arrange to supply water at the well location
 13 and consult with the landowner. Surveys shall be conducted by PG&E
 14 prior to construction to ensure that any unidentified springs are avoided
 15 during construction.

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

22 **4.8-21 & 22** Mitigation is proposed below to flood-proof any structures proposed to
 23 be constructed within a 100-year floodplain. Both proposed structures
 24 would be no more than 10 feet in height ~~without the flood-proofing.~~
 25 ~~Flood-proofing would require the structures to be raised approximately~~
 26 ~~1 foot above the 100-year storm flood profile level.~~

27 **4.8-22** Mitigation Measures for Impact HWQ-3: 100-Year Floodplain

28 **MM HWQ-3 Flood-Proof Pump Houses Within 100-year**
 29 **Floodplain.** If any structures (pump stations, aboveground valve
 30 housing) associated with the buried pipeline are placed within the 100-
 31 year flood zone, the structure shall be "flood-proofed" in their
 32 foundation design and raised in elevation to a minimum of 1 foot above
 33 ~~the 100-year storm flood profile level,~~ to reduce the risk that they would
 34 be damaged during such an event.

1 **4.8-34** MM HWQ-3 would require the flood proofing of any structures
 2 associated with the above ground stations, ~~including but not limited to,~~
 3 ~~the elevation of structures to 1-foot above the 100-year storm flood~~
 4 ~~profile level.~~ Implementation of MM HWQ-3 in both the proposed
 5 project and Option H would reduce impacts to less than significant.

6 **4.9 LAND USE AND PLANNING**

7 **PLEASE NOTE: The revised System Safety and Risk of Upset report prepared**
 8 **by EDM Services, Inc. has been reproduced in its entirety, with changes**
 9 **shown as underline for new text, and ~~strike-out~~ for deleted text, and is**
 10 **included in Appendix H-3 of this Revised Final EIR.**

11 **Page Revision:**

12 **4.9-18** The project would also result in the permanent conversion of
 13 approximately 2.0 ~~3.4~~ acres of existing orchards (because of
 14 restrictions related to replanting of trees and other deep-rooted plants)
 15 to other agricultural practices.

16 **4.9-20 MM LU-1d Potential Conflicts with Other Utilities**

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

25 **4.9-20 through 23**

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

27 **The proposed Project could expose people to an unacceptable a**
 28 **risk of existing or potential hazards, including upset and accident**
 29 **conditions involving the risk for fires, explosions, or the release**
 30 **of natural gas into the environment (Less Than Significant, Class**
 31 **III Significant, Class I).**

1 For a more detailed discussion of the safety risks to land uses along
2 the proposed pipeline, refer to Section 4.7, Hazards and Hazardous
3 Materials.

4 High Consequence Areas

5 The U.S. Department of Transportation provides oversight for the
6 nation's natural gas pipeline transportation system. Its responsibilities
7 are promulgated under Title 49 United States Code (USC) Chapter
8 601. The Pipeline and Hazardous Materials Safety Administration
9 (PHMSA), Office of Pipeline Safety (OPS), administers the national
10 regulatory program to ensure the safe transportation of gas and other
11 hazardous materials by pipeline.

12 Areas at risk of pipeline releases are known as High Consequence
13 Areas (HCAs). Federal DOT regulations define area classifications,
14 based on population density of the pipeline vicinity and on an area that
15 extends for 660 feet (220 yards) on either side of the centerline of any
16 continuous one-mile length of the pipeline. The class locations along
17 the proposed pipeline route are shown in Figure 2-7. The four area
18 classifications are defined as follows:

- 19 • Class 1: A location with ten or fewer buildings intended for human
20 occupancy;
- 21 • Class 2: A location with more than ten but less than 46 buildings
22 intended for human occupancy;
- 23 • Class 3: A location with 46 or more buildings intended for human
24 occupancy or where the pipeline lies within 300 feet (100 yards) of any
25 building or small well-defined outside area occupied by 20 or more
26 people during normal use; and
- 27 • Class 4: A location where buildings with four or more stories
28 aboveground are prevalent.

29 Natural gas could be released from a leak or rupture. If the natural gas
30 reached a combustible mixture and an ignition source was present, a
31 fire and/or explosion could occur, result in possible injuries and/or
32 deaths. The risk threshold used for determining significance is An

1 unacceptable risk is defined as an annual likelihood of one in a million
2 (1:1,000,000) chance of a fatality (CDE 2007).

3 The risks associated with Line 406 were assessed using the existing
4 conditions. The risks associated with Line 407 and the DFM were
5 assessed using existing conditions, plus the impacts of the proposed
6 land developments within Sutter County and Placer County, including
7 Sutter Pointe, Placer Vineyards, Sierra Vista, and Curry Creek.

8 ~~The anticipated individual frequency of serious injury or fatality from~~
9 ~~the proposed project is approximately 6.1×10^{-5} . This represents a~~
10 ~~1:16,000 likelihood of a serious injury or fatality annually, which is~~
11 ~~roughly sixty times greater than the generally accepted criteria of~~
12 ~~1:1,000,000. The individual risks posed by each of the individual line~~
13 ~~segments are also summarized. As noted, the risk for each of the~~
14 ~~individual line segments, except Line DFM, exceeds the individual risk~~
15 ~~significance criteria.~~

16 During operation, the greatest risk for injury and fatality occurs with a
17 leak or unintentional release of natural gas. The most frequent causes
18 of incidents include corrosion and outside forces. Proper design,
19 construction, and maintenance of the pipeline would minimize leaks
20 and corrosion. The pipeline would be buried along its entire length,
21 except at metering stations, regulating stations, and pressure limiting
22 stations, which would be fenced to prevent access. PG&E has
23 increased the cover beyond minimum requirements to 5 feet, which
24 would provide increased protection from third party damage including
25 agricultural operations. PG&E proposes to meet pipeline wall
26 thickness requirements and in some areas of the pipeline go beyond
27 the required thickness for the proposed Project. PG&E also proposes
28 to "butt-weld" all pipeline sections, that is, welded together without the
29 ends overlapping. All welds (100 percent) would be x-rayed to ensure
30 structural integrity and compliance with applicable DOT regulations.

31 The Revised Final EIR provides a clarifying analysis that accounts for
32 individual risks to the public if a pipeline release were to occur with a
33 subsequent fire or explosion. The earlier risk assessment included risk
34 measurement terminology that was not and resulted in some
35 confusion. A revised System Safety and Risk of Upset report was

1 completed by EDM Services, Inc. (October 2009) for the proposed
2 Project, and is included as Appendix H-3 of this Revised Final EIR.

3 The risk analysis was revised because the initial calculation of
4 aggregate risk was reported as individual risk. In addition, the initial
5 risk analysis incorrectly compared the the aggregate risk to the
6 individual risk threshold of an annual likelihood of fatality of
7 1:1,000,000. The individual risk is defined as the frequency that an
8 individual may be expected to sustain a given level of harm from the
9 realization of specific hazards, at a specific location, within a specified
10 time interval (measured as the probability of a fatality per year).
11 Aggregate risk is the total anticipated frequency of fatalities that one
12 might anticipate over a given time period for all of the project
13 components (the entire pipeline system). There is no known
14 established threshold for aggregate risk, and it is not used in practice
15 to determine individual risk.

16 The individual risk significance threshold used in the EIR is an annual
17 likelihood of one in one-million (1:1,000,000) for fatality (used by the
18 California Department of Education for school sites). The risk level is
19 typically determined for the maximally exposed individual (assumes
20 that a person is present continuously—24 hours per day, 365 days per
21 year).

22 The highest risk along a segment of pipeline is to persons located
23 immediately above the pipeline, and the risk decreases as a person is
24 farther away from the pipeline. The maximum individual risk posed by
25 Line 406 before mitigation is 1:2,137,000, and after mitigation it is
26 1:4,274,000 chance of fatality per year. The maximum individual risk
27 posed by Line 407 before mitigation is 1:2,062,000, and after mitigation
28 it is 1:4,115,000 chance of fatality per year. The maximum individual
29 risk posed by Line DFM before mitigation is 1:4,255,000, and after
30 mitigation it is 1:8,475,000. Because the calculated individual risk is
31 less than the threshold of 1:1,000,000, the risk is considered to be less
32 than significant.

33 ~~The required regulations along with PG&E Project features that meet~~
34 ~~and exceed the minimum requirements would reduce risks of project~~
35 ~~upset. The required DOT regulations, along with PG&E Project~~

1 features that meet and exceed the minimum requirements, would
 2 reduce risks of project upset. Even though the project risk impacts are
 3 less than significant, However, additional measures are required to
 4 attempt would be implemented to further reduce risks of project upset.
 5 the proposed Project impacts.

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

8 **MM LU-2a Mitigation for Safety Risk to Nearby Land Uses.**

9 Implement MM HAZ-2a, Corrosion Mitigation, pertaining to post-
 10 construction geometry pig surveys, baseline inspection and internal
 11 inspections with a high resolution instrument (smart pig) a minimum of
 12 once every 7 years, and development of an Operation and
 13 Maintenance Plan and an Emergency Response Plan.

14 **MM LU-2b Mitigation for Safety Risk to Nearby Land Uses.**

15 Implement MM HAZ-2b, Installation of Automatic Shut-down Valves,
 16 pertaining to the installation of automatic shutdown valves in all three
 17 locations: Capay Station No. 0+00, Yolo Junction Station No. 732+00,
 18 Power Line Road MLV Station No. 752+00 (which includes the Riego
 19 Road Regulating Station), Baseline Road/Brewer Road MLV Station
 20 No. 1107+00, and Baseline Road Pressure Regulating Station No.
 21 1361+00.

22 Rationale for Mitigation

23 Corrosion has been found to be one of the main causes of leaks or
 24 ruptures. Studies have shown that corrosion occurs more often in
 25 older pipes, therefore using pipe manufactured after 2000 would help
 26 reduce corrosion. In addition, corrosion can be slowed down by
 27 increasing the thickness of the coating on the outside of the pipe
 28 increasing the thickness of the pipe, and by increased surveillance
 29 through cathodic protection. The corrosion mitigation measure would
 30 reduce the incidence of leaks and therefore would reduce the
 31 individual risk of serious injury or fatality. Increased wall thickness
 32 allows more time to pass before a leak may result. During that time
 33 inspections may be able to identify the potential leak and take
 34 precautionary measures. Close interval cathodic protection surveys

1 can identify coating defects and potential metal loss before an incident
2 occurs. Internal inspections using modern techniques can identify
3 external corrosion and other possible causes for an incident.

4 With the proposed mitigation, the incidence of leaks and possible
5 explosion due to outside forces would be reduced, thereby reducing
6 the individual risk of serious injury or fatality. Studies from western
7 Europe have shown that increased wall thickness reduced the
8 frequency of unintentional releases by third parties by 80 percent,
9 increased depth of cover of 48 inches or more reduced third party-
10 caused incidents by 30 percent, and pipelines protected by some form
11 of warning device reduced third party-caused incidents by 10 percent
12 (HSE 2001).

13 Residual Impacts

14 ~~The Project design features and the proposed mitigation measures MM~~
15 ~~LU-2a (MM HAZ-2a) and MM LU-2b (MM HAZ-2b) reduce the risk by~~
16 ~~50 percent. However, the individual risk would still be approximately~~
17 ~~1:30,000, which exceeds individual risk significance thresholds by a~~
18 ~~factor of thirty. In addition, the sensitive receptors located within~~
19 ~~certain distances along the proposed Project alignment would be~~
20 ~~significantly impacted due to risks of explosion, torch fires, and flash~~
21 ~~fires. Therefore, impacts remain significant (Class I).—~~

22 **4.9-24 through 4.9-33**

23 **Option A**

24 The area through which the Option A alignment would pass has similar
25 land uses and land use designations as the proposed Project. Land
26 uses are predominantly agricultural. This alignment would avoid
27 segmenting eight orchard fields and removing trees from an orchard at
28 the west end of the proposed alignment. However, trees within
29 orchards near the Sacramento River would still be disturbed. The
30 amount of agricultural land converted to non-agricultural uses (2.55
31 acres) due to the six aboveground stations would be the same as the
32 proposed alignment with this option. The amount of temporary
33 construction impacts to agricultural fields would be increased with this

1 option due to the increased length (an additional 2,200 feet) along
2 agricultural fields. The amount of agricultural land restricted in the
3 permanent easement to allow only shallow rooted crops to be grown
4 would also be increased with this option.

5 This option would not reduce impacts to the Natomas Conservancy
6 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
7 since this alignment would not change the portions that pass through
8 these lands.

9 The significant and unavoidable (Class I) impact related to construction
10 air quality ~~safety risks associated with nearby land uses~~ would not be
11 reduced with this alternative. In addition to the HCA areas associated
12 with the proposed Project, this option would impact Durst Organic
13 Growers, a business that has approximately 40 employees year round,
14 and as many as 300 during peak farming periods. By placing the
15 pipeline in close proximity to Durst, a new “high consequence area” or
16 “HCA” would be created along this portion of the pipeline, while the
17 proposed alignment would not result in an HCA in this area.

18 While the risk impacts would remain less than significant, ~~significant~~
19 ~~impact associated with the proposed Project would not be reduced with~~
20 ~~this alignment, the impacts related to the~~ magnitude of the risks
21 associated with the number of HCA areas would be increased under
22 Option A.

23 **Option B**

24 The area through which the Option B alignment would pass has similar
25 land uses and land use designations as the proposed Project. Land
26 uses are predominantly agricultural. This alignment would avoid
27 segmenting 13 agricultural fields and removing trees from an orchard
28 at the west end of the proposed alignment. However, trees within
29 orchards near the Sacramento River would still be disturbed. The
30 amount of agricultural land converted to non-agricultural uses (2.55
31 acres) due to the six aboveground stations would be the same as the
32 proposed alignment with this option. The amount of temporary
33 construction impacts to agricultural fields would be increased with this
34 option due to the increased length (an additional 2,640 feet) along

1 agricultural fields. The amount of agricultural land restricted in the
2 permanent easement to allow only shallow rooted crops to be grown
3 would also be increased with this option.

4 This option would not reduce impacts to the Natomas Conservancy
5 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
6 since this alignment would not change the portions that pass through
7 these lands.

8 The significant and unavoidable (Class I) impact related to construction
9 air quality safety risks associated with nearby land uses would not be
10 reduced with this alternative. In addition to the HCA areas associated
11 with the proposed Project, this option would impact Durst Organic
12 Growers, a business that has approximately 40 employees year round,
13 and as many as 300 during peak farming periods. By placing the
14 pipeline in close proximity to Durst, a new “high consequence area” or
15 “HCA” would be created along this portion of the pipeline, while the
16 proposed alignment would not result in an HCA in this area.

17 While the risk impacts would remain less than significant, significant
18 impact associated with the proposed Project would not be reduced with
19 this alignment, the impacts related to the magnitude of the risks
20 associated with the number of HCA areas would be increased under
21 Option B.

22 **Option C**

23 The area through which the Option C alignment would pass has similar
24 land uses and land use designations as the proposed Project. Land
25 uses are predominantly agricultural. This alignment would avoid
26 segmenting three agricultural fields and removing trees from an
27 orchard at the west end of the proposed alignment. However, trees
28 within orchards near the Sacramento River would still be disturbed.
29 The amount of agricultural land converted to non-agricultural uses
30 (2.55 acres) due to the six aboveground stations would be the same as
31 the proposed alignment with this option. The amount of temporary
32 construction impacts to agricultural fields, the amount of orchard
33 conversion, and the amount of agricultural land restricted in the

1 permanent easement to allow only shallow rooted crops to be grown,
2 would be similar to the proposed project.

3 This option would not reduce impacts to the Natomas Conservancy
4 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
5 since this alignment would not change the portions that pass through
6 these lands.

7 The significant and unavoidable (Class I) impact related to construction
8 air quality ~~safety risks associated with nearby land uses~~ would not be
9 reduced with this alternative. Therefore, impacts would remain the
10 same as the proposed Project under Option C.

11 **Option D**

12 The area through which the Option D alignment would pass has similar
13 land uses and land use designations as the proposed Project. Land
14 uses are predominantly agricultural and rural residential.

15 While Option D would move the pipeline alignment closer to seven
16 residences located along CR 17, it would avoid segmenting ten
17 agricultural fields. The amount of agricultural land converted to non-
18 agricultural uses (2.55 acres) due to the six aboveground stations
19 would be the same as the proposed alignment with this option. The
20 amount of temporary construction impacts to agricultural fields, the
21 amount of orchard conversion, and the amount of agricultural land
22 restricted in the permanent easement to allow only shallow rooted
23 crops to be grown, would be similar to the proposed project.

24 This option would not reduce impacts to the Natomas Conservancy
25 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
26 since this alignment would not change the portions that pass through
27 these lands.

28 The significant and unavoidable (Class I) impact related to construction
29 air quality ~~safety risks associated with nearby land uses~~ would not be
30 reduced with this alternative. Therefore, impacts would remain the
31 same as the proposed Project under Option D.

32

Option E

The area through which the Option E alignment would pass has similar land uses and land use designations as the proposed Project. Land uses are predominantly agricultural and rural residential.

While Option E would move the pipeline alignment closer to five residences along CR-19, it would avoid segmenting ten agricultural fields. The amount of agricultural land converted to non-agricultural uses (2.55 acres) due to the six aboveground stations would be the same as the proposed alignment with this option. The amount of temporary construction impacts to agricultural fields, the amount of orchard conversion, and the amount of agricultural land restricted in the permanent easement to allow only shallow rooted crops to be grown, would be similar to the proposed project.

This option would not reduce impacts to the Natomas Conservancy Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands, since this alignment would not change the portions that pass through these lands.

The significant and unavoidable (Class I) impact related to construction air quality ~~safety risks associated with nearby land uses~~ would not be reduced with this alternative. Therefore, impacts would remain the same as the proposed Project under Option E.

Option F

Option F would avoid segmenting one agricultural field by placing this short segment of pipeline along the parcel boundary and within close proximity to one additional residence.

The amount of impacts to orchards would be the same as the proposed Project. The amount of agricultural land converted to non-agricultural uses (2.55 acres) due to the six aboveground stations would be the same as the proposed alignment with this option. The amount of temporary construction impacts to agricultural fields, the amount of orchard conversion, and the amount of agricultural land restricted in the permanent easement to allow only shallow rooted crops to be grown, would be similar to the proposed Project.

1 This option would not reduce impacts to the Natomas Conservancy
2 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
3 since this alignment would not change the portions that pass through
4 these lands.

5 The significant and unavoidable (Class I) impact related to construction
6 air quality ~~safety risks associated with nearby land uses~~ would not be
7 reduced with this alternative. Therefore, impacts would remain the
8 same as the proposed Project under Option F.

9 **Option G**

10 Option G would avoid segmenting one agricultural field by placing this
11 short segment of pipeline along the boundary of the agricultural field
12 near CR-17.

13 Trees within the orchards at the west end of the alignment and near
14 the Sacramento River would still be disturbed under this option. The
15 amount of agricultural land converted to non-agricultural uses (2.55
16 acres) due to the six aboveground stations would be the same as the
17 proposed alignment with this option. The amount of temporary
18 construction impacts to agricultural fields, and the amount of
19 agricultural land restricted in the permanent easement to allow only
20 shallow rooted crops to be grown, would be similar to the proposed
21 project.

22 This option would not reduce impacts to the Natomas Conservancy
23 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
24 since this alignment would not change the portions that pass through
25 these lands.

26 The significant and unavoidable (Class I) impact related to construction
27 air quality ~~safety risks associated with nearby land uses~~ would not be
28 reduced with this alternative. Therefore, impacts would remain the
29 same as the proposed Project under Option G.

Option H

The area through which the Option H alignment would pass has similar land uses and land use designations as the proposed Project. Land uses are predominantly agricultural.

This option would still pass through lands associated with the Yolo Bypass and would impact one additional agricultural field. However, this option would avoid lands within the Sacramento River Ranch Conservation Bank and the Natomas Basin Conservancy.

Trees within the orchards at the west end of the alignment and near the Sacramento River would still be disturbed under this option. The amount of agricultural land converted to non-agricultural uses (2.55 acres) due to the six aboveground stations would be the same as the proposed alignment with this option. The amount of temporary construction impacts to agricultural fields, and the amount of agricultural land restricted in the permanent easement to allow only shallow rooted crops to be grown, would be increased by this option.

The significant and unavoidable (Class I) impact related to construction air quality ~~safety risks associated with nearby land uses~~ would not be reduced with this alternative. Therefore, impacts would be the same as for the proposed Project.

Option I

Option I would reroute a portion of Line 407-E to the north to place the pipeline outside of a 1,500-foot ~~safety buffer~~ study zone around a planned high school to be located on the south side of Baseline Road.

Instead of placing this segment of the pipeline route along Base Line Road the option would cross three agricultural fields, and cross five wetlands or water bodies. The pipeline would remain near residences along South Brewer Road and Country Acres Lane, but would be located farther away from six residences along Base Line Road.

The amount of agricultural land converted to non-agricultural uses (2.55 acres) due to the six aboveground stations would be the same as the proposed alignment with this option. The amount of impacts to

1 orchards would be the same as the proposed Project; however, the
2 amount of temporary construction impacts to agricultural fields and the
3 amount of agricultural land restricted in the permanent easement to
4 allow only shallow rooted crops to be grown would be increased by this
5 option.

6 This option would not reduce impacts to the Natomas Conservancy
7 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
8 since this alignment would not change the portions that pass through
9 these lands.

10 The significant and unavoidable (Class I) impact related to construction
11 air quality ~~safety risks associated with nearby land uses~~ would not be
12 reduced with this alternative. Therefore, the impacts would be similar
13 to the proposed Project.

14 **Option J**

15 Option J would reroute a portion of Line 407-E to the north to place the
16 pipeline outside of a 1,500-foot ~~safety buffer~~ study zone around a
17 planned high school to be located on the south side of Base Line
18 Road.

19 Instead of placing this segment of the pipeline route along Base Line
20 Road, the option would be placed near the boundaries of three
21 agricultural fields and would cross five wetlands or water bodies. The
22 pipeline would remain near residences along South Brewer Road and
23 Country Acres Lane, but would be located farther away from six
24 residences along Base Line Road.

25 The amount of agricultural land converted to non-agricultural uses
26 (2.55 acres) due to the six aboveground stations would be the same as
27 the proposed alignment with this option. The amount of impacts to
28 orchards would be the same as the proposed Project; however, the
29 amount of temporary construction impacts to agricultural fields and the
30 amount of agricultural land restricted in the permanent easement to
31 allow only shallow rooted crops to be grown would be increased by this
32 option.

1 This option would not reduce impacts to the Natomas Conservancy
2 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
3 since this alignment would not change the portions that pass through
4 these lands.

5 The significant and unavoidable (Class I) impact related to construction
6 air quality ~~safety risks associated with nearby land uses~~ would not be
7 reduced with this alternative. Therefore, impacts would be similar to
8 the proposed Project.

9 **Option K**

10 Option K would reroute a portion of Line 407-E approximately 150 feet
11 to the north to place the pipeline outside of a 1,500-foot ~~safety buffer~~
12 study zone around a planned elementary school to be located south of
13 Base Line Road. Rather than following Base Line road, the pipeline
14 would cross through annual grassland, a vernal pool, and seasonal
15 wetland.

16 The amount of agricultural land converted to non-agricultural uses
17 (2.55 acres) due to the six aboveground stations would be the same as
18 the proposed alignment with this option. The amount of impacts to
19 orchards, the amount of temporary construction impacts to agricultural
20 fields, and the amount of agricultural land restricted in the permanent
21 easement to allow only shallow rooted crops to be grown would be the
22 same as the proposed Project.

23 This option would not reduce impacts to the Natomas Conservancy
24 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
25 since this alignment would not change the portions that pass through
26 these lands.

27 The significant and unavoidable (Class I) impact related to construction
28 air quality ~~safety risks associated with nearby land uses~~ would not be
29 reduced with this alternative.

30 Although this realignment would place the proposed natural gas line
31 outside the 1,500-foot study zone buffer, it is unlikely that serious risks
32 would be posed to the student body from the applicant proposed
33 pipeline location, which is approximately 1,400 feet from the school site

1 boundary. The distances to various impacts from the proposed
2 pipeline are summarized below. As noted in Table 4.7-6 and in
3 Appendix H-3, the impacts would not be expected to cause serious
4 injuries or fatalities at distances greater than 1,000 feet.

5 It should be noted that the California Department of Education (CDE),
6 Guidance Document for School Site Pipeline Risk Analysis (Guidance
7 Document) considers 1 percent mortality (fatality probability of 1
8 percent) to be the reasonable estimate of the boundary of serious
9 harm. It is considered the demarcation between threat (1 percent
10 mortality) and no-threat (0 percent mortality). Using this criterion, the
11 following boundary distances could be established from the proposed
12 Line 407 to proposed school sites:

13 • Explosion – The peak overpressure level of an outdoor
14 explosion from any of the three pipeline segments is 0.38 psig
15 (medium fuel reactivity and low obstacle density). This overpressure is
16 less than the level required to cause serious injuries or fatalities.

17 • Flash Fire – 534 feet. This is the downwind distance to the
18 lower flammability limit of an unignited vapor cloud from a full bore
19 release at 15° above the horizon, under the typical conditions outlined
20 in Table 4.7-6. It should be noted that the size of the combustible
21 vapor cloud can vary significantly depending on atmospheric and other
22 conditions. For example, if the wind speed was decreased from 2.0 to
23 1.5 meters per second and the stability class was changed from D to F,
24 the downwind distance to the lower flammability limit of the unignited
25 vapor cloud would increase to 820 feet; these conditions are
26 considered the worst case for off-site consequence modeling from
27 stationary sources by the United States Environmental Protection
28 Agency.

29 • Torch Fire - 746 feet. This is the distance to the 5,000 btu/hr-ft²
30 heat flux which is considered by the CDE to be the level of exposure
31 resulting in 1 percent mortality after a 30 second exposure. For
32 reference, the CDE Guidance Document provides charts for
33 determining radiant heat from torch fires. Although these charts were
34 developed using a different modeling software, they show a distance of
35 975 feet from the release to the 5,000 btu/hr-ft² heat flux. (CDE 2007

1 **Option L**

2 Option L would extend the proposed Line 406-E HDD for
3 approximately 1,000 feet to the east along Base Line Road in order to
4 increase the amount of covered pipeline located within a 1,500-foot
5 ~~safety buffer~~ study zone around a planned elementary school that is to
6 be located south of Base Line Road.

7 The amount of agricultural land converted to non-agricultural uses
8 (2.55 acres) due to the six aboveground stations would be the same as
9 the proposed alignment with this option. The amount of impacts to
10 orchards, the amount of temporary construction impacts to agricultural
11 fields, and the amount of agricultural land restricted in the permanent
12 easement to allow only shallow rooted crops to be grown would be the
13 same as the proposed Project.

14 This option would not reduce impacts to the Natomas Conservancy
15 Mitigation Lands, the River Ranch Conservation Bank, or WAPA lands,
16 since this alignment would not change the portions that pass through
17 these lands.

18 The significant and unavoidable (Class I) impact related to construction
19 air quality ~~safety risks associated with nearby land uses~~ would not be
20 reduced with this alternative. Option L would involve installing the
21 portion of Line 407, Phase I which is within the 1,500-foot study zone
22 ~~buffer~~ of a planned elementary school, using horizontal directional
23 drilling techniques. The individual risk and societal risk associated with
24 Option L would be the same as for the proposed Project (less than
25 significant). However, Option L would reduce the likelihood of the line
26 being damaged by third parties, since the line would be installed at a
27 depth of 35 feet, well below normal excavation depths. ~~This would~~
28 ~~significantly reduce or eliminate the likelihood of the line being~~
29 ~~damaged by third parties, since the line would be installed well below~~
30 ~~normal excavation depths. Although the quantifiable risk would~~
31 ~~decrease slightly under Option L, the impacts would be similar to the~~
32 ~~proposed Project.~~

33 **4.9-31** The amount of farmland permanently impacted (2.55 acres) and the
34 amount of farmland converted from deep rooted plants to other types

1 of crops (2.0 ~~3.4~~ acres) does not represent a significant regional loss
2 and would not conflict with the Williamson Act designation.

3 **4.10 NOISE**

4 **Page Revision:**

5 **4.10-26** **APM NOI-2. PG&E** will coordinate drilling activities where residents
6 may live within 1,000 feet of the HDD temporary-use areas or tie-in
7 locations if construction is scheduled to occur between 8 p.m. and 6
8 a.m.

9 **4.10-27** The YJS would be no greater than 105 feet in height.

10 **4.10-34** Continuous, 24-hour construction would also occur at tie-in locations
11 where the proposed pipeline would intersect with existing natural gas
12 pipelines. Construction would continue until the tie-in is complete.
13 Line 406 would tie-in to Lines 400 and 401 at the Capay Metering
14 Station, and line 172 at the Yolo Junction Station. Line 407 East would
15 tie-in to Line 123 at the existing valve station located at the northwest
16 corner of the Baseline Road and Fiddymont Road intersection.

17 Even though construction activities could occur outside of normal
18 daytime construction hours, this would only happen when the nature of
19 the work would make it necessary to perform construction around the
20 clock.

21 **4.10-34** This would be the case with only a small portion of the overall work,
22 such as during directional drilling, pipeline tie-in and hydrostatic
23 testing.

24 **4.10-35** **MM NOI 1-a. Limited Construction Hours.** Construction activities shall
25 be limited to daytime hours (7 a.m. to 7 p.m.) when they occur within
26 1,000 feet of residences, except for the operation of horizontal
27 directional drilling equipment and at tie-in locations.

28 **4.10-35** **MM NOI-1b. Best Management Practices.** When construction
29 activities occur within 1,000 feet of residences, the following best
30 management practices shall be implemented:

- 1 1. All construction equipment shall be fitted with factory
2 installed mufflers and enclosures.
- 3 2. All construction equipment shall be maintained in good
4 working order.
- 5 3. Horizontal directional drilling equipment and tie-in operations
6 shall be shielded from view of the nearest residences with
7 temporary barriers (such as plywood or straw bales) that
8 block line of sight from engines, ~~and pumps,~~ and other noise
9 emitting equipment to the windows of those residences.
- 10 4. PG&E shall provide a noise complaint hot line, staffed on a
11 24-hour basis, to allow nearby residents to submit
12 complaints about construction-related noise. The hot line
13 number shall be clearly posted at the construction site.
- 14 5. PG&E shall respond to noise complaints in a timely manner,
15 so that residents may obtain any necessary relief before the
16 construction is completed.

17 **4.10-36 MM NOI-1c. Noise Reduction Plan.** To minimize nighttime
18 construction noise impacts, a noise reduction plan shall be developed
19 by a qualified acoustical professional and submitted to the California
20 State Lands Commission for review and approval. The Noise
21 Reduction Plan shall include a set of site-specific noise attenuation
22 measures that apply state of the art noise reduction technology to
23 ensure that nighttime noise levels from Project sources within do not
24 exceed the applicable county's nighttime exterior noise threshold at
25 nearby residences.

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

- 1 • Plan horizontal direction drill activities to minimize the amount of
2 nighttime construction.
- 3 • Offer temporary relocation of residents within 300 feet of nighttime
4 construction areas.
- 5 • Install temporary noise barriers, such as shields and blankets,
6 immediately adjacent to all nighttime stationary noise sources (e.g.,
7 drilling rigs, generators, pumps, etc.).
- 8 • Install a temporary noise wall that blocks the line of sight between all
9 nighttime HDD activities and the closest residences. The noise wall
10 shall achieve an attenuation of at least 10 dBA.
- 11 • Fit all engines associated with nighttime HDD activities with critical
12 silencer muffler designs that achieve attenuation of at least 15 dBA
13 compared to standard muffler designs.
- 14 **4.10-37** The proposed shielding for the HDD, hydrostatic testing and tie-in
15 equipment recognizes that such equipment must be operated on a
16 continuous basis, and provides a practical reduction of noise by
17 requiring an effective noise barrier between the HDD equipment and
18 the nearest residences.
- 19 **4.10-40** The residence nearest the proposed Project's HDD crossing would be
20 located approximately 100 feet from the HDD construction pit. Option A
21 would relocate the Line 400 and Line 401 tie-in location, but would not
22 place it within 200 feet of any sensitive receptors. As a result, there
23 would be fewer potential construction-related noise or vibration impacts
24 along this segment of the pipeline.

25 **4.12 POPULATION AND HOUSING/PUBLIC SERVICES/UTILITIES AND**
26 **SERVICE SYSTEMS**

27 **Page Revision:**

28 **4.12-8 & 9** Sacramento County

29 Sacramento County is served by 16 public school districts, ~~three~~ of
30 which, (the Natomas Unified, Center Joint Unified, and Elverta Joint
31 School Districts) ~~Natomas Unified School District~~, serves the Project

1 area. The Natomas Unified School District consists of eight
 2 elementary schools, two middle schools, three high schools, three
 3 charter schools and one continuation school. Combined, these
 4 schools serve approximately 10,821 students. There are None of the
 5 schools located within the Natomas Unified School District are located
 6 within 0.5 mile of the pipeline Project area in Sacramento County.
 7 Both the Center Joint Unified School District and Elverta Joint School
 8 District extend north from Sacramento County into Placer County near
 9 the project area. The Center Joint Unified School District consists of
 10 two high schools, one middle school, four elementary schools, two
 11 charter schools, one adult school and one preschool. Combined,
 12 these schools serve approximately 5,670 students. None of the
 13 existing schools are located within 0.5 mile of the pipeline. There are
 14 three proposed school sites that would be located within 0.5 mile of the
 15 pipeline. These proposed school sites are intended to serve the
 16 population growth planned for in the Placer Vineyards Specific Area
 17 Plan and the Sierra Vista Specific Plans. The Elverta Joint School
 18 District consists of one elementary school and one middle school,
 19 servng approximately 324 students. No schools within the Elverta
 20 Joint School District are located within 0.5 mile of the pipeline.

21 Placer County

22 Placer County is served by 17 primary and secondary education
 23 school districts, ~~of which,~~ In addition to the Sacramento County school
 24 districts that serve portions of Placer County (as described above), two
 25 Placer County school districts serve the Project area. The Dry Creek
 26 Elementary School District is comprised of six elementary schools and
 27 two middle schools that combined serve approximately 7,377 students.
 28 The Roseville Joint Union High School District consists of six high
 29 schools, enrolling approximately 8,918 students. In Placer County
 30 there are two schools within 0.5 mile of the proposed Project; the
 31 Alpha School (historical) is approximately 0.5 mile north of Line 407
 32 along Baseline Road, and the Coyote Ridge Elementary School is
 33 approximately 0.4 mile north-northeast of the eastern terminus of Line
 34 407 at the intersection of Baseline Road and Fair Oaks Boulevard.

35 **4.12-23**

36 Electricity for lighting during construction would be powered by a diesel generator. At the ~~12~~ locations along the proposed pipeline where

1 HDD, hydrostatic testing or tie-ins would be implemented, lighting
 2 would be utilized to allow continuous, 24-hour construction operations.
 3 At the HDD locations, ~~A temporary light plants~~ would be stationed at
 4 the entry and exit points of each HDD section and would consist of four
 5 1,000-watt fixtures.

6 **4.12-33** Specifically, the Placer Vineyards Specific Area Plan and the Sierra
 7 Vista Specific Plan ~~are both scheduled to begin in 2008 and are~~
 8 located south and north, respectively, of the eastern end of Line 407
 9 East.

10 **4.13 TRANSPORTATION AND TRAFFIC**

11 **Page Revision:**

12 **4.13-18** **APM TRANS-3.** Required permits for temporary lane closures will be
 13 obtained from Yolo County, Sutter County, Sacramento County, Placer
 14 County, and Caltrans. Before obtaining roadway encroachment
 15 permits from the counties, PG&E will submit a Transportation
 16 Management Plan (TMP), subject to the local jurisdiction's review and
 17 approval. As part of the TMP, traffic control measures and construction
 18 vehicle access routes will be identified. The TMP will also include
 19 discussion of expected dates and duration of construction, traffic
 20 mitigation measures, haul routes, limits on the length of open cuts, and
 21 resurfacing requirements. The TMP will address work zone hours.
 22 Construction of the pipeline will occur for 10 hours a day, 6 days a
 23 week, unless otherwise permitted by the local jurisdiction. Property
 24 owners and residents on streets where construction will occur will be
 25 notified prior to the start of construction. Advance public notification
 26 will include postings of notices and appropriate signs.

27 **4.13-19** **APM TRANS-5.** PG&E will consult with the Center Joint Unified School
 28 District ~~Placer County Unified School District~~ at least one month prior
 29 to construction to coordinate construction activities adjacent to school
 30 bus stops. If necessary, school bus stops will be temporarily relocated
 31 or buses will be rerouted until construction in the vicinity is complete.
 32 PG&E will also consult with Yuba-Sutter Transit at least one month
 33 prior to construction to reduce potential interruption of transit services.

- 1 **4.13-20** The other roadways impacted by construction of the proposed Project
 2 include: CR-16A, CR-17, CR-85, CR-87, CR-88A, CR-90A, CR-96,
 3 CR-97, CR-98, CR-99B, CR-100, CR-101, CR-102, SR-113, Powerline
 4 Road, Riego Road/Baseline Road, West Elverta Road, Locust Road,
 5 Brewer Road, Pleasant Grove Road, and Pacific Avenue.
- 6 **4.13-22** ~~Staging areas would be approximately 300 feet by 200 feet.~~
- 7 **4.13-23** Bus service for the Center Joint Unified School District ~~Placer County~~
 8 ~~Unified School District~~ may be temporarily disrupted.
- 9 **4.13-24** Staging areas would not be located at public bus stops. However, bus
 10 routes for the Center Joint Unified School District ~~Placer County~~
 11 ~~Unified School District~~ may be affected. As stated in APM Trans-5,
 12 PG&E would consult with the Center Joint Unified School District
 13 ~~Placer County Unified School District~~ at least one month prior to
 14 construction to coordinate construction activities adjacent to school bus
 15 stops.
- 16 **5.0 ENVIRONMENTAL JUSTICE**
- 17 **5-12 Hazards and Hazardous Materials.** The Project could expose people
 18 to a would expose people to an unacceptable risk of existing or
 19 potential hazards, including upset and accident conditions involving the
 20 risk of fires, including wildland fires where wildlands are adjacent to
 21 urbanized areas or where residences are intermixed with wildlands,
 22 explosions, or the release of hazardous materials into the environment.
 23 ~~Similar affects could result from the creation of a hazard to the public~~
 24 ~~or the environment through the routine transport, use, or disposal of~~
 25 ~~hazardous materials. A majority of the pipeline would be located in~~
 26 ~~agricultural lands containing low densities of population. Risk of upset~~
 27 ~~or explosion of the pipeline is equal for the entire length of the pipeline~~
 28 ~~and would not disproportionately impact a low-income or minority area.~~
 29 The highest risk along a segment of pipeline is to persons located
 30 immediately above the pipeline, and the risk decreases as a person is
 31 farther away from the pipeline. The maximum individual risk posed by
 32 Line 406 before mitigation is 1:2,137,000, and after mitigation it is
 33 1:4,274,000 chance of fatality per year. The maximum individual risk
 34 posed by Line 407 before mitigation is 1:2,062,000, and after mitigation

1 it is 1:4,115,000 chance of fatality per year. The maximum individual
 2 risk posed by Line DFM before mitigation is 1:4,255,000, and after
 3 mitigation it is 1:8,475,000. Because the calculated individual risk is
 4 less than the threshold of 1:1,000,000, the risk is considered to be less
 5 than significant. Furthermore, U.S. DOT class designations were
 6 identified based on population density with more stringent safety
 7 regulations as the human population density increases with Class I as
 8 the least dense and Class 4 as the densest. The proposed pipeline
 9 facilities would be constructed in areas which are presently within
 10 Class 1, 2, and 3 locations. A portion of the identified minority block
 11 group contains a Class 2 area of approximately 15 rural residences.
 12 The identified low-income block group contains a portion of a Class 2
 13 area. In the case of Class 2 areas, the pipeline must adhere to stricter
 14 design measures, including more soil coverage, greater pipe wall
 15 thickness and increased frequency of pipeline patrols and surveys in
 16 order to increase safety, as compared to Class 1 areas. As such, the
 17 Class 2 areas of the minority or low-income block groups would not be
 18 disproportionately affected.

19 **6.0 OTHER REQUIRED CEQA SECTIONS**

20 **6-1 6.2 SIGNIFICANT ENVIRONMENTAL EFFECTS OF PROPOSED** 21 **PROJECT THAT CANNOT BE AVOIDED AND CANNOT BE** 22 **MITIGATED TO LESS THAN SIGNIFICANT**

23 Effects on all environmental resources were evaluated to determine
 24 any impacts that would remain significant after mitigation. There are
 25 is a significant and unavoidable (Class I) impacts related to
 26 Construction Air Quality, Hazards and Hazardous Materials, and Land
 27 Use and Planning.

28 The Class I impact related to air quality is due to the exceedance of
 29 FRAQMD's threshold for ROG during the construction of Line 407
 30 East, the DFM, and Line 407 West. The Class I impact related to air
 31 quality is discussed in detail in Section 4.3 of this Draft EIR.

32 ~~The Class I impacts related to Hazards and Hazardous Materials and~~
 33 ~~Land Use and Planning are safety risks to nearby land uses. Natural~~
 34 ~~gas could be released from a leak or rupture. If the natural gas~~

1 ~~reached a combustible mixture and an ignition source was present, a~~
2 ~~fire and/or explosion could occur, result in possible injuries and/or~~
3 ~~deaths. The Class I impacts related to safety risks are discussed in~~
4 ~~detail in Sections 4.7 and 4.9 of this Draft EIR.~~

5 **6.4** ~~The proposed Project would directly extend natural gas services to an~~
6 ~~area not previously served. PG&E currently has 675,000 residential~~
7 ~~customers in the Sacramento Valley Local Transmission System and~~
8 ~~serves these customers with existing gas lines. The Project would~~
9 ~~accommodate the SACOG growth projections and as a result would~~
10 ~~not induce growth.~~

11 **7.0 FINAL MITIGATION MONITORING PROGRAM**

12 Changes made to Section 7.0, Mitigation Monitoring Program (MMP) of the Draft
13 EIR are reflected in the MMP reproduced in its entirety below.

14 **MITIGATION MONITORING PROGRAM**

15 As the Lead Agency under the CEQA, the CSLC is required to adopt a program for
16 reporting or monitoring regarding the implementation of mitigation measures for this
17 project, if it is approved, to ensure that the adopted mitigation measures are
18 implemented. This Lead Agency responsibility originates in Public Resources Code
19 section 21081.6(a) (Findings), and the CEQA Guidelines sections 15091(d)
20 (Findings) and 15097 (Mitigation Monitoring or Reporting).

21 **MONITORING AUTHORITY**

22 The purpose of a Mitigation Monitoring Program (MMP) is to ensure that measures
23 adopted to mitigate or avoid significant impacts are implemented. A MMP can be a
24 working guide to facilitate not only the implementation of mitigation measures by the
25 Project proponent, but also the monitoring, compliance and reporting activities of the
26 CSLC and any monitors it may designate.

27 The CSLC may delegate duties and responsibilities for monitoring to other
28 environmental monitors or consultants as deemed necessary, and some monitoring
29 responsibilities may be assumed by responsible agencies, such as affected
30 jurisdictions and cities, and the California Department of Fish and Game (CDFG).
31 The number of construction monitors assigned to the project will depend on the
32 number of concurrent construction activities and their locations. The CSLC or its

1 designee(s), however, will ensure that each person delegated any duties or
2 responsibilities is qualified to monitor compliance.

3 Any mitigation measure study or plan that requires the approval of the CSLC must
4 allow at least 60 days for adequate review time. When a mitigation measure requires
5 that a mitigation program be developed during the design phase of the project, PG&E
6 must submit the final program to CSLC for review and approval for at least 60 days
7 before construction begins. Other agencies and jurisdictions may require additional
8 review time. It is the responsibility of the environmental monitor assigned to each
9 spread to ensure that appropriate agency reviews and approvals are obtained.

10 The CSLC or its designee will also ensure that any deviation from the procedures
11 identified under the monitoring program is approved by the CSLC. Any deviation and
12 its correction shall be reported immediately to the CSLC or its designee by the
13 environmental monitor assigned to the construction spread.

14 **ENFORCEMENT RESPONSIBILITY**

15 The CSLC is responsible for enforcing the procedures adopted for monitoring through
16 the environmental monitor assigned to each construction spread. Any assigned
17 environmental monitor shall note problems with monitoring, notify appropriate
18 agencies or individuals about any problems, and report the problems to the CSLC or
19 its designee.

20 **MITIGATION COMPLIANCE RESPONSIBILITY**

21 PG&E is responsible for successfully implementing all the Applicant Proposed
22 Measures (APMs) and the Mitigation Measures (MMs) in the MMP, and is
23 responsible for assuring that these requirements are met by all of its construction
24 contractors and field personnel. Standards for successful mitigation also are implicit
25 in many mitigation measures that include such requirements as obtaining permits or
26 avoiding a specific impact entirely. Other mitigation measures include detailed
27 success criteria. Additional mitigation success thresholds will be established by
28 applicable agencies with jurisdiction through the permit process and through the
29 review and approval of specific plans for the implementation of mitigation measures.

30 **GENERAL MONITORING PROCEDURES**

31 **Environmental Monitors.** Many of the monitoring procedures will be conducted
32 during the construction phase of the project. The CSLC and the environmental
33 monitor(s) are responsible for integrating the mitigation monitoring procedures into

1 the construction process in coordination with PG&E. To oversee the monitoring
2 procedures and to ensure success, the environmental monitor assigned to each
3 construction spread must be on site during that portion of construction that has the
4 potential to create a significant environmental impact or other impact for which
5 mitigation is required. The environmental monitor is responsible for ensuring that all
6 procedures specified in the monitoring program are followed.

7 **Construction Personnel.** A key feature contributing to the success of mitigation
8 monitoring would be obtaining the full cooperation of construction personnel and
9 supervisors. Many of the mitigation measures require action on the part of the
10 construction supervisors or crews for successful implementation. To ensure
11 success, the following actions, detailed in specific mitigation measures, will be taken:

- 12 • Procedures to be followed by construction companies hired to do the work will
13 be written into contracts between PG&E and any construction contractors.
14 Procedures to be followed by construction crews will be written into a separate
15 document that all construction personnel will be asked to sign, denoting
16 agreement.
- 17 • One or more preconstruction meetings would be held to inform all and train
18 construction personnel about the requirements of the monitoring program.
- 19 • A written summary of mitigation monitoring procedures would be provided to
20 construction supervisors for all mitigation measures requiring their attention.

21 **GENERAL REPORT PROCEDURES AND PUBLIC ACCESS TO RECORDS**

22 **General Reporting Procedures.** Site visits and specified monitoring procedures
23 performed by other individuals will be reported to the environmental monitor assigned to
24 the relevant construction spread. A monitoring record form will be submitted to the
25 environmental monitor by the individual conducting the visit or procedure so that
26 details of the visit can be recorded and progress tracked by the environmental
27 monitor. A checklist will be developed and maintained by the environmental monitor
28 to track all procedures required for each mitigation measure and to ensure that the
29 timing specified for the procedures is adhered to. The environmental monitor will note
30 any problems that may occur and take appropriate action to rectify the problems.

31 **Public Access to Records.** The public is allowed access to records and reports
32 used to track the monitoring program. Monitoring records and reports will be made
33 available for public inspection by the CSLC or its designee on request.

1 MITIGATION MONITORING TABLE

2 The following sections present the mitigation monitoring tables for each
3 environmental discipline. Each table lists the following information, by column:

- 4 • Impact (impact number, title, and impact class);
- 5 • Mitigation Measure (includes APM and MM with summary text of the measure);
- 6 • Location (where the impact occurs and the mitigation measure should be
7 applied);
- 8 • Monitoring/reporting action (the action to be taken by the monitor or Lead
9 Agency);
- 10 • Effectiveness criteria (how the agency can know if the measure is effective);
- 11 • Responsible agency; and
- 12 • Timing (before, during, or after construction; during operation, etc.).

13 Abbreviations Used in the Mitigation Monitoring Program Tables

14 The following abbreviations are used in the Mitigation Monitoring Program tables:

15 <u>Acronym</u>	<u>Definition</u>
16 <u>AES</u>	<u>Aesthetic/Visual Resources</u>
17 <u>AGR</u>	<u>Agricultural Resources</u>
18 <u>ALT-L</u>	<u>Alternative L</u>
19 <u>APM</u>	<u>Applicant Proposed Measures</u>
20 <u>AQ</u>	<u>Air Quality</u>
21 <u>BIO</u>	<u>Biological Resources</u>
22 <u>BMP</u>	<u>Best Management Practice</u>
23 <u>CDFG</u>	<u>California Department of Fish and Game</u>
24 <u>County CUPAs</u>	<u>Certified Unified Program Agency</u>
25 <u>CR</u>	<u>Cultural Resources</u>
26 <u>CFR</u>	<u>Code of Federal Regulations</u>
27 <u>CSLC</u>	<u>California State Lands Commission</u>
28 <u>FRAQMD</u>	<u>Feather River Air Quality Management District</u>
29 <u>GEO</u>	<u>Geology and Soils</u>
30 <u>GHG</u>	<u>greenhouse gases</u>

1	<u>HAZ</u>	<u>Hazards and Hazardous Materials</u>
2	<u>HDD</u>	<u>Horizontal Directional Drilling</u>
3	<u>HWQ</u>	<u>Hydrology and Water Quality</u>
4	<u>LU</u>	<u>Land Use and Planning</u>
5	<u>MM</u>	<u>Mitigation Measure</u>
6	<u>MMP</u>	<u>Mitigation Monitoring Program</u>
7	<u>NCIC / CHRIS</u>	<u>North Central Information Center / California Historical</u>
8		<u>Resources Information System</u>
9	<u>NMFS</u>	<u>National Marine Fisheries Service</u>
10	<u>NOI</u>	<u>Noise</u>
11	<u>NO_x</u>	<u>Oxides of Nitrogen</u>
12	<u>PALEO</u>	<u>Cultural Resources Paleontology</u>
13	<u>PCAPCD</u>	<u>Placer County Air Pollution Control District</u>
14	<u>ROW</u>	<u>Right-of-Way</u>
15	<u>RWQCB</u>	<u>Regional Water Quality Control Board</u>
16	<u>SMAQMD</u>	<u>Sacramento Metropolitan Air Quality Management District</u>
17	<u>TMP</u>	<u>Traffic Management Plan</u>
18	<u>TRANS</u>	<u>Transportation and Traffic</u>
19	<u>USACE</u>	<u>United States Army Corps of Engineers</u>
20	<u>USFWS</u>	<u>United States Fish and Wildlife Service</u>
21	<u>WAPA</u>	<u>Western Area Power Administration</u>
22	<u>YSAWMD</u>	<u>Yolo County Air Quality Management District</u>
23		
24		
25		

1 **Table 7-3: Mitigation Monitoring Program - Aesthetic/Visual Resources**

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
AES-1: Degrade the existing visual character or quality of the site and its surroundings	AES-1: Replanting of screening vegetation	Entire alignment	Compliance monitoring	Recreates the visual quality provided by the removed vegetation	CSLC	After construction
AES-2: Create new source of light or glare	AES-2: Light shielding and positioning away from residences	HDD, <u>hydrostatic testing, and tie-in locations near residences</u>	Verification of light shielding and positioning	Reduces light trespass onto nearby residences	CSLC	During construction

2
3 **Table 7-4: Mitigation Monitoring Program - Agricultural Resources**

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<u>Applicant Proposed Measures</u>	<u>APM AGR-1: Advanced construction notification</u>	<u>Entire alignment</u>	<u>Verification of advanced notification</u>	<u>Advanced notice of construction activity provided to landowners and tenant farmers; establishment of mechanism for landowners and tenant farmers to contact PG&E</u>	<u>CSLC</u>	<u>Before and during construction</u>

1

Table 7-2 7-5: Mitigation Monitoring Program - Air Quality

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Applicant Proposed Measures	APM AQ-1: Compile comprehensive inventory list of heavy-duty off-road equipment	Entire alignment	Review construction equipment inventory	Exhaust emissions are minimized	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	Before construction
	APM AQ-2: Ensure that construction equipment exhaust emissions will not exceed visible emission limitations	Entire alignment	Equipment Inspection	Exhaust emissions are minimized	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	Before and during construction
	APM AQ-3: Prepare and implement a fugitive dust mitigation plan	Entire alignment	Review and verification of plan	Fugitive dust is minimized	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	Before construction
	APM AQ-4: Ensure that all construction equipment is properly tuned and maintained	Entire alignment	Verification of maintenance	Exhaust emissions are minimized	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	During construction
	APM AQ-5: Minimize equipment and vehicle idling time to five minutes	Entire alignment	Observation of idling time	Exhaust emissions are minimized	CSLC	During construction
	APM AQ-6: Prevent dust impacts off-site	Entire alignment	Observation of water truck operation	Fugitive dust is minimized	CSLC	During construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	APM AQ-7: Utilize existing power sources or clean fuel generators	Entire alignment	Verification of power sources	Emissions are minimized	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	During construction
	APM AQ-8: Develop traffic plan to minimize traffic flow interference	Entire alignment	Review and verification of plan	Exhaust emissions are minimized	CSLC County Agencies	Before and during construction
	APM AQ-9: Not allow open burning of removed vegetation	Entire alignment	Observation of vegetation removal	Reduces air pollution	CSLC	During construction
	APM AQ-10: Portable engines and portable engine-driven equipment units	Entire alignment	Verification of compliance	Ensures compliance with air quality standards	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	Before and during construction
	APM AQ-11: Limit operation on “spare the air” days within each County	Entire alignment	Observation of limited operation	Emissions are reduced on “Spare the Air” days	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	During construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
AQ-1: Construction or operational emissions exceeding regional thresholds	AQ-1a: Fugitive PM ₁₀ control	Entire alignment	Observation of reduced speed on unpaved roads and application of soil stabilizers	Reduces fugitive dust emissions from Project construction	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	During construction
	AQ-1b: NO _x mitigation menu	Entire alignment	Verify implementation of NO _x reducing measures such as <u>installation of diesel catalytic reduction or Lean NO_x Catalyst equipment or payment of mitigation fee</u>	Reducing NO _x emissions	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	Before and during construction
	AQ-1c: <u>PCAPCD mitigation</u>	<u>Placer County</u>	<u>Verify provision of required project equipment information and implementation of construction emission / dust control plan.</u>	<u>Exhaust emissions and fugitive dust are minimized</u>	<u>CSLC PCAPCD</u>	<u>Before and during construction</u>
	AQ-1d: <u>SMAQMD mitigation</u>	<u>Sacramento County</u>	<u>Verify provision of required project equipment information and reports</u>	<u>Exhaust emissions are minimized</u>	<u>CSLC SMAQMD</u>	<u>Before and during construction</u>

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
AQ-2: Construction or operational emissions exceeding State or Federal standards	AQ-1a: Fugitive PM ₁₀ control	Entire alignment	Observation of reduced speed on unpaved roads and application of soil stabilizers	Reduces fugitive dust emissions from Project construction	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	During construction
	AQ-1b: NO _x mitigation menu	Entire alignment	Verify implementation of NO _x reducing measures	Reducing NO _x emissions	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	Before and during construction
	AQ-1c: <u>PCAPCD mitigation</u>	<u>Placer County</u>	<u>Verify provision of required project equipment information and implementation of construction emission / dust control plan</u>	<u>Exhaust emissions and fugitive dust are minimized</u>	<u>CSLC</u> <u>PCAPCD</u>	<u>Before and during construction</u>
	AQ-1d: <u>SMAQMD mitigation</u>	<u>Sacramento County</u>	<u>Verify provision of required project equipment information and reports</u>	<u>Exhaust emissions are minimized</u>	<u>CSLC</u> <u>SMAQMD</u>	<u>Before and during construction</u>
AQ-3: Increase in greenhouse gas emissions	AQ-3: GHG emission offset program	Entire alignment	Verification of carbon offsets program purchase	Offset of GHG emissions	CSLC FRAQMD YSAWMD PCAPCD SMAQMD	Before Construction

1

Table 7-3 7-6: Mitigation Monitoring Program - Biological Resources

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Applicant Proposed Measures	APM BIO-1: Worker training	Entire alignment	Verification of training attendance	Improves awareness and compliance with mitigation measures	CSLC	Before and during construction
	APM BIO-2: Educational brochure	Entire alignment	Verification of brochure distribution	Improves awareness and compliance with mitigation measures	CSLC	Before and during construction
	APM BIO-3: Exclusion zone fencing	Entire alignment	Verification of exclusion zone fencing	Avoids inadvertent intrusion into sensitive resources	CSLC CDFG USFWS USACE RWQCB	During construction
	APM BIO-4: Vegetation removal	Entire alignment	Compliance monitoring	Ensures vegetation is only removed within the approved work area	CSLC	During construction
	APM BIO-5: Work area	Entire alignment	Verification of work area	Protects sensitive areas from heavy equipment, vehicles, and construction work	CSLC	During construction
	APM BIO-6: Construction monitoring	Entire alignment	Verification of monitoring and pre-activity surveys	Avoids disturbance of special-status species and habitats	CSLC CDFG USFWS USACE	Before and during construction
	APM BIO-7: Erosion and dust control	Entire alignment	Verify application of control BMPs	Minimizes potential for impacts to sensitive resources	CSLC USACE RWQCB	During construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	APM BIO-8: Workday schedule	Entire alignment	Verification of schedule	Minimizes disturbance from construction	CSLC	During construction
	APM BIO-9: Vehicle inspection	Entire alignment	Verify that vehicles and equipment are inspected for wildlife	Avoids injury or death of wildlife	CSLC	During construction
	APM BIO-10: Speed limit	Entire alignment	Verify enforcement of speed limits	Protects sensitive habitat	CSLC	During construction
	APM BIO-11: Trench ramping	Entire alignment	Verification of trench ramping	Avoids injury or death of wildlife	CSLC CDFG USFWS	During construction
	APM BIO-12: Sensitive habitat monitoring and procedures if listed species are found	Entire alignment	Observation of sensitive habitat monitoring	Avoids unnecessary disturbance to sensitive species or habitat	CSLC CDFG USFWS	During construction
	APM BIO-13: Spill prevention/containment and refueling precautions	Entire alignment	Verify that precautions are implemented	Minimizes potential for spills that may impact sensitive species	CSLC CDFG USFWS USACE	Before and during construction
	APM BIO-14: Trash cleanup	Entire alignment	Observation of trash cleanup	Avoids unnecessary disturbance to sensitive species or habitat	CSLC	During and after construction
	APM BIO-15: Prohibitions for pets, fire, firearms	Entire alignment	Observation of prohibition	Avoids unnecessary disturbance to sensitive species or habitat	CSLC	During construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	APM BIO-16: ROW restoration	Entire alignment	Verification of restoration	Restores work areas to pre-existing contours and conditions	CSLC CDFG USACE USFWS	After construction
	APM BIO-17: ROW restoration plan	Entire alignment	Review and verification of plan; observation of restoration measures	Ensures post-construction revegetation, success criteria, and monitoring periods in natural areas	CSLC	After construction
	APM BIO-18: Seed mix and success criteria	Entire alignment	Verify seed mix and success criteria	Restores wetlands and stream crossings	CSLC	After construction
	APM BIO-19: Erosion control	Entire alignment	Observation of erosion control measures	Ensures that revegetation is successful	CSLC CDFG USACE RWQCB	After construction
	APM BIO-20: Water crossings in special-status species habitats	Entire alignment	Verification of water crossing schedule	Protects habitat for special-status aquatic species	CSLC USACE NMFS USFWS	During construction
	APM BIO-21: Wetland and waterway avoidance during final design	Entire alignment	Verification of avoidance measures	Avoids impacts to sensitive wetland habitats and waterways	CSLC USACE NMFS USFWS	Before construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	APM BIO-22: Wetland restoration and monitoring plan	Entire alignment	Review and verification of plan; observation of restoration and mitigation measures	Minimizes impacts to sensitive wetland habitats and waterways	CSLC CDFG USACE NMFS USFWS	Before construction
	APM BIO-23: HDD fluid release contingency plan	HDD locations	Review and verification of plan; observation of procedures	Minimizes personal injury, death, or property damage from accidental spills during construction	CSLC USACE RWQCB	Before construction
	APM BIO-24: Vernal pool invertebrate mitigation	Entire alignment	Verification of mitigation measures, compliance monitoring	Minimizes effects to vernal pool invertebrate species	CSLC USFWS	During construction
	APM BIO-25: Giant garter snake habitat buffer	Entire alignment	Verification of buffer	Avoids injury or death of giant garter snake	CSLC CDFG USFWS	During construction
	APM BIO-26: Construction window in giant garter snake habitat	Entire alignment	Verification of construction window	Avoids injury or death of giant garter snake	CSLC CDFG USFWS	Before and during construction
	APM BIO-27: Giant garter snake monitoring	Entire alignment	Verification of monitoring	Avoids injury or death of giant garter snake	CSLC CDFG USFWS	During construction
	APM BIO-28: Dewatering giant garter snake habitat	Entire alignment	Observation of dewatering	Avoids injury or death of giant garter snake	CSLC CDFG USFWS	Before and during construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	APM BIO-29: Bird nest surveys and monitoring	Entire alignment	Verification of surveys and observation of monitoring	Avoids disturbance of nesting birds and raptors	CSLC CDFG	Before and during construction
	APM BIO-30: Nesting birds	Entire alignment	Verification of buffer zone and avoidance	Avoids disturbance of nesting birds and raptors	CSLC CDFG	During construction
	APM BIO-31: Burrowing owl surveys	Entire alignment	Verification of pre-construction surveys	Avoids disturbance of burrowing owls	CSLC CDFG	Before and during construction
	APM BIO-32: Burrow avoidance	Entire alignment	Verification of buffer zone and avoidance	Avoids disturbance of burrowing owls	CSLC CDFG	Before and during construction
	APM BIO-33: Burrow relocation	Entire alignment	Observation of burrow relocation	Minimizes disturbance of burrowing owls	CSLC CDFG	Before and during construction
	APM BIO-34: Burrowing owl monitoring plan	Entire alignment	Review and verification of plan	Protection of burrowing owls from Project disturbance	CSLC CDFG	Before and during construction
	APM BIO-35: Species-specific and habitat-specific compensation	Entire alignment	Verification of compensatory mitigation	Minimizes disturbance to vernal pools, wetlands, giant garter snake, and other special-status species	CSLC CDFG USFWS USACE	Before and during construction
BIO-1: Wetlands	BIO-1a: Wetland avoidance and restoration	Entire alignment	Verification of avoidance and observation of mitigation	Ensures that impacts to wetlands are minimized to the greatest extent feasible	CSLC CDFG USACE RWQCB	During construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	BIO-1b: Trench backfill and topographic restoration	Entire alignment	Verification of mitigation implementation	Ensures that permanent hydrologic alternation to wetlands is minimized	CSLC CDFG USACE RWQCB	Before, during and after construction
	BIO-1c: Riparian avoidance and restoration	Entire alignment	Verification of riparian avoidance and restoration	Ensures impact to riparian habitat is avoided, minimized or restored	CSLC CDFG USACE	Before, during and after construction
BIO-2: Reduce or alter vegetation	BIO-2a: Tree avoidance and replacement	Entire alignment	Review of tree replacement plan, verification of avoidance and replacement	Ensures identification, protection, and replacement of native trees within the Project site	CSLC CDFG Yolo County	Before, during and after construction
	BIO-2b: Avoidance of valley oak woodland	State Route 113 vicinity	Verification and observation of trenchless excavation	Ensures that existing mature valley oak woodland is not impacted by the Project	CSLC CDFG	Before construction
BIO-3: Invasive species or soil pests	BIO-3: Prepare and implement an invasive species control program	Entire alignment	Verify implementation of program measures	Minimizes the introduction of new invasive weed species, soil pathogens, or aquatic invertebrates	CSLC CDFA, Control and Eradication Division	Before and during construction
BIO-4: Habitat removal or loss of special status species	BIO-4a: Protect special status wildlife	Entire alignment	Verification of avoidance and observation of mitigation	Ensures that habitat removal or loss of special status species is minimized to the greatest extent feasible	CSLC USFWS CDFG	Before and during construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	BIO-4b: Mitigation for potential impacts to Natomas Basin Conservancy mitigation lands	Natomas Basin Conservancy mitigation lands	Verification of mitigation measures	Reduces impacts to Natomas Basin Conservancy mitigation lands	CSLC CDFG	Before and during construction
	BIO-4c: Mitigation for potential impacts to Sacramento River Ranch Conservation Bank mitigation lands	Sacramento River Ranch Conservation Bank mitigation lands	Verification of mitigation measures	Reduces impacts to Sacramento River Ranch Conservation Bank mitigation lands	CSLC CDFG	Before and during construction
	BIO-4d: Protect special-status bird species	Entire alignment	Verification of construction timing, buffer implementation and/or mitigation consultation	Reduces potential impacts to special-status bird species	CSLC USFWS CDFG	Before and during construction

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Table 7-4 7-7: Mitigation Monitoring Program - Cultural Resources

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Applicant Proposed Measures	APM CR-1: Evaluate unavoidable unevaluated resources	Entire alignment	Verify evaluation of unavoidable unevaluated resources	Identifies and protects un-evaluated resources in the Project site	CSLC NCIC/ CHRIS	During construction
	APM CR-2: Protect significant/eligible resources	Entire alignment	Compliance monitoring	Protects significant/eligible resources	CSLC NCIC/ CHRIS	During construction
	APM CR-3: Test areas sensitive for buried archaeological remains at reported location of Eagle Hotel <u>Study or observe areas sensitive for buried archaeological remains at reported location of Eagle Hotel</u>	Eagle Hotel	Observation of testing at Eagle Hotel <u>Completion of a geo-archeological study or observation of ground disturbing activities at Eagle Hotel</u>	Reduces potential for damage to unknown buried archaeological remains	CSLC NCIC/ CHRIS	During construction
	APM CR-4: Consult with the local Native American community	Entire alignment	Verify consultation	Ensures appropriate treatment of archaeological materials or human remains	CSLC	Before and during construction
	APM CR-5: Provide environmental training	Entire alignment	Verification of training attendance	Improves awareness and compliance with procedures	CSLC	Before construction
	APM PALEO-1: Paleontologist will provide input for environmental training	Entire alignment	Verification of involvement in training	Improves awareness of paleontologic resource issues	CSLC	Before construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	APM PALEO-2: Provide environmental training	Entire alignment	Verification of training attendance	Improves awareness of compliance measures pertaining to paleontological resources	CSLC	Before construction
	APM PALEO-3: Monitoring by a qualified paleontologist for areas with high sensitivity	Entire alignment	Observation of monitoring	Reduces potential for damage to unknown buried paleontological resources	CSLC	During construction
	APM PALEO-4: Monitoring by a qualified paleontologist for area east of Yolo	Line 407 West Project area east of Yolo	Observation of monitoring	Reduces potential for damage to unknown buried paleontological resources	CSLC	During construction
	APM PALEO-5: Stop work within 25 feet of any paleontological resources discovered during Project activities if qualified monitor is not present	Entire alignment	Observe construction activities	Reduces potential for damage to unknown buried paleontological resources	CSLC	During construction
PALEO-1: Fossils	PALEO-1: Proper curation of fossil collection	Entire alignment	Verification or proper curation	Enhances subsequent evaluation and curation by the chosen repository	CSLC	During and after construction
PALEO-2: Scientific or educational value	PALEO-2: Delivery of fossil collection to <u>appropriate location</u>	Entire alignment	Verification of delivery	Ensures that the fossil collection would be permanently incorporated into the larger collection of an appropriate curatorial facility	CSLC	During and after construction

1 **Table 7-5 7-8: Mitigation Monitoring Program - Geology and Soils**

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
GEO-1: Known earthquake faults /ground motion	GEO-1: Site specific seismic Analysis	Entire alignment	Review of site specific field investigation and verification of implementation	Minimizes hazards due possible seismic displacement along fault crossings	CSLC	Before and during construction

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3 **Table 7-6 7-9: Mitigation Monitoring Program - Hazards and Hazardous Materials**

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Applicant Proposed Measures	APM HAZ-1: Environmental training program	Entire alignment	Verification of training attendance	Improves awareness and compliance with mitigation measures	CSLC	Before and during construction
	APM HAZ-2: Hazardous substance control and emergency response plan	Entire alignment	Review and verify plan and observe construction activities for compliance	Minimizes personal injury, death, or property damage from accidental spills during construction	CSLC County CUPAs	Before and during construction
	APM HAZ-3: Use oil-absorbent material, tarps, and storage drums to contain and control any minor releases	Entire alignment	Verify supplies and equipment	Minimizes personal injury, death, or property damage from accidental spills during construction	CSLC	During construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	APM HAZ-4: Conduct soil sampling and potholing along the Project route	Entire alignment	Observe sampling and potholing for compliance	Minimizes potential for release of pre-existing contamination	CSLC County CUPAs	Before construction
	APM HAZ-5: Laboratory analysis of any suspected contaminated groundwater sampling	Entire alignment	Observe sampling for compliance	Minimizes potential for release of pre-existing contamination	CSLC County CUPAs	During construction
	APM HAZ-6: Prepare construction fire risk management plan	Entire alignment	Observe construction activities for compliance	Minimizes personal injury, death, or property damage from fire during construction	CSLC	During construction
	APM HAZ-7: Properties with a history of agricultural use	Entire alignment	Observe construction activities for compliance	Minimizes potential for release of pre-existing contamination	CSLC	During construction
	APM HAZ-8: Operation Fire Risk Management Plan	Entire alignment	Observe operation activities for compliance	Minimizes personal injury, death, or property damage from fire during operation	CSLC	During operation
HAZ-1: Emergency plans/wildland fires	HAZ-1: Minimize risk of fire	Entire alignment	Observe construction and operation activities for compliance	Minimize damage from fire	CSLC County Agencies	During construction and operation

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
HAZ-2: System safety and risk of serious injuries and fatalities due to project upset	HAZ-2a: Corrosion and <u>third party damage</u> mitigation	Entire alignment	Observe construction and operation activities for compliance	Minimize leaks or ruptures caused by corrosion and <u>third party damage</u>	CSLC	Before, during and after construction
	HAZ-2b: Installation of automatic shutdown valves	<u>All project stations</u>	Confirm installation of automatic shutdown valves	Ensures enhanced public safety through ability to shutdown pipeline during emergencies	CSLC	During construction and operation

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Table 7-7 7-10: Mitigation Monitoring Program - Hydrology and Water Quality

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Applicant Proposed Measures	APM HWQ-1: Implement BMPs from the Water Quality Construction Best Management Practices Manual	Entire alignment	Verification of BMPs	Prevents Project-related erosion and sedimentation	CSLC RWQCB	During construction
	APM HWQ-2: Implement a hazardous substances control and emergency response plan	Entire alignment	Review and verification of plan	Minimizes personal injury, death, or property damage from hazardous material spills	CSLC RWQCB	During construction
	APM HWQ-3: Perform open-cut crossings of water bodies using a	Entire alignment	Observe operation activities for	Minimizes effects of construction activities on the waterbody	CSLC RWQCB	During construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	dry-crossing method		compliance			
	APM HWQ-4: Cross larger and/or more sensitive waterways with HDD or bores	HDD locations	Verify HDD locations	Minimizes effects to sensitive waterways	CSLC RWQCB	During construction
	APM HWQ-5: Prepare an HDD fluid release contingency plan	HDD locations	Review and verification of plan	Minimize effects to waterways in the event of a frac-out	CSLC RWQCB	During construction
HWQ-1: Federal or state water quality standards	HWQ-1: Response to unanticipated release of drilling fluids	Entire alignment	Adherence to drilling fluid release plan	Prevents and responds to unintended frac-outs	CSLC USACE CDFG County Agencies	During construction
HWQ-2: Groundwater for private or municipal purposes	HWQ-2: Verify well <u>and irrigation system</u> locations	Entire alignment	Verify well location and testing; <u>verify irrigation system locations and need for temporary or permanent reconfiguration</u>	Monitors potential effects to groundwater wells <u>and irrigation systems</u>	CSLC	Before and during construction
HWQ-3: 100-year floodplain	HWQ-3: Flood-proof pump houses within 100-year flood plain	Entire alignment	Verify above ground structures are flood-proof	Reduce the risk of catastrophic damage due to 100-year flood	CSLC County Agencies	During construction and operation

1 **Table 7-8 7-11: Mitigation Monitoring Program - Land Use and Planning**

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
LU-1: Conflict with adjacent land uses	LU-1a: Mitigation for impacts to the Natomas Basin Conservancy mitigation lands	Entire alignment	Verify that MM BIO-4b has been implemented	Reduces any impacts to mitigation lands	CSLC	During and after construction
	LU-1b: Mitigation for impacts to the Sacramento River Ranch Conservation Bank mitigation lands	Entire alignment	Verify that MM BIO-4c has been implemented	Reduces any impacts to mitigation lands	CSLC	During and after construction
	LU-1c: WAPA license agreement	Entire alignment	Verify submittal of Project plans	Reduces any impacts to WAPA power line operations	CSLC	Before construction
	LU-1d: Potential Conflicts with Other Utilities	Entire alignment	Verify coordination with local agencies and utility separation requirements are met	Reduces any impacts to other utilities and reduces third-party incidents to pipeline when other utilities are installed	CSLC County Agencies Roseville	Before construction
LU-2: Result in safety risk to nearby land uses	LU-2a: Implement MM HAZ-2a, corrosion mitigation	Entire alignment	Verify that MM HAZ-2a has been implemented	Reduces incidences of leaks caused by corrosion	CSLC	During and after construction
	LU-2b: Implement HAZ-2b, installation of automatic shut-down valves	Entire alignment	Verify that MM HAZ-2b has been implemented	Ensures enhanced public safety through ability to shutdown pipeline during emergencies	CSLC	During construction and operation

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Table 7-9 7-12: Mitigation Monitoring Program - Noise

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Applicant Proposed Measures	APM NOI-1: Limit construction hours and apply noise control best management practices	Alignment in the vicinity of residences	Verify construction schedule; verify best management practices	Avoids nighttime noise where feasible; reduces noise from construction	CSLC	During construction
	APM NOI-2: Coordinate drilling activities	HDD and tie-in areas	Verify coordination with residences	Provides advanced notice of nighttime noise	CSLC	During construction
NOI-1: Project construction	NOI-1a: Limited construction hours	Entire alignment	Verify construction schedule	Avoids nighttime noise where feasible	CSLC	During construction
	NOI-1b: Best management practices	Entire alignment	Verify best management practices	Provides maximum practical noise reduction	CSLC	During construction
	NOI-1c: Noise reduction plan	Entire alignment	Verify acoustical analysis and implementation	Minimizes nighttime construction noise	CSLC	During construction
NOI-2 Groundborne vibration or noise	NOI-2a: Distance from residences	Entire alignment	Verify distance	Reduces severity of groundborne vibration and noise near residences	CSLC	During construction
	NOI-2b: Heavy-loaded trucks	Entire alignment	Verify routes	Reduces severity of groundborne vibration and noise near residences	CSLC	During construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	NOI-2c: Earth moving equipment / distance from vibration-sensitive sites	Entire alignment	Verify distance	Reduces severity of groundborne vibration near sensitive sites	CSLC	During construction
	NOI-2d: Nighttime construction	Entire alignment	Verify construction schedule	Avoids nighttime groundborne vibration or where feasible	CSLC	During construction

Table 7-10 7-13: Mitigation Monitoring Program - Transportation and Traffic

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Applicant Proposed Measures	APM TRANS-1: Travel lane capacity and traffic control	Entire alignment	Verify capacity and traffic control	Reduces effect of Project on local traffic	CSLC County Agencies	During construction
	APM TRANS-2: Work zone	Entire alignment	Verify work zone	Reduces effect of Project on local traffic	CSLC County Agencies	During construction
	APM TRANS-3: Permits and transportation management plan (TMP)	Entire alignment.	Review and verification of plan; verification of permits	Reduces effect of Project on local traffic	CSLC County Agencies	Before construction

Impact	Mitigation Measure	Location	Monitoring / Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	APM TRANS-4: Coordinate construction activities with local law enforcement and fire protection agencies	Entire alignment	Verify coordination and notification	Increases awareness of emergency service providers	CSLC County Agencies	Before and during construction
	APM TRANS-5: Consult with the Center Joint Unified School District and Yuba-Sutter Transit	Entire alignment	Verify consultation	Reduces effect of Project on school and local bus transit	CSLC	Before construction
	APM TRANS-6: Notification of access restrictions	Entire alignment	Verify notice to residents	Reduces inconvenience to local residents	CSLC	Before construction
	APM TRANS-7: Notification of temporary parking	Entire alignment	Verify notice to residents	Reduces inconvenience to local residents	CSLC	During construction
	APM TRANS-8: Temporary pedestrian access	Entire alignment	Verify detours and safe areas	Reduces inconvenience to pedestrians	CSLC County Agencies	During construction

Table 7-14: Additional Mitigation Monitoring Program - Alternative L

<u>Impact</u>	<u>Mitigation Measure</u>	<u>Location</u>	<u>Monitoring / Reporting Action</u>	<u>Effectiveness Criteria</u>	<u>Responsible Agency</u>	<u>Timing</u>
<u>Applicant Proposed Measures</u>	<u>APM ALT-L: Center Unified School District risk analysis</u>	<u>Alternative Option L alignment</u>	<u>Verify completion of risk analysis</u>	<u>Risk is reduce to proposed school sites</u>	<u>CSLC</u>	<u>Before construction</u>

Table 7-15: Additional Mitigation Monitoring Program - Alternatives Options A, B, D, E, H

<u>Impact</u>	<u>Mitigation Measure</u>	<u>Location</u>	<u>Monitoring / Reporting Action</u>	<u>Effectiveness Criteria</u>	<u>Responsible Agency</u>	<u>Timing</u>
<u>CR-1: Impact to unknown cultural resources</u>	<u>MM CR-1: Alternative option pre-construction cultural resource surveys</u>	<u>Alternative Options A, B, D, E, H</u>	<u>Verify completion of surveys</u>	<u>Avoids impacts to cultural resources near Options A, B, D, E, H</u>	<u>CLSC</u>	<u>Before construction</u>

Table 7-16: Additional Mitigation Monitoring Program - Alternative Options A, B, D, E, H, I, J

<u>Impact</u>	<u>Mitigation Measure</u>	<u>Location</u>	<u>Monitoring / Reporting Action</u>	<u>Effectiveness Criteria</u>	<u>Responsible Agency</u>	<u>Timing</u>
<u>BIO-5: Construction impacts on special-status plant species</u>	<u>MM BIO-5. Rare plant avoidance</u>	<u>Alternative Options A, B, D, E, H, I, J</u>	<u>Verify completion of surveys, flagging and fencing of rare plants</u>	<u>Avoids impacts on rare plants near Options A, B, D, E, H, I, J.</u>	<u>CSLC</u>	<u>Before construction</u>

Table 7-17: Additional Mitigation Monitoring Program - Alternative Options A, B

<u>Impact</u>	<u>Mitigation Measure</u>	<u>Location</u>	<u>Monitoring / Reporting Action</u>	<u>Effectiveness Criteria</u>	<u>Responsible Agency</u>	<u>Timing</u>
<u>TRANS-1: Project related traffic restricts travel lanes</u>	<u>MM TRANS-1. Mitigation for potential impacts to Durst Organic Growers</u>	<u>Alternative Options A, B</u>	<u>Verify coordination of construction activities with Durst Organic Growers</u>	<u>Reduced impacts to travel lanes near Durst Organic Growers</u>	<u>CSLC</u>	<u>Before construction</u>

1 **APPENDIX H-3 SYSTEM SAFETY AND RISK OF UPSET REPORT**

2 The revised System Safety and Risk of Upset Report has been reproduced in its
3 entirety, with changes shown as underline for new text, and ~~strike-out~~ for deleted
4 text, and is included in Appendix H-3 of this Revised Final EIR.

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