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April 17, 2014

Mr. Jeff Thomas
Senior Manager
Panorama Environmental, Inc.
One Embarcadero Center, Suite 740
San Francisco, CA 94111

Re: Santa Cruz 115 kV Reinforcement Project (A.12-01-012)

Dear Mr. Thomas:

Thank you for your March 21, 2014 request for additional information and data regarding Pacific Gas and Electric Company's (PG&E's) application (A.12-01-012) and Proponent's Environmental Assessment (PEA) for a Permit to Construct the Santa Cruz 115 Kilovolt (kV) Reinforcement Project (Project). This letter is intended to respond to each of the data requests identified; the original text for each data request is included, followed by PG&E's response.

California Public Utilities Commission (CPUC) Data Request Question #1

Please provide updated geographic information system (GIS) data for the proposed project alignment.

PG&E's Response

GIS data for the Project (representing the 95-percent design issued for review) was provided to the CPUC in July 2013 as part of the response to Data Request #7. The Project has not changed from the time of that submittal. Nonetheless, included as part of this submittal are the GIS shapefiles for the Project, named "Santa Cruz Project GIS Data.zip". A summary of the GIS shapefiles that have been provided is presented in the table in Attachment A: GIS Data Transfer Summary.

CPUC Data Request Question #2

Please provide a schematic of angle poles/structures that could be used on the project alignment.

PG&E's Response

Figure 1: Existing and Proposed Poles identifies the existing and proposed poles that will be used on the Project alignment. All of the proposed structures can be used in tangent and line angle applications depending on the degree of the line angle and amount of insulator swing induced. The exception to this would be the last wood pole on the right, which is an SV-1 "running" angle structure that requires a line angle to swing the insulator out from the structure.

CPUC Data Request Question #3

Please provide data that supports the approach of adding a second circuit to decrease outages and increase reliability. For example, describe how adding a second circuit will reduce outages in the area if outages are caused by falling trees, which could affect both circuits, and lighting strikes.

PG&E's Response

This question suggests that the probability of an event causing sustained outages on both circuits on the new tubular steel pole (TSP) line is the same as the probability of an event compromising the existing wood-pole circuit. While severe events could simultaneously affect transmission circuits that share common structures or are located in the same corridor (e.g., wildfires, severe storms, earthquakes), such severe events are much less frequent than single-circuit outages and do not usually result in sustained outages to the affected circuits.

PG&E's transmission system has experienced double-circuit transmission line outages; however, these types of events are not a common occurrence and are much less frequent than single-circuit outage events. Most of these double-circuit events occur on very long transmission lines that are located in either mountainous/wooded areas or in predominately agricultural areas. In 2013, there were approximately 800 unplanned outages on PG&E's transmission paths. Of these, only 94 involved the simultaneous outage of multiple circuits, and in over 50 of these events, most or all of the affected lines experienced only a momentary outage.

The proposed Project will rebuild a 7-mile, wood-pole section of the Green Valley-Camp Evers line into a double-circuit TSP line. Figure 1: Existing and Proposed Poles shows the wood-pole structures used on the existing single-circuit line and the TSPs planned for the new double-circuit line. The design will help protect the system from double-circuit outages. First, the two circuits will be mounted on taller TSPs, with the two circuits separated by more than 16 feet. This makes the likelihood of, for example, a falling tree knocking out both circuits, very low. In addition, the use of TSPs and the line route make the probability of a car-pole accident knocking out both circuits also very low. A double-circuit outage caused by a severe event such as a wildfire could still occur, but such events should be very infrequent.

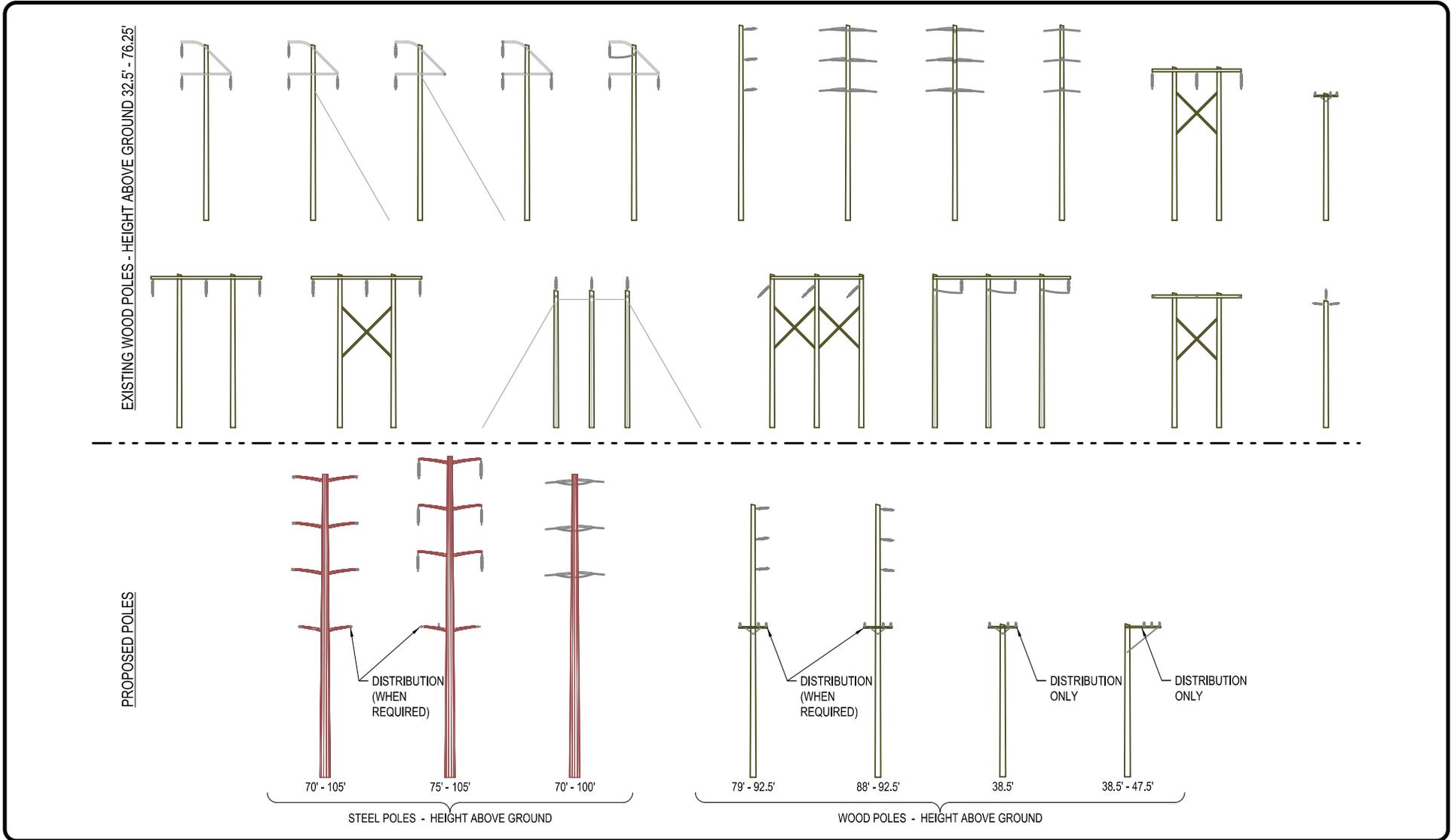


Figure 1: Existing and Proposed Poles

CPUC Data Request Question #4

Please provide photographs of power poles that are like those proposed to be used on the project and located in other areas of Santa Cruz County. Alternatively, indicate that there are no similar structures in the County.

PG&E's Response

Photographs of existing power poles and towers in Santa Cruz County similar to those proposed for the Project are provided in Attachment B: Representative Photographs of Structures and Poles in the Project Vicinity. As shown in the photographs, structures similar to the TSPs proposed for the Project can be found on the Camp Evers-Paul Sweet 115 kV line. Note, however, that these structures have dipped crossarms, as opposed to the gull crossarms proposed under the current design for the Project. In addition, the wood pole portions of the Green Valley-Watsonville and Metcalf-Green Valley 115 kV lines have different framing than that of the current Project design (wishbone and two-pole structures). A single-circuit TSP with distribution underbuild is also found on the Green Valley-Watsonville 60 kV line. In addition, several lattice structures similar to the height of the proposed Project can be found on the Moss Landing-Metcalf 500 kV line, Metcalf-Moss Landing #1 230 kV line, Moss Landing-Green Valley #1 115 kV line, and Green Valley-Paul Sweet 115 kV line. These existing structures can exceed heights of 140 feet.

CPUC Data Request Question #5

Please revise visual simulations previously provided to account for tree removal and tree and vegetation trimming if the visual simulations do not already account for tree removal and vegetation trimming. Explain how tree removal and vegetation trimming are depicted in the visual simulations if the visual simulations already account for tree removal and vegetation trimming.

PG&E's Response

Revised simulations that account for the tree removal and vegetation trimming described previously are currently being prepared and are anticipated to be submitted separately to the CPUC in May 2014.

CPUC Data Request Question #6

Please provide the locations of underground gas lines relative to the proposed project.

PG&E's Response

A gas transmission line is located along the southwest side of Rob Roy Substation within 50 feet of the following proposed poles: TSPs C-95, C-75A, C-96, GV-PS C-76C, and GV-RR E-75. Two gas transmission lines are located within 50 feet of GV-RR E-75. The next nearest gas transmission line is approximately 1.3 miles southwest of Green Valley Substation. GIS data for the underground transmission gas line relative to the Project was provided in the file named "Confidential_Gas_Line_Shapefile.shp" in response to Question 4 of Data Request #8. The data should be treated as **confidential pursuant to Public Utilities Code Section 583.**

CPUC Data Request Question #7

PG&E stated that it would implement its standard best management practices (BMPs) during project operation. Please provide more detailed information about PG&E's standard BMPs, including BMPs related to herbicide usage.

PG&E's Response

PG&E's "Vegetation Management, Environmental Best Management Practices" has been provided in Attachment C: Vegetation Management Environmental Best Management Practices.

CPUC Data Request Question #8

Please provide a record of service outages that justifies the purpose and need of the project, as presented in the Proponent's Environmental Assessment.

PG&E's Response

PG&E proposed this Project to the California Independent System Operator to address system loading and voltage issues that could result in violations of system reliability requirements approved by the North American Electric Reliability Corporation (NERC). NERC Transmission Planning Standard TPL-002-0b requires that the transmission system be stable and operating within applicable thermal and voltage limits for either a single-element outage (Category B) or a two-element outage (Category C). In addition, customer load should not be shed for a Category B outage. While load shedding is permitted for Category C outages, the load shedding must be planned and controlled. If any utility is found to be operating its transmission system in violation of these reliability standards, NERC could level penalties and fines.¹

With future load growth in the Santa Cruz area, a single outage of either the Green Valley-Camp Evers line or the Green Valley-Rob Roy line on a hot summer day could result in an overload of the remaining line. This would be a violation of the NERC reliability standard.

Table 1: Outage History of the 115 kV Lines Supplying the Santa Cruz Area (1992 – 2014) provides a summary of the outage histories for the two 115 kV lines supplying the Santa Cruz area. These two lines have experienced a number of outages in the last 22 years, with each line experiencing a sustained outage about once every 2.5 years. Only three of the sustained outages were less than 2 hours in duration; the remaining 14 sustained outages had durations of 4 to 26 hours.

Table 1: Outage History of the 115 kV Lines Supplying the Santa Cruz Area (1992 – 2014)

Transmission Line	Number of Momentary Outages	Number of Sustained Outages	Total Accumulated Duration (Minutes)
Green Valley-Camp Evers	9	8	9,432
Green Valley-Rob Roy-Paul Sweet	11	9	3,984

¹ Note that the probability of a Category B or C outage event occurring is not part of the equation.

CPUC Data Request Question #9

Please describe what would happen to other utilities located on existing power poles along the alignment as a result of the proposed project. For example, describe whether cable and phone wires would be moved onto the poles that would be installed as part of the proposed project. Describe whether any power poles would be used for cellular phone equipment.

PG&E's Response

The majority of existing non-PG&E electric utility connections, such as telephone, cable television, and other communication lines, will be transferred to the new Project structures, with the exception of some existing wood pole structures on the Cox-Freedom segment. These wood pole structures will be “topped” below the distribution level, with the distribution transferred to the Project structures. These “topped” structures will retain the non-electric utility connections and some distribution level service connections. There are no current plans for Project power poles to be used for cellular phone equipment.

CPUC Data Request Question #10

Please provide a summary of the anticipated types of construction activities that would need to be performed at night.

PG&E's Response

Nighttime activities will include, but will not be limited to, monitoring the substation foundation curing process and testing and commissioning the new substation components. PG&E may also need to install guard structures at road crossings, and mobilize/demobilize at the designated contractor yard during nighttime hours.

CPUC Data Request Question #11

Please provide a list of local agencies that PG&E has consulted regarding land use matters for the proposed project pursuant to CPUC General Order 131-D, Section XIV B. Please also provide a summary of consultation.

PG&E's Response

Agency coordination is discussed in Section 1.5 Agency Coordination of the PEA. During preparation of the PEA, PG&E met with the following local agencies regarding land use matters (a summary of the consultation follows):

- Santa Cruz County
- Santa Cruz County Second District Supervisor
- Santa Cruz County Fourth District Supervisor
- City of Scotts Valley
- City of Santa Cruz
- City of Capitola
- City of Watsonville
- University of California, Santa Cruz Planning Department

Santa Cruz County

On July 22, 2010 and March 9, 2011, Brandon Liddell of PG&E, Buck Jones of Transcon, and Anne Marie McGraw of Insignia met with the Planning Director, Kathy Previsich, and an Environmental Planner, Todd Sexauer, of the Santa Cruz County Planning Department to discuss the Project. During the meetings, PG&E discussed the Project objectives and purpose, potential routes that were evaluated for the Project, preliminary environmental concerns identified for the Project, and the CPUC regulatory process and requirements.

On December 7, 2011, PG&E representatives met with the Santa Cruz County Planning Director, Kathy Previsich, and the Director of Public Works, John Presleigh, to discuss the selected route and to present examples of pole configurations.

Cities/Unincorporated Communities

As described in the following, PG&E met with cities and unincorporated communities served by the proposed power line to consult with them about the Project, as required under CPUC General Order (GO) 131-D. The meetings that were held are summarized as follows:

- On June 28, 2010 and again on March 9, 2011, Brandon Liddell and Wendy Sarsfield of PG&E and Buck Jones of Transcon met with Santa Cruz County Second District Supervisor Ellen Pirie to discuss the Project. The Second Supervisorial District includes the unincorporated communities of Aptos, La Selva Beach, Corralitos, Freedom, and portions of the cities of Capitola and Watsonville.
- On June 28, 2010, Brandon Liddell and Wendy Sarsfield of PG&E and Buck Jones of Transcon met with Santa Cruz County Fourth District Supervisor, Tony Campos, to discuss the Project. On February 16, 2011, Brandon Liddell and Wendy Sarsfield of PG&E and Buck Jones of Transcon met with the then newly elected Santa Cruz County Fourth District Supervisor, Greg Caput. The Fourth Supervisorial District includes the unincorporated community of Interlaken and most of the City of Watsonville.
- On July 6, 2010, and December 8, 2010, Brandon Liddell of PG&E and Buck Jones of Transcon met with City of Scotts Valley Interim Community Development Director, Susan Westman; the City Manager, Stephen Ando; and a Senior Planner.
- On August 11, 2010, Brandon Liddell of PG&E and Buck Jones of Transcon met with City of Santa Cruz Director of Public Works, Mark Dettle, and Principal Planner, Ken Thomas.
- On July 7, 2010, and December 15, 2011, Brandon Liddell of PG&E and Buck Jones of Transcon met with City of Capitola Manager, Jamie Goldsmith, and Public Works Director, Steven Jesburg.
- On July 12, 2010, and December 15, 2011, Brandon Liddell of PG&E and Buck Jones of Transcon met with City of Watsonville Public Works Director, David Koch; Parks and Community Services Director, Ana Espinoza; Administration Analyst, Adriana Moreno; and Principal Planner, Keith Boyle.

- On October 1, 2010, Brandon Liddell of PG&E and Buck Jones of Transcon met with University of California, Santa Cruz Planning Department.

During these meetings, PG&E discussed the Project scope, CPUC permitting process, coordination with other local agencies, and other developments proposed along the power line. PG&E also noted the lack of need for local customer outages due to construction taking place during the summer months when the electrical load could be supplied by one of the lines in the Santa Cruz power line loop.

Pinto Lake County and City Park

On November 4, 2010, Brandon Liddell of PG&E and Buck Jones of Transcon met with City of Watsonville Director of Parks and Community Services Department, Ana Espinoza, to discuss the Project.

On December 13, 2010, Brandon Liddell of PG&E and Buck Jones of Transcon met with Joe Schultz and Gretchen Iliff from Santa Cruz County Parks, Open Space and Cultural Resources to discuss the Project. During the meeting, PG&E discussed specific impacts anticipated to Pinto Lake County and City Park.

On December 8, 2011, PG&E met with Santa Cruz County Parks Department staff to discuss the proposed pole locations and construction methods occurring within Pinto Lake County and City Park. County staff provided feedback on scheduling construction activities to minimize interruption to park visitors.

CPUC Data Request Question #12

Please provide durations of helicopter use during the proposed project, such as how many days there would be helicopter use and for how many hours per day.

PG&E's Response

As identified in the air emissions analysis prepared for the Project, PG&E anticipates that up to 190 hours of helicopter use spread over 35 days will be required to assist with the construction of TSP foundations, installation of TSPs, and pulling and stringing of conductor.

We trust that the information provided herein is fully responsive to your requests. Should you have any further questions, please do not hesitate to contact me at (415) 973-7475.

Sincerely,



Matthew Fogelson
Attorney

ATTACHMENT A: GIS DATA TRANSFER SUMMARY

Santa Cruz 115 Kilovolt Reinforcement Project – Geographic Information System (GIS) Data Transfer Summary

The shapefiles provided in the zip file titled “Santa Cruz Project GIS Data.zip” are described in the table that follows. All of the data is provided in the NAD_1983_UTM_Zone_10N coordinate system, in Meter units.

Shapefile Name	Description	Geometry	Source
AccessRoads	Project access roads	Polyline	PG&E, 2014; Insignia, 2014
Construction	Proposed project alignment	Polyline	PG&E, 2014; Insignia, 2014
Existing_Structures	Existing transmission and distribution structures	Point	PG&E, 2014; Insignia, 2014
Milespost	Project mile posts	Point	PG&E, 2014; Insignia, 2014
New_Structures	New structure locations	Point	PG&E, 2014; Insignia, 2014
Perm_cut_fill	Permanent cut/fill location	Polygon	PG&E, 2014; Insignia, 2014
ReconductoredDistLine	Distribution reconductoring locations	Polyline	PG&E, 2014; Insignia, 2014
RobRoy_sub_mod_area	Rob Roy Substation modification area	Polygon	PG&E, 2014; Insignia, 2014
Substations	Substation locations	Point	PG&E, 2014; Insignia, 2014
WorkAreas	Project work area locations	Polygon	PG&E, 2014; Insignia, 2014

**ATTACHMENT B: REPRESENTATIVE PHOTOGRAPHS OF STRUCTURES AND POLES IN
THE PROJECT VICINITY**



Photograph 1: Moss Landing-Metcalf Line – lattice steel tower located north of Highway 129 near the community of Aromas (approximately 147 feet in height)



Photograph 2: Metcalf-Green Valley Line – wood pole located east of Webb Road near the City of Watsonville (approximately 57 feet in height)

Attachment B: Representative Photographs of Structures and Poles in the Project Vicinity



Photograph 3: Metcalf-Green Valley Line – wood pole located east of Webb Road near the City of Watsonville (approximately 57 feet in height)



Photograph 4: Moss Landing-Green Valley Line – lattice steel tower located east of East Lake Avenue near the City of Watsonville (approximately 102 feet in height)



Photograph 5: Green Valley-Watsonville Line – wood pole located south of Holohan Road near the City of Watsonville (approximately 59 feet in height)



Photograph 6: Green Valley-Watsonville Line – wood pole located west of Clifford Avenue in the City of Watsonville (approximately 65 feet in height)

Attachment B: Representative Photographs of Structures and Poles in the Project Vicinity



Photograph 7: Green Valley-Watsonville Line – light duty steel pole located west of Clifford Avenue in the City of Watsonville (approximately 68 feet in height)



Photograph 8: Green Valley-Paul Sweet Line – lattice steel tower located west of Houts Drive near the City of Santa Cruz (approximately 102 feet in height)



Photograph 9: Green Valley-Paul Sweet Line – lattice steel tower located south of Kathrine Drive near the City of Santa Cruz (approximately 85 feet in height)



Photograph 10: Green Valley-Paul Sweet Line – lattice steel tower located north of Kathrine Drive near the City of Santa Cruz (approximately 93 feet in height)

Attachment B: Representative Photographs of Structures and Poles in the Project Vicinity



Photograph 11: Green Valley-Camp Evers Line – tubular steel pole (TSP) located south of Sidesaddle Circle in the City of Scotts Valley (approximately 80 feet in height)



Photograph 12: Green Valley-Camp Evers Line – TSP located east of Sunridge Drive in the City of Scotts Valley (approximately 75 feet in height)



Photograph 13: Green Valley-Camp Evers Line – TSP located east of Kirkorian Court in the City of Scotts Valley (approximately 75 feet in height)

**ATTACHMENT C: VEGETATION MANAGEMENT ENVIRONMENTAL BEST
MANAGEMENT PRACTICES**

Vegetation Management		 Pacific Gas and Electric Company
Environmental Best Management Practices	Created	3/29/04
Version Number 2	Revised	3/1/06
Contact Person	Kathy Hoffmann	209-736-6682

Best Management Practices to Reduce Environmental Impacts

During the performance of Vegetation Management (VM) activities, the following Best Management Practices (BMPs) shall be implemented where practicable. Practices are considered practicable where physically possible and not conflicting with other regulatory obligations or safety considerations (GO 95, Rule 35 and Public Resource Codes 4292 and 4293) or emergency response. Avoidance of impact is always preferable to minimization of impact, and avoidance is required for protected species.

BMPs 1-22 shall be implemented for all VM activities.

BMP #	Best Management Practice
BMP 1	PG&E Employees and VM contractors performing Vegetation Management activities shall receive ongoing environmental orientation. Orientation shall include review of environmental laws and guidelines that must be followed by all PG&E employees and VM Contractor personnel to reduce or avoid effects on covered species during VM activities.
BMP 2	Notify federal and state land managers of pending work, and schedule annual meetings with these land managers, as requested. Notify local agency land managers of pending work as requested, or as sensitive issues arise.
BMP 3	During fire season in designated State Responsibility Areas (SRAs), motorized equipment shall have federal or state approved spark arrestors; all vehicles shall be equipped with fire fighting tools as appropriate and in accordance with all applicable laws, rules, regulations, orders, and ordinances.
BMP 4	Contractor shall be responsible for checking the daily Project Activity Level (PAL is a measure of fire weather conditions and, at certain levels, restricts activities otherwise permitted) during fire season when working on USFS property.
BMP 5	Smoking shall not be permitted during fire season, except in a barren area or in an area cleared to mineral soil at least three feet in diameter. Under no circumstances shall smoking be permitted during fire season while employees are operating light or heavy equipment, or walking or working in grass and woodlands.
BMP 6	Hunting, firearms, portable stoves, open fires (such as barbecues) not required by the VM activity, and pets (except for safety in remote locations) shall be prohibited in VM work activity sites. All trash, food items and human-generated debris shall be properly contained and/or removed from the site.
BMP 7	To avoid hitting or crushing wildlife that may be in the roadway and to avoid generating dust, vehicles should not exceed a speed limit of 15 mph on low-use unpaved roads such as agricultural field roads, transmission right-of-way (ROW) roads, non-system numbered USFS roads with locked gates. Travel on high-use unpaved roads such as USFS logging roads shall be as slow as local traffic conditions allow.
BMP 8	All roads, fences, and structures damaged as a result of vegetation management operations shall be repaired and reported to the work group supervisor and the VM PG&E Representative. All gates shall be left open if found open or locked if found locked.
BMP 9	Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable. In environmentally sensitive areas, vehicle access to work sites shall be restricted to existing roadways.
BMP 10	When practical, fuel vehicles and equipment off-site. If it is necessary to fuel on-site the following precautions shall be taken: No vehicles or equipment shall be refueled within 100 feet of a watercourse, ditch, wetland, or a pond, unless a bermed and lined refueling area is constructed. The fueling operator must stay with the fueling operation at all times. Do not top off tanks. Spill containment and cleanup materials must be available. Spills must be immediately cleaned up and contaminated materials disposed of properly. Fueling trucks and operators must have all necessary permits, licenses and training. Any spills must be reported immediately to supervisor and VM PG&E Representative.
BMP 11	Debris that remains from lop and scatter operations shall be left at a height no greater than 18 inches.
BMP 12	After vegetation management activities, if the amount of bare soil exposed in one location exceeds 0.1 Acres, then erosion control measures shall be implemented. These measures may include straw mulching, seeding, and use of straw wattles.
BMP 13	Avoid operating vehicles and equipment within 250' (or the maximum distance practicable) of the edge of a vernal pool and to the extent practicable, avoid walking through a vernal pool.

BMP #	Best Management Practice
BMP 14	When routine VM activities are conducted in an area of potential valley elderberry longhorn beetle (VELB) habitat, ¹ a qualified individual will survey for the presence of elderberry plants within a minimum of 20 feet from the work site within the utility easement, ROW, franchise, or license, and shall note in VM Work Request documents to avoid or minimize potential impacts on elderberry plants. If elderberry plants have one or more stems 1 inch or more in diameter at ground level, additional measures identified in the VELB Conservation Plan shall be implemented. Otherwise, no additional minimization, avoidance, or protective measures are required.
BMP 15	All PG&E employees and contractors shall follow the VM Migratory Bird Process, when applicable to VM activities, to comply with Migratory Bird Treaty Act.
BMP 16	When performing work in counties subject to the Sudden Oak Death quarantine, VM Sudden Oak Death Protocols must be followed.
BMP 17	VM shall verify that the environmental screening process was followed prior to conducting vegetation management activities associated with capital jobs and other non-VM work. VM personnel shall follow any environmental protection measures identified for the job.
BMP 18	If cultural resources are found (i.e., old bottles, cans, buildings), they shall be left in place and undisturbed. If it is necessary to move or disturb them to complete the work, or if human remains are found, stop work and contact the VM PG&E Representative.
BMP 19	All equipment shall be permitted by the Air Resources Board as required; including portable equipment or new stationary equipment with internal combustion engines greater than 50 Brake HP, e.g., tow-behind generators, chippers, and truck- or trailer-mounted air compressors and pumps.
BMP 20	When working within 50 feet of residences or government or commercial buildings, engine idling, noise, and odor should be minimized to the extent practicable. ² Also adhere to the restrictions noted in the Commercial Vehicle Idling Tailboard when working on school grounds or within 100 feet of a school (K-12 and below, including play areas and sports fields, and day care facilities).
BMP 21	Contractor shall have the ability to communicate quickly with their supervisor and/or PGE. This can be done by having a working cell phone or radio on the job site at all times or by identifying the closest area of cell phone reception or closest public phone and familiarizing all employees with that location.
BMP 22	If an environmental protection incident occurs, such as accidental introduction of substances into waterways or wetlands, accidental taking of an endangered species, or hazardous material spills, etc., call your supervisor and the VM PG&E Representative immediately.

In addition to BMPs 1- 22, BMPs 23 - 29 shall be implemented for all VM activities that occur within a wetland, ditch, pond, or a stream with a defined stream channel or banks.

BMP #	Best Management Practice
BMP 23	Vegetation removal shall be completed without the use of self-propelled mechanical equipment (i.e. Hydro-ax, Brontosaurus, Slashbuster, etc.).
BMP 24	The disturbance or removal of vegetation within the work area shall not exceed the minimum necessary to complete operations, subject to other public and health and safety directives governing the safe operations and maintenance of electric and gas facilities. Precautions shall be taken to avoid damage to non-target vegetation.
BMP 25	Cleared or trimmed vegetation, grass clippings and woody debris (including chips) shall be disposed of in a legal manner. All cleared vegetation and debris, grass clippings and woody debris (including chips) shall be removed from any wetland, ditch, pond or stream and placed or secured where they cannot re-enter the watercourse.
BMP 26	Vegetation that at mature height does not pose a threat to the conductors shall not be removed, unless the removal is required to maintain compliance with CPRC 4292 (pole clearing).
BMP 27	Any vehicles driven and/or operated within or adjacent to streams shall be checked and maintained daily to prevent leaks of materials that, if introduced to the water, could be harmful to aquatic life.
BMP 28	Vehicle access to streams and wetlands shall be limited to existing roads and crossings.
BMP 29	When possible, activities near streams, wetlands, or on saturated soils shall be conducted during the dry season (generally May 15 – October 15) or during periods of minimum flow. If it is not possible to perform the work in the dry season, perform rainy season work during dry spells between rain events.

² PG&E Corporation has developed an Environmental Justice (EJ) Policy that integrates EJ considerations into our daily operations. EJ includes being a good neighbor and treating everyone fairly, and it is important to manage facilities and operations so there is minimal impact on the environment and the adjacent community.

In addition to BMPs 1– 29, BMPs 30- 48 shall be applied specifically to VM work during the usage and application of herbicides.

BMP #	Best Management Practice
BMP 30	All herbicide applications performed by VM contractors shall be made in compliance with label requirements as well as all appropriate federal, state and local laws, rules and regulations.
BMP 31	Only federal and California Environmental Protection Agency (EPA)--registered herbicides shall be applied.
BMP 32	During the performance of VM ROW Enhancement Operations, operator ID numbers and Site ID numbers shall be obtained for each facility as required by the County Agricultural Commissioner.
BMP 33	Each application shall be covered by a written "Pest Control Recommendation."
BMP 34	A Licensed Pest Control Advisor shall oversee all herbicide and tree growth regulator applications. A qualified applicator shall supervise contractors making herbicide and tree growth regulator applications for VM.
BMP 35	County Agricultural Commissioners shall be invited to inspect the applicator and application operations when appropriate.
BMP 36	The Pest Control Business License holder (applicator) shall report herbicide use monthly to the County Agricultural Commissioner.
BMP 37	Contractor shall conduct annual worker safety training sessions for all contractor employees involved in the herbicide applications and manual/mechanical clearing. As requested, documentation of this training shall be on file with the PG&E Representative that administers their contract.
BMP 38	Selective application techniques should be used for VM ROW Enhancement Operations wherever practical so that desirable vegetation is not adversely affected.
BMP 39	Buffer widths shall apply as per Table A: Buffer Widths.
BMP 40	Mixing and loading of herbicides is prohibited in Watercourse Protection zones (see BMP 60, 61 for Watercourse protection zones).
BMP 41	Applicator shall have a spill prevention and cleanup kit in their vehicle and at the job site
BMP 42	Backpack equipment or light capacity power equipment shall be used for all directed foliar applications.
BMP 43	Herbicide containers shall be triple rinsed and disposed of in a proper manner.
BMP 44	Minimum operating pressures shall be used. Nozzle tips that produce a coarser droplet should be used to minimize drift.
BMP 45	Pesticides shall not be transported in the same compartment with persons, food, or feed. Pesticide containers shall be secured to the vehicle during transportation in a manner that shall prevent spillage into or off the vehicle.
BMP 46	The contractor shall have a written training program for employees who handle pesticides. The written program must describe the materials and the information that shall be provided and used to train the employees.
BMP 47	Training must be completed before an employee is allowed to handle any pesticide and be continually updated to cover any new pesticides that shall be handled. Training must be repeated at least annually thereafter.
BMP 48	These special precautions shall be observed during periods of inclement weather: <ul style="list-style-type: none"> • Applications shall not be made in, immediately prior to, or immediately following rain when runoff could be expected. • Applications shall not be made when wind and/or fog conditions have the potential to cause drift. • Basal bark applications shall not be made when stems are wet with rain, snow or ice.

Table A. VM Herbicide Buffer Widths to Protect Non-Target Organisms

Herbicide/Adjuvant Toxicity	Buffer Width from Stream, Wetland, or Other Sensitive Habitat		
	Cut Stump, Hack & Squirt, Injection	Foliar Application	Mixing, Loading, Cleaning
Practically Nontoxic to Slightly Toxic	Up to edge ^{2,3}	Up to edge ^{2,3}	200 feet ⁴
Moderately Toxic	25 feet ^{2,3}	25 feet ^{2,3}	200 feet ⁴
Highly Toxic to Very Highly Toxic, or if Label Advisory for Ground/ Surface Water	35 feet on each side of the stream, measured from the bankfull edge of the stream	35 feet on each side of the stream, measured from the bankfull edge of the stream	200 feet ⁴
<p>¹ Using ultra low volume (ULV) nozzles with orifice size and spray pressure set to produce droplets as a minimum of 150 microns, nozzle heights at the lowest possible height, and assuming crosswind speed of less than 10 mph.</p> <p>² Goodrich-Mahoney, J. W. 1999. <i>Determination of the Effectiveness of Herbicide Buffer Zones in Protecting Water Quality</i>. (Report No. TR-113160.) September. Electric Power Research Institute.</p> <p>³ Calculated from <i>A Summary of Ground Application Studies</i> (Spray Drift Task Force 1997).</p> <p>⁴ PG&E best management practice.</p>			

In addition to BMPs 1-48, BMPs 49-52 shall be applied to all distribution removal projects over 100' in linear length and to electric transmission ROW clearing project activities including manual, mechanical, cultural, chemical and biological techniques.

BMP #	Best Management Practice
BMP 49	Prior to any ROW clearing project or any enhancement project, the California Natural Diversity Database (CNDDDB) shall be checked for any records of threatened, endangered, or sensitive species.
BMP 50	Any locations identified through the CNDDDB search shall be flagged and appropriate avoidance measures shall be put in place. Tailboards shall be held before work begins.
BMP 51	Sensitive habitats such as meadows, riparian areas, and serpentine outcrops shall be flagged and appropriate avoidance measures shall be put in place. Tailboards shall be held before work begins.
BMP 52	All existing roads shall be kept open and erosion control measures re-installed after the project is completed or during inclement weather.

In addition to BMPs 1-48, BMPs 53-61 shall be applied specifically to Electric Transmission and Distribution ROW Mechanical Clearing Operations.

BMP #	Best Management Practice
BMP 53	Contractor shall clear all vegetation 10 feet around and under all towers/poles and guy wires. Only manual clearing work can occur within the above-mentioned 10 feet. No mechanical equipment shall be used within 10 feet of the above -mentioned structures. All vegetation cut under and within 10 feet of the towers shall be removed from the area and mulched to a depth not greater than 18 inches.
BMP 54	All debris that remains from mowing operations shall be mulched to a depth not greater than 18 inches.
BMP 55	Trees greater than 12" diameter at breast height (DBH) shall be hand-felled and then the top and limbs removed and the bole decked on the side of the ROW.
BMP 56	Contractor shall flag all guy wires 200 feet in advance of working an area, using bright colored flagging (a minimum of three flags per wire).
BMP 57	Contractor shall have a water source containing a minimum of 300 gallons of water and 250 feet of 1-inch hose on site at all times during operation. The water source must either be self-propelled or always attached to a vehicle capable of moving it to where it is needed. Where access/terrain allows, contractor's water source must always be within 500 feet of the mowing/cutting operation. Excess water shall be disposed of in accordance with all laws and regulations.
BMP 58	Each mower shall have a minimum of a 10 lb. Class A,B,C fire extinguisher mounted in the cab.
BMP 59	Contractor must stay on site for a ½ hour after mowing operations end for the day to ensure fire safety. When extreme fire levels are reached, the following extra precautions must be implemented immediately: <ul style="list-style-type: none"> An additional support person shall be dedicated to follow the mower with an Indian Back Pump and McLeod. Mowing hours will be reduced to the hours of 5:00 a.m. through 12:30 p.m. The use of a humidity meter shall occur. A reading of less than (<) 20% humidity shall stop the mowing operation for the day. Readings shall be taken every 3 hours during operation.
BMP 60	Watercourse protection zones shall be marked by the PG&E representative in charge with brightly colored flagging prior to the start of any mowing/timber operation. Water classes are defined by the California Forest Practice Rules: 14 CCR 916.5. The following watercourse protection zone clearances must be maintained at all times: <ul style="list-style-type: none"> Class 1 & 2 watercourses with a slope < 30%---No heavy equip. within 50' Class 1 & 2 watercourses with a slope > 30%---No heavy equip. within 75' Class 3 watercourse -----No heavy equip. within 25' Unclassified watercourses with a defined channel -----No heavy equip. within 25' <u>No mowing shall be allowed within the above distances. Trees within the above distances shall be removed manually. Brush and other small vegetation shall be left for a shade canopy on the watercourse. The actual width of the watercourse protection zone may vary based on a PG&E representative's judgment in the field. All impaired watercourses and their protection zone clearances shall be identified before the project begins.</u>
BMP 61	The following protection measures are designed to prevent adverse impacts to water quality, help protect soil resources and minimize the loss of riparian vegetation: <ol style="list-style-type: none"> Plants in watercourse protection zones that do not pose an imminent or clearly foreseeable future threat to conductors shall not be removed. To help prevent erosion and soil displacement, exclusion zones may be increased in areas with steep slopes or highly erodable soils. Leave at least 50 percent soil cover (i.e. mulch or vegetative ground cover) for erosion control in watercourse protection zones.