

<b>Vegetation Management</b>		 <b>Pacific Gas and Electric Company</b>
Environmental Best Management Practices	Created	3/29/04
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Contact Person	Lynn Cullen	223-6928

## 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, <sup>1</sup> 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. <sup>2</sup> 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.

<sup>2</sup> 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.  
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**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"> <li>• Applications shall not be made in, immediately prior to, or immediately following rain when runoff could be expected.</li> <li>• Applications shall not be made when wind and/or fog conditions have the potential to cause drift.</li> <li>• Basal bark applications shall not be made when stems are wet with rain, snow or ice.</li> </ul>

**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 <sup>2,3</sup>	Up to edge <sup>2,3</sup>	200 feet <sup>4</sup>
Moderately Toxic	25 feet <sup>2,3</sup>	25 feet <sup>2,3</sup>	200 feet <sup>4</sup>
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 <sup>4</sup>

<sup>1</sup> 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.  
<sup>2</sup> Goodrich-Mahoney, J. W. 1999. *Determination of the Effectiveness of Herbicide Buffer Zones in Protecting Water Quality*. (Report No. TR-113160.) September. Electric Power Research Institute.  
<sup>3</sup> Calculated from *A Summary of Ground Application Studies* (Spray Drift Task Force 1997).  
<sup>4</sup> PG&E best management practice.

**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"> <li>• 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.</li> <li>• The use of a humidity meter shall occur. A reading of less than (&lt;) 20% humidity shall stop the mowing operation for the day. Readings shall be taken every 3 hours during operation.</li> </ul>
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"> <li>• Class 1 &amp; 2 watercourses with a slope &lt; 30%---No heavy equip. within 50'</li> <li>• Class 1 &amp; 2 watercourses with a slope &gt; 30%---No heavy equip. within 75'</li> <li>• Class 3 watercourse -----No heavy equip. within 25'</li> <li>• Unclassified watercourses with a defined channel -----No heavy equip. within 25'</li> </ul> <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&amp;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"> <li>1. Plants in watercourse protection zones that do not pose an imminent or clearly foreseeable future threat to conductors shall not be removed.</li> <li>2. To help prevent erosion and soil displacement, exclusion zones may be increased in areas with steep slopes or highly erodible soils.</li> <li>3. Leave at least 50 percent soil cover (i.e. mulch or vegetative ground cover) for erosion control in watercourse protection zones.</li> </ol>