Updated MEP Biological Assessment Project Description and Conservation Measures and California Tiger Salamander and California Red-Legged Frog Relocation Plan

Mariposa Energy Project, Offsite Mitigation Ideas and Progress on Tech. Reports

From: Urry, Doug/SAC
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Subject: RE: Mariposa Energy Project, Offsite Mitigation Ideas and Progress on Tech. Reports

Kim,
As Todd discussed with you yesterday, attached are mark-up versions (showing your comments, response to those comments, and edits based on those comments) and also clean versions of both the project description/conservation measures text and the CTS/CRF relocation plan. Also included is the CTS/CRLF figure for completeness (no changes). At this point we have adjusted all of the mitigation ratios to meet the requirements outlined by Marcia in her e-mail comments, and also removed the ECCC HCP/NCCP reference as a back-up approach. Mariposa Energy's desire is to take these issues off the table to help move the permitting process forward as efficiently as possible.

I understand from Todd that you may be able to review this material next week prior to your scheduled leave. Please call or e-mail if you have any remaining questions, and we will try to resolve them right away. We'll follow up with Ryan Olah regarding reassignment of the project. Thanks for your help, and enjoy the next few months!

Doug

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MEP Project Description

The proposed project's action area consists of the following elements and respective acreages. Action area is defined as all areas to be directly or indirectly affected during construction and operation of Mariposa Energy Project (MEP).

- The total disturbance associated with the MEP site will be 12.6 acres. This is based on a 9.7-acre permanent facility, 2.3 acres of cut/fill slope area surrounding the site, and 0.6 acres of temporary work area at the north end of the site boundary [Note: the total cut/fill slope acreage for the project is 3.6 acres, however 1.3 acres overlaps with the 9.2-acre parking and laydown area listed below].
- The 9.2-acre temporary parking and construction laydown yard
- The 0.6-acre main access road from Bruns Road to the new facility
- A 1-acre (580-linear-feet-by-75-feet-wide) natural gas pipeline work corridor comprising a new underground pipeline
- An 8.5-acre (0.7-mile-long-by-100-feet-wide) transmission line work corridor comprised of eight new transmission line poles and overland access routes
- A 5.4-acre (1.8-mile-long-by-20-foot-wide) water supply pipeline work corridor comprised of a new underground pipeline, a 250 square-foot permanent pump and intake structure, and a 1-acre temporary staging area

The following paragraphs describe the purpose and need, project location, project designs, site preparations, and avoidance, minimization, and compensation measures.

1.1.1 Project Purpose and Need

The primary objective of the proposed project is to provide dispatchable, operationally flexible, and efficient electricity generation to meet Pacific Gas and Electric's (PG&E) need for new energy sources and to satisfy the terms of Mariposa Energy's power purchase agreement with PG&E. PG&E issued a Request for Offers on April 1, 2008, indicating that additional peak electric generation capacity is needed. In accordance with the California Public Utilities Commission Decision 07-12-052, PG&E needs to acquire between 800 and 1,200 MW of new resources, with a preference for dispatchable and operationally flexible resources.

Operationally flexible resources, such as peaker power plants, are required for integration of intermittent renewable resources, such as solar and wind facilities. Additionally, peaking capacity is needed to respond to increases in the local demand for electricity that typically occur in the afternoons of summer days. A facility that provides peaking capacity must be able to be up and running at peak generation within 10 minutes to meet California Independent System Operator requirements. As a peaking facility, MEP will not run continuously, but instead will start, run for as many hours as necessary, and then shut down. Although the facility will be licensed and permitted to operate up to 4,000 hours per year (46 percent of the time) with 300

start and stop cycles, as a peaking power plant, its actual capacity factor will be much less. The plant is expected to operate approximately 600 hours per year with 200 start and stop cycles (Mariposa Energy, 2009). The project is designed to reliably provide this type of fast-start capability and highly flexible dispatchable energy and capacity.

1.1.2 Project Location

The MEP site is in northeastern Alameda County, in an unincorporated area designated as Large Parcel Agriculture by the East County Area Plan. The site is located approximately 7 miles northwest of Tracy, 7 miles east of Livermore, 6 miles south of Byron, and approximately 2.5 miles west of the community of Mountain House in San Joaquin County . The facility will be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of an approximate 158-acre parcel immediately south of the Bethany Compressor Station and 230-kV Kelso Substation, both owned by PG&E. The proposed power plant site is located in the southern portion of the project parcel. The existing, unrelated 6.5-MW Byron Power Cogen Plant occupies 2 acres of the 158-acre parcel northeast of the proposed MEP site. The remainder of the parcel is non-irrigated grazing land and will remain as such during MEP operation. A wind turbine development was once located on the southern portion of the parcel, including the MEP site. Concrete foundations and other miscellaneous debris, including remnants of turbine housings, remain onsite.

1.1.3 Project Design

Table 1 below shows the acreages of the action area, including a clarification of existing developed and undeveloped lands. The project will have the following design features:

- Power generating facility consisting of four GE LM6000 PC Sprint combustion turbine generators (CTGs) and associated support equipment
- Air emissions control systems including selective catalytic reduction (SCR) systems for nitrogen oxides (NOx) control and oxidation catalyst for carbon monoxide (CO) control
- A new approximately 0.7-mile-long, 230-kV transmission line to deliver the plant output to the electrical grid via the existing 230-kV Kelso Substation located north of the project site
- Approximately 580 feet of new 4-inch-diameter natural gas pipeline that will run directly northeast from the project site to interconnect with PG&E's existing high-pressure natural gas pipeline
- A new 6-inch-diameter, 1.8-mile water supply line from the Byron Bethany Irrigation District (BBID) Canal 45 delivering raw water to the project site

TABLE 1
Total Project Action Area - Developed and Undeveloped Areas
Mariposa Energy Project

Work Area	Action Area Description	Total Action Area (Acres)	Existing Developed Area[a] (Acres)	Undeveloped Area[b] (Acres)
MEP Site[c]	Annual Grassland	12.6	0	12.6
MEP Access Road[d]	Gravel road and annual grassland	0.6	0.2	0.4
MEP Laydown Yard	Annual grassland	9.2	0	9.2
Natural Gas Line	Annual grassland	1.0	0	1.0
230-kV Transmission Line	Annual grassland	8.5	0	8.5
Water Supply Line	Annual grassland, Bruns Road right-of-way, existing BBID maintenance yard, agricultural road and Canal 45	5.4	2.8	2.6
	Total Area	**37.3**	**3.0**	**34.3**

Notes:

[a] Developed areas are not considered habitat for the listed species. They include the Bryon Cogen access road, paved surface of Bruns Road, and the 1-acre BBID maintenance yard.

[b] Undeveloped areas are considered suitable or potential suitable for the listed species. They include annual grassland, roadside ruderal, and agricultural lands.

[c] Includes 9.7-acre site, 2.3-acre cut and fill area and 0.6-acre temporary work area along the north side of the MEP site.

[d] Existing 10-foot-wide Bryon Cogen gravel access road will be widened and used as the MEP access road.

1.1.3.1 Onsite Facilities

MEP will be a nominal 200-MW (194 MW net at 59 degrees Fahrenheit [°F]), simple-cycle generating facility consisting of four power blocks. Each power block will contain one GE LM6000 PC-Sprint natural gas-fired CTG. The generated power will be delivered to the grid through the Kelso Substation. MEP will be designed, constructed, and operated in accordance with applicable laws, ordinances, regulations, and standards. The main access to the site will be from Bruns Road. A portion of the power blocks will be paved to provide internal access to all project facilities and onsite buildings. The areas around equipment, where not paved, will have gravel surfacing.

The generating facility CTGs are equipped with SCR air emissions control equipment and associated support equipment for NOx and CO control. Each CTG will generate approximately

50 MW (gross) at base load under average ambient conditions. The project is expected to have an overall annual availability of 92 to 98 percent, including scheduled and forced outages. The design of the plant will provide for operating flexibility. Each CTG is designed to start and ramp up to full power in 10 minutes. Each CTG also provides various ancillary services, such as ramp-up, ramp-down, and spinning reserve, allowing MEP to readily adapt to changing conditions in the energy and ancillary services markets.

Electrical Equipment and Systems – Alternate Current Power Transmission. The electric power generated by this facility will be transmitted to the electrical grid, with the exception of the power required for onsite auxiliaries such as pumps, fans, gas compressors, and other parasitic loads. A station battery system will be used to provide backup power for critical loads and control systems. Power will be generated by the four CTGs at 13.8 kV and then stepped up using four 13.8/230-kV, oil-filled generator step-up transformers to support connection to the local 230-kV network. Surge arrestors will protect the transformer from surges in the 230-kV system caused by lightning strikes or other system disturbances. The transformers will be set on a concrete foundation that includes a secondary oil containment reservoir (to contain the transformer oil in the event of a leak or spill). The high-voltage side of the generator step-up transformer will be connected to a single-circuit, three-phase, 230-kV transmission line, which will be connected to the PG&E 230-kV switchyard at the Kelso Substation located north of the project site on Bruns Road.

Air Emission Control and Monitoring. Air emissions from the combustion of natural gas in the CTGs will be controlled using state of-the-art systems. To ensure that the systems perform correctly, NOx and CO will be continuously monitored. The CTGs selected for the proposed project include demineralized water injection and SCR to control emissions of NOx. The SCR process will use 19 percent aqueous ammonia. Ammonia slip, or the concentration of unreacted ammonia in the stack exhaust, will be limited to 5 parts per million by volume, averaged over 1 hour. The SCR equipment will include a reactor chamber, catalyst modules, ammonia storage system, ammonia vaporization and injection system, and monitoring equipment and sensors. The project will use an ammonia delivery system, which consists of a 10,000-gallon ammonia tank, spill containment basin, and refilling station with a spill containment basin and sump.

The combustion turbine combustors incorporate staged combustion of a premixed fuel/air charge, resulting in high thermal efficiencies with reduced CO and volatile organic compound (VOC) emissions. CO and VOC emissions will be further controlled by means of CO oxidation catalysts. Particulate emissions will be controlled by the use of best combustion practices; the use of natural gas, which is low in sulfur, as the sole fuel for the CTGs; and high-efficiency air inlet filtration.

For each CTG, a separate continuous emissions monitoring system (CEMS) will sample, analyze, and record fuel gas flow rate; NOx and CO concentration levels; and percentage of oxygen in the exhaust gas from the stacks. The CEMS sensors will transmit data to a data acquisition system that will store the data and generate emission reports in accordance with permit requirements. The system will also include alarm features that will send signals to the plant control system when the emissions approach or exceed preselected limits.

Wastewater and Stormwater Handling. MEP has been designed as a zero liquid discharge (ZLD) facility for wastewater. Process wastewater and stormwater runoff from all of the plant equipment process areas will be collected, treated, and recycled for use onsite. General plant

drains will collect containment area washdown, sample drain water, and facility equipment drainage. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping and routed through an oil/water separator before ZLD treatment. Equipment drains that have the potential to be contaminated with oil will be valved shut to prevent rain water from draining, unless the water has been first inspected.

A truck-mounted ZLD treatment system will include a walnut-shell-activated carbon vessel followed by a surge tank and five micron bag filters and pH adjustment if necessary. The treated ZLD reclaim water then will be recycled back to the raw water storage tank for reuse. Any oily waste collected in the oil/water separator will be transferred to 55-gallon drums and hauled offsite for proper disposal. Wastewater from infrequent combustion turbine water washes and from the fuel filtration skids will be collected in holding tanks or sumps and will be trucked offsite for disposal at an approved wastewater disposal facility. Sanitary wastewater from sinks, toilets, showers, and other sanitary facilities will be routed to an onsite holding tank and trucked offsite for treatment.

Stormwater collected in process areas will drain into the general plant drain system to be recycled, as previously described. Stormwater runoff that is outside of the process areas will be captured in the site stormwater drainage system and conveyed to the onsite extended detention basin located at the north end of the MEP site. The extended detention basin is designed to release site stormwater runoff from the design storm capture volume over a 48-hour period. It is not designed to hold water for longer periods. The multi-stage discharge structure will discharge to one of two swales routing upgradient stormwater around the site. All surfaces within the site perimeter (including the surface of the perimeter road) will drain to the extended detention basin, with the exception of the segregated process area drainage described previously. Two grass-lined swales will convey upgradient stormwater drainage around the MEP site; site runoff will not drain directly to these swales. Stormwater will be released from the swales back to the natural drainage course through rip-rap energy dissipators.

1.1.3.2 Offsite Linear Facilities

230-kV Transmission Line. The proposed project will be interconnected with the regional electrical grid by a new, approximately 0.7-mile-long, single-circuit, three-phase, 230-kV transmission line. The proposed 230-kV line will run generally north from the MEP site, staying east of the Byron Power Cogen Plant, crossing Kelso Road, and staying east of the PG&E Bethany Compressor Station. It will turn west just north of the Kelso Substation, then turn south to the final interconnect point at the Kelso Substation.

The proposed interconnecting 230-kV transmission circuit is expected to consist of a single circuit configuration, supported by eight new steel monopole structures, ranging in height from 84 to 95 feet, located at appropriate intervals. A 10-foot-diameter concrete foundation will support each new monopole structure. No new access or service roads are needed along the transmission line corridor. Because the topography of the transmission corridor is generally flat and grazed by cattle with no trees, grading will not be required to access the line during construction or operation. During construction, rubber-tired line trucks and support vehicles (for example, pickup trucks) will access the transmission line work corridor overland.

The proposed line will exit the onsite switchyard from the take-off structures and will connect to the new steel-monopole, single-circuit structures. The project switchyard will use a single 230-kV circuit breaker for the four generating units and a generator step-up transformer for

each generating unit. Auxiliary controls and protective relay systems for the project's switchyard will be located in the power plant control building.

Natural Gas Pipeline. The proposed project will require construction of an offsite pipeline to supply natural gas to the MEP site. PG&E operates two existing high-pressure natural gas transmission pipelines just northeast of the MEP site. The proposed 4-inch-diameter, natural gas supply pipeline will tap into the existing PG&E Line 2 and be routed underground, entering the MEP site at its northeastern corner. The entire approximately 580-foot pipeline will be constructed within the 158-acre project parcel. Although PG&E will construct, own, and operate this new pipeline, this component is included in the project description for permitting.

The 10-acre MEP site will include a gas metering station to measure and record gas volumes. Additionally, facilities to regulate the gas pressure and remove any liquids or solid particles will be installed as required. The new metering station will include a pad and above- and below-ground gas piping, metering equipment, gas conditioning, pressure regulation, and possibly pigging facilities. A distribution power line will also be needed to provide power for metering station operation lighting and communication equipment. A perimeter chain-link fence will provide security around the gas metering station.

Water Supply Pipeline. The project will use raw water supplied by BBID via a new 6-inch-diameter, 1.8-mile water supply pipeline placed in or along the east side of Bruns Road, from Canal 45 south to the MEP site. Approximately 1,000 feet of pipeline will be located adjacent to Bruns Road on BBID property (an agricultural road) from the pump station to the new BBID headquarters facility. South of the BBID headquarters, the pipeline will be located within the Bruns Road right-of-way under the pavement. Seven culverts are located along the water line route in Bruns Road, including two concrete box culverts and five corrugated metal pipe culverts. Each culvert is associated with either an ephemeral drainage or roadside ditch. Because of right-of-way constraints, underground tunneling (for example, pipe ramming) will be used to install the pipeline beneath four of these culverts. For the remaining three drainages, open-cut trenching will be used to install the pipeline around the culverts, but within the road right-of-way. The pipeline route will follow the MEP main access road (an existing gravel road) from Bruns Road to the MEP site.

Associated facilities will include a 36-square-foot concrete turnout structure in Canal 45 and an approximately 250-square-foot pump station consisting of a precast concrete manhole wet wells, redundant vertical turbine pumps, pipe manifold and valving, an electrical cabinet, and instrumentation. The raw water is for all water uses needed by MEP, including process water, safety showers, fire protection, service water, and domestic uses.

1.1.4 Site Preparation Activities

Site preparation activities include the following:

- Preconstruction surveys for special-status species
- Designation of construction work areas and exclusionary zones
- As-needed vegetation removal
- As-needed removal of abandoned equipment and materials from previous wind farm
- Designation of temporary staging and laydown areas
- Designation of temporary construction access roads or routes

1.1.4.1 Preconstruction Surveys for Special-Status Species

A USFWS- and CDFG-approved biologist or team of approved biologists will conduct preconstruction surveys before vegetation removal or any other project-related ground disturbance activities. Species-specific preconstruction surveys, listed species relocation methods, and species-specific conservation efforts are detailed in Section 4.

1.1.4.2 Designated Construction Work Areas and Exclusion Zones

Disturbances will be minimized to the extent feasible by establishing the approved work area boundaries before ground-breaking activities. Access to sensitive habitats such as seasonal wetlands will be discouraged by developing construction exclusion zones around environmentally sensitive areas during project construction. To minimize the potential for entry into the construction zone by listed species, including California red-legged frog and California tiger salamander, an exclusion fence will be installed and properly maintained along the outside perimeter of the MEP construction site and adjacent 9.2-acre laydown area, and the MEP main access road (from Bruns Road to the facility site), for the duration of project construction. The exclusionary fence will also help to minimize the potential for indirect effects of erosion, such as sediment-laden water, on nearby water resources. All work areas will be delineated using high-visibility orange mesh fencing, flagging, signage, or other appropriate means to limit personnel and vehicular access outside the action area.

1.1.4.3 Vegetation Removal

The project area is characterized as grazed non-native annual grassland. Therefore, vegetation removal can be accomplished by removing the vegetation and topsoil concurrently using heavy machinery such as graders, scrapers, bulldozers, or excavators. Larger equipment (scrapers and graders) will be used at the 12.6-acre plant site (including main plant site, cut and fill slope areas and temporary work area), adjacent 9.2-acre temporary laydown area, and main access road for clearing and grubbing. Topsoil stripped from these work areas will be stockpiled onsite for later use during post-construction restoration of temporarily disturbed areas including the laydown area and MEP cut and fill slopes (see Section 1.1.5.1 for more information regarding cut and fill earthwork). Any surplus topsoil (mixed with grubbed grasses and forbs) will be hauled off site to an approved waste disposal facility.

Along the Project's gas line and soil areas of the water line, only grassland vegetation and topsoil within the trench line will be removed. With the exception of drainage crossings, topsoil from the water line trenching within the Bruns Road right-of-way will not be segregated due to the highly disturbed nature of this roadside area and space constraints of this work corridor. During open-cut trenching, a smaller machine such as an excavator or backhoe will remove the vegetation and topsoil, stockpiling it separately from the remainder of the excavated soil. Construction access and staging adjacent to the trench line within the approved work corridor will be overland, resulting in vegetation disturbance, not removal. Construction access and staging along the Project's transmission line corridor will be similar as just described for the gas and water lines. Only a small amount of vegetation and topsoil will be removed at each transmission line pole site to prepare the work area for excavation and a concrete foundation. No listed plant species were detected in the action area during 2009 protocol-level rare plant surveys. Because no trees exist in the action area, none will be affected by the proposed project. A USFWS- and CDFG-approved biologist will conduct preconstruction surveys for listed species before any vegetation disturbance. The 9.2-acre laydown area and temporary offsite

facility work areas will be restored to annual grassland habitat immediately following their use. Because of the potential for excessive compaction in areas of the temporary 9.2-acre laydown and parking area from vehicles, equipment, and heavy machinery, ripping will be performed in the affected areas to facilitate restoration to preconstruction conditions.

1.1.4.4 Wind Farm Equipment Removal

Limited components from a prior wind farm were abandoned and remain at the site. Remaining features include electrical panel and turbine concrete foundations, underground utility conduit, and miscellaneous parts and debris. These features will be removed from the site prior to construction to minimize delays during construction.

1.1.4.5 Temporary Staging and Laydown Areas

Temporary construction facilities will include a 9.2-acre worker parking and laydown area immediately east of the MEP site and a 1-acre water supply pipeline parking and laydown area located at the BBID headquarters facility on Bruns Road. Equipment staging for the construction of the gas line will take place in the 9.2-acre laydown area. This laydown area will be in use for approximately 12 months, including during the wet season. Because heavy machinery will be used at the site, portions of the 9.2-acre laydown area will require gravel or road base with an underlayment of geotextile fabric for stabilization. Topsoil stripped from the laydown will be stockpiled onsite inside the laydown area. During project completion, ripping will be performed to a depth no less than 2 feet to reduce compaction of underlying native soils. The resulting roughed soil surface will be smoothed and covered with salvaged topsoil removed from the laydown area during initial ground-breaking activities. The base rock and fabric underlayment will be removed before ripping and replacing the topsoil. This procedure will facilitate post-construction restoration, including recolonization by fossorial mammals. The temporary laydown area for the water supply pipeline will be located within an existing maintenance yard at BBID's headquarters.

1.1.4.6 Construction Access

The existing gravel road from Bruns Road provides access to the Byron Cogen Power Plant. A portion of this gravel road will be improved and used during construction and operation of the MEP. Improvements resulting in a permanent loss of grassland habitat include widening the road from approximately 10 feet to about 20 feet, and adding an asphalt layer. Temporary overland access routes to the transmission line corridor and gas line corridor will originate from this main road, and all access to the offsite facilities work areas will occur in upland grassland areas only. A 0.6-acre temporary construction area immediately north of the MEP site will be required for initial site access, transmission line corridor access, and to perform site grading. With the exception of seasonal wetland 1 (SWL-1) located within the construction access area immediately north of the MEP site, all seasonal wetlands adjacent to the Project, such as vernal pools, will be avoided during overland access. Access to the water supply pipeline corridor will be from existing roads including Bruns Road, a portion of the onsite main access road, and a BBID agricultural dirt road.

Aquatic habitats for California red-legged frog, California tiger salamander, and listed Branchiopods occur within 250 feet of the MEP site, transmission line, and/or water supply line. A seasonal wetland (SWL-1) just north of the MEP site considered occupied by listed Branchiopods will be directly impacted by the Project; the loss of habitat will be compensated for as described further below. Seasonal drainages occurring along the water supply pipeline

supporting aquatic breeding and non-breeding habitat for red-legged frog and tiger salamander will be avoided by restricting disturbance to the paved road surface and gravel shoulder. Drainages and seasonal wetlands including vernal pools within and in the vicinity of the transmission line work corridor will be avoided by restricting work to upland areas only during the dry weather when soil conditions are dry. Adverse effects to Branchiopod habitat will be further avoided by not allowing excavation or surface grading to occur within 250 feet of Branchiopod habitat; disturbance inside this buffer will be limited to overland vehicular travel during the dry weather when soil conditions are dry.

Construction perimeter fence (for example, orange snow fence) and wildlife exclusion fencing will be installed along the entire perimeter of the MEP site, adjacent laydown area, gas line work corridor, and main access road to the MEP site starting at Bruns Road and remain installed for the duration of the construction period. Wildlife exclusion fence will also be installed along the east side of Bruns Road (trenching will occur in the north bound lane or road shoulder) at the existing right of way fence. Because the work associated with the transmission line will be directly supervised by the biological monitor and occur during dry weather and when soils are dry, only construction perimeter fence will be installed along the work corridor to delineate the work site. Overall for the Project, a minimum of a 25-foot no-work buffer for any type of ground disturbance to terrestrial habitat (excluding work in Bruns Road) will be established from aquatic breeding and non-breeding habitats for California red-legged frog, California tiger salamander, and listed Branchiopods. For portions of the water supply pipeline along Bruns Road that are within 25 feet of Drainages D-1, D-3, and D-4, no work activities will extend off the pavement into terrestrial habitat areas.An onsite biological monitor will also be present to advise all site workers to stay inside approved work areas at all times.

Potential direct effects to water quality from contaminated runoff or airborne dust will be avoided by the implementation of standard erosion and/or sedimentation control devices, fugitive dust management, avoidance, and other BMPs prescribed by the Project's approved Stormwater Pollution Prevention Plan (SWPPP) and Fugitive Dust Mitigation Plan. . Construction activities will likely continue during wet conditions at the excluded MEP site, main access road, temporary laydown area, gas line corridor, and water supply pipeline corridor, which are all sited further than 250 feet from Branchiopod habitat. As-needed dust control measures (e.g., wetting dry ground) will minimize airborne transmission of soil particles into aquatic habitats. Equipment fueling, maintenance, and repairs (other than emergency repairs), in addition to storage of hazardous materials (fuels and lubricants) will occur offsite or greater than 200 feet from wetlands and drainages, including in the temporary laydown area. Other hazardous materials handling BMPs, including but not limited to secondary containment and not topping off fuel tanks will be enforced to prevent soil contamination.

Excavation will not occur within 250 feet of Branchiopod habitat (with the exception of SWL-1), which could cause an indirect effect to the habitat if an underlying claypan is punctured or if surface hydrological patterns are altered. Not including SWL-1, the only ground disturbance being proposed within 250 feet of Branchiopod habitat is at the transmission line corridor, where utility line trucks, boom trucks, cranes, and light-duty trucks will drive and park within 250 feet of branchiopod habitat along the 0.7-mile route. Because this work will occur during dry weather and dry soil conditions only, surface affects such as tire rutting are not expected. Excavation will not occur within 250 feet of listed Branchiopod habitat for transmission line

construction. Because the access corridor is level and generally flat, no grading will occur to facilitate access to each new transmission line pole.

All temporarily disturbed areas will be restored to pre-project conditions when project work has been completed in that area. Construction debris and materials will be removed and disturbed soil areas will be recontoured to match adjoining grades. Finally, post construction BMPs (as prescribed in the SWPPP) will be installed including reseeding the area to facilitate timely restoration.

1.1.5 Construction Activities

1.1.5.1 Main Site Facilities

Construction of the generating facility and use of the 9.2-acre laydown area, from site preparation, sub-excavation, cut and fill earthwork, and installation of foundations and infrastructure, to commercial operation, is expected to take place from April 2011 to July 2012 (14 months total). The facility site and a portion of the main access road will be sited in an area of rolling topography. Therefore, cut and fill earthwork totaling 3.6 acres is required to conform the MEP site and site access road with adjoining contours while maintaining maximum slope gradients of 3:1. This acreage surrounds the 9.7-acre plant site. Cut and fill slopes will be earthen, thus the affected areas will be applied with salvaged topsoil and/or a seed mix. Cut and fill areas are expected to regain their function as annual grassland following project construction.

After site preparation and preconstruction activities have been completed, the MEP components will be installed. The four power blocks will be constructed year round. The average and peak workforce will be approximately 89 and 177, respectively, of construction craft, supervisory, support, and construction management personnel onsite during construction. Typically, construction will be scheduled to occur between 7 a.m. and 7 p.m. on weekdays and 8 a.m. and 5 p.m. on Saturdays. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities, such as pouring concrete at night during hot weather or working around time-critical shutdowns and constraints. During some construction periods, particularly during startup phase of the MEP facility, some activities may continue 24 hours per day, 7 days per week. Start up activities would be confined to the excluded MEP site, where limited personnel would be performing operational tests. During the wet season, no project work will occur outside the wildlife exclusion fence during night time. Limited project activities may occur on the plant site at night during the wet season.

1.1.5.2 Offsite Linear Facilities

Natural Gas Pipeline. The natural gas pipeline will generally consist of the following construction elements within the 75-foot wide construction corridor.

- **Trenching** width will depend on the type of soils encountered and requirements of the worker safety standards. Trenching will be performed using a backhoe excavator; the optimal trench will be approximately 30 inches wide and 54 inches deep. If loose soil is encountered, a trench up to 10 feet wide at the top and 2 feet wide at the bottom may be required. The pipeline will be buried to provide a minimum cover of 36 inches. The excavated soil will be piled on one side of the trench and used for backfilling after the pipe is installed. Any excess soil will be loaded into a dump truck and either used on the MEP

site or hauled offsite by the construction contractor. The pipeline will be installed through trenching at all locations. No boring or directional drilling is required to pass beneath other buried utilities or infrastructure.

- **Stringing** consists of trucking lengths of pipe to the right-of-way and laying them on wooden skids beside the open trench.
- **Installation** consists of bending, welding, and coating the weld-joint areas of the pipe after it has been strung; padding the ditch with sand or fine spoil; and lowering the pipe string into the trench. Bends, if required, will be made using a cold bending machine or will be shop fabricated as required for various changes in bearing and elevation. Welds will undergo 100 percent radiographical inspection by an independent, qualified radiography contractor. All coating will be checked for defects and will be repaired before lowering the pipe into the trench.
- **Backfilling** consists of returning spoil back into the trench around and on top of the pipe, ensuring that the surface is returned to its original grade or level. The backfill will be compacted to protect the stability of the pipe and to minimize subsequent subsidence.
- **Plating** consists of covering any open trench in areas of foot or vehicle traffic at the end of a work day. Plywood plates will be used in areas of foot traffic and steel plates will be used in areas of vehicle traffic. Plates will be removed at the start of each work day.
- **Hydrostatic testing** consists of filling the pipeline water, venting all air, increasing the pressure to the specified code requirements, and holding the pressure for a period of time. After hydrostatic testing, the test water in the pipe and any that might leak out into the open trench will be analyzed for water quality and either discharged in accordance with regulatory requirements or trucked to an appropriate offsite treatment or disposal facility. The construction contractor will obtain all necessary approvals for test water use and disposal.
- **Cleanup** consists of restoring the surface of the ground by removing any construction debris, grading to the original grade and contour, and revegetating or restoring where required.
- **Commissioning** consists of cleaning and drying the inside of the pipeline, purging air from the pipeline, and filling the pipeline with natural gas.

Construction equipment includes, but is not limited to, a backhoe or tracked excavator; dump trucks; boom trucks or side booms; flat bed tractor trailers; and various smaller support vehicles, including light-duty pick-up trucks.

Water Supply Pipeline. Generally, the construction process for the water supply pipeline is similar to the gas pipeline construction process described above. However, the pipe for the water conveyance may be either polyvinyl chloride (PVC) or high-density polyethylene (HDPE), determined by the construction contractor. With the exception of the jointing technologies required for PVC or HDPE pipe, all the other construction elements described for the gas line would be essentially the same. Additionally, the trenching width is expected to be 12 to 18 inches for this pipeline. The 1-acre temporary laydown area located immediately next to BBID's headquarters is an existing active construction yard; therefore, no additional site

preparation, including grading, clearing and grubbing, or armoring with base rock, is anticipated at the yard.

Two concrete box and five corrugated metal pipe (CMP) culverts under Bruns Road along the pipeline route must be avoided during water line construction. Four of these culverts convey ephemeral surface water from D-1, D-2, D-3, and D-4. The other three culverts are associated with roadside ditches or swales. Because of space constraints between the existing culverts and right-of-way edge, the new water pipeline will be installed under the culverts at D-1, D-3, SW-3 and D-4 by way of pipe ramming. Adequate space between the end of the culvert and the right-of-way boundary allows for open-cut trenching to install the new pipeline around the other three CMP culverts.

Pipe ramming will entail excavation of two access pits in the Bruns Road paved surface, approximately 10 feet on either side of the culvert, followed by use of a pneumatic hammer to drive a metal pipe/sleeve at least 1 foot below the bottom of the culvert. New pipe will then be inserted into the sleeve and the pits backfilled.

Transmission Line. Transmission line construction will generally entail the following activities within the 100-foot-wide work corridor:

- **Construction access** to the transmission line work corridor will be provided by existing roads and designated overland temporary access routes. Rubber-tired machinery and vehicles will drive through grassland areas during the dry season to the extent feasible. Trench plates will be used as necessary to avoid ground disturbance to nearby ephemeral drainages.
- **Monopole installation** will entail excavation for eight 10-foot diameter concrete foundations, installation of formwork, and pouring of concrete. Cranes and other support equipment will be used to erect each monopole on the new foundations. In general, a 1,000 square foot temporary work space is required at each pole site to accomplish these tasks.
- **Pull and tension sites** are the sites from which the conductors (wires) will be installed. Pull sites are generally located between designated monopoles. Reel and bullwheel puller trucks (wheeled vehicles with appropriate equipment) will be set up to pull the new conductor. Tension sites are generally located along the line, and equipment will be set up to pull in and tension the new conductor. The pull and tension sites will be sited within the established 100-foot-wide construction corridor. No mowing or grading of the work corridor will be required.
- **Line conductoring** will be accomplished using travelers (pulleys), insulators, and hardware. Travelers and insulators will be transported to each monopole by vehicle. Travelers will be installed on the pole arms, and a sock line will be used to pull the new line. After the new conductor is in place, it will then be "sagged" (pulled to the appropriate height and tension, which are interdependent), then transferred from the travelers and clipped permanently to the insulator. At dead-end poles/line end points, a boom truck will be needed to access the towers so crews can attach the dead-end eye to the monopole. Additionally, where splices exist along the alignment, a boom truck will be used to reach the conductor for the installation of new splices in areas where it will be feasible.

1.1.6 Site Cleanup and Restoration

All construction-related materials and the temporary laydown areas, staging areas, construction site security fences, and wildlife exclusion barriers will be removed after construction is complete. The staging areas and access routes will be cleaned up, returned to original grade, and revegetated with appropriate species, as necessary. An erosion control plan, detailed in the proposed project's Stormwater Pollution Prevention Plan (SWPPP), will help minimize erosion after construction. The plan will include soil stabilization measures such as hydroseeding and other appropriate stormwater best management practices (BMPs) for all temporarily affected areas within the action area.

1.1.7 Conservation Measures

The federal and California ESA has special requirements when an action could result in take or adverse modification to critical habitat for plant and animal species listed as threatened or endangered. Protective measures for listed species were developed using existing agency guidelines. The protective measures will also reduce or eliminate adverse effects on the action area's biological resources and species that do not have special ESA protective requirements. Protective measures developed for unavoidable project effects to eliminate or minimize adverse effects are described in detail further below. Compensation for loss of federally and state listed species habitat will be replaced at an appropriate loss to replacement ratio also as described below.

1.2 Construction Schedule

On June 15, 2009, Mariposa Energy filed an Application for Certification (AFC) under the CEC's 12-month licensing process, and was found to be "data adequate" on August 26, 2009, beginning the CEC 12-month review process. Mariposa Energy currently anticipates receiving a license by spring2011 and beginning construction in May 2011. Pre-operational testing of the power plant will begin in May 2012, and full-scale commercial operation is contractually obligated to commence by July 1, 2012. Table 2 below shows the estimated construction schedule for temporary work areas.

TABLE 2
Estimated Construction Schedule for Temporary Work Areas
Mariposa Energy Project

Temporary Work Site	Acreage	Date of Initial Disturbance	Construction Completion Date[a]	Restoration Completion Date[b]	Expected Date of Full Function[c]
MEP Laydown	9.2	May 1, 2011	May 1, 2012	June 1, 2012	TBD
MEP Site Cut and Fill Areas	2.9[d]	April 1, 2011	February 1, 2012	March 1, 2012	TBD
Gas Line Corridor	1.0	July 1, 2011	February 1, 2012	March 10, 2012	July 1, 2012
Transmission Line Corridor	8.5	August, 1, 2011	March 1, 2012	April 1, 2012	August 1, 2012
Water Line Corridor	2.6	April 1, 2011	August 1, 2011	September 1, 2011	December 1, 2011

Notes:

[a] Date when all major construction activities have been completed allowing restoration to begin.

[b] Date when all construction related debris, materials, and equipment have been removed from the work site, and when recontouring and reseeding is complete.

[c] Date when the site is expected to match pre-construction condition. Preconstruction condition includes either California annual grassland, roadside ruderal habitat, and/or agricultural development.

[d] This acreage also includes the temporary construction access required adjacent to the north end of the site for initial site access and earthwork construction.

TBD = To Be Determined. These long-term temporary impacts are now being mitigated as permanent impacts.

Listed Species Effects, Conservation Measures, and Offsite Compensation

2.1 Listed Species Effects

Table 3 below lists the temporary and permanent effects of the Project on Branchiopods, California red-legged frog, California tiger salamander, and San Joaquin kit fox suitable habitats.

TABLE 3
Maximum Project Effects on Listed Species Habitat
Mariposa Energy Project

Habitat	Disturbance Type	Acreage of Short-Term Temporary Affect (<12 months)	Acreage of Long-Term Temporary Affect (> 12 Months)	Acreage of Permanent Affect
Branchiopod pool (SWL-1)	Cut and fill grading, construction access	**0**	**0**	**0.018**[a]
California red-legged frog and California tiger salamander upland habitat; San Joaquin kit fox foraging habitat and potential denning	MEP Site	0	2.9[b]	9.7
	MEP Main Access Road	0	0	0.4[c]
	MEP Laydown Yard	0	9.2	0
	Natural Gas Line	1.0	0	0
	230-kV Transmission Line	8.5[d]	0	0.01[e]
	Water Supply Line	2.6[f]	0	0.006[g]
	Total	**12.1**	**12.1**	**10.1**

Notes:

[a] Direct fill of SWL-1 as a result of grading and excavation activities at MEP site.

[b] Cut and fill earthwork and temporary access areas adjacent to the northern portion of the MEP site.. Note the total project cut/fill area is 3.6 acres, but to prevent double-counting, 1.3 acres of cut/fill overlapping with the 9.2 acre laydown area is not included in this tally.

[c] First 816 feet of 20-foot wide MEP access road overlaps with an existing 10-foot wide gravel road. Remaining 431 feet occurs in undisturbed annual grassland (0.4 acres = [816 feet x 10 feet] + [431 feet x 20 feet].

[d] The construction zone is 100 feet wide by 0.8 mile long; includes negligible area of Kelso Road.

TABLE 3
Maximum Project Effects on Listed Species Habitat
Mariposa Energy Project

Habitat	Disturbance Type	Acreage of Short-Term Temporary Affect (<12 months)	Acreage of Long-Term Temporary Affect (> 12 Months)	Acreage of Permanent Affect

[e] Footprint of eight new transmission line monopoles.

[f] The habitat acreage (2.6 acres) represented by: annual grassland (20 feet width x 1,000 foot length [this is conservative as the pipeline corridor will overlap with the access road]); roadside ruderal (10 feet width x 1.4 miles) and agricultural (20 feet wide x 1,000 foot length).

[g] Footprint of new 250 square foot pump house at Canal 45.

2.2 Listed Branchiopods

2.2.1 Project Effects

2.2.1.1 Construction

When ground disturbance occurs within 250 feet of Branchiopod habitat, there is a potential for both direct and indirect effects to the aquatic site. Direct effects include actual ground disturbance within the ponding area or if stormwater laden with sediment or construction materials (for example, fuels and lubricants) discharge into the aquatic site. Dust emissions generated during construction activities settling in Branchiopod habitat would be another form of a direct effect. Indirect effects include changes in the hydrological regime of the aquatic habitat or adjacent buffer lands, if ground disturbance such as excavations or surface grading punctures the typically shallow claypan layer or alters surface flow patterns. No grading or excavation will occur within 250 feet of Branchiopod habitat, except at SWL-1, which will be permanently lost as a result of the project.

With the exception SWL-1, direct effects to Branchiopod habitat will be avoided by the implementation of BMPs. Construction perimeter fence (for example, orange snow fence) along the transmission line work corridor will be installed at the work area boundary to discourage site workers, vehicles, and construction machinery from straying offsite into the sensitive areas. An onsite biological monitor will also be present to advise all site workers to stay inside approved work areas at all times. Direct effects from the offsite discharge of construction-related contaminated stormwaters and dust emissions generated from moving equipment and vehicles will be prevented by the implementation of standard erosion and/or sedimentation control devices, fugitive dust management, and other BMPs prescribed by the Project's approved Stormwater Pollution Prevention Plan (SWPPP) and Fugitive Dust Mitigation Plan. Overland vehicular travel within 250 feet of Branchiopod habitat will occur during dry weather and when soil conditions are dry to significantly minimize the potential for the direct effects from runoff and indirect effects of tire rutting. As-needed dust control measures (for example, wetting dry ground) will minimize airborne transmission of soil particles into nearby aquatic habitats. Equipment fueling, maintenance, and repairs (other than emergency repairs), in addition to storage of hazardous materials (fuels and lubricants) will occur offsite or greater

than 250 feet from Branchiopod habitat, including in the temporary laydown area. Other hazardous materials handling BMPs, including but not limited to secondary containment and not topping off fuel tanks will be enforced to prevent soil contamination.

2.2.1.2 Operation

MEP operation is not expected to result in adverse effects on listed branchiopods. Site operations personnel will stay within the established facility footprint and use the paved main access road to access the site from Bruns Road. As described in greater detail above in Section 1.1.3, MEP has been designed to be a ZLD facility for wastewater and stormwater runoff that is outside of the process areas will be captured in the site stormwater drainage system and conveyed to the onsite extended detention basin located at the north end of the MEP site. With the exception of SWL-1, no Branchiopod habitat occurs within 250 of site operations, and none are hydrologically connected with the stormwater basin outflow structure.

2.2.1.3 Conservation Measures

The following conservation measures will be implemented during project construction:

- At least 15 days before any construction-related activities, Mariposa Energy will submit to USFWS and CDFG the name(s) and credentials of biologist(s) who will conduct activities specified in the following measures. No project construction will begin until Mariposa Energy has received written approval from USFWS and CDFG that the biologist(s) is qualified to conduct the work.
- A USFWS- and CDFG-approved biological monitor will administer a construction personnel education program, explaining to construction personnel how best to avoid the accidental take of listed branchiopods.
- A USFWS- and CDFG-approved biological monitor will be onsite during all ground-disturbing work (consisting of overland access only) within 250 feet of potential branchiopod habitat. Access routes will be clearly flagged and marked. Potential listed branchiopod habitat in the action area will be marked for avoidance.
- Minimum buffers of 250 feet from branchiopod habitat will be maintained during excavations for new transmission line poles. A minimum of 25 feet will be maintained for access routes from Branchiopod habitat during dry weather and dry soil conditions only. Tire rutting within 250 feet of Branchiopod habitat will be prevented.
- Wet weather work will be confined to work sites previously excluded from adjacent habitat by wildlife exclusion fence (silt fence) including the MEP site and main access road, laydown area, and gas line.

The potential for adverse effects to water quality in habitats potentially occupied by listed branchiopods will be avoided by the enforcement of seasonal restrictions and implementation of temporary BMPs such as those outlined in the California Stormwater Quality Association's Construction Handbook (California Stormwater Quality Association, 2003). Mariposa Energy's SWPPP and erosion control BMPs will be used to prevent any wind- and water-related erosion and sedimentation, and restore temporarily disturbed areas as quickly as possible to pre-project conditions. Protective measures will also include the following:

- No discharge of pollutants from vehicle and equipment cleaning, maintenance, or repair will be allowed into storm drains, wetlands, or water courses.
- No discharge of sediment-laden water from project-related work will be allowed into storm drains, wetlands, or water courses.
- Vehicle and equipment fueling and maintenance operations will be kept at least 200 feet from vernal pools and other aquatic habitats.
- Dust control will be implemented, including the use of water trucks to control dust in disturbed areas, rocking of temporary access road entrances and exits, and placement of geotextile mats and rock on access road areas to be used in the wet season.
- Erosion and sedimentation control devices (such as silt fences and fiber rolls) will be implemented as necessary during the wet season and before forecasted rain events.
- Disturbed work areas will be restored to pre-project conditions and will be reseeded, as appropriate.

2.3 California Red-legged Frog and California Tiger Salamander

2.3.1 Project Effects

2.3.1.1 MEP Construction

The project will result in the loss of designated critical habitat (Unit CCS-2b) for California red-legged frog and suitable dispersal and refugia habitat for both California red-legged frog and California tiger salamander, and could result in effects on individual frogs and salamanders. No aquatic habitat for red-legged frog or tiger salamander will be affected by the Project. Small mammal burrows in the action area provide potential upland refugia for both species. Some take of red-legged frogs and tiger salamanders is anticipated during construction and relocation efforts. Animals that are not detected during preconstruction surveys and monitoring may be crushed by heavy equipment or trampled by workers or may flee the action area into less-suitable habitat. There is also some potential for the frogs and salamanders to be harmed during capture and relocation. However, implementation of the conservation measures, including preconstruction surveys, installation of wildlife exclusion, amphibian relocation, construction monitoring, construction personnel training, dry weather work outside exclusion zones, and use of qualified biologists during surveys and monitoring, will minimize the potential for lethal take of California red-legged frog and California tiger salamander. There is also potential for water quality issues related to sedimentation or erosion, or contaminates from construction materials or equipment entering nearby aquatic habitats; however, BMPs incorporated into the project and seasonal work restrictions will minimize this potential.

Wildlife exclusion fencing (silt fence) in place for the duration of the construction project will introduce a temporary barrier to dispersing frog or salamander from refugia to breeding sites or vice versa. Barrier fence may also divert individuals away from their intended destination into less suitable habitats. Frogs and salamanders could congregate at the exclusion fence putting them in closer proximity to construction personnel or making them more susceptible to predation, or they may find holes or breaches in the fence and enter the active work area. Weekly fence inspections and as-needed repairs will occur to ensure that fence is maintained sufficiently to exclude frogs and salamanders from the work site. A full time biological monitor

will be onsite daily during the wet season when these species are generally more active and moving around. The monitor will survey the fence on a daily basis and if in the opinion of the biologist any frogs or salamanders found along the fence are in jeopardy of being killed or injured, the animal with be relocated by the biologist following the USFWS- and CDFG-approved relocation plan. All wildlife exclusion fencing will be removed from the site during project completion.

USFWS and CDFG consider a temporary construction disturbance with a temporal effect greater than 12 months as a permanent habitat loss. This scenario exists at the 9.2-acre temporary laydown and parking area, the MEP cut and fill slopes, and the construction access area at the northern MEP site boundary. Nevetheless, the temporary disturbance areas will be decompacted as needed, recontoured to match pre-existing grades, applied with salvaged top soil and/or reseeded. Fossorial mammals, including California ground squirrel, are expected to recolonize these areas by digging new or reopening existing burrows, which would provide upland refugia for California red-legged frogs and California tiger salamander.

Permanently disturbed areas include the MEP site and access road; eight new monopole foundations along the proposed transmission line route; and the pump house and intake structure at Canal 45. In addition to the laydown area discussed above, temporary effects will occur to terrestrial habitats, including non-native annual grassland, gravel surfaces including roads and road shoulders, seasonal swales, and an agricultural dirt road during construction of the offsite facilities. The temporarily affected offsite facility work corridors will be restored onsite to pre-project conditions within one construction season and are expected to regain habitat value for California red-legged frog and California tiger salamander less than one year following initial disturbance.

2.3.1.2 MEP Operation

Over the longer term, the additional vehicular traffic and human activity resulting during MEP operations may cause additional take of California red-legged frogs and California tiger salamander in the action area. Any frogs or salamanders crossing roads or incidentally entering the MEP site during overland dispersal could be crushed by vehicles or inadvertently killed or entrapped on the facility site. A six-inch tall concrete curb will be installed along the perimeter of the MEP site for the operationally life of the project to discourage tiger salamander dispersal into the facility. The combination of curb and perimeter fence may also discourage red-legged frog from entering the MEP site. An increase in human activity or operation noise from the power plant could displace the frogs or salamanders into less-suitable habitats. The 10-acre MEP site would add cumulatively to habitat loss and fragmentation experienced in the region. Fewer refugia would be available and the curbed facility would be a barrier to California red-legged frog and California tiger salamander dispersal.

As these species is partially nocturnal, outdoor illumination may cause disruption of surface movement and increase rates of predator or vehicle-related injury or mortality. Rich and Longcore (2006), Beier (2006), Buchanan (2006), and Wise and Buchanan (2002) reviewed the adverse effects that may result from night-time illumination and concluded that artificial lighting is likely to increase predation of the California red-legged frogs if it occurs during fall, winter, or spring rains, because the amphibians will lose the cover of darkness for movement. To reduce effects from offsite lighting, lighting at the MEP facility will be restricted to areas required for safety, security, and operation. Exterior lights will be hooded, and lights will be

directed onsite so that significant light or glare would be minimized. Low-pressure sodium lamps and fixtures of a nonglare type will be specified. For areas where lighting is not required for normal operation, safety, or security, switched lighting circuits will be provided, allowing these areas to remain dark at most times, minimizing the amount of lighting visible offsite. For these reasons, night-time illumination at the MEP site is not expected to result in adverse effects on California red-legged frogs and California tiger salamander.

2.3.2 California Red-legged Frog and California Tiger Salamander Conservation Measures

The following measures will be implemented to avoid and minimize effects of the proposed project on the California red-legged frog and California tiger salamander:

- **Onsite construction personnel education program.** A construction personnel education program will occur before the start of construction so that the USFWS- and CDFG-approved biologist can explain to construction personnel how best to avoid the accidental take of California red-legged frogs and California tiger salamanders. The training session will be mandatory for contractors and all construction personnel. The meeting will cover species identification, life history descriptions, habitat requirements during various life stages, and the species' protected status, and will explain the authority of the biological monitor to stop work if imminent danger to a listed species is likely. The biologist will emphasize the importance of the habitat and life-stage requirements within the context of project conservation measures. This training may be delivered by trained construction personnel via a prerecorded video presentation to allow for repeated training sessions for new site workers. Handouts, illustrations, photographs, or project maps that show the areas where conservation measures are being implemented will be included as part of this education program. In addition, wallet-sized cards that include a general reporting protocol and contact information for the biological monitor will also be provided to construction personnel. The program will increase contractors' and construction workers' awareness of federal and state laws regarding endangered and threatened species, as well as increase compliance with conditions and requirements of both Mariposa Energy and resource agencies.

- **Construction monitoring and removal of California red-legged frogs and California tiger salamanders from the work area.** At least 15 days before any construction-related activities, Mariposa Energy will submit to USFWS and CDFG the name(s) and credentials of biologist(s) who will conduct activities specified in the following measures. No project construction will begin until Mariposa Energy has received written approval from USFWS and CDFG that the biologist(s) is qualified to conduct the work.

  – Before any removal or disturbance of vegetation, the USFWS- and CDFG-approved biologist(s) will conduct surveys for California red-legged frogs and California tiger salamander in and near the work area. In coordination with USFWS and CDFG, any California red-legged frogs or California tiger salamanders detected in the work area will be captured and transported immediately in a cool, moist container to a suitable location elsewhere within the local watershed, following the methodology described in Attachment A. The relocated frog(s) and salamander(s) will be monitored until it is determined that no imminent danger to the animal(s) is apparent.

- The proposed project will avoid small mammal burrows that provide suitable refugia for California red-legged frogs and California tiger salamanders to the extent feasible.
- Following the preconstruction surveys and any necessary frog and salamander relocation, the approved biologist will then monitor the work in question (for example, vegetation removal or construction) to minimize the potential for frogs and salamanders to enter the work area and to capture any frogs and salamanders that may be present.
- The USFWS- and CDFG-approved biologist(s) will be present each day during ground-breaking activities until the wildlife exclusion fence is installed and all suitable habitats are removed. Thereafter, the biologist will conduct weekly site visits of the MEP site and access road, laydown yard, and gas line to survey the wildlife exclusion fence for good repair as well as for other monitoring duties. The approved biologist will monitor the water supply pipeline and transmission line work areas daily regardless of season. The frequency of monitoring inside exclusion zones will be increased during the wet season to daily due to the heightened threat to California red-legged frog or California tiger salamander. If work associated with the offsite facilities is suspended for more than 15 days (for example, between initial removal of vegetation and the initiation of construction), preconstruction surveys will be conducted again before construction activity resumes.

- **Construction area delineation.** Before any ground is disturbed, the boundaries of the work area will be clearly delineated with orange-colored plastic construction fencing (ESA fencing), signage, or other appropriate means to discourage workers or equipment from inadvertently straying offsite.
- **Wildlife exclusion fence.** Before project construction, a wildlife exclusion fence (silt fence) will be installed along the entire perimeter of the 10-acre MEP site, 9.2-acre temporary laydown area, along the main access road and temporary construction access area serving the site from Bruns Road, along the perimeter of the gas line work corridor, and partially (eastern right of way fence) along the water supply pipeline due to the proximity of offsite aquatic areas including drainages. The exclusion fence around these work areas will remain in place for the duration of ground disturbance. The wildlife exclusion fence will be tall enough and buried to discourage dispersal of California red-legged frogs and California tiger salamanders into the active work site. Any damage or gaps in the fence observed during routine inspections will be repaired immediately. A wildlife exclusion fence will not be needed along the transmission line corridor because this work will occur during dry conditions and under the direct supervision of a USFWS- and CDFG-approved biologist(s).
- **Avoidance of entrapment.** To prevent inadvertent entrapment of California red-legged frogs, California tiger salamanders or other animals during construction, at the end of each work day, all excavated, steep-walled holes or trenches inside any work area more than 6 inches deep will be covered with plywood or similar materials or will be equipped with one or more escape ramps constructed of earth fill or wooden planks. Biological monitors will inspect open trenches prior to sunrise for California red-legged frog and California tiger salamander. Before such holes or trenches are filled, the onsite biologist or construction personnel trained by the biologist will thoroughly inspect the trench or hole for trapped animals. If, at any time, a trapped California red-legged frog or California tiger salamander

is discovered, USFWS and/or CDFG will be contacted. The capture and relocation plan (Appendix A) will be implemented for any entrapped frogs or salamanders.

- **Procedure for California Red-legged Frog and California Tiger Salamander discovery onsite.** If construction personnel encounter a California red-legged frog, California tiger salamander, or any amphibian that construction personnel believe may be a frog or salamander, or if any contractor or employee inadvertently kills or injures a California red-legged frog or California tiger salamander, the following protocol will be followed (Note: this protocol will be superseded by requirements outlined in the USFWS Biological Opinion and CDFG Incidental Take Permit):
  - All work that could result in direct injury, disturbance, or harassment of the individual animal will immediately cease.
  - The construction manager will be immediately notified.
  - The construction manager will notify the approved onsite biologist.
  - The approved onsite biologist will move the frog or salamander to the previously approved relocation area identified in the agency-approved capture and relocation plan.
  - The biologist will contact USFWS and CDFG within 24 hours for further direction if a California red-legged frog or California tiger salamander is found, killed, or injured. Field survey forms will be completed for any frog or salamander observations and submitted to the CNDDB.
- **Burrow Refugia Avoidance.** Concentrations of California ground squirrel burrows will be marked for avoidance by installing exclusion fence around them, or by placing plywood over the burrows protecting them from being crushed by machinery and vehicles or from being filled by trenching spoils.
- **Trash removal.** To discourage attracting predators of protected species, all food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed of in solid, closed containers (trash cans) on a daily basis. Onsite trash receptacles will be emptied as necessary (for example, weekly) to prevent overflow of trash. Trash removed from the receptacles will be hauled to an offsite waste disposal facility.
- **Avoidance of accidental spills and a spill response plan.** All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 200 feet from any water body. Spill response materials will be kept onsite at all times. Before work begins, Mariposa Energy will ensure that a plan has been prepared to allow a prompt and effective response to any accidental spills. During the worker education program, all workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- **Implementation of BMPs.** To control erosion and sedimentation during and after project implementation, Mariposa Energy will implement BMPs, as required by the California Regional Water Quality Control Board and USACE. More detail on these BMPs will be provided in a SWPPP.

- **Prohibition of use of erosion control materials potentially harmful to California red-legged frogs and California tiger salamander.** Tightly woven fiber netting or similar material will be used for erosion control or other purposes at the project to avoid trapping California red-legged frogs and California tiger salamanders. This limitation will be communicated to the contractor through use of special provisions included in the bid solicitation package. Plastic mono-filament netting (erosion-control matting and fiber rolls) will not be used because the frogs and salamanders may become entangled or trapped in this material.

2.4 San Joaquin Kit Fox

2.4.1 Project Effects

2.4.1.1 MEP Construction

The project will affect suitable foraging, dispersal, and denning habitat. The potential for lethal take of San Joaquin kit fox is considered low given the protective measures proposed below in the event that denning is observed onsite. Nevertheless, some individual San Joaquin kit fox may enter the construction site in search of food and cover and as a result may be injured or killed by heavy equipment, or entrapped. There is also some potential for San Joaquin kit fox to be harmed during exploratory excavation of potential dens. However, implementation of the conservation measures, including preconstruction surveys and monitoring, observance of no-work buffers from dens, construction monitoring, construction personnel training, and use of USFWS- and CDFG-approved biologists during surveys and monitoring, will minimize the potential for take of San Joaquin kit fox.

The proposed project will result in both permanent and temporary effects to San Joaquin kit fox habitat. Also, project construction will destroy small mammal burrows that provide denning opportunities for the species. The 9.2-acre laydown area, cut and fill areas, and the temporary work area adjacent to the MEP northern site boundary will result in a long-term temporary loss of San Joaquin kit fox habitat. As previously described, these temporary disturbance areas will be decompacted as needed, recontoured to match pre-existing grades, applied with salvaged top soil and/or reseeded. Fossorial mammals, including California ground squirrel, are expected to recolonize these areas, thereby providing a prey base and burrows for potential denning. Short-term temporary effects will also occur to terrestrial habitats, including non-native annual grassland, gravel surfacing including roads and road shoulders, seasonal drainages, and an agricultural road during construction of the offsite facilities. These offsite facility work corridors will be restored to preproject conditions within one construction season and are expected to regain habitat value for San Joaquin kit fox less than 1 year following disturbance.

Permanently disturbed areas include the MEP site and access road; eight new monopole foundations along the proposed transmission line route; and the pump house and intake structure at Canal 45.

2.4.1.2 MEP Operation

MEP operational activities could result in adverse effects on the San Joaquin kit fox. In addition to habitat loss, disturbance could result from noise, vibration, odors, or increased human activity. Attractants such as trash and food-related debris could cause San Joaquin kit fox to

enter the fenced plant site in search of food. Operational activities may interfere with their sensory perception, which could inhibit their ability to locate prey, pups, or mates, or detect approaching predators or vehicles. Disturbance could induce stress, which may affect physiological parameters or behavior. Cumulative habitat fragmentation as a result of the 10-acre facility will interfere with movement corridors potentially existing in the MEP area.

The new facility is expected to be operated during high demand times, typically afternoon hours, to supplement base-load and renewable generation capacity. However, the exact operation profile cannot be defined in detail since operation of the facility depends on the variable demand in the MEP service area. Therefore, the facility could operate at all times of the day depending on the demand for output. A security perimeter fence will keep cattle out of the property and may preclude San Joaquin kit fox access. As discussed in Section 2.3.1.2, MEP night-time illumination is not expected to result in any adverse effects to San Joaquin kit fox.

2.4.2 Conservation Measures

Although no evidence of kit fox denning has been observed in the action area, the numerous ground squirrel burrows provide potentially suitable den sites. Therefore, measures related to the protection of San Joaquin kit fox dens are proposed in the event that an active den is discovered during preconstruction surveys. In addition, measures to protect individual San Joaquin kit fox are proposed in the event that a fox enters a work area during construction. These measures are derived from the *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance* USFWS (1999c) and include:

- At least 15 days before any construction-related activities, Mariposa Energy will submit to USFWS and CDFG the name(s) and credentials of biologist(s) who will conduct activities specified in the following measures. No project construction will begin until Mariposa Energy has received written approval from USFWS and CDFG that the biologist(s) is qualified to conduct the work.
- **Onsite Construction Personnel Education Program.** The USFWS- and CDFG-approved biologist will include discussion of San Joaquin kit fox in the education program.
- **Preconstruction Surveys and Monitoring.** Before project construction begins, a USFWS- and CDFG-approved biologist will conduct a preconstruction survey for San Joaquin kit fox dens at least 200 feet from the project area. The following measures will be implemented for any natal/pupping dens, active dens (non-natal), and potential dens observed during the survey:
  - Natal/pupping dens will be avoided by a minimum of 100 feet for known dens and a minimum of 50 feet for potential dens, and USFWS and CDFG contacted for further guidance. Natal/pupping dens will not be disturbed by the proposed project.
  - Non-natal dens in the action area will be monitored for 3 days with a tracking medium to determine their current use. If no kit fox activity is observed during this period, the den will be destroyed immediately to prevent future use by kit fox. If kit fox activity is observed at the den during this period, the den will be monitored for at least 5 consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den will be discouraged during this period by partially plugging its entrance(s) with soil in such a manner that any resident

animal can escape easily. Only when the den is determined to be unoccupied will it be excavated under the direction of the biologist. If the animal is still present after 5 or more consecutive days of plugging and monitoring, the den will be excavated when, as determined by the biologist, it is temporarily vacant (for example, during the fox's normal foraging activity).

  - Potential dens will be temporarily marked for avoidance by a minimum of 50 feet and further studied by the qualified biologist. Destruction of potential dens will occur only after the biologist determines that no kit fox are inside. To determine the presence of kit foxes, the potential den will be fully and carefully excavated to the end by either hand or machinery. Once determined empty, the den will be filled with dirt and compacted to ensure that kit foxes cannot enter or use the den during the construction period. If any potential den is determined to be currently or previously used by kit fox, the measures described above for natal and non-natal dens (as applicable) will be followed.

- **Procedure for San Joaquin Kit Fox Discovery Onsite.** If construction personnel encounter a San Joaquin kit fox or any animal that construction personnel believe may be San Joaquin kit fox, or if any contractor or employee inadvertently kills or injures a San Joaquin kit fox, the following protocol shall be followed:

  - All work that could result in direct injury, disturbance, or harassment of the individual animal will immediately cease.
  - The construction manager will be immediately notified.
  - The construction manager will notify the agency-approved onsite biologist.
  - The animal will be allowed to leave the site on its own.
  - If a San Joaquin kit fox has been killed or injured, the biologist will contact USFWS and CDFG within 24 hours.

- **Construction Area Delineation.** Before any ground is disturbed, the boundaries of the work area will be clearly delineated with orange-colored plastic construction fencing (ESA fencing), signage, or other appropriate means to discourage workers or equipment from inadvertently straying offsite.

- **Trash Removal.** To discourage attraction to predators of protected species, all food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed in solid, closed containers (trash cans) on a daily basis. Onsite trash receptacles will be emptied as necessary (for example, weekly) to prevent overflow of trash. Trash removed from the receptacles will be hauled to an offsite waste disposal facility.

- **Speed Limit.** Project-related vehicles will observe a 15-mile-per-hour speed limit in all project areas, except on county roads and state highways.

- **Avoidance of Entrapment.** To prevent inadvertent entrapment of San Joaquin kit fox or other animals during construction, all excavated, steep-walled holes or trenches more than 6 inches deep will be covered at the end of each working day using plywood or similar materials, or one or more escape ramps will be constructed using earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If, at any time, a trapped San Joaquin kit fox is discovered, USFWS and CDFG will be contacted.

- **Capping/Inspection of Pipes.** Because San Joaquin kit fox are attracted to den-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures greater than 4 inches in diameter that are stored at a construction site overnight will be either securely capped before storage or will be thoroughly inspected for San Joaquin kit fox before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, then that section of pipe will not be moved. The USFWS- and CDFG-approved biologist will immediately contact USFWS and CDFG to determine the appropriate course of action, which may include moving the pipe under the direct supervision of a biologist to remove it from the construction area and allow the fox to escape.

2.5 Offsite Compensation

Mariposa Energy has identified the proposed Mountain House Mitigation Bank for their Project mitigation needs. The 144-acre property is located immediately west of the MEP parcel, with Bruns Road as its eastern border. The property supports suitable habitat for San Joaquin kit fox, California red-legged frog, California tiger salamander, and vernal pool fairy shrimp (Fletcher, 2010; CNDDB, 2010). Other special-status species that are known to exist at the bank site are Swainson's hawk (*Buteo swainsoni*) and burrowing owl (*Athene cunicularia*). Based on discussions with USFWS and CDFG, the property is not expected to be approved as a mitigation bank prior to construction activities beginning for MEP. Because of the close proximity of the proposed Mountain House Mitigation Bank to the MEP site, similar habitat quality, and the lack of agency-approved mitigation banks covering the necessary species for the MEP location, Mariposa Energy proposes to mitigate project impacts at this future bank, despite the potential timing gap between project construction activities and mitigation bank approval. Mariposa Energy proposes to purchase combined species credits from Mountain House Mitigation Bank within a period not to exceed 18 months following commencement of construction, and will provide financial assurance through a letter of credit to CDFG prior to beginning construction (or by other means if required by CDFG, USFWS, or CEC). The funding level of the financial assurance will be based on the higher of either the expected costs to fully mitigate the total project impacts at the Mountain House Mitigation Bank, or the alternate mitigation strategy as discussed below.

The proposed Mountain House Mitigation Bank is owned by Fletcher Conservation Properties, an experienced mitigation bank owner and operator. To date, no concerns have been raised about the likelihood of agency approval of the bank; however, Mariposa Energy is continuing to evaluate alternate mitigation options and will be prepared to act on them to ensure a mitigation agreement will be fully implemented within the time frame discussed above. Mariposa Energy is evaluating local opportunities to obtain a suitable non-bank property through purchase or easement to accomplish mitigation goals for the project. This would require Mariposa Energy to develop a conservation management plan and establish an endowment for ongoing management of the property in perpetuity. Opportunities may exist on the Mountain House Mitigation Bank parcel, should the proposed bank development process not proceed for an unforeseen reason. Additionally, Mariposa Energy is tracking other potentially suitable mitigation properties in northeastern Alameda County.

The financial assurance required prior to project construction will be at a sufficient level to cover the purchase of credits at the proposed Mountain House Mitigation Bank or an alternate strategy, including land acquisition, development of a management plan, endowment, and potential enhancement of a private mitigation parcel. Mariposa Energy will coordinate with USFWS, CDFG, and CEC to further discuss these options and to determine appropriate financial assurance levels to conservatively cover non-bank mitigation options. Bank credits or land acquisition/easement will occur within 18 months of the start of project construction.

Table 4 below summarizes the offsite compensation totals for the project, based on requirements defined by both USFWS and CDFG. Further clarification of offsite compensation for listed species is clarified further below.

TABLE 4
Compensation Ratios and Offsite Compensation Acres
Mariposa Energy Project

Species	Ratio	Short-term Temp. Affects [Comp. Acre]	Long-term Temp. Affects [Comp. Acre]	Permanent Affects [Comp. Acre]	Offsite Acreage Total
Listed Branchiopods	3:1	None	None	0.018 [0.054]	0.054
San Joaquin kit fox	3:1	NA	12.1 [36.3]	10.1 [30.3]	79.9
San Joaquin kit fox	1.1:1	12.1 [13.3]	NA	NA	
California tiger salamander	3:1	NA	12.1 [36.3]	10.1 [30.3]	79.9
California tiger salamander	1.1:1	12.1 [13.3]	NA	NA	
California red-legged frog	3:1	NA	12.1 [36.3]	10.1 [30.3]	79.9
California red-legged frog	1.1:1	12.1 [13.3]	NA	NA	

2.5.1 Vernal Pool Fairy Shrimp and Longhorn Fairy Shrimp

Permanent loss of listed Branchiopod habitat at SWL-1 will be compensated offsite at a ratio of **3:1** (habitat preservation). Therefore, 0.054 acres of vernal pool fairy shrimp habitat will be preserved and protected in perpetuity at the Mountain House Mitigation Bank. An alternate mitigation bank for listed Branchiopods is the Fitzgerald Ranch Conservation Bank, which is USFWS-approved and located in San Joaquin county. Although the Project is not within the bank's vernal pool service area, there are no other known mitigation banks in the Livermore Vernal Pool Region where the Project affect occurs. The Fitzgerald Ranch bank service area ends at the San Joaquin – Alameda county line, located less than 3 miles east of the Project. Ms. Kim Squires of the USFWS confirmed during a meeting held at CH2M HILL on August 12, 2010 that Mariposa Energy is approved to use Fitzgerald Ranch Conservation Bank for fairy shrimp mitigation if necessary.

2.5.2 California Red-legged Frog, California Tiger Salamander, and San Joaquin Kit Fox

Mariposa Energy will purchase combined species mitigation credits at the Mountain House Mitigation Bank to offset temporary and permanent loss of California red-legged frog, California tiger salamander, and San Joaquin kit fox upland grassland habitat. Short-term temporary habitat loss will be compensated at 1.1:1 (offsite); long-term temporary will be compensated as though it were a permanent effect at 3:1 (offsite); and permanent habitat loss will be compensated at a 3:1 ratio (offsite).

- The 12.1 acres of frog and salamander dispersal and upland refugia and kit fox upland habitat temporarily lost during construction of the natural gas line (1 acre), transmission line (8.5 acres), and water supply line (2.6 acres) will be restored to pre-project conditions within a single construction season. At a **1.1:1 ratio**, an additional 13.3 acres of compensation will occur offsite at the Mountain House Mitigation Bank or other suitable offsite location determined in coordination with USFWS and CDFG.
- The 12.1 acres of frog and salamander dispersal and upland refugia and kit fox upland habitat temporarily lost due to long-term temporal habitat loss (greater than 1 year) at the MEP temporary laydown area (9.2 acres), and MEP cut and fill area and temporary access areas adjacent to the northern portion of the MEP site (2.9 acres) will be compensated at a **3:1 ratio**. Thus, preservation of 36.3 acres of suitable upland habitat will occur at the Mountain House Mitigation Bank or other suitable offsite location determined in coordination with USFWS and CDFG.
- Permanent loss of 10.1 acres of frog and salamander dispersal and upland refugia and kit fox upland habitat during construction and operation of the MEP site and new transmission line will be compensated at a **3:1 ratio**. Thus, 30.3 acres of California red-legged frog, California tiger salamander, and San Joaquin kit fox suitable upland habitat will be preserved at the Mountain House Mitigation Bank or other suitable offsite location determined in coordination with USFWS and CDFG, for a grand total of 79.9 acres offsite.

2.6 Post Construction Restoration

Mariposa Energy will restore all of the project's temporary impact areas back to annual grassland habitat during project completion. Following use of the laydown area, the work area will be restored by ripping to reduce compaction, replacement of topsoil, and reseeding. Likewise, the temporary construction access area and cut and fill slopes will be reseeded.

Previously, Mariposa Energy proposed to implement a 3-year monitoring program to track the success of post-construction restoration of the project's long-term temporary construction areas as agreed upon by USFWS as partial compensation for the long-term temporary habitat loss. However, in light of CDFG's determination that these affects are considered a permanent habitat loss and should be mitigated as such, the post-construction monitoring program is no longer appropriate for this project because Mariposa Energy will fully compensate the loss offsite at a 3:1 ratio.

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California Red-legged Frog and California Tiger Salamander Capture and Relocation Plan for the Mariposa Energy Project (MEP)

PREPARED FOR: Mariposa Energy LLC

PREPARED BY: CH2M HILL

DATE: October 19, 2010

Project construction is anticipated to impact two breeding cycles involving both wet and dry seasons for California tiger salamander and California red-legged frog. Occurrences that may be encountered during Project construction are anticipated in upland areas only when animals are either aestivating (for example, during dry season) or on the move (for example, during the wet season). The Project will not impact known and potential breeding habitat for these species. California tiger salamander and California red-legged frog encountered during project construction will be treated on a case-by-case basis in coordination with the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). In general, the following will occur under the direction of the USFWS- and CDFG-approved MEP construction biological monitor:

1. Leave the non injured animal if it is not in danger;
2. Move the animal to a nearby location if it is in danger; or
3. Take the animal into custody for educational outreach and/or scientific research if the first two options are unavailable.

These three options are further described below.

1. Leave the non injured animal if it is not in danger

When a California red-legged frog or California tiger salamander is encountered in the work area the first priority will be to stop all activities in the surrounding area that have the potential to result in take of the individual. The biological monitor will then assess the situation in order to select an appropriate course of action that will minimize the effects to the individual. Once the site is secure, Mariposa Energy will contact the USFWS at (916) 414-6600 for further direction. If a California tiger salamander is encountered, Mariposa Energy will also contact the CDFG at (707) 944-5500.

The first priority will be to avoid contact with the frog or salamander and allow it to move out of the work area and danger on its own to a safe location. The animal will not be picked up and moved. This guidance only applies to situations where a frog or salamander is encountered on the move during conditions that make their upland travel feasible (which is usually during the wet season). This does not apply to frogs or salamanders that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the animal should they move outside the construction footprint.

Avoidance is the preferred option if the frog or salamander is not moving and is using aquatic habitat or is within some sort of burrow or other refugia. The area should already be well marked for avoidance and a USFWS- and CDFG-approved biological monitor should be assigned to the area when work is taking place nearby.

2. Move the animal to a nearby location if it is in danger

The above option will not always be feasible and sometimes capturing and moving (salvaging) the animal is the only option to prevent its death or injury. Two proposed release locations have been identified for California red-legged frog and California tiger salamander, as shown on Figure 1. All releases will be coordinated with the USFWS and/or CDFG. In most situations and regardless of season, the release site will be into the mouth of a small mammal burrow or other suitable refugia which provides immediate cover from potential predation. Releases will occur in the immediate vicinity of aquatic habitat. No animal will be relocated to another property without the owner's written permission, arranged for by Mariposa Energy.

The preferred release location is owned by CDFG, called the Byron Conservation Bank. The CDFG property supports known breeding populations of both frog and salamander. A series of breeding pools occurring along an intermittent drainage would be suitable release sites for California red-legged frog. A salamander breeding pond recorded in the California Natural Diversity Database (CNDDB) and the surrounding small mammal burrows located near the southeast corner of the property would be a suitable release site for California tiger salamander. Access to the Bank property would be closely coordinated with CDFG each time a frog or salamander is released.

An alternate release location for frog and salamander would be the proposed Mountain House Mitigation Bank property (Figure 1). The property is privately owned by Mr. Robert Fletcher, who is currently developing it as a special-status species mitigation bank. Potentially suitable frog aquatic breeding and aquatic non-breeding habitat occurs onsite along an intermittent drainage (Figure 1). This drainage would be the release site for the frog. The property is known to support breeding habitat of California tiger salamander, as recorded in the CNDDB (see Figure 1, southern pond). The two onsite stock ponds, including the surround burrow refugia, would be the release sites for salamander. Access to the property would be closely coordinated with Mr. Fletcher, or his appointee, each time a frog or salamander is released.

The following summarizes handling and transport procedures that will be implemented:

1. All field decisions concerning salvage activities by the approved biologist will be in coordination with the USFWS (California tiger salamander and California red-legged frog) and CDFG (California tiger salamander).
2. Any California red-legged frog or California tiger salamander individuals requiring transport will be released to equivalent habitat (within the property locations described above) as initially observed.
3. Individual species observed migrating or dispersing on the surface, or aestivating within a burrow in upland habitat, will be released at the mouth of a ground squirrel burrow opening. The approved biologist will not vacate the release site until it is

clear that the individual has entered the burrow. No more than one individual will be released into a single burrow repository, and the locations of such burrows will be marked on a map using GPS so that it will not be used for any future releases. In the unlikely event that the numbers of salvaged individuals exceed the identified individual sites designated for release, coordination with the USFWS and CDFG to determine the feasibility of releasing individuals to the same repository will occur.

4. Individuals will not be moved distances longer than their appropriate dispersal range from suspected breeding habitats to avoid transferring disease or pathogens between aquatic habitats.
5. Entrapment time will be minimized to the extent practicable.
6. Nets or bare hands will be used.
7. The biologist will not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within two hours before and during periods when they are capturing and relocating California red-legged frog or California tiger salamander.
8. Biologists will avoid reaching for amphibians by the tail, head or limbs.
9. Containers used for holding or transporting adults will not contain any standing water. Captured adult amphibians will be kept moist, cool, and aerated environment, such as a bucket containing a damp sponge, and minimize periods of direct sun exposure.
10. Individual animals will not be placed in positions/containers where they may physically contact other individuals.
11. If available, vegetation clippings from the exact capture location will be placed in the container to help shade and calm the individual during transport. The vegetation will be discarded with any other plant materials, as specified in the following summary for disinfection.

Several amphibian diseases may be involved in amphibian declines and may be spread by relocating animals. Therefore, due to concerns regarding genetic and health issues and adverse effects to other California red-legged frog and California tiger salamanders, the long distance relocation of frogs and salamanders on this project (i.e., out of the watershed) will not occur.

Only USFWS- and CDFG-approved biologists for the project will attempt to salvage California red-legged frog and California tiger salamanders. To avoid transferring disease or pathogens between sites during the course of handling the animals, the biologists will use the following guidance for disinfecting equipment and clothing. These recommendations are adapted from the Declining Amphibian Population Task Force's Code which can be found in their entirety at: http://www.open.ac.uk/daptf/

- All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, will be removed from containers, boots, vehicle tires and all other surfaces that have come into contact with water at the relocation site. Cleaned items will be rinsed with clean water before leaving the relocation site.
- Boots, containers , etc., will then be scrubbed with either a 70% ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6% sodium hypochlorite 3 solution and rinsed clean with water. Cleaning equipment in the immediate vicinity of a

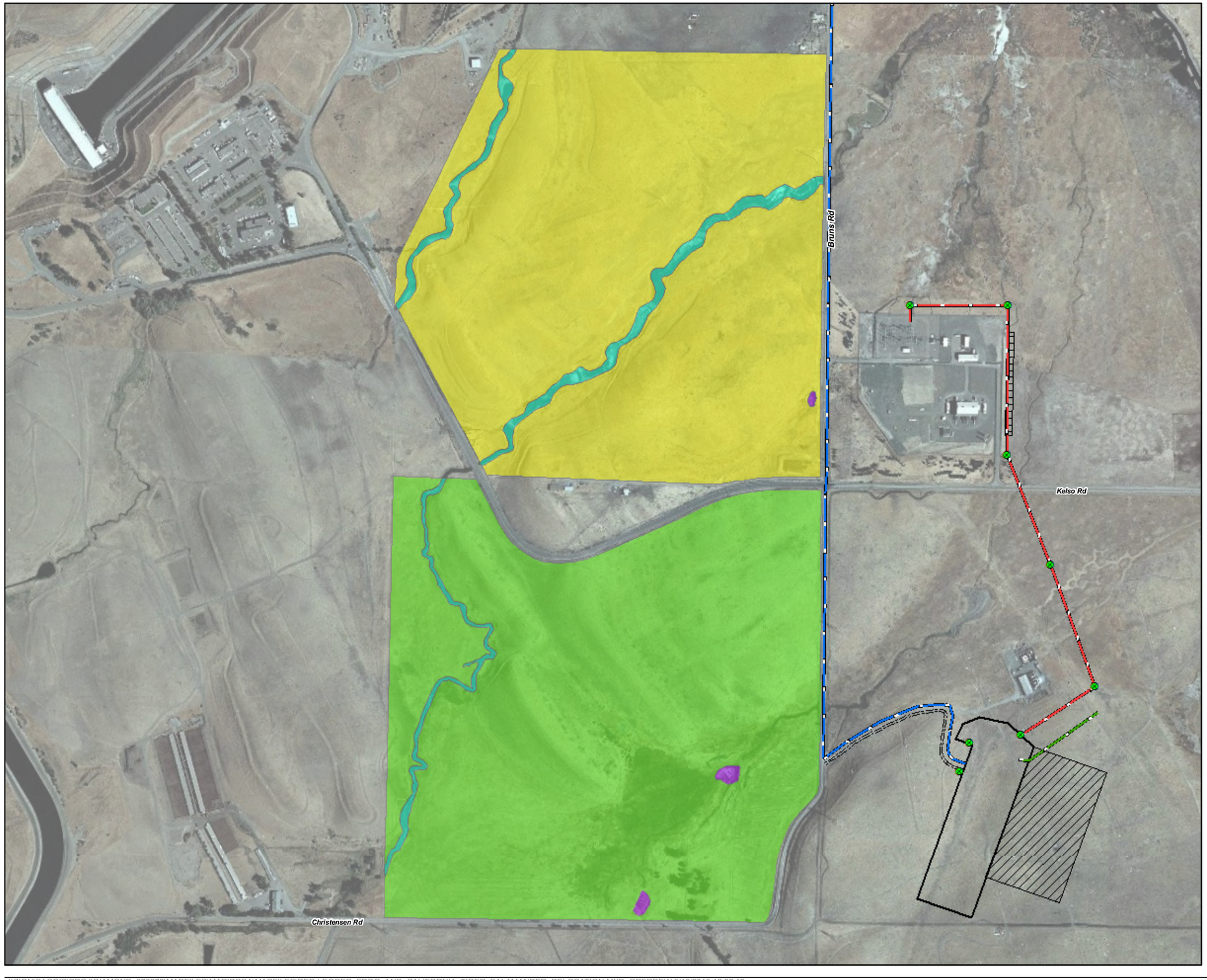
pond or wetland will be avoided. All traces of the disinfectant will be removed before re-entering the relocation site.

- Used cleaning materials (liquids, etc.) will be disposed of safely, and if necessary, taken back to a lab for proper disposal.
- USFWS- and CDFG-approved biologists will limit the duration of handling and captivity. While in captivity, individual frog or salamanders will be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge or cloth. Containers used for holding or transporting will not contain any standing water and will be disinfected before reuse.

3. **Take the animal into custody for educational outreach and/or scientific research if the first two options are unavailable.**

If frogs or salamanders cannot be moved either because of injury or death, the individuals will be used for outreach and/or research. Delivery of individuals to the recipient will be coordinated with the USFWS and CDFG. Unless otherwise directed, frogs and salamanders will be delivered to the Brad Shaffer Lab at the University of California at Davis. Brad and the lab staff can be reached at (530) 752-2939 and hbshaffer@ucdavis.edu.

Insert Figure 1 here.



LEGEND

- POWER POLE LOCATION
- ACCESS ROAD
- NATURAL GAS PIPELINE ROUTE
- TRANSMISSION LINE ROUTE
- WATER SUPPLY PIPELINE ROUTE
- CONSTRUCTION LAYDOWN/PARKING AREA
- TRANSMISSION LINE LAYDOWN AREA
- PROJECT SITE

Frog and Salamander Relocation Sites

- California Department of Fish and Game Byron Mitigation Bank
- California Red-legged Frog Breeding and Aquatic Non-breeding Habitat
- California Tiger Salamander Breeding Habitat
- Proposed Mountain House Mitigation Bank

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 500 1,000
Feet

FIGURE 1
PROPOSED CAIFORNIA RED-LEGGED FROG AND CALIFORNIA TIGER SALAMANDER RELOCATION SITES

MARIPOSA ENERGY PROJECT
ALAMEDA COUNTY, CALIFORNIA