Supplement to the Phase 1 BRMIMP for Phase 2 Construction of the Los Esteros Critical Energy Facility

PREPARED FOR: Jack Caswell/California Energy Commission

PREPARED BY: Todd Ellwood/CH2M HILL

COPIES: Barbara McBride/Calpine
Allison Bryan/Calpine
Rosemary Silva/Calpine
Sarah Madams/CH2M HILL

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Introduction and Overview of Project

Los Esteros Critical Energy Facility, LLC (the Applicant) obtained a license from the California Energy Commission (CEC) for continued operation of Phase 1 of the Los Esteros Critical Energy Facility (LECEF or the project) located in San Jose, Santa Clara County, California. Phase 1 is a nominal 180 megawatt (MW) natural-gas-fired peaking power plant consisting of four simple-cycle combustion turbine generators and associated equipment. The license also authorizes conversion of the peaker power plant to combined-cycle operation. The combined-cycle conversion will involve the addition of four heat recovery steam generators (HRSG), one steam-turbine generator (STG), a six-cell, plume-abated cooling tower, and ancillary equipment to the LECEF for a total combined nominal generating capacity of 320 MW.

The Applicant originally applied for a CEC license for Phase 1 of the LECEF in August 2001, under the expedited licensing provision promulgated under California Public Resources Code (PRC) §25552. The CEC granted the Phase 1 license in July 2002, and the LECEF was constructed and became operational in March 2003. The purpose of the Phase 2 CEC Application for Certification (AFC) was to meet the requirement of PRC §25552 by recertifying (relicensing) Phase 1 and certifying Phase 2 conversion to combined-cycle, which will allow the project to achieve much higher efficiency in generating power.

As licensed and constructed, the 21-acre LECEF Phase 1 site currently consists of the following features:

- Four GE LM6000 SPRINT combustion turbine generators (CTG) with water injection
- Oxidation catalysts and selective catalytic reduction (SCR) pollution control equipment, installed within four HRSG casings and stacks (these casings were installed during Phase 1 in anticipation of Phase 2)
- A 115-kilovolt (kV) switchyard

- A 150-foot-long, wood pole transmission line to Pacific Gas and Electric Company's (PG&E) 115-kV Los Esteros-Nortech transmission line, immediately to the west of the LECEF switchyard
- A 2,700-foot-long primary access road, named Thomas Foon Chew Way, linking LECEF with Zanker Road
- A 470-foot-long emergency access road, linking Thomas Foon Chew Way and Alviso-Milpitas Road
- A 55-foot-long, 10-inch-diameter natural gas supply line between the facility and PG&E lines 101 and 109
- Two 1,500-foot-long recycled water supply lines between the facility and the City of San Jose (the City) Waste Pollution Control Plant's (WPCP) recycled water supply pipeline in Zanker Road
- A 2,000-foot-long sanitary sewer discharge line to the City's sewer main in Zanker Road
- A 1,000-foot-long stormwater line between the LECEF and the Coyote Creek flood control channel to the east. Installation of a permanent stormwater outfall, which extended the Phase 1 temporary outfall 250 feet to the low flow channel was completed in accordance with CEC licensing requirements (Phase 1) and other permit conditions (including permits from U.S. Army Corps of Engineers [USACE], Regional Water Quality Control Board [RWQCB], and California Department of Fish and Game [CDFG]) in October 2008.
- A 370-horsepower diesel fire pump

Phase 2 of the project will add the following major equipment to the Phase 1 facility:

- HRSGs tube sections and associated steam drums and piping, to be installed within and around the existing HRSG casings
- HRSG duct burners
- A six-cell, plume-abated cooling tower
- A nominal 140 MW STG
- Circulating water pumps and boiler feedwater pumps
- A deaerating surface condenser
- A second ammonia storage tank to be installed in the existing secondary containment basin
- A 230-kV transmission connection to the planned adjacent Silicon Valley Power (SVP) 230-kV Switching Station through two 115:230-kV transformers

The Applicant owns the 34-acre project parcel on which the LECEF Phase 1/Phase 2 facilities and temporary construction parking and laydown area are situated. All Phase 2 infrastructure (including HRSGs, STGs, cooling towers, storage tanks, various pumps, and 230-kV connection) will be sited entirely within the existing fenced Phase 1 site. The 13-acre

temporary construction parking and laydown area required during Phase 2 construction is located immediately south of LECEF and north of Alviso-Milpitas Road. The parking and laydown area was also used for parking and laydown during Phase 1 construction. On November 3, 2010, CH2MHILL conducted a reconnaissance of the temporary work area and noted that the site had gone fallow by ruderal grassland species with evidence of routine disking.

A Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) for the LECEF (Phase 1) was prepared in May 2002 as required under the conditions of the original CEC license for Phase 1. The purpose of the BRMIMP was to ensure that actions authorized, funded, or carried out by state or federal lead agencies were not likely to jeopardize the continued existence of endangered, threatened or other special-status species. The BRMIMP described mitigation measures and guidance for implementation to protect biological resources within the Phase 1 project area. No waters of the United States (including wetlands) were impacted during Phase 1 construction and because of the lack of suitable habitat onsite, no state or federal Incidental Take Permits were required by the CDFG and U.S. Fish and Wildlife Service (USFWS), respectively.

The resources afforded protection by the Phase 1 BRMIMP included ordinance trees and potential nesting and foraging habitat for avian species on the Phase 1 plant site, and avian species foraging habitats along the project's linear facilities (gas pipeline, transmission line, recycled water pipeline, and stormwater outfall). Sensitive habitat such as the Coyote Creek riparian corridor is located approximately 700 to 1000 feet to the east, while burrowing owl habitat was found during Phase 1 construction in the WPCP buffer lands to the west of the facility in the vicinity of Thomas Foon Chew Way.

Serpentine bunchgrass ecosystems are as close as approximately 6 miles to the south of LECEF. Fertilization of the nitrogen-deficient serpentine habitats could occur as a result of LECEF emissions and thus may have an adverse effect on host plants for the Bay Checkerspot butterfly (*Euphydryas editha bayensis*), a federally threatened species. In accordance with the CEC Condition of Certification (BIO-16) for Phase 1, the Applicant purchased 40 acres of critical serpentine bunchgrass ecosystem habitat in the Coyote Ridge area, has dedicated the land to the Land Trust for Santa Clara County, and has established an endowment fund to manage the donated land in perpetuity. Although Phase 2 operation would cause an increase in nitrogen deposition of approximately 15 percent over existing levels, the same conclusion that was made for Phase 1 would apply for Phase 2: "the project may have minor effects on the soils that support the host plants for these butterflies, but the cause-and-effect to show an indirect impact was occurring would be difficult to prove for several reasons (Staff Assessment, page 4.2-20)." Therefore, the mitigation lands purchased on Coyote Ridge are adequate to also offset potential nitrogen deposition impacts occurring during Phase 2 operation.

Sensitive resources that may be encountered during Phase 2 construction are limited to potential habitat for ground-nesting birds including, but not limited to, burrowing owl. The 13-acre temporary parking and laydown area is the only construction area supporting potential habitat; however routine disking that may be occurring there significantly reduces its suitability as nesting habitat. No waters of the United States (including wetlands) are known in the Phase 2 project area; the permanent stormwater outfall constructed in Coyote

Creek was completed under the Phase 1 license in October 2008. With the exception of the temporary parking and laydown area, all Phase 2 construction will take place within the existing facility footprint. As a result many of the measures and conditions included in the original BRMIMP are not applicable to the proposed amendment (Phase 2). Table 1 describes the Phase 2 conditions of certification and indicates which conditions are substantively different from those for Phase 1.

The purpose of this technical memorandum is to review the existing BRMIMP, identify potential sensitive biological resources that may occur in the proposed project area, describe the current applicability of elements of the original BRMIMP in light of the new Phase 2 license and its conditions of certification, and discuss the mitigation measures that will be implemented to avoid and minimize impacts to sensitive biological resources during Phase 2 construction and operation. Any deficiencies in the original BRMIMP are resolved in this amendment document to comply with the new conditions of certification.

Project Location

The LECEF is located in Township 6S, Range 1W (the U.S. Geological Survey Milpitas 7.5-minute quadrangle) in San Jose, Santa Clara County, California located at 800 Thomas Foon Chew Way. The facility (Phase 1 and Phase 2) is located within a 34-acre project site that includes a vacant 13-acre parcel to the south of the project site that will be used for temporary laydown and worker parking during the construction of Phase 2.

The project parcel is immediately north of State Route 237 and east of Zanker Road. To the east is an active agricultural field, Coyote Creek further east, and the city of Milpitas. Immediately to the north of the parcel is a parcel owned by Silicon Valley Power (SVP) for a planned 230-kV switching station. North of the SVP parcel is the existing PG&E Los Esteros Substation. West and further north of the project site are open and undeveloped buffer lands surrounding the San Jose/Santa Clara WPCP. The WPCP is northwest of LECEF. Further north are the WPCP sludge drying ponds and yards.

The project site is accessed via a permanent 2,700-foot-long, 2-lane road (Thomas Foon Chew Way) constructed to city standards. The Thomas Foon Chew Way will provide primary access for Phase 2 from Zanker Road during operations. During construction, the site will be accessed by craft workers via a new road on the southern portion of the project that connects to Ranch Road. Emergency access is provided by the roadway constructed between Thomas Foon Chew Way and Alviso-Milpitas Road. Most of the LECEF site is paved or covered with gravel to provide internal access to all onsite equipment and buildings.

Designated Biologist

The designated biologist is responsible for implementing the BRMIMP and providing direct assistance to the Applicant in avoiding impacts to natural resources. The designated biologist for the LECEF Phase 2 is:

Todd Ellwood
155 Grand Avenue
Suite 800
Oakland, California 94612
408-839-2402

Qualifications:

Degree: Bachelor of Science in Renewable Natural Resources
Field biology experience: 12 years
Field experience in project area: 10 years
Education and experience for required tasks: see attached resume

Sensitive Biological Resources within the Project Implementation Area

A full review of special-status species potentially occurring in the project area and vicinity was identified in the AFC for continued Phase 1 operation and Phase 2 conversion to combined-cycle (Tetra Tech, 2003) by reviewing database records from USFWS, CDFG, California Native Plant Society, and from field surveys conducted during the impact analyses for the project. Because the Phase 2 project area is currently developed and/or heavily disturbed (for example, the parking and laydown area) no special-status plant species were considered potentially present in the project area. Special-status animal species are similarly not expected to occur because of the lack of suitable habitat with the exception of ground-nesting birds such as the burrowing owl.

Burrowing owl and other nesting birds are protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Codes and require special consideration when construction activities could cause nest abandonment. Additionally, these laws and regulations prohibit the destruction of the nest or eggs of any bird species. Common species such as killdeer often nest in open gravel areas such as those found in the project area.

Conditions of Certification for LECEF Phase 2 from Final Commission Decision

The conditions presented in Table 1 (provided at the end of this supplement) were issued to the LECEF during Phase 2 CEC licensing in the October 2006 Final Commission Decision to ensure project impacts to biological resources would not jeopardize the continued existence of endangered, threatened or other special-status species. The Phase 1 BRMIMP satisfies most but not all of these conditions. Compliance with BIO-10, -19, -20, -21, and -22 was not addressed in the Phase 1 BRMIMP and is summarized in Table 1 of this supplement. Table 1 also discusses the applicability and status of compliance with all the Phase 2 conditions.

Mitigation Implementation Measures

The original BRMIMP for the LECEF identified mitigation measures to avoid, minimize, and compensate for potential effects to sensitive biological resources and the habitats that support threatened or endangered species. These measures were developed through informal and formal consultations with USACE, CDFG, RWQCB, and CEC. In addition to the conditions listed in the COCs in Table 1, the following mitigation measures from the original BRMIMP will also be incorporated for LECEF Phase 2 construction.

Construction Restrictions

- No ground disturbance will begin in any LECEF construction area until the Designated Biologist or Biological Monitor has cleared the area for special-status species.
- A Designated Biologist will be provided to monitor all activities that may result in incidental take of listed species or their habitat.

- All construction workers will be given Worker Environmental Awareness Program (WEAP) training prior to commencing any construction-related work.
- All vegetation that requires removal will be removed outside the nesting season or after being cleared by the Biological Monitor. The nesting season is generally from February 1 through August 31. Vegetation clearing should occur from September through January.
- Pre-construction surveys and possible relocation of burrowing owls will be conducted following standard CDFG guidelines. These surveys will be conducted prior to any ground-disturbing activities on the site.
- Construction zone limits at the 13-acre laydown area will be marked and approved by the Designated Biologist or Biological Monitor prior to construction.
- Construction personnel will use the protection measures described in the project's Stormwater Pollution Prevention Plan (SWPPP) and those listed in the Phase 2 COCs (see Table 1).
- Any areas not previously surveyed for impacts to biological resources will not be disturbed until the Designated Biologist determines that the disturbance will not cause significant impacts to biological resources. The Designated Biologist will obtain concurrence from the CEC (and other agencies, if required) of the project changes and will document approvals in writing through the Plan Modification Process.
- Site transmission line poles, access roads, pulling sites, and storage and parking areas will avoid sensitive resources whenever possible.
- All wetlands will be avoided.
- Terms and conditions of a current CDFG Streambed Alteration Agreement will be implemented (if required).
- Construction area boundaries will be clearly marked with stakes, flagging, and/or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during facility construction/modernization. All equipment storage will be restricted to designated construction zones or areas that are currently not considered sensitive species habitat. Parking will not be allowed below the canopy of trees.
- Fencing and wildlife escape ramps will be provided for construction areas that contain steep-walled holes or trenches outside of the facility fence. Fence will be hardware cloth or similar materials that are approved for use by the USFWS and CDFG.
- Trenches outside of the facility fence will be inspected every 12 hours for entrapped animals and prior to the beginning of construction in an area that has been unattended for over 3 hours during the night. Inspections will be made by someone specially trained by the Designated Biologist in the proper handling of wildlife. Construction will be allowed to begin only after trapped animals are able to escape voluntarily or in a safe and humane manner.

- All construction pipes, culverts, or similar structures with diameter of 4-inches or greater outside the facility fence will be inspected for sensitive species (such as foxes) prior to pipe burial. Pipes to be left in trenches for more than 8 hours will be capped.
- A post-construction compliance report will be provided to the CEC CPM within 45 calendar days of completion of the project.
- All food related trash will be disposed of in closed containers and removed at least once a week. Feeding of wildlife shall be prohibited.
- All inadvertent deaths of sensitive species will be reported to the appropriate project representative. Injured animals will be reported to CDFG, and the project owner will follow instructions that are provided by CDFG.
- The use of biocides will be limited in project areas (see BIO-17 in Table 1 for more detail).
- Erosion control measures will be implemented in temporary impact areas, especially near wetlands and waterways.
- Any fixed lighting used during construction activities will be designed to be directed downward and away from riparian areas.
- The management plan for the burrowing owl mitigation area will be followed (see BIO-19 in Table 1 for more detail).

Burrowing Owl at the LECEF Site

The western burrowing owl may occasionally occupy burrows on or near the project area. Burrowing owl habitat in the Bay Area is rapidly disappearing and efforts must be made to preserve the remaining habitat. The following measures would further minimize the potential impacts to burrowing owls:

- Pre-construction surveys of Phase 2 areas will be conducted over the entire site 20 days or less prior to disturbance and once again within 48 hours of disturbance to determine whether any ground squirrel burrows are occupied by burrowing owls.
- The Designated Biologist or Biological Monitor will monitor potentially active burrows at least weekly when construction occurs during the breeding season for presence of burrowing owls. Any sightings of owls will be documented and reported to CDFG and CEC.
- Mitigation measures will be implemented that protect burrowing owls by passive relocation and/or restriction of construction activities within 160 feet of active burrowing owl nest sites during the non-breeding season or 250 feet during the breeding season (February 1 through August 31).

Erosion Control and Revegetation of Disturbed Areas

Disturbed soil areas will be restored to pre-construction conditions including contours and ground cover with native and non-native species for erosion control (see the SWPPP for more information). Prior to use of the 13-acre laydown area, topsoil will be salvaged from

the site and stockpiled at one end of the site. After construction, the laydown area will be stripped of any armoring material, the surface scarified, and topsoil restored. Barley seed will be sowed as a temporary cover crop, but native and non-native seeds from the topsoil will be allowed to sprout and grow (BIO-14).

References

Tetra Tech. 2003. *Application for Certification for the Los Esteros Critical Energy Facility*. Submitted to the California Energy Commission on December 30, 2003.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-1 (Designated Biologist)	Site and related facilities (including any access roads, transmission lines, water and gas lines, storage areas, staging areas, pulling sites, substations, wells, etc) mobilization activities for the combined-cycle facility shall not begin until a CEC CPM-approved Designated Biologist or approved Biological Monitor(s) are available to be onsite. Protocol: The Designated Biologist must meet the following minimum qualifications: 1. Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field; 2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; 3. At least one year of field experience with biological resources found in or near the project area; and 4. An ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation. If the CPM determines the proposed Designated Biologist to be unacceptable, the project owner shall submit another individual's name and qualifications for consideration. If the approved Designated Biologist needs to be replaced, the project owner shall obtain approval of a new Designated Biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement. No habitat disturbance will be allowed in any designated sensitive areas until the CPM approves a new Designated Biologist and the new Designated Biologist or approved Biological Monitor(s) is onsite. **Verification:** At least 35 days prior to the start of any site and related facilities mobilization activities for the combined-cycle facility, the project owner shall submit to the CPM for approval the name, qualifications, address, and telephone number of the individual selected by the project owner as the Designated Biologist. If a Designated Biologist is replaced, the information on the proposed replacement as specified in the Condition must be submitted in writing at least 10 working days prior to the termination or release of the preceding Designated Biologist.	No	The Designated Biologist for Phase 2 activities will be CH2M HILL biologist Todd Ellwood. Mr. Ellwood's qualifications are provided in Attachment 1. Mr. Ellwood was the CEC-approved biological monitor during Phase 1 construction and is currently a CEC-approved Designated Biologist for another power plant project.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-2 (Designated Biologist Duties)	The CPM-approved Designated Biologist shall perform the following during any site and related facilities mobilization, construction, and operation activities for the combined-cycle facility: 1. Advise the project owner's Construction/Operation Manager, supervising construction and operations engineer on the implementation of the biological resources Conditions of Certification; 2. Supervise or conduct mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special status species; 3. Notify the project owner and the CPM of any non-compliance with any biological resources Condition of Certification; and, 4. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, WEAP training and all permits. The Designated Biologist may be assisted by the approved Biological Monitor(s), but remains the contact for the project owner and CPM. **Verification:** During site and related facilities mobilization and construction the Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM. During site and related facilities mobilization and construction for the combined-cycle facility, the Designated Biologist shall submit reports when warranted along with the Monthly Compliance Reports to the CPM. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.	No	No supplemental comments.

TABLE 1
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	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-3 (Designated Biologist and Biological Monitor(s) Authority)	The project owner's Construction/Operation Manager for the combined-cycle facility shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the Biological Resources Conditions of Certification. **Protocol:** The project owner's Construction/Operation Manager shall halt, if necessary, all construction or operation activities in areas specifically identified by the Designated Biologist and Biological Monitor(s) as sensitive to assure that potential significant biological resource impacts are avoided. The Designated Biologist and Biological Monitor(s) shall: 1. Inform the project owner and the Construction/Operation Manager when to resume construction or operation, and 2. Advise the CEC CPM if any corrective actions are needed or have to be instituted. **Verification:** Within two working days of a Designated Biologist or Biological Monitor(s) notification of non-compliance with a Biological Resources Condition of Certification or a halt of construction or operation, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition. For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CPM within five working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.	No	The Biological Monitor(s) has been given additional authority in the Phase 2 COC. No sensitive natural habitats occur within the proposed project area due to the disturbed state of the project parcels. Sensitive resource areas under this amendment may include active burrowing owl nests within 500 feet of the project or ground-nesting bird species in grassland and open gravel areas.

TABLE 1
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	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-4 (WEAP)	The project owner shall develop and implement a CPM-approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project or related facilities during site mobilization, construction and operation of the combined-cycle facility, are informed about sensitive biological resources associated with the project. The training may be presented in the form of a videotape or digital video disk presentation so long as the Protocol is met. **Protocol:** The Worker Environmental Awareness Program must: 1. Be developed by or in consultation with the Designated Biologist and consist of an onsite or training center presentation in which supporting written material and electronic media is made available to all participants; 2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas; 3. Present the reasons for protecting these resources; 4. Present the meaning of various temporary and permanent habitat protection measures; and 5. Identify whom to contact if there are further comments and questions about the material discussed in the program. The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist. Each participant in the onsite Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement. **Verification:** At least 30 days prior to the start of any site and related facilities mobilization, the project owner shall provide two copies of the Worker Environmental Awareness Program and all supporting written materials and electronic media reviewed or prepared by the Designated Biologist and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed statements for the mobilization and construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six months after the start of commercial operation. During project operation, signed statements for active project operational personnel shall be kept on file for six months, following the termination of an individual's employment.	No	The Applicant will develop a revised WEAP specific to Phase 2, which will address fewer biological resource impacts than during Phase 1 construction. The revision will be in the form of a revised script, which will be submitted to the CEC for CPM approval.

TABLE 1
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	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-5 (Streambed Alteration Agreement)	Prior to start of any site or related facilities mobilization activities of the interior side of the levee, the project owner shall acquire a Streambed Alteration Agreement from the CDFG if required, or show CDFG correspondence that indicates no permit is required. The project owner will implement the agreement terms and conditions. **Protocol:** Provisions in the CDFG Streambed Alteration Agreement include (typical measures are): 1. Completion of all work in the streams when the work sites are dry; 2. Not removing or damaging woody perennial stream bank vegetation outside of the work area; 3. Not removing soil, vegetation, and vegetative debris from the streambed or stream banks; 4. Not exceeding the amount of fill placed within stream channels above that which naturally occurred in the stream channel prior to the start of work; 5. Not creating silty or turbid water when water returns to the stream, and not discharging silty water into the stream, nor creating turbid water within the stream; 6. Stabilizing slopes toward the stream to reduce erosion potential; 7. Locating equipment, material, fuel, lubricant and solvent staging and storage areas outside the stream, and using drip pans with motors, pumps, generators, compressors, and welders that are located within or adjacent to a stream; 8. Moving all vehicles away from the stream prior to refueling and lubricating; 9. Preventing any substance that could be hazardous to aquatic life from contaminating the soil and/or entering the waters of the area; 10. Cleaning up all spills immediately; and 11. Returning stream low flow channel, bed, or banks to as nearly as possible to their original configuration and width. **Verification:** At least 30 days prior to the start of any site or related facilities mobilization activities on the interior side of the levee the project owner shall submit to the CPM a copy of the final CDFG Streambed Alteration Agreement or applicable CDFG correspondence. Agreement terms and conditions will be incorporated into the BRMIMP.	No	During Phase 2 construction, no work will occur in or adjacent to the Coyote Creek levee including riparian corridor. Similarly, no project work will impact waters of the State (including wetlands). Therefore, BIO-5 is not applicable to Phase 2.

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BIO-6 (Section 401 Certification)	The project owner will acquire and implement the terms and conditions of the Regional Water Quality Control Board Section 401 State Clean Water Act certification, if required. **Verification:** No less than 30 days prior to the start of any site or related facilities mobilization activities on the interior side of the levee, the project owner will provide the CPM with a copy of the final Regional Water Quality Control Board certification. The terms and conditions of the certification will be incorporated into the project's BRMIMP.	No	As with BIO-5 above, no impacts will occur to Waters of the State (including wetlands) during Phase 2 construction therefore BIO-6 is not applicable to Phase 2.
BIO-7 (Section 404 Permit)	The project owner shall provide a final copy of the Section 404 permit, if required. The project owner will implement the terms and conditions contained in the permit. **Verification:** No less than 30 days prior to the start of any site and related facilities mobilization of the interior side of the levee, the project owner shall submit to the CPM a copy of the permit required to fill onsite wetlands. Permit terms and conditions will be incorporated into the BRMIMP	No	No impacts will occur to Waters of the U.S. (including wetlands) during Phase 2 construction; therefore BIO-7 is not applicable to Phase 2.
BIO-8 (BRMIMP)	The project owner shall submit to the CPM for review and approval a copy of the final BRMIMP and shall implement the measures identified in the plan. Any changes to the adopted BRMIMP must be made by the Energy Commission staff, in consultation with the USFWS and CDFG. **Protocol:** The final BRMIMP shall identify: 1. All biological resources mitigation, monitoring, and compliance measures recommended by the Applicant, as well as those contained in the BIO-Condition of Certification (and other mitigation requirements); 2. All provisions specified in a CDFG Streambed Alteration Agreement; 3. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation and closure; 4. All required mitigation measures for each sensitive biological resource; 5. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources; 6. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities; 7. All locations, on a map of suitable scale, of laydown areas and areas requiring temporary protection and avoidance during construction;	No	No biological resources mitigation measures were recommended by the project owner in the Phase 2 AFC due to absence of sensitive resources within the project area. Nevertheless, in addition to the measures listed in this table, some of the measures from the Phase 1 BRMIMP are thought to be reasonable and prudent for Phase 2. These are listed under Mitigation Implementation Measures in this document. Sensitive resources potentially occurring within and/or in the vicinity of the Phase 2 project area consist of ground-nesting birds including but not limited to burrowing owl. The Phase 1 BRMIMP addresses these potential impacts and the appropriate mitigating measures. Items #2 and #15 of this COC do not apply to Phase 2 because of the lack of those resource areas in

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Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-8 (BRMIMP), continued	8. Aerial photographs of all areas to be disturbed during project construction activities – one set prior to any site mobilization disturbance and one set after completion of mitigation measures. Include planned timing of aerial photography and a description of why times were chosen; 9. Duration for each type of monitoring and a description of monitoring methodologies and frequency; 10. Performance standards to be used to help decide if/when proposed mitigation is or is not successful; 11. All performance standards and remedial measures to be implemented if performance standards are not met; 12. A discussion of biological resources related facility closure measures; 13. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; 14. A detailed plan of the management of top soil (from onsite, laydown, and linear areas) during the construction phase; and, 15. All provisions from the USFWS Permit. **Verification:** At least 30 days prior to start of any site or related facility mobilization activities for the combined-cycle facility, the project owner shall provide the CPM with two copies of the draft final version of the BRMIMP for this project, and provide copies to the USFWS and CDFG. The CPM, in consultation with the USFWS and CDFG, will determine the plan's acceptability within 15 days of receipt. If some construction has been authorized by the CPM to start, and if there are any permits that had not yet been received when the BRMIMP was first submitted, then these permits shall be submitted to the CPM, the CDFG and USFWS within five (5) days of their receipt and the BRMIMP shall be revised or supplemented to reflect the permit condition within 10 days of their receipt by the project owner. The project owner shall notify the CPM no less than 5 working days before implementing any modifications to the BRMIMP to obtain CPM approval. Two copies of the CPM approved BRMIMP must be provided to the CPM and copies provided to the USFWS and CDFG. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which mitigation and monitoring plan items are still outstanding.		the Phase 2 project area. As required by Item # 7, the location of the Phase 2 13-acre laydown area is provided in Attachment 2. An aerial photograph of the area to be disturbed during project construction activities is included as Attachment 3 to this document. Section 6 of the Phase 1 BRMIMP addresses Items #9, #10, and #11 of this COC.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-9 (Closure Plan Measures)	The project owner will incorporate into the planned permanent or unexpected permanent closure plan measures that address the local biological resources. **Verification:** At least 12 months (or a mutually agreed upon time) prior to the commencement of closure activities construction, the project owner shall address all biological resources related issues associated with facility closure in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility Closure Plan and include a complete discussion of the local biological resources and proposed facility closure mitigation measures. The biological resources facility closure measures will also be incorporated into the BRMIMP.	No	No supplemental comments.
BIO-10 (Mitigation Measures)	The project owner will implement the mitigation measures identified below. **Protocol:** The project owner will: 1. Site transmission line poles, access roads, pulling sites, and storage and parking areas to avoid sensitive resources whenever possible; 2. Avoid all wetlands; 3. Design and construct transmission lines and poles to reduce the likelihood of electrocutions of large birds; 4. Implement the terms and conditions of a current CDFG Streambed Alteration Agreement (if required); 5. Implement a Worker Environmental Awareness Program; 6. Clearly mark construction area boundaries with stakes, flagging, and/or rope or cord to minimize inadvertent degradation or loss of adjacent habitat during facility construction/modernization. All equipment storage will be restricted to designated construction zones or areas that are currently not considered sensitive species habitat. Parking will not be allowed below the canopy of trees; 7. Provide a Designated Biologist to monitor all activities that may result in incidental take of listed species or their habitat; 8. Fence and provide wildlife escape ramps for construction areas that contain steep-walled holes or trenches outside of the facility fence. Fence will be hardware cloth or similar materials that are approved for use by the USFWS and CDFG;	Yes	The conditions listed here in BIO-10 override those found in Section 4 of the Phase 1 BRMIMP. Items #4, #17, and #18 do not apply to Phase 2 because of the lack of impacts to those jurisdictional areas.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-10 (Mitigation Measures), continued	9. Inspect trenches outside of the facility fence every 12 hours for entrapped animals and prior to the beginning of construction in an area that has been unattended for over 3 hours during the night. Inspections will be made by someone specially trained by the Designated Biologist in the proper handling of wildlife. Construction will be allowed to begin only after trapped animals are able to escape voluntarily or in a safe and humane manner; 10. Inspect all construction pipes, culverts, or similar structures with diameter of 4-inches or greater outside the facility fence for sensitive species (such as foxes) prior to pipe burial. Pipes to be left in trenches for more than eight 8 hours will be capped; 11. Provide a post-construction compliance report, within 45 calendar days of completion of the project, to the Energy Commission CPM; 12. Make certain that all food related trash will be disposed of in closed containers and removed at least once a week. Feeding of wildlife shall be prohibited; 13. Report all inadvertent deaths of sensitive species to the appropriate project representative. Injured animals will be reported to the CDFG, and the project owner will follow instructions that are provided by the CDFG; 14. Limit the use of biocides in project areas (see BIO-17 for more detail); 15. Implement erosion control in the temporary impact areas, especially near wetlands and waterways; 16. Any fixed lighting used during construction activities must be designed to be directed downward and away from riparian areas; 17. No construction activity shall be allowed within 500 feet of the levee wall from one (1) hour before sunset until one (1) hour after sunrise (as defined by a California solar timetable); 18. Contact the San Francisco Bird Observatory (Sherry Hudson at 408-946-6548 or shudson@sfbbo.org) two weeks prior to beginning construction of the stormwater outfall at the levee wall to arrange alternative access to the Observatory's long-term bird banding site; and 19. Follow the management plan for the burrowing owl mitigation area (see BIO-19 for more detail). **Verification:** All mitigation measures and their implementation methods will be included in the BRMIMP. Two copies of the CPM approved BRMIMP must be provided to the CPM five days prior to site mobilization and copies provided to the USFWS and CDFG.		

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-11 (Burrowing Owl Survey and Habitat Compensation)	The applicant shall survey for burrowing owl activities on the 34 acre parcel and along all new ancillary linear facilities prior to site mobilization to assess owl presence and need for further mitigation. All survey results shall be submitted to the CDFG. If owls are present, and nesting is not occurring, owls are to be removed per CDFG approved passive relocation. Passive relocation is recommended from September 1 to January 31, to avoid disruption of breeding activities. If owls are nesting, nest(s) should be avoided by a minimum of a 250- foot buffer until fledging has occurred (February 1 through August 31). Following fledging, owls may be passively relocated. If burrowing owls are found on the site or along all new ancillary linears corridors onsite or offsite compensation for losses will be required, whichever is feasible. CDFG recommends 6.5 acres of protected lands for each pair of owls or unpaired resident bird. Foraging habitat should be replaced at 0.5:1 (mitigation: impacts). Mitigation lands bought outside of Santa Clara County shall be purchased at a 0.75:1 (mitigation: impacts) for contiguous counties and 1.5:1 for all other California counties. In addition, existing unsuitable burrows on the protected lands should be enhanced (e.g., cleared of debris or enlarged) or new burrows installed at a ratio of 2:1. If offsite compensation is the only option, the mitigation ratios will increase depending on the distance from the site and burrowing presence on or near the mitigation parcel. **Verification:** Burrowing owl surveys shall be conducted 20 days prior to any project-related ground disturbance activities. At least 15 days prior to project related ground disturbance the project owner shall provide the CPM and CDFG with the burrowing owl survey results and identify any lands proposed for mitigation (if applicable). The land purchase shall be approved by the CPM and reviewed by CDFG. The project owner shall notify the CPM five working days before implementing any modifications to the BRMIMP.	No	The Applicant will survey for burrowing owl activities within 500 feet of Phase 2 activities prior to site mobilization to assess owl presence and need for further mitigation. If non-nesting owls are present and cannot be avoided, they are to be removed in accordance with CDFG passive relocation guidelines between Sept. 1 and Jan. 31. If nesting owls are present, nests will be given a minimum 250-foot avoidance buffer until fledging has occurred (Feb. 1 through Aug. 31), then passive relocation, as above, may be done. If burrowing owls are found on the site, on- or offsite compensation for losses (whichever is feasible) will be required in consultation with CDFG. The results of the owl survey shall be provided to CPM and CDFG and identification of any proposed mitigation lands, if needed, at 30 days prior to starting any site disturbance activities.
BIO-12 (Ordinance and Native Mature Trees)	Prior to the start of any site mobilization for the simple-cycle facility, the project owner shall develop the Ordinance and Native Mature Tree Replacement Plan for inclusion into the BRMIMP. The protocol shall include a thorough discussion of methods, species, and location for plantings, criteria for success, a monitoring program for 5 years, and a reporting requirement. If the CPM determines that the plan requires modification, the project owner shall modify the report based on the CPM's comments. **Verification:** At least 30 day prior to the start of any site and related facilities mobilization, the project owner shall provide to the CPM for review and approval, and to CDFG for review, an Ordinance and Native Mature Tree Replacement Plan as part of the BRMIMP.	No	BIO-12 is not applicable to Phase 2 because no trees will be disturbed or removed during construction.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-13 (City of San Jose Ordinance Tree)	The project owner will acquire a City of San Jose permit to remove any remaining ordinance trees from the simple-cycle facility site. The number of trees removed will be minimized and construction equipment and linears corridors in the drip line of these trees will be avoided. The applicant will be required to replace any trees removed at a ratio of 4:1 (mitigation: impact) per the U.S. DataPort EIR. **Verification:** The terms and conditions of the City of San Jose permit(s) will be incorporated into the project's BRMIMP and submitted at least 90 days prior to removal of any remaining ordnance trees (or those not covered by the City of San Jose Planned Development Permit). A copy of the permit(s) should be included as an appendix to the BRMIMP.	No	BIO-13 is not applicable to Phase 2 because no trees will be disturbed or removed during construction.
BIO-14 (Revegetation of Temporary Disturbance)	After construction, the laydown area will be stripped of any armoring material, the surface scarified, and topsoil restored. Barley seed will be sowed as a temporary cover crop, but native seeds from the topsoil will be allowed to sprout and grow. **Verification:** The applicant shall provide the revegetation plan in the BRMIMP and submit it within 60 days after the start of any site and related facilities mobilization.	No	Phase 2 will use a 13-acre fallow field for temporary parking and laydown. The field was previously used as a laydown area during Phase 1 construction.
BIO-15 (Avoid Impacts to Riparian Communities)	Construction of the permanent outfall to Coyote Creek shall be scheduled to avoid critical seasons. Surveys by a qualified biologist will be conducted prior to any construction activities on the interior side of the levee to locate nests and other resources in/or adjacent to the stormwater right-of-way. Designated existing roads will be used, and if such roads are not present, flagged routes that have been surveyed by a biologist will be used. If nests are observed, an avoidance period and Construction plans will be submitted with a photo alignment sheet to the Energy Commission CPM for approval and to CDFG for review. **Verification:** The applicant shall provide this measure as an amendment to the BRMIMP and as part of the roles for the Designated Biologist. Submittals of construction plans must occur 30 days prior to site mobilization on the interior side of the levee wall, but does not preclude the start of construction on the facility site. In lieu of CDFG review, the applicant may submit a copy of their final Streambed Alteration Agreement permit.	No	Construction of the permanent outfall to Coyote Creek was completed during Phase 1 CEC licensing in October 2008 and under separate agency permitting. BIO-15 is not applicable to Phase 2 because no additional impacts will occur to the Coyote Creek riparian corridor.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-16 (Habitat Compensation for Serpentine Endemics)	To compensate for impacts to serpentine soils and associated endemic species, the project owner shall provide a minimum of 40 acres of land within a high priority (as defined by USFWS) or occupied USFWS Critical Habitat Unit, the name of the entity that will be managing the land in perpetuity, and the endowment funds in the amount determined suitable from the Center for Natural Lands PAR analysis to administer and manage in perpetuity. Each of these must have been preapproved by Energy Commission staff. **Verification:** Within one month of project certification of the simple-cycle facility, the project owner must provide to the CPM for approval, the name of the management entity, written verification that the compensation lands have been purchased and written verification that the appropriate endowment fund (determined by the PAR analysis) has been received by the approved management entity.	No	Potential indirect impacts on serpentine habitat will continue during Phase 2 and could have negligible additional minor effects on serpentine soils; however, the cause-and-effect would be difficult to prove and therefore, no additional offsite compensation above the 40-acres on Coyote Ridge already secured during Phase 1 will be necessary.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-17 (Landscaping Plan)	The applicant will complete a Landscaping Plan for review by the CPM. The project owner shall follow the approved Landscaping Plan during the lifetime of the power plant. **Protocol**: The Landscaping Plan must include measures which: 1. Direct landscaping lights away from the riparian area; 2. Limit the amounts of biocides used on the project site; 3. Remove invasive, non-native plants (e.g., yellow star thistle) whenever possible to avoid the spread of weeds to the riparian corridor buffer zone. Employ the most effective aspects of the following control methods: 1) manual removal and, 2) mechanical control through soil disturbance. If the previous two methods are unsuccessful in controlling the problem, the following method could be used: 3) herbicides with low environmental persistence, applied from ground-based equipment. These products should only be used within the parameters presented on the label; 4. Avoid plant species that are not already found within the Coyote Creek watershed to avoid potentially new hybrids from cross-pollination; 5. Select a drought-tolerant mix of native species for ground cover; 6. Select a drought-tolerant mix of native tree species to the extent possible, particularly along the eastern edges of the landscaped areas (facing Coyote Creek); 7. Avoid long-term irrigation and limit short-term irrigation; 8. Avoid landscaping species/design(s) which would require initial and/or future maintenance equipment that contribute to noise and/or air pollution; and 9. Avoid the use of non-native ground cover (e.g., bark, rocks, and soils). **Verification:** At least 45 days prior to LECEF landscape installation, a Landscaping Plan will be sent to the CPM. All mitigation measures and their implementation methods will be included in the BRMIMP. Two copies of the BRMIMP must be provided to the CPM and one copy each provided to both the USFWS and CDFG five days prior to landscape installation.	No	With the exception of the temporary parking and laydown area, all Phase 2 construction will take place within the existing facility footprint; no trees will be removed and temporarily affected areas will be restored to pre-project conditions in accordance with BIO-14. No additional landscaping will be provided as part of Phase 2 of the project. Operationally, compliance with BIO-17 will carry over from Phase 1 to Phase 2 where applicable. The Landscaping Plan is in Appendix G of the Phase 1 BRMIMP.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-18 (USFWS Permit)	The project owner shall provide a final copy of the Section 10 permit from the U.S. Fish and Wildlife Service (if required) to the CPM. The project owner will implement the terms and conditions contained in the permit and incorporate these into the BRMIMP. **Verification:** The applicant shall provide the CPM with a status report of the Section 10 permit every six months beginning January 2006 until the permit is obtained or is no longer necessary. The status report shall include a table of milestones and the dates milestones were completed or are expected to be completed. No less than 30 days after receiving the permit (if required), the project owner shall provide two unbound copies of the Section 10 permit to the CPM.	Yes	This COC was not previously issued to Phase 1. However, a Habitat Conservation Plan was issued in late 2010. The Section 10 Permit/ Biological Opinion is currently under preparation and will be provided in 2011. Status reports for the Section 10 permit/Biological Opinion will continue to be provided to the CPM until the permit is received. Once the permit is received, a copy will be provided to the CPM.
BIO-19 (Burrowing Owl Management Plan)	The project owner shall create a Burrowing Owl Management Plan (Plan) and incorporate the provisions from the Plan into the BRMIMP for review by the CPM. The project owner shall be responsible for ensuring the power plant employees and contractors (most notably the landscape maintenance crew) are aware of the special provisions within the Plan, and shall make reasonable efforts to ensure these provisions are being followed during the operational lifetime of the power plant. Limit the use of biocides in the burrowing owl management area (see **BIO-17** for more detail). **Verification:** All mitigation measures and their implementation methods will be included in the BRMIMP. The annual compliance report shall provide the CPM with the name and phone number of the landscape maintenance crew supervisor. The CPM reserves the right to inspect the burrowing owl management area and to contact the landscape maintenance crew supervisor to correct problems.	Yes	This COC was not previously issued to Phase 1. Currently, burrowing owl is not known within the Phase 2 project area or within any Phase 1 landscaping areas. However, owls are generally known in the project vicinity west in the WPCP buffer lands and thus could inhabit the owl management area during suitable conditions. The applicant will continue to implement the Phase 1 Landscaping Plan (Phase 1 BRMIMP, Appendix G) The Burrowing Owl Management Plan is included with this document as Attachment 4.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-20 (Worker Education and Speed Limits)	During construction of the combined-cycle facility, the project owner shall distribute flyers to project-construction employees informing them of the possible presence of burrowing owls near Thomas Foon Chew Way. The project owner shall highlight that the posted speed limit is 15 miles-per-hour along the primary access road, Thomas Foon Chew Way, and take actions to correct repeat violations by project construction drivers. **Verification:** All mitigation measures and their implementation methods will be included in the BRMIMP. The monthly compliance report shall include the number of possible speed limit violations. The CPM reserves the right to inspect the primary access road for signs and to contact the construction manager to correct problems.	Yes	Although this COC was not previously issued to Phase 1, discussion of burrowing owls, the 15 mph speed limit, and actions to correct repeat violation by drivers will be included in the Phase 2 revised WEAP (which will include flyers).
BIO-21 (Biological Monitor Qualifications)	The project owner shall submit the resume and contact information of the proposed Biological Monitor(s) to the CPM for review. Biological Monitor(s) training by the Designated Biologist shall include familiarity with the Conditions of Certification, the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), the Worker Environmental Awareness Program (WEAP), and all permits. **Verification:** The project owner shall submit the specified information to the CPM for review at least 30 days prior to the start of any site (or related facilities) mobilization. The Designated Biologist shall submit a written statement to the CPM confirming that individual Biological Monitor(s) have been trained including the date when training was completed as part of the MCR or annual reporting. If additional Biological Monitors are needed during construction the specified information shall be submitted to the CPM for review 10 days prior to their first day monitoring activities.	Yes	This COC was not previously issued to Phase 1. The Phase 2 proposed biological monitor(s) will be submitted to the CPM by the project owner for approval in accordance with this COC.

TABLE 1
Biological Resources Conditions of Certification for the Los Esteros Critical Energy Facility

	Phase 2 Conditions of Certification	Substantively Different than Phase 1 COC? (Yes/No)	Comments
BIO-22 (Nitrogen-Based ERCs)	The project owner must surrender to the Bay Area Air Quality Management District a package of emission offsets which contain at least 27.945 tons per year nitrogen oxide. The substitution of precursor organic compound emission offsets is prohibited. The preferred set of certificates to be surrendered is as follows:	Yes	This COC was not previously issued to Phase 1. The project owner will comply with this COC.

Current Owner	Cert. No.	POC (tons per year)	NO_x (tons per year)	Origin. Location	Date Banked
LECEF	724	0	7.100	Cardinal Cogen, Palo Alto	3/13/96
Calpine	896	0	304.594	PG&E Potrero Power Plant, San Francisco	9/30/85
TOTAL			**311.694**		
Balance (to be refunded)			283.749		

Verification: At least 60 days prior to construction, the project owner/operator must surrender the ERC certificates and provide copies to the CPM. The total emission offsets that are nitrogen based must be clearly identified in the cover letter.

Attachment 1
Designated Biologist Qualifications

Todd Ellwood
Project Biologist
CH2M HILL
33 New Montgomery Street
San Francisco, Ca
(408) 839-2402

Education

B.S., Renewable Natural Resources (Emphasis in Wildlife and Fisheries Science), University of Arizona, 1997

Professional Registrations

Department of Fish and Game Scientific Collecting Permit, #SC-006065, 2011

Distinguishing Qualifications

- Expertise in biological resource construction mitigation monitoring
- Knowledgeable with California wildlife natural history including identifying herpetile, mammalian, and bird species

Relevant Experience

As a biologist his experience includes performing general and special-status wildlife surveys. His has a knowledge of invertebrate and vertebrate natural history and identification of herpetile, mammalian and bird species. He is familiar with state (California) and federal regulations pertaining to both wetland and wildlife issues. He prepares biological assessments for special-status species and conducts site assessment surveys. Mr. Ellwood has extensive experience as an environmental inspector and biological monitor for construction projects in California. He has over 10 years experience working on applied environmental problems in terrestrial and aquatic habitats in the greater San Francisco Bay Area.

Project Experience with Special-Status Species

California red-legged frog (*Rana draytonni*)
California tiger salamander (*Ambystoma californiense*)
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)
Giant garter snake (*Thamnophis gigas*)
Alameda whipsnake (Masticophis lateralis)
California horned lizard (*Phrynosoma coronatum frontale*)
California legless lizard (*Anniella pulchra*)
Western pond turtle (*Clemmys marmorata*)

Steelhead (*Oncorhynchus mykiss*)
Vernal pool branchiopods
Bay checkerspot butterfly (*Euphydryas editha bayensis*)
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)
San Joaquin kit fox (*Vulpes macrotis mutica*)
Western burrowing owl (*Athene cunicularia hypugea*)

Representative Projects

- **Biological Monitor, Electrical Power Plants (Metcalf Energy Center, Los Esteros Critical Energy Facility, Gilroy Energy Center, Walnut Energy Center, Sutter Energy Center), Northern California.** Coordinated daily biological monitoring of project construction activities and administered WEAT as the CEC-approved biologist. Performed biological surveys to determine suitable habitat for sensitive plant and wildlife species. Performed breeding bird surveys during construction. Post-construction conducted avian collision survey along the new electrical transmission lines. Performed protocol-level surveys for Western burrowing owl. Performed focused surveys (non-protocol) for California red-legged frog, American bullfrog, California tiger salamander, Western pond turtle, and the Bay Checkerspot butterfly. Verified compliance with the project's SWPPP. Submitted a monthly Environmental Compliance Report to the CEC.

- **Project Biologist, PG&E Maxwell 1101 Reconductoring Project, Colusa County, CA.** Prepared a Biological Assessment for giant garter snake. Supervised a team of biological monitors during project construction and ensured no take of giant garter snake.

- **Environmental Inspector/Specialty Monitor, Hetch Hetchy Water System Improvement Program – Sunol Valley Region, San Francisco Public Utilities Commission, Alameda County, California.** Conducts daily inspections for compliance with Project's permits issued by USFWS, USACE, CDFG, and RWQCB. Also as the specialty monitor, serves as a USFWS-approved biologist during site surveys for San Joaquin kit fox, California red-legged frog, California tiger salamander and Alameda whipsnake. Approved by the USFWS to capture and relocate CRLF, CTS, and AWS and administer the WEAT.

- **Project Biologist, Mariposa Energy Project, Alameda County, California.** Task managed and/or self-performed all biological resources surveys in support of the project's CEQA-equivalent CEC Application for Certification and USFWS Biological Assessment addressing project effects on San Joaquin kit fox, California red-legged frog, California tiger salamander, vernal pool fairy shrimp, and longhorn fairy shrimp. Field surveys completed include general site assessments for listed species, wetland delineation, protocol-level botanical surveys, and protocol-level burrowing owl surveys. Coordinates regularly with resource agencies including USFWS, USACE, CDFG, and RWQCB.

- **Project Biologist, Confidential Wind Farm Client, California.** Task managed and/or self-performed all biological resources surveys including habitat characterization, wetland delineation, site assessments for San Joaquin kit fox, California red-legged frog, and California tiger salamander. Also prepared the project's Biological Assessment and

is overseeing other permitting aspects including CWA 404/401 and CDFG 1602. Coordinates regularly with resource agencies including USFWS, USACE, CDFG, and RWQCB.

- **Biologist, East Altamont Energy Center, Alameda County, California**. Assisted with preparation of the Biological Resource Mitigation Implementation and Monitoring Plan, Erosion Control and Revegetation Plan, Avian Collision Monitoring Plan and Horizontal Directional Drilling Inadvertent Returns Contingency Plan.

- **Task Leader/Biologist, Caltrans District 4 Pigeon Pass Roadway Realignment Project, Alameda County, California.** Managed team of field biologists during the construction phase of the project. Field tasks included preconstruction surveys for California tiger salamander, California red-legged frog, and San Joaquin kit fox. Under conditional approval by USFWS, conducted burrow surveys for aestivating California red-legged frog and California tiger salamander using a peeper scope and hand excavation. Also captured and relocated San Francisco dusky-footed woodrat under authorization by CDFG. Field duties also included surveys for active bird nests and biological construction monitoring.

- **Associate Scientist, Caltrans District 4 Red Top Road Truck Climbing Lane Project, Solano County, California.** Prepared and submitted applications for state and federal permits under Section 7 of the Federal Endangered Species Act; CDFG Lake and Streambed Alteration; and Clean Water Act, Sections 401 and 404. Mapped locations of sensitive habitats, which included Waters of the U.S. and habitat for California red-legged frog.

- **Biologist, Pacific Gas and Electric's Vaca-Dixon Transmission Line Project, Solano County, California.** Under direction of a permitted biologist, performed weekly wet season sampling for state and federally listed Branchiopods including vernal pool fairy shrimp (*Branchinecta lynchi*) and tadpole shrimp (*Lepidurus packardi*).

- **Biologist, California Water Company Bear Gulch Creek Fish Screen Project, San Mateo County, California.** Conducted preconstruction surveys for California red-legged frog, San Francisco garter snake, and steelhead. Captured and relocated steelhead from within project site using seines and dip nets as authorized by National Marine Fisheries Service biological opinion. Monitored construction activities for compliance with state and federal permits.

- **Biologist, Army Corps of Engineers, Fort Ord Natural Reserve, Groundwater Extraction Treatment System Expansion Project, Former Fort Ord, Monterey County, CA.** Ensured protection of the Reserve's special-status plants and wildlife through implementation of applicable environmental mitigation guidelines. Assisted in identifying and clearly delineating the least damaging access routes and staging areas through the local chaparral habitat. Advised project personnel on how to protect special-status wildlife including California black legless lizard, Monterey ornate shrew (*Sorex ornatus salarius*), and coast horned lizard and special-status plants including sand gilia (*Gilia tenuiflora arenaria*), Monterey spineflower (*Chorizanthe pungens pungens*), and sandmat manzanita (*Arctostaphylos pumila*).

- **Biologist, Caltrans District 4 Devil's Slide Project, San Mateo County, California.** Member of field team that conducted bird nest and San Francisco dusky-footed woodrat surveys for the Devil's Slide Tunnel Project; and biological monitoring for California red-legged frog during construction of the project's Charthouse Mitigation Site.

- **Biologist, Santa Clara Valley Water District's Lower Silver Creek Flood Protection Construction Project, Santa Clara County, California.** Performed capture/relocation of native vertebrates, reaches 1, 2 and 3 of Lower Silver Creek. Capture techniques included use of seines, dip nets, and electroshock.

- **Biologist, Olivehurst Wastewater Treatment Plant, Yuba County, California.** Conducted aquatic vertebrate salvaging using seines and giant garter snake preconstruction surveys prior to installation of the Project's stormwater outfall into a nearby canal.

- **Field Team Member, Western Area Power Authority, Northern California**. Conducted surveys for threatened and endangered wildlife along an electrical transmission line. Also used a habitat classification system to map (using Trimble GPS) sensitive areas including seasonal wetlands and vernal pools.

- **Biologist, Santa Clara Valley Water District's Lower Silver Creek Flood Protection Project, Santa Clara County, California.** Implemented a Mitigation Monitoring Plan annually for created wetlands, riparian/stream-riverine, and upland habitats. Also coordinated periodic environmental compliance monitoring of project's construction activities. Verified compliance with the project's SWPPP. Administered the project's environmental awareness training.

- **Biologist, Pacific Gas and Electric, Jefferson Martin 230kV Project-San Mateo County; TriValley Project, Contra Costa County, California.** Coordinated and conducted field assignments related to the San Francisco dusky-footed woodrat, a California species of special concern. Also conducted SWPPP performance verification inspections.

- **Team Member, United States Fish and Wildlife Service, Upper Penitencia Creek Habitat Evaluation Procedures, Santa Clara County, California.** Conducted a habitat evaluation of the Penitencia Creek Riparian Corridor. Collected data using a hypsometer, spherical densiometer and other data collection tools. Assessed general habitat suitability for fish and wildlife species against community-based models.

- **Biologist, City of San Jose Water Company, Lexington Reservoir Main Feed Reconstruction Project, Santa Clara County, California.** Performed reconnaissance-level survey to assess general habitat value for sensitive wildlife species along the proposed pipeline alignment. Assisted with project's application for a California Department of Fish and Game Streambed Alteration Agreement under a Categorical Exemption.

- **Biologist, Geothermal Inc. Landfill Closure, Lake County, California.** Performed an emergence count of Yuma myotis (*Myotis yumanensis*) and Mexican free-tailed bat (*Tadarida brasiliensis)* using ambient light. Observed acoustic monitoring using an

ultrasonic detection system (e.g., Anabat). Performed species identification using a suite of morphological and physiological characteristics.

- **Associate Scientist, Town of Windsor Eastside Road Storage Project, Sonoma County, California.** Performed periodic Stormwater Pollution Prevention Plan (SWPPP) site inspections. Also prepared an application for Lake or Streambed Alteration with the California Department of Fish and Game.

Professional Development

- Surveying and Identification Techniques Workshop-Amphibians of the San Francisco Bay Area, The Wildlife Society, 2002.
- Environmental Avoidance and Mitigation training related to Telecommunications projects, Jones and Stokes Associates, March 2000.
- 40-hour Hazardous Waste Operations and Emergency Response Training, 8-hour Refresher Course, 2004.

References

Debra Crowe, CH2M HILL
Project Scientist
CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833-2937
Direct 916-920-0212 x34385
FAX 916-920-8463
debra.crowe@ch2m.com

Rick Crowe
Senior Environmental Technician
CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833-2937
Direct 916-286-0416
Mobile 916-296-5525
FAX 916-920-8463
Richard.crowe@ch2m.com

John Cleckler, CH2M HILL
Project Scientist
CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833-2937
Direct 916-286-0395
FAX 916-920-8463
john.cleckler@ch2m.com

Attachment 2
Location of LECEF Phase 2
Parking and Laydown Area

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 1,000 2,000

Feet

Location of LECEF 2 Parking and Laydown Area

LOS ESTEROS CRITICAL ENERGY FACILTY

SAN JOSE, CALIFORNIA

CH2MHILL

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Attachment 3
Aerial Photograph of Area to be Disturbed During Construction Activities

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

0 100 200
Feet

Aerial Photograph of Area to be Disturbed During Construction Activities

LOS ESTEROS CRITICAL ENERGY FACILTY
SAN JOSE, CALIFORNIA

CH2MHILL

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Attachment 4
Burrowing Owl Management Plan

CALPINE

DUBLIN OFFICE
4160 DUBLIN BOULEVARD, SUITE 150
DUBLIN, CALIFORNIA 94568-3139
925.479.6600
925.479.7300 (FAX)

November 11, 2003

Mr. Lance Shaw
California Energy Commission
Systems Assessment and
Facilities Siting Division
1516 9th Street, MS 15
Sacramento, CA 95814-5504

Subject: Los Esteros Critical Energy Facility (LECEF) Response to CEC Staff Comments on Submittal Titled "Burrowing Owl Issues Related to Construction of Landscape Berm in City of San Jose Buffer Lands, Condition of Certification BIO-11" dated September 18, 2003

Dear Mr. Shaw:

On September 18, 2003 Calpine submitted the subject letter pertaining to the construction and management of landscaped areas within the City of San Jose Buffer Lands. On October 28, 2003 LECEF received comments from CEC Staff (Natasha Nelson via Lance Shaw, CPM) on the September 28 submittal. Transmitted herewith are responses to CEC Staff's comments.

Please do not hesitate to contact me at 408-847-5328 or Dana Petrin, LECEF Compliance Manager at (408) 592-7915 should you have any questions or require additional information.

Sincerely,

FOR

Bob McCaffrey,
General Manager, South Bay Projects
Calpine Corporation

Los Esteros Critical Energy Facility (LECEF) Landscape Maintenance for Burrowing Owls

PREPARED FOR: Steve DeYoung

PREPARED BY: Gary Santolo

COPIES: Jerry Salamy

DATE: November 7, 2003

The proper management of the proposed LECEF burrowing owl mitigation land located on the City of San Jose bufferland will likely encourage occupation by burrowing owls. Therefore, a landscape maintenance plan should be included that specifies measures to promote optimal burrowing owl habitat and avoid disturbance of individual owls and occupied burrows. The remainder of this document specifies the revegation, mowing, weed control, and general maintenance of this land.

Revegation

This owl-centered vegetation maintenance should be used to encourage continued occupation of the site. The following includes recommended practices to be incorporated into the general maintenance activities of this area.

Burrowing owl nesting and foraging habitat is typically characterized by flat grassy areas. Visibility is an important factor for potential predator defense. Optimal vegetation height is considered to be 9 inches or less, promoting early detection of potential predators. Variable vegetation heights are acceptable given that there are no large contiguous tracts of tall (> 9 inches) vegetation providing potential predator cover. Burrowing owls have been known to abandon tall grass areas, therefore lack of owl-centered vegetation management may exclude owls from occupying the site. To this end, a mix of native seed grass seed will be used to revegetate the site. This will benefit burrowing owls by attracting a variety of insect prey. The native seed mix proposed to revegetate this area will either be the mix presented in Table D-1 of Appendix D of the BRMIMP or Mix A identified on the Planting Plan (Sheet L-2.1) submitted on June 25, 2003. Application rates will be based on those presented in Table D-1.

Mowing

Mowing will likely be the most effective and practical means of vegetation management. Riding mowers, push mowers, and hand-operated trimmers can be used effectively to maintain optimal vegetation height while avoiding significant disturbance of owls and their burrows. Owl burrow ceilings can be as shallow as 4 inches; therefore, great care must be taken to avoid collapsing burrows. This can be effectively avoided with adequate marking of burrow sites and the use of appropriate mowing equipment.

Landscape management will be scheduled to avoid critical burrowing owl life cycle periods. Burrowing owls are more sensitive to disturbance and more prone to nest abandonment during their breeding season (generally from February 1 through August 31). Large scale mowing should occur prior to March 1. If mowing is necessary during the breeding season, particular caution must be taken to avoid destruction of occupied burrows or emerging chicks. (The crucial chick rearing period typically occurs between May 20 and July 1.) Mowing and other landscape management actives should be conducted in an expeditious manner to limit disturbance to resident owls.

Weed Abatement

Weed abatement will be performed in a manner consistent with Condition of Certification BIO-17 to eliminate propagation of invasive non-native plants, when possible. Methods for removal of invasive non-native weeds will be performed by manual removal, mechanical controls through soil disturbance (when consistent with the burrowing owl management philosophy, and lastly with approved herbicides that pose a low environmental persistence.

Other Burrowing Owl-Friendly Landscaping Measures

Other landscaping measures to be practiced are presented below to enhance burrowing owl habitats:

1. Discing and tilling should only be used in areas devoid of ground burrows as verified by a pedestrian survey of the area.
2. Appropriate equipment should be used and used in a manner to protect burrows integrity and avoid disturbance of individual owls.
3. Weeds could be controlled by hand removal and mowing.
4. The Designated Biologist should determine a mowing schedule based on owl seasonal sensitivity, habitat use, and vegetation growth at the beginning of the breeding season (February 1). Nesting habitat should be mowed 2-4 times early in the breeding season during the typical mate selection period. Foraging habitat should be mowed less frequently.
5. Maintain vegetation height at 6 to 9 inches in the nesting habitat throughout the year, especially during breeding season (February 1 through August 31). Mow nesting habitat and maintain vegetation height of 6 to 9 inches until offspring have fledged. Coordinate mowing with anticipated chick emergence.
6. Avoid herbicide use around active burrows. Avoid all pesticide use in nesting and foraging habitat.
7. No dumping of compost, dirt, trash, or stockpiling of building materials should occur in owl habitat.
8. Do not drive vehicles in open fields.
9. Restrict pedestrians and domestic animals from owl habitat. Prohibit feeding of non-native animals.

10. Do not fill or disturb California ground squirrel burrows. The Designated Biologist should be informed prior to squirrel abatement and any land disturbances in nesting and foraging habitat to protect owls and their burrows.