

**Biological Resources Mitigation
Implementation and
Monitoring Plan**

**CEMS Concrete Pad Construction
Carlsbad Energy Center**

**San Diego County, California
(07-AFC-6)**

Prepared for
Carlsbad Energy Center, LLC

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Prepared by



CH2MHILL

6 Hutton Centre Drive
Suite 700
Santa Ana, CA 92707

Contents

Section	Page
Contents	1
1.0 Introduction	3
1.1 Project Location	3
1.2 Project Background	Error! Bookmark not defined.
2.0 Purpose of the BRMIMP	5
3.0 Description of Biological Resources	8
3.1 Existing Vegetation and Wildlife	8
3.2 Special-Status Species	9
3.3 Sensitive Habitat	9
3.4 Aquatic Species	10
3.5 Mitigation, Monitoring, and Compliance Measures	10
4.0 Conditions of Certification	14
5.0 Designated Biologist and Biological Monitor(s)	Error! Bookmark not defined.
5.1 Designated Biologist	Error! Bookmark not defined.
5.2 Biological Monitor(s)	22
5.3 Designated Biologist and Biological Monitoring Authority	23
6.0 References	Error! Bookmark not defined.

Appendix

A Designated Biologist and Biological Monitor Resumes

Tables

- 1 Conditions of Certification for Biological Resources
- 2 Biological Resources Conditions of Certification for the Carlsbad Energy Center Project

Figures

- 1.2-1 Project Location Map
- 1.2-2 Site Vicinity Location Map
- 2.0.1 Biological Survey Area

Acronyms and Abbreviations

AFC	Application for Certification
BMP	best management practice
BRMIMP	Biological Resources Mitigation Implementation and Monitoring Plan
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CECP	Carlsbad Energy Center Project
CEMS	Continuous Emissions Monitoring System
CoC	Condition of Certification
CPM	Compliance Project Manager
CTG	combustion turbine generator
dBa	decibel(s)
EPS	Encina Power Station
GPS	global positioning system
HMP	Habitat Management Plan
kV	kilovolt(s)
MBTA	Migratory Bird Treaty Act
MW	megawatt(s)
STG	steam turbine generator
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WEAP	Worker Environmental Awareness Program

SECTION 1

Introduction

The Carlsbad Energy Center, LLC is in the initial phase of the development of a natural gas-fired generating facility in the City of Carlsbad in San Diego County (County), California. The Carlsbad Energy Center Project (CECP) will be a fast-start high-efficiency, combined-cycle facility that will support San Diego Gas & Electric's local load and provide overall system reliability.

The Application for Certification (AFC) for the CECP was prepared by the Applicant in accordance with the California Energy Commission's (CEC) Power Plant Site Certification Regulations and submitted in 2007. At its June 15, 2011 Business Meeting, the Commission considered the licensing of CECP, however, based on input from the Hearing Officer, the Applicant and interveners, the Commission continued the licensing decision to June 30, 2011.

To support air permitting issues, the Initial Construction Phase of the project consists of the construction of a concrete pad for the Continuous Emissions Monitoring System (CEMS). The pad is expected to measure approximately 10 feet x 10 feet to 20 feet x 20 feet. The existing permitted storm water collection system will not be affected. Soil excavated as part of the construction of the concrete CEMS pad will be placed in a roll-off bin, tested and managed as appropriately by NRG. Therefore, excavated soil will not be stockpiled on the ground in the tank farm or elsewhere onsite. Construction activities for the CEMS concrete pad will typically occur Monday through Friday from 7:00 a.m. to sunset, and on Saturday from 8 am to sunset. However, non-noisy construction may occur after sunset Monday through Saturday, and construction may occur on Sunday as necessary to complete construction of the CEMS concrete pad.

1.1 Project Location

The CECP site is located in the City of Carlsbad, San Diego, California (Figure 1.2-1 and Figure 1.2-2). The site address is 4600 Carlsbad Blvd, Carlsbad, California 92008. The CECP site is part of the 95-acre Encina Power Station and is located on the U.S. Geological Survey (USGS) San Luis Rey, California 7.5-minute series topographic quadrangle within Township 12 South, Range 4 West, Section 7. Elevation of the site is approximately 50 feet above mean sea level. The CECP site is located within the northeastern portion of the existing Encina Power Station (EPS), which is bordered to the east by Interstate 5, to the south by the San Diego Gas & Electric switchyard and the city of Carlsbad, to the west by the Pacific Ocean, and to the north by the Agua Hedionda Lagoon. An existing railroad line is adjacent to the site to the west. The predominant uses in the vicinity are mainly industrial, with residential and commercial uses located nearby.

Historically, the area was composed of coastal salt marsh, but it has been converted to residential and industrial uses including electric generation units at the existing Encina Power Station, which began commercial operations in 1954. The nearest significant natural habitat areas are the Pacific Ocean, approximately 0.3 miles west of the CECP site, and Agua Hedionda

Lagoon, approximately 0.1 mile north and east of the CECP site, on the opposite side of Interstate 5 (CEC, 2011).

SECTION 2

Purpose of the Biological Resources Mitigation Implementation and Monitoring Plan

This Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) summarizes the sensitive biological resources that will be potentially affected by the construction of the CEMS pad and the measures required to avoid, minimize, or compensate for impacts to these resources. Figure 2.2-0 shows the CEMS concrete pad biological survey area. The biological resources mitigation and monitoring procedures discussed in this BRMIMP were outlined in Condition of Certification (CoC) BIO-6 as set forth in the Presiding Member's Proposed Decision (CEC, 2011).

This BRMIMP describes the measures that will be implemented by the Project owner, its employees and contractors during the construction of CEMS concrete pad which is limited in nature and scope. This BRMIMP specifically addresses the CEMS concrete pad. The BRMIMP is being implemented to ensure that the CEMS concrete pad is completed in a manner that minimizes impacts to the natural environment through appropriate compliance with terms and conditions of various permits and approvals. A supplemental BRMIMP will be prepared prior to full project build-out of CECF to address additional relevant COCs and submitted to the CEC CPM for review and approval, and to the California Department of Fish and Game, and the U.S. Fish and Wildlife Service for review and comment.

The requirements of the BRMIMP as set forth in CcC BIO-6 of the Presiding Member's Proposed Decision are as follows:

"The project owner shall submit two copies of the proposed BRMIMP to the Compliance Project Manager (CPM) (for review and approval) and to CDFG and USFWS (for review and comment), and shall implement the measures identified in the approved BRMIMP.

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall identify:

1. all biological resource mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;
2. all Applicant-proposed mitigation measures presented in the Application for Certification;
3. all Biological Resource Conditions of Certification identified as necessary to avoid or mitigate impacts;
4. all biological resource mitigation, monitoring, and compliance measures required in other state agency terms and conditions, such as those provided in the Regional Water Quality Control Board permits;
5. all biological resource mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements;
6. all sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure;
7. all required mitigation measures for each sensitive biological resource;

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8. a detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;
 9. all locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
 10. aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities – one set prior to any site (and related facilities) mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen;
 11. duration for each type of monitoring and a description of monitoring methodologies and frequency;
 12. performance standards to be used to help decide if/when proposed mitigation is or is not successful;
 13. all performance standards and remedial measures to be implemented if performance standards are not met;
 14. a preliminary discussion of biological resources related facility closure measures;
 15. restoration and revegetation plan; and
 16. a process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: The project owner shall provide the specified document at least 60 days prior to start of any project-related ground disturbing activities.

The CPM will determine the BRMIMP's acceptability within 45 days of receipt. If there are any permits that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM, the CDFG, and USFWS within five 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. Ten days prior to site (and related facilities) mobilization, the revised BRMIMP shall be resubmitted to the CPM.

The project owner shall notify the CPM no less than five working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.

Any changes to the approved BRMIMP must also be approved by the CPM in consultation with CDFG, the USFWS, and appropriate agencies to ensure no conflicts exist.

Implementation of BRMIMP measures will be reported in the monthly compliance reports by the Designated Biologist (i.e., survey results, construction activities that were monitored, species observed). Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval: a written construction closure report identifying which items of the BRMIMP have been completed; a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases; and which mitigation and monitoring items are still outstanding." (CoC BIO-6) (CEC, 2011).

Table 2-1 provides a list of the BIO - CoCs associated with the CECP and indicates which ones are relevant to the construction of the CEMS concrete pad, and are therefore addressed by this BRMIMP. A full description of all project CoCs is presented in Section 4.0.

TABLE 2-1
Conditions of Certification for Biological Resources

CO C #	Condition of Certification	Applicable to CEMS Concrete Pad
BIO-1	Designated Biologist Selection	Yes
BIO-2	Designated Biologist Duties	Yes
BIO-3	Biological Monitor Qualifications	Yes
BIO-4	Designated Biologist and Biological Monitor Authority	Yes
BIO-5	Worker Environmental Awareness Program (WEAP)	Yes
BIO-6	Biological Resources Mitigation Implementation & Monitoring Plan	Yes
BIO-7	Impact Avoidance Mitigation Features	No
BIO-8	Mitigation Management to Avoid Harassment or Harm	Yes
BIO-9	Future Agency Coordination	No

Description of Biological Resources

3.1 Existing Vegetation and Wildlife

Surveys of the CECP site and vicinity include an aquatic survey of Agua Hedionda Lagoon for San Diego Gas and Electric (SDG&E) in 1994 and 1995, a biological resource survey of the entire Encina Power Station in 2003, and a reconnaissance-level survey conducted by the applicant, which included the CECP site and a one-mile buffer, in August 2007, and a pre-construction survey for the CEMS concrete pad in June 2011. The applicant's survey of the CECP site included an inventory of all plant and wildlife species observed and an assessment of potential habitat suitability for special-status species. The following description of biological resources presents the results of previous surveys of the CECP site and vicinity as well as observations from staff's site visit on December 13, 2007.

The CECP site is highly disturbed and/or developed due to ongoing operations within the existing Encina Power Station. The majority of the CECP footprint is composed of bare ground or a combination of bare ground and gravel with scattered ruderal vegetation. Plant species observed include iceplant (*Mesembryanthemum sp.*), totalote (*Centaurea melitensis*), horseweed (*Conyza sp.*), black mustard (*Brassica nigra*), fountain grass (*Pennisetum setaceum*), wild oat (*Avena fatua*), foxtail chess (*Bromus madritensis ssp. rubens*), tree tobacco (*Nicotiana glauca*), western marsh-rosemary (*Limonium californicum*), salt heliotrope (*Heliotropium curasavicum*), buckwheat (*Eriogonum sp.*), and cudweed (*Gnaphalium sp.*). Eucalyptus (*Eucalyptus sp.*) plantings occur along the northern and eastern perimeter of the CECP site and serve as visual screens of the Encina Power Station. These plantings are mature eucalyptus trees greater than 45 feet in height and of sufficient canopy cover to potentially support nesting raptors.

Due to the frequency and intensity of disturbance from operation of the Encina Power Station, the CECP site does not provide habitat capable of supporting a diverse assemblage of wildlife. Direct wildlife observations in the project area include common species such as California ground squirrel (*Spermophilus beecheyi*) and a variety of bird species typically found in disturbed and developed areas such as house finch (*Carpodacus mexicanus*), northern mockingbird (*Mimus polyglottus*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and American crow (*Corvus branchyrhynchos*). Additional common bird species observed within the CECP site include Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), common yellowthroat (*Geothlypis trichas*), and California towhee (*Pipilo crissalis*).

A storm drain within the CECP site contains hydrophilic vegetation including cattails (*Typha sp.*), sedge (*Carex sp.*), and umbrella-plant (*Cyperus involucreatus*). This storm drain likely supports common amphibian species such as California toad (*Bufo boreas*) and Pacific treefrog (*Hyla regilla*).

3.2 Special-Status Species

Special-status species include those listed as threatened or endangered under the federal or state endangered species acts, species proposed for listing, California species of special concern, and other species that have been identified by the USFWS or CDFG or other agency as unique or rare.

Nesting birds and raptors 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 (*Charadrius vociferus*) often nest in open gravel areas such as those found in the project area.

Although sensitive plant and wildlife species and sensitive vegetation communities are known to occur within the vicinity of the CECP site, they are generally restricted to the estuarine and open water habitats associated with the Agua Hedionda Lagoon, Pacific Ocean, and the surrounding natural habitats and are not expected to occur within the CECP site. The CECP site is characterized by a combination of developed areas, disturbed habitat, and ornamental landscaping. Therefore, construction and operation of the project will not result in the removal of native vegetation communities or sensitive plants species.

Additionally, special-status plant and wildlife species were not observed utilizing the CECP site during biological surveys, and the proposed project area does not provide suitable habitat for special-status species.

3.3 Sensitive Habitat

Aqua Hedionda Lagoon

Regular maintenance dredging of Agua Hedionda Lagoon began in 1954 to supply cooling water to the Encina Power Station and to ensure adequate tidal flow to maintain the overall lagoon health. The coastal lagoon has a permanent opening to the Pacific Ocean and is therefore primarily saltwater with associated estuarine habitat. Source waters include Agua Hedionda Creek and Calavera Creek (Carlsbad, 2004). The Agua Hedionda Lagoon system is comprised of the Inner Lagoon, Middle Lagoon, and Outer Lagoon; the Outer Lagoon is the location of the existing Encina Power Station intake.

Habitats include open water, sand and mud substrates, rock revetment, pilings, and aquaculture grow-out floats, which support diverse infaunal, bird, and fish communities. Additionally, the Agua Hedionda Lagoon supports important populations of special-status species such as the southwestern pond turtle, white-faced ibis, and western snowy plover and provides foraging habitat for American peregrine falcon and osprey. The estuarine and marsh habitat surrounding the lagoon provides suitable nesting habitat for special-status species such as the California least tern, elegant tern, Belding's savannah sparrow, California brown pelican, and coastal California gnatcatcher.

The lagoon also provides various recreational opportunities (e.g., YMCA youth camp, water skiing, and boating) and mariculture resources (e.g., mussels, oysters, and sea bass).

Due to its biodiversity of plants and animals as well as suitable habitat for special-status species, Agua Hedionda Lagoon is regionally significant and is located within an existing hardline conservation area,¹ as designated by the Habitat Management Plan (HMP) for Natural Communities in the city of Carlsbad (Carlsbad, 2004).

3.4 Aquatic Species

Construction of the CEMS concrete pad site is limited to the area within an existing fuel oil tank and will not result in impacts to aquatic species. Furthermore, impacts to aquatic species are not anticipated due to the CECP's dry cooling system, which will avoid a thermal plume or water intake and outflow issues that could affect fish or other aquatic biota during operations. Additionally, once CECP is in operation, three units at the Encina Power Station (Units 1 - 3) will be retired, and the volume of sea water used for once-through-cooling at the Encina Power Station will be significantly reduced. This reduction will result in a decrease in impingement and entrainment effects at the Encina Power Station. As a consequence of the development and implementation of these avoidance and minimization measures and design features, significant impacts to aquatic resources are not anticipated from the construction and operation of CECP.

3.5 Mitigation, Monitoring, and Compliance Measures

Construction Impacts to General Vegetation

Significant impacts to native vegetation would not occur, and no mitigation is proposed.

Construction Impacts to General Wildlife

Construction activities during the nesting season (March through August) could adversely affect breeding birds through direct take or indirectly through disruption or harassment. CECP has proposed the following to avoid impacts to nesting birds (CECP 2007, pp. 5.2-19 and 5.2-22):

- Nesting substrate for songbirds (taller plants) would be removed outside of the breeding season (September through February) before construction activities begin.

The CEMS concrete pad would not require the removal of suitable plants or shrubs. In addition, a pre-construction survey was conducted on June 14, 2011.

- Open areas requiring grading would be graded prior to March 1 and would be routinely inspected for nesting activities throughout construction and demolition.

It is not feasible for the construction of the CEMS concrete pad to occur outside of the breeding season. However, a pre-construction survey for the CEMS concrete pad was conducted on June 14, 2011 and a Biological Monitor will be present during construction activities.

- Surveys would be conducted by a qualified biologist for nesting raptors within 300 feet of the project site prior to the start of construction between January 1 and August 31. Should a raptor nest be observed within 300 feet of the CECP site, a qualified biologist would determine whether or not construction activities could potentially disturb nesting
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raptors and implement appropriate measures (e.g., on-site monitor, timing restriction) to adequately protect nesting raptors.

A pre-construction nesting raptor survey for the construction of CEMS concrete pad was conducted on June 14, 2011 within the CEMS site and a 300-foot buffer. Additionally, a Biological Monitor will be present during construction activities.

- Any nests found in or adjacent to disturbance areas would be flagged and the area immediately around the nest protected from construction equipment. Construction activities would not be affected by nests on site; rather the protection and monitoring of the nests would allow construction activities to continue. The nests would be monitored and the results included in the monthly compliance reports to the Energy Commission Compliance Unit.

Active nests were not detected during the CEMS concrete pad pre-construction survey on June 14, 2011.

Additionally, staff recommends a survey for migratory birds if work is proposed between March 15 and August 31, and additional measures to protect nesting birds, as presented in Condition of Certification **BIO-8** (Mitigation Management to Avoid Harassment or Harm), which would ensure compliance with the Migratory Bird Treaty Act. With implementation of the applicant-proposed mitigation measures above and Conditions of Certification **BIO-6** and **BIO-8**, significant impacts to nesting birds would not result from proposed project construction activities.

A pre-construction survey for construction of the CEMS concrete pad was conducted on June 14, 2011 within the CEMS pad site to identify nesting raptors and songbirds. Neither nesting raptors nor active songbird nests were observed within the survey area.

Wildlife could become entrapped in open trenches during construction, especially if trenches remain open during inactive construction periods. Staff recommends Condition of Certification **BIO-8** (Mitigation Management to Avoid Harassment or Harm), which would require exclusion measures for open trenches (e.g., fencing or covering), inspection of trenches prior to resuming construction activities each day, and installation of escape ramps so that animals that fall in the trench could escape. Implementation of this measure would mitigate adverse impacts to wildlife from entrapment.

This protection measure is addressed in the Worker Environmental Awareness Program (WEAP) and a Biological Monitor will be present during construction activities to inspect any trenches.

Construction Impacts to Special-Status Species

Plants: Special-status plants are not expected to occur in the project area, and significant adverse impacts to special-status plants would not occur from construction of the proposed CECP or CEMS concrete pad.

Wildlife: Construction activities for the CEMS concrete pad would not directly affect Agua Hedionda Lagoon; indirect impacts to nesting special-status birds that occur within the marsh, scrub, and estuarine habitat associated with Agua Hedionda Lagoon are discussed under “General Construction Impacts” below.

Critical Habitat: Because the upland habitat associated with Agua Hedionda Lagoon would not be adversely affected by the proposed project, there would be no impacts to critical habitat for the coastal California gnatcatcher, or other federally listed species.

General Construction Impacts

Noise

For land uses adjacent to estuarine habitat, the HMP specifies standard best management practices, which require attenuation measures for activities that generate noise levels greater than 60 decibels (dBA) occurring within 200 feet of important breeding habitat during the breeding season (Carlsbad 2004). Further, the following applicant-proposed mitigation measures would minimize impacts to sensitive species in Agua Hedionda Lagoon resulting from excessive construction noise (CECP 2007, pp. 5.2-13 and 5.2-21):

- To avoid the riparian bird nesting season, excessively noisy construction activities would not occur between March 15 and August 31 if possible, especially during dusk and early morning hours if birds are nesting in the middle lagoon (the limit of the 200-foot MHCP boundary). Construction equipment will be in good working condition with properly operated and maintained mufflers.

The CEMS concrete pad site is located approximately 800 feet from Agua Hedionda and is therefore located outside of the noise buffer.

- If construction cannot avoid the nesting season, then a qualified biologist would conduct a preconstruction survey within the CECP site and the middle lagoon of Agua Hedionda prior to ground disturbance and construction activities between March 15 and August 31. The survey would be conducted no more than two weeks prior to construction activities and would be conducted by a qualified biologist familiar with the identification and vocalizations for coastal California gnatcatcher and other estuarine species.

A pre-construction survey was conducted on June 14, 2011 within the CEMS site to identify nesting raptors and songbirds. Neither nesting raptors nor active songbird nests were observed within the survey area.

- If nesting bird species are detected, noise monitoring and mitigation would be incorporated. Should average noise levels exceed 60 dBA during the breeding season, feasible noise reduction measures would be implemented to reduce noise levels to below 60 dBA. Noise reduction measures could include locating stationary equipment away from biologically sensitive areas and/or shielding nesting sites by installing sound barriers. Once the average noise level returns to below 60 dBA, the construction activities could resume. Educational programs to enhance employee awareness would be implemented as necessary.

Neither nesting raptors nor active songbird nests were observed within the survey area during the pre-construction survey on June 14, 2011, and the CEMS concrete pad site is located approximately 800 feet from Agua Hedionda and is therefore located outside of the noise buffer.

Lighting

If night construction were required, task-specific lighting would be used to the extent practicable, and lighting would be shielded and pointed toward the center of where the activities are occurring (CECP 2007, p. 5.13-12). Further, the HMP specifies that direct lighting within 200 feet of Agua Hedionda must be directed away from the lagoon (Carlsbad 2004). These measures are incorporated into Condition of Certification **BIO-7** (Impact Avoidance Mitigation Features). With implementation of these measures, impacts to wildlife from temporary construction night lighting would be less than significant.

The CEMS concrete pad is not expected to require night construction. However, if night construction is required, lighting will be task-specific to the construction of the CEMS pad, pointed downward and towards the center of the construction area, and shall be directed away from the lagoon.

Operation Impacts and Mitigation

Potential impacts resulting from operation of the CECP include bird collision with and/or electrocution by the interconnection facilities and disturbance to wildlife due to increased noise and lighting, and impacts to aquatic resources in Agua Hedionda Lagoon due to operation of the proposed ocean water purification system and industrial wastewater discharge.

Operational impacts are not applicable to the CEMS concrete pad.

SECTION 4

Conditions of Certification

The CcCs for the CECP project are listed in Table 4-1 were issued to ensure project impacts to biological resources would not jeopardize the continued existence of endangered, threatened, or other special-status species or sensitive habitats.

TABLE 4-1
Biological Resources Conditions of Certification for the Carlsbad Energy Center Project

Conditions of Certification		Comments
BIO-1 Designated Biologist	<p>The project owner shall assign a Designated Biologist to the project. The project owner shall submit the resume of the proposed Designated Biologist, with at least three references and contact information, to the compliance project manager (CPM) for approval.</p> <p>The Designated Biologist must at least meet the following minimum qualifications:</p> <ol style="list-style-type: none"> 1. bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field; and 2. three years of experience in field biology or current certification from a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; and 3. at least one year of field experience with biological resources found in or near the project area. <p>In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, that the proposed or alternate Designated Biologist has the appropriate training and background to implement effectively the applicant-proposed mitigation measures and conditions of certification.</p> <p>Verification: The project owner shall submit the specified information at least 90 days prior to the start of any site (or related facilities) mobilization. No site or related facility activities shall commence until an approved Designated Biologist is available to be on site.</p> <p>If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least 10 working days prior to the termination or release of the preceding designated biologist. In an emergency, the project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.</p>	<p>The Designated Biologist for the Initial Phase CECP activities will be CH2M HILL biologist Sophie Chiang. Ms. Chiang's qualifications are provided in Attachment A.</p>
BIO-2 Designated Biologist Duties	<p>The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by the approved biological monitor(s), but remains the contact for the project owner and CPM. The designated biologist shall:</p>	<p>No supplemental comments.</p>

	<ol style="list-style-type: none"> 1. advise the project owner's construction and operation managers on the implementation of the biological resources conditions of certification; 2. consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), to be submitted by the project owner; 3. be available to supervise, conduct, and coordinate mitigation, monitoring, and other biological resource compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as wetlands and special-status species or their habitat; 4. clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions; 5. inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (i.e., parking lots) for animals in harm's way; 6. notify the project owner and the CPM of any non-compliance with any biological resources condition of certification; 7. respond directly to inquiries of the CPM regarding biological resource issues; 8. maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the monthly compliance report and the annual report; and 9. train the biological monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and all permits. <p>Verification: The Designated Biologist shall submit in the monthly compliance report to the CPM copies of all written reports and summaries that document biological resources activities. If actions may affect biological resources during operation, a Designated Biologist shall be available for monitoring and reporting. During project operation, the Designated Biologist shall submit record summaries in the annual compliance report unless his/her duties are ceased as approved by the CPM.</p>	
<p>BIO-3 Biological Monitor Qualifications</p>	<p>The project owner's CPM-approved Designated Biologist shall submit the resume, at least three references, and contact information of the proposed biological monitor(s) to the CPM for approval. The resume shall demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks.</p> <p>Biological monitor(s) training by the Designated Biologist shall include familiarity with the conditions of certification, BRMIMP, WEAP, and all permits.</p> <p>Verification: The project owner shall submit the specified information to the CPM for approval 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) has been trained including</p>	<p>The biological monitors for the Initial Phase CECP activities will be CH2M HILL biologists Melissa Fowler and Shannon Feeney. Their qualifications are provided in Appendix A.</p>

	<p>the date when training was completed. If additional biological monitors are needed during construction, the specified information shall be submitted to the CPM for approval 10 days prior to their first day of monitoring activities.</p>	
<p>BIO-4 Designated Biologist and Biological Monitor Authority</p>	<p>The project owner's construction and operation manager shall act on the advice of the Designated Biologist and biological monitor(s) to ensure conformance with the biological resources conditions of certification.</p> <p>If required by the Designated Biologist and biological monitor(s), the project owner's construction and operation manager shall halt all site mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist.</p> <p>The Designated Biologist shall:</p> <ol style="list-style-type: none"> 1. require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued; 2. inform the project owner and the construction and operation manager when to resume activities; and 3. notify the CPM if there is a halt of any activities and advise the CPM of any corrective actions that have been taken, or will be instituted, as a result of the work stoppage. <p>If the Designated Biologist is unavailable for direct consultation, the lead biological monitor shall act on behalf of the Designated Biologist.</p> <p>Verification: The project owner shall ensure that the Designated Biologist or biological monitor notifies the CPM immediately (and no later than the following morning of the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem.</p> <p>Whenever corrective action is taken by the project owner, a determination of success or failure will be made by the CPM within 5 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.</p>	<p>No supplemental comments.</p>
<p>BIO-5 Worker Environmental Awareness Program</p>	<p>The project owner shall develop and implement a CPM-approved Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation and closure, is informed about sensitive biological resources associated with the project.</p> <p>The WEAP must:</p> <ol style="list-style-type: none"> 1. be developed by or in consultation with the Designated Biologist and consist of an on-site or 	<p>The Applicant will develop a WEAP specific to the construction of the CEM pad which will address biological resources which could be impacted than during the of the CEMS pad. A revised WEAP will be prepared for full construction of</p>

	<p>training center presentation in which supporting written material and electronic media are made available to all participants;</p> <ol style="list-style-type: none"> 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; 5. identify whom to contact if there are further comments and questions about the material discussed in the program; and 6. include a training acknowledgment form to be signed by each worker indicating that he/she received training and shall abide by the guidelines. <p>The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.</p> <p>Verification: At least 60 days prior to the start of any project-related ground disturbing activities, the project owner shall provide to the CPM two copies of the proposed WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.</p> <p>The project owner shall provide 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. At least 10 days prior to site (and related facilities) mobilization, the project owner shall submit two copies of the CPM-approved materials.</p> <p>The signed training acknowledgement forms from construction shall be kept on file by the project owner for a period of at least 6 months after the start of commercial operation.</p> <p>During project operation, signed statements for active project operational personnel shall be kept on file for 6 months following the termination of an individual's employment.</p>	<p>the CECP..</p>
<p>BIO-6 Biological Resources Mitigation Implementation and Monitoring Plan</p>	<p>The project owner shall submit two copies of the proposed BRMIMP to the CPM (for review and approval) and to CDFG and USFWS (for review and comment) and shall implement the measures identified in the approved BRMIMP.</p> <p>The BRMIMP shall be prepared in consultation with the Designated Biologist and shall identify:</p> <ol style="list-style-type: none"> 1. all biological resource mitigation, monitoring, and compliance measures proposed and agreed to by the project owner; 2. all applicant-proposed mitigation measures presented in the application for certification; 	<p>No impacts to native vegetation will occur during construction of the CEMS concrete pad. The mitigation measures proposed for wildlife species and general construction impacts are listed in Section 3.5.</p>

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3. all biological resource conditions of certification identified as necessary to avoid or mitigate impacts;
 4. all biological resource mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in the Regional Water Quality Control Board permits;
 5. all biological resource mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements;
 6. all sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure;
 7. all required mitigation measures for each sensitive biological resource;
 8. a detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;
 9. all locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;
 10. aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities — one set prior to any site (and related facilities) mobilization disturbance and one set subsequent to completion of project construction. Include planned timing of aerial photography and a description of why times were chosen;
 11. duration for each type of monitoring and a description of monitoring methodologies and frequency;
 12. performance standards to be used to help decide if/when proposed mitigation is or is not successful;
 13. all performance standards and remedial measures to be implemented if performance standards are not met;
 14. a preliminary discussion of biological resources-related facility closure measures;
 15. restoration and revegetation plan; and
 16. a process for proposing plan modifications to the CPM and appropriate agencies for review and approval.

Verification: The project owner shall provide the specified document at least 60 days prior to start of any project-related ground disturbing activities.

The CPM will determine the BRMIMP's acceptability within 45 days of receipt. If there are any permits that

	<p>have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to the CPM, the CDFG, and USFWS within 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. Ten days prior to site (and related facilities) mobilization, the revised BRMIMP shall be resubmitted to the CPM.</p> <p>The project owner shall notify the CPM no less than 5 working days before implementing any modifications to the approved BRMIMP to obtain CPM approval.</p> <p>Any changes to the approved BRMIMP must also be approved by the CPM in consultation with CDFG, the USFWS, and appropriate agencies to ensure no conflicts exist.</p> <p>Implementation of BRMIMP measures will be reported in the monthly compliance reports by the designated biologist (i.e., survey results, construction activities that were monitored, species observed). Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction closure report identifying which items of the BRMIMP have been completed; a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases; and which mitigation and monitoring items are still outstanding.</p>	
<p>BIO-8 Mitigation Management to Avoid Harassment or Harm</p>	<p>The project owner shall implement the following measures to manage its construction site (and related facilities) in a manner to avoid or minimize impacts to local biological resources:</p> <ol style="list-style-type: none"> 1. install temporary fencing and provide wildlife escape ramps for construction areas that contain steep-walled holes or trenches if outside an approved, permanent exclusionary fence. The temporary fence shall be hardware cloth or similar material that is approved by USFWS and CDFG; 2. ensure that all food-related trash is disposed of in closed containers and removed at least once a week; 3. prohibit feeding of wildlife by staff and subcontractors; 4. prohibit non-security-related firearms or weapons on site; 5. prohibit pets on site; 6. avoid work between March 1 and August 15 to avoid impacts to birds protected under the Migratory Bird Treaty Act. <ul style="list-style-type: none"> A. If this is not feasible, a survey shall be conducted for nesting birds within the project area. B. Should an active nest be discovered, the Designated Biologist or biological monitor shall establish an appropriate buffer zone (in which construction activities are not allowed) to avoid disturbance in the vicinity of the nest. 	<p>Construction of the CEMS concrete pad will not occur outside of the breeding season. However, a pre-construction survey was conducted on June 14, 2011 and a Biological Monitor will be present during construction activities.</p>

	<ul style="list-style-type: none">i. Construction activities shall not commence until the Designated Biologist or biological monitor has determined that the nestlings have fledged or that construction activities will not affect adults or newly fledged young; ORii. The Designated Biologist or biological monitor shall develop a monitoring plan that permits the activity to continue in the vicinity of the nest while monitoring nesting activities to ensure that nesting birds are not disturbed. <ul style="list-style-type: none">7. report all inadvertent deaths of sensitive species to the biological monitor, who will notify CDFG or USFWS, as appropriate; and8. minimize use of rodenticides and herbicides in the project area. <p>Verification: All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures shall be reported in the monthly compliance reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how biological resource measures have been completed.</p>	
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SECTION 5

Designated Biologist and Biological Monitor(s)

5.1 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 Initial Construction Phase, CEMS Concrete Pad is:

Sophie Chiang
CH2M HILL
6 Hutton Centre Drive, Suite 700
Santa Ana, California 92707
714.697.5376

Qualifications:

Degrees: Bachelor of Arts in Environmental Analysis & Design
Masters of Science in Environmental Sciences

Field biology experience: 13 years

Field experience in project area: 13 years

Education and experience for required tasks: see attached resume, Appendix A

5.2 Biological Monitor(s)

The Biological Monitors for the Initial Construction Phase, CEMS Concrete Pad are:

Melissa Fowler (Lead Monitor)
6 Hutton Centre Drive, Suite 700
Santa Ana, California 92707
714.768.1173

Shannon Feeney
6 Hutton Centre Drive, Suite 700
Santa Ana, California 92707
714.746.1743

See attached resumes in Appendix A for education and experience for required tasks.

5.3 Designated Biologist and Biological Monitor Authority

The project owner's construction and operation manager will act on the advice of the Designated Biologist and biological monitor(s) to ensure conformance with the biological resources COCs (COC BIO-4) (CEC, 2011).

If required by the Designated Biologist and biological monitor(s), the project owner's construction and operation manager shall halt all mobilization, ground disturbance, grading, construction, and operation activities in areas specified by the Designated Biologist (CEC, 2011).

The Designated Biologist is responsible for halting all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if activities were to continue, inform the project owner and construction and operation manager when activities can resume, and notify the CPM if there is any halt of any activities. In addition, the Designated Biologist will advise the CPM of any corrective actions that have been taken, or will be instituted because of the work stoppage (CEC, 2011).

The lead biological monitor will act on behalf of the Designated Biologist if the Designated Biologist is not unavailable for direct consultation.

SECTION 6

References

California Energy Commission (CEC). 2011. Presiding Members Proposed Decision. Carlsbad Energy Center Project. May 2011. CEC-800-2011-004-PMPD. Docket Number 07-AFC-6.

CECP 2007. Application for Certification for Carlsbad Energy Center Project. Submitted to the California Energy Commission on September 11, 2007.

City of Carlsbad. 2004. Habitat Management Plan for Natural Communities in the City of Carlsbad. Amended December 1999. Final approval November 2004.