DOCKETED

Docket Number:	99-AFC-04C
Project Title:	Duke Energy North American's Moss Landing Power Plant Modernization Project (Compliance)
TN #:	212444
Document Title:	Moss Landing Power Plant - Petition to Install Variable Speed Drive Controls on Four of Six Units 1 & 2 Circulating Water Pumps
Description:	Request for a Staff Approved Modification
Filer:	Patty Paul
Organization:	Dynegy Moss Landing, LLC
Submitter Role:	Applicant
Submission Date:	7/25/2016 12:01:16 PM
Docketed Date:	7/25/2016

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DYNEGY

July 22, 2016

Ms. Mary Dyas
Compliance Project Manager
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Re: Request for a Staff Approved Modification
Docket No. 99-AFC-4C

Dear Ms. Dyas:

Pursuant to the California Energy Commission (CEC) Siting Regulations, California Code of Regulations, Title 20, Section 1769(a), Dynegy Moss Landing, LLC (DML) hereby submits the enclosured Request for a Staff Approved Modification to Docket No. 99-AFC-4C (Modification) for the Moss Landing Power Plant Project.

This Modification requests approval to install four Variable Speed Drive (VSD) controls on four of the six existing Circulating Water Pumps (CWPs) for the Unit 1 and Unit 2 combined cycle units.

In October 2014, DML entered a Settlement Agreement with the California State Water Resources Control Board (SWRCB) addressing requirements under the SWRCB's Water Quality Control Policy on the Use of Coastal and Estuarine Water for Power Plant Cooling (Once-Through Cooling Policy). Pursuant to paragraph 2.1.6.d of the Settlement Agreement, by December 31, 2016, DML must install and operate VSD controls on CWPs serving Units 1 and 2.

As described in the Modification, the installation of the VSDs will not affect the operation of Units 1 and 2, but will allow DML to efficiently comply with the SWRCB's Once-Through Cooling Policy. In accordance with Section 1769(a) of the CEC Siting

Regulations, the Modification does not have the potential to have a significant effect on the environment, will not result in in the change or deletion of a condition adopted by the CEC in the Decision, or cause the Project not to comply with applicable laws, ordinances, regulations and standards.

Please contact Lee Genz, of my staff, with any questions or for additional information at (831) 633-6785.

Sincerely,

Rex A. Lewis

REX A. LEWIS
Managing Director
Moss Landing and Oakland Power Plants

Enclosure
LHGenz

Request for a Staff Approved Modification

Dynegy Moss Landing, LLC

99-AFC-4C

Install Variable Speed Drive Controls

On Four of Six

Circulating Water Pumps

Submitted by:
Dynegy Moss Landing, LLC
July 2016

DYNEGY

Table of Contents **Page**

Appendixes:

A. Settlement Agreement between California State Water Resources Control Board and
B. Dynegy Moss Landing, LLC, et al, Site Plan Map
C. Building Project Site Civil and Structural Drawings
D. VSD Building Floor Plan
E. Construction Management Plan
F. Archaeological Report
G. Geologic Hazards Report
H. Hazardous Materials Questionnaire, Monterey County Health Department
I. VFD Building Fire Protection System and Drawings

1.0 Introduction

On May 7, 1999, Duke Energy Moss Landing, LLC filed an Application for Certification (AFC) seeking approval from the California Energy Commission (Energy Commission) to construct and operate the proposed 1,060-megawatt (MW) Moss Landing Power Plant Project (Project). The Energy Commission adopted the AFC on October 25, 2000 (Decision). The completed Project is located at the existing Moss Landing Power Plant site. This site is located at the intersection of Highway 1 and Dolan Road, east of the community of Moss Landing, near the Moss Landing Harbor.

The Project replaced the existing electric power generation Units 1-5 (a total of 613 MW built in the 1950s and shut down in 1995) with two 510 MW, natural gas-fired, combined-cycle units (Unit 1 and Unit 2). Units 1 and 2 each consists of two natural gas-fired combustion turbine generators (CTGs), two unfired heat recovery steam generators (HRSGs) and a reheat, condensing steam turbine generator (STG). Units 1 and 2 both use seawater for once-through cooling. Units 1 and 2 have been in commercial operation since 2002, selling into the daily energy market and operating year around at various loads. There have been no significant equipment modifications or operational issues.

In 2006, LS Power acquired Duke Energy Moss Landing, LLC and renamed it LSP Moss Landing, LLC. In April 2007, Dynegy acquired LSP Moss Landing, LLC and renamed it Dynegy Moss Landing, LLC (DML).

DML submits this request for a staff approved project modification. In accordance with Section 1769(a) of the Energy Commission Siting Regulations, the proposed changes do not have the potential to have a significant effect on the environment, will not result in in the change or deletion of a condition adopted by the Energy Commission in the Decision, or cause the Project not to comply with applicable laws, ordinances, regulations and standards.

2.0 Description of Project (20 CCR §1769(a)(1)(A))

This Staff Approved Modification requests approval to install and operate Variable Speed Drive controls (VSDs) on four of the six circulating water pumps serving Units 1 and 2. The VSDs do not require a change in any condition of certification in the Decision.

In October 2014, Dynegy Moss Landing, LLC (DML) entered a Settlement Agreement (Appendix A) with the California State Water Resources Control Board (SWRCB) addressing requirements under the SWRCB's Water Quality Control Policy on the Use of Coastal and Estuarine Water for Power Plant Cooling (Once-Through Cooling Water Policy). Paragraph 2.1.6.d in the Settlement Agreement

states, "*by December 31, 2016, Dynegy Moss Landing, LLC will install and operate variable speed drive controls on circulating water pumps serving Units 1 and 2*" (emphasis added).

Each of Units 1 and 2 has three circulating water pumps (CWPs) (total of six CWPs). The design evaluation process determined there is no operational mode in which there would be a need to have all three CWPs per unit operating in variable speed mode. The design evaluation process also determined that installing just one VSD on one CWP per each unit would allow DML to meet its impingement and entrainment requirements under the SWRCB's Once-Through Cooling Water Policy. However, DML will install two VSDs for each unit (total of four VSDs) in order to have maximum operational flexibility and to ensure redundancy to account for maintenance or other outages.

This project will retrofit four of the six existing 4160 Volt AC motors for the CWPs on Units 1 and 2 with VSDs. The project will also retrofit four of the six existing CWPs, if necessary, to operate these pumps with VSDs. The VSDs will allow the plant to reduce circulating water flow when the Units are not operating at full capacity by automatically matching motor speed to specific load demands. The variable speed capability will allow greater control in reducing cooling water flow during certain unit loads that will reduce entrainment and impingement of marine organisms.

The VSDs are installed in a prefabricated building that will be delivered to the site and placed on a concrete slab near the CWPs (Figures 1 and 2). No physical changes are required to the existing four CWPs when the VSDs are electrically connected.

For this Project DML has applied for a Coastal Administrative Development Permit with the Monterey County Planning Department, which is scheduled for review on August 3, 2016.

The following Appendixes are from DML's submittal for the Coastal Administrative Development Permit Application:

Appendix B - Site Plan Map
Appendix C - Building Project Site Civil and Structural Drawings
Appendix D - VSD Building Floor Plan
Appendix E – Construction Management Plan
Appendix F – Archaeological Report
Appendix G – Geologic Hazards Report
Appendix H – Hazardous Materials Questionnaire, Monterey County Health Department
Appendix I – VFD Building Fire Protection System and Drawings

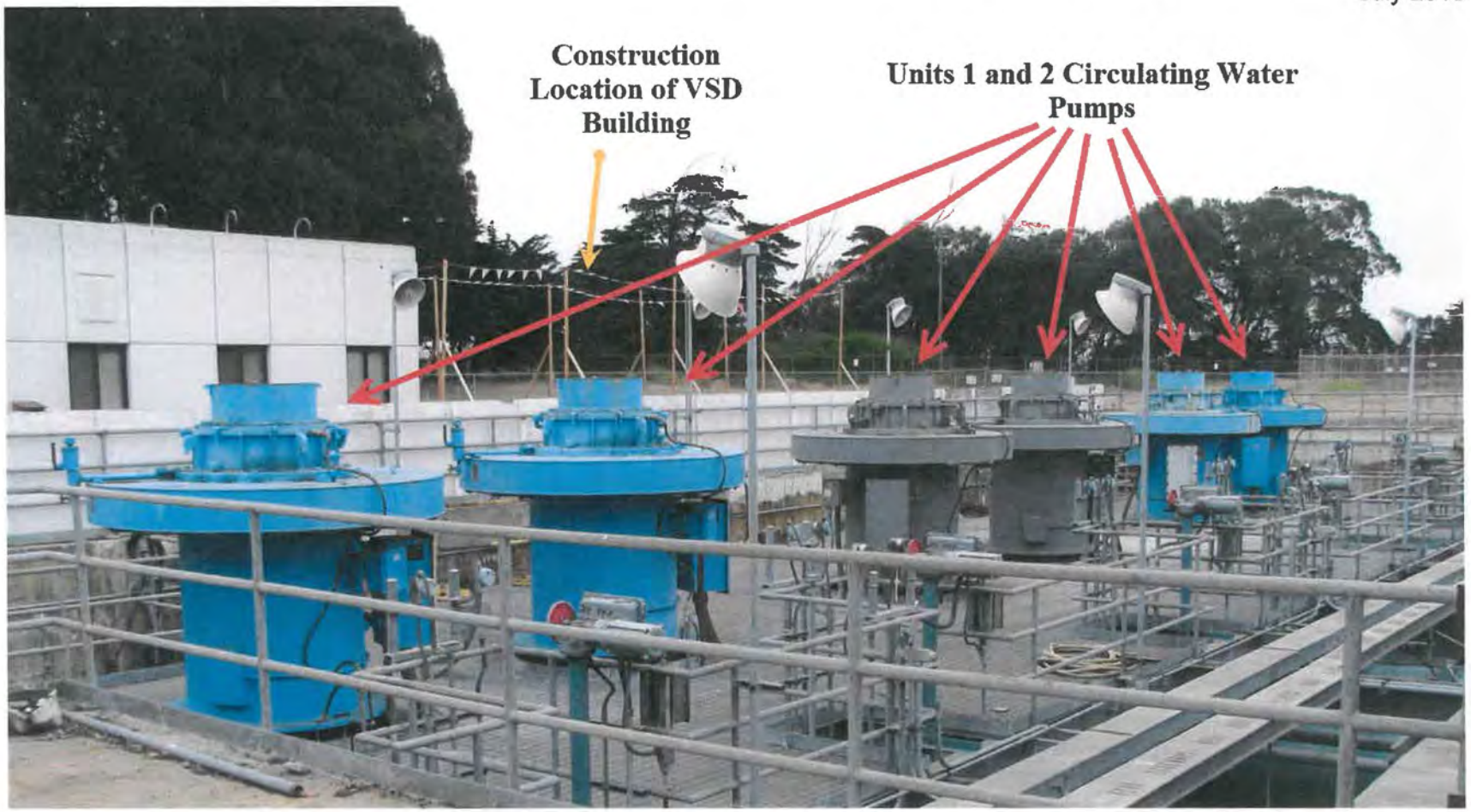

Figure 1
Variable Speed Drive Controls Project
Dynegy Moss Landing, LLC

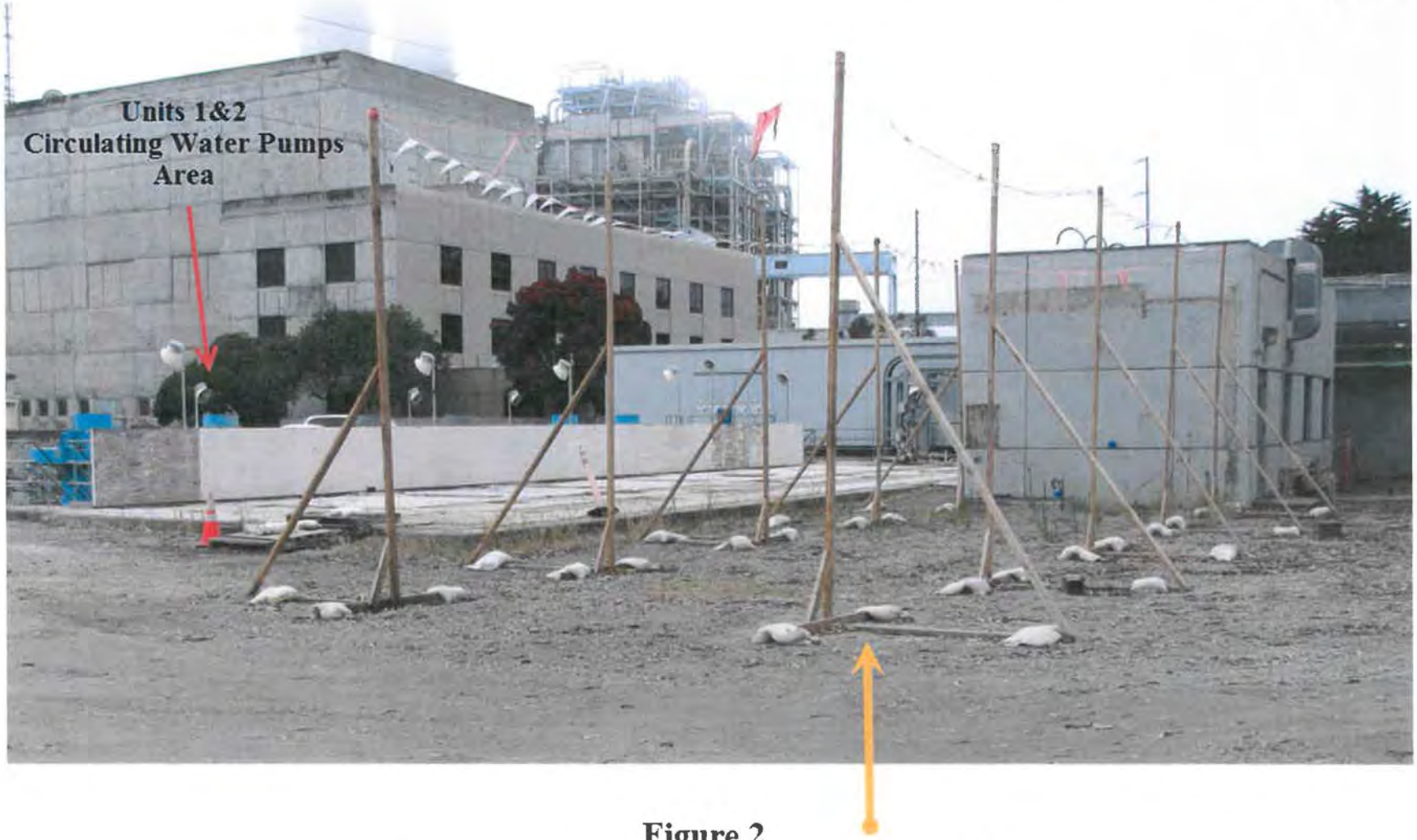

Figure 2
Concrete Slab & Building Location for VSDs
Variable Speed Drive Controls Project
Dynegy Moss Landing, LLC

3.0 Necessity for the Proposed Modification (20 CCR §1769(a)(1)(B))

As described in Section 2.0, in October 2014, DML entered a Settlement Agreement (Appendix A) with the California State Water Resources Control Board addressing requirements under the SWRCB's Once-Through Cooling Water Policy. Paragraph 2.1.6.d in the Settlement Agreement states, "*by December 31, 2016, Dynegy Moss Landing, LLC will install and operate variable speed drive controls on circulating water pumps serving Units 1 and 2*" (emphasis added).

The proposed modification is needed to allow DML to comply with the SWRCB's Once-Through Cooling Water Policy as implemented by the Settlement Agreement. The VSDs will allow DML to reduce circulating water flow when Units 1 and 2 are not operating at full capacity by automatically matching motor speed to specific load demands. The variable speed capability will allow greater control in reducing cooling water flow during certain unit loads that will reduce entrainment and impingement to comply with the SWRCB's Once-Through Cooling Water Policy.

4.0 Information was not known during the certification proceeding (20 CCR §1769(a)(1)(C))

The proposed modification is not based on information known at the time of the certification proceeding. VSDs for the Units 1 and 2 circulating water pumps were not a requirement for the original 99-AFC-4C certification proceedings in 1999. The SWRCB's Once-Through Cooling Water Policy was not adopted until 2010. In addition, the Settlement Agreement between DML and the SWRCB requiring the installation of VSDs at the Project by December 31, 2016 was entered in October 2014.

5.0 Explanation of why the change should be permitted (20 CCR §1769(a)(1)(D))

The proposed modification is consistent with the Decision and does not undermine the assumptions, rationale, findings or other bases of the Decision. This change should be permitted to allow DML to implement its obligations under the Settlement Agreement with the California State Water Resources Control Board, which require DML to install and operate VSDs on circulating water pumps serving Units 1 and 2 by December 31, 2016. The variable speed capability will allow greater control in reducing cooling water flow during certain unit loads that will reduce entrainment and impingement in accordance with the SWRCB's Once-Through Cooling Water Policy.

DML also submitted an Application for a Coastal Administrative Development Permit from the Monterey County Planning Department for this project.

6.0 Environmental Analysis of the Project (20 CCR §1769(a)(1)(E))

The environmental impacts of the proposed project are analyzed below for each of the 14 different discipline areas. The proposed modification will not cause any significant changes requiring environmental mitigation.

6.1 Air Quality

The operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have no impact on air quality. The VSDs and the CWPs do not produce any air emissions. The operation of the VSDs with the CWPs will overall use less energy at lower flows then the CWPs at full flow without the VSDs.

6.2 Biological Resources

The operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will allow DML to reduce circulating water flow when Units 1 and 2 are not operating at full capacity by automatically matching motor speed to specific load demands. This will reduce entrainment and impingement of marine organisms in accordance with the SWRCB's Once-Through Cooling Water Policy.

6.3 Cultural Resources

The installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have no impact on Cultural Resources based on the *Archaeological Report* in Appendix F.

6.4 Geology and Paleontology

The installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have no impact on geology and paleontology based on the *Geologic Hazards Report* in Appendix G and the *Archaeological Report* in Appendix F. Also, the area for the concrete slab will be constructed on previously disturbed ground.

6.5 Hazardous Material Management

There will be no additional hazardous materials brought on site nor will there be a change to the chemical inventory for the Business Plan. Therefore, the installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have no impact on hazardous materials management. Also, see Appendix H, the *Monterey County Health Department Hazardous Material Questionnaire* for the Monterey County Planning Department Coastal Administrative Development Permit Application.

6.6 Land Use

The installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps does not require a change in land uses or applicable land use LORS.

6.7 Noise and Vibration

The installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will not increase noise emissions or vibration issues as the operating VSDs will be located in a prefabricated building. The construction phase of the project may result in brief, temporary noises and vibration from construction equipment, but these noise levels will remain below the applicable noise standards.

6.8 Public Health

The installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have no impact on public health.

6.9 Socioeconomics

The installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have no socioeconomic impacts.

6.10 Soil and Water Resources

The installation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have minimal impact on soil resources. Soil removed for the concrete foundation will be analyzed for constitutes required by the local Landfill for disposal approval. Appendix E, *Construction Management Plan,* discusses the waste generated (including the soil removed), the facilities where these waste will be hauled to, and a map showing the routes to these facilities

The operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will reduce water resources impacts by reducing the amount of circulating water flow when Units 1 and 2 are not operating at full capacity by automatically matching motor speed to specific load demands.

6.11 Traffic and Transportation

The installation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have minimal impact on traffic and transportation. Appendix E, *Construction Management Plan,* Table 1 shows the vehicle type and trips/day during the planned construction period. A map is also included showing the traffic routes to different facilities required for the project.

6.12 Visual Resources

The installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have minimal impact on visual resources. The visual impact is being reviewed by Monterey County as part of the Coastal Administrative Development Permit for the Project.

6.13 Waste Management

The installation and operation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will have minimal impact on Waste Management for the Project. No waste will be generated during operation of the VSDs. Appendix E, *Construction Management Plan,* discusses the waste generated during installation, the facilities where these waste will be hauled to, and a map showing the routes to these facilities.

6.14 Worker Safety and Fire Protection

The installation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will be consistent with the conditions of certification and the Decision applicable to worker safety and fire protection. Appendix I, *Fire Protection System for VSDs and Drawings*, shows the fire protection system for the VSDs and identifies the local Fire Department. There will be no changes to the current Moss Landing Power Plant entrance procedure for the North County Fire Department.

7.0 Consistency of Amendment with the Certification and LORS (20 CCR §1769(a)(1)(F)

Installation of the VSDs for the Units 1 and 2 four Circulating Water Pumps is consistent with all applicable LORs. Furthermore, installation of the VSDs is consistent with the Decision and does not undermine the assumption, rationale, findings or other bases of Decision. The project is necessary for DML to comply with paragraph 2.1.6.d of its Settlement Agreement with the California State Water Resources Control Board regarding the SWRCB's Once-Through Cooling Water Policy. The variable speed capability will allow greater control in reducing cooling water flow during certain unit loads that will reduce entrainment and impingement consistent with the SWRCB's Once-Through Cooling Water Policy.

A Coastal Administrative Development Permit Application with the Monterey County Planning Department has been submitted for this project.

8.0 Potential Effects on the Public (20 CCR §1769(a)(1)(G))

The installation of the VSDs for the Units 1 and 2 four Circulating Water Pumps will not adversely affect the public because it is a minor modification of existing facilities within the fence line of the Project site.

9.0 List of Property Owners Potentially Affected (20 CCR §1769(a)(1)(H))

Property owners whose property is located within 500 feet of the project are:

- State of California, Highway 1 to the west
- Moss Landing Harbor District to the west of Highway 1
- Pacific Gas and Electric to the north
- Dynegy Moss Landing, LLC owns the property within 500 feet of the project to the south and east

10.0 Discussion of Potential Effect on Nearby Property Owners and Public (20 CCR §1769(a)(1)(I))

All work to install the VSDs for the Units 1 and 2 four Circulating Water Pumps will take place within the property boundaries of the Project site. Accordingly, the Staff Approved Modification will have no effect on nearby property owners or the public.

Appendix A

California State Water Resources Control Board, Paragraph 2.1.6.d in the Settlement Agreement

CEC 99-AFC-4C

Amendment

Installation of

Variable Speed Drive Controls

Dynegy Moss Landing, LLC

Moss Landing Power Plant

SETTLEMENT AGREEMENT AND RELEASE REGARDING WATER QUALITY CONTROL POLICY ON THE USE OF COASTAL AND ESTUARINE WATERS FOR POWER PLANT COOLING BETWEEN STATE WATER RESOURCES CONTROL BOARD AND DYNEGY

THIS SETTLEMENT AGREEMENT AND RELEASE ("Agreement") is entered into by and between Dynegy Moss Landing, LLC, Dynegy Morro Bay, LLC (collectively "Dynegy") and the State Water Resources Control Board ("State Water Board"), as of the last date executed below ("Execution Date"), referred to herein collectively as the "Parties" and each individually as a "Party."

RECITALS

A. WHEREAS, on May 4, 2010, the State Water Board approved Resolution 2010-0020 adopting the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (the "Policy") and related Substitute Environmental Document ("SED") for the Policy. The State Water Board subsequently amended the Policy on October 1, 2010, July 19, 2011, and June 18, 2013. A copy of the Policy, as subsequently amended, is attached to this Agreement as Exhibit A. The Policy applies to California thermal power plants that currently use a single pass cooling system also known as once-through cooling;

B. WHEREAS, the Policy requires owners and operators of existing power plants subject to the Policy to comply with "Track 1" or "Track 2" compliance alternatives as defined in section 2 of the Policy;

C. WHEREAS, the Track 1 compliance alternative contained in Policy section 2.A.(1) specifies that the intake flow rate at each unit is to be reduced, at a minimum, to a level commensurate with that which can be attained by a closed-cycle wet cooling system. The Policy, in relevant part, identifies that reduction as a minimum 93% reduction in intake flow rate for each unit, compared to the unit's design intake flow;

D. WHEREAS, the Track 2 compliance alternative contained in Policy section 2.A.(2) is available when a plant owner or operator demonstrates that the Track 1 compliance alternative is not feasible at an existing power plant. Track 2 includes a number of provisions, but two provisions allow for monitoring to demonstrate that reductions in impingement mortality and entrainment are at a comparable level to the reductions required under Track 1. The Policy defines "comparable level" as "a level that achieves at least 90 percent of the reduction[s]" required under Track 1. As a result, Track 2 compliance can be achieved by an 83.7% or greater reduction in impingement mortality and entrainment, pursuant to Policy sections 2.A.(2)(a)(ii) and 2.A.(2)(b)(ii). The 83.7% reduction is an absolute minimum that must be achieved under Track 2's "comparable level" provisions, so plants seeking compliance pursuant to this language must be designed and operated to achieve required reductions under the Policy;

E. WHEREAS, Dynegy Moss Landing, LLC and Dynegy Morro Bay, LLC own and operate, respectively, the Moss Landing Power Plant ("Moss Landing") and the Morro Bay Power Plant ("Morro Bay"), each of which is subject to the Policy;

F. WHEREAS, the California Regional Water Quality Control Board, Central Coast Region previously issued a Federal Water Pollution Control Act ("Clean Water Act") National Pollutant Discharge Elimination System ("NPDES") permit for the operation of Moss Landing with units 1 and 2 utilizing combined-cycle technologies. As part of the Clean Water Act and related permitting associated with the construction of units 1 and 2, the facility's operator made a seven million dollar ($7,000,000.00) deposit for the benefit of the Elkhorn Slough Foundation;

G. WHEREAS, on or about October 27, 2010, Dynegy, together with four other owners and operators of power plants utilizing once-through cooling technologies, filed a Verified Petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief against the State Water Board in the Superior Court of California for the County of Sacramento (the "Court"), Case No. 34-2010-80000701 (the "Action") (as used in this Agreement, "Action" refers to Dynegy's claims against the SWRCB);

H. WHEREAS, Dynegy's claims in the Action relate to disputes over whether the State Water Board's adoption of the Policy and SED was within the State Water Board's discretion and legal authority and, in particular, whether the State Water Board's actions complied with the Clean Water Act, the Porter-Cologne Water Quality Control Act, the Administrative Procedure Act, the California Environmental Quality Act, the United States and California Constitutions, and other federal and state regulations as alleged in the Action;

I. WHEREAS, on April 1, 2011, Dynegy Moss Landing, LLC submitted, pursuant to the Policy, an Implementation Plan for Moss Landing, which documents Dynegy Moss Landing, LLC's position that compliance with Track 1 of the Policy is not feasible at Moss Landing and identifies steps that Dynegy Moss Landing, LLC will undertake to comply with the Policy, including compliance with Track 2;

J. WHEREAS, on April 1, 2011, Dynegy Morro Bay, LLC submitted, pursuant to the Policy, an Implementation Plan for Morro Bay, which documents Dynegy Morro Bay's position that compliance with Track 1 of the Policy is not feasible at Morro Bay and identifies steps that Dynegy Morro Bay, LLC will undertake to comply with the Policy, including compliance with Track 2;

K. WHEREAS, on February 5, 2014, Dynegy Morro Bay, LLC retired Morro Bay, well in advance of its December 31, 2015 final compliance date in the Policy;

L. WHEREAS, the Parties wish to compromise, resolve, settle, and terminate any and all of the disputes or claims in the Action on terms and conditions set forth herein (the "Settled Disputes and Claims");

M. WHEREAS, after extensive negotiation, the Parties have agreed upon a revision to the Policy with respect to the final compliance date for Moss Landing that the Parties support. Because the current Policy reflects a quasi-legislative exercise of power by the State Water Board, consistent with the Clean Water Act, the Porter-Cologne Act, and other applicable laws, the provisions of the Agreement pertaining to the final compliance date cannot be directly implemented, but instead must be carried out through further public proceedings of the State Water Board that are consistent with applicable laws. Only the settlement provision pertaining to the

Moss Landing final compliance date is required to go through public proceedings of the State Water Board in order to be implemented. Dynegy acknowledges that the State Water Board cannot commit to implementing the revised final compliance date proposed in this Agreement, but instead must consider all the evidence and testimony presented during further public proceedings of the State Water Board to revise the current Policy;

N. WHEREAS, the Parties represent that they understand they are waiving significant legal rights by signing this Agreement, each Party in no way concedes any positions taken in the Action, and this Agreement is made in a spirit of compromise for the sole purpose of avoiding the uncertainties and expenses of litigation with respect to the Settled Disputes and Claims;

NOW, THEREFORE, in consideration of the foregoing and the following, the Parties agree as follows:

AGREEMENT

1. Recitals Incorporated. The recitals set forth above, including all definitions therein, are expressly incorporated as terms of this Agreement.

2. Terms of Settlement.

2.1 Moss Landing Power Plant

2.1.1. Interim Mitigation. The prior seven million dollar ($7,000,000.00) contribution to the Elkhorn Slough Foundation satisfies the requirements under Policy section 2.C.(3)(a) from October 1, 2015 through the December 31, 2020 final compliance date for all Moss Landing units.

2.1.2. Infeasibility Demonstration. Track 1 is not feasible, as defined in Policy section 5, at Moss Landing under Policy section 2.A.(2) and Dynegy Moss Landing, LLC may comply pursuant to Track 2 as provided in paragraph 2.1.3, below.

2.1.3. Track 2 Compliance.

a. Dynegy Moss Landing, LLC may achieve Track 2 compliance under Policy sections 2.A.(2)(a)(ii) and 2.A.(2)(b)(ii), including application of the prior flow reduction credit provided in Policy section 2.A.(2)(d) to Moss Landing units 1 and 2.

b. Track 2 compliance can be achieved by an 83.7% or greater reduction in impingement mortality and entrainment, pursuant to Policy sections 2.A.(2)(a)(ii) and 2.A.(2)(b)(ii).

c. The required Track 2 reduction in impingement mortality and entrainment may be achieved by: (1) use of prior flow reduction credit provided in Policy section 2.A.(2)(d), calculated and applied as described below in paragraph 2.1.4 for Moss Landing units 1 and 2; (2) use of operational controls to further reduce flow; and (3) reductions in impingement mortality and entrainment through installation of technology controls, which can be calculated based on total numbers of fishes and other meroplankton.

The percent reductions in entrainment achieved by the technology controls may also be based on calculations of the numbers of fishes and other meroplankton of a specific age or size class that have been protected from the effects of entrainment for the species selected for analysis. As used in this Agreement, the term "fishes and other merorplankton" means ichthyoplankton and meroplankton as identified in the Policy at section 2.A.(2)(b)(ii).

d. Compliance with the required Track 2 reductions can be computed, after application of the credit for Moss Landing units 1 and 2, by combining the percent reduction from design flow achieved through flow control or operational measures with the reductions in impingement mortality and entrainment through the installation of technology controls, which can be calculated in accordance with paragraph 2.1.3.c.

e. The location of measurement and monitoring points will be consistent with the following: (1) entrainment may be measured at one location for the two Moss Landing intake structures, which are separated by approximately 800 feet (244 meters), to estimate source water concentrations of fishes and other meroplankton during the baseline studies, and (2) the impingement monitoring for the baseline studies will occur at both intakes due to the differences in the design of the two intake structures. These and other details of the baseline studies will be described in the study design proposal to be submitted to the State Water Board as needed.

2.1.4. Prior Reduction Credit. Moss Landing shall receive a credit for the prior reduction of 224 million gallons per day ("MGD") achieved by the replacement of prior units 1-5 with combined-cycle units 1 and 2 as provided in Policy section 2.A.(2)(d). The entire 224 MGD will be credited towards compliance for Moss Landing units 1 and 2, which may then achieve compliance with Track 2 by additional reductions in impingement mortality and entrainment to meet the required Track 2 reduction pursuant to Policy sections 2.A.(2)(a)(ii) and 2.A.(2)(b)(ii).

2.1.5. Moss Landing Compliance Date Extension. The State Water Board staff and the Parties, except the State Water Board, shall advocate to the State Water Board that it extend the final compliance date for all units at Moss Landing to December 31, 2020, using the process and procedure specified in paragraph 2.3, below.

2.1.6. Moss Landing Compliance Schedule Plan.

a. Within thirty (30) days after the Execution Date, Dynegy Moss Landing, LLC will submit an update to its Implementation Plan, previously submitted on April 1, 2011.

b. Within thirty (30) days after the Execution Date, Dynegy Moss Landing, LLC will begin implementing operational control measures to reduce flow.

c. Starting in 2015, by March 1 of each year, Dynegy Moss Landing, LLC will provide the State Water Board with an annual update on the status of (1) operational or other supplemental measures undertaken in the previous calendar year to reduce entrainment or

impingement mortality, and (2) any studies undertaken in the previous calendar year to determine compliance options to meet Track 2 requirements.

d. By December 31, 2016, Dynegy Moss Landing, LLC will install and operate variable speed drive controls on circulating water pumps serving Moss Landing units 1 and 2.

e. Beginning December 31, 2016 through the final compliance date of December 31, 2020, Dynegy Moss Landing, LLC will achieve 83.7% or greater reduction in impingement mortality and entrainment from design flow using flow control and operational measures. Percentage reductions in impingement mortality and entrainment achieved through flow control will be directly proportional to reductions in flow relative to design flow. For purposes of this provision, compliance will be determined as an annual average over the period December 31, 2016 to December 31, 2020.

f. By December 31, 2020, Dynegy Moss Landing, LLC will install supplemental control technology at Moss Landing units 1 and 2 to complement the operational control measures and achieve compliance pursuant to Policy sections 2.A.(2)(a)(ii) and 2.A.(2)(b)(ii).

g. By December 31, 2020, Dynegy Moss Landing, LLC will achieve compliance with Policy sections 2.A.(2)(a)(ii) and 2.A.(2)(b)(ii) at Moss Landing units 6 and 7 or, subject to Policy section 2.B.(2), cease operations of such unit(s) until such time as compliance is achieved.

h. Reservation of Right to Repower Moss Landing. Notwithstanding any other provision herein, Dynegy Moss Landing, LLC, reserves the right to repower Moss Landing with a technology that does not utilize once-through cooling.

2.1.7. Track 2 Studies and Compliance Determination.

a. Baseline Studies. Dynegy Moss Landing, LLC will conduct baseline studies pursuant to Policy sections 4.A.(1) and 4.B.(1) at Moss Landing to provide data to support the Compliance Tracking Tool, described below in paragraph 2.1.7.b. Dynegy Moss Landing, LLC will seek State Water Board approval of study designs for baseline studies as needed. The State Water Board shall respond promptly in accordance with the procedures described in paragraph 2.1.7.e., below.

b. Baseline Study Report. No later than six (6) months after completion of the baseline studies, Dynegy Moss Landing, LLC shall submit a Baseline Study Report to the State Water Board for approval which shall provide: (1) results of the baseline studies for impingement and entrainment; (2) the representative species, including sensitive species, proposed to be used to determine compliance; and (3) the measured densities of the representative species by seasonal and diel periods. The State Water Board shall respond promptly in accordance with the procedures described in paragraph 2.1.7.e., below. Following approval of the Baseline Study Report, these data will be used with data on plant

cooling water flows to implement a program ("Compliance Tracking Tool") to track and demonstrate compliance with the required reductions in the Policy and this Agreement.

c. Technology Evaluation and Verification. Dynegy Moss Landing, LLC will evaluate technology control(s) to be installed at Moss Landing by conducting a pilot study after completion of baseline studies and evaluation of the results of baseline studies and operational controls.

i. Dynegy Moss Landing, LLC will seek State Water Board approval of the pilot study designs as needed. The State Water Board shall respond promptly in accordance with the procedures described in paragraph 2.1.7.e., below.

ii. After completion of the pilot study, Dynegy Moss Landing, LLC will report the results to the State Water Board including: (1) specific details of the planned technology(ies) to be installed; (2) the representative site-specific species, including sensitive species, identified in the Baseline Study Report that will be used in determining compliance with Track 2 impingement mortality and entrainment reductions; and (3) an estimate of the supplemental reductions in impingement mortality and/or entrainment through installation of technology control(s), which can be calculated based on total numbers of fishes and other meroplankton. For entrainment, the percent reduction in entrainment achieved by the technology controls may also be based on calculations of the numbers of fishes and other meroplankton of a specific age or size class that have been protected from the effects of entrainment for the species selected for analysis.

iii. Upon installation of technology control(s), Dynegy Moss Landing, LLC will verify that the technology(ies) performs as expected.

d. Compliance Determination. After the Track 2 controls are implemented and after the December 31, 2020 final compliance date, Policy sections 4.A.(2) and 4.B.(2) specify the need for another study to confirm Track 2 compliance. For Moss Landing, the following provisions will satisfy the requirements of Policy sections 4.A.(2) and 4.B.(2). This provision does not affect responsibilities at the end of each NPDES permit term under Policy sections 4.A.(3) and 4.B.(3).

i. Compliance shall be monitored utilizing a Compliance Tracking Tool that relies on: (1) data on the densities of representative site-specific species as approved in the Baseline Study Report, described above, which will allow the calculation of the percent reduction in impingement mortality and entrainment[1]; (2) actual records of cooling water flow; and (3) technology performance as verified in paragraph 2.1.7.c.iii., above.

[1] For Moss Landing units 1 and 2, the baseline annual loss shall be calculated using estimates of density from the baseline studies multiplied by the design flow for units 1 through 5 and assuming a mortality rate of 100%. For Moss Landing units 6 and 7, the same calculation will be made using the design flow for those units. The actual annual loss following implementation of operational and other measures shall be calculated as the baseline density adjusted for any applied technology multiplied by the actual plant flow and assuming an entrainment mortality of 100% and impingement mortality as adjusted by any applied technology (such as a fish return system).

ii. Compliance shall be determined based on the average annual reduction calculated across each NPDES permit term.

e. Annual Updates and Other Reports and Approvals. Dynegy Moss Landing, LLC will provide the State Water Board with updates annually, as described above in paragraph 2.1.6.c., on its implementation of the Policy. In addition, Dynegy Moss Landing, LLC will submit, from time to time, study designs, results, and other information regarding compliance approaches and progress related to the Policy, including but not limited to the Baseline Study Design, Baseline Study Report, pilot study designs and technology verification reports. Whenever Dynegy Moss Landing, LLC submits information to the State Water Board and requests the State Water Board's confirmation or approval, the State Water Board will respond promptly with an approval or an explanation for disapproval, including any additional information needs, but in any event no later than sixty (60) days after receipt of the information and request. In the event the State Water Board requests additional information or other amendment, the State Water Board shall provide a decision not later than thirty (30) days after receipt of the information or amendment. These deadlines may be extended by mutual agreement. The provisions of this paragraph pertain only to Dynegy Moss Landing, LLC's compliance with the Policy, and do not impose obligations on the State Water Board unrelated to Dynegy Moss Landing's compliance with the Policy.

f. Intake Flows for Study Purposes. The State Water Board recognizes that it may be necessary to continue intake flows even when not directly engaging in power-generating activities or critical system maintenance for short time periods while performing baseline, pilot, and/or verification studies. Dynegy Moss Landing, LLC shall include proposed testing schedules in the development of baseline, pilot and technology study plans and coordinate the study designs with the State Water Board with the goal of minimizing the impacts on the biological community from the effects of the studies. Upon State Water Board confirmation of the relevant study, Dynegy Moss Landing, LLC shall be deemed to have demonstrated to the State Water Board that a reduced minimum flow is necessary for operations pursuant to Policy section 2.C.(2).

2.2 Morro Bay Power Plant.

2.2.1. Dynegy Morro Bay, LLC permanently retired Morro Bay on February 5, 2014, well in advance of its December 31, 2015 final compliance date in Table 1, section 3.E of the Policy, achieving early compliance with the Policy in consideration of the terms of this Agreement.

2.2.2. Reservation of Right to Repower Morro Bay. Notwithstanding any other provision herein, Dynegy Morro Bay, LLC, reserves the right to repower Morro Bay with a technology that does not utilize once-through cooling.

2.3 Policy Amendments to Implement Schedule Changes at Moss Landing

2.3.1. Within three (3) months of the Execution Date, the State Water Board staff shall propose a Policy amendment to change the final compliance date in Table 1, section

3.E of the Policy for all units at Moss Landing to December 31, 2020. ("Proposed Policy Amendment").

2.3.2. The State Water Board shall take action on the Proposed Policy Amendment promptly, and in any event no later than within six (6) months of the Execution Date.

2.3.3. The State Water Board staff and Dynegy shall advocate in support of the Proposed Policy Amendment by doing at least the following:

a. Preparing and submitting relevant written comments in support of the Proposed Policy Amendment;

b. Speaking in support of the Proposed Policy Amendment at any applicable hearing, workshop, or meeting held by the State Water Board to consider the amendment; and

c. By using all reasonable efforts to defend any challenge, including opposition raised in the administrative proceeding or a legal challenge brought in court, to the Proposed Policy Amendment.

2.4 NPDES Permit. Upon amendment of the Policy to extend the final compliance date for Moss Landing to December 31, 2020 following the process and procedure specified in paragraph 2.3, above, the reissuance of an NPDES permit, and its associated monitoring program, for Moss Landing will incorporate provisions necessary to implement the terms of this Agreement pertaining to Moss Landing contained in Section 2.1 and the finalized Policy amendment.

3. Implementation of Settlement.

3.1. Stay or Stipulated Dismissal without Prejudice.

3.1.1. It is the Parties' intent that Dynegy's claims in the Action shall be stayed while the Parties take the necessary actions to implement the terms of this Agreement. Further, it is the Parties' intent that, in the event of a breach of this Agreement, or in the event that the substantive terms of this Agreement are not incorporated into the NPDES permit for Moss Landing as provided in paragraph 2.4 of this Agreement, the stay of the Action will be lifted and the Action may then proceed.

a. Within twenty-one (21) days of the Execution Date, Dynegy will seek to have the Action stayed in order to allow the Parties' intentions and the terms of this Agreement to be implemented. The State Water Board will support any motion to stay the Action in accordance with this paragraph 3.1.1.

b. In the event that the Parties are unable to obtain a stay of the Action, the Parties will stipulate to dismiss the Action without prejudice and with the right of Dynegy to re-open the Action as set forth in paragraphs 3.1.1.d. and 5. The Parties shall enter this stipulation within twenty-one (21) days of being informed by the Court that it will not stay the Action. A dismissal without prejudice under this Section will serve to toll any

applicable statutes of limitation, filing, statute of repose, laches defense, claim of waiver or estoppel, or other similar defense or claim that is applicable to any of the claims or causes of action asserted by Dynegy in the Action.

c. The stay described in paragraph 3.1.1.a. or the tolling specified in paragraph 3.1.1.b. will run so long as the Parties are pursuing the necessary steps to implement the terms of this Agreement.

d. In the event that the NPDES permit for Moss Landing does not contain the provisions necessary to implement Section 2.1 of this Agreement as provided in paragraph 2.4, or to the extent that the State Water Board is otherwise in breach of this Agreement, the State Water Board stipulates that Dynegy can lift the stay, reactivate or reinstate the Action, and Dynegy can amend the original Action to include additional claims or causes of action consistent with applicable statutes of limitations. The tolling period provided by paragraph 3.1.1.b. shall not apply to additional claims or causes of action not asserted in the Action.

3.2 Dismissed with Prejudice. Upon amendment of the Policy to extend the final compliance date for Moss Landing to December 31, 2020 and the reissuance of an NPDES permit to Moss Landing that adopts the provisions of the Policy and this Agreement, Dynegy will file a voluntary dismissal of the Action with prejudice, or if the Action has already been dismissed pursuant to paragraph 3.1.1.b., then Dynegy shall not be entitled to reopen or reinstate the claims or causes of action contained in the Action and those claims are subject to the release of paragraph 3.3.

3.3 Release. Upon the conditions of paragraph 3.2, Dynegy fully and forever releases the State Water Board from any and all claims, demands, actions, causes of action, obligations, damages, liabilities, loss, costs or expense, including attorneys fees, of any kind or nature whatsoever, in law, equity or otherwise, which it may now have as a result of the adoption of the Policy and the Proposed Policy Amendment. The release provided by this paragraph does not extend to any subsequent actions of the State Water Board that modify the Policy in a way that imposes additional obligations on Dynegy or any subsequent action by the State Water Board that is in breach of this Agreement.

4. Effect on State Water Board Authorities. Except as specifically agreed to herein, nothing in this Agreement limits the authority of the State Water Board to exercise its powers provided under state and federal law, including to issue or enforce orders.

5. Default and Remedies. In the event of an alleged breach, the non-breaching Party agrees to give written notice of the alleged breach to all other Parties and to consult with the Parties within fifteen (15) days of the written notice of the alleged breach, unless otherwise agreed in writing, for the purpose of attempting in good faith to resolve any disputes prior to the initiation of litigation or court proceedings. If the Parties are unable to resolve the dispute, the non-breaching Party can move to re-open the Action, and can amend the original Action to include a claim for breach of this Agreement.

6. Attorneys Fees and Costs. All Parties agree to bear their own fees and costs associated with the Action or any challenges by any non-party to this Agreement and related implementing documents and processes.

7. Superior Court to Enforce Agreement. The Parties agree and acknowledge that this Agreement shall be deemed to have been entered into by and between the Parties in the County of Sacramento, State of California. The Parties agree that the Superior Court of California for the County of Sacramento, in which forum the Action was filed, shall be the judicial forum for purposes of jurisdiction should any Party seek to enforce the terms of this Agreement.

8. No Admission. This Agreement and its provisions and any proceedings taken hereunder are for settlement purposes only and are not intended to be, and shall not in any event be construed or deemed to be, an admission or concession on the part of the Parties, or any of them, of any liability or wrongdoing whatsoever. This Agreement is predicated upon unique facts which exist between the Parties and none of the Parties intend this Agreement to be a waiver of any right or position in regards to any third party. Neither this Agreement nor any negotiations or proceedings in pursuance of this Agreement shall be offered or received in any action or proceeding as an admission or concession of liability or wrongdoing of any nature on the part of the Parties, or any of them, or anyone acting on their respective behalves.

9. Successors. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective representatives, successors and assigns. No Party may assign its rights under this Agreement without the prior written consent of the other Parties.

10. No Third Party Beneficiaries. This Agreement is between the Parties and is not intended to confer upon any person other than the Parties any rights or remedies.

11. Notices. All communications and notices to be given to any Party under this Agreement shall be sufficiently given for purposes hereunder if in writing and delivered by hand, courier or overnight delivery service, or certified or registered mail return receipt requested with appropriate postage prepaid, with an additional copy provided by electronic mail, and directed to the addresses below:

As to State Water Board:

Michael A.M. Lauffer, Chief Counsel
State Water Resources Control Board
1001 I Street, 22nd Floor
Sacramento, CA 95814
michael.lauffer@waterboards.ca.gov

As to Dynegy:

Elizabeth P. Ewens, Esq.
Ellison, Schneider & Harris L.L.P
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
epe@eslawfirm.com

and

Dynegy Moss Landing, LLC and Dynegy Morro Bay, LLC
601 Travis Street, Suite 1400
Houston, TX 77002
Attention: General Counsel
Catherine.Callaway@dynegy.com

11.1 Any Party may change its notice recipient or address for providing notice to it by notifying the other Party(ies) in writing setting forth such new notice recipient or address.

12. Further Cooperation. The Parties, and each of them, agree to do all things reasonably necessary to implement this Agreement, including, but not limited to, executing such additional writings as may be reasonably required to carry out the intent of this Agreement. The Parties will reasonably cooperate, each with the other, to effectuate the purpose of this Agreement, to protect and defend its integrity and do what may be necessary to verify its existence and operation in such matters as may be relevant.

13. Entire Agreement. This Agreement constitutes the entire agreement between the Parties. There are no further or other agreements or understandings, written or oral, in effect between the Parties relating to the subject matter of this Agreement.

14. Modification of Agreement. It is expressly understood and agreed that this Agreement may not be altered, amended, modified, or otherwise changed in any respect whatsoever except by a writing duly executed by authorized representatives of the Parties hereto. The Parties hereby agree and acknowledge that they will make no claim at any time or place that this Agreement has been orally altered or modified or otherwise changed by oral communication of any kind or character.

15. Mutual Preparation. The Parties each cooperated in the drafting and preparation of this Agreement and thus it shall be deemed drafted by all Parties to the Agreement. The language of all parts of this Agreement shall be construed as a whole, according to its fair meaning, and not strictly for or against any Party as the drafter thereof.

16. Authority. Each Party respectively represents and warrants to each other Party that the undersigned representative for such Party has full and complete authority to execute and enter into this Agreement and bind said Party to the terms hereof.

17. Counterparts. This Agreement may be executed by facsimile and in counterparts, and each counterpart shall be considered an original, and all of which, taken together, shall constitute one and the same instrument; provided, however, that original signatures will also be provided to all counsel by mail.

18. Captions. The captions contained herein are intended solely for convenience and shall not be construed as full or accurate descriptions of the terms hereof.

19. Independent Investigation. Each Party has made such investigation of the facts pertaining to this Agreement and of all matters pertaining thereto as it deems necessary.

20. Governing Law. This Agreement has been executed and delivered in the State of California and its validity, interpretation, performance, and enforcement shall be governed by the laws of the State of California.

21. Severability. If any portion or portions of this Agreement are held by a court of competent jurisdiction to conflict with any federal, state, or local laws, and as a result such portion or portions are declared to be invalid and of no force or effect in such jurisdiction, all remaining portions of this Agreement shall otherwise remain in full force and effect and be construed as if such invalid portions had not been included herein.

22. Force Majeure. No Party to this Agreement shall be deemed in violation of it if it is prevented from performing any of the obligations hereunder by reason of boycotts, labor disputes, embargoes, shortage of material, act of God, strikes, lockouts, labor troubles, inability to procure labor or materials, fire, accident, laws or regulations of general applicability, act of superior governmental authority, weather conditions, sabotage, or any other cause or circumstances for which it is not responsible and beyond its control (financial inability excepted). Any Party intending to assert force majeure shall notify the other Party(ies) in writing as soon as practicable following the date the Party first knew, or by the exercise of reasonable diligence should have known, of the force majeure event.

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23. Voluntary and Knowing Execution. Each Party respectively represents and warrants to each other Party that it has thoroughly read and considered all aspects of this Agreement, that it understands all provisions of this Agreement, that it has had the opportunity to consult with counsel, and that it is voluntarily and knowingly entering into this Agreement without duress or coercion of any kind.

SO AGREED:

Dated: ~~September~~ October 9, 2014

STATE WATER RESOURCES CONTROL BOARD

By: _____
Thomas Howard,
Executive Director

Dated: September ___, 2014

DYNEGY MOSS LANDING, LLC

By: _____
Robert C. Flexon
President and Chief Executive Officer
Dynegy Moss Landing, LLC

Dated: September ___, 2014

DYNEGY MORRO BAY, LLC

By: _____
Robert C. Flexon
President and Chief Executive Officer
Dynegy Morro Bay, LLC

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SO AGREED:

Dated: September ____, 2014 STATE WATER RESOURCES CONTROL BOARD

By: _____
Thomas Howard,
Executive Director

Dated: ~~September~~ October 8, 2014 DYNEGY MOSS LANDING, LLC

By: Martin W. Dailey
~~Robert C. Flexon~~ Martin W. Dailey
~~President and Chief Executive Officer~~ Vice President & General Mgr
Dynegy Moss Landing, LLC

Dated: ~~September~~ October 8, 2014 DYNEGY MORRO BAY, LLC

By: Martin W. Dailey
~~Robert C. Flexon~~ Martin W. Dailey
~~President and Chief Executive Officer~~ Vice President & General Mgr
Dynegy Morro Bay, LLC

APPENDIX A
PROPOSED AMENDMENT TO THE WATER QUALITY CONTROL POLICY ON THE USE OF COASTAL AND ESTUARINE WATERS FOR POWER PLANT COOLING

1. Introduction

   A. Clean Water Act Section 316(b) requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact. Section 316(b) is implemented through National Pollutant Discharge Elimination System (NPDES) permits, issued pursuant to Clean Water Act Section 402, which authorize the point source discharge of pollutants to navigable waters.

   B. The State Water Resources Control Board (State Water Board) is designated as the state water pollution control agency for all purposes stated in the Clean Water Act.

   C. The State Water Board and Regional Water Quality Control Boards (Regional Water Boards) (collectively Water Boards) are authorized to issue NPDES permits to point source dischargers in California.

   D. Currently, there are no applicable nationwide standards implementing Section 316(b) for *existing power plants**[1]. Consequently, the Water Boards must implement Section 316(b) on a case-by-case basis, using best professional judgment.

   E. The State Water Board is responsible for adopting state policy for water quality control, which may consist of water quality principles, guidelines, and objectives deemed essential for water quality control.

   F. This Policy establishes requirements for the implementation of Section 316(b), using best professional judgment in determining BTA for cooling water intake structures at existing coastal and estuarine power plants that must be implemented in NPDES permits.

   G. The intent of this Policy is to ensure that the beneficial uses of the State's coastal and estuarine waters are protected while also ensuring that the electrical power needs essential for the welfare of the citizens of the State are met. The State Water Board recognizes it is necessary to develop replacement infrastructure to maintain electric reliability in order to implement this Policy and in developing this policy considered costs, including costs of compliance, consistent with state and federal law.

[1] An asterisk indicates that the term is defined in Section 5 of the Policy.

H. During the development of this Policy, State Water Board staff has met regularly with representatives from the California Energy Commission (CEC), California Public Utilities Commission (CPUC), California Coastal Commission (CCC), California State Lands Commission (SLC), California Air Resources Board (ARB), and California Independent System Operator (CAISO) to develop realistic implementation plans and schedules for this Policy that will not cause disruption in the State's electrical power supply. The compliance dates for this Policy were developed considering a report produced by the energy agencies (CEC, CPUC, and CAISO), titled "Implementation of OTC Mitigation Through Energy Infrastructure Planning and Procurement Changes", and the accompanying table, titled "Draft Infrastructure Replacement Milestones and Compliance Dates for Existing Power Plants in California Using Once Through Cooling (OTC)", included in the Substitute Environmental Document for this Policy. The energy agencies' approach seeks to address the replacement, repowering, or retirement of power plants currently using OTC that (1) maintains reliability of the electric system; (2) meets California's environmental policy goals; and (3) achieves these goals through effective long-term planning for transmission, generation and demand resources. The energy agencies have stated that the dates specified in their report may require periodic updates.

I. To prevent disruption in the State's electrical power supply when the Policy is implemented, the State Water Board will convene a Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS), which will include representatives from the CEC, CPUC, CAISO, CCC, SLC, ARB, and State Water Board. SACCWIS will review implementation plans and schedules submitted by dischargers pursuant to this Policy, and advise the State Water Board on the implementation of this Policy to ensure that the implementation schedule takes into account local area and grid reliability, including permitting constraints. The State Water Board recognizes the compliance dates in this Policy may require amendment based on, among other factors, the need to maintain reliability of the electric system as determined by the energy agencies included in the SACCWIS, acting according to their individual or shared responsibilities. The State Water Board retains the final authority over changes to the adopted policy.

J. While the CEC, CPUC and CAISO each have various planning or permitting responsibilities important to this effort, the approach relies upon use of competitive procurement and forward contracting mechanisms implemented by the CPUC in order to identify low cost solutions for most OTC power plants. The CPUC has authority to order the investor-owned utilities (IOUs) to procure new or repowered fossil-fueled generation for system and/or local reliability in the Long-Term Procurement Plan (LTPP) proceeding. In response to the Policy, the CPUC anticipates modifying its LTPP proceeding and procurement processes to require the IOUs to assess replacement infrastructure needs and conduct targeted requests for offers (RFOs) to acquire replacement, repowered or otherwise compliant generation capacity. LTPP proceedings are conducted on a biennial cycle and plans are normally approved in odd-numbered years. The

next cycle, the 2010 LTPP, is estimated to result in a decision by 2011. The subsequent cycle, the 2012 LTPP, would in turn result in a decision by 2013. Once authorized to procure by a CPUC LTPP decision, the IOUs need approximately 18 months to issue an RFO, sign contracts, and submit applications to the CPUC for approval. Approval by the CPUC takes approximately nine months. If the contract involves a facility already licensed through the CEC generation permitting process, then financing and construction can begin. A typical generation permitting timeline is 12 months, but specific issues such as ability to obtain air permits can delay the process. IOUs often give preference to RFO bids with permits already (or nearly) in place. From contract approval, construction usually takes three years, if generation permits are approved, or approximately five years, if generation permits are pending or other barriers present delays. In total, starting from the initiation of an LTPP proceeding (2010 LTPP or 2012 LTPP), seven years are expected to elapse, before replacement infrastructure is operational. Due to the number of plants affected, efforts to replace or repower OTC power plants would need to be phased.

K. Because the Los Angeles region presents a more complex and challenging set of issues, it is anticipated that more time would be needed to study and implement replacement infrastructure solutions. Therefore, total elapsed time is expected to begin in 2010 and end in 2017 for the Greater Bay Area and San Diego regions, which would be addressed beginning in the 2010 LTPP. For the Los Angeles region, which would be addressed beginning in the 2012 LTPP, total elapsed time is expected to begin in 2012 and end in 2020. A transmission solution is expected to have approximately the same timeframe, but could be delayed by greater potential for significant local opposition. In order to assure that repowering or *new power plant** development in the Los Angeles basin addresses unique permitting challenges, the SACCWIS will assist the State Water Board in evaluating schedules for power plants not under the jurisdiction of the CPUC or operating within the CAISO Balancing Authority Area.

L. The Global Warming Solutions Act of 2006 requires California to reduce greenhouse gas emissions to 1990 levels by 2020 and then to maintain those reductions. California presently has two *nuclear-fueled power plants** that provide approximately 4,600 megawatts of baseload electricity and do not emit greenhouse gases during energy generation. Energy generation by facilities that do not emit greenhouse gases will be critical to meeting the mandates of the Global Warming Solutions Act and emerging national and international greenhouse gas reduction requirements. The *nuclear-fueled power plants** are entering into United States Nuclear Regulatory Commission (Commission) license renewal proceedings unique to the nuclear power industry and relicensing may extend the plants operating lives to approximately 2045. Unlike older era fossil-fueled plants, if the *nuclear-fueled power plants** undergo modernization as part of relicensing or cooling structure upgrades, that modernization will not reduce greenhouse gas emissions, and in fact, extended

downtime during modernization may result in short-term increases in greenhouse gases as other greenhouse gas emitting facilities provide makeup power. In recognition of these considerations and others, this Policy requires special studies for the *nuclear-fueled power plants** to address their unique issues, and to evaluate appropriate requirements for those plants.

M. To conserve the State's scarce water resources, the State Water Board encourages the use of recycled water for cooling water in lieu of marine, estuarine or fresh water.

N. The Regional Water Boards are responsible for all NPDES permit actions for *existing power plants** subject to this Policy, including without limitation actions to issue, modify, reissue, revoke, and terminate NPDES permits after October 1, 2010. In order to ensure a high level of statewide consistency in implementing Section 316(b), the State Water Board Division of Water Quality (DWQ) staff will provide technical support in all issues related to implementation of the OTC Policy.

O. Nothing in this Policy precludes the authority of the State Water Board and the Regional Water Board to regulate discharges from *existing power plants** through NPDES permits, consistent with water quality standards.

2. Requirements for *Existing Power Plants**

A. Compliance Alternatives. An owner or operator of an *existing power plant** must comply with either Track 1 or Track 2, below.

(1) Track 1. An owner or operator of an *existing power plant** must reduce *intake flow rate** at each unit, at a minimum, to a level commensurate with that which can be attained by a *closed-cycle wet cooling system**. A minimum 93 percent reduction in *intake flow rate** for each unit is required for Track 1 compliance, compared to the unit's design *intake flow rate**. The through-screen intake velocity must not exceed 0.5 foot per second. The installation of closed cycle dry cooling systems meets the intent and minimum reduction requirements of this compliance alternative.

(2) Track 2. If an owner or operator of an *existing power plant** demonstrates to the State Water Board's satisfaction that compliance with Track 1 is *not feasible**, the owner or operator of an *existing power plant** must reduce impingement mortality and entrainment of marine life for the facility, on a unit-by-unit basis, to a comparable level to that which would be achieved under Track 1, using operational or structural controls, or both.

(a) Compliance for impingement mortality shall be determined either:

(i) For plants relying solely on reductions in velocity, by monthly verification of through-screen intake velocity not to exceed 0.5 foot per second, or

(ii) By monitoring required in Section 4.A, below. For measured reductions determined by monitoring, the owner or operator must reduce impingement mortality to a comparable level to that which would be achieved under Track 1. A "comparable level" is a level that achieves at least 90 percent of the reduction in impingement mortality required under Track 1.

(b) Compliance for entrainment shall be determined either:

(i) For plants relying solely on reductions in flow, by recording and reporting reductions in terms of monthly flow, in which case a minimum of 93% reduction in flow, as compared to the average actual flow for the corresponding months from 2000 – 2005, must be met, or

(ii) For plants relying in whole or in part on other control technologies (e.g., including but not limited to screens or re-location of intake structures), by measured reductions in entrainment determined by monitoring required in Section 4.B, below. The owner or operator must reduce entrainment to a comparable level to that which would be achieved under Track 1. A "comparable level" is a level that achieves at least 90 percent of the reduction in entrainment required under Track 1. If screens are employed to reduce entrainment, compliance shall be determined based on *ichthyoplankton**, and on the crustacean phyllosoma and megalops larvae, and squid paralarvae fractions of *meroplankton**.

(c) Technology-based improvements that are specifically designed to reduce impingement mortality and/or entrainment and were implemented prior to October 1, 2010 may be counted towards meeting Track 2 requirements.

(d) The owner or operator of an *existing power plant** with *combined-cycle power-generating units** installed prior to October 1, 2010 may achieve compliance in accordance with this paragraph.

The owner or operator may count prior reductions in impingement mortality and entrainment resulting from the replacement of steam turbine power-generating units with *combined-cycle power-generating units**, towards meeting Track 2 requirements. Reductions shall be based on reductions in intake flows, calculated as the difference between:

(i) the maximum permitted discharge (expressed as million gallons per day (MGD)) for the entire power plant as identified in the plant's prior NPDES permit that authorized the steam turbine power-generating units which were subsequently replaced with the *combined-cycle power-generating units** and

(ii) the maximum permitted discharge (expressed as MGD) for the entire power plant, including the combined cycle units, as identified in the plant's NPDES permit authorizing the *combined-cycle power-generating units**.

B. Final Compliance Dates

(1) *Existing power plants** shall comply with Section 2.A, above, as soon as possible, but no later than, the dates shown in Table 1, contained in Section 3.E, below.

(2) Based on the need for continued operation of an *existing power plant** to maintain the reliability of the electric system, a final compliance date may be suspended under the following circumstances:

(a) **Suspension of Final Compliance Date for Less Than 90 Days for *Existing Power Plants** Within CAISO Jurisdiction.** If CAISO determines that continued operation of an *existing power plant** is necessary to maintain the reliability of the electric system in the short-term, CAISO shall provide written notification to the State Water Board, the Regional Water Board with jurisdiction over the *existing power plant**, and the SACCWIS. If the Executive Directors of the CEC and CPUC do not object in writing within 10 days to CAISO's written notification, the notification provided pursuant to this paragraph will suspend the final compliance date for the shorter of 90 days or the time CAISO determines necessary to maintain reliability. In the event either CEC or CPUC objects as provided in this paragraph, then the State Water Board shall hold a hearing as expeditiously as possible to determine whether to suspend the compliance date in accordance with paragraph (d).

(b) **Suspension of Final Compliance Date for Longer Than 90 Days, or consecutive less than 90 day suspensions, for *Existing Power Plants** Within CAISO Jurisdiction.** If CAISO determines that continued operation of an *existing power plant** is necessary to maintain the reliability of the electric system, CAISO shall provide written notification to the State Water Board, the Regional Water Board with jurisdiction over the *existing power plant**, and the SACCWIS. If the Executive Directors of the CEC and CPUC do not object in writing within 10 days to CAISO's determination, the notification provided pursuant to this paragraph will suspend the final compliance date for 90 days. During the 90-day time suspension or within 90 days of receiving a written notification from

CAISO, the State Water Board shall conduct a hearing in accordance with paragraph (d) to determine whether to suspend the final compliance date for more than the original 90 days pending, if necessary, full evaluation of amendments to final compliance dates contained in the policy.

(c) **Suspension of Final Compliance Date for *Existing Power Plants** Within Los Angeles Department of Water and Power (LADWP) Service Area.** If the LADWP Commission determines, through a public process, that continued operation of an *existing power plant** operated by LADWP is necessary to maintain the reliability of the electric system in the short-term, LADWP shall provide written notification to the State Water Board, the Regional Water Board with jurisdiction over the *existing power plant**, and the SACCWIS. Within 45 days of receiving a written notice from LADWP, the State Water Board shall conduct a hearing in accordance with paragraph (d) to determine whether to suspend the final compliance date. In considering whether to suspend or amend the final compliance dates the State Board shall consult with the CAISO.

(d) **State Water Board Hearings on Suspension of Final Compliance Dates.** In considering whether to suspend or amend the final compliance dates, the State Water Board shall afford significant weight to the recommendations of the CAISO.

C. Immediate and Interim Requirements

(1) No later than October 1, 2011, the owner or operator of an *existing power plant** with an *offshore intake** shall install large organism exclusion devices having a distance between exclusion bars of no greater than nine inches, or install other exclusion devices, deemed equivalent by the State Water Board.

(2) No later than October 1, 2011, the owner or operator of an *existing power plant** unit that is not directly engaging in *power-generating activities**, or *critical system maintenance**, shall cease intake flows, unless the owner or operator demonstrates to the State Water Board that a reduced minimum flow is necessary for operations.

(3) The owner or operator of an *existing power plant** must implement measures to mitigate the interim impingement and entrainment impacts resulting from the cooling water intake structure(s), commencing October 1, 2015 and continuing up to and until the owner or operator achieves final compliance. The owner or operator must include in the implementation plan, described in Section 3.A below, the specific measures that will be undertaken to comply with this requirement. An owner or operator may comply with this requirement by:

(a) Demonstrating to the State Water Board's satisfaction that the owner or operator is compensating for the interim impingement and entrainment impacts through existing mitigation efforts, including any projects that are required by state or federal permits as of October 1, 2010; or

(b) Demonstrating to the State Water Board's satisfaction that the interim impacts are compensated for by the owner or operator providing funding to the California Coastal Conservancy which will work with the California Ocean Protection Council to fund an appropriate *mitigation project**; or

(c) Developing and implementing a *mitigation project** for the facility, approved by the State Water Board, which will compensate for the interim impingement and entrainment impacts. Such a project must be overseen by an advisory panel of experts convened by the State Water Board.

(d) The *habitat production foregone** method, or a comparable alternate method approved by the State Water Board , shall be used to determine the habitat and area, based on replacement of the annual entrainment, for funding a *mitigation project**.

(e) It is the preference of the State Water Board that funding is provided to the California Coastal Conservancy, working with the California Ocean Protection Council, for mitigation projects directed toward increases in marine life associated with the State's Marine Protected Areas in the geographic region of the facility.

(4) Owners or operators of fossil fueled units that have submitted implementation plans to comply with this Policy under Section 2.A(1) and have requested compliance dates after December 31, 2022 that are approved by the State Water Board as provided in Section 3.E shall:

(a) Commit to eliminate OTC and seawater use for cooling water purposes for all units at the facility.

(b) Conduct a study or studies, singularly or jointly with other facilities, to evaluate new technologies or improve existing technologies to reduce impingement and entrainment.

(c) Submit the results of the study and a proposal to minimize entrainment and impingement to the Chief Deputy Director no later than December 31, 2015.

(d) Upon approval of the proposal by the Chief Deputy Director, complete implementation of the proposal no later than December 31, 2020.

D. *Nuclear-Fueled Power Plants**

If the owner or operator of an existing *nuclear-fueled power plant** demonstrates that compliance with the requirements for *existing power plants** in Section 2.A, above, of this Policy would result in a conflict with any safety requirement established by the Commission, with appropriate documentation or other substantiation from the Commission, the State Water Board will make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict with the Commission's safety requirements. The State Water Board may also establish alternative, site-specific requirements in accordance with Section 3.D (8).

3. Implementation Provisions

A. With the exception of *nuclear-fueled power plants**, which are covered under 3.D, below, no later than April 1, 2011, the owner or operator of an *existing power plant** shall submit an implementation plan to the State Water Board.

(1) The implementation plan shall identify the compliance alternative selected by the owner or operator, describe the general design, construction, or operational measures that will be undertaken to implement the alternative, and propose a realistic schedule for implementing these measures that is as short as possible. If the owner or operator chooses to repower the facility to reduce or eliminate reliance upon OTC, or to retrofit the facility to implement either Track 1 or Track 2 alternatives, the implementation plan shall identify the time period when generating power is infeasible and describe measures taken to coordinate this activity through the appropriate electrical system balancing authority's maintenance scheduling process.

(2) If the owner or operator selects *closed-cycle wet cooling** as a compliance alternative, the owner or operator shall address in the implementation plan whether recycled water of suitable quality is available for use as makeup water.

B. The SACCWIS shall be impaneled no later than January 1, 2011, by the Executive Director of the State Water Board, to advise the State Water Board on the implementation of this Policy to ensure that the implementation schedule takes into account local area and grid reliability, including permitting constraints. SACCWIS shall include representatives from the CEC, CPUC, CAISO, CCC, SLC, ARB, and State Water Board.

(1) SACCWIS meetings shall be scheduled regularly and as needed. Meetings shall be open to the public and shall be noticed at least 10 days in advance of the meeting. All SACCWIS products shall be made available to the public.

(2) The SACCWIS shall review the owner or operator's proposed implementation schedule and report to the State Water Board with recommendations no later than October 1, 2011. The SACCWIS may consult with other appropriate agencies, including but not limited to the Regional Water Boards, air quality districts, and the LADWP, in the process of reviewing implementation schedules and providing recommendations to the State Water Board.

(3) The CAISO and the LADWP shall each submit to the SACCWIS by December 31, each year a grid reliability study, for their respective jurisdictions, that has been developed pursuant to a public process and approved by their governing bodies. In order to assure that SACCWIS can provide annual reports to the State Water Board by March 31, the SACCWIS shall promptly meet to consider the reliability studies submitted by CAISO and the LADWP.

(4) The SACCWIS will report to the State Water Board with recommendations on modifications to the implementation schedule every year starting in 2012. If members of SACCWIS do not believe the full committee recommendations reflect their concerns they may issue minority recommendations that the State Water Board shall consider as part of the SACCWIS recommendations.

(5) The State Water Board shall consider the SACCWIS' recommendations and direct staff to make modifications, if appropriate, for the State Water Board's consideration. In the event that the SACCWIS energy agencies (CAISO, CPUC, and CEC) make a unanimous recommendation for implementation schedule modification based on grid reliability, the State Water Board shall afford significant weight to the recommendation.

C. The Regional Water Board shall reissue or, as appropriate, modify NPDES permits issued to owners or operators of *existing power plants**, after a hearing in the affected region, to ensure that the permits conform to the provisions of this Policy.

(1) The permits shall incorporate a final compliance schedule that requires compliance no later than the due dates contained in Table 1, contained in Section 3.E, below. If the State Water Board determines that a longer compliance schedule is necessary to maintain reliability of the electric system per SACCWIS recommendations while other OTC power plants are retrofitted, repowered, or retired or transmission upgrades take place, this delay shall be incorporated into the compliance schedule and stated in the permit findings.

(2) The Regional Water Board shall reopen, if necessary, the relevant permits and modify the final compliance schedules, if appropriate, based on modifications to the policy approved by the State Water Board or the suspension of final compliance dates pursuant to this policy.

(3) If an owner or operator selects Track 2 as the compliance alternative, the NPDES permit shall include a monitoring program that complies with Section 4 of this Policy.

(4) NPDES permits issued by the Regional Water Board shall include appropriate permit provisions to implement suspensions of final compliance dates authorized in Section 2.B (2) and modifications to final compliance dates specified in this policy, without reopening the permits.

D. No later than January 1, 2011 the Executive Director of the State Water Board, using the authority under section 13267(f) of the Water Code, shall request that Southern California Edison (SCE) and Pacific Gas & Electric Company (PG&E) conduct special studies for submission to the State Water Board.

(1) The special studies shall investigate alternatives for the *nuclear-fueled power plants** to meet the requirements of this Policy, including the costs for these alternatives.

(2) The special studies shall be conducted by an independent third party with engineering experience with nuclear power plants, selected by the Executive Director of the State Water Board.

(3) The special studies shall be overseen by a Review Committee, established by the Executive Director of the State Water Board no later than January 1, 2011, which shall include, at a minimum, representatives of SCE, PG&E, SACCWIS, the environmental community, and staffs of the State Water Board, Central Coast Regional Water Board, and the San Diego Regional Water Board.

(4) No later than October 1, 2011, the Review Committee, described above, shall provide a report for public comment detailing the scope of the special studies, including the degree to which existing, completed studies can be relied upon.

(5) No later than October 1, 2013 the Review Committee shall provide the final report and the Review Committee's comments for public comment detailing the results of the special studies and shall present the report to the State Water Board.

(6) Meetings of the Review Committee shall be open to the public and shall be noticed at least 10 days in advance of the meeting. All products of the Review Committee shall be made available to the public.

(7) The State Water Board shall consider the results of the special studies, and shall evaluate the need to modify this Policy with respect to the *nuclear-fueled power plants**. In evaluating the need to modify this Policy, the State Water Board shall base its decision to modify this Policy with respect to the *nuclear-fueled power plants** on the following factors:

(a) Costs of compliance in terms of total dollars and dollars per megawatt hour of electrical energy produced over an amortization period of 20 years;

(b) Ability to achieve compliance with Track 1 considering factors including, but not limited to, engineering constraints, space constraints, permitting constraints, and public safety considerations;

(c) Potential environmental impacts of compliance with Track 1, including, but not limited to, air emissions.

(8) If the State Water Board finds that for a specific *nuclear-fueled power plant** to implement Track 1, either (1) the costs are wholly out of proportion to the costs identified in Tetra Tech, Inc., California's Coastal Power Plants: Alternative Cooling System Analysis, February 2008 (see pages ES-10 [summary], C-1 - C-2 and C-23 - C-40 [Diablo Canyon Power Plant] and N-1 - N-2 and N-25 - N-42 [San Onofre Nuclear Generating Station]) and considered by the State Water Board in establishing Track 1, or (2) that compliance is wholly unreasonable based on the factors in paragraphs 7(b) and (c), then the State Water Board shall establish alternate requirements for that *nuclear-fueled power plant**. The State Water Board shall establish alternative requirements no less stringent than justified by the wholly out of proportion (i) cost and (ii) factor(s) of paragraph (7). The burden is on the person requesting the alternative requirement to demonstrate that alternative requirements should be authorized.

(9) In the event the State Water Board establishes alternate requirements for *nuclear-fueled power plants**, the difference in impacts to marine life resulting from any alternative, less stringent requirements shall be fully mitigated. Mitigation required pursuant to this paragraph shall be a *mitigation project** directed toward the increase in marine life associated with the State's Marine Protected Areas in the geographic region of the facility. Funding for the *mitigation project** shall be provided to the California Coastal Conservancy, working with the Ocean Protection Council to fund an appropriate *mitigation project**.

E. Table 1. Implementation Schedule

	Milestone	Responsible Entity/Party	Due Date[2]
1	Request SCE and PG&E to conduct special studies to investigate compliance options for *nuclear-fueled power plants** [Section 3.D]	State Water Board Executive Director	01/01/2011
2	Establish Review Committee [Section 3.D(3)]	State Water Board Executive Director	01/01/2011
3	Establish SACCWIS [Section 3.B]	State Water Board Executive Director	01/01/2011
4	Submit a proposed implementation plan to the State and Regional Water Boards [Section 3.A]	Owner/operators of existing fossil-fueled power plants	04/01/2011
5	Provide a report for public comment, detailing the scope of the special studies on compliance options for *nuclear-fueled power plants** [Section 3.D(4)]	Review Committee	10/01/2011
6	Review the owners or operators' proposed implementation schedules and report to the State Water Board with recommendations [Section 3.B(2)]	SACCWIS	10/01/2011
7	Humboldt Bay Power Plant in compliance	Owner/operator	12/31/2010
8	Potrero Power Plant in compliance	Owner/operator	10/01/2011
9	Install large organism exclusion devices with a distance between exclusion bars of no greater than nine inches, or equivalent device [Section 2.C(1)]	Owner/operators of *existing power plants** with *offshore intakes**	10/01/2011

[2] These compliance dates were developed considering information provided by the CEC, CPUC, CAISO, and LADWP.

	Milestone	Responsible Entity/Party	Due Date[2]
10	Cease intake flows for units not directly engaging in *power-generating activities** or *critical system maintenance**, or demonstrate to the State Water Board that a reduced minimum flow is necessary for operations [Section 2.C(2)]	Owner/operators of *existing power plants**	10/01/2011
11	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2012
12	South Bay Power Plant in compliance	Owner/operator	12/31/2011
13	Report to State Water Board on results of special studies on compliance options for *nuclear-fueled power plants** [Section 3.D(5)]	Review Committee	10/01/2013
14	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2013
15	Haynes units 5 & 6 in compliance, repowered without OTC	LADWP	12/31/2013
16	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2014
17	Commence to implement measures to mitigate the interim impingement and entrainment impacts due to the cooling water intake structure(s) [Section 2.C(3)]	Owners/operators of *existing power plants**	10/01/2015
18	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2015
19	El Segundo and Morro Bay power plants in compliance	Owner/operator	12/31/2015
20	Scattergood unit 3 in compliance, repowered without OTC	LADWP	12/31/2015
21	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2016
22	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2017

	Milestone	Responsible Entity/Party	Due Date[2]
23	Power plants in CPUC 2010 LTPP Cycle in compliance: Encina, Contra Costa, Pittsburg, Moss Landing [Section 1.J]	Owner/Operator	12/31/2017
24	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2018
25	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2019
26	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2020
27	Power plants in CPUC 2012 LTPP Procurement Cycle in compliance: Huntington Beach, Redondo, Alamitos, Mandalay, Ormond Beach [Section 1.J] generating stations in compliance	Owner/operator	12/31/2020
28	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2021
29	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2022
30	San Onofre Nuclear Generating Station in compliance with implementation provisions resulting from State Water Board action on special studies from Section 3.D	Owner/operator	12/31/2022
31	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2023
32	Report to State Water Board on status of implementation of Policy [Section 3.B(3)]	SACCWIS	03/31/2024
33	Diablo Canyon Power Plant in compliance with implementation provisions resulting from State Water Board action on special studies from Section 3.D	Owner/operator	12/31/2024

Milestone		Responsible Entity/Party	Due Date[2]
34	Scattergood units 1 & 2 in compliance, repowered without OTC	LADWP	12/31/2024
35	Haynes units 1 & 2 in compliance, repowered without OTC	LADWP	12/31/2029[3]
36	Harbor unit 5 in compliance, repowered without OTC	LADWP	12/31/2029[3]
37	Haynes unit 8 in compliance, repowered without OTC	LADWP	12/31/2029[3]

4. Track 2 Monitoring Provisions

A. Impingement Impacts: The following impingement studies are required to comply with Section 2.A.(2)(a)(ii):

(1) A baseline impingement study shall be performed, unless the discharger demonstrates, to the Regional Water Board's satisfaction, that prior studies accurately reflect current impacts. Baseline impingement shall be measured on-site and shall include sampling for all species impinged. The impingement study shall be designed to accurately characterize the species currently impinged and their seasonal abundance to the satisfaction of the Regional Water Board.

(a) The study period shall be at least 36 consecutive months.

(b) Impingement shall be measured during different seasons when the cooling system is in operation and over 24-hour sampling periods.

(c) When applicable, impingement shall be sampled under differing representative operational conditions (e.g., differing levels of power production, heat treatments, etc.).

(d) The study shall not result in any additional mortality above typical operating conditions.

[3] The State Water Board will consider further modifications to the compliance date for these units when LADWP submits information responsive to the SACCWIS resolved clauses in its July 5, 2011 resolution and any subsequent information requests SACCWIS makes to LADWP by January 1, 2012. The State Water Board will consider amendments for these units no later than December 31, 2013.

(2) After the Track 2 controls are implemented, to confirm the level of impingement controls, another impingement study, consistent with Section 4.A(1)(a) to (d), above, shall be performed and reported to the Regional Water Board.

(3) The need for additional impingement studies shall be evaluated at the end of each permit period. Impingement studies shall be required when changing operational or environmental conditions indicate that new studies are needed, at the discretion of the Regional Water Board.

B. Entrainment Impacts: The following entrainment studies are required to comply with Section 2.A.(2)(b)(ii):

(1) A baseline entrainment study shall be performed, unless the discharger demonstrates, to the Regional Water Board's satisfaction, that prior studies accurately reflect current impacts. Prior studies that may have used a mesh size of 333 or 335 microns for sampling are acceptable for compliance with the review and approval of the Regional Water Board. If the Regional Water Board determines that a new baseline entrainment study shall be performed to determine larval composition and abundance in the source water, representative of water that is being entrained, then samples must be collected using a mesh size no larger than 335 microns. Additional samples shall also be collected using a 200 micron mesh to provide a broader characterization of other *meroplankton** entrained. The source water shall be determined based on oceanographic conditions reasonably expected after Track 2 controls are implemented. Baseline entrainment sampling shall provide an unbiased estimate of larvae entrained at the intake prior to the implementation of Track 2 controls.

(a) Entrainment impacts shall be based on sampling for all *ichthyoplankton** and invertebrate *meroplankton** species. Individuals collected shall be identified to the lowest taxonomical level practicable. When practicable, genetic identification through molecular biological techniques may be used to assist in compliance with this requirement. Samples shall be preserved and archived such that genetic identification is possible at a later date.

(b) The study period shall be at least 36 consecutive months, and shall occur during different seasons, including periods of peak use when the cooling system is in operation (such as the summer months when energy is in high demand). Sampling shall be designed to account for variation in oceanographic conditions and larval abundance and behavior such that abundance estimates are reasonably accurate.

(2) After the Track 2 controls are implemented, to confirm the level of entrainment controls, another entrainment study (with a study design to the Regional Water Board's satisfaction, with samples collected using a mesh size no larger than 335 microns, and with additional samples also collected using a 200 micron mesh) shall be performed and reported to the Regional Water Board.

(3) The need for additional entrainment studies shall be evaluated at the end of each permit period. Entrainment studies shall be required when changing operational or environmental conditions indicate that new studies are needed, at the discretion of the Regional Water Board.

5. Definition of Terms

Closed-cycle wet cooling system – Refers to a cooling system, which functions by transferring waste heat to the surrounding air through the evaporation of water, thus enabling the reuse of a smaller amount of water several times to achieve the desired cooling effect. The only discharge of wastewater is from periodic blowdown for the purpose of limiting the buildup of concentrations of materials in excess of desirable limits established by best engineering practice.

Combined-cycle power-generating units - Refers to units within a power plant which combined generate electricity through a two-stage process involving combustion and steam. Hot exhaust gas from combustion turbines is passed through a heat recovery steam generator to produce steam for a steam turbine. The turbine exhaust steam is condensed in the cooling system and may or may not be returned to the power cycle. Combined cycle power-generating units are generally more fuel-efficient and use less cooling water than steam boiler units with the same generating capacity.

Critical system maintenance – are activities that are critical for maintenance of a plant's physical machinery and absolutely cannot be postponed until the unit is operating to generate electricity.

Existing power plant(s) – Refers to any power plant that is not a *new power plant**.

Habitat production foregone – Refers to the product of the average annual *proportional mortality** and the estimated area of the water body that is habitat for the species' source population. Habitat production foregone is an estimate of habitat area production that is lost to all entrained species on an annual basis.

Ichthyoplankton – Refers to the planktonic early life stages of fish (i.e., the pelagic eggs and larval forms of fishes).

Intake flow rate – Refers to the instantaneous rate at which water is withdrawn through the intake structure, expressed as gallons per minute.

Meroplankton – For purposes of this Policy, refers to that component of the *zooplankton** community composed of squid paralarvae and the pelagic larvae of benthic invertebrates.

Mitigation project – Projects to restore marine life lost through impingement mortality and entrainment. Restoration of marine life may include projects to restore and/or enhance coastal marine or estuarine habitat, and may also include protection of marine life in existing marine habitat, for example through the funding of implementation and/or management of Marine Protected Areas.

New power plant – Refers to any plant that is a "new facility", as defined in 40 C.F.R. § 125.83 (revised as of July 1, 2007), and that is subject to Subpart I, Part 125 of the Code of Federal Regulations (revised as of July 1, 2007) (referred to as "Phase I regulations").

Not Feasible – Cannot be accomplished because of space constraints or the inability to obtain necessary permits due to public safety considerations, unacceptable environmental impacts, local ordinances, regulations, etc. Cost is not a factor to be considered when determining feasibility under Track 1.

Nuclear-fueled power plant(s) – Refers to Diablo Canyon Power Plant and/or San Onofre Nuclear Generating Station.

Offshore intake –refers to any submerged intake structure that is not located at the shoreline, and includes such intakes that are located in ocean, bay and estuary environments.

Power-generating activities – Refers to activities directly related the generation of electrical power, including start-up and shut-down procedures, contractual obligations (hot stand-by), hot bypasses, and *critical system maintenance** regulated by the Nuclear Regulatory Commission. Activities that are not considered directly related to the generation of electricity include (but are not limited to) dilution for in-plant wastes, maintenance of source-and receiving water quality strictly for monitoring purposes, and running pumps strictly to prevent fouling of condensers and other power plant equipment.

Proportional mortality – the proportion of larvae killed from entrainment to the larvae in the source population, as determined by an Empirical Transport Model.

Zooplankton – For purposes of this Policy, refers to those planktonic invertebrates larger than 200 microns.

Appendix B

Site Plan Map

CEC 99-AFC-4C

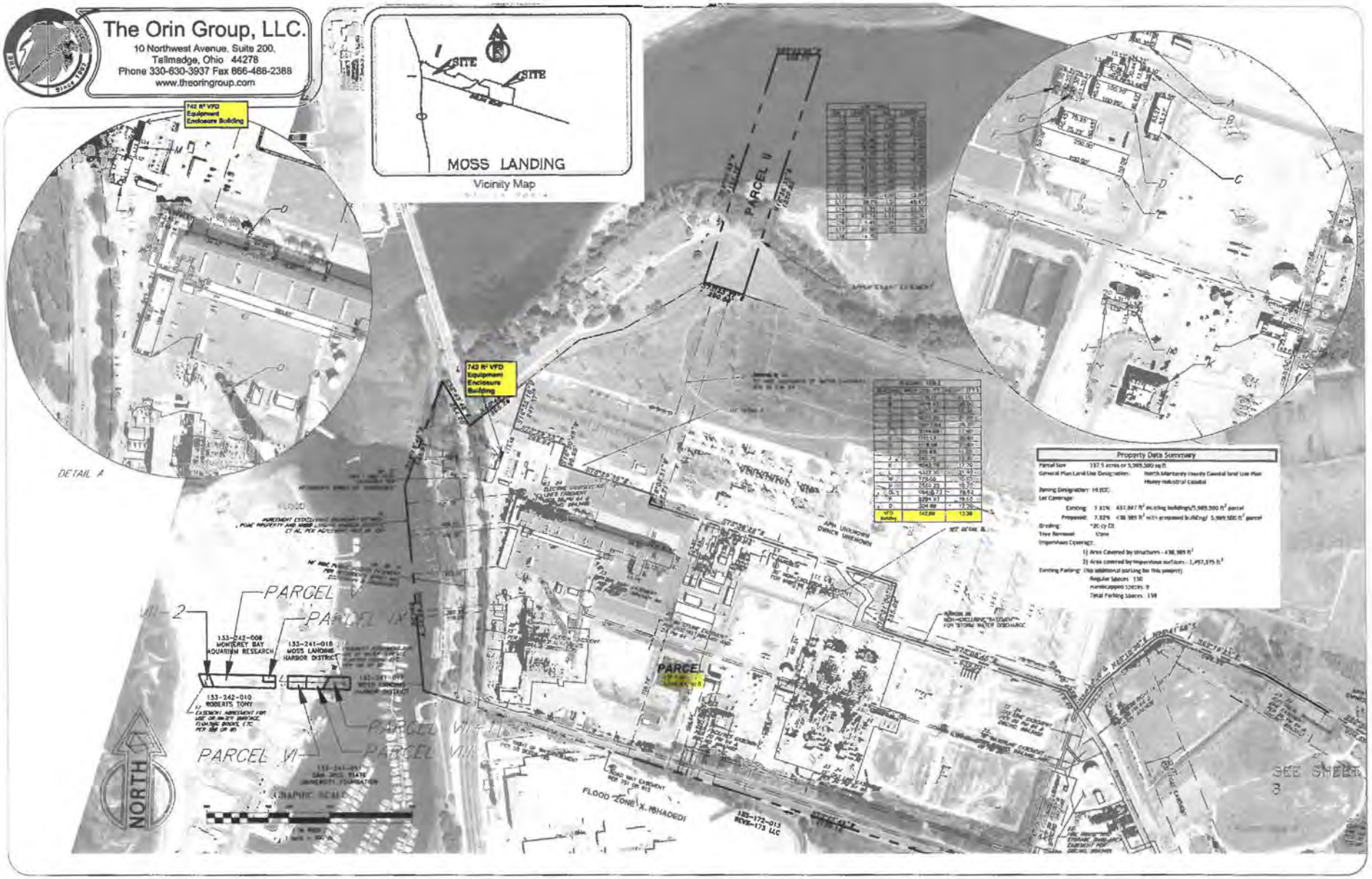
Amendment

Installation of

Variable Speed Drive Controls

Dynegy Moss Landing, LLC

Moss Landing Power Plant



MOSS LANDING POWER PLANT SITE PLAN

Appendix C

Building Project Site Civil and Structural Drawings

CEC 99-AFC-4C

Amendment

Installation of

Variable Speed Drive Controls

Dynegy Moss Landing, LLC

Moss Landing Power Plant

CIRCULATING WATER PUMPS VFD BUILDING PROJECT

DYNEGY MOSS LANDING POWER PLANT
SITE CIVIL AND STRUCTURAL

DRAWINGS
JUNE 2016

DYNEGY DRAWING NO.	CH2M DRAWING NO.	TITLE
8330160-1	10-G-1	COVER SHEET, LOCATION MAP, VICINITY MAP AND INDEX TO DRAWINGS
8330160-2	10-G-2	CIVIL LEGEND
8330160-3	10-G-3	STRUCTURAL NOTES AND ABBREVIATIONS
8330160-4	11-C-1	SITE PLAN
8330160-5	11-C-2	SITE SECTIONS AND DETAILS
8330160-6	12-S-1	FOUNDATION PLAN
8330160-7	12-S-2	SECTIONS AND DETAILS
8330160-8	18-SD-1	STANDARD DETAILS

VICINITY MAP

ch2m:
DESIGN OFFICE:
2525 AIRPARK DRIVE
REDDING, CA 96001
(530) 243-5831

2525 AIRPARK DR
REDDING, CA 96001
(530) 243-5831

CIRCULATING WATER PUMPS VFD BUILDING PROJECT
MOSS LANDING POWER PLANT
DYNEGY MOSS LANDING, LLC.
MOSS LANDING, CA

ch2m:

SITE CIVIL AND STRUCTURAL

COVER SHEET, LOCATION MAP, VICINITY MAP, AND INDEX TO DRAWINGS

NO	DATE	BY	REVISION
DSGN	C.MCCOY	DR	C.MCCOY
CHK	S.MISSLIN	APVD	APVD
	J.DEHN		

NO SCALE
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	664125
IDWG	10-G-1
DYNEGY	8330160-1 of 8

PLOT TIME: 9:38:58 AM

GENERAL SITE NOTES:

1. SOURCE OF TOPOGRAPHY SHOWN ON THE CIVIL PLANS ARE BASE MAPS PROVIDED BY WHITSON ENGINEERS ON MARCH 26, 2016, ADDITIONAL INFORMATION HAS BEEN ADDED FROM AS-BUILT DATA. EXISTING CONDITIONS MAY VARY FROM THOSE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY PRIOR TO BEGINNING CONSTRUCTION.
2. EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW FINISH GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED.
3. HORIZONTAL DATUM: LOCAL SITE, US SURVEY FEET.
4. VERTICAL DATUM: LOCAL SITE.
5. MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
6. COORDINATES AND DIMENSIONS SHOWN FOR SITE IMPROVEMENTS ARE TO FACE OF CURB OR EDGE OF PAVEMENT.
7. STAGING AREA SHALL BE FOR CONTRACTOR'S EMPLOYEE PARKING, CONTRACTOR'S TRAILERS AND ON-SITE STORAGE OF MATERIALS.
8. ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN.
9. SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION.
11. CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO POSITIVELY PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE.
12. REMOVE INTERFERING OR OBJECTIONABLE MATERIAL LYING ON OR PROTRUDING ABOVE THE GROUND SURFACE.
13. ALL EXCESS SOIL TO BE MOVED TO A SPECIFIED AREA ON THE PLANT SITE AS DIRECTED BY DYNEGY. DYNEGY WILL BE RESPONSIBLE FOR TESTING AND DISPOSAL OF ALL EXCESS SOIL.

CIVIL SPECIFICATIONS:

STANDARD SPECIFICATIONS:
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORATION (CALTRANS) STANDARD SPECIFICATIONS, 2010.

SUBGRADE PREPARATION:
1. KEEP SUBGRADE FREE OF WATER, DEBRIS, AND FOREIGN MATTER DURING COMPACTION.
2. CROSS-SCARIFY SURFACE TO AN APPROXIMATE DEPTH OF 8 INCHES, THEN MOISTURE CONDITION TO A LEVEL ABOVE OPTIMAL MOISTURE CONTENT AND RECOMPACT TO A MINIMUM OF 90 PERCENT MAXIMUM DRY DENSITY.
3. BRING SUBGRADE TO PROPER GRADE AND CROSS-SECTION AND UNIFORMLY COMPACT THE UPPER 8 INCHES TO A MINIMUM OF 92 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D1557.

AGGREGATE BASE:
3/4 INCH CLASS 2 AGGREGATE BASE AS SPECIFIED IN SECTION 26 OF THE STANDARD SPECIFICATIONS.
1. MAXIMUM COMPLETED LIFT THICKNESS: 6 INCHES.
2. COMPLETED COURSE TOTAL THICKNESS: AS SHOWN.
3. SPREAD LIFT ON PRECEDING COURSE TO REQUIRED CROSS-SECTION.
4. LIGHTLY BLADE AND ROLL SURFACE UNTIL THOROUGHLY COMPACTED TO A MINIMUM OF 95 PERCENT OF MAXIMUM DRY DENSITY AND WILL NOT CREEP OR MOVE UNDER ROLLER.
5. FINISHED SURFACE OF AGGREGATE BASE COURSE TOLERANCE: WITHIN PLUS OR MINUS 0.04 FOOT OF GRADE SHOWN AT ANY INDIVIDUAL POINT.

ASPHALT CONCRETE:
1/2 INCH, MEDIUM GRADING HMA, TYPE B, AS SPECIFIED IN SECTION 39 OF THE STANDARD SPECIFICATIONS.
A. AGGREGATE: AS SPECIFIED IN SECTION 39 OF THE STANDARD SPECIFICATIONS.
B. MINERAL FILLER: IN ACCORDANCE WITH AASHTO M17.
C. ASPHALT CEMENT: PAVING GRADE PG 64-10 AS SPECIFIED IN SECTION 92 OF THE STANDARD SPECIFICATIONS.

TACK COAT:
A. EMULSIFIED ASPHALT, GRADE SS 1, SS 1H OR GRADE CSS 1, CSS 1H CONFORMING TO SECTION 94 OF THE STANDARD SPECIFICATIONS.
B. PREPARE MATERIAL, AS SPECIFIED IN SECTION 94 OF THE STANDARD SPECIFICATIONS, PRIOR TO APPLICATION.
C. APPLY UNIFORMLY TO CLEAN, DRY SURFACES AVOIDING OVERLAPPING OF APPLICATIONS.

CONSTRUCTION OF ASPHALT CONCRETE PAVEMENT:
1. PREPARE SUBGRADE AND PLACE AGGREGATE BASE AS NOTED ABOVE.
2. THOROUGHLY COAT EDGES OF CONTACT SURFACES (CURBS, MANHOLE FRAMES) WITH EMULSIFIED ASPHALT OR ASPHALT CEMENT PRIOR TO LAYING NEW PAVEMENT. PREVENT STAINING OF ADJACENT SURFACES.
3. PLACE ASPHALT CONCRETE MIXTURE ON APPROVED, PREPARED BASE. PLACE ASPHALT CONCRETE PAVEMENT MIX IN ONE SINGLE LIFT, WITH TOTAL COMPACTED THICKNESS AS SHOWN ON THE DRAWINGS.
4. UNIFORMLY COMPACT EACH COURSE UNTIL THERE IS NO FURTHER EVIDENCE OF CONSOLIDATION AND ROLLER MARKS ARE ELIMINATED.
5. FINISHED GRADE: PERFORM FIELD DIFFERENTIAL LEVEL SURVEY ON MAXIMUM 20 FOOT GRID AND ALONG GRADE BREAKS. MAXIMUM DEVIATION: 0.02 FOOT FROM GRADE SHOWN. CONDUCT MEASUREMENTS FOR CONFORMITY WITH CROWN AND GRADE IMMEDIATELY AFTER INITIAL COMPRESSION. CORRECT VARIATIONS IMMEDIATELY BY REMOVAL OR ADDITION OF MATERIALS AND BY CONTINUOUS ROLLING.

VALLEY GUTTER AND SIDEWALK:
CONFORM TO SECTION 73 OF THE STANDARD SPECIFICATIONS.

CIVIL LEGEND

EXISTING	THIS CONTRACT	
	⊗ 158.5	SPOT ELEVATION
	155	CONTOUR LINE
		DRAINAGEWAY OR DITCH
	CB OR CB	CATCH BASIN OR INLET
	BM	BENCH MARK
		SURVEY CONTROL POINT OR POINT OF INTERSECTION
		CENTER LINE, BUILDING, ROAD, ETC.
	N 1000.00 / E 1000.00	STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES
OR	OR	DEMOLITION
OR	OR	STRUCTURE, BUILDING OR FACILITY
OR		BELOW GRADE STRUCTURE, BUILDING OR FACILITY
		ASPHALT CONCRETE PAVEMENT
		GRAVEL SURFACING
		CONCRETE PAVEMENT
		VALLEY GUTTER
		DOUBLE SWING GATE
		CHAIN LINK FENCE

DIRECTION OF FLOW
6" PE
NOMINAL PIPE DIAMETER
PIPE USE IDENTIFICATION
PIPING ≥ 20" DIAMETER

DETAIL AND SECTION DESIGNATION

DETAIL (NUMERAL) DESIGNATION — 1 / 00-G-004 — ON DRAWING WHERE DETAIL IS TAKEN.
DRAWING NUMBER WHERE SHOWN (REPLACED WITH A LINE IF TAKEN AND SHOWN ON SAME SHEET)

1 DETAIL 1/2"=1'-0" — ON DRAWING WHERE DETAIL IS SHOWN.
00-G-006 — DRAWING NUMBER WHERE TAKEN (REPLACED WITH A LINE IF TAKEN ON SAME SHEET)

SECTION (LETTER) DESIGNATION — A / 00-G-004 — ON DRAWING WHERE SECTION IS TAKEN.
DRAWING NUMBER WHERE SHOWN (REPLACED WITH A LINE IF TAKEN AND SHOWN ON SAME SHEET)

A SECTION 1/2"=1'-0" — ON DRAWING WHERE SECTION IS SHOWN.
00-G-004 — DRAWING NUMBER WHERE TAKEN (REPLACED WITH A LINE IF TAKEN ON SAME SHEET)

DRAWING TITLE
SCALE
ON DRAWING WHERE ONLY A TITLE IS REQUIRED WITH NO REFERENCE (eg: ELEVATIONS)

STANDARD DETAIL DESIGNATION

STANDARD DETAIL DESIGNATION — (1234-567) — SHOWN ON STANDARD DETAIL DRAWINGS

NOTE:
ALL STANDARD DETAILS ARE TYPICAL AND MUST BE USED EVEN IF STANDARD DETAIL DESIGNATION IS NOT SHOWN.

2525 AIRPARK DR
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CIRCULATING WATER PUMPS
VFD BUILDING PROJECT
MOSS LANDING POWER PLANT
DYNEGY MOSS LANDING, LLC
MOSS LANDING, CA

NO.	DATE	REVISION	BY	APVD
DSGN B CHILDNS	DR	CHK M DUNN	APVD M COOPER	J TEHN

ch2m:
STE CIVIL AND STRUCTURAL
CIVIL LEGEND

NO SCALE
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE	JUNE 2016
PROJ	664125
DWG	10-G-2
DYNEGY	8030160-2 of 6

DESIGN CRITERIA

1. APPLICABLE CODE: 2013 CALIFORNIA BUILDING CODE.
2. ALL LOADS SHOWN ARE SERVICE LEVEL (UNFACTORED) UNLESS SPECIFICALLY NOTED OTHERWISE.
3. ROOF LOADS:

LIVE LOAD	= 20 PSF

4. FLOOR LIVE LOADS:

ELECTRICAL ROOM	= 250 PSF

5. WIND LOADS:

WIND DESIGN METHOD	= ALTERNATE ALL-HEIGHTS METHOD PER CBC 1609.6
BASIC WIND SPEED (3-SECOND GUST)	= 120 MPH
EXPOSURE CATEGORY	= D
RISK CATEGORY	= III

6. SEISMIC LOADS:

MAPPED SPECTRAL RESPONSE ACCELERATIONS:	
S_S	= 1.5g
S_1	= 0.6g
DESIGN SPECTRAL RESPONSE ACCELERATIONS:	
S_{DS}	= 1.0g
S_{D1}	= 0.6g
SITE CLASS	= D
SEISMIC DESIGN CATEGORY	= D
IMPORTANCE FACTOR, Ie	= 1.25

7. SOIL DESIGN PARAMETERS:
   A. NET ALLOWABLE SOIL BEARING PRESSURES: 2000 PSF (DEAD LOAD+LIVE LOAD)
   2500 PSF (DEAD LOAD+LIVELOAD+WIND OR EARTHQUAKE)

GENERAL INFORMATION

1. DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT.
2. DO NOT CUT OR MODIFY STRUCTURAL MEMBERS FOR CONDUITS, DUCTS, ETC, UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.
3. INFORMATION (DETAILING, DIMENSIONS, CONFIGURATIONS, AND ELEVATIONS, ETC.) OF EXISTING CONSTRUCTION SHOWN REFLECTS AVAILABLE EXISTING DESIGN DOCUMENTS, AND DOES NOT NECESSARILY REPRESENT THE AS-CONSTRUCTED CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS, ELEVATIONS AND DETAILING OF THE EXISTING STRUCTURES PRIOR TO UNDERTAKING ANY WORK THAT IS AFFECTED BY THE EXISTING STRUCTURE. NOTIFY ENGINEER IF CONDITIONS VARY FROM THAT SHOWN PRIOR TO STARTING WORK.

FOUNDATIONS

1. REFER TO GEOTECHNICAL ENGINEERING REPORT BY EARTH SYSTEMS PACIFIC DATED JUNE 16, 2015.
2. EXCAVATIONS SHALL BE SHORED TO PREVENT SUBSIDENCE AND DAMAGE TO ADJACENT EXISTING STRUCTURES, ROADS, UTILITIES, ETC.
3. FOUNDATION BEARING SURFACES SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER OR QUALIFIED DESIGNEE PRIOR TO PLACEMENT OF FORMWORK OR REINFORCING STEEL. THE OBSERVATION SHALL VERIFY IF THE ACTUAL EXPOSED SUBGRADE IS AS ANTICIPATED BY THE SITE SPECIFIC TESTING AND DATA REPORTS.

STRUCTURAL STEEL AND METAL FABRICATIONS

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

MISCELLANEOUS SHAPES INCLUDING ANGLES, CHANNELS, PLATES, ETC.	A36
STEEL PIPE	A53, GRADE B

2. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN CONFORMANCE WITH THE AISC MANUAL OF STEEL CONSTRUCTION, CURRENT EDITION, AND CURRENT OSHA STANDARDS.
3. SUBMIT SHOP DRAWINGS FOR RAILINGS FOR APPROVAL PRIOR TO CONSTRUCTION.

CONCRETE REINFORCING

1. REINFORCING STEEL:
   TYPICAL: ASTM A615, GRADE 60
2. FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 "MANUAL OF STANDARD PRACTICE" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
3. MINIMUM REINFORCING FOR CONCRETE WALLS AND SLABS SHALL BE AS FOLLOWS:

THICKNESS	REINF EACH WAY	LOCATION
6"	#4@12"	CENTERED

   PROVIDE LARGER SIZES AND MORE REINFORCING IN SECTIONS OF CONCRETE WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.
4. CONCRETE COVER FOR REINFORCING, UNLESS SHOWN OTHERWISE, SHALL BE:

WHEN CAST AGAINST EARTH:	3"
EXPOSED TO OZONE OR OZONATED WATER:	3"
INTERIOR, DRY, HUMIDITY CONTROLLED AREAS:	
WALLS, SLABS AND JOISTS	3/4"
BEAM STIRRUPS AND COLUMN TIES	1 1/2"
CONCRETE EXPOSED TO EARTH, LIQUID, WASHDOWN, OR WEATHER:	
WALLS AND SLABS	2"
BEAM STIRRUPS AND COLUMN TIES	2"
BEAM AND COLUMN PRIMARY REINFORCING	2 1/2"

5. 90 DEGREE BENDS, UNLESS OTHERWISE SHOWN, SHALL BE ACI 318 STANDARD HOOKS. PILASTERS FOOTINGS.
6. REINFORCING STEEL FOR FOOTINGS AND SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON BAR SUPPORTS WITH SPACERS TO KEEP REINFORCING ABOVE THE PREPARED GRADE. LIFTING REINFORCING OFF GRADE DURING CONCRETE PLACEMENT IS NOT PERMITTED.
7. REINFORCEMENT LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS: #4 = 24" LAP, #5 = 30" LAP FOR 6" MINIMUM SPACING AND 2" MINIMUM COVER.

CAST IN PLACE CONCRETE

1. 28-DAY COMPRESSIVE STRENGTH & WATER / CEMENT RATIO

		W/C
FOUNDATIONS & BUILDING SLAB	= 4,500 PSI	0.40
CONDUIT ENCASEMENT	= 3,000 PSI	0.50
SITE CONCRETE	= 3,000 PSI	0.60

2. DESIGN STRENGTHS ARE SAME AS 28-DAY COMPRESSIVE STRENGTHS.
3. COARSE AGGREGATE SIZE SHALL BE 1" AND SMALLER. SLUMP SHALL BE 3" MIN AND 5" MAX.
4. COORDINATE PLACEMENT OF OPENINGS, PIPE PENETRATIONS, CURBS DOWELS, SLEEVES, CONDUITS, BOLTS AND INSERTS PRIOR TO PLACEMENT OF CONCRETE.
5. NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.
6. CONCRETE CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND ACI 301.
7. CURE CONCRETE SLABS USING AN APPROVED WATER BASED, HIGH SOLIDS CURING COMPOUND MEETING THE REQUIREMENTS OF ASTM C1315, CLASS A.
8. PROVIDE A LIGHT BROOM FINISH ON SLAB SURFACES. VERTICAL SURFACES SHALL BE FREE OF DEFECTS INCLUDING ROCK POCKETS AND PROJECTIONS. PATCH ROCK POCKETS AND AIR HOLES GREATER THAN 3/4" IN DIAMETER.
9. SUBMIT COMPLIANCE DATA ON CONCRETE MIX DESIGNS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

ADHESIVE ANCHORS

1. ADHESIVE ANCHORS SHALL BE HDG A36 STEEL ALL-THREAD WITH HILTI HIT-RE 500 V3 OR HIT-HY 200 INSTALLED WITH SPECIAL INSPECTION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

SPECIAL INSPECTIONS

SPECIAL INSPECTION

1. SPECIAL INSPECTION SHALL CONFORM TO CHAPTER 17 OF THE CALIFORNIA BUILDING CODE (CBC).
2. SPECIAL INSPECTIONS WILL BE PROVIDED BY CERTIFIED OR QUALIFIED INSPECTOR AND ASSOCIATED TESTING WILL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY. THE OWNER WILL SECURE AND PAY FOR THE SERVICES OF THE AGENCY TO PERFORM ALL SPECIAL INSPECTION AND ASSOCIATED TESTS. INSPECTORS FOR EACH SYSTEM AND MATERIAL WILL BE INTERNATIONAL CODE COUNCIL (ICC) CERTIFIED OR OTHERWISE APPROVED BY THE BUILDING OFFICIAL.
3. THE SPECIAL INSPECTOR WILL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS AND SUBMIT RECORDS OF INSPECTION. ALL DISCREPANCIES WILL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
4. AT THE CONCLUSION OF CONSTRUCTION, A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF PREVIOUSLY NOTED DISCREPANCIES WILL BE SUBMITTED.

CONCRETE SPECIAL INSPECTION

1. SPECIAL INSPECTION OF CONCRETE CONSTRUCTION IS NOT REQUIRED PER THE EXCEPTIONS OF CBC 1705.3.
2. ANCHORS INSTALLED IN HARDENED CONCRETE SHALL BE INSPECTED PER CBC TABLE 1705.3 AND THE PRODUCT'S ICC EVALUATION REPORT.

GEOTECHNICAL SPECIAL INSPECTION AND OBSERVATION

1. GEOTECHNICAL SPECIAL INSPECTION SHALL CONFORM TO SECTION 1704.7 AND TABLE 1704.7 OF THE CBC.
2. ALL FOUNDATION BEARING SURFACES SHALL BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF REINFORCING STEEL.
3. VERIFY THAT EXCAVATIONS ARE EXTENDED TO THE PROPER DEPTH AND THAT MATERIALS BELOW EXCAVATIONS ARE EXTENDED TO THE PROPER DEPTH AND THAT MATERIALS BELOW EXCAVATIONS ARE CONSISTENT WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND AS SHOWN.
4. CONTINUOUS SPECIAL INSPECTION SHALL BE PROVIDED FOR THE FOLLOWING:
   OVEREXCAVATION TO THE RECOMMENDED DEPTH
   SCARIFICATION AND RECOMPACTION
   FILL PLACEMENT AND COMPACTION
5. PERIODIC SPECIAL INSPECTION SHALL BE PROVIDED FOR THE FOLLOWING:
   SITE PREPARATION
   BUILDING PAD MOISTURE CONDITIONING

WELDING

1. WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.1, STRUCTURAL WELDING CODE STEEL.
2. REPAIR WELDS FOUND DEFECTIVE IN ACCORDANCE WITH AWS D1.1 SECTION 5.26.
3. WELDING OF RAILING AND SIMILAR FABRICATIONS SHALL BE SHOP INSPECTED BY A CERTIFIED WELDING INSPECTOR (CWI).

STRUCTURAL ABBREVIATIONS

@	AT
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTION
AFF	ABOVE FINISH FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BLDG	BUILDING
BOT	BOTTOM
CHKD PL	CHECKERED PLATE
CL	CENTERLINE
CLR	CLEARANCE, CLEAR
CONC	CONCRETE
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CTLJ	CONTROL JOINT
DIA	DIAMETER
EA	EACH
EL	ELEVATION
EMBED	EMBEDMENT, EMBED
EW	EACH WAY
EXIST	EXISTING
FF	FINISH FLOOR
HDG	HOT-DIP GALVANIZED
IBC	INTERNATIONAL BUILDING CODE
IN	INCH(ES)
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE OR L-SHAPE
MAX	MAXIMUM
MFR(S)	MANUFACTURER (MANUFACTURERS)
MIN	MINIMUM
NTS	NOT TO SCALE
OC	ON CENTER
PJF	PREMOLDED JOINT FILLER
PL	PLATE
PSF	POUNDS FORCE PER SQUARE FOOT
PSI	POUNDS FORCE PER SQUARE INCH
REINF	REINFORCE, REINFORCING
REQD	REQUIRED
SIM	SIMILAR
STL	STEEL
T&B	TOP AND BOTTOM
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE

NOTES:
FOR ABBREVIATIONS NOT LISTED, SEE GENERAL ABBREVIATIONS AND ASME Y14.38 - "ABBREVIATIONS AND ACRONYMS FOR USE ON DRAWINGS AND RELATED DOCUMENTS" AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

ch2m:
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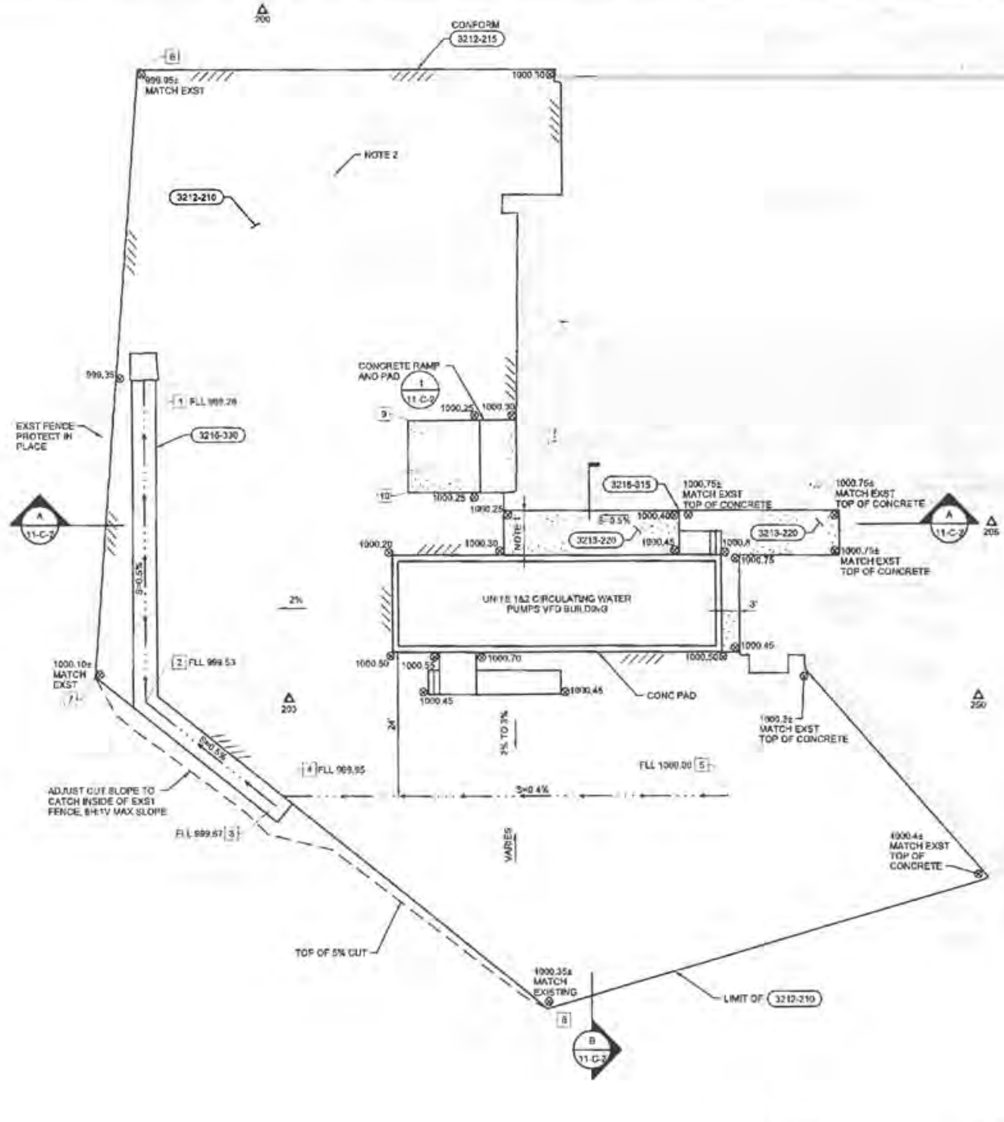
SITE CIVIL AND STRUCTURAL

CIRCULATING WATER PUMPS VFD BUILDING PROJECT
MOSS LANDING POWER PLANT
DYNEGY MOSS LANDING, LLC
MOSS LANDING, CA

STRUCTURAL NOTES AND ABBREVIATIONS

NO SCALE
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DATE	JUNE 2016
PROJ	664125
DWG	10-G-3
DYNEGY	8030180-3 of 8



LOCATION/GRADING CONTROL POINTS

POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	9632.67	20132.10	999.26	FLOWLINE
2	9702.22	20079.02	999.53	FLOWLINE
3	9684.00	20058.63	999.67	FLOWLINE
4	9682.49	20059.94	999.95	FLOWLINE
5	9609.24	20046.81	1000.00	FLOWLINE
6	9684.21	20183.02	999.95±	EDGE OF AC
7	9709.72	20085.21	1000.10±	EDGE OF AC
8	9645.51	20017.31	1000.35±	EDGE OF AC
9	9650.51	20117.49	1000.05	CONC CORNER
10	9652.65	20105.68	1000.05	CONC CORNER

SURVEY CONTROL POINTS Δ

POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	9661.80	20186.91	1000.00	MAG AND WASHER
202	9474.18	20141.05	1000.25	MAG AND WASHER
203	9676.49	20075.75	999.96	MAG AND WASHER
204	9464.26	20077.04	999.94	MAG AND WASHER
206	9567.75	20083.27	1000.75	MAG AND WASHER
250	9565.17	20055.48	1000.22	MAG AND WASHER

NOTES:

1. DIMENSION VARIES. PLACE SIDEWALK BETWEEN BUILDING PAD AND EXISTING CONCRETE STRUCTURE.
2. EXISTING STRUCTURE DEMOLISHED SO THAT TOP OF CONCRETE IS APPROXIMATELY 3.5' BELOW GRADE. REMAINING STRUCTURE BELOW IS ABANDONED AND FILLED.

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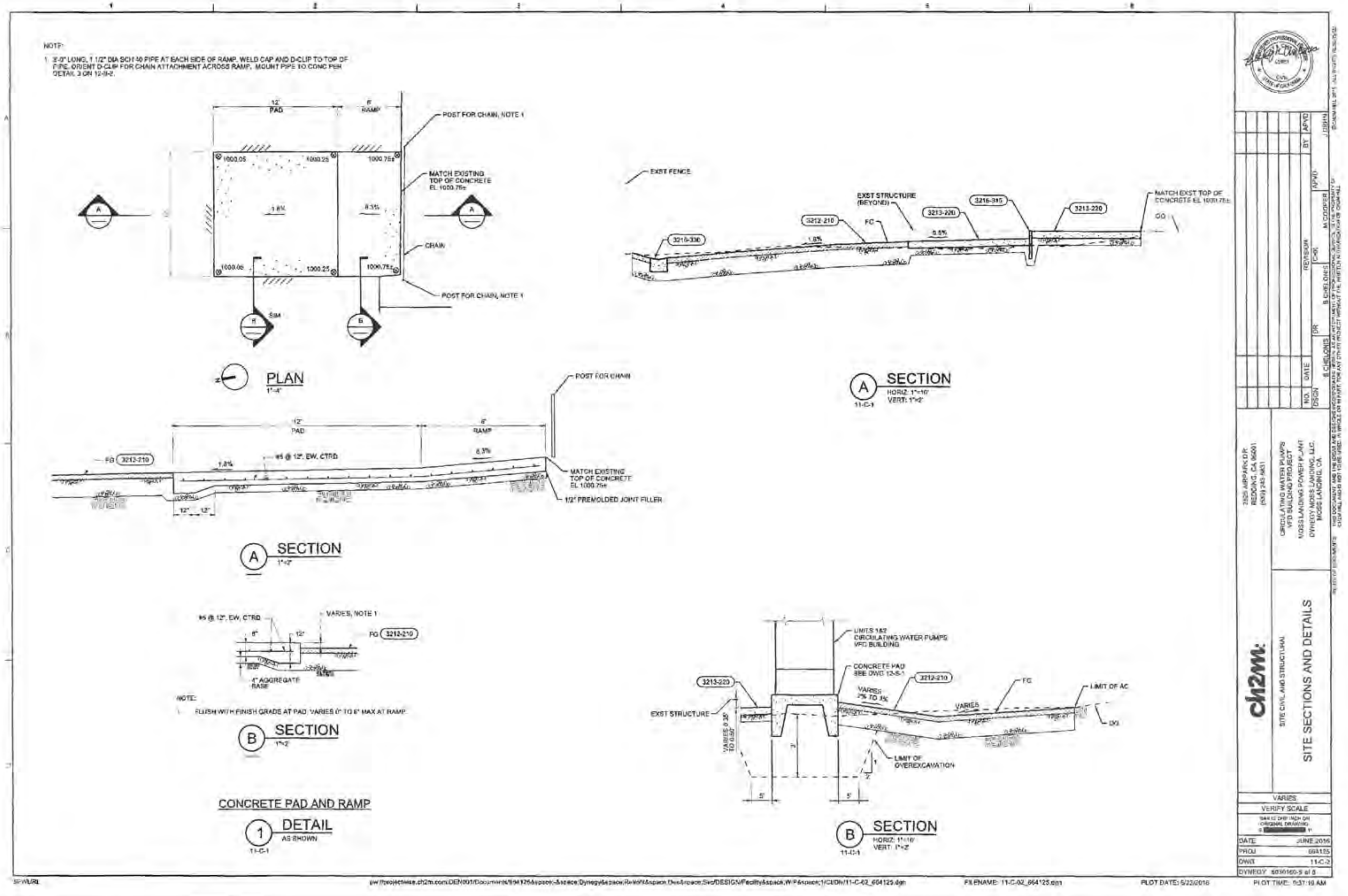
MOSS LANDING, CA

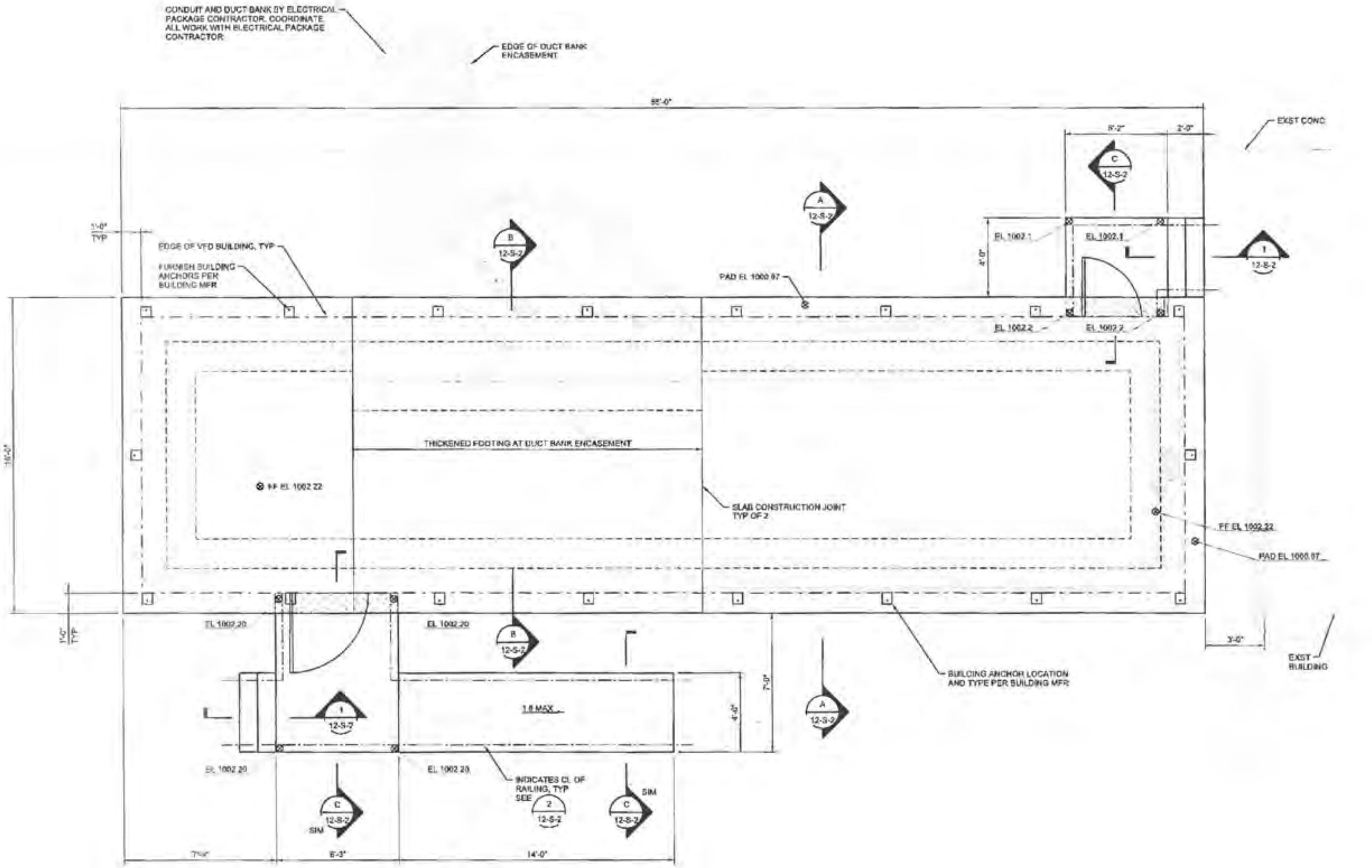
SITE CIVIL AND STRUCTURAL

SITE PLAN

DATE	JUNE 2016
PROJ	664125
DWG	11-C-1

FILENAME: 11-C-01_664125.dgn


NOTE:
1. 3'-0" LONG, 1 1/2" DIA SCH 40 PIPE AT EACH SIDE OF RAMP. WELD CAP AND D-CLIP TO TOP OF PIPE. ORIENT D-CLIP FOR CHAIN ATTACHMENT ACROSS RAMP. MOUNT PIPE TO CONC PER DETAIL 3 ON 12-S-2.
12' PAD
6' RAMP
POST FOR CHAIN, NOTE 1
MATCH EXISTING TOP OF CONCRETE EL 1000.75±
CHAIN
1000.05
1000.25
1000.75±
1.8%
8.3%
PLAN
1"=4'
POST FOR CHAIN
FG (3212-210)
#5 @ 12", EW, CTRD
MATCH EXISTING TOP OF CONCRETE EL 1000.75±
1/2" PREMOLDED JOINT FILLER
A SECTION
1"=2'
EXST FENCE
EXST STRUCTURE (BEYOND)
MATCH EXST TOP OF CONCRETE EL 1000.75±
3216-330
3212-210
3213-220
3216-315
3213-220
FC
A SECTION
HORIZ: 1"=10'
VERT: 1"=2'
11-C-1
#5 @ 12", EW, CTRD
VARIES, NOTE 1
FG (3212-210)
4" AGGREGATE BASE
NOTE:
1. FLUSH WITH FINISH GRADE AT PAD. VARIES 0" TO 6" MAX AT RAMP.
B SECTION
1"=2'
CONCRETE PAD AND RAMP
1 DETAIL
AS SHOWN
11-C-1
UNITS 1&2 CIRCULATING WATER PUMPS VFD BUILDING
CONCRETE PAD SEE DWG 12-S-1
3213-220
3212-210
FC
LIMIT OF AC
EXST STRUCTURE
VARIES 2% TO 3%
VARIES
LIMIT OF OVEREXCAVATION
5'
5'
B SECTION
HORIZ: 1"=10'
VERT: 1"=2'
11-C-1
2525 AIRPARK DR.
REDDING, CA 96001
CIRCULATING WATER PUMPS VFD BUILDING PROJECT
MOSS LANDING POWER PLANT
DYNEGY MOSS LANDING, LLC
MOSS LANDING, CA
ch2m:
SITE CIVIL AND STRUCTURAL
SITE SECTIONS AND DETAILS
VARIES
VERIFY SCALE
DATE JUNE 2016
PROJ 664125
DWG 11-C-2
FILENAME: 11-C-02_664125.dgn
PLOT DATE: 6/23/2016



FOUNDATION PLAN

3/8"=1'-0"

ch2m:

SITE CIVIL AND STRUCTURAL

FOUNDATION PLAN

2525 AIRPARK DR
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CIRCULATING WATER PUMPS VFD BUILDING PROJECT
MOSS LANDING POWER PLANT
DYNEGY MOSS LANDING, LLC
MOSS LANDING, CA

NO.	DATE	REVISION	BY	APVD
DSGN M RANDALL	DR	CHK J MINOR	APVD C BURKE	J DEHN

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING

DATE	JUNE 2016
PROJ	664125
DWG	12-S-1
DYNEGY	8030160-6 of 8

PLOT TIME: 9:35:20 AM

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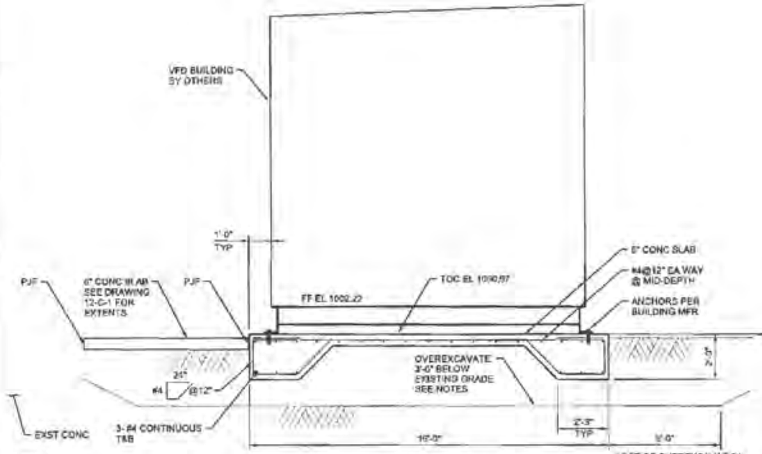
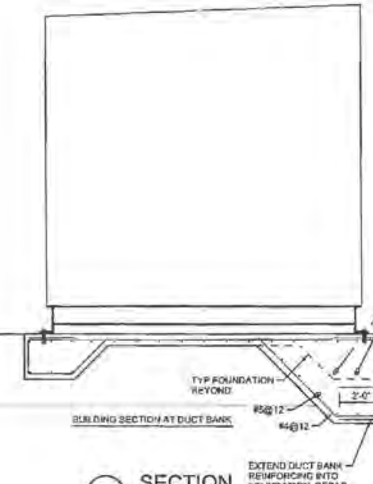
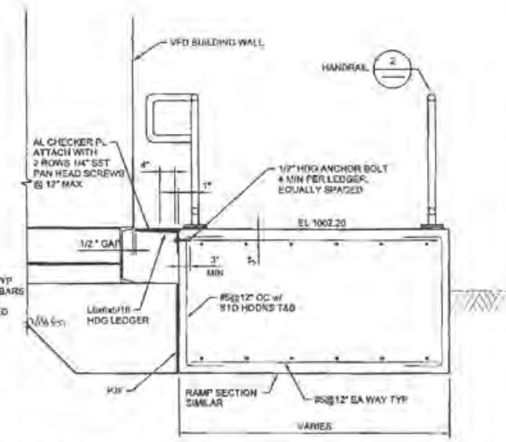


A SECTION
3/8"=1'-0"
12-S-1



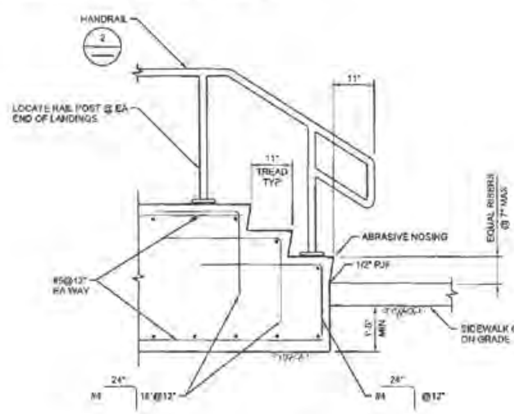
B SECTION
3/8"=1'-0"
12-S-1



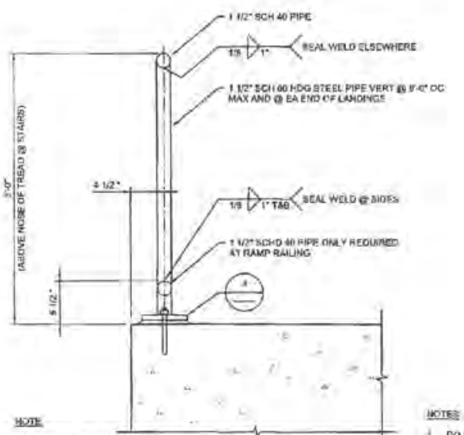
C SECTION
3/4"=1'-0"
12-S-1

NOTES

1. BACKFILL OVEREXCAVATED AREAS WITH PROCESSED EXCAVATED OR IMPORTED MATERIAL.
2. PRIOR TO BACKFILLING, SCARIFY BACKFILLED SURFACES 8" DEEP AND MOISTURE CONDITION TO A LEVEL ABOVE OPTIMUM MOISTURE CONTENT.
3. PROCESSED NATIVE MATERIAL SHALL BE FREE OF DEBRIS, ORGANICS, AND OTHER POTENTIALLY DELETERIOUS MATERIALS.
4. IMPORTED FILL SHALL BE COARSE GRAINED (ASTM D 2487) WITH A PLASTICITY INDEX (ASTM D 4318) OF 10 OR LESS AS APPROVED BY THE GEOTECHNICAL ENGINEER.
5. PLACE MOISTURE CONDITIONED BACKFILL MATERIAL IN MAXIMUM 8 INCH LIFTS AND COMPACT TO 95 PERCENT OF MAXIMUM DRY DENSITY.

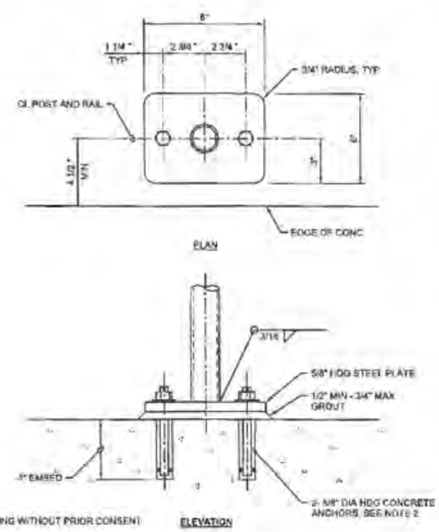


1 DETAIL
3/4"=1'-0"
12-S-1



NOTE:
ALL HANDRAIL MATERIAL SHALL BE HOT-DIP GALVANIZED

2 DETAIL
1 1/2"=1'-0"
12-S-1



NOTES:

1. DO NOT CUT REINFORCING WITHOUT PRIOR CONSENT FROM ENGINEER.
2. CONCRETE ANCHOR SIZE AND EMBEDMENTS CALCULATED FOR HILTI ADHESIVES, RE-500-V3 AND HY 200. IF ALTERNATE ANCHOR SYSTEM IS USED, CONTRACTOR SUBMIT STAMPED CALCULATIONS AND DRAWINGS.

3 DETAIL
3"=1'-0"

ch2m:
2525 AIRPARK DR
REDDING, CA 96001
(530) 243-5831

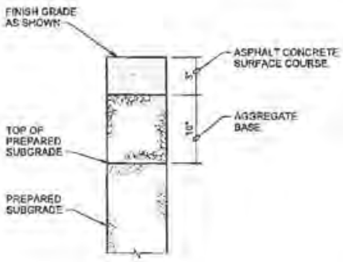
CIRCULATING WATER PUMPS VFD BUILDING PROJECT
MOSS LANDING POWER PLANT
DYNEGY MOSS LANDING, LLC
MOSS LANDING, CA

SITE CIVIL AND STRUCTURAL

SECTIONS AND DETAILS

AS SHOWN	
VERIFY SCALE	
DATE	JUNE 2016
PROJ	664125
DWG	12-S-2
DYNEGY	8030160-7 of 8

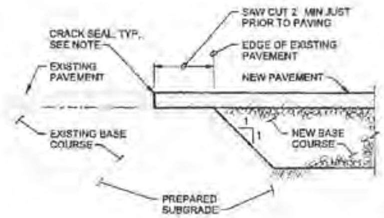
FILENAME: 12-S-02_664125.dgn
PLOT TIME: 9:35:46 AM



ASPHALT CONCRETE PAVEMENT

NTS

3212-210



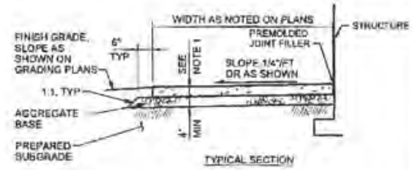
NOTE:

PAINT EDGE OF EXISTING ASPHALT WITH TACK COAT PRIOR TO PAVING. CRACK SEAL JOINT AFTER PAVING OPERATION HAS BEEN COMPLETED.

PAVEMENT CONNECTION

NTS

3212-215



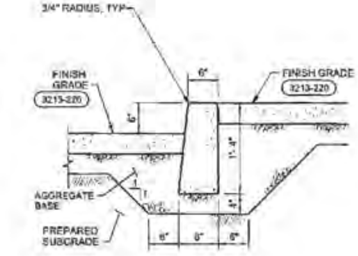
NOTE:

1. CONCRETE DEPTH FOR STANDARD SIDEWALKS SHALL BE NOMINAL 4" MINIMUM, THICKNESS IN DRIVEWAY SHALL BE 6" MINIMUM.

TYPICAL CONCRETE SIDEWALK

NTS

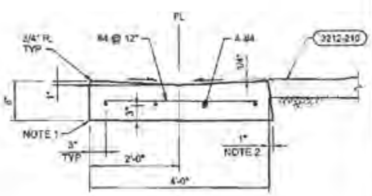
3213-220



CONCRETE CURB

NTS

3216-315



NOTES:

1. PLACE PREMOLDED FILLER AGAINST VERTICAL FACE WHERE VALLEY GUTTER ABUTS CONCRETE.
2. CONSTRUCT 1" BATTER ON VERTICAL FACE WHERE VALLEY GUTTER ABUTS AC PAVEMENT OR GRAVEL SURFACING.
3. PROVIDE 2" MINIMUM COVER ON ALL REINFORCING STEEL.

CONCRETE VALLEY GUTTER

NTS

3216-330

NO.	DATE	REVISION	BY	APVD

DSGN R CHEVONS | DR M DUNN | CHK M COOPER | APVD J BEHM

ch2m:

SITE CIVIL AND STRUCTURAL

STANDARD DETAILS

CIRCULATING WATER PUMPS VFD BUILDING PROJECT
MOSS LANDING POWER PLANT
DYNEGY MOSS LANDING, LLC
MOSS LANDING, CA

NO SCALE

VERIFY SCALE

DATE JUNE 2016
PROJ 664125
DWG 16-SD-1
DYNEGY

Appendix D

VSD Building Floor Plan

CEC 99-AFC-4C

Amendment

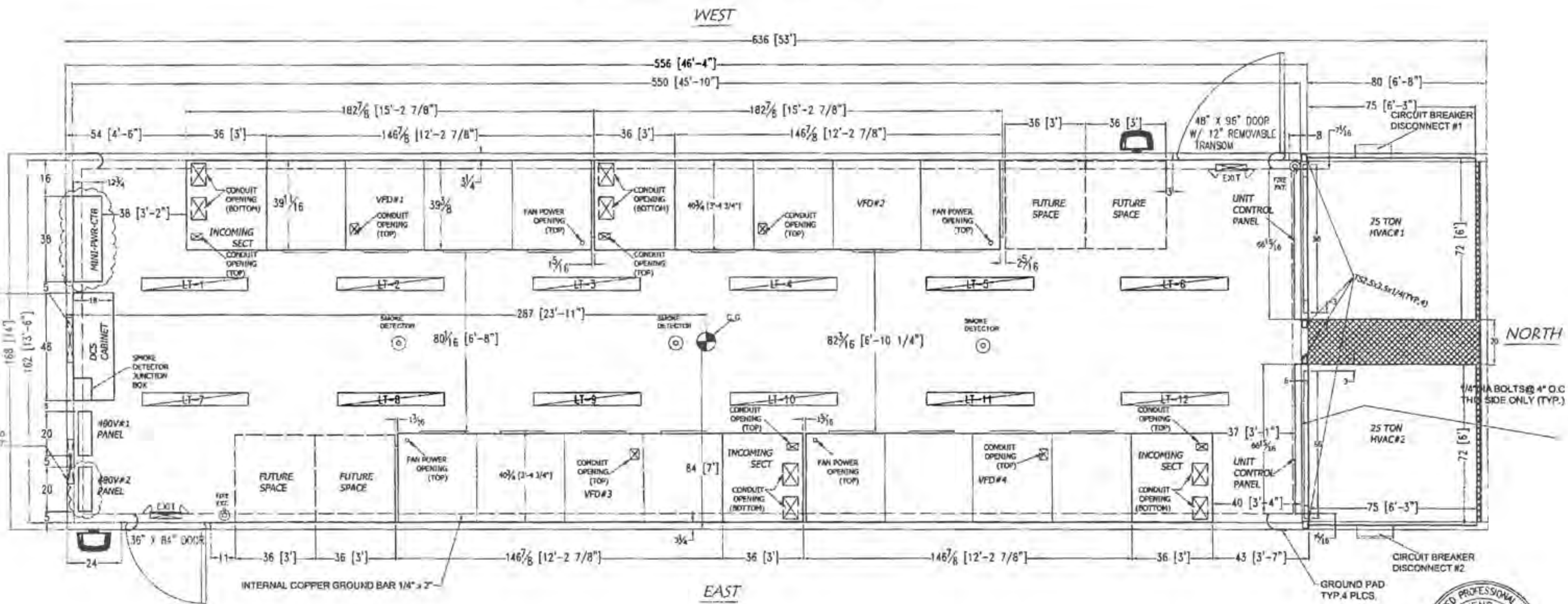
Installation of

Variable Speed Drive Controls

Dynegy Moss Landing, LLC

Moss Landing Power Plant

EQUIPMENT TABLE				
ITEM #	DESCRIPTION		DIMENSION	WEIGHT
01	HVAC 25 TON #1 & #2	(QTY 2)	72"W x 75"D x 108"H	5,000 LBS.
02	VFD'S	(QTY 4)	181.67"W x 39.37"D x 119.31"H	49,400 LBS.
03	DCS CABINET	(QTY 1)	48"W x 18"D x 72"H	1,200 LBS.
04	MINI POWER CENTER	(QTY 1)	38"W x 12.75"D x 38"H	200 LBS.
05	480V PANELBOARD #1, #2	(QTY 2)	20"W x 6"D x 55.5"H	240 LBS.
06	MISC.		———	2500 LBS.
07	EMPTY PDC UTILITY ENCLOSURE		46'4" W x 14' D x 13' 4.5" H	52,000 LBS.
08	GRAND BUILDING APPROXIMATE WEIGHT		53' W x 14' D x 13' 4.5" H	111,140 LBS



REGISTERED PROFESSIONAL ENGINEER
SHEN-SHENG A. CHOU
NO. SE 2516
Exp. 3/31/2018
STRUCTURAL
STATE OF CALIFORNIA

PLAN VIEW EQUIPMENT LAYOUT

FLOOR PLAN

PIONEER CEP
CUSTOM ELECTRICAL PRODUCTS
10640 Springdale Ave. Santa Fe Springs, CA 90670 www.pioneercep.com

REV.	DATE	DESCRIPTION	BY	REV.	DATE	DESCRIPTION	BY
-	-	-	-	-	-	-	-
-	-	-	-	A	03/15/16	REVISED PER CUSTOMER COMMENTS ON 3/10/16	ADAN

DRAWN BY: ADAN	DATE:	TITLE: DYNEGY MOSS LANDING POWER PLANT OTC WATER PUMPING MEDIUM VOLTAGE VFD SYSTEM LOCATION: MOSS LANDING, CA PLAN VIEW EQUIPMENT LAYOUT
APPROVED BY: -	DATE: -	
REVIEWED BY: MGALVAN	DATE:	DISTRIBUTOR CONTRACTOR: ROCKWELL / DWG. NO. 50818-S03 / REV A
PROJECT ENGINEER: -		CAD FILE: 50818-S03 / SCALE: NONE / SHEET: 2 OF 10

Appendix E

Construction Management Plan

CEC 99-AFC-4C

Amendment

Installation of

Variable Speed Drive Controls

Dynegy Moss Landing, LLC

Moss Landing Power Plant

Dynegy Moss Landing Power Plant
Circulating Water Pumps VFD Building Project

Construction Management Plan

Responsible Parties During Construction:

Primary Contact: Kathy Genasci; Dynegy Senior Plant Engineer; (831) 633-6642

Secondary Contact: Mike Minafo; Dynegy Maintenance Manager; (831) 633-6692

Project Description:

The Moss Landing Power Plant site is located next to Highway 1 in Moss Landing, CA and is shown in the Vicinity Map on Figure 1. The project location is located in the northwest corner of the power plant site as indicated in Haul Route on Figure 1. The Project Plan on Figure 1 indicates the limits of the construction area and the contractor's staging area for the work.

The main components of the VFD Building Project consist of construction and installation of:

- Concrete slab with shallow foundation for supporting a prefabricated electrical building
- 14 foot by 53 foot (742 ft^2) prefabricated building transported intact to the site and placed onto the concrete slab
- Buried electrical conduit and cable in approximately 90 linear feet of trench
- Exposed electrical cable in an existing cable tray system (approximately 100 linear feet) and new exposed conduit and cable (approximately 50 linear feet)
- Asphalt resurfacing of area adjacent to the concrete slab and building (approximately 8,760 square feet)

Initial phase of work is to construct the building's concrete slab and will require a shallow excavation with approximately 50 cubic yards of material to be removed immediately from the site by truck. The material to be removed is anticipated to consist of asphalt, base rock material, and soil. The Haul Route graphic in Figure 1 shows routes to two facilities, asphalt and base material are assumed to be hauled to the A&S Metals facility in Castroville, and soil is assumed to be hauled to the Monterey Regional Waste Management facility near Marina. Stockpiling of excavated material at the site is not expected, but if it is required the Contractor Staging Area designated in the Project Plan on Figure 1 will be used. Parking for contractor's vehicles will be in the staging area and in the area shown as the limits of the asphalt surfacing. An adjacent leach field is fenced off and no parking is allowed in the leach field area.

After the slab is constructed, the prefabricated building will be delivered by truck to the site and placed on the slab by a mobile crane. Electrical conduit and cables will be installed connecting the building and its equipment to the existing facility.

Resurfacing of the area around the building will require removal of the existing asphalt, but the drainage pattern of the site is unchanged so grading of the site will be minimal (less than 20 cubic yards of fill) and expected to not exceed a duration of one day. Approximately 110 cubic yards of asphalt and 165 cubic yards of base material will be removed from the site and recycled. The Haul Route for asphalt recycle is shown on Figure 1 and assumes that existing asphalt and base material will be recycled at the A&S Metals facility in Castroville. North County High School is located adjacent to the proposed haul route.

The majority of construction vehicles on the site will be work pickups for the various trades working on the project. Larger equipment will only be used for short periods of time, typically one day, during the duration of the construction project. Project scheduling is dependent on when permits are approved, and duration of the construction project is three to four months.

The following Table 1 summarizes this narrative.

Table 1 - Construction Management Plan
VFD Building Project

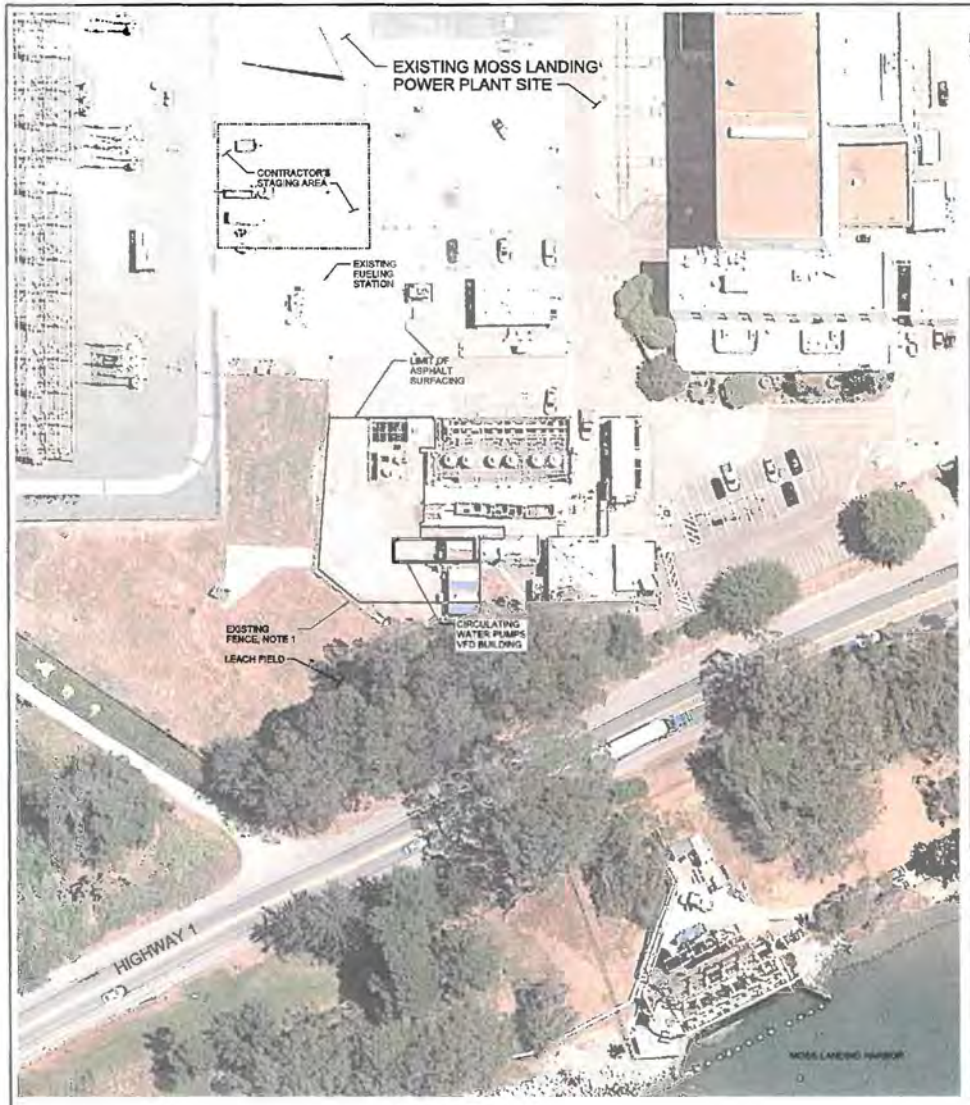
Construction Vehicles:

Vehicle Type	Trips/Day	Notes
Pickup	4	Daily
Dump Truck (10 cy)	5	7 days total
Backhoe	1	On/Off Site once
Grader	1	On/Off Site once
Crane	1	On/Off Site once
Flat bed trailer	1	On/Off Site once

Amount of Grading Per Day; One day of grading for project - ` 20 cy fill

Hours of Operation: 7 a.m. to 3:30 p.m.; Monday through Friday

Project Scheduling: 3 to 4 months (July 2016 through October 2016)



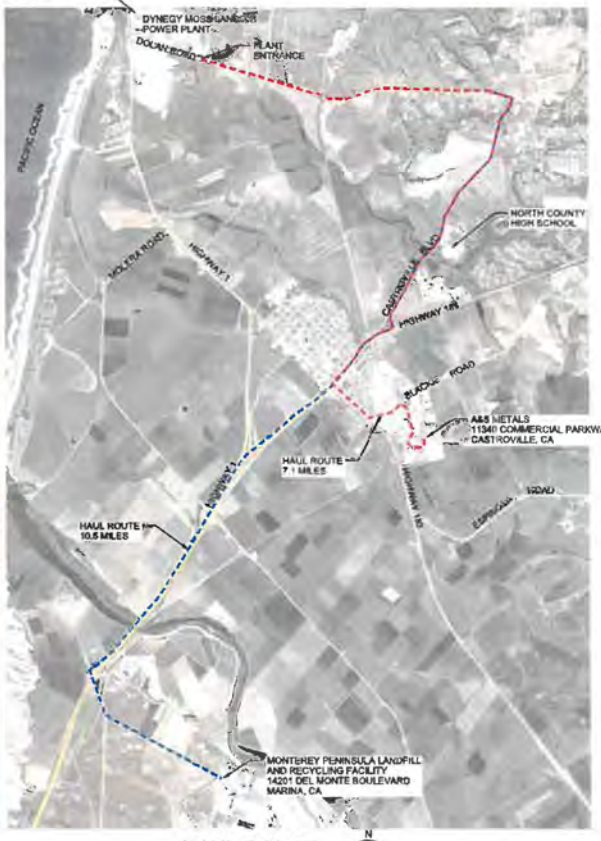
PROJECT PLAN

APPROXIMATE NORTH

0 40 80 120
SCALE IN FEET

NOTES:

1. CONTRACTOR SHALL NOT CROSS EXISTING FENCE INTO LEACH FIELD AREA.



HAUL ROUTE
NTS

VICINITY MAP

FIGURE 1
CONSTRUCTION MANAGEMENT PLAN

CIRCULATING WATER PUMPS
VFD BUILDING PROJECT

MARCH 28, 2016

DYNEGY
MOSS LANDING POWER PLANT
MOSS LANDING, CA

ch2m:

Appendix F

Archaeological Report

CEC 99-AFC-4C

Amendment

Installation of

Variable Speed Drive Controls

Dynegy Moss Landing, LLC

Moss Landing Power Plant

Pacific Legacy Historic Preservation

Business Office
P.O. Box 6050
Arnold, CA 95223

Phone: 209.795.4481
Fax: 209.795.1967
www.pacificlegacy.com

March 31, 2016

Ms. Kathy Genasci
Sr. Plant Engineer
Dynegy - Moss Landing Power Plant

Re.: Proposed construction of modular equipment building and potential impacts to archaeological site CA-MNT-229

Ms. Genasci:

I understand that Monterey County, as a condition of issuing a coastal Administrative Permit, is requiring that Dynegy obtain an archaeological report addressing the potential for the proposed construction of a modular equipment building to cause an impact to an archaeological resource known to be in the vicinity of the Moss Landing Power Plant. The area to be affected by the proposed construction is within the development footprint of the original power plant built by PG&E in 1949 and was subject to archaeological survey and construction monitoring during the renovation and relicensing of the plant in 2000 - 2002 by its then-owner, Duke Energy. During these studies I was recognized by the California Energy Commission as the Designated Cultural Resources Specialist for the project. The archaeological survey and construction monitoring efforts are documented in the *Cultural Resources Report for Duke Energy Moss Landing Power Plant (99-AFC-04), Moss Landing, Monterey County, California* which was submitted to the California Energy Commission. The following assessment of potential impacts for the proposed construction is based on information provided in that report and my personal observations made in 2000 - 2002. The question at hand is whether the proposed Dynegy construction has the potential to cause an adverse impact on archaeological site CA-MNT-229 which is in the immediate area of the power plant.

Archaeological survey reported in 2002 indicated that no part of site CA-MNT-229 exists within the power plant area. The known surviving distribution of archaeological materials is outside the fenced boundaries of the existing power plant. Observations made during the demolition and removal of original plant components indicated that disturbance within the area extends to depths of ~15+ feet below ground level in 2000 - 2002. Archaeological monitoring during renovation of the power plant included the area of the proposed modular equipment building. No archaeological materials were observed anywhere in the area where original facilities were demolished and new facilities constructed or renovated.

Inland Empire/Mojave Desert
44702 10th St. West
Lancaster, CA 93534
661.729.9395 Ph.
661.729.9417 Fax

Bay Area
900 Modoc St.
Berkeley, CA 94707
510.521.3991 Ph.
510.524.4419 Fax

Pacific Basin
30 Aulike St. #301
Kailua, HI 96734
808.263.4800 Ph.
808.263.4300 Fax

Sierra/Central Valley
4919 Windplay Dr. #4
El Dorado Hills, CA 95762
916.358.5156 Ph.
916.358.5161 Fax

Pacific Legacy Historic Preservation

Business Office
P.O. Box 6050
Arnold, CA 95223

Phone: 209.795.4481
Fax: 209.795.1967
www.pacificlegacy.com

It is my opinion that construction of the new building has little probability of encountering archaeological materials. Nevertheless, there is no guarantee that subsurface cultural materials do not exist. Therefore, I make two recommendations: (1) the depth of foundations for the proposed new building should be as shallow as practicable; and, (2) that all construction workers, especially supervisory personnel receive Worker Environmental Education Program training that highlights the process for recognizing and responding to an unanticipated discovery of archaeological materials. Basically, workers need to be alert to the discovery of gray-black colored soil with imbedded shell and bone fragments. Discovery of such soil should be reported to the appropriate supervisor, and work suspended in the area pending a determination by a qualified archaeologist regarding the legal significance of the deposits and any associated artifacts.

Please let me know if you have any questions regarding this letter.

Sincerely,

Thomas L. Jackson, Ph.D.
Senior Archaeologist/Principal

Inland Empire/Mojave Desert
44702 10th St. West
Lancaster, CA 93534
661.729.9395 Ph.
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510.524.4419 Fax

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4919 Windplay Dr. #4
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916.358.5156 Ph.
916.358.5161 Fax

Appendix G

Geologic Hazards Report

CEC 99-AFC-4C

Amendment

Installation of

Variable Speed Drive Controls

Dynegy Moss Landing, LLC

Moss Landing Power Plant

MOSS LANDING POWER PLANT
GEOLOGIC HAZARDS REPORT

MOSS LANDING, CALIFORNIA

March 2016

Prepared for:

Dynegy Moss Landing, LLC

Prepared by:

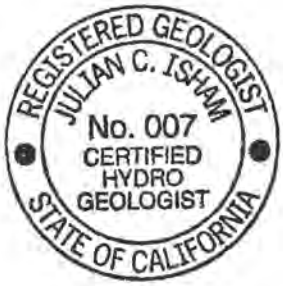
180 Promenade Circle, Suite 320
Sacramento, California 95834

Project No. 148555

Moss Landing Power Plant
Geologic Hazards Report

The information presented in this report has been compiled from a number of different sources including TRC's 2001 Geologic Hazardous Report. This report has been prepared by the undersigned individual. The findings presented in this report were prepared in accordance with generally accepted geologic practices in the area at the time this report was completed. No other warranty, express or implied, is made.

Julian C. Isham



Julian C. Isham
Geology Manager, P.G., C.E.G., C.H.G.

CONTENTS

TABLES AND ILLUSTRATIONS

Tables

Figures

1.0 INTRODUCTION

This report describes the geologic hazards and resources in the vicinity of the Moss Landing Power Plant (MLPP). This Project will be completed within the confines of existing industrial power plant property, which has been in operation for nearly 60 years. There will be no impacts from geologic hazards or to geologic resources of recreational, commercial or scientific value.

The MLPP is located 12 miles northwest of Salinas, California in Monterey County at the intersection of Highway and Dolan Road, east of the Moss Landing community. The plant is situated near the Moss Landing Harbor in an area which includes industrial facilities, agricultural lands, sparse residences, recreational beaches and tidal wetlands.

Geologic resources were assessed through a review of literature relevant to regional, local and site geology. This included a crosscheck for completeness against the California Geologic Survey (CGS), Note No. 46, "*Guidelines for Geologic/Seismic Considerations in Environmental Impact Reports*." This literature review and analysis was complemented by site reconnaissance and interviews of MLPP staff.

Beneficial aspects of this Project from the standpoint of geologic resources are:

- Ground disturbance is confined to an existing industrial site.
- Plant construction will be completed in conformance with civil and structural engineering design criteria.
- Potential impacts in terms of geologic hazard will be mitigated through appropriate building foundation and seismic structural design.

2.0 EXISTING CONDITIONS

2.1 Regional Geology

The MLPP is located within the central portion of the Coast Range Geomorphic Province (see Figure 1). The Coast Ranges consist of a sequence of northwest trending mountains and valleys, aligned to and adjacent to the California coastline. The Coast Range is on average 60 miles wide, extending from the Pacific coast inland to the San Joaquin Valley. This 600-mile-long province continues north to Oregon and is bounded to the south by the Transverse Range Geomorphic Province. The dominant structural feature in the Coastal Range Province is the northwest trending San Andreas Fault.

The regional geology of the Moss Landing area is shown in Figure 2. Basement geologic units consist of pre-Cretaceous metamorphic rock units (Sur Series) and Mesozoic age granitic rocks. The metamorphic rock units consist of gneiss, schist, quartzite and marble, and the granitic rocks vary in composition from granodiorite and quartz monzonite to quartz diorite. These granitics are exposed in the northwest trending Gabilan range, located approximately 9 miles east of MLPP, and the metamorphic rock units are exposed in the Sierra de Salinas range, located approximately 11 miles south of the plant. Lower Tertiary sedimentary units consisting of marine sandstone, siltstone, mudstone, and volcanic rock units unconformably overlie the granitic units.

A series of Miocene and Pliocene sedimentary units overlie the lower Tertiary units. The primary unit in this series is the Purisima formation which consists of shale and poorly consolidated sand, clay and gravel units. The Purisima formation thickens westward, and reaches an 1200-foot thickness in the vicinity of the plant (Johnson, 1980).

2.2 Local Geology

The MLPP is located adjacent to Monterey Bay, within the broad alluvial plain between the Salinas River and Elkhorn Slough. Adjacent highlands to the east of the plant site consist of Pleistocene nonmarine terrace deposits.

The Monterey Submarine Canyon (see Figure 2) extends offshore, west—southwest from the mouth of Elkhorn Slough. This deep submarine canyon can be traced 90 miles southwest of Moss Landing beach and extends to 12,000 feet in depth (Hart, 1966). Its origin is attributed to

a combination of fluvial erosion and deep sea turbidity currents, which have re-eroded and transported earth materials deposited in the canyon.

The oldest and thickest quaternary unit locally is the Aromas Sand. This unit consists of eolian (wind-blown) and fluvial sediments (deposited by streams, rivers or ponds) consisting of sand, silt and clay. This unit, which is exposed in highlands to the north and east of MLPP, thickens westward, and reaches a thickness of approximately 700 to 800 feet in the vicinity of MLPP (Johnson, 1980).

A thick accumulation of clay is found beneath Elkhorn Slough. This unit, which is up to 600 feet thick, fills an erosional trough which is approximately coincident with the present location of Elkhorn Slough (Johnson, 1980).

2.3 Site Geology

Surficial geologic units at MLPP have been mapped in detail as shown in Figure 3 (Dupré and Tinsley, 1980). The surficial geologic units are summarized below.

- Artificial Fill (Qfl): The approximate distribution of artificial fill is shown in Figure 3. Artificial fill is present throughout the project site. These earth materials consist of a heterogeneous mixture of fill materials that include well-compacted sand and silts with high organic content in some cases. These fill materials, which are generally 2 to 4 feet in thickness, have been placed over the years coincident with plant construction and placement of the aboveground fuel storage tanks.
- Basin Deposits (Qb): Basin deposits, consisting of organic-rich unconsolidated plastic and silty clays with local thin interbeds of silt and silty sand, surround the MLPP' site and vicinity. These sediments were deposited in a series of sedimentary geologic environments including lagoons, lakes, estuaries, tidal flats and flood basins.
- Aeolian Deposits (Qem): These earth materials consist of poorly to moderately consolidated, moderately well-sorted sands and silts. These wind deposited materials are present in the northwest portion of the project site.
- Coastal Terrace Deposits of Santa Cruz (Qsc): The Coastal Terrace deposits on the project site are semi consolidated, moderately well-sorted marine sands. They contain thin interbeds of gravel and localized colluvial and fluvial silts, sands and gravels.

- Coastal Terrace Surface Deposits (Qan1, Qan2 and Qan3): There are several coastal terrace surface deposits exposed throughout the vicinity of MLPP. Based on their relative elevation and soil characteristics, they have been mapped as youngest (Qan1), middle (Qan2) and oldest (Qan3) terrace surfaces. In the eastern portion of the property, the middle and oldest coastal surface terrace deposits are exposed. These deposits are a thin veneer of coastal sediments, consisting of marine sand, which overlie and cap the underlying eolian deposits of Manresa Beach (Qem).
- Coastal Terrace Deposits, Undifferentiated (Qcu): Undifferentiated coastal terrace deposits are exposed in upland areas to the north of MLPP. These earth materials consist of moderately consolidated, well-sorted sands with relatively continuous gravel layers.
- Watsonville Terrace Deposits, Fluvial Facies (Qwf): Exposed locally in the vicinity of MLPP are fluvial sediments belonging to the Watsonville terrace deposit unit. This unit consists of moderately consolidated, moderately to poorly sorted silt, sand, silty clay and gravel. The lower portion of this unit contains abundant gravel.

In general, the site is mantled with a thin, 2- to 4—foot layer of artificial fill, consisting of silty sand and clayey sand fill soils. Underlying the fill is an approximate 3- to 4-foot thick unit of medium-dense to dense, fine- to medium—grained, silty and clayey sand with some interbedded clean (little to no fines) sands. Underlying this sand unit is an approximately 10-foot thick, stiff to very stiff clay unit. Very dense clean sands underlie the clay units to the maximum exploration depth of approximately 38 feet.

2.4 Tectonic Framework and Seismicity

2.4.1 Tectonic Framework

Faults in the vicinity of MLPP are shown in Figures 4 and 5. The MLPP is situated within the Salinian tectonic block, bordered by the San Andreas Fault on the northeast and the San Gregorio-Hosgri fault zone on the southwest. The Salinian tectonic block consists of continental crust comprised mostly of granitic rocks, which is flanked on either side by oceanic crust of the Franciscan Formation. Although there are a number of nearby faults, no active faults are known to exist in the immediate vicinity nor pass beneath MLPP. An active fault, as defined by the CGS, is one that shows clear evidence of movement within the Holocene Period (i.e., over the last 11,000 years) (Hart, 1997).

The San Andreas Fault is located 11 miles to the northeast of MLPP. The San Andreas Fault forms the tectonic boundary between the Pacific Plate and the North American Plate. Right-lateral, strike-slip motion occurs along this boundary at an average rate of 2.5 cm/year. Portions of this fault sustain constant creep movement with relatively small earthquakes, whereas other sections sustain periodic slip with attendant larger earthquakes. Historic earthquakes on the active San Andreas Fault are discussed further in 1.4.2, Seismicity.

The Rinconada Fault is located approximately 8 miles south-southeast of MLPP. The Rinconada Fault and its presumed northern extensions, the Reliz and King City Faults, are part of the overall San Andreas Fault system (Clark, et al., 1994). Evidence for recent movement along this fault system includes truncation and offset of the Pliocene and Pleistocene Paso Robles Formation. Moderately well-developed geomorphic expression of active faulting and apparent offsets of older alluvium along portions of the Rinconada Fault further suggest late Quaternary and possibly Holocene activity (Hart, 1976).

The Palo Colorado-San Gregorio fault zone is located approximately 19 miles west-southwest of MLPP. This fault zone is comprised of a sequence of northwest-trending onshore and offshore faults which include the San Simeon and Hosgri fault zones. This fault system forms a prominent structural boundary between the northwest-oriented structural grain of the southern Coast Ranges and onshore Santa Maria Basin and the north-northwest-oriented structural trends of the Sur and offshore Santa Maria basins. This fault is classified active by the CGS.

A number of faults have been mapped locally in the Monterey Bay by the U.S. Geological Survey (Greene, et al., 1973). The Monterey Bay fault zone (see Figure 5) consists of a series of offshore, northwest trending discontinuous faults, which are located in the inner bay between Monterey and Santa Cruz. This fault zone is about 6 to 7 miles wide, and may represent the offshore extension of northwest-trending faults in the Salinas Valley and the Sierra de Salinas Mountains to the southeast. To the north, the zone appears to terminate against the Palo Colorado-San Gregorio fault zone. This fault zone is inferred to be active based on geophysical survey data and seismic data (Greene, et al., 1973). The CGS maps this zone as one primary active fault trace termed the Monterey Bay-Tularcitos fault zone, which is located 11 miles west-southwest of MLPP.

The Zayante-Vergeles Fault is located approximately 6 miles east-northeast of MLPP. This fault terminates against the San Andreas Fault, about 4 miles southeast of San Juan Bautista. The fault extends for a total distance of approximately 37 miles and is one of several active strands of the San Andreas Fault system in the vicinity of MLPP.

The Monterey Canyon Fault is a west-southwest-trending fault zone, located approximately 1 mile west of MLPP. This fault has been mapped using offshore geophysical survey methods (Greene, et al., 1973). This fault zone is approximately 6 miles in length and is roughly aligned to the axis of the Monterey Submarine Canyon, as it extends offshore from the vicinity of MLPP. This fault may extend onshore, and may be responsible for the erosional trough (now in filled with clay) that is roughly coincident with Elkhorn Slough.

Based on geophysical survey records, the Monterey Canyon Fault shows evidence of separation in Cretaceous basement rocks and overlying early to middle Tertiary rock units. This fault shows no evidence for displacement during Quaternary time (the past 1.6-million years) based on the CGS mapping program (Jennings, 1994), and therefore is not interpreted to be active.

2.4.2 Seismicity

The MLPP is located in an area of historical seismicity. The primary source of earthquakes in the region is the San Andreas Fault, located about 11 miles northeast of the plant. The San Andreas Fault has sustained historic rupture during the 1906 magnitude (M) 8.3 (estimated) San Francisco earthquake and the 1989 M7.1 Lorna Prieta earthquake.

The Monterey Bay area experienced strong ground shaking during both the 1906 San Francisco and 1989 Loma Prieta earthquakes. Surface fault rupture during the San Francisco earthquake extended as far south as San Juan Bautista, about 12 miles east of MLPP. Ground accelerations recorded near MLPP during the Lorna Prieta earthquake are summarized in Table 1. A 0.39g ground acceleration was recorded at the Watsonville seismic station, located approximately 8 miles north of MLPP. It should be noted that site ground accelerations are closely related to the nature of the subsurface earth materials (e.g., density, depth to ground water) and, therefore, may not represent ground accelerations at nearby areas with dissimilar ground conditions. The data shown in Table 1 suggest a peak ground acceleration of 0.2 to 0.3g at Moss Landing (Mejia, 1998).

During both the 1906 and 1989 earthquakes, there were numerous ground failures in the Moss Landing area. The principal types of ground failures were liquefaction, slumping of stream banks and lateral spreading (Youd and House, 1978; Mejia, 1998).

Property loss caused by liquefaction during the 1989 Lorna Prieta earthquake was at least $99 million (Holzer, 1998). Lateral spreading caused the most costly single loss ($8 million) through destruction of the Moss Landing Marine Laboratory (Holzer, 1998). In this area, lateral spreads extended up to 1 kilometer (km) in length with up to one meter of lateral displacement. Damage to other civil works in the Monterey Bay region was modest.

Liquefaction-related effects are depicted in Figure 6 and described in detail in Table 2. Although liquefaction occurred at a number of sites near MLPP, no liquefaction occurred at the power plant itself. Liquefaction-related effects were confined to nearby stream channels and beach spits, where sediments are more poorly consolidated and a shallower ground water table is present.

Although no liquefaction was documented at the power plant, there were earthquake related effects, likely as a result of high ground shaking. The power plant sustained relatively minor damage, with the exception of the Pacific Gas and Electric Company 500-kilovolt (kV) transmission yard, where several breakers fell over and major portions of the buss work were damaged (Mejia, 1998; Flake, 1999). Transmission yard damage resulted in a power loss to the plant which resulted in damage to Unit 6, which was online at the time. Unit 7, which was offline, sustained stack damage that was subsequently repaired (Flake, 1999). No major damage was sustained in the boiler or generator buildings, or to the Units 6 and 7 stacks (Mejia, 1998).

The EQFAULT fault model program (Blake, 1989) was used to assess seismic sources near MLPP. There are a number of sources available for assessing earthquake potential and attendant ground shaking (expected ground acceleration in the event of an earthquake). The EQFAULT utilizes the CGS digital fault map database. The CGS is the state agency responsible for mapping and documenting the location of active faults in the state of California.

Table 3 summarizes the key faults and fault parameters derived from the EQFAULT program for maximum credible earthquake (MCE) events. A search radius of 100 km (62 miles) was used for this analysis. The CGS has partitioned the San Andreas Fault into several subsets based on its tectonic behavior and seismic history. Based on the fault analysis, the MCE peak horizontal site ground acceleration is 0.34g from a M 7.9 earthquake on the San Andreas Fault (portion of San

Andreas Fault that ruptured in 1906 earthquake). The other prominent faults in terms of potential high ground shaking are the Rinconada, the Monterey Bay-Turlacito sand the Zayante-Vergeles Fault.

2.5 Geologic Hazards

The following sections address geologic hazards in accordance with California Code of Regulations Title 20, Appendix B requirements.

2.5.1 Ground Rupture

As previously discussed, there are no active faults in the immediate vicinity of MLPP, nor do any active faults pass beneath the site. Consequently, the likelihood for fault rupture at the site is remote.

2.5.2 Ground Shaking

The MLPP, like much of California, is located within a seismically active area. The potential for future earthquakes in the vicinity of the power plant within the lifetime of the plant is high. As discussed above in Section 1.4.2, the degree of ground shaking anticipated at MLPP was assessed using EQFAULT, and the MCE peak horizontal site ground acceleration was determined to be O.34g from a M 7.9 earthquake on the San Andreas Fault.

The MLPP is located within Seismic Zone 4 as designated in the California Building Code (CBC). Location of the power plant within CBC Seismic Zone 4 requires a minimum 0.4g horizontal acceleration coefficient for earthquake-resistant structural design.

2.5.3 Tsunami

Seismic waves, or tsunamis, can be triggered by earthquakes or undersea landslides. No historic tsunamis have occurred at MLPP (Flake, 1999). The Monterey County North County Area Plan identifies tsunami hazard areas. Coastal flooding areas are also identified on Federal Emergency Management Agency (FEMA) flood insurance rate maps. The areas of tsunami hazard identified from both of these sources are in agreement with one another.

A tsunami hazard map is provided as Figure 7. Potential tsunami run-up areas are primarily confined to the Moss Landing Harbor spit and adjacent headlands along Highway 1. The

tsunami hazard area extends to the western property boundary of MLPP, but does not extend onto the property itself.

2.5.4 Mass Wasting and Slope Stability

The MLPP is located adjacent to the coast, in a subdued topographic area. Topography at the site is essentially flat. Given the subdued site topography, there is negligible potential for development of landslides or other slope stability concerns.

2.5.5 Liquefaction

Liquefaction is the loss of soil shear strength due to increased pore water pressure from ground shaking generated during earthquakes. The liquefaction potential at a given site is usually evaluated through geotechnical investigations which assess soil type, soil density and depth to ground water. The two main site conditions required for liquefaction potential are:

- Presence of low density silt and sand.
- Shallow ground water within 30 to 50 feet of the ground surface.

Liquefaction potential in the vicinity of MLPP was previously assessed by Dupré and Tinsley (1980). The two primary deposits mapped at the site are coastal terrace deposits and eolian deposits. These deposits are assigned a low potential for liquefaction. The liquefaction potential of fill deposits is a site-specific evaluation and is beyond the scope of the Dupré and Tinsley evaluation.

Portions of south-central MLPP are underlain by basin deposits (see Figure 3, geologic unit Qb), which are assigned a moderate to high potential for liquefaction. These deposits are located in a subdued topographic area with a shallow (5 to 10 feet) underlying ground water table. The combination of a shallow water table and the poorly consolidated basin deposits generates a moderate to high potential for liquefaction in the portion of the site underlain by these earth materials. These earth materials are located about 1,000 feet east of the location of the Project.

2.5.6 Subsidence

The potential for subsidence due to consolidation of soils at the site is considered low to moderate. The subsurface soils are relatively well consolidated and contain sufficient fines to bind framework grains, thus preventing substantial settlement.

2.5.7 Expansive Soils

Based on prior site investigations, a highly plastic (and potentially highly expansive), approximately 10-foot-thick clay (American Society of Testing & Materials symbol CH) unit is present at about a 6-foot depth. This unit has been mapped as a continuous layer in the vicinity of both the existing hazardous waste ponds and oil-water separator. This suggests that this unit may be continuous across the site and may be encountered during construction, dependent on foundation design and depths of excavation.

3.0 IMPACTS

Significance criteria were determined based on California Environmental Quality Act (CEQA) Guidelines, Appendix G, Environmental Checklist Form (approved January 1, 1999) and on performance standards or thresholds adopted by responsible agencies. An impact may be considered significant if the Project results in:

- Severe damage or destruction to one or more project component as a direct consequence of a geologic event.
- Release of toxic or other damaging material into the environment as a result of a geologic event.
- Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:
- Rupture of a known earthquake fault.
- Strong seismic ground shaking.
- Seismic-related ground failure, including liquefaction.
- Inundation by seiche, tsunami or mudflow.
- Landslides.
- Flooding.
- Loss of a unique geologic feature.
- Loss of availability of a known mineral resource classified MRZ-2 by the State geologist and of value to the region and residents of the state.
- Loss of availability of a locally-important mineral resource recovery site.

3.1 Construction Impacts

The MLPP is located in a seismically active area and the likelihood of ground shaking within the lifetime of the facility is high. Fault modeling suggests conservative peak site horizontal ground accelerations as high as 0.34g, which is less than the California Building Code (CBC) 0.4g seismic design coefficient for Seismic Zone 4. The MLPP, however, has sustained historic earthquake damage, and its proximity to the active San Andreas Fault will be taken into consideration in seismic design.

Given the potential for earthquakes in the vicinity, there are potential secondary earthquake effects, including liquefaction, lateral spread, and tsunamis. The potential for flooding damage due to tsunamis is considered low as previously discussed. The potential for liquefaction, including lateral spreading, in the footprint area of the new units is considered low. Other portions of the site, however, have a moderate to high potential for liquefaction.

The presence of laterally continuous highly plastic clayey soils could potentially impact foundation design, in terms of structural design and support. The impacts of expansive soils and settlement of compressible soils can typically be addressed by conventional design measures.

3.2 Operations and Maintenance—Related Impacts

There will be no operations impacts to geologic resources. Any potential operations impacts are mitigated through appropriate foundation and seismic structural design.

3.3 Project Design Features

The following are design and/or operational features of the Project that avoid potentially significant environmental impacts, which have been incorporated into the Project:

- A foundation investigation report should be performed as part of Project siting design. This report will summarize geotechnical site conditions relevant to plant foundation, structural design and seismic design. A detailed evaluation of subsurface soils should be conducted to determine any necessary structural improvements to comply with CBC and the Uniform Building Code (UBC) Seismic Zone 4 requirements. This will include an evaluation of highly plastic clayey soils to evaluate their expansive characteristics relative to foundation design.

- Since MLPP is located in a seismically active area, a detailed, site-specific seismic evaluation shall be performed as part of the detailed engineering. This evaluation will determine the governing design ground acceleration, liquefaction potential, and will be coordinated with power plant structural design, as needed, to mitigate any potential impacts associated with high ground shaking.

4.0 MITIGATION MEASURES

Based on the above analysis of impacts and the design and operational features that have been incorporated into the Project, no mitigation measures are required.

5.0 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

There are no significant unavoidable adverse impacts from geologic hazardous or to geologic resources from the construction or operations of the Project.

6.0 LAWS, ORDINANCES, REGULATIONS AND STANDARDS COMPLIANCE

A summary of Laws, Ordinances, Regulations and Standards (LORS) related to geologic hazards and resources is provided below. The Project will comply with applicable LORS during project construction and operation.

The site is not located within an Alquist-Priolo Special Studies Zone, so no site-specific fault studies are required. The Project will comply with applicable building codes to address power plant foundation and seismic structural design. Engineering design criteria, which includes building code compliance features.

6.1 Federal Authorities and Administering Agencies

No federal LORS or codes are applicable.

6.2 State Authorities and Administering Agencies

California PRC §25523(a); 20 CCR 1752(b) and (c)

No Project components occur or cross an Alquist-Priolo Special Study Zone as defined by the California Geologic Survey (CGS)

6.3 Local Authorities and Administering Agencies

No local LORS or codes are applicable, beyond those identified in UBC Appendix Chapter 33 related to excavation, grading and construction.

6.4 Industry Codes and Standards

Applicable codes and industry standards related to various geologic and soil features are identified in Appendix 8-3, Civil Engineering Design Criteria. The MLPP is in the UBC and the CBC Seismic Zone 4; the requirements included in the UBC and CBC for Zone 4 applies to the Project. This includes that a 0.4 g horizontal acceleration be utilized in structural design to provide earthquake-resistant design.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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TABLES

TABLE 1
PEAK HORIZONTAL ACCELERATIONS RECORDED IN THE MOSS LANDING AREA FROM 1989 LOMA PRIETA EARTHQUAKE

Recording Station	Epicentral [1] Distance (miles)	Approximate Distance from MLPP (miles)	Site Conditions	Recorded Peak Horizontal Acceleration (g)
Watsonville	11.3	8	Alluvium	0.39
San Juan Bautista	20.6	11	Stiff Alluvium	0.15
Salinas	28.8	23	Alluvium	0.12
Monterey	30.6	17	Rock	0.07

(1) Distance from earthquake epicenter to seismic recording station. The epicenter is the surface location marking the projection of an earthquake event from the point of rupture at depth to the earth's surface.

TABLE 2
LIQUEFACTION EFFECTS FROM LOMA PRIETA EARTHQUAKE

SITE NO.	DESCRIPTION
116	Moss Landing State Beach Road. Sand boils and lateral spreading heavily damaged the road, including the causeway where it crosses from Paul's Island to the Moss Beach spit at Bennett Slough. The fill of the causeway slumped about 1.5 m, and the roadway was damaged from the causeway to the point where the road turns south parallel to the coastline. Lateral spreading also caused extensional fissures within the eastern margin of the belt of coastal dunes. Along and east of the (southerly) bend in the road about 1/2 km west of California Highway 1, at least five extensional fractures caused by lateral spreading showed total cumulative horizontal displacements of at least 300 mm between the eastern limit of the dunes and the existing estuary north of the beach access road. Sites 116 through 123 correspond to Youd and Iloose's (1978) localities 19 and 20, where extensive liquefaction was observed in 1906 (W .R. Dupré and J. C. Tinsley, October 27. 1989).
117	Moss Beach spit, north of the Moss Landing Marina and its nautical access to Monterey Bay. Lateral spreading caused as much as 200 mm of horizontal extension and 0.1 to 0.5 m of vertical displacement across fractures; both horizontal and vertical displacements increased southeastward. These ground failures were best expressed in the paved area of the parking lot near the tip of Moss Beach spit (Greene and others, 1991). The depth to the water table at this site is controlled by sea level and is generally less than 3 in (J. C. Tinsley and W. R. Dupré, October 27, 1989).
118	North margin of Elkhom Slough. Slumping of an earthen dike was noted along the north bank of the slough between the slough and the salt ponds.
119	Moss Landing spit, south of the Moss Landing harbor access (road access via Sandholt Way); (U. S. Geological Survey special studies site ML1). Liquefaction caused lateral spreading, sand boils, and differential settlement intermittently along the north half of Moss Landing spit. Effects included arcuate extensional cracks rimming the northeast end of the spit, tilting of fuel storage tanks at the fuel depot (Tuttle and others, 1990), lateral spreading between the fuel tanks and the dock at Moss Landing harbor, and eastward lateral spreading along northeast-southwest-trending cracks in the equipment yard of the Pacific Diesel Co. Numerous other cracks trending both subparallel and transverse to the general '' north—southward trend of the spit were also visible in l:6000-scale aerial and ground photography taken shortly after the earthquake. Numerous sewer lines and water mains were ruptured. See Greene and others, (1991) and Mejia (this chapter) for more complete discussions of offshore and onshore effects of the earthquake near the Moss Landing spit (J. C. Tinsley and W. R. Dupré, October 26, 1989).
120	California Highway 1 bridge. Elkhorn Slough. Settlement possibly related to liquefaction damage to the approaches to the bridge.
121	Moss Landing Harbor District office building and parking lot. Lateral spreading of about 0.15 m produced zones of ground cracking parallel to the shoreline and differential settlements as much as 0.3 m within the office parking lot. The area was mapped by Dupré and Tinsley (1980) as underlain by fill, and liquefaction presumably occurred within the fill. Photographs of and descriptions of the damage at this site are included in the article by Mejia (this chapter). Ground cracking without venting of sand was noted along the northern access road to the spit. near the junction with California Highway 1 (J . C. Tinsley and W. R. Dupré, October 25, 1989).

TABLE 2
LIQUEFACTION EFFECTS FROM LOMA PRIETA EARTHQUAKE
(Continued)

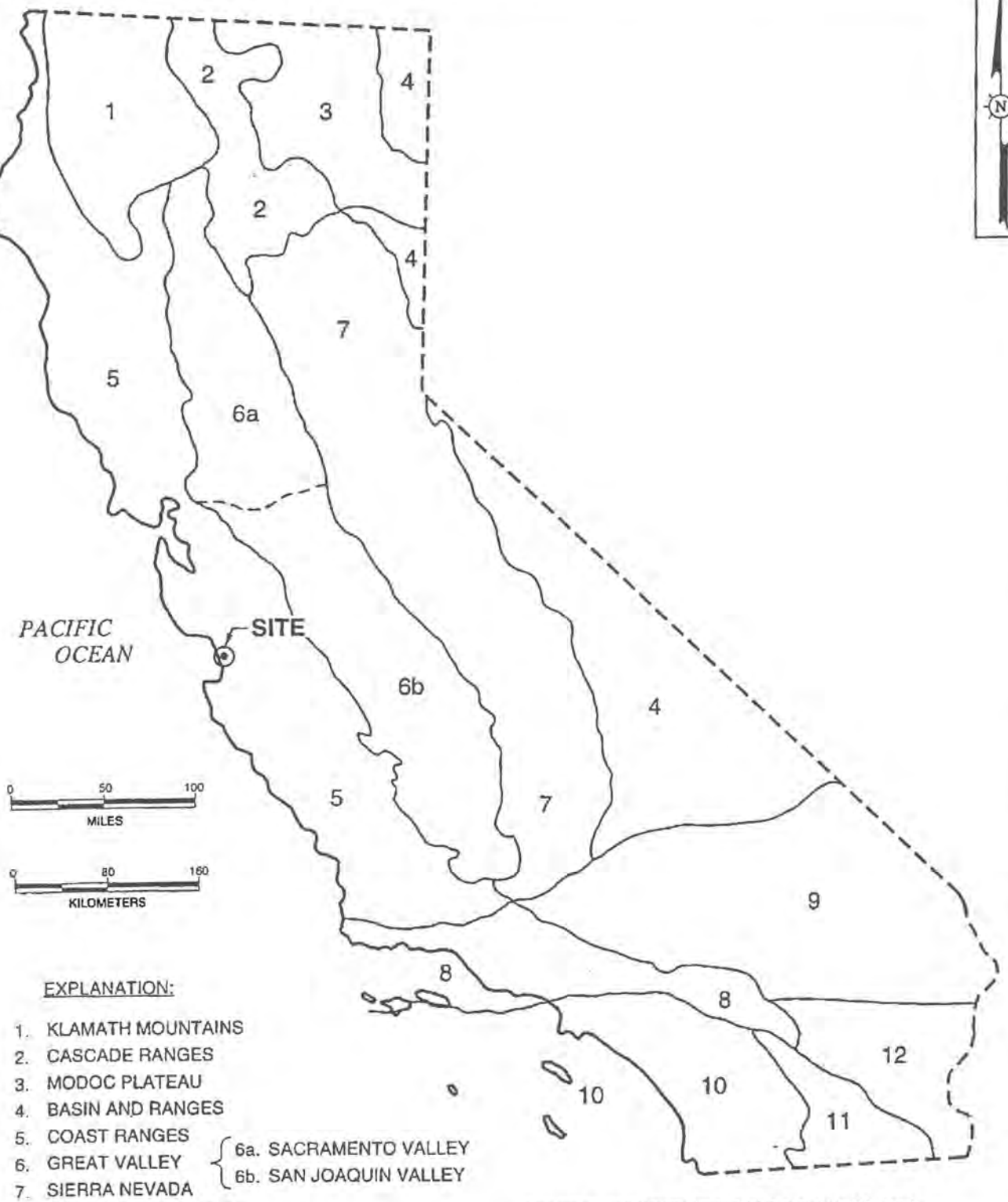
SITE NO	DESCRIPTION
122	Moss Landing Marine Laboratories (MLML), California State University system (U.S. Geological Survey special studies site ML2). The buildings were destroyed by about 1.3 m of lateral spreading that occurred beneath the facility and literally tore the facility apart. Structural deformation indicated that the ground beneath the south western part of the main building spread ocean ward; extensional cracking beneath the central part of this building and cracks along the east side of the property indicated that lateral spreading also occurred toward the harbor. Grabens and sinuous cracks extended southward along the spit from the buildings for a distance of about 150 m. Ground water is approximately at sea level, approximately 3 ms ubsurface. Observations of dock piers and submerged vegetation suggest about 0.3 m of settlement near the harbor at the northeast corner of the laboratory property along Sandholt Way. A resurvey of four of five U.S. Coast and Geodetic Survey benchmarks was conducted by the U.S. Geological Survey in 1990;the fifth monument was not recovered. Comparison with pre earthquake data indicated that about 0.42 m of settlement occurred along Sandholt Way near the northeast corner of the marine laboratory property, relative to a presumably locally stable benchmark located on Pleistocene marine-terrace deposits near California Highway l. See also Greene and others, (1991) and Mejia.
123	Sourthern most part of the Moss Beach parking lot near the west abutment of the bridge across the Old Salinas River to Moss Landing spit. This ground failure occurred in channel-fill deposits within unit Qcf of Dupré and Tinsley (1980); Mejia.

TABLE 3
ESTIMATED SEISMIC SOURCE PARAMETERS

FAULT	DISTANCE FROM MLPP (miles)	MAXIMUM CREDIBLE EARTHQUAKE (M)	ESTIMATED PEAK HORIZONTAL GROUND ACCELERATION AT MLPP (g)
San Andreas (Creeping)	15	6.5	0.12
San Andreas (Pajaro)	11	6.8	0.19
San Andreas (Santa Cruz Mt)	12	7.0	0.20
San Andreas (1906)	11	7.9	0.34
Palo Colorado – Sur	19	7.0	0.12
San Gregorio	20	7.3	0.13
Monterey Bay – Tularcitos	11	7.1	0.22
Rinaconda	9	7.3	0.30
Sargent	15	6.8	0.14
Zayante-Vergeles	8	6.8	0.26

FIGURES

98-715AFC-02 REV.02/08/99



EXPLANATION:

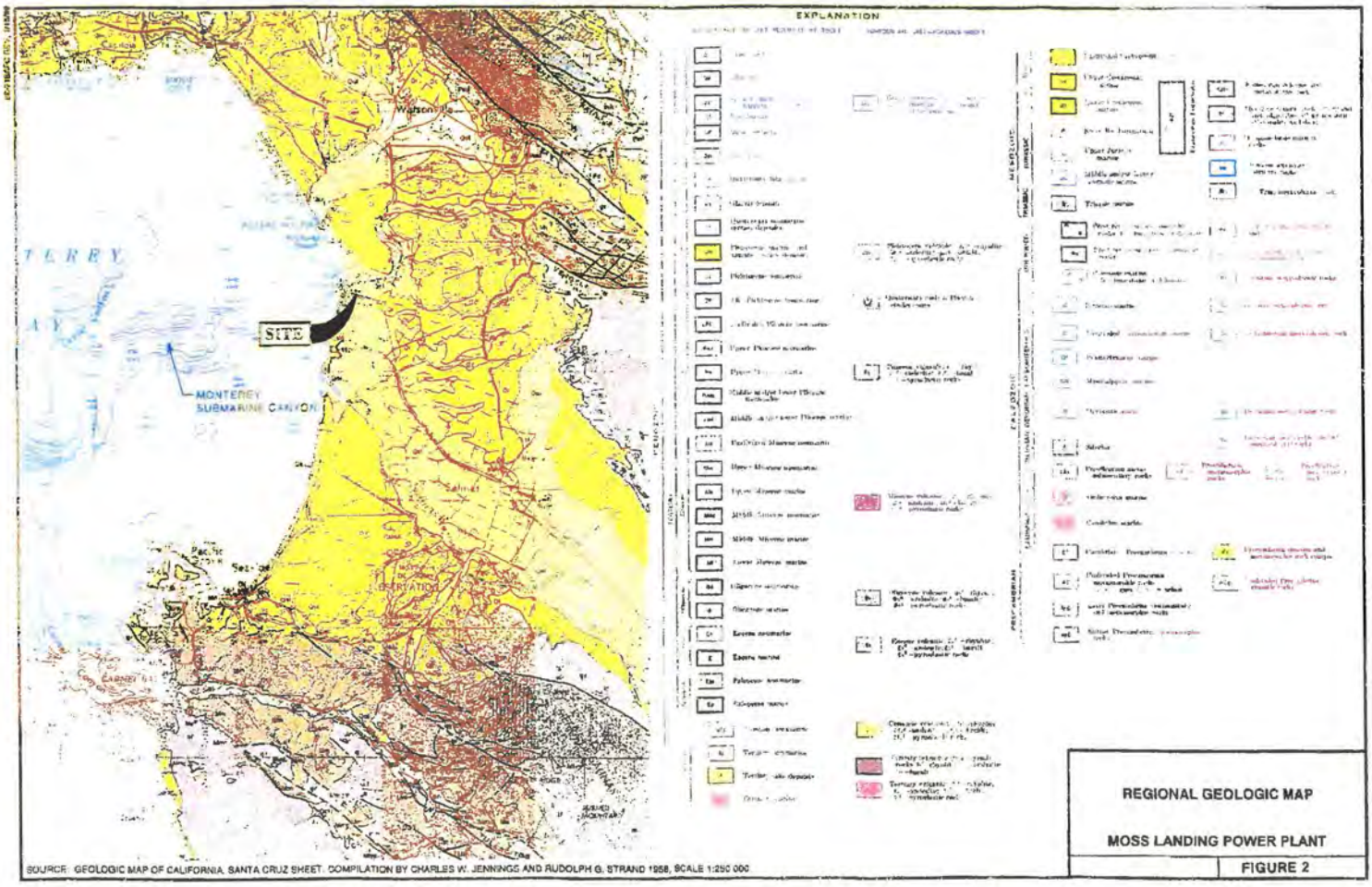
1. KLAMATH MOUNTAINS
2. CASCADE RANGES
3. MODOC PLATEAU
4. BASIN AND RANGES
5. COAST RANGES
6. GREAT VALLEY
   - 6a. SACRAMENTO VALLEY
   - 6b. SAN JOAQUIN VALLEY
7. SIERRA NEVADA
8. TRANSVERSE RANGES
9. MOJAVE DESERT
10. PENINSULAR RANGES
11. SALTON TROUGH
12. COLORADO DESERT

SOURCE: MODIFIED AFTER NORRIS & WEBB, 1990

PHYSIOGRAPHIC PROVINCES OF CALIFORNIA

MOSS LANDNG POWER PLANT

FIGURE 1



REGIONAL GEOLOGIC MAP

MOSS LANDING POWER PLANT

FIGURE 2

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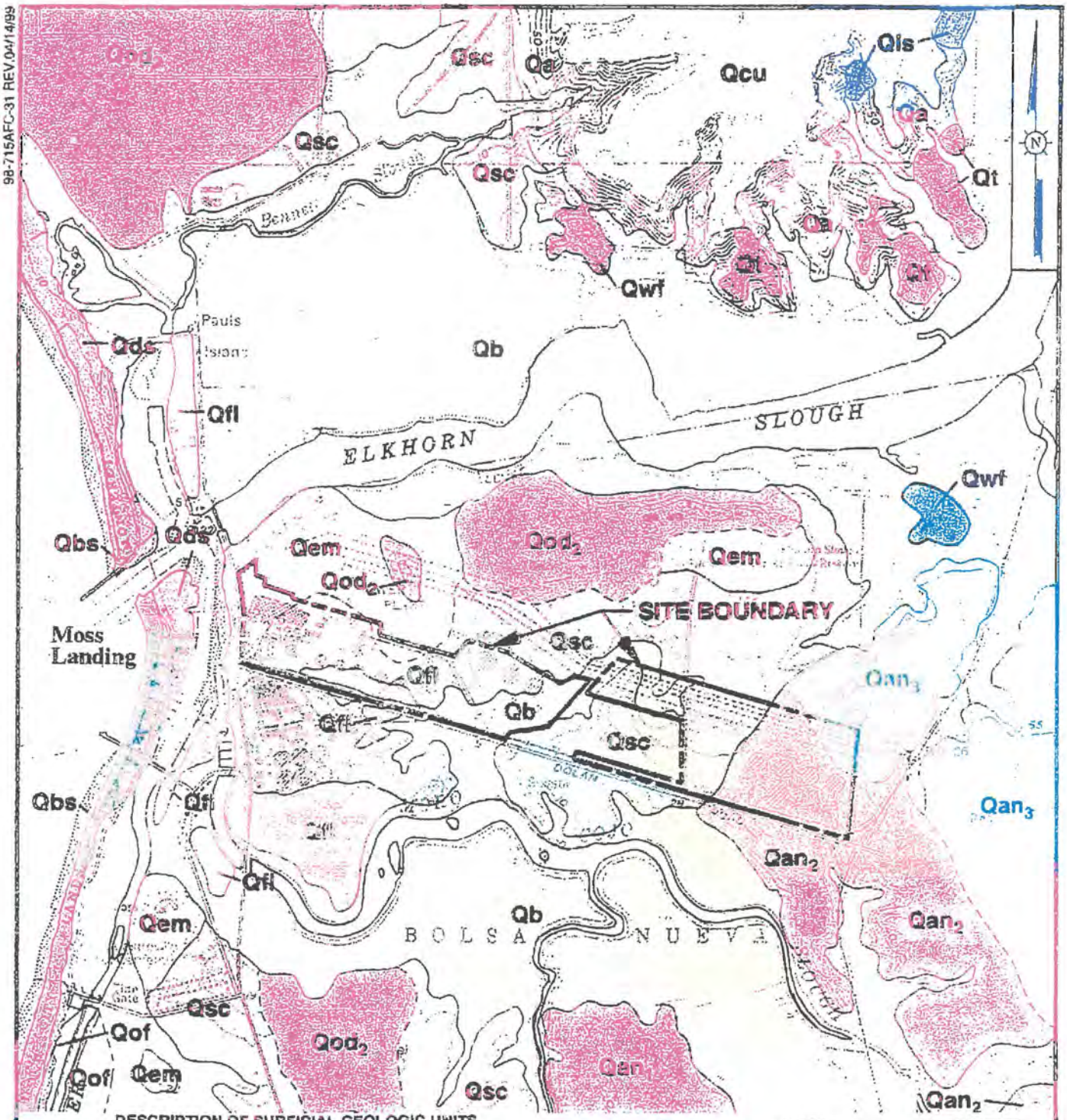


DESCRIPTION OF SURFICIAL GEOLOGIC UNITS

Qa	Aromas Sand
Qb	Basin Deposits
Qbs	Beach Sand
Qcu	Coastal Terrace Deposits, Undifferentiated
Qds	Dune Deposits - Dune Sand
Qfl	Artificial Fill
Qls	Landslide Deposits
Qod_2	Older Coastal Dunes
Qof	Older Flood Plain Deposits
Qsc	Coastal Terrace Deposits of Santa Cruz
Qt	Terrace Deposits, Undifferentiated

TERRACE DEPOSITS OF ANTIOCH

Qan_1	Youngest Terrace Surface
Qan_2	Middle Terrace Surface
Qan_3	Oldest Terrace Surface
Qem	Eolian Deposits of Manresa Beach

TERRACE DEPOSITS OF WATSONVILLE

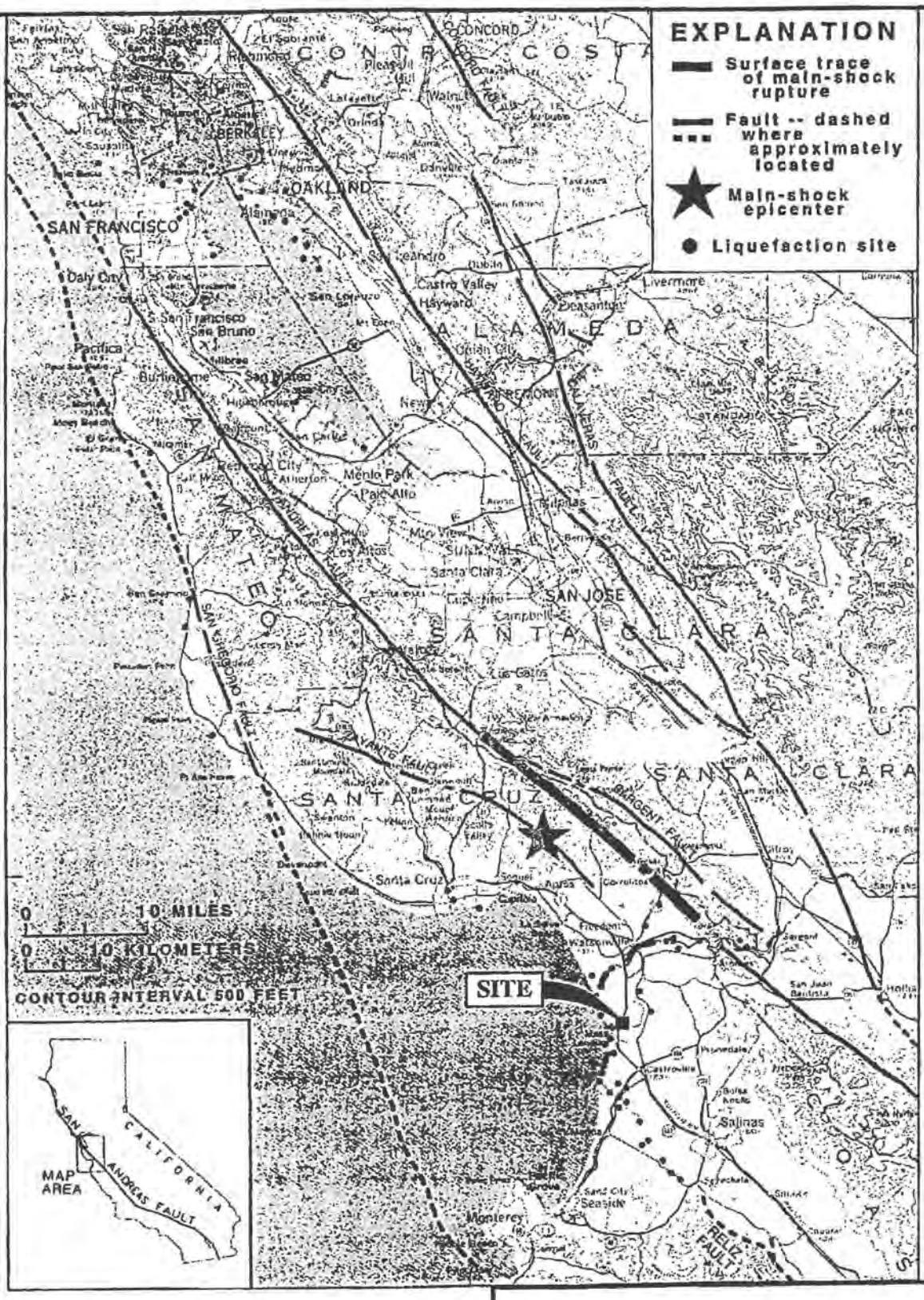
Qwf	Fluvial Facies

Source: Modified after Dupre and Tinsley, 1980.

LOCAL SURFICIAL GEOLOGIC UNITS MAP

MOSS LANDING POWER PLANT

FIGURE 3

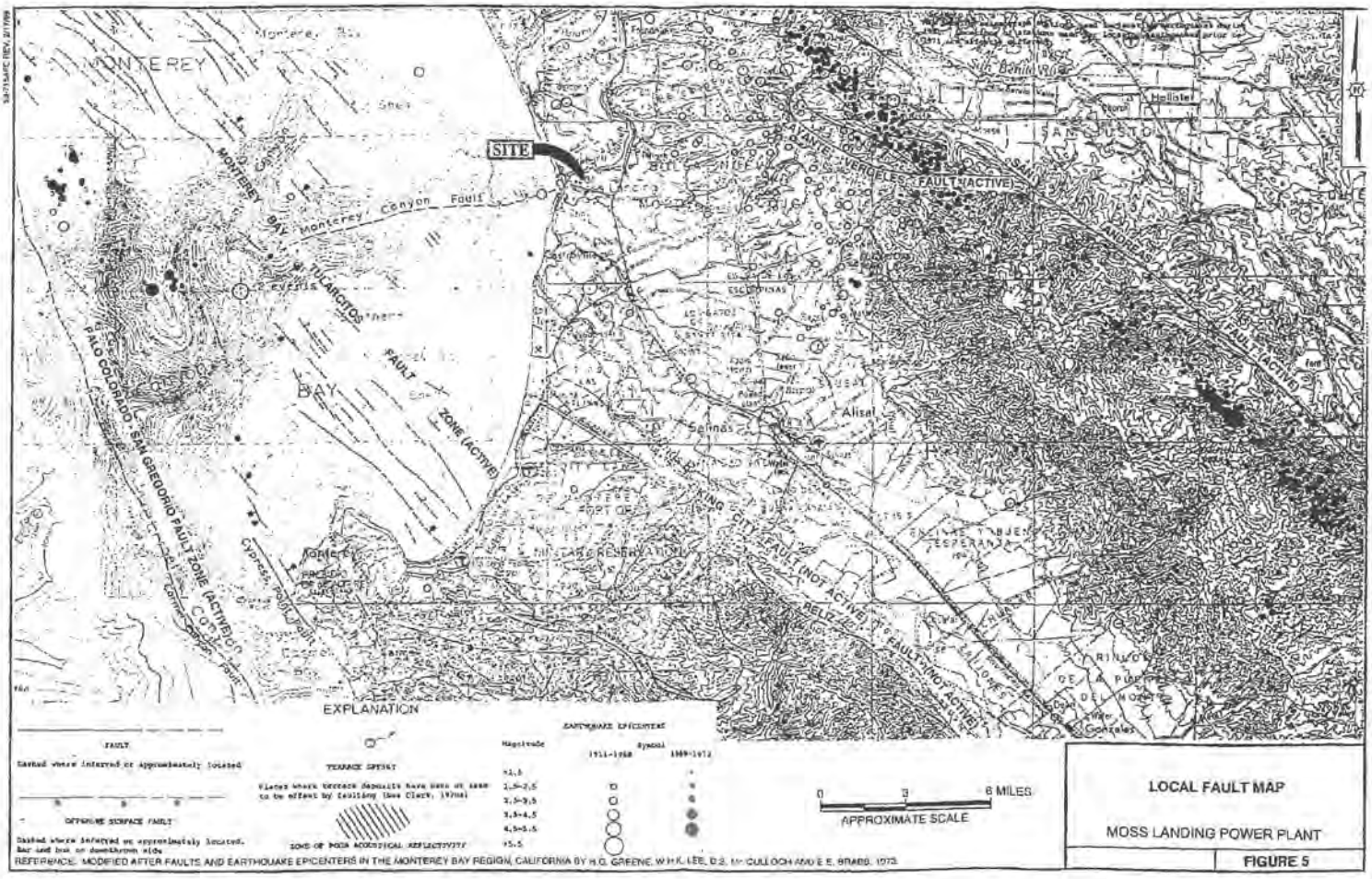


SOURCE: MODIFIED AFTER U.S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 1551-B, 1998.

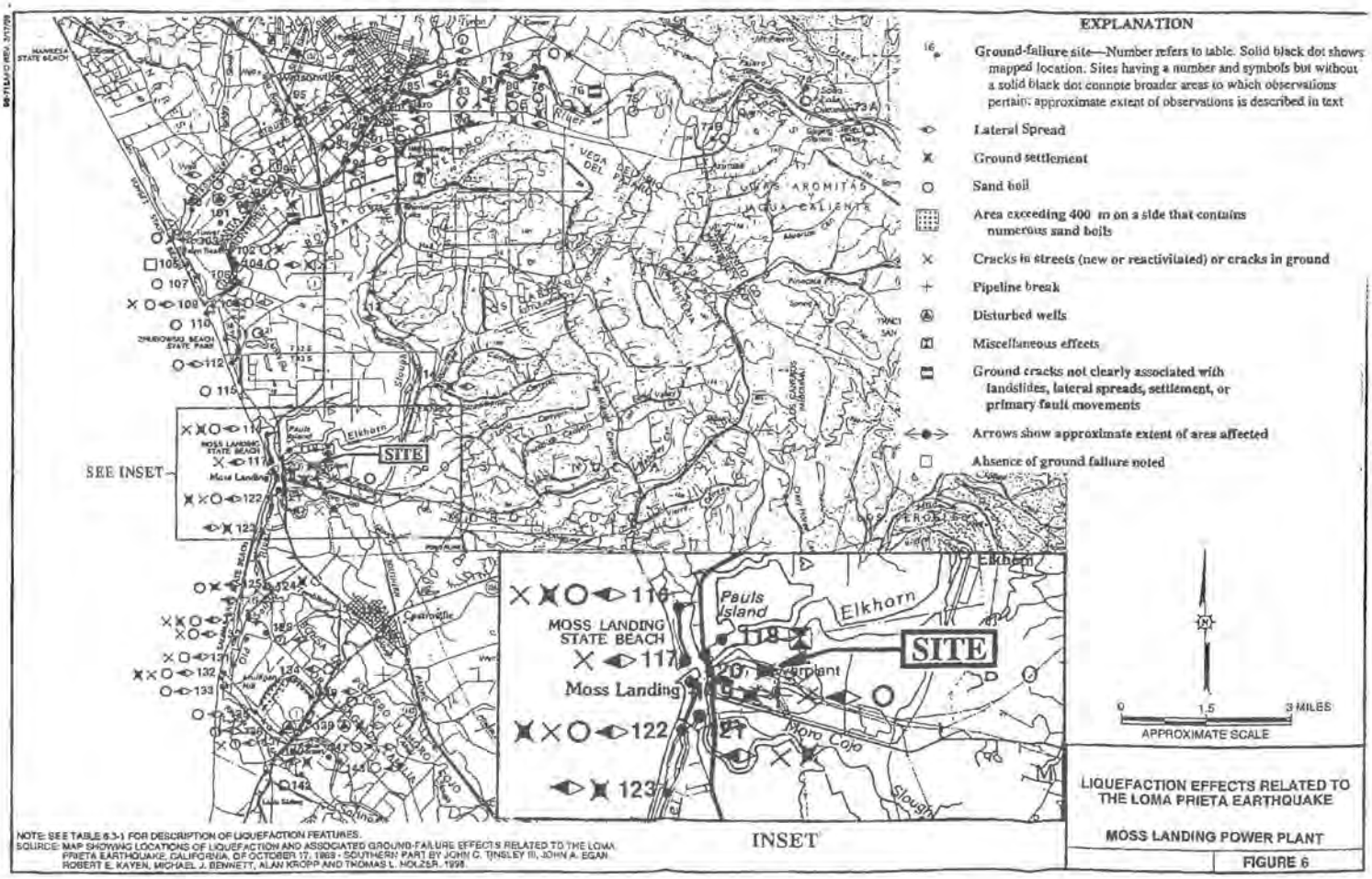
LOMA PRIETA 1989 M7.1 EARTHQUAKE FAULT MAP

MOSS LANDING POWER PLANT

FIGURE 4



REFERENCE: MODIFIED AFTER FAULTS AND EARTHQUAKE EPICENTERS IN THE MONTEREY BAY REGION, CALIFORNIA BY H.G. GREENE, W.H.K. LEE, D.S. McCULLOCH AND E.E. BRABB, 1973.



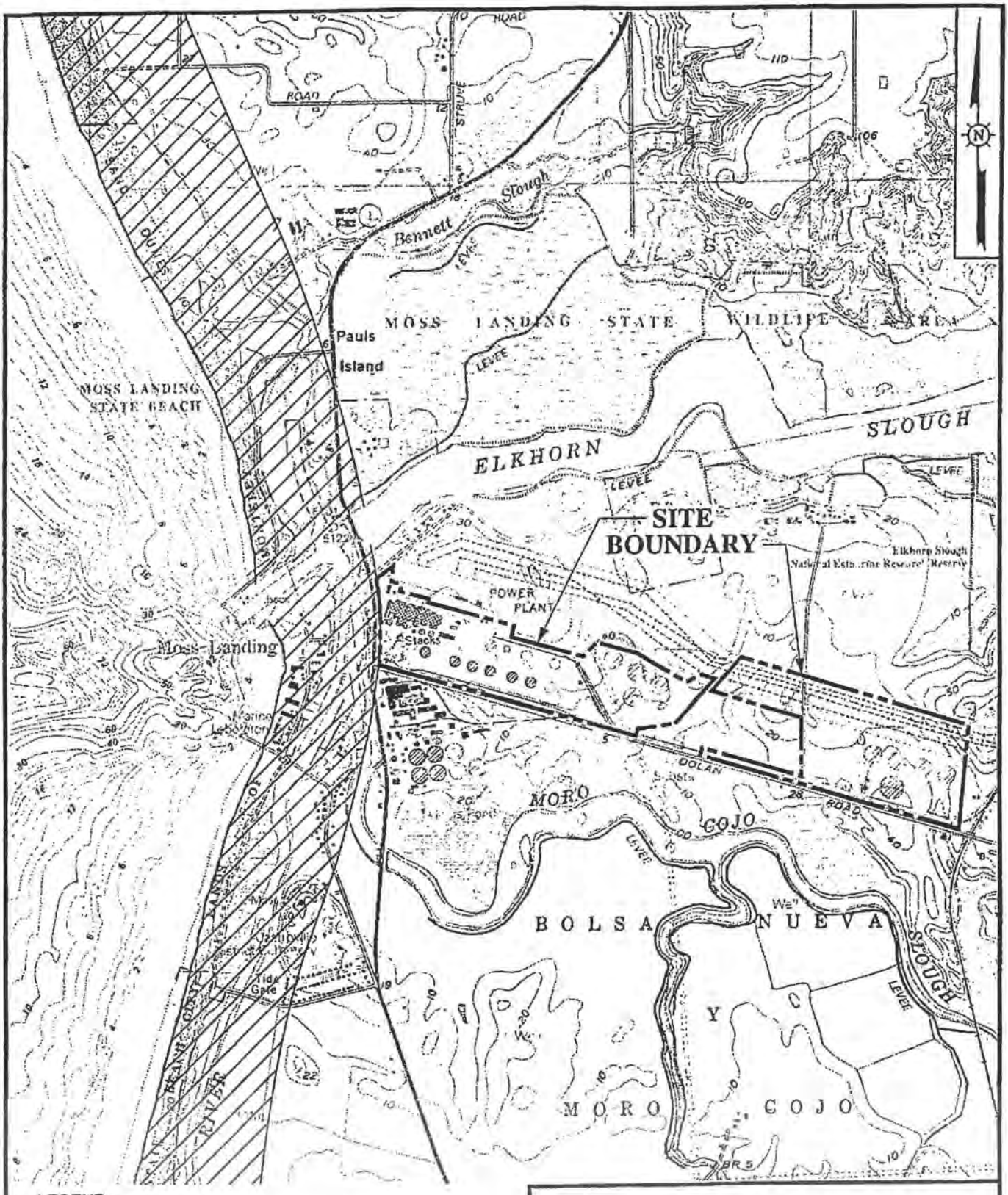
NOTE: SEE TABLE 6.3-1 FOR DESCRIPTION OF LIQUEFACTION FEATURES.
SOURCE: MAP SHOWING LOCATIONS OF LIQUEFACTION AND ASSOCIATED GROUND-FAILURE EFFECTS RELATED TO THE LOMA PRIETA EARTHQUAKE, CALIFORNIA, OF OCTOBER 17, 1989 - SOUTHERN PART BY JOHN C. TINSLEY III, JOHN A. EGAN, ROBERT E. KAYEN, MICHAEL J. BENNETT, ALAN KROPP AND THOMAS L. HOLZER, 1998.

LIQUEFACTION EFFECTS RELATED TO THE LOMA PRIETA EARTHQUAKE

MOSS LANDING POWER PLANT

FIGURE 6

98-715AFC-35 REV.04/02/99



LEGEND

TSUNAMI HAZARD AREA

0 2,000 4,000 FEET

SCALE

REFERENCE: MODIFIED AFTER NORTH COUNTY AREA PLAN, MONTEREY COUNTY LATEST AMENDMENT, NOVEMBER 12, 1996.

TSUNAMI HAZARD MAP

MOSS LANDING POWER PLANT

FIGURE 7

VFD Project Description

Dynegy Moss Landing, LLC (Dynegy) would like to install one (1) single story 742 ft^2 non-occupied modular equipment enclosure to house four variable frequency drive (VFD) controls for the Units 1&2 circulating water pumps. The VFD's will allow Dynegy to reduce cooling water flow to the condensers when Units 1 and/or 2 are not operating at full capacity by automatically matching required pump flow to specific load demands.

In April 2015, Dynegy signed a settlement agreement with the California State Water Resources Control Board. This settlement agreement amends the 2010-2020 Water Quality Control Policy on the Use of Coastal and Estuarine Water for the Dynegy Moss Landing Power Plant Cooling. In this agreement, Dynegy is required to install and operate variable frequency drive (VFD) controls on the Units 1&2 circulating water pumps by December 31, 2016.

The modular equipment enclosure will be installed near the existing Moss Landing Power Plant Units 1&2 circulating water pumps and Assembly building. This area was the location of equipment for the Units 1-5 circulating water system which was removed in 2001 when Units 1&2 were built. The dimensions of the 742 ft^2 enclosure will be 53'L x 14'D x 13.8"H. This enclosure will be designed, built and inspected per the codes of the California State Modular Building Program.

The site work includes the installation of a shallow foundation for the equipment enclosure. There are no trees are in the proposed location of the enclosure. This is a structure for equipment only and therefore no water or waste disposal is needed for this enclosure.

Appendix H

Hazardous Material Questionnaire
Monterey County Health Department

CEC 99-AFC-4C
Amendment

Installation of
Variable Speed Drive Controls

Dynegy Moss Landing, LLC
Moss Landing Power Plant

Monterey County Health Department
1270 Natividad Road, Room 301
Salinas, CA 93906

Jurisdiction Name_____
Use Permit # PLN 160043
or
Building Permit #_____
Contact Name_____
Phone_____

HAZARDOUS MATERIAL QUESTIONAIRE

ASSESSOR'S PARCEL NUMBER 133-181-011

BUSINESS NAME Moss Landing Power Plant TYPE OF BUSINESS Electric Generating Facility

SITE LOCATION Highland Dolan Road CITY Moss Landing

MAILING ADDRESS P.O. Box 690 Moss Landing CA 93901

BUSINESS CONTACT Kathy Genasci (831) 633-6642
NAME PHONE

PROPERTY OWNER Dynegy Moss Landing, LLC (831) 633-6642
NAME PHONE

1. Will your business/proposed project be using any hazardous materials such as oil, fuels, solvents, compressed gases, acids, corrosives, pesticides, fertilizers, paints or other chemicals.
[ ] YES [X] NO

2. Will your business/proposed project be using hazardous materials in quantities of 55 gallons and above for liquids, 500 lbs. and above for solids and or 200 cubic feet and above for compressed gases.
[ ] YES [X] NO

3. Will your business/proposed project be using any quantities of acutely hazardous materials such as ammonia, chlorine, formaldehyde, hydrogen peroxide, methyl bromide or other restricted pesticides.
[ ] YES [X] NO

4. Will your business proposed project be using underground storage tanks to store hazardous materials.
[ ] YES [X] NO

5. Will your business/proposed project be generating any quantities of hazardous waste such as waste oil, waste solvents, etc.
[ ] YES [X] NO

6. Will you business/proposed project be emitting any hazardous air emissions.
[ ] YES [X] NO

CERTIFICATION:
I declare under the penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and belief.

Executed At: Moss Landing, CA
City, State

ANY QUESTIONS REGARDING THIS FORM CAN BE DIRECTED TO:
Monterey County Health Department
Division of Environmental Health
1270 Natividad Road, Room 301
Salinas, CA 93901
(831) 755-4511

PRINT NAME OF OWNER/OPERATOR Kathy Genasci

SIGNATURE OF OWNER/OPERATOR Kathy Genasci

FOR LOCAL JURISDICTION USE ONLY

1. Is there a known or proposed school, hospital, day care, or long term care facility within 1,000 feet at this site. location. [ ] YES [ ] NO
2. Is there a known or proposed school, hospital, day care, or long term care facility within 1/4 mile of this site location? [ ] YES [ ] NO

Health Department Clearance
Signature: _____ ***Date:*** _____
Print Name and Title: _____

Air Pollution District Clearance
Signature: _____ ***Date:*** _____
Print Name and Title: _____

Appendix I

VFD Building Fire Protection System

and

Drawings

CEC 99-AFC-4C

Amendment

Installation of

Variable Speed Drive Controls

Dynegy Moss Landing, LLC

Moss Landing Power Plant

VFD Fire Protection System

Contact: North County Fire Department
Chris Orman
11200 Speegle Street, Castroville, CA 95012
(831) 633-2578

The proposed new variable frequency drive (VFD) controls enclosure is a non-occupied equipment enclosure. This equipment will reduce cooling water flow to the condensers when Unit 1 and/or 2 are not operating at full capacity by automatically matching required pump flow to specific load demands. The building will be located near the existing Units 1&2 circulating water pumps and Assembly room.

The attached drawings show the Fire Protection System for the VFD building. This system will alarm locally and shut off the VFD HVAC system in the event of a fire and will also be connected to the existing plant fire alarm panel in Load Center 17 which sends alarms the fire panel in the Energy Management Control Room. There are existing fire hydrants in the vicinity of the new VFD building.

There will be no changes to the current Moss Landing Power Plant entrance procedure for the Fire Department.

DYNEGY – MOSS LANDING. LLC
HWY 1 @ DOLAN ROAD
MOSS LANDING, CA 95039

PROJECT SCOPE

FIRE ALARM ADDITION - VFD BLDG

TENANT: [illegible] Hwy 1 @ Dolan Road, Moss Landing, CA

GENERAL CONTRACTOR: Central Coast Systems [illegible] Salinas, CA [illegible]

OWNER: DYNEGY Hwy 1 @ Dolan Road, Moss Landing, CA

INSTALLING CONTRACTOR: [illegible]

WORK AREA: [illegible]

OCCUPANCY GROUP: FACTORY [illegible]
CONSTRUCTION TYPE: [illegible]

TYPE OF FIRE ALARM SYSTEM: AUTOMATIC, NOT SPRINKLED [illegible]

BUILDING PERMIT #

FIRE DEPARTMENT PERMIT #

GENERAL NOTES

APPLICABLE CODES:

TITLE 24, CALIFORNIA BUILDING CODE, 2007 EDITION

PART 2, VOL. 1-3 (BASED ON 2007 CALIFORNIA BUILDING CODE)
PART 3, (BASED ON 2007 CALIFORNIA ELECTRICAL CODE)
PART 4, (BASED ON 2007 CALIFORNIA MECHANICAL CODE)
PART 9, (BASED ON 2007 CALIFORNIA FIRE CODE)
PART 7, (BASED ON 2007 CALIFORNIA ELEVATOR SAFETY CONSTRUCTION CODE)

NFPA 72, NATIONAL FIRE ALARM CODE, 2002 EDITION

1. WITNESS OF FINAL FIRE ALARM TEST BY LOCAL FIRE AUTHORITY AND PROJECT INSPECTOR.
2. EXTERIOR CONDUITS TO HAVE WATER TIGHT FITTINGS AND ALL CONDUCTORS TO BE APPROVED FOR WET LOCATIONS.
3. AUDIBLE SIGNALS SHALL BE AT LEAST 15dBA ABOVE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75dBA AT 10FT, OR MORE THAN 110dBA AT THE MINIMUM HEARING DISTANCE FROM THE DEVICE. NOTIFICATION PATTERN IS A SYNCHRONIZED TEMPORAL 3, AS PER [illegible]
4. VISUAL DEVICES SHOULD NOT EXCEED (2) FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN (1) FLASH EVERY SECOND. NOTIFICATION APPLIANCE AUDIBILITY & VISIBILITY WILL BE FIELD VERIFIED AT TIME OF TESTING.
5. FIRE ALARM CONTRACTOR SHALL PROVIDE A RECORD OF COMPLETION TO THE INSPECTOR OF RECORD AFTER COMPLETION OF OPERATIONAL TESTS.

EQUIPMENT LIST

SYMBOL	DESCRIPTION / MANUFACTURER, PART#	CSFM LISTING NUMBER
FACP	FIRE ALARM CONTROL PANEL NOTIFIER, NFS-320	7165-0028:243
[illegible]	SMOKE DETECTOR (PHOTO) NOTIFIER, [illegible]	[illegible]
[illegible]	MANUAL PULL STATION NOTIFIER, [illegible]	[illegible]
[illegible]	HORN/STROBE, CEILING MT. (RED) WHEELOCK, [illegible] [illegible] CANDELA RATING	[illegible]
[illegible]	HORN/STROBE, WALL MT. (RED) WHEELOCK, [illegible] CANDELA RATING	[illegible]
[illegible]	STROBE, WALL MT. (RED) WHEELOCK, [illegible] CANDELA RATING	[illegible]

OTHER SYMBOLS

[illegible]	TERMINAL CAN
[illegible]	JUNCTION BOX
[illegible]	END OF LINE [illegible]
[illegible]	NOT IN SCOPE

WIRE INDEX

A [illegible] NON-SHIELDED, INDOOR/OUTDOOR [illegible]

B [illegible] NON-SHIELDED, INDOOR/OUTDOOR [illegible]

C [illegible] STRAND, [illegible] INDOOR/OUTDOOR, RISER RATED [illegible] CABLE [illegible] NETWORK

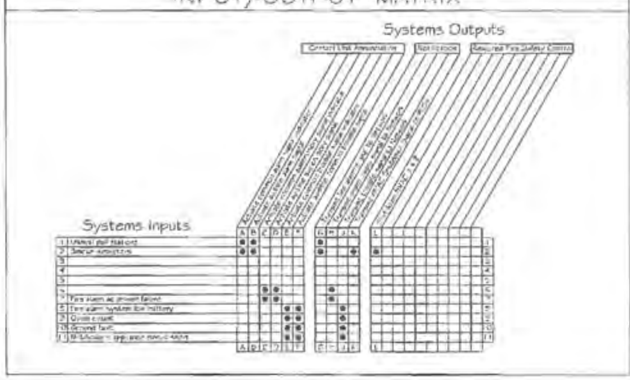
DRAWING INDEX

F1.0 JOB INFO, INPUT/OUTPUT MATRIX & DEVICE MOUNT HEIGHTS

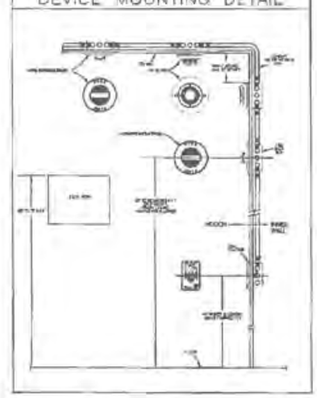
F2.0 FIRE ALARM LAYOUT [illegible] SHUTDOWN INTERFACE & FIRE ALARM RISER

F3.0 NFS-320 BATTERY CALC, VOLTAGE DROP & DEVICE DETAILS

INPUT/OUTPUT MATRIX



DEVICE MOUNTING DETAIL



Central Coast Systems

[illegible] Salinas, California [illegible]

Drawn by: RICHARD STONE Approved: AL MILLER

Date: MARCH 25th, 2016

JOB INFORMATION, INPUT/OUTPUT MATRIX

VFD BLDG FIRE ALARM ADDITION

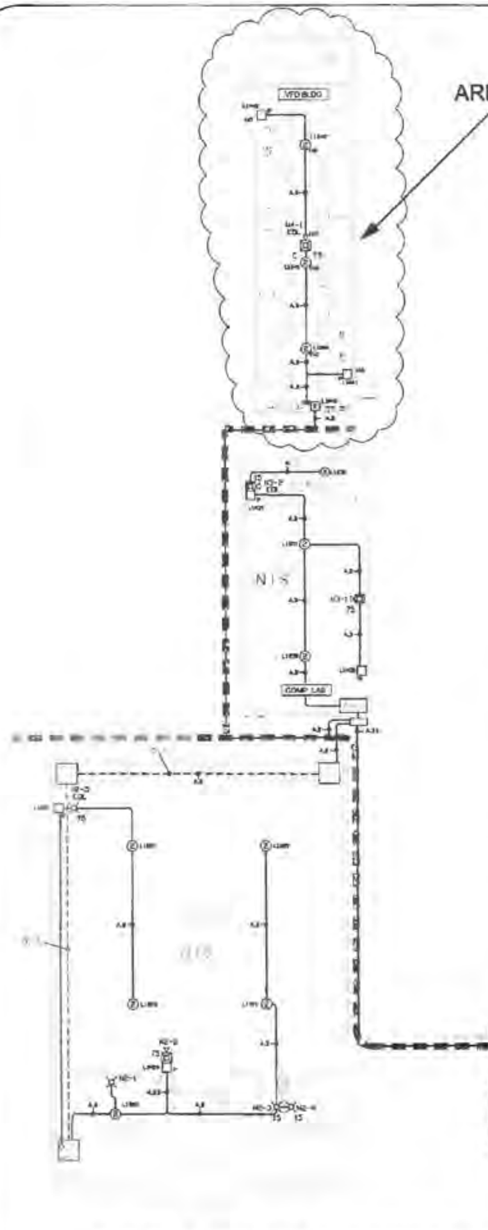
3011 - DYNEGY MOSS LANDING, LLC

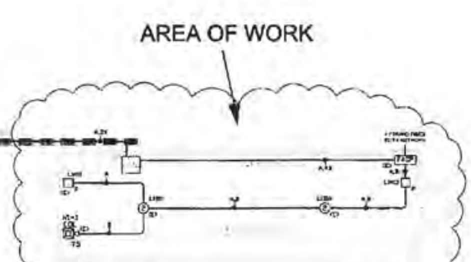
HIGHWAY 1 @ DOLAN ROAD
MOSS LANDING CA 95039-0690

SCALE: NONE

SHEET

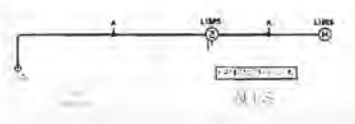
F1.0





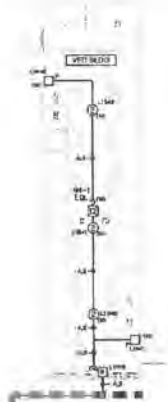
GENERAL NOTES

1. ALL DEVICES ARE TO BE MOUNTED AND INSTALLED AS PER NFPA AND MANUFACTURER STANDARDS.
2. ALL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE COORDINATED WITH ELECTRICAL CONTRACTOR.
3. SEE DETAIL ON SHEET F1.0 FOR MOUNTING DETAILS OF FIRE ALARM DEVICES AND NOTIFICATION DEVICES.
4. SEE DETAIL F1.0/4 FOR WIRING DETAILS OF FIRE ALARM DEVICES AND NOTIFICATION DEVICES.
5. ALL FIRE ALARM CABLE TO BE RUN IN CONTROL CABLE TRAY OUTSIDE BUILDINGS. ALL FIRE ALARM CABLE TO BE RUN IN 3/4" RIGID CONDUIT IN BUILDINGS.

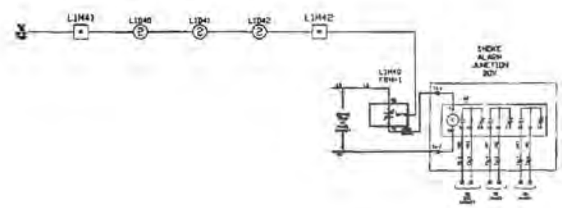


2 F2.0 CONF. BLDG. MEZZANINE
SCALE: 1/8" = 1'-0"

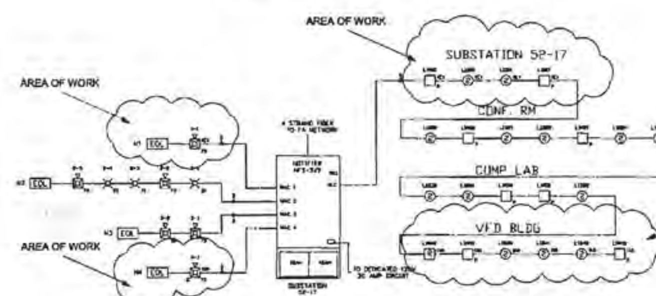
1 F2.0 FIRE ALARM LAYOUT - SUBSTATION, CONF RM, COMP LAB & BFD BLDG
SCALE: 1/8" = 1'-0"



3 F2.0 FIRE ALARM LAYOUT - VFD BLDG
SCALE: 1/8" = 1'-0"



4 F2.0 HVAC SHUTDOWN INTERFACE
SCALE: NONE



5 F2.0 FIRE ALARM RISER
SCALE: NONE

Central Coast Systems
Drawn by: RICHARD STONE
Date: MARCH 25th, 2016

FIRE ALARM LAYOUT - SUBSTATION, CONF. RM, COMP RM, VFD BLDG, HVAC SHUTDOWN INTERFACE & FIRE ALARM RISER
VFD BLDG FIRE ALARM ADDITION
3011 - DYNEGY MOSS LANDING, LLC
HIGHWAY 1 & DOLAN ROAD
MOSS LANDING CA 95039

SCALE AS NOTED
F2.0

DYNEGY - SUBSTATION 52-17							3/24/2016
NFS-320							
Panel/SLC Devices				Amps Drawn in Standby	Total Standby Amps	Amps Drawn in Alarm	Total Alarm Amps
Qty		Source	Description				
1	E	Main Board	CPU + MPS	0.2500	0.2500	0.2500	0.2500
1	E	KDM	Display	0.2500	0.2500	0.2500	0.2500
1	E	NACs in use	NAC Ckts	0.0350	0.0350	0.0350	0.0350
1	N	NACs in use	NAC Ckts	0.0350	0.0350	0.0350	0.0350
1	E	SLC	Max Current	0.4000	0.4000	0.4000	0.4000
2	E	NBG-12LX	Addressable Manual Pull Station	0.0004	0.0008	0.0003	0.0006
2	E	FSP-851	Addressable Smoke Detector	0.0002	0.0004	0.0002	0.0004
2	N	NBG-12LX	Addressable Manual Pull Station	0.0004	0.0008	0.0003	0.0006
3	N	FSP-851	Addressable Smoke Detector	0.0002	0.0006	0.0002	0.0006
1	N	FRM-1	Addressable Relay Module (FCM)	0.0002	0.0002	0.0002	0.0002
			Panel / SLC Device Totals		0.9720		0.9720
1	E	NAC 1	Notification Appliances	0.0000	0.0000	0.1250	0.1250
0		NAC 2	Spare	0.0000	0.0000	1.6053	0.0000
0		NAC 3	Spare	0.0000	0.0000	0.0000	0.0000
1	N	NAC 4	Notification Appliances	0.0000	0.0000	0.1740	0.1740
			NAC Circuit Totals		0.0000		0.2990
			Panel/SLC Device Totals		0.9700		0.9700
			NAC Circuit Totals		0.0000		0.2990
			Amp Totals		0.9700		1.2690
			Standby Requirements				
			Total Standby Amps per Hour		0.9700		
			* Required Standby Time in Hours		4		
			Total Required Standby Amp Hours		3.8800		
			Alarm Requirements				
			Total Alarm Amps per Hour		1.2690		
			5 min Required Alarm Time in Hours		0.0833		
			Total Required Alarm Amp Hours		0.1063		
			Total Required Standby Amp Hours		3.8800		
			Total Required Alarm Amp Hours		0.1063		
			Total Amp Hours Required		3.9853		
			Derating factor		x 1.2		
			Battery Size Required Amp Hours		4.7834		
			Battery Size Provided Amp Hours		18.0000		
			Reserve Amp Hours		13.2170		

1 NFS-320 BATTERY CALCULATIONS
F3.0 SCALE: NONE

Dynegy - Substation 52-17					3/24/2016
NFS-320	NOTIFICATION CIRCUIT NO. 1				
DEVICE #	DEVICE TYPE	DISTANCE (FT)	AMPS OF DEVICE	TOTAL AMPS @ DEVICE	VOLTAGE DROP @ DEVICE
NAC1-1	HORN & STROBE 75cd (Wall Mt)	54	0.125	0.125	0.0[illegible]

WIRE GAUGE 14

** FORMULA **
(I x FEET x 21.5)
CIRCULAR MILS

TOTAL CIRCUIT AMPS	0.125
TOTAL VOLTAGE DROP	0.0[illegible]
CIRCUIT VOLTAGE	19.4
% VOLTAGE DROP	0.18%

WIRE SIZE	RES PER MIL	CIRCULAR MILS
10	1.24	10380
12	1.98	6530
14	3.02	4110
16	4.82	2580
18	8.30	1620
20	10.1	1020
22	16.2	640

Dynegy - Substation 52-17					3/24/2016
NFS-320	NOTIFICATION CIRCUIT NO. 4				
DEVICE #	DEVICE TYPE	DISTANCE (FT)	AMPS OF DEVICE	TOTAL AMPS @ DEVICE	VOLTAGE DROP @ DEVICE
NAC4-1	HORN & STROBE 75cd (Ceiling Mt)	218	0.174	0.174	0.186

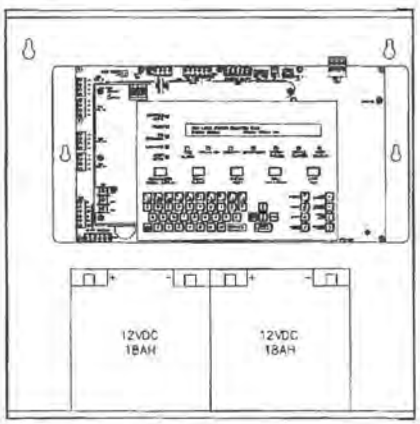
WIRE GAUGE 14

** FORMULA **
(I x FEET x 21.5)
CIRCULAR MILS

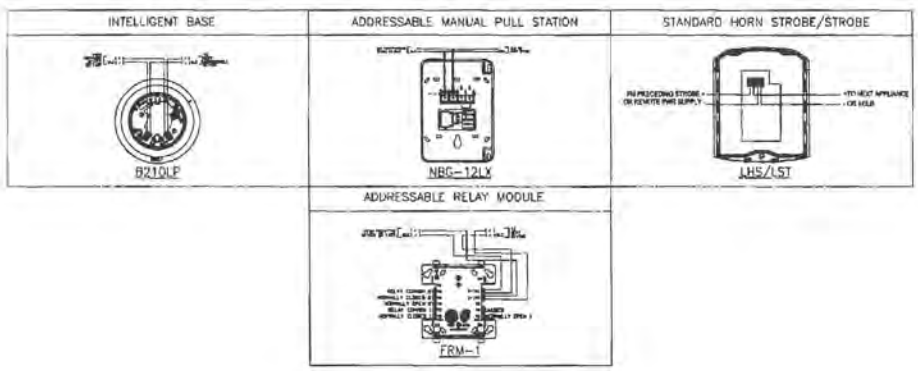
TOTAL CIRCUIT AMPS	0.174
TOTAL VOLTAGE DROP	0.186
CIRCUIT VOLTAGE	19.4
% VOLTAGE DROP	1.0[illegible]%

WIRE SIZE	RES PER MIL	CIRCULAR MILS
10	1.24	10380
12	1.98	6530
14	3.02	4110
16	4.02	2580
18	8.29	1620
20	10.1	1020
22	16.2	640

2 NFS-320 VOLTAGE DROPS
F3.0 SCALE: NONE



3 NFS-320 PANEL DETAIL
F3.0 SCALE: NONE



4 FIRE ALARM DEVICE DETAILS
F3.0 SCALE: NONE

Central Coast Systems

312 KING STREET SALINAS, CALIFORNIA 93905 TEL 831.750.2037 C10 LICENSE #1 [illegible]
Drawn by: RICHARD STONE Approved: AL KELLER Date: MARCH 25th, 2016

REV.	DATE	BY	DESCRIPTION

NFS-320 BATTERY CALCS, VOLTAGE DROPS & DEVICE DETAILS

YD BLDG FIRE ALARM ADDITION
3011 - DYNEGY MOSS LANDING, LLC
HIGHWAY 1 & DOLAN ROAD
MOSS LANDING CA 95039-0600

SCALE AS NOTED

SHEET
F3.0