

CHULA VISTA FIRE DEPARTMENT

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PLAN CORRECTION SHEET

Date: 09/26/08

Address: MMC ENERGY, INC. CHULA VISTA ENERGY UPGRADE PROJECT
3497 Main Street

File No. CHUL-0-DB-572-0001

Checker: Escalante

Type Constr:

Occupancy:

No. Stories:

Sq Ft:

RECEIVED

The following list does not necessarily include all errors and omissions.

INITIAL COMMENTS:

SEP 30 2008

Conservation &
Environmental Services

GENERAL

1. The following comments result from the review of MMC ENERGY, INC. CHULA VISTA ENERGY UPGRADE PROJECT FIRE DESIGN MITIGATION PLAN CHUL-0-DB-572-0001 REVISION A, WRITTEN BY: WORLEY PARSONS; DATED AUGUST, 2008.
2. NFPA 850, "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations" provides recommendations for fire prevention and fire protection for electric generating plants. The document is prepared for the guidance of those charged with the design, construction, operation and protection of electric generating plants. The Fire Design Mitigation Plan has not addressed the NFPA 850 recommendations in their entirety. Despite considering the "modular type equipment and normally unmanned status of the facility", additional considerations still need to be addressed. Comments throughout this document intend to identify those additional considerations.
3. The Fire Design Mitigation Plan makes no mention of the existing fire protection systems. Written and diagrammatic information on the existing fire protection features is needed in reviewing and evaluating fire protection features that are to be added. It is not clear if there are existing fire hydrants or existing fixed fire protection systems.

FIRE RISK CONTROL PROGRAM

4. Develop a Fire Risk Control Program that contains administrative procedures and controls necessary for the execution of the fire prevention and fire protection activities and practices for electric generating plants. (NFPA 850 4.3)

5. Develop a Fire Protection Program that includes: testing, inspection and maintenance of protection systems; a written procedure to address impairments to fire protection system and other plant systems that impact the level of fire hazards; management of change system; Fire Emergency Plan; Fire Brigade; emergency training and planning for dealing with Turbine Lubricating Oil Fires; Identification of Hazards of Materials. (NFPA 850 4.4)

GENERAL PLANT DESIGN

6. FIRE RISK EVALUATION: Incorporate the fire risk evaluation into the General Plant Design. (NFPA 850 5.1.)
7. FIRE AREAS: Describe separate fire areas as determined by the fire risk evaluation “for the purpose of limiting the spread of fire, protecting personnel, and limiting the resultant consequential damage to the plant. Fire areas should be separated from each other by fire barriers, spatial separation, or other approved means.” (NFPA 850 5.2.1.)
8. FIRE AREAS: Clearly indicate how outdoor oil-insulated transformer protection has been determined. Reference NFPA 850, Section 5.2.4. Protection by distance or structures is not clear from current Fire Design Mitigation Plan or in sketches and diagrams.
9. FIRE AREAS: The location and layout of new transformers is not clear on plans. An 80 ft. clearance between the step up transformer and the nearest combustion turbine generator (CTG) is stated in the Fire Design Mitigation Plan, but this is not clear from the diagrams.
10. FIRE AREAS: It is not clear where the auxiliary transformers are located.
11. FIRE AREAS: Reference to fire protection seals-specify listed fire stopping assemblies using listed fire-stopping materials. All fire stopping materials should be listed.
12. FIRE AREAS: Reference NFPA 80, “Recommended Practice for Protection of Buildings from Exterior Fire Exposures.”
13. LIFE SAFETY: Address Life Safety Considerations as per NFPA 850, Section 5.3.
14. LIFE SAFETY: Provide an egress analysis that shows egress from buildings or enclosures all the way to the public way or safe dispersal areas.
15. LIFE SAFETY: Escape routes and emergency lighting; Exit signs need to be internally illuminated or externally illuminated by a dedicated source with battery backup. The proposed “ambient light illuminated” exit signs are not code compliant.
16. LIFE SAFETY: Reference the applicable standard being used to determine the emergency lighting. California Building Code should be referenced. (NFPA 850 5.7)
17. Address Building Construction Materials as per NFPA 850, Section 5.4

18. Address smoke and heat venting, heating, ventilating and air conditioning per NFPA 850 Section 5.5. Although equipment is outdoors, this may be applicable in coordination with suppression systems and life safety in enclosures.
19. Address drainage and containment for the purposes of removal of liquids to safe areas in accordance with NFPA 850, Section 5.6.
20. Address lighting protection in accordance with NFPA 850, Section 5.8.

GENERAL FIRE PROTECTION SYSTEMS AND EQUIPMENT.

21. WATER SUPPLY: Please describe the material selection criteria for the fire protection water distribution system. Why is HDPE being used in lieu of the widely used PVC? PVC C900 Pressure class 200 is typically used for this size of underground main. HDPE is not used, unless PVC C900 is not available in the required size.
22. WATER SUPPLY: The private fire service main needs to be looped. Adequate indicating control valves need to be provided. Hydraulics need to prove that the required water supply can be provided when one leg of the loop is disabled.
23. WATER SUPPLY: Private fire service main and hydrants need to meet the City Of Chula Vista Fire Department Guidelines for Underground fire service mains and the regional Water Agency Standards. Proposed materials need to be cross-referenced with the Water Agency Standards approved materials list.
24. WATER SUPPLY: The proposed PIV sectional control valves must be provided so that not more than a combined total of five hydrants and sprinkler systems, or not more than three sprinkler systems must be out of service due to a single break. Control valves must be provided in each source of water supply, such as tanks and pumps.
25. WATER SUPPLY: In describing the maximum fire water demand, please indicate the parameters that were used to arrive at the 1500 GPM at 20 PSI requirement using California Fire Code 2008 table A-III-A-1.
26. FIRE EXTINGUISHERS: Revise fire extinguisher table to provide more detail. Table indicates to use dry chemical only if it is best option. What are the other options that are available.
27. ACCESS: The Fire Design Mitigation Plan describes a two lane paved road from Main street. Please provide dimensions for this existing fire access. Please describe any easements beings used by the access roads.
28. ACCESS: The Fire Design Mitigation Plan indicated a secondary access will be created allowing access on the west side of the facility. Please provide diagrammatic and written descriptions of the second fire access road. Include material, design, dimensions and location. Please describe any easements being used by the access roads.

29. ACCESS: Access features will need to include fire department access features including access key boxes, access switches, automatic access gates and identification per Chula Vista Fire Department standards.
30. FIRE SUPPRESSION SYSTEMS AND EQUIPMENT: Fire suppression systems and equipment should be provided in all areas as identified and detailed in the applicable chapters of NFPA 850.
31. FIRE SUPPRESSION SYSTEMS AND EQUIPMENT: Safety in the use of fire suppression system must be given proper consideration. Provide adequate planning to ensure safety of personnel. (NFPA 850 6.6.3)
32. FIRE SIGNALING SYSTEMS: Determine the type of protective signaling system for each installation based on the fire risk evaluation. (NFPA 850 6.7.)

IDENTIFICATION OF AND PROTECTION AGAINST HAZARDS

33. Using the guidelines in NFPA 850 Chapter 7, Identify and protect against hazards based on the fire risk evaluation.
34. All fire protection operation should be automatic. Including automatic closure of valves associated with fuel gases, lubricating oils, ammonia, etc. (NFPA 850, 7.1.1)
35. Include reference to NFPA 54 "National Fuel Gas Code", NFPA 58 "Liquid Petroleum Gas Code." Piping and storage systems of gases should comply with these standards, as well as the standards of ASME B31.1, Power Piping. These standards are not referenced.
36. Provide protection features for the facilities gas shut-off valves, as described in NFPA 850, Section 7.2.2. This controls automatic and remote shutoff capability, as well as failsafe features. These features are not currently described or addressed.
37. Electrical equipment in areas with potential hazardous atmospheres should be designed and installed in compliance with NFPA 70, National Electrical Code and ANSI C2, National Electrical Safety Code. The Fire Design Mitigation Plan references NFPA 497, which does not necessarily apply to this facility. Ventilation to be used in lieu of a hazardous area classification must be continuous mechanical ventilation. Areas with closed piping may need to be considered Class I Division 2 instead of the proposed "unclassified" designation.

IDENTIFICATION AND PROTECTION OF HAZARDS FOR INTERNAL COMBUSTION TURBINES

38. Although consideration has been given to the fact that this is a manufactured module that is essentially installed, and not constructed on the site, the fire and explosion hazard of internal combustion electric generating units must be fully evaluated and the appropriate protection for the internal combustion turbines must be appropriately selected.

39. The Fire Design Mitigation Plan references manufacturer provided carbon dioxide suppression systems for unit enclosures. Additional or alternative protection may need to be considered. Carbon dioxide concentrations can be difficult to maintain for the required amount of time on these types of units. The selected protection must take into account the unmanned nature of this facility and all other aspects of the fire risk evaluation to determine the most appropriate fire protection methods.
40. Manufacturer provided carbon dioxide fire suppression systems within the turbine and generator enclosures are provided: (a) The Chula Vista Fire Department needs to review and approve detailed plans and design parameters for these suppression systems to verify compliance with the applicable codes and standards. (b) The Chula Vista Fire Department needs to witness full functional testing and commissioning of all fire suppression systems.
41. It appears that the fixed carbon dioxide system is only arranged to protect the Turbine enclosure and the Generator enclosures (compartments). Protection will likely be required for additional areas. Complete fire protection, including automatic sprinkler protection is recommended for the power distribution center building and any other accessory structures on this site, including the warehouse.
42. Additional descriptions of carbon dioxide discharge safety interlocks will be required to ensure life safety. Carbon dioxide is an asphyxiant gas presenting a life safety hazard. Additional information on how this is mitigated is required and needs to be reviewed.
43. General Design and Equipment Arrangement: Provide adequate separation as determined by the fire risk evaluation. Reference NFPA 850 Section 8.3.1. Provide adequate separation as determined by the fire risk evaluation between adjacent combustion turbine units, adjacent structures or exposures and adjacent properties, including natural gas facilities. Consideration should be given to "equipment layout that is adjacent to combustion turbines in line with planes of turbine and compressor disks that have a higher protection for damage from flying debris." (NFPA 850 8.3.2)
44. Provide protection for compressors and regulating stations in accordance with Chapter 8 of NFPA 850.
45. Special fire protection concerns for unattended facilities need to be thoroughly addressed in accordance with NFPA 850, Section 8.4. Considerations include delayed fire-fighting response time, lack of alerting personnel and lack of communication. Increased fire protection measures may be needed to prevent fire spread, and automatic features will be highly relied upon. Off site fire alarm notification and fire alarm annunciation at the entry to the unattended site are critical. A plant fire emergency plan will be essential for responding fire fighters' coordination. Automatic water mist suppression systems should be installed in accordance with their listings and should include thermal detection for these types of facilities.
46. The Fire Design Mitigation Plan needs to completely address the major hazards of flammable and combustible fuels and lubricating oils.

47. Fire prevention for internal fires in combustion turbines should be designed and provided in accordance with section 8.5.2. This includes adequate fuel controls, flame detectors, operation sensors and shutdown procedures.
48. Fire Prevention of external fires in combustion turbines should be designed and provided in accordance with section 8.5.3. This includes design and arrangement to minimize oil and fuel piping failures. Combustible gas detectors should also be considered for enclosures.
49. Fire Protection for the combustion turbine generator should be designed and provided in accordance with Section 8.5.4. This includes fire protection of bearings and potential lubricating oil releases and automatic shutdowns based on suppression system discharge. The protection of lubricating oil reservoirs, piping and potential spill points must be adequately addressed. An appropriate suppression system must be selected and properly designed and installed.
50. Smoke detection should be installed and an automatic suppression system should be considered for Electrical equipment control enclosures and auxiliary electrical equipment enclosures. NFPA 850, Section 8.6.

FIRE PROTECTION FOR THE CONSTRUCTION SITE

51. Fire protection for the construction site should follow the recommendations of NFPA 850 Chapter 11 in order to maintain a high level of life safety and property protection.

WILDLAND INTERFACE

52. This project is contiguous to an open space area considered: wildland-urban interface. Show adequate set back (distances) from any / all structures, vessels and the like. Responsible party shall mitigate potential hazard in an approved manner (e.g. IWUIC 2006ed, section Table 603.2, A102, A104).

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEMS AND AMMONIA

53. Reference and meet the requirements of NFPA 85 Boiler and Combustion Systems Hazards Code 2007 Edition, including annex section A.4.6.8 on SCR and ammonia safety. The scope of this document includes combustion turbines.
54. Design needs to ensure that the system's combustion turbine exhaust operates in the flue gas temperature range required.
55. "Areas in which either anhydrous or aqueous ammonia is stored or piped shall be ventilated to preclude toxic or flammable concentration." (NFPA 85 Section 4.6.8.2.)
56. "Areas in which anhydrous ammonia is stored or piped shall meet the requirements of ANSI K61.1, Safety Requirements for the Storage and Handling of Anhydrous Ammonia." (NFPA 85 Section 4.6.8.3.)

- 57. Combustion turbine exhaust system shall include the safety features of Section 8.11 of NFPA 85.
- 58. The ammonia storage containers shall meet the ASME Boiler and Pressure Vessel Code.
- 59. Clarify whether ammonia is anhydrous or aqueous.
- 60. Although the ammonia tank (12,000 gallon) is existing, safety and fire protection features need to be reviewed and appropriately addressed. The additional CTG will likely require more frequent filling of the ammonia storage tank. A thorough review of the existing ammonia storage and delivery system and the new CTG operation needs to be completed to ensure compatibility and safety. Any necessary upgrades and improvements should be completed at this time.

ADDITIONAL COMMENTS ON THE FIRE DESIGN MITIGATION PLAN

- 61. It is not clear how the CLASSIFICATION OF HAZARD OF CONTENTS section in the Fire Design Mitigation Plan is being used in determining fire prevention and fire protection criteria for the facility.
- 62. The DEFINITION OF FIRE RISK AREAS section in the Fire Design Mitigation Plan needs to be expanded to determine describe which areas are classified into each category. It is not clear how this information was used to determine the selection of the appropriate fire protection. This section defines the categories but does not indicate which portions of the plant or which equipment is classified. However it generally states how this is used to select protection.
- 63. The HAZARDOUS CLASSIFICATIONS (CLASSIFIED ELECTRICS) section in the Fire Design Mitigation Plans needs additional analysis and detail. It is not clear which areas are classified. Provide a diagrammatic representation of classified areas. Fire Design Mitigation Plan indicates (defines) how NFPA 497 defines some areas as unclassified, however NFPA 497 does not apply.
- 64. A more complete report of HAZARDS OF MATERIALS will be required including classification of materials and quantities for all hazardous materials.
- 65. IN SECTION 4.0 ACTIVE FIRE PROTECTION MEASURES AND SYSTEM DESCRIPTIONS: Section 4.1 GENERAL: This references "automatic" fire protection systems, but only describes manual fire protection systems. It should list automatic systems, and correctly classify manual systems.
- 66. The Main Fire Alarm Control Panel (MFACP) needs to be monitored by a listed Central Station Monitoring company.
- 67. The description of the MFACP needs to include monitoring of automatic sprinkler system waterflow.

68. Indicate manual pull stations will activate audible and visual alarm notification throughout.
69. The description of "located fire protection control panels" is not clear. Is this intended to describe suppression system control panels? (e.g. carbon dioxide systems, gaseous suppression systems and/or pre-action sprinkler systems)
70. Fire water system alarms are mentioned in the Fire Design Mitigation Plan. It is not clear what these are meant to describe. Are these sprinkler system waterflow alarms? Water based protection systems are not otherwise described.
71. The Fire Alarm System Schedule is not complete. It does not address all of the devices previously described in the Fire Design Mitigation Plan (e.g. manual fire alarms and fire water system (waterflow) alarms.)
72. Valve supervision – electronically supervise all sectional control post indicator valves (PIVS) on the private fire service loop.

☒ Submit a complete and separate correspondence letter with a detailed line-item response showing where each comment was addressed / corrected. Show all changes in clouding with appropriate delta designation.

☒ Any questions in regards to these comments, please contact Samuel Escalante, P.E. at (619) 476-2514 or sescalante@ci.chula-vista.ca.us.

☒ **AT THE TIME OF RECHECK:** Please indicate here if any changes have been made to the plans that are not a result of corrections from this list. If there are other changes, please briefly describe them and where they are located in the plans.

Have changes been made to the plans not resulting from this correction list? Please indicate:

Yes ☐ No ☐

End of Document

**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE
STATE OF CALIFORNIA**

**Application for Certification
For the *CHULA VISTA ENERGY
UPGRADE PROJECT***

Docket No. 07-AFC-4

**PROOF OF SERVICE
(Revised: 7/14/08)**

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

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DECLARATION OF SERVICE

I, Maria Sergoyan, declare that on October 10, 2008 I deposited copies of the attached Chula Vista Energy Upgrade Project (07-AFC-4) Staff's Evidentiary Exhibit # 206 in the United States mail at Sacramento, CA with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.



Maria Sergoyan