

MINUTE ITEM
This Calendar Item No. 100
was submitted for information
only, no action thereon
being necessary.

MINUTE ITEM
100

08/19/03
W9777.226
G. GREGORY
M. ESKIJIAN

CALIFORNIA STATE LANDS COMMISSION
(PARTY)

Regular Calendar Item 100: Commission listened to staff update on marine oil terminal engineering and Maintenance Standards proposed by the Marine Facility Division. Item was informational; no action was taken.

CALENDAR ITEM

100

A Statewide

S Statewide

08/19/03
W 9777.226
M. Eskijian
G. Gregory
M. Meier

BRIEFING WITH REGARD TO THE PROPOSED MARINE OIL TERMINAL ENGINEERING AND MAINTENANCE STANDARDS (MOTEMS)

EXECUTIVE SUMMARY:

Under the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 (the Act), the California State Lands Commission is mandated to adopt rules and regulations for the performance standards of marine oil terminals. Staff is proposing the adoption of the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) to meet this mandate. These standards are currently available for public comment. It is anticipated that the Commission will be presented with this proposal for consideration by the end of 2003.

BACKGROUND:

The State of California has a legitimate reason for concern about the structural integrity of marine oil terminals along its coast. The average age of these facilities is about 50 years, and many operators plan to keep these piers or wharf structures in service for another 20 to 40 years. All of the major marine oil terminals in California are near major active earthquake faults. Most were designed to very primitive seismic standards and for vessels much smaller than those currently moored. Many have never had a comprehensive underwater inspection. Wind and current forces on large tank ships can cause mooring lines and structures to fail. Having a large tank vessel break away from a wharf and impact a bridge can result in severe structural damage or collapse. If the vessel hits any hard point, a petroleum tank could be ruptured, creating a major oil spill.

The Commission has long been involved in overseeing the integrity and operation of some marine oil terminals through its leasing program. Since adoption of the Act in 1990, the Commission has also had responsibility for regulation, operational monitoring, structural inspection and requalification of all marine oil terminals along California's coast. Under Section 8755 of the Public Resources Code (P.R.C.), the Commission has an obligation to adopt rules, regulations, guidelines and commission leasing policies for reviewing the location, type, character, performance standards, size and operation of all existing and proposed marine terminals within the state. Under P.R.C. §8756, the Commission must periodically review and accordingly modify its rules, regulations, guidelines and commission leasing policies to ensure that all operators of marine terminals within the state and marine facilities under the commission's jurisdiction

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always provide the best achievable protection of the public health and safety, and the environment.

Given these concerns and responsibilities, the Commission's Staff has sought means to establish performance standards for those facilities. Funding was obtained through a hazard mitigation grant program of the U.S. Federal Emergency Management Administration (FEMA), as a result of the 1994 Northridge earthquake. Additional funding was also authorized by the Commission itself.

As a result of these efforts, the Commission's Marine Facilities Division (MFD) has completed the MOTEMS proposal and now has a set of regulations that, if adopted, will provide performance standards for these facilities under the Commission's jurisdiction. It is anticipated that the MOTEMS will come before the Commission for consideration in December 2003.

PROGRAM STATUS:

The MOTEMS has been submitted to the public for comments. The public comment period will end on October 20, 2003. Two public hearings are scheduled for October 2003, one each in Southern and Northern California. If amendments to the proposal are deemed appropriate, further public comments will have to be solicited before the proposal is brought to the Commission.

SUMMARY OF THE MOTEMS:

The MOTEMS contains eleven sections of engineering requirements:

- Section 1 provides an overview of the MOTEMS.
- Section 2 provides requirements for above- and underwater inspections.
- Section 3 provides the loading criteria to be applied to a marine oil terminal.
- Section 4 provides methods of seismic analysis and defines performance criteria.
- Section 5 provides mooring and berthing analysis and design criteria.
- Section 6 provides geotechnical criteria.
- Section 7 provides structural performance standards (concrete, steel, timber).
- Section 8 provides requirements for fire prevention, detection and suppression.
- Section 9 provides criteria for pipelines.
- Section 10 provides criteria for the mechanical systems.
- Section 11 provides criteria for the electrical systems.

ISSUES ASSOCIATED WITH IMPLEMENTATION OF THE MOTEMS

The requirements of the MOTEMS generally represent the best practice of industry and meet the standards of "best achievable protection" required under the Act. The benefits of compliance with the MOTEMS far exceed the serious environmental and economic consequences if the operations of a marine oil terminal were to be shutdown coincident with a major oil spill.

The concerns raised have been with regard additional costs likely to be incurred with the implementation of the MOTEMS. While retrofitting and rehabilitating a marine oil terminal may be expensive and partially disruptive to normal operations, the benefits in terms of environmental and economic interests far exceed the expense.

Two issues, in particular, have been raised by some terminal operators:

- "Grandfathering" of terminals will end. Currently, the Commission has allowed facilities to continue operations using the largest vessel presently described in the operations manual. To date, there has never been a requirement that any engineering justification be provided to ensure that the facility can handle such a vessel. MOTEMS will now require the operator to provide an engineering justification in the form of a mooring analysis, using maximum wind and current velocities expected.
- MOTEMS requires that the dive team have a registered civil or structural engineer in the water for 25% of the total dive time. While objections have been raised because of the added cost of having a registered engineer in the water, the requirement is the same as found in a new American Society of Civil Engineers text entitled "Standard Practice Manual for Underwater Investigations". Experience has shown that dive teams that do not include engineers frequently miss important structural problems.

Other requirements include a geotechnical screening to evaluate the potential for liquefaction or other types of soil failure, a pipeline stress analysis if seismic motion is determined to be excessive, and a "baseline inspection" to record critical structural or mechanical systems where information or drawings were not available to the audit team. Some terminal operators have raised concerns about the costs entailed with these requirements. However, all are essential to determine the overall "fitness-for-purpose" of a specific marine oil terminal with our modern understanding of seismic, geotechnical, mooring and berthing loads.

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JUSTIFICATION FOR THE STANDARDS

MOTEMS fulfills the Commission's mandate under "the Act" to adopt regulations that provide performance standards for marine oil terminals. This effort has not been accomplished by the Commission's Staff alone; it has involved the direct participation by affected parties, including the regulated community. MFD hosted two workshops, with 80 to 100 participants each, including terminal operators, port and consulting engineers and engineering academics. In addition to the two large workshops, a technical advisory group reviewed the seismic and structural portions. The inspection, fire, mechanical and electrical portions were reviewed by a WSPA (Western States Petroleum Association) working group, and number of geotechnical engineers reviewed Section 6. This project is also based on the MFD experience in inspecting facilities and reviewing mooring assessments and structural analyses for the 40-plus terminals in California. Each has been inspected a number of times; some have already had partial audits performed. Regarding the veracity of the MOTEMS, with all of the peer review and participation from industry, there has been no lingering engineering disagreement as to the performance standards and requirements of the MOTEMS. As confirmation of the Commission Staff's work, MOTEMS recently received the Engineering Excellence Award (Silver Award) in the category of "Studies, Research and Consulting Engineering Services" from the New York Association of Consulting Engineers.