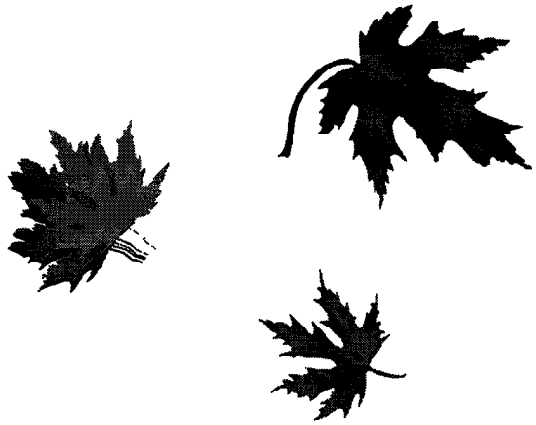
APPENDIX F

EMERGENCY MANAGEMENT AND RESPONSE



DELTA LEVEE EMERGENCY MANAGEMENT AND RESPONSE PLAN

May 17, 2000

INTRODUCTION

Important local, statewide and national resources depend upon maintenance of an effective levee system in the Sacramento-San Joaquin Delta (Delta). A strong, on-going preventive levee repair, reconstruction, and maintenance program will reduce levee vulnerability, reduce (or in some cases, prevent) future emergencies and ensure the availability of the heavy marine construction equipment needed for effective emergency response. Notwithstanding increased efforts to upgrade and maintain Delta levees, the threats to levee system integrity cannot be totally eliminated. Thus an emergency management and response plan is required to protect Delta resources.

SCOPE

This report is intended to outline a major component of the CALFED Levee Program's Long-Term Levee Protection Plan and thereby supplement and suggest needed improvements in state and federal emergency response plans, while remaining consistent with their basic mandates and overall structure. It is focused on levee integrity. There are other types of emergency conditions, such as hazardous material spills, which could occur in Delta waterways and which, while not threatening levee integrity, could endanger water quality to the detriment of public water supplies and biological programs in which CALFED will have made substantial public investments. While such potential emergencies are recognized, they are presently excluded from the scope of this document. Similarly, the more widely recognized emergency response activities such as rescue, emergency medical services and evacuation are not addressed here.

BACKGROUND

The Delta is an area of farmland, waterways and communities. It includes approximately 740,000 acres and is roughly located between the cities of Sacramento, Stockton, Tracy and Antioch. There are about 700 miles of interlaced channels, rivers and sloughs that convey flood waters from the entire Central Valley to the ocean. Over 60 islands and tracts are protected by a network of approximately 1,100 miles of Local Flood Control Non-project Levees and Federal Flood Control Project Levees as shown in the California Department of Water Resources (DWR) Delta Atlas on pages 38 and 40. The Delta provides habitat for fish and wildlife, accommodates shipping, protects population centers and infrastructure including railroads, highways, and pipelines, provides for agriculture and a vast array of recreational activities, and conveys water to over 20 million Californians.

Most of the land in the central and western Delta is below sea level and rapid response to levee threats is unusually critical. A levee failure can endanger public safety, inundate

thousands of acres of farmland and habitat, degrade in-Delta and export water quality, and disrupt the operations of the major State and Federal water delivery systems. Of course, multiple levee failures would substantially increase the scale of the emergency and the challenge of prompt response.

Delta levee integrity can be threatened several ways. Levee failure can occur from instability, overtopping and seepage. High water stages in the Delta can occur due to floods, unusually high tides, and atmospheric conditions involving high wind and low pressure. Levee performance during a seismic event is also a concern. Since original reclamation, each of the Delta islands or tracts has flooded at least once. With improved funding for preventive actions since 1986, disaster assistance spending has been reduced substantially.

FUTURE CONDITIONS

Implementation of CALFED's Levee System Integrity Program will not eliminate all threats to the levee system. Threatening circumstances, emergencies, and flooding should be anticipated. Embankments can be more vulnerable to failure during, or immediately after, construction. Thus, levee upgrades involving major earthwork may temporarily reduce levee stability. Commonly, combinations of high tributary flows, strong winds, high tides and low barometric pressure generate flood stage conditions in the Delta. Continued development and construction of upstream flood control features may increase floodwater stages in the Delta. Rise in sea level, channel dredging, and subsidence near the levees may increase seepage through levees and their foundations and reduce levee integrity. Conversion of land near levees to habitat and other land use practices may increase problems related to burrowing animals, may reduce the probability that levee inspection will detect levee defects before the problem becomes a threat, and may hinder emergency flood fight efforts. Lastly, the seismic threat to Delta levees remains a major concern.

GOALS

The goal of the Delta Levee Emergency Management and Response Plan is to enhance existing emergency response programs and capabilities in order to protect the Public or restore critical Delta resources in the event of a levee emergency. A levee emergency is a condition of extreme peril to the safety of persons or property as a result of a threat of levee failure and island inundation. There are three critical components to emergency response.

1. Preparation The ability to respond effectively to a threat, emergency or actual levee failure depends heavily on advanced preparation. All agencies and people involved need to understand their respective roles and responsibilities. There must be emergency planning at all levels of responsibility, clear understanding, scripted procedures for the recognition and declaration of emergency conditions, and an established and rehearsed command and control system. Local, county, State, and federal responses must be better coordinated to enhance decision-making, communication and action protocols. Regulatory and environmental compliance must be incorporated into all response planning. Critical response resources must be immediately available at all levels. Resources include funding, equipment, materiel stockpiles, and appropriately trained personnel.

2. Quick and Effective Emergency Response Time is of the essence in response to any incident or threatening circumstance. An imminent threat of levee failure or a failure requires immediate action that can only be the result of a thoroughly prepared and rehearsed emergency response plan with an identified funding base that ensures immediate, simultaneous, and integrated response by all levels of government. If failure can be prevented or addressed quickly, total losses and expenditures can be dramatically reduced and lives saved.

3. Completion of Post-Emergency Repairs In the event of an emergency, including breach closures, a smooth and quick transition to post emergency recovery work is needed to complete repairs and prepare for continued or new threats. Oftentimes one incident quickly follows another. It is important to facilitate resumption of normal economic activities, restore environmental resources damaged by the incident, prepare for subsequent emergency response, and expedite post-emergency repair efforts.

ANALYSIS OF THE CURRENT EMERGENCY RESPONSE PROGRAM

Significant improvements have been made to the existing emergency response system over the past several years. However, continuous improvements in the system must be made to reduce the risk to resources protected by Delta levees. Improving our emergency response capability is a very cost-effective method of reducing risk and preventing the huge losses, economic disruption, and human suffering resulting from levee failures.

Fluctuations in funding and the environmental regulations applicable to ongoing levee reconstruction, maintenance and repair work have impacted the capability of local, state and federal agencies to respond to imminent threats of levee failure in several ways.

At the current time, there are impediments to year-round in-water construction activities in the Delta. "Work windows," established under biological opinions on endangered species (Chinook Salmon and Delta Smelt), significantly limit the period of time when in-water work can occur in most of the Delta. In addition, environmental permitting practices require constraint in performing work essential to proper levee reconstruction, repair, and maintenance.

Without sufficient work opportunities, the specialized levee building equipment (especially side draft dredges, barge cranes and rock barges) and personnel experienced in operating conditions in the Delta have almost disappeared. These types of equipment and experienced operators are necessary during levee emergencies in those locations and under conditions where work often cannot be performed from the land.

Levee funding resources have been severely impacted by inconsistent and inadequate program funding. Local financial resources have been impacted by bank audit procedures which have reduced the availability of credit to local reclamation districts and by lengthy delays in reimbursement from state and federal disaster assistance programs because of often-unclear inspection, documentation, and audit procedures.

Some levee maintaining agencies do not generate the revenues needed to provide adequate maintenance and emergency response. The role of counties and cities in directly supporting floodfight operations by levee maintaining agencies has not been clearly defined in the past although these organizations can obviously provide rapid and important logistical support to these types of activities.

In some instances, direct State and federal emergency floodfight assistance has been delayed by the required showing that local resources have been exhausted and the lack of an operational plan providing the basis for an immediate, integrated, simultaneous response by all levels of government.

Although historically there has been confusion over the procedures for declaration of a state of emergency and the respective roles of the various local, State and federal interests, these areas have shown considerable improvement as a result of experience gained in the 1997 and 1998 flood emergencies. Three documents were completed in compliance with the Flood Emergency Action Team (FEAT) recommendations and have enhanced emergency operations: 1) Guidelines for Coordinating Flood Emergency Operations, 2) Flood Preparedness Guide for Levee Maintaining Agencies, and 3) Protocol for Closure of Delta Waterways. These guidelines have clarified the responsibilities of local agencies that maintain levees and flood control structures.

By law, State agencies must use the Standardized Emergency Management System (SEMS) when responding to emergencies involving multiple jurisdictions or multiple agencies. The basic framework of SEMS and the Incident Command System (ICS) incorporates multi-agency or inter-agency coordination, the State's master mutual aid agreement and mutual aid program, the operational area concept, and the Operational Area Satellite Information System (OASIS). SEMS has also enhanced the emergency response capability of local and State agencies.

The California Department of Water Resources approved Water Resources Engineering Memorandum No. 63 on January 29, 1999, which establishes the Department's policy and procedures for responding to emergency levee-endangering incidents in the Sacramento-San Joaquin Delta. Similar advance work is necessary relative to potential earthquake emergencies and in the regulatory arena to pre-define environmental regulations applicable to levee emergencies and recovery activities.

Although California Water Code Section 128 gives authority to the Department of Water Resources to flood fight during emergencies, it does not provide funds to support flood fighting. Consequently, the DWR response has generally been limited to technical assistance and coordination of work with the California Conservation Corps, and California Department of Forestry and Fire Protection for crews for placement of sandbags, plastic and other hand-labor-related work. On the other hand, the AB360 Program (Section 12994 of the California Water Code) has been a vehicle for providing funds for emergency response within the context of an emergency plan. These limited funds have historically been primarily used to reimburse local agency expenditures, to establish stockpiles of resources for use by levee maintaining agencies and to provide technical advice.

PROPOSED PROGRAM

CALFED's contribution to an effective Delta levee emergency response program should be concentrated in eight areas:

1. Funding for Ongoing Repair, Reconstruction and Maintenance The vulnerability of the levee system can be reduced by implementing an integrated and comprehensive reconstruction, repair and maintenance program for Delta levees and channels, as described and recommended under the Levee System Integrity Program. This can only be accomplished by supplementing local funding capability through State and federal cost-sharing at adequate and consistent levels, and by establishing workable environmental permitting so that a viable Delta levee building and repair industry can be reestablished and sustained. From a levee emergency response viewpoint, the significant (even crucial) incidental benefit of a well-funded, on-going Delta levee program is to establish a continuous local presence of specialized equipment. Marine-based equipment required to perform levee rehabilitation on some central and western Delta islands will likely be more accessible during emergencies if there is sufficient ongoing work to maintain local operations.

2. Improved Environmental Regulations and Permitting. CALFED will explore conditions under which expanded "work windows," or even year-round work activities, can be implemented and assess other alternatives so a workforce is developed that is sufficient to handle emergency levee situations. Improvements in the permitting process and regulations will also be pursued. CALFED will use a collaborative process that involves ecologists, biologists, engineers and contractors, in addition to the relevant regulatory agencies. During the process, improved construction techniques, protection, and mitigation measures, and more precise definitions of species' needs and related construction impacts will be identified.

3. Emergency Response (and Associated Funding) by State and Federal Agencies In accordance with the "Guidelines for Coordinating Flood Emergency Operations," if a flood fight exceeds the capability of the local levee-maintaining agency or if communities are threatened, the responsible city or county will assist with the flood fight with support from all other SEMS levels. Under SEMS, requests for flood fight assistance from the local LMA's are made to the county Operational Area's Emergency Operations Center, and, if necessary, are escalated to State OES' Regional Emergency Operations Center in Sacramento. The REOC will coordinate information and resources among OA' s and provide a liaison to federal agencies.

Lack of specific funding sources and obstacles within federal public assistance reimbursement rules have hindered direct involvement in flood fight activities by counties, cities, and State agencies. Creation of funding to support a delta levee emergency response plan would eliminate past hesitation and inefficiencies.

a. Federal Assistance The U. S. Army Corps of Engineers has primary federal authority for assisting states with flood fight efforts that meet the criteria established by

Public Law 84-99. Under a Memorandum of Understanding with the Corps, DWR serves as the facilitator for all PL 84-99 flood-fighting efforts. DWR coordinates with the local agency, initiates the PL 84-99 request process, and assists the Corps in determining the applicability of PL 84-99.

Prior to making requests to the Corps, DWR reviews requests and information from the OA on the capability of the local agency. DWR ensures that local and State resources require supplementation and that an emergency situation exists. Once these determinations are made, DWR requests Corps assistance. DWR can also provide technical advice and assistance to local agencies concerning flood fighting and emergency flood control measures.

Every effort is made to expedite the Corps-DWR coordination on PL 84-99 requests consistent with the urgency of the situation. There have been some instances where the response was delayed, with a strong perception by local LMA's that the PL 84-99 decision process is hindered by a need to demonstrate that local and State resources "have been exhausted."

When the Corps does respond under the PL 84-99 emergency flood fight provisions, its efforts are 100 percent federally funded. Under the rehabilitation phase of PL 84-99, the Corps of Engineers repairs the flood-related damage to "federal project levees" and eligible non-project levees. The only non-federal costs are for lands, easements and rights-of-way, and local obligations to hold the government harmless and to operate and maintain the project, and to provide borrow material for repairs.

The role of the Corps should be clarified and confirmed through their participation in the preparation of and commitments to a delta levee emergency response plan so as to eliminate delay in response and avoid any dispute as to whether or not the local and State response is sufficient. This emergency response plan needs to address levee emergencies other than normal rain floods (e. g., earthquakes), and the Corps' role in any such emergencies. Special circumstances, such as multiple breaches within a short time frame, should be identified with criteria established for expedited response.

b. State Assistance For flood control projects sponsored by the Reclamation Board, DWR technical assistance may be requested directly. Existing State funding limits DWR's response to only providing technical assistance. The DWR financial capability to respond to flood emergencies in the Delta should be expanded to include all aspects of a flood fight where levees or other flood control structures are in danger of failure, regardless of whether or not the danger is due to storms, floods, earthquakes, rodents, vessel impacts or any other cause. The funding for support of DWR's efforts, either through expansion of

existing programs or through creation of a new program should be ample and clearly committed for comprehensive emergency response[1].

Bond authorization might be particularly helpful to ensure the availability of State funds when needed. For example, authorization of $60 million in bonds to create and replenish a $10 million revolving fund specifically for financing implementation of a delta emergency response plan, as defined in California Water Code Section 12994(b)(2), would provide the assurance that pre-identified response commitments by DWR and other agencies would be funded, should help ensure that the local share requirement of federal disaster assistance programs will be available, and would provide the basis for seeking elimination of obstacles within federal reimbursement policies that hinder multi-jurisdictional flood fight responses.

4. Ensuring Availability of Levee Emergency Resources

a. Specialized equipment and operators: A revitalized levee rehabilitation industry under the Levee System Integrity Program will establish a fleet of specialized equipment essential to a rapid emergency response[2], but will not ensure its availability during emergencies which often extend to other areas. The Emergency Response Plan established under Assembly Bill 360 should establish pre-emergency contracting for specialized equipment to secure the availability of the equipment and experienced operators, and establish pricing for emergency services.

b. Materiel stockpiles: The State Department of Water Resources has established stockpiles for flood fight materiel (sandbags, plastic, stakes, light equipment, pumps, etc.) at locations in the northern, southern, and western Delta. This program needs to be expanded to include rock and sand stockpiles, and to key locations in the central and south Delta regions. Additionally, assurance of supply and/or stockpiling of drain rock and riprap should be included. Coordination between the stockpiling activities of other agencies would be desirable. Transportation of the materials to where they are most needed also needs to be addressed.

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[1] The $200,000 currently provided to DWR under the Delta Levee Subventions Program (Water Code § 12994) is not only inadequate, but will expire under the terms of its authorizing legislation.

[2] Ideally, the resident population of specialized equipment needs to be sufficient to operate in several locations at once, whether because of high flood stages threatening many sites, or because of a strong earthquake damaging several sites. A Delta-based dredging company estimates that it takes at least a $5 million annual levee program expenditure level to generate enough dredger work to justify operating one dredge, with a work window of 3 to 4 months. One barge crane/rock barge unit would be justified in a program of that size with a ten-month work window. By extrapolation, we might expect a $30 million annual program to support approximately 5 dredgers and 5 barge crane/rock barge units in the Delta given appropriate work windows.

c. Labor: The Emergency Response Plan established under AB 360 should consider formal arrangements with the California Department of Forestry and Fire Protection as well as with the California Conservation Corps and with the State prison system for emergency assistance.

5. Integrated Response A detailed response plan should be developed for the Delta that would allow an immediate, simultaneous response to a serious incident (such as a major flood or an earthquake) by all levels of government within a single integrated organizational structure. The plan would identify common needs and functions of all agencies, e.g., housing, feeding, transportation, supplies (including rock and sand), equipment and contracted services and assign the most capable agency/jurisdiction to perform each on behalf of all agencies. The detailed floodfight/earthquake response plans for specific LMAs or areas of the Delta would provide the basis for pre-identifying and assigning specific responsibilities for each agency as well as the level of resources which the individual LMA would be expected to provide in response to the emergency. With detailed assignment of responsibilities, an organizational structure for the "area command" could be delineated so as to assure coordination with the "incident commands." The detailed response plan would serve as the basis for requesting modification to disaster assistance programs, including any needed legislation. The FEAT-produced documents, discussed earlier, may partially serve this purpose.

6. Clarifying Regulatory Procedures Although both State and federal laws suspend environmental regulation during emergencies, some clarifications are desirable.

a. The definitions of emergency for response and regulatory activities need to be consistent. It is especially important that the defined duration of the emergency be consistent for both purposes.

b. Mitigation measures which will be expected during post-emergency recovery work should be defined by a series of examples in order that emergency work will not unnecessarily exacerbate mitigation responsibilities, so that post-emergency recovery work will not be unnecessarily delayed, and so appropriate mitigation can be rapidly defined and implemented.

7. Clarifying Program Eligibility, Inspection, Documentation, Auditing, and Reimbursement Procedures In virtually all of the declared levee emergencies in the last twenty-five years there have been lengthy reimbursement delays, or outright denials which have adversely affected the financial condition and trade-credit and bank-credit opportunities of the local flood control agencies. The requirements of these programs need to be standardized to be consistent with one another, be well and timely communicated to the local agencies, and not be changed or re-interpreted during the completion of the reimbursement process. In addition, legal jurisdiction as a criterion for cost reimbursement needs to be clarified to eliminate obstacles to integrated, multi-jurisdictional emergency response.

8. Dispute Resolution Because events move swiftly during emergency response, there should be a timely dispute resolution process. Currently, the "exhaustion of administrative remedies" followed by court system recourse is truly exhausting both in terms of energy and money. Reimbursement disputes have consumed more than fifteen years in many cases, with local resources being used, which should be going into levee work. A binding arbitration procedure conducted by knowledgeable but impartial arbiters should be established encompassing both the State and federal programs.