PEER REVIEW
OF THE
DAM SAFETY PROGRAM
OF THE
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

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ASSOCIATION OF STATE DAM SAFETY OFFICIALS

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I. EXECUTIVE SUMMARY

A. Background

A peer review of the State of California, Department of Water Resources, Division of Safety of Dams (DSOD) Dam Safety Program was conducted by an Association of State Dam Safety Officials (ASDSO) Peer Review Team (Team). The objective of the peer review is to provide guidance for the dam safety program through an overall evaluation including the program's mission, objectives, policies, procedures and other factors. The Team evaluates the competence of the program relevant to the generally accepted standards of practice for dam safety. This report contains the findings and recommendations of the Team.

B. Overall Review of Program Effectiveness

The Team considers the DSOD program to be the leading dam safety program in the nation. The statutory authorities of the DSOD meet the minimum requirements outlined in the National Dam Safety Act (NDSA) and most of the recommendations of the Model Dam Safety Program. The senior leadership team is well educated, competent, passionate, committed, and effective, and the DSOD staff is well qualified to execute the dam safety program. The DSOD has a very well documented and rigorous inspection program that is the key component of the surveillance program.

The significant fee structure enables the depth and breadth of this public safety program.

The Team findings are listed in detail in the main body of the report and summarized as strengths and weaknesses followed by recommendations to address weaknesses and enhance and sustain the DSOD Program. Program strengths, weaknesses and recommendations were subdivided into categories 1 through 3 in descending order of importance and relevance to the dam safety program. While only category 1 findings and recommendations are included in this Executive Summary, the full set of program strengths, weaknesses and recommendations, including Category 2 and 3 are listed in this report.

The findings and recommendations are subdivided into three categories based on importance and urgency.

Category 1 contains findings and recommendations that require Immediate Action to meet basic dam safety program requirements.
(Timeframe 0 – 2 years).

Category 2 contains recommendations for – Intermediate Action
(Timeframe: 1 – 3 years).

Category 3 contains recommendations for – Long Term Action
(Timeframe: 3 – 5 years*)*

Below are the most significant findings of (**Category 1**) from the review. More complete and detailed findings are discussed in the report.

C. Strengths

1. The senior leadership team is well educated, competent, passionate, committed, and effective. The DSOD leadership team has developed and maintained a staff that is highly educated, skilled and dedicated. The staff is comprised of experienced individuals that are well qualified to perform all dam safety program responsibilities, including state of the art independent design analyses.

2. DSOD has clear authority and the statutes meet the minimum requirements in the NDSA and most recommendations of the Model Dam Safety Program.

3. The DSOD has a very well documented and rigorous inspection program that is the key component of the dam safety surveillance program. Most high hazard dams have instrumentation and are being monitored and analyzed by DSOD as part of the annual inspection program. The DSOD conducts periodic inspections annually on all jurisdictional dams and follows up with letter requests for work when necessary. This helps to ensure that small problems with a dam (such as new tree growth) do not become larger problems before they are addressed.

4. The division uses the *DamPoint* database developed internally to track workflow and assignments. The *DamPoint* inventory and tracking system is a great beginning of what will hopefully grow into a robust management tool for the inventory of dams.

5. The program has a robust monitoring/alert system, ShakeCast, for earthquake events to identity which dams may have been adversely affected, and also provides a probable damage assessment.

6. Field Branch engineers make frequent inspections during the construction of new dams and during the repair, alteration or removal of existing dams to verify conformity with approved plans and specifications and applicable safety standards.

7. The DSOD does manage EAPs including filing EAPs and maintaining the inventory of EAPs submitted to them. DSOD field engineers participate in EAP functional exercises; DSOD design engineers also participate but do so less frequently.

8. The DSOD program performs rigorous independent design reviews of new dam designs and rehabilitation design.

9. The significant fee structure, which is comprised of both annual fees and application fees for construction projects, funds the program in its entirety and enables the depth and breadth of this public safety program.

10. The DSOD has a workplace health and safety program including a full-time safety engineer that is unique and leading edge for state dam safety programs.

D. Weaknesses

1. The DSOD has extensive, valuable file resources; however, these are at risk since they are paper copies with no backup.

2. Skill with the tools and processes for tracking budget revenues, expenditures, and staff workload are not strong among many senior managers other than Sharon Tapia.

3. Although not the norm, there can be long delays in getting dam safety work products letters/approvals/notifications processed. There are only a few types of letters that are not signed by the Division Chief. Letters signed by the Division Chief are subject to multiple levels of review and the process to get a letter out can take months to complete whenever multiple branches are involved.

4. There appears to be some weaknesses regarding emergency response and Emergency Action Plans for jurisdictional dams. Although there is a written policy and procedure to deal with dam safety emergencies and their Emergency Action Plan (EAP) program, many staff members were unaware of their specific responsibilities during and following an event. DSOD has not had a Division wide emergency response exercise for the staff in the past several years and the majority of the current staff did not work for the program during the most recent large-scale event, and thus may have little to no experience with emergency response. Emergency action procedures are in the process of being updated and training is planned.

5. DSOD has not issued an annual report since 2010.

6. While the significant annual fee revenues provide adequate budget to fund the program, this singular method of funding may leave the program vulnerable should fees ever be reduced.

7. The website does not include links for dam owners and for the general public such as www.livingneardams.org and www.damowner.org.

8. Not all staff was aware that there is a written policies and procedures manual for design reviews.

E. Recommendations

Category 1 – Immediate Action to meet basic dam safety program requirements. (Timeframe 0 – 2 years)

1. Evaluate and modify the processing time for dam safety work products letters/approvals/notifications, etc. to make them timelier.

2. Digitally scan the paper file resources and ensure proper off site backups, as a stopgap measure until the *DamPoint* database is substantially enhanced.

3. It is recommended that the policies and procedures manual for design reviews be redistributed to all staff and remind them the availability of these documents on the internal website.

4. Continue the policies and procedures that have been integral to the success of the DSOD program and placed it at the forefront of dam safety in the nation.

5. Evaluate staff workload within the branches and make staffing adjustments as necessary.

6. Implement the plan to complete EAPs for all high and significant hazard dams.

7. As soon as possible, complete development of a new emergency preparedness procedure to allow DSOD to respond effectively to a major event such as an earthquake or widespread flooding.

8. Exercise the emergency preparedness procedure or provide refresher training on portions of it on an annual basis.

9. Responsibility assignments, and signature authority / signature matrix, should be reconsidered from the perspective of a "succession strategy" in order to reinforce the trust senior management has of staff, to seek opportunities to respond more quickly, and to help prepare future organizational leaders.

10. Skills with the tools and process for tracking budget revenues, expenditures, and staff workload, should be deepened with senior management.

11. For continuity of operations, create an official back up plan and practice, for the information contained in, and the database structure that underlies *DamPoint*.

12. Create flow charts for the selective enforcement, progressive discipline style, compliance and enforcement process including the use of reservoir restrictions, stop work orders, and the use of the Attorney General's staff that litigate in court.

13. Develop a simplified risk assessment tool to prioritize noncompliant high hazard dams for enforcement.

14. Explain the enforcement process and staff linkage to this process at an all staff retreat.

15. Include links on the website for dam owners and for the general public such as www.livingneardams.org and www.damowner.org.

16. As part of the annual plan for the program, pay special attention to the public and dam owner acceptance of the fee program to avoid unexpected challenges.

F. Acknowledgements

The Team extends its thanks for assistance and participation of David Gutierrez and all DSOD staff, and extends special thanks to John Tatyosian and Sharon Tapia for their efforts in coordinating the collection of advance information and pre-visit activities of the Team.

II. INTRODUCTION

A. Scope

This report documents the observations, findings and recommendations made by the Team on the dam safety program of the DSOD. The peer review began with the review of advance documents provided by DSOD and the confidential questionnaires provided by the DSOD staff. The onsite part of the review was conducted during the period May 16 through 19, 2016 in Sacramento, CA.

This report is divided into six sections: (I) Executive Summary (II) Introduction, (III) DSOD Dam Safety Peer Review, (IV) Evaluation, (V) Recommendations and (VI) Certification. Each section is based on the review of provided information and interviews of staff members chosen by the Team and DSOD.

B. Objective

The objective of an ASDSO Peer Review is to provide professional guidance to improve the performance and management of dam safety programs (Programs). A Peer Review evaluates the Program including its mission, objectives, policies and procedures and other factors of a dam safety agency or organization (Organization). The Program is evaluated relative to the Organization's own governing regulations, the National Dam Safety Act, the Model State Dam Safety Program (FEMA 316), and commonly accepted standards of practice.

The Peer Review is limited in scope and cannot determine or guarantee that a program complies with all applicable state, federal or provincial regulations or standards of practice. The Peer Review is performed by a team of engineers and dam safety professionals who produce a technical opinion, not a legal opinion.

It is recognized that the success of any dam safety program depends upon adequate program funding, the quality of physical inspections, dedication and commitment of the regulatory agencies, and especially the due diligence of the dam owner or operator.

C. Procedure

The Team reviewed documents furnished by the DSOD pertaining to areas of business and project management, and development and maintenance of technical dam competence. The Team visited the DSOD in order to determine whether its objectives, procedures, and policies are clearly understood and are being uniformly implemented.

The Team followed the procedures outlined in the manual, "Peer Review for Dam Safety Agencies," issued by ASDSO dated December 2010 (Manual). Confidential interviews were made with many personnel involved with the Program. A tour of the office and cursory review of several dam safety files and the Inventory of Dams were also made.

As outlined in the Manual, the Team focused on the basic components of a dam safety program including:

- Legislation and authority
- Program components
  - Inventory
  - Inspections
  - Surveillance monitoring
  - Enforcement
  - Emergency Response/Emergency Action Plans
  - Permitting
  - Design reviews
  - Reevaluations
  - Program management
  - Human resources
  - Funding and budgeting
  - Files and records
  - Policies and procedures
  - Stakeholder relations
- Resource allocation

The Team provides this written report, which documents its findings and recommendations. The Team does not perform follow-up or provide sanctions for not following recommendations. Implementation of recommendations is at the discretion of the Organization's decision makers, its state legislature, or enabling body.

The Teams do not inspect dams during reviews, and are therefore not involved in evaluating any Program's inventory of dams.

D. Key Points

Key points in interpreting this report are the following aspects of the ASDSO Peer Review Program:

A peer review is voluntary. This peer review was requested by the DSOD. The access to certain materials and the documents reviewed was given voluntarily by the Organization. The documents reviewed may or may not be representative of the Organization's practice. Likewise, certain individuals that were interviewed, whether they were suggested by the Engineer/Director or chosen by the Team, may not be entirely representative of the Organization, nor be fully responsive to the Team. However, 58 advance questionnaires were completed by the DSOD staff and reviewed by the Team and 30 individuals were interviewed by the Team to gain insight into the execution of the program.

A peer review is confidential. The Team will maintain confidentiality with respect to the sources of various observations reported herein. The Team informed the staff that all comments would be treated in a confidential manner. The Team asks that the Organization not probe beyond what is stated in the report concerning the sources of the comment or suggestions.

As part of the peer review process the Team reviewed a number of files for selected dam safety facilities and projects. The primary purpose for this activity was to observe, first-hand, how the DSOD conducts and documents its dam safety function. However, in the review of the small number of selected projects, not all technical aspects of the designer's approach to the project were examined. No calculations for correctness, or confirmation of the results of the calculations were part of the Team's function. Similarly, the documents that were furnished were reviewed only from the standpoint of apparent conformance with the policies of the agency as to work planning, production, and adherence to the quality control/quality assurance policies.

E. Confidentiality

Since each member of Team has access to confidential information, each member submitted a signed "Peer Reviewer Statement of Nondisclosure" to DSOD and ASDSO prior to the formal process of the peer review, in order to preserve the confidentiality of the responses of the staff members of the DSOD. The statement of nondisclosure states in part that the signatory will, ". . . neither copy nor disclose such information in whole or in part to anyone other than members of the Team, the Peer Review Committee and the Administrator without the prior consent of the DSOD."

It is not intended that this report and documentation of the findings and recommendations in any way violate the statement of nondisclosure or reveal matters that would be considered confidential by the DSOD. Further, the DSOD and the Team reviewed this document for consistency and appropriateness.

F. Members of Peer Review Team

The Peer Review Team that visited the DSOD was composed of the following members:

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A short biographical sketch on the members of the Peer Review Team is included in the Appendix D.

III. CALIFORNIA, DEPARTMENT OF WATER RESOURCES, DIVISION OF SAFETY OF DAMS

A. History

The California Dam Safety Program can trace its beginnings to August 14, 1929 when the legislature passed the first dam safety law to allow the state to supervise dams, "to prevent failure, to safeguard life, and to protect property." The legislation was a result of the historic failure of St. Francis Dam in March of 1928. The Baldwin Hills Reservoir failure in December 1963 was a catalyst to a 1965 major change to the law to provide for regulation of off-stream storage reservoirs.

Regulated dams are generally defined as any artificial barrier more than 25 feet in height, or which impound more than 50 acre-feet of storage. Any barriers less than 6 feet in height, or which impound less than 15 acre-feet of storage are exempt.

Dams and reservoirs are defined in the California Water Code Sections 6002, 6003, and 6004. Certain exemptions are included in Sections 6004 and 6025. All dams under these definitions are subject to State supervision unless they are owned and operated by the United States.

The Team believes that the DSOD's Parts 1 and 2 of Division 3, Dams and Reservoirs, of the California Water Code (Statutes), Chapter 1 of Division 2, Title 23 Waters, of the California Code of Regulations (Regulations adopted by the Department of Water Resources) accommodate most of the minimum requirements of the National Dam Safety Review Board Criteria; and that they are up to most Model Dam Safety Program standards and meet the recommendations of the Model Dam Safety Program in almost all respects.

B. Organizational Structure

The administration and execution of the dam safety program has been delegated to the DSOD. The DSOD is organized under the Department of Water Resources, which in turn is managed by the Natural Resources Agency. Copies of the Organization charts showing the position of the DSOD within the state are provided in Appendix C.

The Division of Safety of Dams is organized into three branches and one section. The Design Engineering Branch and the Field Engineering Branch perform the major line activities of the Division.

Office of the Chief is responsible for managing and overseeing the management of all operations of the Division of Safety of Dams. The Office coordinates the work between the branches and is the main contact between the Division and Department executive management. The Chief makes ultimate decisions on application approvals, major decisions related to the safety of dams, and policies and procedures within the Division. The Chief serves as the state representative of the Association of State Dam Safety Officials.

The Field Branch is responsible for monitoring all dams, which includes maintenance inspections, reviewing instrumentation, and making safety evaluations. The Branch is responsible for all

construction inspections for dams under application. The Branch is responsible for making all requests of owners necessary to maintain or repair dams and is generally the main point of contact with dam owners. The Branch is the main point of contact with the public including public complaints and dealing with illegal dams. The Branch generally supports the Design Branch for dams under review of plans and specifications for the repair, alteration, enlargement, or construction of dams.

The Design Branch is generally responsible for the review of plans, specifications, and technical reports for the repair, alteration, construction, or enlargement of dams. The Branch is responsible for review of all proposed dams including jurisdictional determinations. The Branch is also responsible for the review of re-evaluations and special studies on dams and to keep the Division abreast of state of the practice in dam safety engineering.

The Geology Branch provides support to both the Field and Design Branch and provides services for the Division, as required. The services performed include geologic evaluations of dam reservoir sites, geologic inspections in the field before and during construction, inspections of geologic conditions at operational dams, and review and analysis of geology or seismology related reports on individual projects. Geologists participate in all meetings concerned with specific site geology or seismicity and make recommendations on geological and seismological factors associated with design, construction, and maintenance. Special field and office studies of earthquake, landslide, subsidence, and other geologic phenomena are performed.

The Geology Branch maintains liaisons with other State and Federal agencies with geologic or seismological responsibilities in California. It also collects and analyzes geologic and seismic data from areas throughout California. Earthquakes are evaluated by the Branch to initiate prompt inspections of dams possibly affected by such events.

The Administration Section is responsible for coordinating training documents; providing human resources support; purchasing; reproduction; contract processing services; maintaining supplies and business equipment; coordinating administrative activities with Department headquarters' units; maintaining an administrative records control system; providing clerical and timekeeping services; and is responsible for the administrative processing of applications and Certificates of Approval. The Section also assists in maintaining the directory of persons responsible for the operation and maintenance of each dam, as well as the issuance of letters to dam owners regarding procedures to follow in communicating with the Division in emergencies. Incoming and outgoing mail and general office support duties are also handled in this Section.

There are other services provided by the Department to support Division functions including legal and information technology services, legislative support, procurement and contracting, human resources, budget and finance, facilities management, mobile equipment, health and safety, public affairs, and files management.

Although files are located within DSOD facilities, the Division of Management Services, Records Management is responsible for files of all the dams and applicable administrative documents. This Unit functions as an integral part of the Division and works closely with the Administration Section.

C. Publications

The DSOD website includes a link to complete statutes and regulations regarding dams at http://www.water.ca.gov/damsafety/docs/statutes-regulations.pdf.

The link provides a copy of all statutes and regulations pertaining to the supervision of dams and reservoirs. We have included these in Appendix A to this report.

A complete list of other documents reviewed by the Team in preparation for and during the review is in Appendix B.

D. Observations and Findings

The following observations, based on the italicized questions, were made of the DSOD Dam Safety Program during the peer review in May 2016.

1. Legislation and Authority

The Team has determined that the statutory authorities of the DSOD meet the minimum requirements outlined in the National Dam Safety Act (NDSA) and most of the recommendations of the Model Dam Safety Program.

The program does not contain authority to require the following Model Program guidelines:

- inspection frequencies set by law or rule,
- proof of financial responsibility (i.e. Establish that the dam owner is financially capable of maintaining and repairing the dam, if necessary),
- that all owners of high and significant hazard potential dams shall prepare, update, and periodically test Emergency Action Plans (EAPs) and inundation area mapping (A sister agency, the Office of Emergency Services, does have authority to require inundation maps for high hazard dams but does not have authority to require an emergency action plan),
- that a permit application for new construction, reconstruction, or modification, contain information regarding hazard potential identification,
- that a permit be obtained to change owners of the dam,
- a re-evaluation of high hazard potential dams every 5 years to include in-depth calculations and evaluations of hydrology, hydraulics, structural stability, earthquake engineering and construction using up-to-date techniques and design criteria.

The DSOD statutes are clearly written and are well understood by the staff and the DSOD chief reports that the division enjoys an excellent reputation within the state legislature and receives legislative support within the DWR.

While not in DSOD statutes, there is a state statute that requires disclosure of the dam hazard potential on transfer of ownership for properties within an inundation area of a dam. This provides a

unique opportunity for California to be a model for the nation in providing downstream stakeholder awareness.

Strengths

Category 1 – DSOD has clear authority and the statutes meet the minimum requirements in the NDSA and most recommendations of the Model Dam Safety Program.

Category 1 – The requirement for disclosure of the dam hazard potential on transfer of property ownership provides an opportunity for providing downstream stakeholder awareness.

Weaknesses

Category 3 – The program does not contain authority on some Model Program guidelines.

Recommendations

Category 3 – As the opportunities arise, modify or add to the DSOD statutes and regulations to meet all guidelines of the Model Dam Safety Program.

2. Program Components

Inventory

The DSOD has a fairly new, internally created, database known as *DamPoint*. While still limited in its capabilities, this tool is a great beginning of what should grow into a robust management tool for the inventory of dams. Currently, the tool can perform work and task tracking and contains the typically requested NID fields, contacts, and fee activities.

DamPoint is not yet a tool that can be used in the field, by staff to research past project reports. It can't yet create and file inspection reports. It doesn't track changes to deficiencies over time, or contain inundation mapping or have the ability to perform incident or emergency activities. It does not link to or contain typical dam inventory file information such as detailed analysis, plans, permits, correspondence, inspection reports, EAPs, scanned information, or photos.

From a continuity of operations perspective, it is not clear that there is an official back up plan and practice, for the information contained in, and the database structure that underlies *DamPoint*.

Strengths

Category 1 - The DSOD's *DamPoint* inventory and tracking system is a great beginning of what should grow into a robust management tool for the inventory of dams.

Weaknesses

Category 1 - From a continuity of operations perspective, it is not clear that there is an official back up plan and practice for the information contained in, and the database structure that underlies *DamPoint*.

Category 2 - *DamPoint* is not yet a tool that can be used in the field, by staff to research past project reports. It can't yet create and file inspection reports. It doesn't track changes to deficiencies over time, or contain inundation mapping or have the ability to perform incident or emergency activities. It does not link to or contain typical dam inventory file information such as, detailed analysis, plans, permits, correspondence, inspection reports, EAPs, scanned information, or photos.

Recommendations

Category 1 - For continuity of operations, create an official back up plan and practice for the information contained in, and the database structure that underlies *DamPoint*.

Category 2 - Grow *DamPoint* into a robust tool that can be used in the field by staff to:

- research past project reports,
- create and file inspection reports,
- track changes to deficiencies over time,
- contain inundation mapping,
- have the ability to perform incident or emergency activities, and
- link to or contain typical dam inventory file information such as, detailed analysis, plans, permits, correspondence, inspection reports, EAPs, scanned information, and photos.

Inspections

The DSOD conducts annual inspections on all jurisdictional dams. While the frequency is not mandated by statute, annual inspections have been the practice of the division for many years. The program does not utilize an inspection checklist; however, the program does follow a standard report format. Field Branch staff appear to follow the standards outlined in the Peer Review Manual for annual inspections including file review prior to the inspection, meeting with/interviewing the owner during the inspection, ensuring that the outlet controls needed for emergency reservoir releases are functional and cycled in DSOD's presence, evaluation of instrumentation records, and

assessment of changes in downstream hazard potential. DSOD has contemplated the use of electronic data collection/reporting methods for annual inspections, but has yet to implement any.

Documentation of inspections appears to meet the guidelines of the Peer Review Manual including written documentation, photographs, memos of conversations, and written correspondence. The inspection report provided to the dam owner or their agent details visual observations with photographs, and lists of requirements/recommendations. The reports do not contain a sketch of the dam with notations of inspection observations.

Field Branch engineers make frequent inspections during the construction of new dams and during the repair, alteration or removal of existing dams to verify conformity with approved plans and specifications and applicable safety standards. Design and Geology Branch staff also visits construction sites to verify design assumptions and assist Field Branch staff. Construction inspections follow the standards outlined in the Peer Review Manual.

DSOD engineers have conducted inspections following extreme loading events or unique conditions such as earthquakes, floods, and fires in the past. However, the majority of the current staff did not work for the program during the most recent large-scale event and have little to no experience with emergency response. The program does not have an up-to-date procedure for internal emergency response and many staff members are unaware of their specific responsibilities during and following an event (an updated procedure is under development by management). Field engineers participate in EAP functional exercises with dam owners and emergency management agencies. DSOD has not conducted an internal emergency response exercise for the staff in the past several years.

The program has a robust monitoring/alert system, ShakeCast, for earthquake events to identity which dams have been potentially been adversely affected, and to provide a probable damage assessment.

Strengths

Category 1 – The DSOD conducts annual inspections on all jurisdictional dams. This helps to ensure that small problems with a dam (such as new tree growth) do not become larger problems before they are addressed.

Category 1 – The program has a robust monitoring/alert system, ShakeCast, for earthquake events to identify which dams have potentially been adversely affected, and to provide a probable damage assessment.

Category 1 – Field Branch engineers make frequent inspections during the construction of new dams and during the repair, alteration or removal of existing
dams to verify conformity with approved plans and specifications and applicable safety standards.

Category 1 – Design and Geology Branch staff also visit construction sites to verify design assumptions and assist Field Branch staff.

Category 2 – Staff appear to follow the standards outlined in the Peer Review Manual for annual inspections including file review prior to the inspection, meeting with/interviewing the owner during the inspection, ensuring outlet controls are regularly cycled, evaluation of instrumentation records, and assessment of changes in downstream hazard potential.

Weaknesses

Category 1 – The program does not have an up to date documented procedure for internal emergency response and many staff members are unaware of their specific responsibilities during and following an event.

Category 1 – DSOD has not conducted an emergency response exercise for the staff in the past several years and the majority of the current staff did not work for the program during the most recent large-scale event and have little to no experience with emergency response.

Category 3 – Annual inspection reports do not contain a sketch of the dam with notations of inspection observations.

Category 3 – The program does not utilize an inspection checklist. All inspection findings are recorded and maintained in paper format.

Category 3 – Annual inspection of Low Hazard Potential dams could draw resources from more important priorities such as inspection of High and Significant Hazard Potential dams.

Recommendations

Category 1 – As soon as possible, complete development of an updated emergency preparedness procedure to allow DSOD to respond effectively to a major event such as an earthquake or widespread flooding.

Category 1 – Exercise the emergency preparedness procedure on an annual basis.

Category 3 - Consider redevelopment of the annual inspection report format to include a sketch plan

Category 3 - Consider the use of electronic data collection methods for all inspections, annual and construction. A system that could easily download inspection information into *DamPoint* or some other database would be the most efficient option.

Category 3 - Include searchable inspection and noted deficiency records in *DamPoint*.

Surveillance Monitoring

Surveillance and monitoring of dams is accomplished as part of the formal annual inspection program. Certain dams have instrumentation installed to monitor performance including seepage, reservoir level, precipitation, settlement, deflections and deformations, crack propagation and joint movement, thermal data, etc. The data is collected and compiled by the dam owners and transmitted to the DSOD. It is understood that there are threshold values associated with the instrumentation readings that would trigger further, more detailed evaluation and/or action by the owner, or DSOD, if the owner fails to do so.

The field engineers perform an independent evaluation of the instrumentation data, which is also evaluated by dam owners and their consultants. Most field engineers have a detailed and clear understanding of the purpose and performance of all instrumentation. However, it was found that this is not the case for all staff. It is unclear that the FEB performs a field QA/QC on the instrumentation readings by the owners.

It is understood that with the exception of FERC regulated dams, there are generally no probable failure modes analyses (PFMA) performed for DSOD dams. It would be good for inspection/instrumentation staff to have a full understanding of failure mechanisms and details of dams with which they are engaged. It would be best if FEB, DB and GB staff were more fully engaged in PFMAs and evaluations to ensure this understanding. This may take more than just reviewing reports and may require more engagement with PFMA teams.

Strengths

Category 1 – The DSOD has a very well documented and rigorous inspection program that is the key component of the surveillance program. DSOD also regularly follows up with letter requests and directives to dam owners.

Category 1 – Most high hazard dams have instrumentation and are being monitored and analyzed by DSOD as part of the annual inspection program.

Weaknesses

Category 2 – It was determined that not all inspectors had a detailed and clear understanding of the purpose and performance of all instrumentation. Not clear if a QA/QC check on field instrumentation reading is done by FEB.

Recommendations

Category 2 – Consider a refresher-training program for the FEB on instrumentation. Ensure that there are site-specific purposes for all instrumentation and the value that the instrument provides to the overall surveillance process.

Category 2 - Consider formation of joint FEB/DB/GB PFMA teams to develop a clear understanding of the most probable failure mechanisms.

Enforcement

With a number of staff, there seems to be an incorrect belief that the organization is not conducting enforcement activities related to statutes, regulations, and seeking improvements to deficiencies of structures. This may come from a misconception that enforcement is a standalone activity, when in fact obtaining enforcement is a common thread and strategy that ties all functions, and all staff, of the entire DSOD program together.

The DSOD program's responsibility for protecting life and property from unsafe or deficient dams is its highest priority. The DSOD program conducts enforcement activities based upon the concepts of all staff practicing Relationship Based Leadership with dam owners and their private engineers, progressive enforcement often demonstrated in written warnings to owners, and use of water level restrictions for critical problems. Because court proceedings can take years to address even the smallest issue related to a single dam, and there is often a resulting "black hole" for staff time, preparation, participation, documentation of evidence, responses to discovery filings, depositions, testimony, and assistance to state legal staff, the DSOD is appropriately utilizing litigation as an absolute last resort for problem dams.

Some improvements, however, can still be made so that the DSOD's enforcement focus is better understood by all staff, and to improve the process of documenting and prioritizing the deficient structures that still require attention.

Strengths

Category 1 - The program has the ability to impose reservoir restrictions and construction stop-work orders.

Category 1 - The DSO program is appropriately focused on taking actions to protect life and property from unsafe or deficient dams.

Category 1 - The DSO program is conducting enforcement activities based upon the concepts of practicing Relationship Based Leadership with dam owners, and progressive discipline.

Category 2 - The DSO is appropriately utilizing litigation as an absolute last resort for problem dams.

Weaknesses

Category 1 - There seems to be an incorrect belief among some staff that the organization is not conducting enforcement activities.

Category 2 - Lack of planned, coordinated, and tracked enforcement initiatives.

Category 3 - Lack of easy access to an in-house attorney who can participate in case strategy development for specific problems.

Recommendations

Category 1 - Create flow charts for the selective enforcement, progressive discipline style, compliance and enforcement process including the use of reservoir restrictions, stop work orders, and the use of the Attorney General's staff that litigate in court.

Category 1 - Develop a simplified risk assessment tool to prioritize noncompliant high hazard dams for enforcement.

Category 1 - Explain the enforcement process and staff linkage to this process at an all staff retreat.

Category 2 - Create a standing *violation triage team*.

Violation triage team members should at a minimum include the Dam Safety manager, the 3 field branch regional engineers and the field engineer most familiar with the dam in question

The *violation triage team* should meet for at least an hour monthly to address the higher risk priorities.

The *violation triage team* should:

- vet the compelling nature of deficiencies and completeness of evidence,
- outline individual case strategies,
- include the Department of Water Resources political liaison in a preemptive fashion regarding critical violations,
- track progress and adjust case strategies on each action, over time, and
- use legal approaches only as a last option.

Category 3 - Develop a standardized fine matrix (which also increases in a progressive fashion to deal with repeat, habitual, and intentional violators).

Category 3 - If possible, the Division should utilize the services of a dedicated in-house attorney to more pro-actively assist with enforcement matters.

Emergency Response and Emergency Action Plans

At this time DSOD does not have up to date written policies and procedures to deal with dam safety emergencies or their Emergency Action Plan (EAP) program. Emergency action procedures are in the process of being rewritten and training is planned.

Due to the possibility of extremely hazardous earthquakes in the state of California, The Governor's Office of Emergency Services (OES) is the state agency that controls and runs the preparation and response to major disasters.

OES is responsible for assuring the entire state's readiness to respond and recover from natural, manmade, and war caused emergencies, and for assisting local governments in their preparedness, response and recovery efforts. This may be unique within the United States.

Among the State agencies that participate within the OES emergency management system, DSOD is responsible for assuring the state's private dam owners' readiness to respond and recover from natural, manmade, and war caused emergencies and for their readiness to respond to and assist local governments in their preparedness, response and recovery efforts.

In the case of a major emergency, such as an earthquake, dams, buildings, roadways, etc. would be affected. DSOD would work directly with dam owners and local emergency managers to respond to that dam emergency. DSOD would also have a liaison during the emergency working with OES to facilitate statewide communication and the sharing of resources, and to represent DSOD interests in the management of the overall emergency. This is a statewide management system similar to the national emergency management system, including incident management, communications, operations, logistics, etc.

Strengths

Category 1 - DSOD has adequate resources to respond to most emergencies.

Category 1 - DSOD participates in training and the exercise of EAPs.

Category 1 - DSOD is actively supporting OES by requesting dam owners to develop and maintain EAPs and to coordinate these efforts with OES and local emergency management agencies. DSOD tracks, files and maintains the EAPs submitted to them, as part of their overall emergency preparedness efforts.

Category 1 - A strong point is the notification system that works in concert with ShakeCast so that the appropriate Field Branch Engineers are notified when a large earthquake occurs, identifies the dams that have been adversely affected, and provides a probable damage assessment.

Weaknesses

Category 1 - Lack of DSOD internal emergency response procedures. The division does not have up to date documented procedures in place to respond to emergency situations, especially for large, regional earthquakes and flood events. The procedures require response exercises.

Category 1 - Failure to confirm that local emergency managers have a plan to effectively evacuate the downstream public in the event of an emergency.

Category 1 - EAP coverage is not complete for high and significant hazard potential dams (DSOD has a plan to correct this and it should be implemented immediately).

Recommendations

Category 1 - Continue to implement the plan to complete EAPs for all high and significant hazard dams.

Category 1 - As soon as possible, update the emergency preparedness procedure to allow DSOD to respond effectively to a major event such as an earthquake or widespread flooding.

Category 1 - Exercise the emergency preparedness procedure on an annual basis.

Design Reviews

The Model Dam Safety Program requires that a design review be accomplished on the following elements of dam design:

- Usual and unusual condition and design loadings
- Hydrology and hydraulics
- Structural design and stability of dam structure
- Structural design and stability of appurtenant structures
- Seepage and drainage
- Grouting plan
- Foundation preparation and treatment plan
- Exploration and testing program
- Instrumentation plan
- Operation and maintenance plan
- Design drawings and specifications
- Regional and site geology
- Site seismicity

It appears that DSOD has incorporated all of the above in their program.

It was found that the DSOD reviews, investigates, and evaluates all applications, submitted for approval. The DSOD reviews design documents, plans and specifications and makes independent evaluations to ensure dams are constructed, enlarged, repaired, or removed appropriately with respect to safety of the dam. It was found that DSOD does perform extensive and detailed independent design computations and analyses for new dam and dam rehabilitation projects. It was found that DSOD often performs independent seismic evaluations, structural computations, stability analyses and hydrologic and hydraulic analyses for new dam and dam rehabilitation applications.

The DSOD has well documented standards and procedures for application reviews, but it was found that some of the staff was unaware of the guidance documents. Technical guidance documents can be accessed on the DSOD web page at http://www.water.ca.gov/damsafety/index.cfm. Further, there is a DSOD Procedures Manual available in digital format to all staff on My Dam. The contents of this manual are found in Appendix B.

It was found that the DSOD is well equipped with tools, including state of the art hardware and software for the analysis and design of dams.

The DSOD fosters an atmosphere of technical expertise that keeps the organization abreast of the state of the art in dam safety engineering. The DSOD encourages continuing education and dam safety training for all staff. The DSOD actively participates in professional activities of professional organizations including the Association of State Dam Safety Officials (ASDSO) and the United States Society on Dams (USSD), through technical committee activities, and attendance at seminars, workshops and conferences.

Strengths

Category 1 - The DSOD program performs rigorous independent design reviews of new dam designs and rehabilitation designs

Category 1 - The DSOD has staffs that are well qualified to perform state of the art independent design analyses

Category 1 - The DSOD has well documented standards and procedures for application reviews.

Category 2 - The DSOD program is well supported with state of the art equipment, hardware and software.

Weaknesses

Category 1 - Not all staff was aware of the documented procedures for design reviews.

Recommendations

Category 1 - Continue the policies and procedures that have been integral to the success of the DSOD program and placed it at the forefront of dam safety in the nation.

Category 1 - Resend the policies procedures and guidance manual notification to all staff and remind them of the availability of this information on the website.

Permitting

The model dam safety program requires that the following activities be issued permits by DSOD:

- Construction of a new dam
- For existing dams
    - Reconstruction
    - Enlargement
    - Modification
    - Alteration
    - Repair
    - Removal
    - Abandonment
    - Operation and maintenance
    - Impoundment of water
    - Change of ownership

DSOD requires permits for all the above activities and meets model dam safety requirements.

Reevaluations

At the present time DSOD does not routinely accomplish periodic in-depth analysis to ensure existing dams meet current design standards. The common current reevaluation dam safety industry standard is a 5 – year periodic review. Specifically, the re-evaluation of high hazard potential dams every 5 years should include in-depth calculations and evaluations of hydrology, hydraulics, structural stability, earthquake engineering and construction using up-to-date techniques and design criteria.

While the DSOD legislation and regulations do not require the detailed re-evaluation of high hazard potential dams every 5 years as described above and as recommended in the model program, the DSOD does in fact perform periodic reevaluations as a matter of policy and practice. The DSOD has a very robust program for periodic reevaluations that is among the best in the nation to ensure that existing dams meet current design standards.

The areas of seismic, structural and geotechnical are particularly strong in this regard as compared to the area of hydrology and hydraulics. There is a general awareness by the staff that expertise and performance in the area hydrology and hydraulics are comparatively weaker.

The DSOD performs seismic reevaluations on both earthfill and concrete dams and, then if there are issues, requires the dam owners to perform the reevaluations in more detail. The DSOD has the in-

house expertise to perform LS-DYNA, FLAC and FEA analyses, which are rarely found in state dam safety agencies.

Strengths

Category 1 - The program does perform periodic reevaluations of existing dams.

Category 1 - It appears that the seismic reevaluation program is particularly effective.

Weaknesses

Category 2 - Neither the legislation nor the regulations comply with the model program regarding reevaluations.

Category 2 - The strength of expertise in the area of hydrology and hydraulics is weak relative to other technical areas of the dam safety program.

Recommendations

Category 2 - Modify the regulations to conform to the established practice.

Category 2 - Take steps to more fully develop in house expertise in the area of hydrology and hydraulics

Program Management

The DSOD has a clear and written mission "to protect people against loss of life and property from dam failure", which is well understood and supported by program staff and management. The objectives of this mission are being generally met, but improvements to the accomplishment of the mission can be made, as outlined in the recommendations of this report. This mission statement is readily available to public and private dam safety stakeholders.

Although the organization has a strategic plan, it is beyond its life span and needs to be updated.

Because of the large size of this organization, there is a formal organizational structure that defines reporting relationships, and assigns authorities, signature authorities, and responsibilities to various levels of managers. As senior management is actively engaged in many aspects of program and project details, the organization gives the appearance of being somewhat micro-managed, perhaps somewhat untrusting of staff, and sometimes slow to respond.

Because of the critical public safety implications of many program functions, the potential effects of so many regulated dams, and the need for Division-wide consistency, however, an engaged senior management is not inappropriate. Responsibility assignments, and signature authority / signature matrix, however, should be reconsidered from the perspective of a "succession strategy" in order to reinforce the trust senior management has of staff, to seek opportunities to be able to respond more

quickly, and to help prepare future organizational leaders. Opportunities should also be sought to use varying situational leadership styles of directing behaviors, supporting behaviors, and signature authorities, depending upon the varying development levels of individual staff members.

The DSOD has an internally developed project management / tracking tool known as *DamPoint*. This tool is a great beginning of what will hopefully grow into a robust management tool. It appears there is not an excessive backlog of work for staff. The balance of workload per staff position, between field and design / office staff, however, should be periodically reviewed. The review of staff work product appears to be backlogged with senior management.

Annual reporting, which summarizes yearly accomplishments, issues, etc., has not been accomplished for several years, but is in the process of being rectified.

As with any large organization, communications between management and personnel is occurring, but can always be improved. A yearly working retreat / division wide meeting could provide an opportunity to improve communication.

Managers and leaders have access to an extensive series of supervision and management training opportunities.

Strengths

Category 1 - The DSOD has a clear and written mission "to protect people against loss of life and property from dam failure", which is well understood and supported by program staff and management.

Category 1 - The objectives of this mission are being generally met.

Category 1 - The DSOD has been successfully led with a long-term vision for strengthening the program's specialty areas of expertise to the level of being leading edge of professional practice.

Category 1 - The senior leadership team is well educated, competent, passionate, committed, and effective.

Category 1 - The DSOD is staffed by highly educated, skilled, dedicated and experienced individuals.

Category 2 - The structure of the Division seems to work well.

Category 2 - The hierarchical structure appears to provide the program with consistency in applying policies and leveraging analysis techniques and solutions from other similar type of dam projects, but at the expense of desirable timeliness.

Category 2 - Extensive management and leadership-training opportunities have been made available for staff promoted into management roles.

Category 3 - Span-of-control for the supervisors looks reasonable (5-6 people).

Category 3 - Ad hoc committees and teams are formed to meet specific technical needs such as liquefaction or nonlinear analyses.

Weaknesses

Category 1 - As senior management is actively engaged in many aspects of program and project details, the organization gives the appearance of being somewhat micro-managed, perhaps somewhat untrusting of staff, and slow to respond.

Category 1 - Succession practices should be improved.

Category 1 - There are only a few types of letters that are not signed by the Division Chief.

- The process to get a letter out can take months to complete.
- Each letter is subject to multiple levels of review.

Category 1 - Delegation of authority will enhance succession success.

Category 2 - The most recent strategic plan is from 2010.

Category 3 - The most recent annual report is from 2011.

Recommendations

Category 1 - Responsibility assignments, and signature authority / signature matrix should be reconsidered from the perspective of a "succession strategy" in order to reinforce the trust senior management has of staff, to seek opportunities to be able to respond more quickly, and to help prepare future organizational leaders.

Category 1 - Evaluate and modify the processing time for dam safety work products letters/approvals/notifications, etc. to make them more timely.

Category 2 - The strategic plan needs to be updated.

- Consider a retreat with entire staff as part of the process with an outside facilitator.
- Address the four critical parts of an effective organization: business practices, stakeholders, financial responsibility, and staff development.

Category 2 - A yearly working retreat / division wide meeting could provide an opportunity to improve communication.

Category 3 - Re-start the process of developing annual reports.

Human Resources

DSOD has an Administrative Section that provides human resources services for the division. All DSOD staff members have written job descriptions. The division uses the *DamPoint* database to track workflow and assignments.

The technical, clerical and management staff are highly qualified and possess the skill set necessary to perform the assigned work of the division. The DSOD has had a successful long-term vision for strengthening the program's specialty areas of expertise to the level of being leading edge of professional practice. The senior leadership team is well educated, competent, passionate, committed, and effective.

DSOD management and staff participate in the state annual Appraisal and Development Program (A&D) for formal employee evaluation. Management and supervisors use this program to identify and formulate training plans for each staff member. The team finds that management provides good support for educational/training opportunities. The Department and Division have a robust training budget and training program and provide adequate opportunities including release time. However, out-of-state travel restrictions are an obstacle. Extensive management and leadership-training opportunities have been made available for staff promoted into management roles.

The team further finds that DSOD makes efforts to assign staff to projects of various types to expand staff experience and training. Additional effort could be made to provide more of these opportunities such as having Design Branch staff do field inspection and other cross training.

Employees are encouraged to obtain and maintain professional registration and the state system provides a financial reward.

DSOD follows the written state policies and procedures for hiring and promotions. Management also takes an active approach in recruiting highly qualified candidates. The state system for hiring can be a limiting factor in hiring and in promotions. The state system requires that any applicant considered for a position must score in the top three of a standard test. This has had the effect of limiting staff that can be considered for a promotional position.

The team finds that the overall morale of the DSOD is good. Staff recognize that the program is the premiere dam safety program in the nation and take pride in their technical expertise. The amount of time it takes for review of letters and reports (multiple layers of review and the availability of lead management for review/approval meetings) as well as the perceived lack of enforcement capability are factors that negatively impact morale with some staff members. There is a perception by some DSOD staff that there is micro-management and less trust of staff decisions throughout the division.

Staff turnover has not been an issue for DSOD in recent years. Competitive salary and benefit packages for staff encourage many to stay long term.

There are procedures in place for orientation of new employees and management report that all employees are provided with the written policy manual (also available online).

Many of the DSOD top managers are long-time state/division employees and are nearing the end of their careers with DSOD. DSOD leadership has been discussing succession planning and working to promote and train new leaders. Delegation of authority for some review approval to lower-level managers and supervisors could help in succession planning.

DSOD management encourages all staff levels to participate on technical committees and organizations and to develop technical papers and make presentations at technical conferences. Limitations on out-of-state travel have hampered participation in recent years.

Overall the working conditions, physical facilities and office environment are satisfactory. Many staff expressed concerns about the safety of the office location. DSOD management has plans to relocate the office to a better area.

Strengths

Category 1 - The DSOD has had a successful long-term vision for strengthening the program's specialty areas of expertise to the level of being leading edge of professional practice.

Category 1 - The senior leadership team is well educated, competent, passionate, committed, and effective.

Category 1 - The division uses the *DamPoint* database to track workflow and assignments.

Category 1 - The Department and Division have a robust training budget and training program and provide adequate opportunities including release time.

Category 2 - DSOD has an Administrative Section that provides human resources services for the division.

Category 3 - DSOD management encourages all staff levels to participate on technical committees and organizations and to develop technical papers and make presentations at technical conferences.

Category 3 - DSOD makes efforts to assign staff to projects of various types to expand staff experience and training.

Category 3 - Competitive salary and benefit packages for staff encourage many to stay long term.

Weaknesses

Category 3 - State out-of-state travel restrictions are an obstacle to staff participation in committees, conferences and training.

Category 3 - Many of the DSOD top managers are long-time state/division employees and are nearing the end of their careers with DSOD.

Category 3 - DSOD does some cross training between branches, but additional opportunities for cross training can increase staff capability and experience.

Category 3 - The state system for hiring can be a limiting factor in hiring and in promotions.

Recommendations

Category 3 - Delegation of authority for some review approval to lower-level managers and supervisors could help in succession planning.

Category 3 - Provide additional cross training opportunities between branches as appropriate.

Category 3 - As much as possible, push for additional out-of-state travel budget and/or lifting of out-of-state travel restrictions to allow for greater training opportunities and participation in committees, etc.

Category 3 - As much as possible, push for changes in the state system for hiring to allow greater flexibility in hiring and in promotions.

Funding and Budgeting

The DSOD has appropriate adequate financial management tools. A deep understanding and skill with these tools appears to be primarily with a single employee, Sharon Tapia. Skills with these tools should be deepened with other senior management.

This organization is very unique in that it has been supported for about the last decade by fees, without state general fund moneys. A process exists to adjust and adopt sustainable fees and budgets. Monitoring of budgets and expenditures appears to be routine practice.

Funding assistance for dam owners to rehabilitate existing dams is not an ongoing component in this program. However, whenever grant monies become available, DSOD informs dam owners in writing of these resources.

Strengths

Category 1 - The significant fee structure enables the depth and breadth of this public safety program.

Category 1 - The DSOD administration has excellent process for tracking budget revenues and expenditures, and staff workload.

Weaknesses

Category 1 - Skills with the tools and process for tracking budget revenues, expenditures, and staff workload are not strong with many senior management personnel.

Category 3 - Funding assistance for dam owners to rehabilitate existing dams is a very limited component in this program.

Recommendations

Category 1 - Skills with the tools and process for tracking budget revenues, expenditures, and staff workload, should be deepened with senior management.

Category 3 - Seek legislation to provide funding assistance for dam owners to rehabilitate existing dams.

Files and Records

Although files are located within DSOD facilities, the Division of Management Services, Records Management is responsible for files of all the dams and applicable administrative documents. This Unit functions as an integral part of the Division and works closely with the Administration Section.

There appear to be well-organized and complete files, plans and documents for each dam and they are readily available to the staff. There are policies, which define the storing of project records. Documentation of project activities, meetings, telephone calls, and correspondence to owners are organized. Currently there are no duplicate or backup files that would preserve records in the case of a fire or catastrophic event in the office, however it is also understood that there is an ongoing effort to digitize the records.

Strengths

Category 1 - Robust and rich hard copy file resource on each dam.

Category 1 - An abbreviated blue book of hard copy documentation for each dam is available for staff to take into the field.

Weaknesses

Category 1 - The valuable file resources are at risk due to the lack of backup.

Category 2 - The *DamPoint* database needs to be substantially enhanced in order to provide field access to this informational asset.

Recommendations

Category 1 - Digitally scan the paper file resources and ensure proper off site backups, as a stopgap measure until the *DamPoint* database is substantially enhanced.

Category 2 - Substantially enhance the *DamPoint* database in order to provide field access to this informational asset, and provide a digital backup for all dam specific information.

Policy, Procedures, Guidelines – Organization Planning and Self- Evaluation

The ASDSO Peer Review Manual suggests that a dam safety program should have policy, procedures and guidelines that can support organization planning and self-evaluation. The suggested elements include Budgeting, Emergency Response Plan, Communication Plan and Public Relations, Dam Owner/Operator Notification Processes and Billing/Invoicing Processes. The DSOD maintains a complete and exhaustive list of policies, procedures and guidelines online that is available to every DSOD manager and staff.

Strengths

Category 1 - DSOD maintains a complete and exhaustive list of policies, procedures and guidelines that is available to every DSOD manager and staff. In addition, mangers and staff receive training on how to access the policies, procedures and guidelines.

Weaknesses

Category 1 - At this time DSOD does not have current written policies and procedures to deal with dam safety emergencies or their Emergency Action Plan (EAP) program. Emergency action procedures are in the process of being rewritten and training is planned.

Category 1 -DSOD has not issued an annual report since 2010.

Recommendations

Category 1 - Recommendations addressing both weaknesses have been made in earlier sections Program Management and Emergency Response and Emergency Action Planning.

Stakeholder Relations

In the Model Dam Safety Program comparison, which is submitted to ASDSO, the DSOD reports that it has a written public relations plan. The team determined that external stakeholder communication could be improved, especially with the general public, local emergency managers and responders, and with realtors. DSOD would benefit from a more targeted stakeholder communication plan (which could

include real estate outreach, public awareness, dam owner workshops, an annual report, etc.) This would show the value of the program and help protect the fee structure
DWR has public relations staff that is available to DSOD and management reported that they can and have used press releases to help educate the public.

DSOD has a website with many resources for dam owners, engineers and other dam safety stakeholders. The site includes pages for program statutes and regulations, forms, and a listing of jurisdictional dams among others. The site could include additional links for dam owners and for the general public such as www.livingneardams.org and www.damowner.org. The DSOD Annual Report is not on the website. The most recent DSOD Annual Report is out of date (2010) so it likely should not be put on the website. However, an up-to-date Annual Report posted on the website could be an effective stakeholder relations tool.

Strengths

Category 2 - DSOD has a website with many resources for dam owners, engineers and other dam safety stakeholders. The site includes pages for program statutes and regulations, forms, and a listing of jurisdictional dams among others.

Weaknesses

Category 1 - The website does not include links for dam owners and for the general public such as www.livingneardams.org and www.damowner.org.

Category 2 - DSOD does not have a targeted stakeholder communication plan and does limited outreach to the general public, local emergency managers and responders, and with realtors.

Category 2 - The most recent DSOD Annual Report is out of date (2010) and there is no link to the report on the website

Recommendations

Category 1 - Include links on the website for dam owners and for the general public such as www.livingneardams.org and www.damowner.org.

Category 2 - Develop a targeted stakeholder communication plan that includes outreach to the general public, local emergency managers and responders, and realtors among others.

Category 3 - Prepare an annual report every year and put it on the website.

3. Resources Allocation

The DSOD does appear to have adequate staffing in most sections, although there are some position vacancies. There was a general feeling by the FEB and the GB that they were understaffed, particularly compared to the DEB.

The significant annual project fee structure that is paid by the dam owners enables the depth and breadth of this public safety program. The fees have allowed the DSOD to maintain a fully staffed program. The fees provide adequate resources to meet their legislative and administrative mandates, including staffing equipment. It was observed that there is adequate equipment, including office and field equipment, cameras, safety equipment, vehicles, etc., for job performance.

The DSOD does have up-to-date equipment for engineering, clerical and administrative work. The Administration Section of the DSOD is responsible for nearly all non-engineering functions, including coordination of training, human resources, processing of applications and clerical services. DSOD has developed an excellent process for tracking budget revenues, expenditures and staff workload.

Computer equipment appears to be more than adequate and up-to-date.

Major support services including legal, information technology services, legislative support, procurement and contracting, human resources, budget and finance, facilities management, mobile equipment, health and safety, public affairs, and files management are performed by and at the Department level.

DSOD has a workplace health and safety program including a full-time safety engineer. The safety engineering office is well equipped and makes all necessary safety equipment available to the staff. The safety engineer provides safety oversight for all activities. This is unique and leading edge for state dam safety programs.

Strengths

Category 1 - The program staffing level is appropriate to the execution of the program as legislated.

Category 1 - The significant annual fee program funds the program in its entirety.

Category 1 - The Administration Section has developed an excellent process for tracking budget revenues, expenditures and staff workload.
Category 1 - The DSOD has a workplace health and safety program including a full-time safety engineer that is unique and leading edge for state dam safety programs.

Weaknesses

Category 1 - The valuable file resources are at risk due to lack of backup.

Category 1 - While the significant annual fee revenues provide adequate budget to fund the program, this singular method of funding may leave the program vulnerable should fees ever be reduced by public pressure.

Recommendations

Category 1 - Evaluate staff workload within the branches and make staffing adjustments as necessary.

Category 1 - As part of the annual plan for the program, pay special attention to the public acceptance of the fee program to avoid unexpected challenges.

Category 1 - As soon as practical complete the digitization of all dam safety files.

IV. EVALUATION

Summary

The state of California DSOD has the leading dam safety program in the United States. The level and expertise of staffing combined with the state of the art equipment and resources has been made possible due to the dedicated efforts of the DSOD leadership over the last several decades. The program is well funded by a very significant fee program that has enabled the program to thrive. The DSOD program meets all critical elements of the Model Dam Safety Program. The program is performing the requirements as set in the legislation and regulations. An overall evaluation of the DSOD is presented in this section. This evaluation, is based on a review of the statutes that establish and define the program, the program technical guidelines, the number of dams under jurisdiction and the work typically required to regulate an inventory of that size and complexity. The team has interviewed many of the professional staff and has reviewed numerous documents that define the DSOD dam safety program.

The Team is of the general opinion that the DSOD is the leading dam safety program in the United States in terms of depth and breadth of staff, technical evaluations, inspections, and emergency response.

V. RECOMMENDATIONS

The Peer Review Team respectfully offers the following recommendations to improve and enhance the DSOD dam safety program.

We placed the recommendations into three categories similar to the approach used to categorize the program strengths and weaknesses.

Category 1 – Immediate Action to meet basic dam safety program requirements. (Timeframe 0 – 2 years)

1. Evaluate and modify the processing time for dam safety work products letters/approvals/notifications, etc. to make them more timely.

2. Digitally scan the paper file resources and ensure proper off site backups, as a stopgap measure until the *DamPoint* database is substantially enhanced.

3. It is recommended that the policies and procedures manual for design reviews be redistributed to all staff.

4. Continue the policies and procedures that have been integral to the success of the DSOD program and placed it at the forefront of dam safety in the nation.

5. Evaluate staff workload within the branches and make staffing adjustments as necessary.

6. Implement the plan to complete EAPs for all high and significant hazard dams.

7. As soon as possible, update the emergency preparedness procedure to allow DSOD to respond effectively to a major event such as an earthquake or widespread flooding.

8. Exercise the emergency preparedness procedure on at least an annual basis.

9. Responsibility assignments, and signature authority / signature matrix, should be reconsidered from the perspective of a “succession strategy” in order to reinforce the trust senior management has of staff, to seek opportunities to be able to respond more quickly, and to help prepare future organizational leaders.

10. Skills with the tools and process for tracking budget revenues, expenditures, and staff workload, should be deepened with senior management.

11. For continuity of operations, create an official back up plan and practice, for the information contained in, and the database structure that underlies *DamPoint*.

12. Create flow charts for the selective enforcement, progressive discipline style, compliance and enforcement process including the use of reservoir restrictions, stop work orders, and the use of the Attorney General’s staff that litigate in court.

13. Develop a simplified risk assessment tool to prioritize noncompliant high hazard dams for enforcement.

14. Explain the enforcement process and staff linkage to this process at an all staff retreat.

15. Include links on the website for dam owners and for the general public such as www.livingneardams.org and www.damowner.org.

16. As part of the annual plan for the program, pay special attention to the public acceptance of the fee program to avoid unexpected challenges.

Category 2 – Intermediate Action (Timeframe: 1 – 3 years)

1. Grow *DamPoint* into a robust tool that can be used in the field by staff to:
    a. Research past project reports,
    b. Create and file inspection reports,
    c. Track changes to deficiencies over time,
    d. Contain inundation mapping,
    e. Perform incident or emergency activities, and
    f. link to or contain typical dam inventory file information such as, detailed analysis, plans, permits, correspondence, inspection reports, EAPs, scanned information, or photo histories.

2. Consider a refresher-training program for all staff, starting with the FEB, on instrumentation. Continue to ensure that there are site-specific purposes for all instrumentation and the value that the instrument provides to the overall surveillance process is clearly understood.

3. Consider formation of joint FEB/DB/GB PFMA teams to develop a clear understanding of the most probable failure mechanisms.

4. Take steps to more fully develop in house expertise in the area of hydrology and hydraulics

5. Update the strategic plan.

6. Consider a retreat with entire staff as part of the process with an outside facilitator.
    a. Address the four critical parts of an effective organization: business practices, stakeholders, financial responsibility, and staff development.
    b. A yearly working retreat / division wide meeting could provide an opportunity to improve communication.

7. Create a standing *violation triage team*.
    a. *Violation triage team* members should at a minimum include the Dam Safety manager, the 3 field branch regional engineers and the field engineer most familiar with the dam in question

b. The *violation triage team* should meet for at least an hour monthly and focus on addressing the top, higher risk priorities.
c. The *violation triage team* should:
    i. vet the compelling nature of deficiencies and completeness of evidence,
    ii. outline individual case strategies,
    iii. include the Department of Water Resources political liaison in a preemptive fashion regarding critical violations,
    iv. track progress and adjust case strategies on each action, over time, and
    v. use legal approaches only as a last resort.

8. In regards to project reevaluations, take steps to modify the regulations to conform to the established practice.

9. Substantially enhance the *DamPoint* database in order to provide field access to this informational asset, and provide a digital backup for all dam specific information.

10. Develop a targeted stakeholder communication plan that includes outreach to the general public, local emergency managers and responders, and realtors among others.

Category 3 – Long Term Action (Timeframe: 3 – 5 years)

1. Prepare an annual report every year and put it on the website.

2. As the opportunity arises, modify or add to the DSOD statutes and regulations to meet all guidelines of the Model Dam Safety Program.

3. Consider redevelopment of the annual inspection report format to include a sketch plan.

4. Include searchable inspection and noted deficiency records in *DamPoint*.

5. Develop a standardized fine matrix (which also increases in a progressive fashion to deal with repeat, habitual, and intentional violators).

6. If possible the Division should seek the services of a dedicated in-house attorney to more pro-actively assist with enforcement matters.

7. Delegation of authority for some review approval to lower-level managers and supervisors could help in succession planning.

8. Provide additional cross training opportunities between branches as appropriate.

9. As much as possible, push for additional out-of-state travel budget and/or lifting of out-of-state travel restrictions to allow for greater training opportunities and participation in committees, etc. for staff.

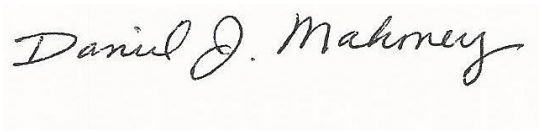
10. As much as possible, push for changes in the state system for hiring to allow greater flexibility in hiring and in promotions.

11. Seek legislation to provide funding assistance for dam owners to rehabilitate existing dams.

VI. CERTIFICATION

This report was prepared by the undersigned members of the Peer Review Team of the Association of State Dam Safety Officials as requested by David A. Gutierrez, Chief, Division of Safety of Dams, California Department of Water Resources, Sacramento, California. The statements in the report reflect the engineering and professional observations, findings and judgments of the Team based on interviews and review of documents presented by the DSOD who supplied documents.

William B. Bingham, P.E.
Team Coordinator



Daniel J. Mahoney

Mark B. Ogden, P.E.

Kenneth E. Smith, P.E.

Date: August 31, 2016

APPENDIX A

CALIFORNIA WATER CODE STATUTES AND REGULATIONS AND CURRENT PRACTICES

Please go to:

http://www.water.ca.gov/damsafety/docs/statutes-regulations.pdf

APPENDIX B

LIST OF DOCUMENTS REVIEWED BY THE TEAM

For Division of Safety of Dams Procedures please refer to

http://www.water.ca.gov/damsafety/statutes_regulations/index.cfm

APPENDIX C

ORGANIZATION CHARTS

1.19.16

CALIFORNIA STATE GOVERNMENT – THE EXECUTIVE BRANCH

PEOPLE OF CALIFORNIA

GOVERNOR JERRY BROWN

STATE SUPERINTENDENT OF PUBLIC INSTRUCTION
TOM TORLAKSON

INSURANCE COMMISSIONER
DAVE JONES

SECRETARY OF STATE
ALEX PADILLA

LIEUTENANT GOVERNOR
GAVIN NEWSOM

ATTORNEY GENERAL
KAMALA D. HARRIS

STATE CONTROLLER
BETTY YEE

STATE TREASURER
JOHN CHIANG

STATE BOARD OF EQUALIZATION
GEORGE RUNNER
District 1
FIONA MA
District 2
JEROME HORTON
District 3
CHAIR
DIANE HARKEY
District 4
CYNTHIA BRIDGES
Executive Director

BOARD OF GOVERNORS COMMUNITY COLLEGES
Brice W. Harris
Chancellor

CALIFORNIA STATE BOARD OF EDUCATION
Karen Stapf Walters
Executive Director

STUDENT AID COMMISSION
VACANT
Executive Director

TRUSTEES OF CALIFORNIA STATE UNIVERSITIES
Timothy P. White
Chancellor

UNIVERSITY OF CALIFORNIA BOARD OF REGENTS
Janet Napolitano
President

FAIR POLITICAL PRACTICES COMMISSION
Jodi Remke
Chair

CALIFORNIA GAMBLING CONTROL COMMISSION
James Evans
Chair

CALIFORNIA LOTTERY
Hugo Lopez
Director

OFFICE OF THE INSPECTOR GENERAL
Robert Barton
Inspector General

PUBLIC UTILITIES COMMISSION
Michael Picker
President

BOARD OF STATE AND COMMUNITY CORRECTIONS
Linda Penner
Chair

DELTA STEWARDSHIP COUNCIL
Randy Fiorini
Chair

ARTS COUNCIL
Craig Watson
Director

STATE PUBLIC DEFENDER
Mary McComb
Public Defender

MILITARY DEPARTMENT
MG David Baldwin
Adjutant General

EXECUTIVE SECRETARY
Nancy McFadden

CABINET SECRETARY
Dana Williamson

APPOINTMENTS
Mona Pasquil

CONSTITUENT AFFAIRS
Adrian Mata

EXTERNAL AFFAIRS
Jamie Callahan

LEGAL AFFAIRS
Peter Krause

LEGISLATIVE AFFAIRS
Camille Wagner

OPERATIONS
Julie Lee

PRESS SECRETARY
Evan Westrup

SCHEDULING
Kathy Baldree

SPECIAL COUNSEL
Anne Gust Brown

SENIOR ADVISORS TO THE GOVERNOR
Ken Alex
Joginder Dhillon
Josh Groban
Cliff Rechtschaffen
Mike Rossi
Lark Park

SPECIAL ADVISOR
Nettie Sabelhaus

TRIBAL ADVISOR
Cynthia Gomez

OFFICE OF BUSINESS AND ECONOMIC DEVELOPMENT
Panorea Avdis
Director

OFFICE OF PLANNING AND RESEARCH
Ken Alex
Director

OFFICE OF EMERGENCY SERVICES
Mark Ghilarducci
Director

TRANSPORTATION AGENCY
Brian Kelly
Secretary
Brian Annis
Undersecretary

DEPT OF CORRECTIONS AND REHABILITATION
Scott Kernan
Secretary
Diana Toche
Undersec. Health Care Svcs
VACANT
Undersecretary Operations
Ken Pogue
Undersec. Admin&Offender Svcs

ENVIRONMENTAL PROTECTION AGENCY
Matt Rodriquez
Secretary
Gordon Burns
Undersecretary

DEPARTMENT OF FINANCE
Michael Cohen
Director
Keely Bosler
Eraina Ortega
Chief Deputy Directors

HEALTH AND HUMAN SERVICES AGENCY
Diana Dooley
Secretary
Michael Wilkening
Undersecretary

DEPARTMENT OF FOOD AND AGRICULTURE
Karen Ross
Secretary
James Houston
Undersecretary

LABOR AND WORKFORCE DEVELOPMENT AGENCY
David Lanier
Secretary
André Schoorl
Undersecretary

NATURAL RESOURCES AGENCY
John Laird
Secretary
Janelle Beland
Undersecretary

DEPARTMENT OF VETERANS AFFAIRS
Vito Imbasciani
Secretary
VACANT
Undersecretary

GOVERNMENT OPERATIONS AGENCY
Marybel Batjer
Secretary
VACANT
Undersecretary

BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY
Alexis Podesta
Acting Secretary
Alexis Podesta
Undersecretary

CALIFORNIA HIGHWAY PATROL
Joseph Farrow
Commissioner

DEPARTMENT OF MOTOR VEHICLES
Jean Shiomoto
Director

DEPARTMENT OF TRANSPORTATION
Malcolm Dougherty
Director

BOARD OF PILOT COMMISSIONERS
Allen Garfinkle
Executive Director

HIGH SPEED RAIL AUTHORITY
Jeff Morales
Chief Executive Officer

CA TRANSPORTATION COMMISSION
Will Kempton
Executive Director

DIVISION OF ADULT INSTITUTIONS
Kelly Harrington
Director

DIVISION OF ADULT PAROLE OPERATIONS
Robert Haase
Acting Director

ADULT REHABILITATIVE PROGRAMS DIVISION
Brantley Choate
Acting Director

JUVENILE JUSTICE DIVISION
Michael Minor
Director

ADULT BOARD OF PAROLE HEARINGS
Jennifer Shaffer
Executive Officer

JUVENILE BOARD OF PAROLE HEARINGS
VACANT
Executive Officer

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Chair

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Director

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
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Director

OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT
VACANT
Director

STATE WATER RESOURCES CONTROL BOARD
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Chair

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Director

DEPARTMENT OF AGING
Lora Connolly
Director

DEPARTMENT OF CHILD SUPPORT
Alisha Griffin
Director

DEPARTMENT OF DEVELOPMENTAL SERVICES
VACANT
Director

DEPARTMENT OF HEALTH CARE SERVICES
Jennifer Kent
Director

DEPARTMENT OF STATE HOSPITALS
Pamela Ahlin
Director

DEPARTMENT OF SOCIAL SERVICES
Will Lightbourne
Director

DEPARTMENT OF MANAGED HEALTH CARE
Michelle Rouillard
Director

DEPARTMENT OF PUBLIC HEALTH
Karen Smith
State Pub. Health Director

DEPARTMENT OF COMMUNITY SERVICES AND DEVELOPMENT
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Director

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Howard Backer, MD
Director

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Robert David
Director

EMPLOYMENT DEVELOPMENT DEPARTMENT
Patrick Henning
Director

DEPARTMENT OF INDUSTRIAL RELATIONS
Christine Baker
Director

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Chair

PUBLIC EMPLOYMENT RELATIONS BOARD
Anita Martinez
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Chair

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Executive Director

EMPLOYMENT TRAINING PANEL
Stewart Knox
Executive Director

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Mark Cowin
Director

DEPARTMENT OF CONSERVATION
David Bunn
Director

CALIFORNIA CONSERVATION CORPS
Bruce Saito
Director

CALIFORNIA COASTAL COMMISSION
Dr. Charles Lester
Executive Director

STATE LANDS COMMISSION
Jennifer Lucchesi
Executive Officer

EXPO PARK
Ana Lasso
General Manager

CALIFORNIA SCIENCE CENTER
Jeffrey Rudolph
Executive Director

CA AFRICAN AMERICAN MUSEUM
Vacant
Executive Director

CA Coastal Conservancy

CA Tahoe Conservancy

Santa Monica Mountains Conservancy

Sacramento-San Joaquin Delta Conservancy

Sierra Nevada Conservancy

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Ken Pimlott
Director

DEPARTMENT OF PARKS & RECREATION
Lisa Mangat
Director

DEPARTMENT OF FISH AND WILDLIFE
Charlton Bonham
Director

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Robert Weisenmiller
Chair

NATIVE AMERICAN HERITAGE COMMISSION
Cynthia Gomez
Executive Secretary

WILDLIFE CONSERVATION BOARD
John Donnelly, Executive Dir.

CENTRAL VALLEY FLOOD PROTECTION BOARD
Leslie Gallagher,
Acting Exec. Officer

SF BAY CONSERVATION AND DEV. COMM.
Larry Goldzband, Executive Dir.

CALIFORNIA WATER COMMISSION
Paula Landis, Executive Officer

COLORADO RIVER BOARD OF CALIFORNIA
Tanya M. Trujillo, Executive Dir.

FRANCHISE TAX BOARD
Selvi Stanislaus
Executive Officer

DEPARTMENT OF TECHNOLOGY
Carlos Ramos
Director

VICTIM COMPENSATION & GOVT CLAIMS BOARD
Julie Nauman
Executive Officer

DEPARTMENT OF HUMAN RESOURCES
Richard Gillihan
Director

STATE PERSONNEL BOARD
Suzanne Ambrose
Executive Officer

PUBLIC EMPLOYEES' RETIREMENT SYSTEM
Anne Stausboll
Executive Officer

TEACHERS' RETIREMENT SYSTEM
Jack Ehnes
Chief Executive Officer

DEPARTMENT OF GENERAL SERVICES
Daniel Kim
Director

OFFICE Of ADMINISTRATIVE LAW
Debra Cornez
Director

DEPARTMENT OF FAIR EMPLOYMENT AND HOUSING
Kevin Kish
Director

DEPARTMENT OF CONSUMER AFFAIRS
Awet Kidane
Director

DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL
Timothy Gorsuch
Director

DEPT. OF HOUSING AND COMMUNITY DEVELOPMENT
VACANT
Director

CA HOUSING FINANCE AUTHORITY
Tia Boatman
Executive Officer

DEPARTMENT OF BUSINESS OVERSIGHT
Jan Owen
Commissioner

SEISMIC SAFETY COMMISSION
Richard McCarthy
Director

ALCOHOLIC BEV CONTROL APPEALS BOARD
Linda A. Mathes
Executive Officer

CA HORSE RACING BOARD
Frederick Baedeker
Executive Director

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

January 22, 2016

CENTRAL VALLEY FLOOD PROTECTION BOARD
(SEVEN MEMBERS)
LESLIE GALLAGHER

DIRECTOR
DEPARTMENT OF WATER RESOURCES
MARK COWIN

CHIEF DEPUTY DIRECTOR
Carl Torgersen

ASSISTANT CHIEF DEPUTY DIRECTOR
Cindy Messer

CALIFORNIA WATER COMMISSION
(EIGHT MEMBERS)
Paula Landis

DEPUTY DIRECTOR
State Water Project
Vacant

- **DELTA HABITAT CONSERVATION AND CONVEYANCE PROGRAM** — *Vacant*
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- **DIVISION OF ENGINEERING** — *Jeanne Kuttel*
- **STATE WATER PROJECT ANALYSIS OFFICE** — *Vacant*
- **HYDROPOWER LICENSE PLANNING AND COMPLIANCE OFFICE** — *Ted Craddock*
- **DIVISION OF ENVIRONMENTAL SERVICES** — *Dean Messer*
- **BAY-DELTA OFFICE** — *Paul Marshall*
- **DIVISION OF OPERATIONS AND MAINTENANCE** — *Dave Duval*
  - **OROVILLE FIELD DIVISION** — *Pat Whitlock*
  - **DELTA FIELD DIVISION** — *Diana Gillis*
  - **SAN LUIS FIELD DIVISION** — *Jim Thomas*
  - **SAN JOAQUIN FIELD DIVISION** — *Gabino Velazquez*
  - **SOUTHERN FIELD DIVISION** — *John Bunce*

DEPUTY DIRECTOR
Integrated Water Management
Gary Bardini

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- **DIVISION OF SAFETY OF DAMS** — *David Gutierrez*
- **FLOODSAFE ENVIRONMENTAL STEWARDSHIP AND STATEWIDE RESOURCES OFFICE** — *Vacant*
- **DIVISION OF STATEWIDE INTEGRATED WATER MANAGEMENT** — *Kamyar Guivetchi*
- **DIVISION OF INTEGRATED REGIONAL WATER MANAGEMENT** — *Art Hinojosa*
  - **NORTHERN REGION OFFICE** — *Curtis Anderson*
  - **SOUTH CENTRAL REGION OFFICE** — *Kevin Faulkenberry*
  - **NORTH CENTRAL REGION OFFICE** — *Eric Hong*
  - **SOUTHERN REGION OFFICE** — *Mark Stuart*

DEPUTY DIRECTOR
California Energy Resources Scheduling
John Pacheco (Acting)

- **CONTRACTS MANAGEMENT OFFICE** — *John Pacheco*
- **FINANCIAL MANAGEMENT OFFICE** — *Vacant*

DEPUTY DIRECTOR
Business Operations
Kathie Kishaba

- **BUSINESS SERVICES OFFICE** — *Dave Kearney*
- **HUMAN RESOURCES OFFICE** — *Kathy Aldana*
- **DIVISION OF FISCAL SERVICES** — *Perla Netto-Brown*
- **DIVISION OF TECHNOLOGY SERVICES** — *Tim Garza*

DEPUTY DIRECTOR
Statewide Emergency Preparedness and Security
William Croyle

DEPUTY DIRECTOR
Special Initiatives
Taryn Ravazzini

- **LEGISLATIVE AFFAIRS OFFICE** — *Kasey Schimke*, *Assistant Director*
  - **OFFICE OF THE CHIEF COUNSEL** — *Cathy Crothers*
- **PUBLIC AFFAIRS OFFICE** — *Ed Wilson*, *Assistant Director*
  - **FEDERAL WATER POLICY ADVISOR** — *Joaquin Esquivel*
- **POLICY ADVISOR** — *Waiman Yip*
  - **SAFETY OFFICE** — *Michael Donlon*
- **EXECUTIVE PROGRAM OFFICE** — *Russel Stein*
  - **INTERNAL AUDIT OFFICE** — *Jeff Ingles*
- **OFFICE OF WORKFORCE EQUALITY** — *Stephanie Varrelman*
  - **DWR SUSTAINABILITY PROGRAM** — *Mary Simmerer*

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

February 2, 2016

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CONSULTANTS

2 — 1700
OFFICE OF THE CHIEF

D GUTIERREZ	CEA 50001282
R MILLS	EXEC SECRETARY 50002701

5 — 1752
ADMINISTRATIVE SECTION

V BANUELOS	ADMIN OFFICER II, RA 50001353
VACANT	STAFF SERVICES ANALYST/ ASSOC GOVT PROG ANALYST 50001346
F CVITANICH	STAFF SERV ANALYST 50001587
VACANT (10)	STAFF SERV ANALYST 500022651
T GLORIOSO	OFFICE TECH (T) 50001288
A JACKSON	OFFICE TECH (T) 50001350

6 — 1710
GEOLOGY BRANCH

C TRACY	SUPVG ENGRG GEOLOGIST 50001283
D ELLIS	SR ENGRG GEOLOGIST 50001285
VACANT	SR ENGRG GEOLOGIST 50007007
VACANT	SR ENGRG GEOLOGIST 50002818
R BURNS	ENGRG GEOLOGIST 50001301
A LUTZ	ENGRG GEOLOGIST 50007002
VACANT	STUDENT ASST (E&A) 50030201
VACANT	STUDENT ASST (E&A) 50026715

22

3 — 1720
FIELD ENGINEERING BRANCH

M WAGGONER	PRINCIPAL ENGINEER, WR 50001314
M STEINBACHER	ASSOC SAFETY ENGINEER 50001346
R CERVANTES	ENGINEER, WR 50003475

7
REGION 1 NORTHERN

Y ENZLER	SUPVG ENGINEER, WR 50010806
R BOWLUS	SR ENGINEER, WR 50001414
W PENNINGTON	SR ENGINEER, WR 50001294
L SINGH	SR ENGINEER, WR 50001298
J LOWE	ENGINEER, WR 50001308
A VAN MATRE	ENGINEER, WR 50001345
P YOGESWARAN	ENGINEER, WR 50001309

6
REGION 2 CENTRAL

A MANGNEY	SUPVG ENGINEER, WR 50001291
P DHILLON	SR ENGINEER, WR 50001529
A ORDOUBIGIAN	SR ENGINEER, WR 50001300
W VOGLER	SR ENGINEER, WR 50003988
T JIMENEZ	ENGINEER, WR 50001349
A ROUNDTREE	ENGINEER, WR 50000242
Z DEBORTOLI (11)	YOUTH AID 50030901

6
REGION 3 SOUTHERN

S JONES	SUPVG ENGINEER, WR 50001324
R DRAEGER	SR ENGINEER, WR 50002645
A KOLAKOWSKI	SR ENGINEER, WR 50001297
E WULFF	SR ENGINEER, WR 50001299
J BOYCE	ENGINEER, WR 50000918
R FESSLER	ENGINEER, WR 50001344
H DIEP (11)	STUDENT ASST (E&A) 50056196
R PONTURE (11)	STUDENT ASST (E&A) 50056206

26

2 — 1730
DESIGN ENGINEERING BRANCH

S TAPIA	PRINCIPAL ENGINEER, WR 50001321
E MALVICK	SUPVG ENGINEER, WR 50001318

6
DESIGN SECTION 1

M MIHYAR	SUPVG ENGINEER, WR 50001289
J DIEFENTHAL	SR ENGINEER, WR 50001323
J KUHL	SR ENGINEER, WR 50001319
D SMITH	SR ENGINEER, WR 50001328
E PENN	ENGINEER, WR 50007006
A PRAKASH	ENGINEER, WR 50001333

7
DESIGN SECTION 2

W MEYERSOHN	SUPVG ENGINEER, WR 50001292
C DORSEY	SR ENGINEER, WR 50001337
VACANT	SR ENGINEER, WR 50001296
M PI	SR ENGINEER, WR 50001331
B CRUZ	ENGINEER, WR 50001310
H HANSRA	ENGINEER, WR 50001317
K MARTIN	ENGINEER, WR 50007005
S MARTINEZ (11)	STUDENT ASST (E&A) 50056198
VACANT (11)	STUDENT ASST (E&A) 50056199

6
DESIGN SECTION 3

W LAM	SUPVG ENGINEER, WR 50001322
M COLLORD	SR ENGINEER, WR 50001327
G GAUTHIER	SR ENGINEER, WR 50001293
I MAKI	ENGINEER, WR 50000076
J FELIAS	ENGINEER, WR 50001306
J TATYOSIAN	ENGINEER, WR 50001342
VACANT(11)	STUDENT ASST (E&A) 50026715

5
DESIGN SECTION 4

M SCHULTZ	SUPVG ENGINEER, WR 50007003
P LEE	SR ENGINEER, WR 50001326
P HUYNH	SR ENGINEER, WR 50007004
V CVIJANOVIC	ENGINEER, WR 50012614
B DOLVE	ENGINEER, WR 50012887
VACANT(11)	STUDENT ASST (E&A) 50030153

LEGEND

(1) BORROWED POSITION
(2) LOANED POSITION
(3) EMPLOYEE ON SPECIAL ASSIGNMENT
(4) TRAINING & DEVELOPMENT ASSIGNMENT
(5) LIMITED-TERM POSITION
(6) LIMITED-TERM APPOINTMENT
(7) JOB SHARE
(8) EMPLOYEE IN BLANKET
(9) RETIRED ANNUITANT
(10) PERMANENT INTERMITTENT
(11) STUDENT EMPLOYEE

APPENDIX D

PEER REVIEW TEAM BIOGRAPHIES

WILLIAM B. BINGHAM, PE, Vice President and Senior Project Principal at Gannett Fleming, Inc. with responsibility for guidance and oversight of the firm's services for governmental water resource agencies nationwide, as well as identifying and developing new technologies. Mr. Bingham has more than 47 years of experience, specializing in the areas of dam and flood control engineering with involvement as Project Principal, Project Manager, Project Engineer, or Quality Team Leader on more than 15 flood control projects, 50 new dam projects, 100 dam rehabilitation projects, 200 annual dam safety inspections, 30 Phase 1 dam safety inspections, and numerous dam feasibility investigations and reports. He is experienced in studies, designs, cost estimates, specifications, and public meetings on diverse assignments such as new dam and dam rehabilitation designs, basinwide flood control studies, water supply alternative studies; flood control investigation and reports; existing flood control project rehabilitation design, field surveys, water needs assessments, and flood damage assessments. He has authored more than 20 technical papers and articles.

Mr. Bingham received the "President's Award" in 1994 and in 2012, and the "Award of Merit" in 1991 from the Association of State Dam Safety Officials (ASDSO). Mr. Bingham was also selected by Engineering News-Record as one of the top 25 newsmakers in the construction industry for 1996 and was named Engineer of the Year in Pennsylvania in 2000 by the Pennsylvania Society of Professional Engineers. Mr. Bingham was appointed to the National Dam Safety Review Board (1998-2001) by the Federal Emergency Management Agency. In addition, he served as Chair of the ASDSO's Peer Review Program from its inception in 1989 through 2011 and remains on the Peer Review Committee. He has performed reviews of 15 state dam safety programs and dam safety programs of the U.S. Army Corps of Engineers, BC Hydro, Ontario Power Generation, Seattle City Light, and Seattle Public Utilities.

Mr. Bingham led an external panel of dam safety experts in the 12th, 13th, and 14th Independent Review of the Bureau of Reclamation (Reclamation) Dam Safety Program from 2011-2013. He served on the Director of Dam Safety's Strategy and Advisory Council to provide BC Hydro's Board of Directors and executive management with independent governance advice on the management of risks posed by BC Hydro's dams. Mr. Bingham has been approved as an Independent Consultant by the Federal Energy Regulating Commission. Mr. Bingham was elected to the Board of Directors (1998-2004) of the United States Society on Dams (the U.S. member of the International Commission on Large Dams) and was elected President (2001-2003). In 2009 Mr. Bingham received the USSD Lifetime Achievement Award recognizing his dedication, achievements and contributions to the dam engineering profession.

DANIEL J. MAHONEY is the former director of the FERC Dam Safety Program, retired 10/2011. Mr. Mahoney has a BSCE from Virginia Tech and an MS in Environmental Engineering from Johns Hopkins University. Mr. Mahoney has 37 years of dam safety experience, including 25 years in leadership and supervision of the nationwide FERC dam safety program.

Over his career at the FERC, Mr. Mahoney supervised all inspections, engineering analyses and evaluations, the EAP program, dam site security programs, and remedial dam safety improvements and repairs.

Mr. Mahoney has served on peer review teams for States, the US Army Corps of Engineers in 2001 and 2013, and the US Bureau of Reclamation in 2011, 2012 and 2013. He serves on ASDSO Peer Review Committee and is a technical advisor to the ASDSO Dam Failure Investigation Committee.

Mr. Mahoney received the ASDSO National Award of Merit in 2009 and the Joseph J. Ellam Presidential Award in 2011.

KENNETH E. SMITH, P.E., is a graduate of Valparaiso University with a Bachelor of Science in Civil Engineering, and Butler University with a Masters Degree in Business Administration. He is a Registered Professional Engineer in the State of Indiana. He has thirty-seven years of experience in water resource engineering. Mr. Smith, an Assistant Director of the Division of Water, Indiana Department of Natural Resources, is responsible for the Division's Compliance and Projects Branch, which includes the State's Dam and Levee Safety Section, the Project Development Section, the Surveying and Mapping Section, and the Compliance and Enforcement Section. Mr. Smith is a past president of ASDSO, and currently serves on several committees, including the Peer Review Program Committee. He was a member of the team that developed the new manual and has participated in several program reviews using the new tools. He further has served on the National Dam Safety Board of Review. Currently, Mr. Smith is also a member of Indiana Silver Jackets, an inter-agency natural hazard mitigation team, working together to protect life, property, and resources, with the vision "Many Agencies, One Solution".

MARK OGDEN, P.E. is a project manager for ASDSO focusing on state program advocacy, state program performance measurement and reporting, dam failure and incident data collection, and levee safety issues. He has twenty-five years of experience in state dam and levee safety regulation and previously served on the Board of Directors of ASDSO and as association president. Mark was the administrator of the Water Management Section for the Ohio Department of Natural Resources, Division of Water with responsibility for the Dam Safety, Floodplain Management, Coastal Erosion Permit, and Canal Operations Programs. He is a registered Professional Engineer in Ohio and a Certified Public Manager. He has a Bachelor of Science degree in Civil Engineering from The Ohio State University.

Association of State Dam Safety Officials, Inc.
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Lexington, KY 40508
859.550.2788