

**Monterey County Water Resources Agency's
Owner's Dam Safety Program
For Nacimiento Dam
(FERC Project No. 6378)**



Prepared by:

Monterey County Water Resources Agency

893 Blanco Circle
Salinas, CA 93901

February 26, 2014

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections – San Francisco Regional Office
100 First Street, Suite 2300, San Francisco, CA 94105-3084
(415) 369-3300 Office (415) 369-3322 Facsimile

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WATER RESOURCES
AGENCY

April 11, 2014

In reply refer to:
Project No. 6378-CA

Mr. Brent Buche
Chief of Operations and Maintenance
Monterey County Water Resources Agency
P.O. Box 930
Salinas, CA 93902-0930

Re: Owner's Dam Safety Program – Revision

Dear Mr. Buche:

This correspondence is in response to a letter dated February 26, 2014 from Mr. Chris Moss that transmitted MCWRA's revised Owner's Dam Safety Program (ODSP) for the Nacimiento Project, FERC Project No. 6378. The revised ODSP satisfactorily addressed the comments provided in our letter dated June 14, 2013. Thank you in advance for the implementation of and adherence to your ODSP.

If you have any questions, we are available for a face-to-face meeting, and I can be contacted at (415) 369-3318. We appreciate your cooperation in this aspect of the Commission's dam safety program.

Sincerely,



(For) Frank L. Blackett, P.E.
Regional Engineer

cc:
Mr. Chris Moss
Senior Water Resources Engineer
Monterey County Water Resources Agency
P.O. Box 930
Salinas, CA 93902-0930



*Before the Board of Directors of the Monterey County Water Resources Agency
County of Monterey, State of California*

BOARD ORDER No. 14-27

ADOPT THE OWNER'S DAM SAFETY PROGRAM FOR)
NACIMIENTO DAM TO COMPLY WITH FEDERAL)
ENERGY REGULATORY COMMISSION REQUIREMENTS)

Upon motion of Director Huerta, seconded by Director Scattini, and carried by those members present, the Board of Directors hereby:

1. Adopts the Owner's Dam Safety Program for Nacimiento Dam to Comply with Federal Energy Regulatory Commission Requirements

PASSED AND ADOPTED on this 28th day of April 2014, by the following vote, to-wit:

AYES: Directors Richard Ortiz, Claude Hoover, Ken Ekelund, David Hart, John Huerta, Mike Scattini and Deidre Sullivan

NOES: None

ABSENT: Directors Silvio Bernardi and Mark Gonzalez


BY: Richard Ortiz, Chair
Board of Directors


ATTEST: David E. Chardavoyne
General Manager

**Monterey County Water Resources Agency’s Owner’s Dam Safety Program
For Nacimiento Dam Project Number 6378**

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1 INTRODUCTION

The Federal Energy Regulatory Commission (FERC) implements its responsibilities for dam safety through its regulations in the Code of Federal Regulations, Title 18, Part 12 (18CFR Part 12). Specifically, under Part 12, Section 12.4(b)(2)(ii) the FERC may require a facility owner under FERC jurisdiction (FERC license) to submit reports or information on any condition affecting the safety of a project.

This written Dam Safety Program, a recent FERC requirement, is considered a critical factor in maintaining safe dams and preventing dam failures. The objective of this program is to document best practices to develop and implement an effective performance monitoring program for dam surveillance, inspection, instrumentation needs and maintenance, data collection, data management, data analysis, and data interpretation. This includes identifying the responsibilities of management and the key components for managing the overall performance monitoring program along with proper coordination and communications between and among the responsible parties.

A key component of a comprehensive dam safety program is the owner's performance monitoring program that includes policies and procedures to assure the data obtained are accurate and evaluated in a timely manner, anomalies are thoroughly investigated, and appropriate actions are taken in the event the data indicate the dam is behaving in an adverse manner. Effective performance monitoring provides sound data to help an owner identify, quantify and control these risks.

1.1 Purpose:

Establish and define the Dam Safety Program for Nacimiento Dam to ensure dam safety and compliance with FERC requirements for the dam which is owned and operated by the Monterey County Water Resources Agency (MCWRA).

1.1.1 In particular, the Dam Safety Program is intended to ensure that MCWRA's employees, agents, and consultants have a complete understanding of, and a constant awareness of, the need to fully comply with all necessary dam safety measures and requirements. The Dam Safety Program will help safeguard lives and reduce damage at Nacimiento Dam and Reservoir, and along the Nacimiento and the Salinas Rivers.

1.1.2 The Dam Safety Program is intended to accomplish the objectives of this section by prescribing the following as to MCWRA's employees, agents and consultants:

- the dam safety related training required of such individuals on a regular or as needed basis;
- the protocols for communications by and among such individuals, and with FERC, on dam safety related matters;

- how dam safety related issues should be identified, and how dam safety related concerns should be resolved, within MCWRA;
- audits and assessments as to performance and quality of dam safety related operation; and
- the record keeping required to implement the above.

1.1.3 Clearly state the policies and expectations of the management of MCWRA regarding dam safety and regulatory compliance for FERC approved facilities.

1.2 Scope:

1.2.1 The requirements of this program apply to MCWRA's hydroelectric project approved by the FERC: The Nacimiento Dam Project No. 6378-CA.

1.2.2 This program defines the Dam Safety Program for the Nacimiento Dam (FERC approved facility) and supercedes other MCWRA programs and procedures related to dam safety and regulatory compliance for the facility. Appropriate procedures and documents related to dam safety and regulatory compliance shall be routed through the Chief Dam Safety Engineer to ensure compliance with this program.

2 TERMS and DEFINITIONS

2.1 Assessment - A documented routine review conducted to evaluate the performance or effectiveness of an activity.

2.2 Audit - An objective examination and evaluation of dam safety and regulatory compliance or effectiveness in accordance with a defined set of standards and a formal Audit plan.

2.3 Chief Dam Safety Engineer - The engineer with responsibility and authority to ensure the Dam Safety Program is fully implemented and to ensure high standards are maintained for dam safety and regulatory compliance. The Chief Dam Safety Engineer is the single point of contact for non-emergency regulatory communications from MCWRA to FERC and reports directly to the Assistant General Manager- Operations & Maintenance Division. The Deputy Chief Dam Safety Engineer shall act for the Chief Dam Safety Engineer in his or her absence.

2.4 Dam - An engineered barrier constructed to contain a body of water, or control the flow or level, relative to the facilities described in Section 1.2.

2.5 Dam Safety Inspection - A scheduled dam safety inspection performed in accordance with a documented inspection plan or checklist. These inspections will be performed by operations personnel, MCWRA engineering staff, or other qualified consultants.

- 2.6 Deputy Chief Dam Safety Engineer** – the engineer that will act for the Chief Dam Safety Engineer in his or her absence, and assist the Chief Dam Safety Engineer as needed in all matters of MCWRA’s dam safety program
- 2.7 Emergency Action Plan (EAP)** – A guide for dealing with emergency situations at a Project approved by FERC and updated on a regular basis. As emergency situations develop, officials and emergency personnel are to use their best judgment for dealing with developing situations.
- 2.8 FERC** - Federal Energy Regulatory Commission
- 2.9 FERC Operational Inspection** - An annual formal inspection conducted by a FERC inspector. As required, the FERC inspector will be supported by the Operations staff and the MCWRA engineering staff.
- 2.10 FERC Part 12D Safety Inspection** - A formal inspection at five year intervals to be conducted by the approved FERC Independent Consultant in conjunction with the Chief Dam Safety Engineer.
- 2.11 FERC Independent Consultant** - A third party consultant contracted to perform the FERC Part 12D Safety Inspection.
- 2.12 Independent Consultant** - A third-party consultant contracted to perform specific duties other than the FERC Part 12D Safety Inspection.
- 2.13 Modification(s)** - Activities that change the physical features or design of the project from the state reflected in the plans or drawings or other documents filed with the FERC.

3 DAM SAFETY POLICY, OBJECTIVES AND EXPECTATIONS

3.1 MCWRA Management Policies and Expectations

3.1.1 It is MCWRA’s policy to maintain safe and compliant operation as its first priority. MCWRA employees and consultants shall implement this policy in the conduct of their work assignments.

- MCWRA's employees, agents and consultants shall operate its FERC approved facility consistent with the commitment of MCWRA to good stewardship and responsible behavior.
- This shall include an awareness by MCWRA's employees, that they are entrusted with the responsibility and privilege to operate MCWRA's dams and generating plant in a safe, reliable and efficient manner. Further, this shall include an awareness by MCWRA's employees that MCWRA's daily operating practices must always place public safety, personnel safety and regulatory compliance above all other performance goals of MCWRA.

3.1.2 Production or other business objectives shall not be allowed to compromise dam safety or regulatory compliance. MCWRA shall also incorporate this policy into

the daily operations of its FERC approved facility through regular and as needed discussions and training sessions.

3.1.3 This program implements commitments to the FERC to maintain compliance with FERC dam safety and regulatory requirements. Proposed changes to the requirements of this program shall be communicated in writing to the FERC Regional Engineer for review and written acceptance prior to implementation.

3.1.4 The objective of the Dam Safety Program for the FERC approved facility is to assure continuing safe and compliant operation through the following program initiatives:

- Clearly communicate policies and expectations regarding dam safety and regulatory compliance.
- Implement program quality elements.
- Implement organizational changes to assure compliance with FERC requirements for dam safety.
- Define protocols for communications and for reporting dam safety issues.
- Define the authority of the Chief Dam Safety Engineer.
- Provide a comprehensive Training Plan for dam safety.
- Require internal and external Audits and Assessments to ensure compliance and to achieve an ongoing focus on dam safety and regulatory compliance.
- Create and implement a Dam Safety Inspection Program

3.1.3 MCWRA expects that its employees, agents and consultants performing services for a FERC approved facility will fully comply with all of FERC's dam safety related requirements.

- These include the requirement to use sound and prudent engineering practices in any action relating to the design, construction, operation, maintenance, use, repair, or modification of such projects (18 C.F.R. 12.5).
- These also include the requirement to notify FERC about the following, in the manner specified in the cited regulations:
 - as to any condition affecting the safety of a project or project works (18 C.F.R. 12.1 0); and
 - as to any modification to the project or project works (18 C.F.R. 12.1 1).
- They further include the requirement to comply with all additional items specified in the license applicable to each FERC approved project.
- MCWRA will communicate these requirements to the applicable employees, agents and consultants in training sessions by providing a copy of this Dam Safety Program to them and discussing it with them in training sessions and otherwise, as needed. The Chief Dam Safety Engineer or his designee is authorized to determine the proper level of training required of such

employees, agents or consultants based on his judgment as to the relevant factors, including but not limited to the following: prior experience, background, expected services to be performed for MCWRA, and the impact of such services on dam safety and compliance with FERC regulations.

3.2 Program Quality Elements

- 3.2.1** The Chief Dam Safety Engineer, MCWRA engineering staff and and plant operations staff, shall develop and implement quality management elements, including but not limited to:
- The Chief Dam Safety Engineer (or designee) independent review and approval of proposed Modifications.
 - Written procedures to perform documented dam inspections.
 - Qualification standards for dam inspection personnel.
 - A formal Surveillance and Monitoring Plan which meets FERC requirements.
 - An instrument calibration program.
 - Risk assessment to prioritize issues identified during inspections.
 - Training in accordance with the Training Plan for Dam Safety.
 - Retention of records.

3.3 Dam Safety Inspection Program

- 3.3.1** The Chief Dam Safety Engineer shall direct the creation and implementation of a Dam Safety Inspection Program for the FERC approved facility.
- 3.3.2** The inspection program shall include detailed descriptions of inspections to be performed by the following personnel:
- Operations and Maintenance personnel
 - Hydroelectric Operations personnel
 - Engineering personnel
 - Outside Consultants performing FERC Part 12 inspections and other inspections as necessary.
- 3.3.3** The inspection program documentation shall outline the frequency and type of inspections to be performed by the personnel included above.
- 3.3.4** The inspection program documentation shall also outline the instrumentation monitoring and assessments that will be part of the inspections.

4 RESPONSIBILITIES FOR DAM SAFETY

Assigned Responsibilities

4.1.1 Monterey County Water Resources Agency Board of Supervisors - The Board of Supervisors has overall responsibility for passing ordinances, conducting litigation matters, and adopting budgets for the Water Resources Agency.

4.1.2 Monterey County Water Resources Agency Board of Directors - The Board of Directors establishes long-term and short-term operations policy for the Agency, and recommends action to the Board of Supervisors for all aspects of the Agency.

4.1.3 Reservoir Operations Committee - Established in December 1993 by direction of the Monterey Water Resources Agency Board of Directors, the Committee makes recommendations to the Board of Directors relating to the overall Reservoir operations and to ensure that the interests of all those concerned with the flood control, conservation and recreational interests are maintained so as to optimize the resources available, to the greatest extent possible, and carry out the policies of the Boards.

4.1.4 Agency Staff - The General Manager, or his designee, is responsible for the safe and professional operation of Nacimiento Dam. Staff shall operate the Dam according to this Policy, using the professional judgment of qualified engineers. The Dam shall be operated with safety as the primary consideration. Operational considerations for flood control, water conservation and recreation will be given the careful, professional scrutiny they deserve.

4.1.5 Chief of Operations and Maintenance - The Chief of O&M is responsible for determining if conditions exist that could be qualified as an emergency and for dispatching a Professional Engineer or Professional Geologist registered in the State of California to Nacimiento Dam. The Professional Engineer or Geologist shall evaluate the situation, formulate and initiate any possible remedial action(s) to reduce the severity of the emergency and report changing conditions to the Chief of O&M. The Chief of O&M is the designated coordinator for all matters relating to the EAP. Responsibilities include preparing revisions to the plan, establishing training seminars and coordinating annual tests.

4.1.6 Chief Dam Safety Engineer - The engineer with responsibility and authority to ensure the Dam Safety Program is fully implemented and to ensure high standards are maintained for dam safety and related regulatory compliance. The Chief Dam Safety Engineer is responsible for the review, or obtaining qualified review, of all structural and operational modifications to the dam. The Chief

Dam Safety Engineer is the single point of contact for non-emergency regulatory communications from MCWRA to FERC and reports directly to the Assistant General Manager- Operations & Maintenance Division. The Chief Dam Safety Engineer shall designate a qualified alternate to act in his or her absence. The resume of the Chief Dam Safety Engineer is included in Appendix 2.

4.1.7 Hydro-Electric Plant Operator - The Hydroelectric Plant Operator is responsible for the overall plant status as well as the operating condition of all valves and gates of the hydroelectric plant. The Hydroelectric Plant Operator shall assist the Reservoir Operator in his responsibilities as directed by the Reservoir Operator. Upon direction from MCWRA supervisory or management personnel the Hydroelectric Plant Operator will operate valves and gates of the hydroelectric plant. In the event of an emergency, and if communications with supervisory or management personnel is not possible, the Hydroelectric Plant Operator is expected to use their best judgment regarding opening or closing of hydroelectric plant gates, valves or other equipment for the immediate safety of life or property, and communicate the situation to superiors as soon as possible.

4.1.8 Reservoir Operator - In the event of a sudden or imminent failure, the Reservoir Operator should report the emergency to the dispatcher at the Monterey County Communications Center (CCC) in Salinas, which will contact the Office of Emergency Services. The Reservoir Operator should then report the emergency to their immediate supervisor. If their supervisor or management cannot be reached, the response of the Reservoir Operator must be based on their best judgment and analysis of the situation.

4.1.9 Designated Agency Representative - If failure has occurred or is imminent, the Senior Hydrologist or the alternate, the Operation and Maintenance Associate Water Resources Engineer, shall be responsible for reporting the emergency to selected agencies with dam safety interest or responsibility. At the same time, specific MCWRA supervisory personnel, management, and others will be alerted according to the appropriate notification flowchart.

4.1.10 Consultants – Consultants performing work related to the dam shall be responsible for reporting issues related to dam safety to their assigned immediate supervision and to the Chief Dam Safety Engineer. Consultants will obtain review and approval from the Chief Dam Safety Engineer, or designee, of proposed design changes affecting dam safety, before implementation.

4.2 Authority of the Chief Dam Safety Engineer

The Chief Dam Safety Engineer shall be empowered with the following authority:

- 4.2.1** Order necessary corrective action if dam safety is in question. This authority includes the issuance of an oral or written stop work order for operational activities or an order for a hydroelectric plant shutdown, if necessary to place an affected dam in a safe condition.
- To remove any doubt, the Chief Dam Safety Engineer shall have the authority to direct any MCWRA employee, agent or consultant to take any action which in his judgment is necessary to ensure dam safety, including action to shut down the operation of Nacimiento Dam and/or the hydroelectric plant.
- 4.2.2** Conduct unannounced facility inspections.
- 4.2.3** Review and approve proposed Modifications or changes to a dam structure, operating system, control system, or critical maintenance or operations procedures before implementation. This review and approval may be delegated to a qualified person or persons; however, the Chief Dam Safety Engineer maintains overall accountability for the review process.
- 4.2.4** Approve dam safety instrumentation design for each applicable installation.
- 4.2.5** Request the use of external resources from consultants to assist with internal Assessments performed by the Chief Dam Safety Engineer or MCWRA Staff, if needed. Issue contracts for external Audits performed by third party consultants as required by FERC's Part 12D five year inspection cycle. Refer to section 10.2 for additional details on the internal Assessment and external Audits.
- 4.2.6** Create and enforce a schedule for internal Assessments and external Audits to evaluate compliance with the Dam Safety Program and to assure that required Audits and Assessments are completed in a timely and effective manner.

5 DAM SAFETY TRAINING PROGRAM

5.1 Training for Dam Safety

- 5.1.1** Training shall be implemented for personnel involved in the operation, maintenance, or modification of the dam or hydroelectric facilities on a level appropriate to the assigned responsibilities. Training shall include MCWRA management, operations, maintenance, engineering, consultant, and contractor

personnel, as appropriate. Training described in 5.1.2 will be performed annually for MCWRA personnel. Training for consultants and contractors will occur as appropriate.

5.1.2 Training shall include the following features:

- General and site-specific training focused on dam safety awareness and regulatory compliance.
- Presentation of the requirements of this Dam Safety Program
- Identification of potential dam safety deficiencies.
- Inspection and monitoring techniques.
- Qualification standards for personnel conducting inspections, consistent with the nature and complexity of assigned duties.
- Review of Emergency Action Plans.

5.1.3 Effectiveness of the training shall be one of the subjects of internal Assessments and external Audits. Findings and any corrective actions from these Assessments and Audits shall be included in the annual written report to the FERC described in Section 6.2.2.

5.1.4 A training outline is provided in Appendix 3.

5.1.5 In establishing and maintaining this training program, the Chief Dam Safety Engineer shall consider, and make use of, all appropriate materials, such as FERC's Part 12 regulations and its Engineering Guidelines for the Evaluation of Hydropower Projects, as well as opportunities to attend seminars, conferences and training programs sponsored by FERC and other dam safety organizations such as the Association of State Dam Safety Officials (ASDSO), the United States Society on Dams (USSD), and the National Hydropower Association/Hydro Users Group (NHA/HUG).

6 COMMUNICATIONS, COORDINATION, REPORTING & REPORTS

6.1 Internal Communications and Reports:

The MCWRA's dam safety program organizational chart is included as Appendix 1.

6.1.1 Personnel in dam or hydroelectric operations, and other support personnel, shall notify the Chief Dam Safety Engineer before a proposed dam or plant modification is made.

- 6.1.2** The following communications shall be implemented by MCWRA personnel:
- In an emergency, MCWRA personnel shall follow EAP communication lines
 - MCWRA personnel and consultants shall report non-emergency issues related to dam safety or regulatory compliance to their immediate supervisor.
 - Operations supervisory personnel shall promptly notify the Chief Dam Safety Engineer or Deputy Chief Dam Safety Engineer if a condition is identified which potentially affects dam safety.
 - Supervisors and managers shall take immediate action if necessary to address issues related to dam safety and regulatory compliance. Additionally, they shall promptly notify the Chief Dam Safety Engineer or the Deputy Chief Dam Safety Engineer.
 - Any employee or consultant may document or orally convey concerns to the Chief Dam Safety Engineer or the Deputy Chief Dam Safety Engineer and shall be provided full protection from any reprisal for communicating such concerns.
 - The types of non-emergency incidents to be reported to the Chief Dam Safety Engineer include but are not limited to: observation of change in condition of the dam, such as seepage, ground deformations, structural cracks, or equipment malfunctions.
- 6.1.3** The Chief Dam Safety Engineer shall regularly report dam safety and regulatory compliance issues to the Assistant General Manager- Operations & Maintenance Division, who in turn reports to the General Manager.
- 6.1.4** The Chief Dam Safety Engineer is required to promptly notify the Assistant General Manager- Operations & Maintenance Division, regarding issues that could affect public safety or safe dam operations. In the event that the Assistant General Manager-, Operations & Maintenance Division, is unavailable, the Chief Dam Safety Engineer shall notify one or more of the following personnel as necessary: the Assistant General Manager- Water Resources Planning Division; or the General Manager.
- 6.1.5** The Chief Dam Safety Engineer shall report dam safety and regulatory compliance issues and conduct meetings with MCWRA senior management at least annually or more often if deemed necessary by the Chief Dam Safety Engineer. The minimum attendees shall include: Assistant General Manager- Operations & Maintenance Division; the Operations & Maintenance Superintendent; and the General Manager.
- 6.1.6** The Chief Dam Safety Engineer and the Assistant General Manager- Operations & Maintenance Division, will make an annual report to the Reservoir Operations Committee (Res Op committee). The report shall cover at a minimum the

following subjects: dam safety issues, internal Assessment and external Audit findings and ongoing improvement plans. The presentation to the Res Op committee will be maintained as a permanent record by the Chief Dam Safety Engineer. The Chairman of the Res Op committee or his designee, shall report to the MCWRA Board of Directors at its next regularly scheduled meeting concerning the annual report.

- 6.1.7** The Chief Dam Safety Engineer will remain responsible for requiring and directing internal Assessments and external Audits under this Dam Safety Program, and nothing in this section is intended to affect that responsibility.

6.2 External Communications and Reports

- 6.2.1** The Chief Dam Safety Engineer shall be the single point of contact between MCWRA and FERC for non-emergency regulatory reporting of dam safety issues. Except for those immediate communications required by emergency plans, communications related to dam safety and regulatory compliance between MCWRA and the FERC shall be routed through the Chief Dam Safety Engineer.
- 6.2.2** The Chief Dam Safety Engineer shall provide an annual written report to the FERC Regional Engineer, or present the report in person at the discretion of the FERC. The report shall include: operational status of the FERC regulated facilities, compliance status of facilities with applicable FERC regulations, findings and recommendations from internal Assessments and external Audits with plan and schedule on how and when recommendations are to be implemented. Section 10 describes internal Assessments and external Audits.

7 RECORD KEEPING AND DATABASES

	Record Type	Responsible Person	Retention Period	Location
7.1	Original Design and Construction related documents	Chief Dam Safety Engineer	Life of the Facility plus 10 years	Main Office Tube Files or digital record retention
7.2	Capital Improvement Project related documents	Chief Dam Safety Engineer	Life of the Facility plus 10 years	Main Office Tube Files or digital record retention
7.3	Records generated by inspection procedures, training plans, and other support activities.	Chief Dam Safety Engineer	Specified by originating procedures and programs	In custody of Chief Dam Safety Engineer or digital record retention
7.4	All correspondence between MCWRA and FERC related to hydro projects.	Chief Dam Safety Engineer	Life of the Facility plus 10 years	In custody of Chief Dam Safety Engineer or digital record retention
7.5	Incident Reports	Chief Dam Safety Engineer	Life of the Facility plus 10 years	In custody of Chief Dam Safety Engineer or digital record retention
7.6	Operations & Maintenance Documentation	Chief Dam Safety Engineer	Life of the Facility plus 10 years	In custody of Chief Dam Safety Engineer or digital record retention
7.7	Emergency Action Plan related documents	Chief Dam Safety Engineer	Specified by originating procedures and programs	In custody of Chief Dam Safety Engineer or digital record retention

8 SUCCESSION PLANNING

MCWRA engineering personnel will be involved with annual internal Assessment and MCWRA, FERC and DSOD dam inspections to gain knowledge on dam safety issues. This group includes younger engineers that would gain the required knowledge to assure a successful transition when senior positions become available.

The MCWRA Board of Directors has designated a Deputy Chief Dam Safety Engineer position as an alternate to the Chief Dam Safety Engineer to assure that the objectives

of the Owner's Dam Safety Program are fulfilled in cases when the Chief Dam Safety Engineer is not available.

The MCWRA will use trained MCWRA staff or qualified consultants as backup personnel to operate the hydroelectric plant when the full-time hydroplant operator is off-duty or unavailable.

9 CONTINUOUS IMPROVEMENT

The dam safety program will be reviewed every three years by the Chief Dam Safety Engineer, assisted by other engineering personnel as needed to assure that it reflects the current staffing and organizational structure of the MCWRA and incorporates lessons learned from the ongoing implementation of the program, information gathered from dam safety inspections and operating history, changes in the state-of practice in dam safety, knowledge gained from training and the study of case histories of incidents and failures and findings from internal Assessments and external Audits of the dam safety program.

10 INTERNAL ASSESSMENT AND EXTERNAL AUDIT OF THE DAM SAFETY PROGRAM

10.1 Internal Assessments

10.1.1 Internal Assessments will be conducted annually by the Chief Dam Safety Engineer and assisted as needed by MCWRA engineering staff. Internal Assessments will focus on operational compliance with and improvement to the dam safety program.

10.1.2 The internal Assessment will include items such as, but not be limited to, training and effectiveness of dam safety personnel, surveillance and inspection practices, emergency preparedness, ongoing maintenance, remediation of deficiencies or vulnerabilities, personnel communications, allocation of resources to the Dam Safety Program, and clarity of designation of responsibilities. Resources such as FERC's Owner's Self-Assessment Evaluation Parameters worksheets, or other similar documents, may be used to guide the Assessment.

10.2 External Audits

10.2.1 External Audits will be conducted by an independent third-party consultant with expertise in dam and hydroelectric project safety. The Chief Dam Safety

Engineer, or his designee, shall initiate a contract with the independent consultant to perform an external Audit.

10.2.2 External Audits will be scheduled in conjunction with FERC's Part 12D five year inspection cycle.

10.2.3 The Chief Dam Safety Engineer shall issue a report to the FERC Regional Engineer within 45 days of completion of an external Audit. The Chief Dam Safety Engineer shall instruct the third-party consultant to provide the issued written report for each external Audit to the FERC Regional Engineer at the same time the report is that they are provided to the Chief Dam Safety Engineer.

10.2.4 With regards to the dam safety program, these external Audits will include the following:

- Review operating and maintenance records for the facility to determine if proper notification procedures were followed.
- Review Surveillance and Monitoring Plan reports for the facility to verify compliance with the FERC approved Surveillance and Monitoring Plan.
- Review training records to verify that dam safety training is being provided in accordance with the plan.
- Conduct interviews, examinations, or other methods to evaluate the effectiveness of training.
- Interview the Chief Dam Safety Engineer and other MCWRA engineering staff as needed, Dam Safety Staff; maintenance superintendent, hydro plant operator, and other operations staff as needed to determine their understanding of the Dam Safety Program and the implementation of their respective responsibilities.

10.3 Reporting of Internal Assessments and External Audits

10.3.1 The Chief Dam Safety Engineer will prepare a summary of findings of internal Assessments or external Audits and report to MCWRA senior management annually. The minimum attendees shall include: Assistant General Manager-Operations & Maintenance Division, the Operations & Maintenance Superintendent, and the General Manager. The Chief Dam Safety Engineer will annually submit to FERC the findings and recommendations of internal Assessments and external Audits with plan and schedule on how and when recommendations are to implemented per Section 6.2.3.

11 REFERENCES

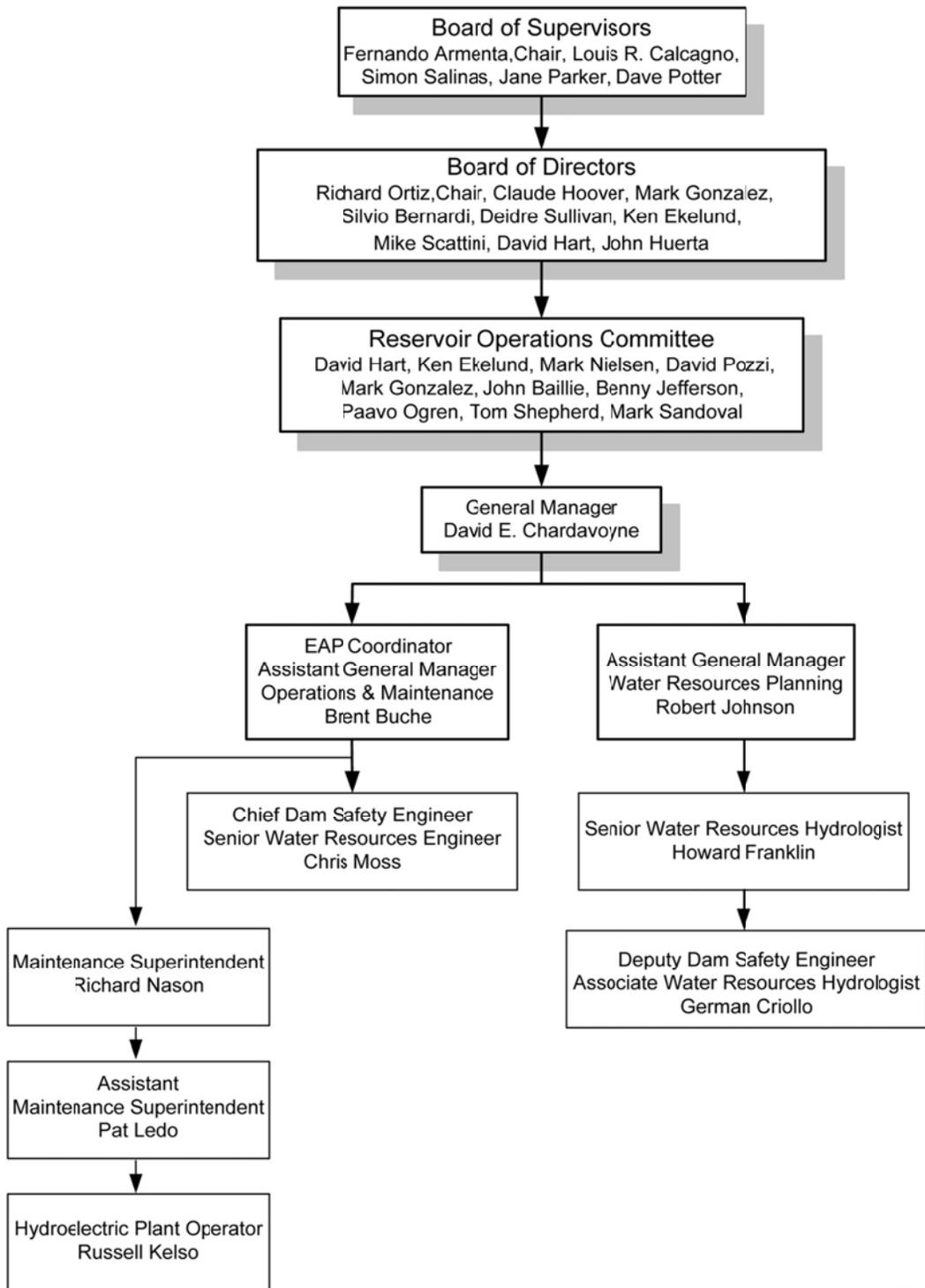
Monterey County Part 12D Inspection Report and STID for the Nacimiento Dam, 2007.

Monterey County Emergency Action Plan, December 2013.

4 APPENDICES

1. MCWRA's Owner's Dam Safety Program Organizational Chart
2. Resume of the Chief Dam Safety Engineer
3. MCWRA Personnel Training Outline
4. Safety Inspections

**Monterey County Water Resources Agency
Owner's Dam Safety Program Organizational Chart**



February 14, 2014

Appendix 2

Resume of the Chief Dam Safety Engineer

Christopher M. Moss, PE

Senior Water Resources Engineer
Monterey County Water Resources Agency

Education	BSc – Agricultural Engineering Calif. Polytechnic State Univ., San Luis Obispo, 1988
Registration	Professional Civil Engineer 54412, California, 1995
Professional History	Monterey County Water Resources Agency Salinas, CA 1993 – Present USDA Soil Conservation Service Salinas, CA 1989 – 1993

Representative Professional Experience

- Nacimiento Dam and San Antonio Dam inspection 2003 to Present – performed numerous inspections of 200+ feet high earth embankment dams for dam owner; prepared inspection reports; accompanied consulting engineer, State Division of Safety of Dams (DSOD) and FERC inspections. Owner’s non-emergency point-of-contact with DSOD and FERC.
- Co-edited 2013 Nacimiento Dam Emergency Action Plan update. Prepared and presented Nacimiento Dam 2013 Emergency Action Plan orientation to dam owner engineering and operations personnel. Prepared 2011 Nacimiento Dam Functional Exercise Report for submittal to FERC.
- Prepared dam surveillance and inspection scope of work for San Antonio Dam, review consulting engineer’s work and recommend approval of final reports; issue request for proposals for dam surveillance and inspection, interview candidates and select consultant.
- Co-managed contract for repair of Nacimiento hydroelectric plant, including refurbishing of generator, replacement of main shaft bearings, wicket gate repair, wear ring replacement, hydraulic system repair, plant start-up and commissioning.
- Salinas River Diversion Facility (SRDF) – Project Manager of the SRDF, inflatable dam, surface water intake, 36 cfs pump station and pipeline project to divert surface water from the Salinas River for irrigation of Salinas Valley farmland. Assisted development environmental compliance documents, including complex river flow prescription for threatened steelhead trout; managed development of engineering design criteria, including coordination with State DSOD, coordinated agricultural growers, health agencies, water treatment personnel and microbiologists, regarding river water treatment and food safety issues resulting in chlorination of river water to be delivered for irrigation use; developed and supervised river water quality sampling program; developed and manage project budgets; procured and administered engineering consultant and construction contracts; supervised project value engineering effort; managed easement procurement and land acquisition; managed project regulatory compliance and communications with environmental agencies NMFS, CDFG,

USFWS, USACE, CCRWQCB; assisted in project operating plan and budget; reported to Chief Engineer-O&M, General Manager, and Board of Directors. Managed emergency repair of erosion, including State DSOD submittals and compliance, design consultant and construction contractor.

- Castroville Seawater Intrusion Project (CSIP) – Field Engineer during construction of the irrigation distribution system consisting of 46 miles of buried pipeline, 112 farm turnouts, 21 groundwater wells, 3 booster pump stations, cathodic protection system, and SCADA system. Represented project owner during the two-year construction period, coordinating activities with construction manager, design engineers, landowners, agricultural growers, and electric utility company. Assisted in financing acquisition for the project, working with financial advisor, bond counsel and County finance officers to execute sale of municipal bonds, and federal and state loan acquisition.
- Marina Deep Monitoring Well Project – Project Manager of 2,000 feet deep-aquifer multiple-completion monitoring well project in Marina, CA for the Marina Coast Water District. Developed and managed project scope and budget; acquired permits; solicited and hired consulting hydrogeologist and driller; coordinated construction activities with neighboring commercial operations; developed monitoring plan and performed initial monitoring.
- De Dampierre River Bank Restoration Project, Carmel River – Project Manager for river bank flood damage bank stabilization and riprap placement work under 1995 Federal and State emergency restoration programs; coordinated funding from Federal, State and local sources; administered construction contract; administered compliance with Federal NRCS and State OES.
- All Saints River Bank Restoration Project, Carmel River – Project Manager for river bank flood damage bank stabilization and riprap placement work under 1995 Federal and State emergency restoration programs; coordinated funding from Federal, State and local sources; administered construction contract; administered compliance with Federal NRCS and State OES.
- Toro Creek Sediment Removal Project – Project Manager for stream sediment removal project under 1995 Federal and State emergency restoration programs; coordinated funding from Federal NRCS, State OES and local sources; liaison with adjacent condominium homeowners association and fire station; performed construction inspection; administered construction contract; administered compliance with to Federal and State agencies.
- Water Resources Data Collection – Technician; collected and processed for presentation and archival groundwater level data; measured stream flow in Salinas River and tributary; computed daily stream flow records.
- Soil and Water Conservation Project Design – Field Office Engineer (USDA Soil Conservation Service); designed earth embankment farm reservoirs, irrigation systems, surface water drainage systems, storm water detention basins, grade control structures for soil and water conservation purposes; developed design criteria with project owners; evaluated effectiveness of soil and water conservation projects.

Appendix 3

MCWRA Personnel Training Outline

1. Dam Safety Awareness: Emphasize the importance of dam safety; provide information on the major features of Nacimiento dam and how they function; describe the causes and consequences of dam failure. Provide an overview of the MCWRA Dam Safety Program. Discuss the reporting structure and the Chief Dam Safety Engineer function.
2. Identification of Visual Dam Deficiencies: Provide guidelines for visual detection of some of the more common dam deficiencies. Review the facility inspection plan and discuss individual responsibilities.
3. Inspection of Embankment Dams: Provide guidance on how to inspect the slopes, crest and adjacent areas of an embankment dam and on identifying deficiencies.
4. Instruments for Embankment Dams: Explain the purpose of any instrumentation and describe how the instruments work. Provide instruction on proper instrument reading and data recording. Review the installed facility instrumentation, what they monitor, and what instrument readings mean.
5. Emergency Action Plan and Dam Safety Refresher: Review of the EAP for the facility, with discussion of individual responsibilities. Reinforce dam safety awareness and present site specific issues.
6. Dam Safety Compliance Requirements: Review FERC safety compliance and reporting requirements.

Appendix 4

Safety Inspections

A. Agency Inspections - Nacimiento Dam receives daily inspection from the Reservoir Operator who lives at the Dam. Additional inspections are performed on an as-needed basis by Agency staff, including the Maintenance Superintendent, Associate Water Resources Engineer, and Chief Engineer of the Operations and Maintenance Division. Agency staff also performs at least two annual thorough inspections of all facilities along with inspectors from other agencies, as mentioned below. An annual settlement and shift survey is performed to assure that no unusual movement of the embankment occurs. All valves and equipment are tested annually and exercised.

B. Other Agency Inspections - Inspectors from the State Department of Water Resources, Division of Safety of Dams (DSOD), and the Federal Energy Regulatory Commission (FERC) perform separate annual inspections of all of the equipment and facilities of Nacimiento Dam with Agency staff.

C. Safety Inspection Report - Every five years the Agency hires an engineering consultant to provide an independent safety inspection report to the Agency and FERC. The report is performed according to FERC Part 12D guidelines and must meet FERC approval.