



Monterey County Water Resources Agency Owner's Dam Safety Program (ODSP) Audit Nacimiento Dam Presentation

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AGENDA

- BACKGROUND
- SCOPE of ODSP AUDIT
- RECOMMENDATIONS and CONCLUSIONS
- QUESTIONS



BACKGROUND

- Owner's Dam Safety Program (ODSP) for Nacimiento Dam adopted by the MCWRA's Board Directors (BOD) and approved by FERC in 2014.
- The ODSP requires an outside audit every 5-years.
- Federal Energy Regulatory Commission (FERC) reviews and approves the outside Auditor.

Audit Methodology

- Followed FERC Guidance Document for ODSP External Audits dated January 16, 2018.
- Considered other FERC and California State Division of Safety of Dams (DSOD) documents.
- Considers the size of the ODSP in relationship to the number of dams.
- Auditor's experience:
 - Association of State Dam Safety Officials peer review program (dam safety program audits across the country)
 - Auditor's specialize experience involving 400 dams in California.



Scope of the Audit:

Required Documents to Review

- ODSP document for Nacimiento Dam dated February 26, 2014.
- Nacimiento Dam Operation Policy adopted February 20, 2018.
- Nacimiento Dam Safety Surveillance Monitoring Plan (DSSMP), January 2008.

Interviewed nine MCWRA personnel:

Chair of the Board of Directors – Mark Gonzalez

Deputy General Manager – Brent Buche

Chief Dam Safety Engineer – Chris Moss

Deputy Dam Safety Engineer – German Criollo

Water Resources Engineer – Elise Ramirez

Maintenance Superintendent – Charles Lingenfelter

Assistant Maintenance Superintendent – Pat Ledo

Hydroelectric Plant Technician (also Dam Tender at Nacimiento Dam) – Russell Kelso

Water Maintenance Worker (also Dam Tender at San Antonio Dam) – George Bartlett





Scope of Audit (continued):

- Evaluated *commitment, priorities, and staff responses with respect to dam safety.*
- Evaluated *communication effectiveness.*
- Evaluated *information management procedures.*
- Observed *inspection procedures* for Nacimiento Dam
- Reviewed dam *operational log books.*
- Reviewed *staff training records.*
- Reviewed information and discussed with key management/supervisory staff to *understand the level of funding and staffing* to adequately implement the ODSP
- *Obtained independent views* from staff on the effectiveness and completeness of the ODSP.
- *Compared to* other dam safety programs and the state of the practice in managing a dam safety program considering MCWRA size and operations
- Provided recommendations *regarding gaps in the program or improvements that can be made.*
- *Met with Deputy General Manager and Chief Dam Safety Engineer* to present observations, recommendations, and conclusions.
- Provided *audit report to MCWRA and FERC.*
- *Presented Summary of Findings to the Board of Directors*



Category 1 Recommendations

Immediate Action to meet basic dam safety program requirements (Timeframe 0 to 2 years):

- **Update the 2014 ODSP Document**
 - Update to reflect staff and role changes
 - Require dam safety staff to review updated document as training requirement (the updated ODSOP should include San Antonio Dam)
 - Hold ODSP refresher workshop for dam safety staff

- **Complete outstanding dam safety repair/maintenance items:**
 - low level outlet valve repair
 - spillway repairs
 - downstream spillway channel erosion repairs
 - piezometer system for monitoring the dam and foundation hydraulic pressures and gradient
 - additional survey monuments on the downstream slope of the dam
 - update seismic stability analysis including performing geotechnical exploration and data collection of dam and foundation materials





Category 1 Recommendations (continued)

Immediate Action to meet basic dam safety program requirements

(Timeframe 0 to 2 years):

- Based on this audit and information regarding outstanding projects, work projections, dam safety and non-dam safety required duties, ongoing FERC and DSOD regulatory requirements, required annual amount of staff time spent on the dam safety program work, succession planning needs, and staff training; *it was judged at least two engineering positions and one maintenance position at the dams should be added to MCWRA staff to help with workload backlog, and provide for succession planning as result of upcoming retirements.*
- MCWRA should review its overall risk portfolio, program budgets, and staffing levels to determine how best to address lack of resources. This should include an implementation plan.
- Annual internal dam safety assessments by the Chief Dam Safety Engineer should be conducted per the ODSP document requirements.



Category 2 Recommendations

Intermediate Actions (Timeframe within 3 years):

- **Revise and update official employee job descriptions to include specific dam safety responsibilities as outlined by ODSP document.** Job descriptions and ODSP responsibilities should be consistent to avoid job responsibility confusion.
- **San Antonio Dam should be added to MCWRA's ODSP** although not required by FERC or part of this audit.
- **Data Management System needs to be updated so dam safety related information is electronically accessible to operations staff in the field.**
- **Formal training on the standardized emergency management system (SEMS) is recommended for dam safety staff.** MCWRA should identify staff and require as a minimum on-line training in SEMS.
- **Expand dam safety staff training opportunities to key staff in the ODSP** including more participation in national dam safety or hydro organizations to keep abreast of common issues and recent events.



SENIOR WATER RESOURCES ENGINEER

DEFINITION

Under administrative direction, plans, organizes and manages major engineering projects for the Monterey County Water Resources Agency; manages engineering work; manages change management, control, or section budget; represents the Agency and performs related work as required.

DISTINGUISHING CHARACTERISTICS

Senior Water Resources Engineer Engineering series, providing a supervisors, and supervising the highly class receive administrative Typical duties and responsibilities project or a number of small projects specialist or technical advisor represent the Agency and inter specific programs or projects.

Senior Water Resources Engineer Resources Engineer in that the complex engineering assignments projects and programs, or serves a Senior Water Resources Engineer General Manager/Engineer in the Resources Agency.

EXAMPLES OF DUTIES

- In addition to the duties of the performed. Nothing in this specific and responsibilities to this job as a
1. Manages the largest scale, involve new applications of to such as large scale long-term and drainage projects, flood pl
 2. Conducts and guides subordinates consulting and documentation candidates for employment, p
 3. Performs engineering design, control, hydro generation, and designs, performs or delegates specifications
 4. Manages and administers large negotiates and administers con reviews contract documents an

Senior Water Resources Engineer

3. Evaluates need for and develops and implements plans and strategies for new legislation, additional rule formation, and other significant changes to accomplish general Agency objectives
6. Plans and coordinates obtaining permits and approvals from local, state, and federal regulatory/review agencies for major new construction projects
7. Obtains, maintains, and protects from encroachment water right permits and licenses from the State Water Resources Control Board
8. Represents the Agency in public, interagency, County, Planning Commission, Board of Directors, Board of Supervisor, and other meetings
9. Manages the division in the absence of the Assistant General Manager/Engineers
10. Oversees and man
11. Prepares annual op year and demonstrates and directs models
12. Coordinates a var issues with water imported water
13. Serves as section li control projects; or controls project ed
14. Directs and partici personnel for cons
15. Investigates claims
16. Maintains intera mitigation require
17. Develops mutuall Agency); develops agreements betwe
18. Provides project pl project control and management, anau participates in prog
19. Supervises prepara
20. Coordinates and ac and programs with
21. Supervises the dev forecast of funds o expenditures: impl
22. Analyzes propos and develops revor
23. Performs profesio Business and Prof
24. Coordinates, even reports, designs, d design calculation

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documents, and drawings and specifications comply with Agency and professional engineering principles, standards and practices

QUALIFICATIONS

In addition to the duties of the Associate Water Resources Engineer, the following duties are performed. Nothing in this specification restricts management's right to assign or reassign duties and responsibilities to this job at any time.

Knowledge and Skills:

Thorough knowledge of:

1. Principles and methods of personnel and delegation: supervision, training, f and discipline
2. Principles and practices of civil/Water Resources management, was irrigation and groundwater recharge, p of materials, design, stress analysis, fire
3. Functions and authorities of legislative codes, regulations and requirements; sponsoring of new legislation pertains;
4. Recent developments, current literatu related to assigned area of responsibility
5. Water Resources rights, permits and en

Working knowledge of:

1. Principles and practices of Water Resou
2. Principles and methods of administra development and management, and rev
3. Methods and techniques of treated wa
4. Employment laws and regulations
5. Modern public outreach practices
6. Techniques for coaching and mentoring

Skill and Ability to:

1. Plan, organize, direct, and manage the support staff; directly and through subo
2. Perform the most complex, large sc planning, specification, feasibility anal
3. Analyze the most complex Water Reso recommend and implement effectiv departmental objectives and goals
4. Prepare clear, concise, and accurate of computer technology
5. Understand, interpret and apply applica
6. Prepare and manage a section budget; r sources.
7. Provide training and technical support i

Senior Water Resources Engineer

8. Negotiate, prepare, and administer complex agreements.
9. Analyze complex engineering data and draw sound conclusions.
10. Set priorities and exercise sound independent judgment within established procedural guidelines.
11. Research, analyze, and evaluate new service delivery methods and techniques.
12. Analyze and make recommendations concerning state and federal legislation

REQUIRED CONDITIONS OF EMPLOYMENT

As a condition of employment, the

1. Possess a Bachelor's degree from in civil engineering, or a closely
2. Possess a valid California Cla record, or provide suitable trans
3. Work under adverse conditions environments subject to sudden humidity, work outdoors, on an above ground level, in confine water, petroleum products, lub gases, allergens, chemical prod waste, around moving machines vibration, and in extremely nois;
4. Be available to work weekends, and during times of emergency ;
5. Demonstrate the ability to swim large bodies of water.
6. Wear and use safety clothing as
7. Some positions may require a Calif Advisor's License and/or a Calif

EXAMPLES OF EXPERIENCE

Any combination of training, educ and abilities and required condition way these requirements might be ac

Experience

Two years of professional and sup Water Resources Engineer II classif

Eight years of increasingly respons related field. Management experien last two years of supervision.

Education:

Bachelor of Science degree from an physical, or environmental sciences required. Engineering degree prefer

Typical Engineering Job Description Illustration Purposes Only

AND

Senior Water Resources Engineer

Licenses:

Valid California certificate of registration as a civil engineer, in accordance with Section 6730 of the California Business and Professions Code, is desirable.

PHYSICAL AND SENSORY REQUIREMENTS

The physical and sensory abilities required for this classification include:

1. Visual acuity sufficient to function in a typical office environment. Vision sufficient to see and read gauges, meters, and other calibrated or precision measuring instruments; read fine print, such as on forms, citations, and labels, standard text and data on electronic screen of a personal computer terminal, and apply visual color discrimination and depth perception.
2. Hearing and speech sufficient to communicate over the radio and on cell phones in field or noisy environments, and to distinguish and identify sounds and voices in a noisy environment; ability to recognize potential danger; to project a voice that can be heard over loud noises
3. Ability to work outdoors, on uneven ground or floor surfaces, and on slippery surfaces, or come into contact with water, and to work under adverse weather conditions with varying environments, which may include exposure to dusts, heat, cold, odors, toxic agents, noise, smoke, vibrations, wetness, humidity, machinery, bright or dim light, and electrical currents.
4. Dexterity, mobility, and ability to stand, stoop, kneel, reach, bend, crawl, climb, and balance to perform strenuous physical activity and manual labor
5. Ability to sit for up to an approximate seven to eight (7 to 8) hour timeframe working at a personal computer terminal and performing other duties; some positions may be required to sit in a boat performing duties.
6. Ability to stand in one position without significant movement for up to two (2) hours per workday performing duties; some positions may be required to stand in a boat performing duties.
7. Ability to walk approximately up to six (6) hours per workday performing duties, and mobility to walk on uneven, elevated, slippery or wet ground surfaces to reach worksites to collect data and/or conduct testing.
8. The ability to lift, pull and/or carry stream measuring equipment and materials weighing up to approximately 50 pounds.
9. Eye and hand coordination to drive a vehicle to and from work and field test sites, and manual dexterity in use weight apparatus and perform hydrologic water testing and/or data collection.
10. Sense of smell sufficient to detect and/or distinguish between normal odors and chemical used in water treatment of water quality testing.
11. Mobility and ability to operate light motor vehicles and water vessels.
12. Ability to swim in order to work safely in and around water while performing duties.





Category 2 Recommendations

Intermediate Actions (Timeframe within 3 years):

- **Continue on the job and in-house annual general dam safety training** to dam safety staff but add periodic in-depth training on specific subjects such as hydraulics, risk, instrumentation, seepage, lessons learned from other events, etc. Consider outside experts to do training.
- **Specific training plans for dam safety staff named in the ODSP** need to be developed, implemented, and annually monitored.
- **Consider other staff who regularly visit dam facilities for basic dam safety and specific dam potential failure mode presentations.**



Category 3 Recommendations

Long Term Action (Timeframe within 5 years):

Critical Energy Infrastructure (CEII) material

- During a dam related emergency event and following, there will be extensive pressure to release information to the media, public, and other governmental agencies. The ODSP document should consider including a section regarding Critical Energy Infrastructure (CEII) material (material that is not publicly distributed for facility security reasons), in what scenarios this information may be released during or just after emergencies, and how redaction of documents could be considered.



Conclusions:

- MCWRA has committed dam safety staff that are doing their best.
- The completion of outstanding dam safety items are being impacted by inadequate staff and funding resources.
- Based on this ODSP audit review, MCWRA does not entirely meet the requirements of an adequate dam safety program.



Thank You

