California
WATER COMMISSION

California Water Commission

2012 Annual Review

of the Construction and Operation of the State Water Project

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CALIFORNIA WATER COMMISSION

Anthony Saracino, *Chair*

Joseph Byrne, *Vice-Chair*

Andrew Ball

Danny Curtin

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Background and Authority

The California Water Commission's historical role includes advising the Director of the Department of Water Resources on matters within the Department's jurisdiction, approving rules and regulations, and monitoring and reporting on the construction of the State Water Project (SWP). The California Water Commission consists of nine members appointed by the Governor and confirmed by the Senate.

The roles and responsibilities of the California Water Commission are defined in the Water Code, sections of the Government Code, and the Code of Civil Procedures. The California Water Commission conducts an annual review of the construction and operation of the SWP and makes a report on its findings for the Department and Legislature, with any recommendations it may have. (WC §165)

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FINDINGS AND RECOMMENDATIONS

In 2012, the California Water Commission continued its support for efforts by the Department of Water Resources (DWR) and the Administration to ensure the integrity and sound operations of the SWP. In May, California Water Commission members toured and attended the dedication ceremony to rename the Ronald B. Robie Thermalito Pumping Generating Plant. In addition, California Water Commission members toured Oroville Dam and Hyatt Powerplant facilities in Oroville. In October, California Water Commission members toured facilities in Southern California including the Vista Del Lago Visitors Center in Gorman, Warne Powerplant, Quail Lake, the California Aqueduct bifurcation, Alamo Powerplant, the Civil Maintenance Facility at Oso Pumping Plant, and Edmonston Pumping Plant. At these facilities, California Water Commission members had the opportunity to talk with SWP staff and management about project operations, construction and maintenance, power and energy, regulatory issues, staffing, and future opportunities and challenges.

In December, California Water Commission joined with SWP representatives and State Water Contractors at a Town Hall event sponsored by the Association of California Water Agencies. The event provided new insight on meeting California's water needs over the coming half-century, amid mounting challenges including aging water infrastructure, constraints on operational availability, system operations issues, climate change, environmental protection and restoration activities, and changes in water supply needs. This dialogue will continue in 2013 with a California Water Commission-sponsored workshop aimed at providing a fresh perspective on developing approaches to sustainable and efficient SWP operations over the next 50 years.

The California Water Commission was briefed at its monthly public meetings on key SWP issues. From those discussions emerged several key areas of concern and recommendations for action:

Address State Water Project Recruitment and Retention Problems

Recognizing the serious workforce recruitment and retention crisis facing the SWP and its effects on water operations and public safety, the California Water Commission urges the Administration to address this issue. In a July 3, 2012 letter to California Secretary for Natural Resources John Laird, the California Water Commission noted that recruitment and retention for SWP personnel in the specialized hydroelectric power trades and crafts classifications has continued to deteriorate, posing a potential threat to the SWP's ability to meet its obligations to deliver water, produce energy, operate safely, and meet other regulatory requirements. Since 2005, the operational availability of pumping units has dropped from 92% to 81%. This trend is unacceptable and threatens the availability of water vital for the State's economy, agriculture, environment, and quality of life. The California Water Commission will continue to strongly support actions by the State to find a reasonable and expedited resolution to this important matter.

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Support Investments to Maintain and Improve State Water Project Facilities

As the State's water needs change and the existing SWP infrastructure ages, the California Water Commission supports actions by DWR to maintain and improve existing facilities and evaluate new equipment, facilities, and environmental mitigation projects necessary to meet the objectives of the SWP. One such project is the installation of a second generator at the Alamo Powerplant on the East Branch of the California Aqueduct in northern Los Angeles County. California Water Commission members toured the plant in October 2012 and the full California Water Commission was briefed on the project in December 2012. The project will generate a significant amount of additional hydropower. DWR's Division of Engineering and DWR's Power and Risk Office have completed a cost-benefit analysis, and a program management plan for the design and construction of the project is currently being prepared. The California Water Commission supports the expedited review and implementation of this project.

Ensure Workplace Safety

The safety of SWP staff and the public is a paramount concern for the California Water Commission. On site visits and at monthly meetings, SWP management has provided information to members on current and future activities to provide a safe working environment in all facilities and offices.

Following a major fire at the Robie Pumping-Generating Plant in Oroville in November 2012 which caused significant equipment and structural damage, the California Water Commission was briefed on the incident. In response, the California Water Commission has asked for future briefings on the cause of the fire. The California Water Commission also supports a review of other SWP facilities to determine if similar risks exist and what steps can be taken to improve safety for employees and the public, and protect critical infrastructure.

Emerging Trends and Greater Efficiencies in Project Operations

The California Water Commission recognizes the significance of optimal and cost effective operations of the SWP. DWR has briefed the California Water Commission on its activities to address some of the many administrative and procedural challenges of effective operations. DWR is reviewing and improving internal and external business practices and processes to reduce costs, increase efficiency, and streamline processes that improve reliability of operations and water deliveries. To meet these changing needs, the California Water Commission supports continued discussion and evaluation of new governance structures that will provide long-term sustainable solutions to administer the operations of the SWP in ways that are more cost effective, more flexible, and more efficient.

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Sacramento-San Joaquin Delta

The California Water Commission supports work by federal and State officials, local water agencies, and other interested parties to improve ecosystem health and water supply reliability in the Sacramento-San Joaquin Delta. California Water Commission members have been briefed and will be closely following the work on the Bay Delta Conservation Plan (BDCP) and the Delta Habitat Conservation and Conveyance Program (DHCCP), a program run by DWR to conduct the engineering and scientific studies for BDCP. In 2011 and 2012, the California Water Commission, as the governing body for DWR, adopted 38 Resolutions of Necessity to allow DWR to perform geotechnical work in the Delta to support the preparation of a draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed BDCP and/or preliminary engineering design for DHCCP. Prior to making its decisions on these resolutions, the California Water Commission carefully evaluated DWR's plans for geotechnical work, recommended modifications in some cases, and directed DWR staff to coordinate with land owners to find mutually beneficial arrangements and solutions. The California Water Commission will continue to receive regular briefings on BDCP and provide advice and direction on policy matters and on specific issues within its purview.

Improved Coordination and Federal Advocacy

The California Water Commission has statutory authority to confer with appropriate executive agencies of the federal government regarding the coordination of planning, construction, and operation of federal water development and flood control projects with State and local projects. The California Water Commission was briefed by DWR staff on their development of a comprehensive federal advocacy program, and will continue to monitor these activities and consider appropriate opportunities for engagement.

The SWP, some parts of which are now more than 50 years old, will continue to face significant opportunities and challenges to serve the millions of California families, farms, businesses, and communities that rely on it for a safe and reliable water supply. The California Water Commission looks forward to the opportunity to work with DWR, the Brown Administration, the State Legislature, and the many stakeholders to support this mission.

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California's
State Water Projects
State Water Project
N
Shasta Lake
Sacramento River
Antelope Lake
Lake Davis
Frenchman Lake
Grizzly Valley Pipeline
Thermalito Diversion Dam Powerplant
Thermalito Forebay
Thermalito Pumping-Generating Plant
Thermalito Afterbay
Hyatt Powerplant
Lake Oroville
Feather R.
Barker Slough Pumping Plant
North Bay Aqueduct
Cordelia Pumping Plant
Clifton Court Forebay
Skinner Fish Facility
Banks Pumping Plant
South Bay Pumping Plant
Del Valle Pumping Plant
Lake Del Valle
South Bay Aqueduct
Gianelli Pumping-Generating Plant
O'Neill Forebay
Dos Amigos Pumping Plant
San Luis Reservoir
Los Banos Reservoir
Little Panoche Reservoir
San Joaquin River
California Aqueduct
Badger Hill Pumping Plant
Devil's Den Pumping Plant
Bluestone Pumping Plant
Polonio Pass Pumping Plant
Las Perillas Pumping Plant
Coastal Branch Aqueduct
Teerink Pumping Plant
Chrisman Pumping Plant
Edmonston Pumping Plant
Alamo Powerplant
Buena Vista Pumping Plant
Oso Pumping Plant
Quail Lake
Warne Powerplant
Pyramid Lake
Castaic Lake
Castaic Powerplant (LADWP)
East Branch Aqueduct
Pearblossom Pumping Plant
Mojave Siphon Powerplant
Devil Canyon Powerplant
Silverwood Lake
East Branch Extension
Greenspot Pumping Station
Crafton Hills Pumping Station
Crafton Hills Reservoir
Lake Perris
Cherry Valley Pumping Station
PACIFIC OCEAN
Miles
0 25 50 100 200

OVERVIEW OF THE STATE WATER PROJECT

In 1960, California voters approved the Burns-Porter Act which authorized $1.75 billion to finance construction of the SWP and authorized DWR to design, construct, and operate the SWP. Over the past 50 years, the SWP has adapted to serve California's growing needs. The SWP of today:

- Two-thirds of California's $1.7 trillion economy is generated within the SWP service area
- Serves 25 million Californians and 750,000 acres of farmland
- Operated to provide water quality benefits, flood control, recreation, and enhance fish and wildlife habitat
- 20 pumping plants, 4 pumping-generating plants, 5 powerplants, 23 dams, 34 storage reservoirs, 700 miles of canals and pipelines
- Largest single energy consumer in California
- 3rd largest hydropower generator in the California
- Produces about 14% of California's hydroelectric generation

The SWP is the largest State owned and operated water and power utility in the United States. The SWP delivers water to 29 contracting agencies in Northern California, San Francisco Bay Area, Central Coast, San Joaquin Valley, and Southern California. These water deliveries supplement surface and groundwater resources for most of these agencies. Of the contracted water supply, approximately 70 percent goes to urban users and 30 percent goes to agricultural users. The SWP is one of California's largest energy producers and generates approximately 60 percent of its own energy needs. These energy operations help support and stabilize the electrical grid. The project also provides flood control, operates to help protect the environment, and provides recreation at SWP lakes and reservoirs.

The SWP's water supply capability depends on rainfall, snowpack, runoff, reservoir storage, pumping capacity from the Delta, and legal environmental constraints on project operations. SWP water supply comes from storage at Lake Oroville and high runoff flows in the Delta. Water deliveries have ranged from 1.6 million acre-feet in dry years to over 3.5 million acre-feet in wet years.

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Water Project Operations

2012 was California's first "dry" year since the drought of 2007 to 2009. Based on this year's water supply conditions, DWR increased the final 2012 allocation to 65 percent of the SWP contractors requested Table A amounts, which is over 2.6 million acre-feet. Table 1 shows deliveries in recent years.

Table 1. SWP Contractor Water Deliveries

Year	Water delivered (acre-feet)[1]
2000	3,591,966
2001	1,857,125
2002	2,744,769
2003	3,157,560
2004	3,075,590
2005	3,627,004
2006	3,691,173
2007	2,774,842
2008	1,692,507
2009	1,662,616
2010	2,446,594
2011	3,553,218
2012	2,667,617[2]

[1] *Source: Department of Water Resources' State Water Project Analysis Office.*
[2] *Through Novemeber 2012*

In 2012, the SWP is estimated to generate 4,642 gigawatt hours (Gwh) of energy. During the same period of time the SWP is estimated to use 7,410 Gwh of energy. Nearly 70 percent of this power is used by the Valley String Pumping Plants (Dos Amigos to Edmonston Pumping Plants) to lift water over 3,000 feet from the San Joaquin Valley over the Tehachapi Mountains and into Southern California. Table 2 reflects energy generation and usage in recent years.

Table 2. SWP Power Generation and Usage

Year	Power Generated (GWh/year)	Power Used (GWh/year)
2006	7,320	9,109
2007	6,222	9,276
2008	3,925	5,700
2009	4,201	5,438
2010	4,362	7,184
2011	5,258	8,583
2012	4,642	7,410

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Power and Energy

The SWP and DWR are actively working to reduce greenhouse gas (GHG) emissions and increase energy efficiency. DWR met its AB32 goal of reducing GHG emissions to 1990 levels 12 years ahead of the required deadline of 2020 and plans to further reduced its emissions to 50 percent below 1990 levels by the year 2020. As part of these efforts, DWR will not renew its power contract with Reid-Gardner Unit 4, a coal-burning powerplant owned and operated by NV Energy in Nevada, when the contract terminates in July 2013. To help replace this energy, DWR recently entered into a contract with Alameda Municipal Power for 33 Megawatts (MW) of renewable energy from an existing geothermal project and landfill gas project. DWR also entered into a long-term contract for rights to approximately 100 MW from the Lodi Energy Center, a new state-of-the-art natural gas powerplant in San Joaquin County. This new energy source releases 68 percent fewer emissions compared to generation from a coal-fired plant.

The SWP's flexible pumping operations help to manage its power needs. To reduce power costs, the SWP attempts to minimize pumping during on-peak hours when power prices are highest, saving money and reducing peak power demand. As much as possible, maximum pumping is scheduled during off-peak periods when power costs and overall demand are lower. However, in recent years, environmental restrictions and SWP operations and maintenance issues have limited the SWP's ability to fully utilize this flexibility.

In 2012, California became the first State to implement a cap-and-trade program for GHG emissions. Under cap-and-trade, an overall limit on GHG emissions from certain sectors, including utilities, is established and facilities subject to the cap are able to trade permits (allowances) to emit GHGs. As a regulated entity, the SWP is faced with the increased costs of purchasing allowances for emissions at some facilities. The cost of allowances is reflected in the price of electricity purchased on the market. As a net buyer of energy, the SWP will face increased costs for its energy market purchases. The California Water Commission will continue to follow these issues, receive regular reports from SWP staff, and make policy recommendations as needed.

Federal Hydropower Licenses

The SWP has three hydropower licenses issued by the Federal Energy Regulatory Commission (FERC) with a combined generating capacity of over 2,400 MW. The licenses include: Oroville Facilities, FERC Project No. 2100; South SWP Hydropower, FERC Project No. 2426; and Pine Flat Transmission Line, FERC Project No. 2876. The original 50-year license for the Oroville Facilities expired in January 2007. DWR initiated the relicensing process and held initial collaborative meetings beginning in 2000. Over 1,000 highly diverse stakeholders were contacted representing local interests and governments, water and resource agencies, non-governmental organizations, and Native American tribes to help develop proposed terms and conditions for a new license.

DWR filed an application for a new Oroville Facilities license in January 2005 and negotiated a Settlement Agreement with stakeholders in early 2006. The Settlement Agreement identifies over $1 billion in new actions to be taken by DWR under the

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new 50-year license that will benefit environmental, recreational, cultural, land use, and engineering, and operations resources. In February 2007, FERC issued an annual license for continued year-to-year operation pending issuance of the new license. DWR anticipates the new Oroville Facilities license will be issued in 2013 after the National Marine Fisheries Service completes the Biological Opinion.

The original 50-year license for the South SWP Hydropower facilities will expire in January 2022. The Pre-application Document and Notice of Intent to file a license application must be filed with FERC by January 2017. DWR has initiated preliminary planning for relicensing the South SWP Hydropower facilities in coordination with DWR's co-licensee, the Los Angeles Department of Water and Power, which operates Castaic Powerplant.

Davis-Dolwig Act Funding

Most of the SWP's capital and operational costs are through State water funds, but the Davis-Dolwig Act, passed in 1961 specifies that the State, not water ratepayers, should fund the cost of fish and wildlife enhancements and the recreation component of the SWP. For many years, no State funds were allocated to Davis-Dolwig activites, but in 2012, legislation was enacted to provide a continuous, annual appropriation of $10 million for the Davis-Dolwig Act-related costs associated with the operations and maintenance of the SWP facilities and require related reporting requirements to the State Legislature. The California Water Commission will continue to receive regular briefings on SWP funding issues.

Status of Construction Projects

East Branch Extension (EBX) – Phase I Improvements

The East Branch Extension is a cooperative effort among DWR, San Bernardino Valley Municipal Water District (SBVMWD) and San Gorgonio Pass Water Agency (SGPWA) to deliver SWP water to the east side of SBVMWD and SGPWA's service areas. The project conveys water from the Devil Canyon Powerplant Afterbay to Cherry Valley through a series of existing and new facilities. Construction for Phase I was completed in 2003. Construction for Phase I Improvements is scheduled for completion in 2013.

The purpose of the Phase I Improvements Project is to provide additional operational flexibility, system reliability, and reduce on-peak energy demands. Phase I Improvements include the enlargement of Crafton Hills Reservoir and construction of the Yucaipa Connector Pipeline. The reservoir's operating storage will increase to 225 acre-feet and the pipeline will consist of approximately one-half mile of 42-inch diameter steel pipe. Construction of Crafton Hills Reservoir began in 2012 and should take about two years to complete. Construction of the Yucaipa Connector Pipeline began in 2010 and was completed in 2011.

East Branch Extension – Phase II

The East Branch Extension Phase II Project will add facilities that bypass a segment of the East Branch Extension Phase I Project and provide additional pumping capacity to convey the full contracted amount of SWP water (17,300 acre-feet) to the

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San Gorgonio Pass Water Agency. In addition, the project will allow the SBVMWD to increase its distribution system capacity to Redlands and Yucaipa Valley service areas. Principal features of this project will consist of approximately six miles of a new large diameter pipeline, a new reservoir (Citrus Reservoir) with a capacity of 400 acre-feet, a new 160 cubic feet per second (cfs) pump station (Citrus Pump Station), expansion of the existing Crafton Hills Pump Station from 60 cfs to 135 cfs, and installation of an additional pump at the existing Cherry Valley Pump Station to increase the capacity from 32 cfs to 52 cfs. Phase II construction is scheduled for completion in 2015.

Various pieces of equipment for the facilities have already been fabricated and are ready for installation, including large diameter valves, transformers, and switchyard equipment. Construction of the Mentone Pipeline, Citrus Reservoir and Pump Station, and Crafton Hills Pump Station Expansion began in 2012.

South Bay Aqueduct (SBA) Enlargement

The South Bay Aqueduct (SBA) conveys water from the Sacramento-San Joaquin Delta through over 40 miles of pipelines and canals to the Zone 7, Alameda County, and Santa Clara Valley Water Districts, which in turn provide service to the cities of Livermore, Dublin, Pleasanton, San Ramon, Freemont, Newark, Union City, Milpitas, Santa Clara, and San Jose. The SBA was the first conveyance facility constructed for the SWP and was designed for a capacity of 300 cfs. Recent flow tests and studies have shown that the actual capacity is 270 cfs. The purpose of the project is to increase the capacity of the SBA to 430 cfs to meet Zone 7 Water Agency's future needs and provide operational flexibility to reduce SWP on-peak power consumption. The project is comprised of the following principal features:

1. Addition of four 45 cfs pumps to the South Bay Pumping Plant, including expansion of the existing plant structure, a new service bay, and a new switchyard.
2. Construction of a third (Stage 3) Brushy Creek Pipeline and surge tank parallel to the existing two barrels.
3. Construction of a 500 acre-foot reservoir (425 acre-feet of active storage) to be served by the Stage 3 Brushy Creek Pipeline.
4. Raising the height of the canal embankments, canal lining, and canal over crossing structures and bridges along the Dyer, Livermore, and Alameda canals and at the Patterson Reservoir.
5. Modification of check structures and siphons along the Dyer, Livermore, and Alameda canals.
6. Construction of new drainage over crossing structures to eliminate drainage into the canals.

Construction began in 2007 and most of the work was completed in 2012. All four new 45 cfs pumps will be fully operational by summer 2013.

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Edmonston Pumping Plant, Pump Replacement

The Edmonston Pumping Plant, Pump Replacement Project included replacement of the four existing four-stage Allis-Chalmers pumps with new four-stage pumps to increase efficiency at the pumping plant. The 14 pumps at Edmonston account for approximately 45 percent of the total electricity used by the SWP. The original pumps, installed in 1971, were experiencing low efficiency and severe cavitation requiring higher than normal maintenance. The newly installed pumps are 2.7 percent more efficient, which reduces the amount of electricity consumed. In addition, it is anticipated that the new, more efficient pumps will reduce CO2 emissions by several million tons over a 30-year period. Installation of the fourth and final pump was completed in October 2011 at a cost of nearly $40 million. Currently, spare parts are being fabricated and delivered.

Southern Field Division Headquarters Project

Construction of the new Southern Field Division (SFD) Headquarters in Pearblossom began in 2011. The new 20,000-square-foot building was designed and will be operated such that it attains a LEED (Leadership in Energy and Environmental Design) Gold rating, exceeding the requirement for new State buildings. The building will include state-of-the-art energy and water saving features such as ground source heat pumps using the ground's thermal mass to provide heating and cooling, sophisticated thermostat controls that better identify heating and cooling needs, low flow plumbing fixtures, and use of recycled building products. The building will house staff from several DWR organizations to more effectively address safety, FERC relicensing efforts, construction management of projects in SFD, and other operations, maintenance, regulatory, and compliance activities. The project is expected to be completed in early 2013.

Delta-Mendota Canal/California Aqueduct Intertie

The Intertie, a shared federal-State water system improvement, connects the Delta-Mendota Canal and the California Aqueduct with two 108-inch-diameter pipes and pumping capacity of 467 cfs. The Intertie addresses conveyance conditions that previously restricted use of the Jones Pumping Plant to less than its design capacity, potentially restoring as much as 35,000 acre-feet of average annual deliveries. The Intertie also allows for maintenance and repair activities that are less disruptive to water deliveries, and provides the flexibility to respond to Central Valley Project and SWP emergencies. The project was completed in 2012.

Future Major SWP Construction Projects

East Branch Enlargement

In the mid-1980's through early 1990's, the East Branch of the California Aqueduct was enlarged by 750 cfs. The work consisted of raising the lining of approximately 95 miles of canal, constructing additional barrels at inverted siphons, and enlarging Pearblossom Pumping Plant and Devil Canyon Powerplant. Design and construction lasted for seven years and the project was completed in 1992. Phase II of the enlargement would provide another 750 cfs of capacity to the

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East Branch. Implementation of Phase II would require improvements to Alamo Powerplant, Pearblossom Pumping Plant, the canal lining and embankment, check structures, siphons, over chutes, and drainage culverts. The administrative draft of the Environmental Impact Report (EIR) is nearly complete, however work on the project was suspended in 2009 due to uncertainties regarding future Delta export restrictions and water deliveries.

North Bay Aqueduct (NBA) Alternate Intake

The environmental review process is currently underway for the North Bay Aqueduct Alternate Intake Project (NBA AIP), a new facility that will improve water quality and provide reliable delivery of SWP water to the Solano County Water Agency (SCWA) and the Napa County Flood Control and Water Conservation District (Napa County FC&WCD). The NBA AIP will include the construction and operation of an alternate intake that will draw water from the Sacramento River, and connect to the existing North Bay Aqueduct system by a new segment of pipe. The proposed alternate intake will be operated in conjunction with the existing NBA intake at Barker Slough. The final EIR is expected to be completed by summer 2014. If approval to proceed with construction is granted upon completion of the EIR, construction should be completed in 2020.

Perris Dam Remediation

Lake Perris is located in northern Riverside County, and is the southernmost SWP facility and the southern terminus of the East Branch of the California Aqueduct. In 2005, DWR identified potential seismic safety risks in the foundation of Perris Dam. While there was no imminent threat to life or property, in the interest of ensuring the maximum public safety, DWR lowered the water level of Lake Perris until repairs are made. The Lake Perris State Recreation Area is one of the State's most popular recreation destinations, with an average attendance of 1.1 million visitors prior to the reservoir lowering.

The remediation of Perris Dam facilities is a major capital improvement program and is comprised of three projects. The Perris Dam Remediation Project includes design and construction of a stabilizing berm and a system to strengthen the dam's foundation. The Outlet Tower Retrofit Project includes a seismic analysis of the existing outlet facilities and the design and construction of a retrofit or replacement of the structure. The Emergency Outlet Extension Project includes design and construction of improvements to the existing emergency release structure and design and construction of a new outlet extension facility to convey emergency release flows safely into the existing downstream Perris Valley Drain facilities. The EIR was certified in November 2011 and two projects were approved to move forward with design. The construction of the dam remediation project is expected to begin in early 2014. The analysis review is currently underway for the Outlet Tower. Additional design configurations are being considered for the Emergency Outlet Extension Project and once a final configuration is selected, a subsequent EIR will be prepared.

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Bay Delta Conservation Plan and Delta Habitat Conservation and Conveyance Program

Federal and State officials and other interested parties are working on a comprehensive effort to create a durable regulatory framework that would improve both ecosystem health and water supply reliability in the Sacramento-San Joaquin Delta. This effort is the Bay Delta Conservation Plan (BDCP). The Delta Habitat Conservation and Conveyance Program (DHCCP) is a program run by DWR to conduct the engineering and scientific studies required to prepare an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for BDCP.

Since the February 2012 release of a preliminary BDCP proposal, months of additional analysis, scientific review, and intense collaboration have brought California closer to agreement on how to stabilize Delta fisheries and water supply. Using the latest scientific information, the BDCP is being planned to meet statutory goals, strike a balance among competing interests, and create a structure to address future risk and uncertainty.

Plans for a Sacramento River intake have also been refined from earlier plans. The footprint of the facility to divert water in the north Delta has shrunk, largely in response to the potential impact to Delta communities. The number of river intakes has dropped from five to three, and the capacity has been reduced from 15,000 cfs to 9,000 cfs. This new facility is being designed to provide more natural flow patterns in the south Delta, benefiting many species of native fish, while also safeguarding water deliveries from sea-level rise, earthquakes, and Delta levee collapse. Federal and State BDCP participants recently committed to an accelerated habitat initiative that will eventually recreate thousands of acres of tidal wetlands in the Delta.

Other critical decisions that are needed to move the BDCP forward include more robust requirements that incorporate transparency, research, monitoring, and tangible ecosystem restoration goals. The preparation of a complete draft plan is currently scheduled for mid-2013.

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APPENDIX

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California Water Commission State Water Project Activities

2012

May 2, 1012	Tour of Ronald B. Robie Thermalito Pumping Generating Plant, Hyatt Powerplant, and Lake Oroville
May 15, 2012	Staff inspection of State Water Project Delta facilities including Bethany Reservoir and South Bay Pumping Plant
June 20, 2012	Briefing on State Water Project Key Activities
October 18, 2012	Tour of State Water Project Southern California Facilities including Edmonston Pumping Plant, Alamo Power Plant, and Pyramid Lake
November 14, 2012	Briefing on State Water Project Power and Energy Issues
December 5, 2012	State Water Project "Town Hall" panel at the Association of California Water Agencies Conference
December 12, 2012	State Water Project Facilities Update: Thermalito Pumping Generating Plant and Alamo Power Plant

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Southern California State Water Project Tour Itinerary

Thursday, October 18, 2012

9: 45 am	**Meet at Vista Del Lago Visitor's Center (1)**
	Tour Vista Del Lago Visitor's Center, Warne Power Plant (2)
10:45 am	**Depart for Alamo Power Plant and Surrounding Facilities**
11:30 am	**Arrive at Alamo Power Plant and Surrounding Facilities**
	Tour/View Quail Lake (3), Alamo Pumping Power Plant (4), Tehachapi East Afterbay (5), Oso Pumping Plant (6)
12:15 pm	**Lunch at Civil Maintenance Facility at Oso Pumping Plant**
1:00 pm	**Depart for Edmonston Pumping Plant (7)**
1:45 pm	**Arrive at Edmonston Pumping Plant, Tour Edmonston Pumping Plant**
3:30 pm	**Depart for Vista Del Lago**
4:10 pm	**Arrive at Vista Del Lago, if traveling by plane Depart for Burbank Airport**

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Commission members Joe Del Bosque, Joe Byrne, and Andrew Ball on an inspection tour of Edmonston Pumping Plant.

Southern California State Water Project Tour October 18, 2012

STATE OF CALIFORNIA -- THE CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN, JR., *Governor*

DEPARTMENT OF WATER RESOURCES
CALIFORNIA WATER COMMISSION
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Sue Sims
Executive Officer

July 3, 2012

The Honorable John Laird
Secretary for Natural Resources
1416 Ninth Street, Suite 1311
Sacramento, California 95814

Julie Chapman, Director
Department of Personnel Administration
1515 S Street, North Building, Suite 400
Sacramento, California 95811

Dear Secretary Laird and Director Chapman:

In a letter dated March 29, 2011, the California Water Commission urged the Brown administration to take action to resolve a serious workforce recruitment and retention crisis that is impacting the reliability of the State Water Project (SWP) operations and the safety of its employees. We understand that the Department of Water Resources (DWR) has brought this issue to the Department of Personnel Administration's attention, and has met on numerous occasions with yourselves and other Administration officials to provide additional information. The California Water Commission wishes to express its ongoing support for a reasonable and expedited resolution to this important matter.

Over the past year, recruitment and retention for personnel in the specialized hydroelectric power trades and crafts classifications have continued to pose a major challenge to DWR. The salaries already define the bottom of the pay range for the hydroelectric industry in California, and the 5% salary reduction for all state employees in the FY 2012/13 budget will only exacerbate the problem. Due to the issues resulting from this pay disparity between the state and other public and private utilities, DWR has been unable to fill many of its authorized positions. For instance, 93 new positions were approved for FY 2011/12 but approximately one-third of those positions were not filled due to lack interest from qualified candidates. Impacts of a limited and less experienced workforce include a significant backlog of maintenance needs and an ongoing decline in operational availability (OA), as well as greater challenges in meeting regulatory requirements and maintaining a world-class safety program.

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The Honorable John Laird
Julie Chapman, Director
July 3, 2012
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For example, between 2005 and 2012, the OA of SWP pumping units dropped from 92% to 77% in part because of the lack of staff to maintain, repair, and operate the system at full capacity. In addition to threatening the reliability of the SWP to make deliveries for water supply, reduced OA also threatens the ability of the SWP to meet downstream temperature requirements for fish and other ecosystem needs more difficult. The reduced OA also restricts the SWP's ability to manage power use effectively, shifting additional pumping loads into the higher priced "on-peak" electricity market which results in higher water delivery costs. DWR estimates that these excess energy costs caused by lower OA have added approximately $50 million in operational costs in 2011 alone. Furthermore, the SWP's ability to be flexible in managing its power resources can, at times, allow the SWP to provide wide public benefit by helping stabilize California's power grid, so when SWP OA is restricted, the opportunity to provide this key additional public benefit can be lost.

DWR believes its recruitment and retention issues, and the many resulting challenges, can be significantly resolved by aligning pay for skilled trades and crafts workers with industry standards. The increased cost to address these issues and achieve pay parity is estimated at approximately $12 million annually. ***These additional costs would have no impact to the State's General Fund as the costs would be paid from SWP funds received through water delivery charges to State Water Contractors*** (who have also sent letters urging the administration to help resolve these same issues). This is a fraction of the annual energy and compliance costs currently being incurred by the SWP because of these issues, and even more importantly, it represents a prudent and necessary investment to maintain the safety of our personnel, equipment and the public.

The California Water Commission once again urges the Administration to address this critical issue facing our state's water system.

Sincerely,

Anthony Saracino, Chair
California Water Commission

Attachment (March 29 Letter)

cc: Mark Cowin, Director

DRAFT

Attachment 1

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
CALIFORNIA WATER COMMISSION
901 P STREET, P.O. BOX 942836
SACRAMENTO, CA 95836-0001
(916) 653-5791

MAR 29 2011

Honorable John Laird
Secretary for Natural Resources
California Natural Resources Agency
1416 Ninth Street, Room 1311
Sacramento, California 95814

Ronald Yank, Director
Department of Personnel Administration
1515 S Street, North Building, Suite 400
Sacramento, California 95811-7258

The California Water Commission is deeply concerned about a workforce recruitment and retention crisis that is impacting the State Water Project (SWP), and its ability to safely operate and maintain critical facilities and provide reliable water supplies to 25 million Californians and over 700,000 acres of farmland.

At our January 19 meeting, the Department of Water Resources (DWR) provided information to the Commission on its inability to recruit and retain necessary numbers of qualified personnel, particularly in the highly specialized hydroelectric power trades and crafts classifications which are responsible for performing the daily operations and maintenance of the SWP infrastructure. Despite a statewide unemployment rate of 12 percent, qualified workers are not applying for these DWR positions, underscoring both the limited talent pool and DWR's non-competitive salaries for these classifications.

The skills required to run the country's largest state-owned water and power utility - such as purchasing power, scheduling water and power deliveries, and operating and maintaining the SWP's complex infrastructure - are in great demand from private and other public utilities. This is especially true since deregulation of California's energy market in the mid-1990s. However, DWR's civil service pay scales simply have not kept pace with other utilities to attract and retain employees with these highly specialized skills. According to recent salary surveys, DWR's total compensation packages for employees in these classifications are by far the lowest among comparable water and power utilities in California. This problem has been compounded in recent years by numerous administrative actions including furloughs, salary cuts, overtime restrictions, and hiring freezes in response to the State's ongoing General Fund deficit, despite the fact that 100 percent of the SWP operations and maintenance costs are borne by the SWP contractors and their ratepayers, not the General Fund. The need for these highly-skilled employees continues to grow, and yet DWR continues to lose people to similar jobs in higher paying utilities.

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DWR conducts an extensive apprentice training program for its hydroelectric trades and crafts classifications. Through the program, apprentices complete three to four years of on-the-job training to reach the journey level. This training represents a significant financial investment for the State, yet many of these employees leave DWR shortly after graduation for significantly higher paying jobs at other utilities.

DWR has been seeking resolution of the pay parity issue with previous administrations for more than 10 years, without success. In the absence of resolution, DWR has been forced to rely heavily on overtime to conduct necessary maintenance and on contracting out millions of dollars of work. The impacts of the recruitment and retention crisis are evident and, if not addressed, will certainly become more severe, perhaps even catastrophic. Staff shortages and inexperience have resulted in a serious backlog of deferred maintenance and increase the probability of operational errors and equipment malfunctions that jeopardize public safety and SWP reliability. For the first time in its 50-year history, the SWP missed water deliveries last fall. Critical equipment was out of service due to the lack of staff needed to perform necessary maintenance and repairs. DWR reported to the Commission that the SWP was unable to export tens of thousands of acre feet from November 2010 through January 2011 due to forced outages at its Delta pumping facilities, increasing the risk that these water supplies may not be available to farms, families and communities later this year. This could result in higher costs passed on to ratepayers for replacement water supplies.

In addition, the decline in operational reliability is increasing the cost of water for SWP customers through higher costs to meet the SWP's electrical power demands. The SWP is the largest single consumer of electricity in California. To reduce energy costs, pumping is generally scheduled "off peak" when energy demands and prices are lowest. However, limited pumping capacity due to the shortage of operations and maintenance staff is restricting the ability to manage power uses efficiently, forcing more pumping loads into the higher priced "on-peak" electricity market. DWR estimates that SWP energy costs will increase between $25-30 million for 2011 without the ability to optimize the pumping schedules.

DWR has outlined the issues in a letter to the Department of Personnel Administration dated February 18, 2011 (attached). In the last several months, both the Little Hoover Commission and the Public Policy Institute of California have recommended reorganizing SWP governance as a long-term solution to a number of issues. While this may represent a long-term solution, the Commission sees the need for more immediate action on compensation and labor relations issues by the Administration and the Legislature and to address the current recruitment and retention issues and reverse the troubling decline in SWP operational reliability.

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Consistent with its statutory authority to review the operation of the SWP and report to the Legislature, the Commission is asking Legislature and the Administration to quickly resolve this recruitment and retention crisis. The present situation is not sustainable. California owes its economic development to the forward-thinking leaders of the 1950's and 1960's, and to the employees who operate and maintain the SWP. Yet these workforce issues continue to impact the reliability of California's water system, the state's economy, its farms, and its people.

Sincerely,

Anthony Saracino, Chair
California Water Commission

California Water Commission Members:

Andrew Ball
Joseph Byrne
Dave Cogdill
Daniel Curtin
Joe Del Bosque
Kimberley Delfino
Luther Hintz
Paul Kelley
Sue Sims, Executive Officer

Attachment

DRAFT

CALIFORNIA natural resources AGENCY

EDMUND G. BROWN JR., *Governor*
JOHN LAIRD, *Secretary for Natural Resources*

July 31, 2012

Mr. Anthony Saracino, Chair
California Water Commission
1416 Ninth Street
Sacramento, California 94236-0001

Dear Mr. Saracino:

I would like to thank you for your July 3, 2012 letter from the California Water Commission (CWC) regarding the serious workforce recruitment and retention crisis impacting the State Water Project (SWP). I share CWC's concerns over how this crisis in the SWP's operations and maintenance (O&M) workforce continues to threaten the reliability of the SWP infrastructure and the state's water supply, not to mention the safety of SWP employees working in these facilities and the safety of the public who live and work downstream.

I will continue to lead discussions within the Administration to resolve this matter. During the last two budget cycles, the Administration and Legislature have addressed half of the SWP reliability problem by evaluating and approving nearly 70 new hydroelectric power utility trades and crafts positions for SWP O&M through the Budget Change Proposal (BCP) process. These new positions establish an appropriately sized workforce to improve SWP reliability. However, bottom-of-the-market salaries remain a significant barrier to improving SWP reliability. Not surprisingly, the Department of Water Resources (DWR) reports nearly 100 vacancies in these critical hydropower classifications including 48 new BCP positions. DWR simply cannot fill these positions due to the lack of qualified candidates.

Under my direction, the California Natural Resources Agency and DWR will continue working with the California Department of Human Resources (CalHR) with the goal of resolving this issue by the end of the year. In the meantime, I will direct DWR executive management to continue providing periodic updates on this issue to the CWC.

If you have any questions or further concerns regarding this issue, you may contact DWR Deputy Director Carl Torgersen at (916) 653-8043.

Sincerely,

John Laird
Secretary for Natural Resources

1416 Ninth Street, Suite 1311, Sacramento, CA 95814 Ph. 916.653.5656 Fax 916.653.8102 http://resources.ca.gov

Baldwin Hills Conservancy • California Coastal Commission • California Coastal Conservancy • California Conservation Corps • California Tahoe Conservancy
Coachella Valley Mountains Conservancy • Colorado River Board of California • Delta Protection Commission • Delta Stewardship Council • Department of Boating & Waterways • Department of Conservation
Department of Fish & Game • Department of Forestry & Fire Protection • Department of Parks & Recreation • Department of Resources Recycling and Recovery • Department of Water Resources
Energy Resources, Conservation & Development Commission • Native American Heritage Commission • Sacramento-San Joaquin Delta Conservancy • San Diego River Conservancy
San Francisco Bay Conservation & Development Commission • San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy • San Joaquin River Conservancy
Santa Monica Mountains Conservancy • Sierra Nevada Conservancy • State Lands Commission • Wildlife Conservation Board

DRAFT

cc: Julie Chapman, CalHR
Mark W. Cowin, DWR Director
Carl A. Torgersen, DWRDeputy Director
Kathie Kishaba, DWRDeputy Director
Ana Matosantos, DOF Director

DRAFT

Naming Thermalito Pumping-Generating Plant in honor of Ronald B. Robie

Date: May 2, 2012
Location: Oroville, California

10:15 Tour of Thermalito Pumping-Generating Plant

Located about four miles west of the city of Oroville, Thermalito Pumping-Generating Plant is a principal feature of the Oroville-Thermalito pumped storage power complex. A pumping-generating plant, the facility is operated in tandem with Hyatt Powerplant and Thermalito Diversion Dam Powerplant to produce power. Water released for power in excess of local and downstream requirements is conserved by pumpback operation during off-peak hours through both power plants into Lake Oroville to be subsequently released for power generation during periods of peak power demand.

11:00 Remarks and Dedication

Remarks by speakers including SWP Deputy Director Carl Torgersen, Presiding Justice Arthur Scotland, and Commission Chair Anthony Saracino.

Unveiling of new plaque naming the facility the "Ronald B. Robie Thermalito Pumping-Generating Plant." Remarks by Justice Robie.

Noon Lunch in Oroville, Francisco's Mexican Restaurant

1:30 Tour of Oroville Dam and Hyatt Powerplant

Lake Oroville is a keystone facility of the State Water Project and its largest reservoir with a capacity of 3.5 million acre-feet. Oroville Dam is the tallest dam in the United States, measuring 770 feet high – 44 feet taller than Hoover Dam – and 6,920 feet across. Oroville Dam was named by the California Society of Professional Engineers as one of the seven wonders of engineering in California in 1967.

Located in the bedrock below Lake Oroville, Edward Hyatt Powerplant is an underground, hydroelectric, pumping-generating facility.

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Former DWR Director Robie Honored

Former DWR Director Ronald B. Robie was honored by the renaming of Thermalito Pumping-Generating Plant on May 2 in Oroville.

At the 11 a.m. dedication ceremony, former California Water Commission Vice Chair Paul Kelley, Retired Presiding Justice Arthur Scotland of the Third District Court of Appeal, Mayor of Oroville Linda Dahlmeier, Chair of the Board of Supervisors of Butte County Steve Lambert, and DWR's Division of Operations and Maintenance Chief Dave Starks spoke. They unveiled the new plaque naming the facility the "Ronald B. Robie Thermalito Pumping-Generating Plant." Water Commission member Luther Hintz, as well as family, friends and colleagues of Justice Robie attended.

On September 21, 2011, the Water Commission voted to rename the State Water Project's (SWP) Thermalito Pumping-Generating Plant to commemorate Justice Robie's distinguished water service to California. The Commission, which consists of nine members appointed by the Governor, has oversight and approval responsibilities for a wide range of water management activities. The proposal to rename the plant was originally suggested to the Commission by Justice Arthur Scotland, a colleague of Justice Robie on the Third District Court of Appeal in Sacramento. The concept was supported by State and Federal water contractors, the Water Education Foundation, and members of the public.

(Left to Right) **Above:** Speakers at May 2 event included Chair of the Board of Supervisors of Butte County Steve Lambert, Mayor of Oroville Linda Dahlmeier, and retired Presiding Justice Arthur Scotland. **At Left:** California Water Commission Executive Officer Sue Sims, California Water Commission Member Luther Hintz, Justice Ronald Robie, and former California Water Commission Vice Chair Paul Kelley stand by the plaque renaming the facility.

Robie was DWR's Director from 1975 to 1982 during Governor Edmund G. Brown Jr.'s first two terms as Governor. During his directorship, Robie achieved federal "wild river" status for several California rivers, confronted water supply and Delta water quality issues, led a legislative effort to validate a peripheral canal, and showed conservation leadership during California's major drought of 1976-1977.

"My years at DWR were some of the greatest of my career," recalled Robie, DWR's fifth Director. "The employees of the department were always first rate—the finest in state government."

In a distinguished public career, Robie served in all three branches of government. A 1958 journalism graduate of the University of California, Berkeley, Robie entered State service in the Legislature. He served as a consultant to the Assembly Water Policy Committee, analyzing complex legislation and dealing with thorny water policy issues.

"Justice Robie has had a profound and beneficial impact on the development and protection of our State's water resources and continues to be a leading voice for balancing environmental and water supply needs," said the Water Commision's Anthony Saracino. "The Commission is proud to acknowledge his lasting contributions in this way."

Robie worked closely with veteran Assemblyman Carley Porter in helping write the landmark Burns-Porter Act. Its passage by the Legislature in 1959 authorized issuance of $1.75 billion in general obligation bonds to finance construction of California's State Wa-

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ter Project (SWP). In November 1960, California voters approved the bond issue, making possible construction of the largest State-run water and power system in the United States.

While a legislative consultant, Robie earned a law degree at McGeorge School of Law. He became a top legislative expert on California water law and water policy.

This expertise served him well when Governor Ronald Reagan appointed him to the State Water Resources Control Board, a regulatory body with jurisdiction in areas of water rights and water quality. Robie was a member of the board from 1969 to 1975, when Governor Brown selected him to lead DWR.

After Robie left DWR, Governor Brown in 1983 appointed him to the Sacramento Municipal Court bench. In 1986, he was elected to the Sacramento County Superior Court. In 2002, Governor Gray Davis appointed him to the State Court of Appeal, Third Appellate District, where he currently serves.

Four earlier DWR directors have been honored by having key facilities in the SWP named for them. They are:

- Harvey O. Banks, DWR's first director, 1956-1961 (Delta Pumping Plant in Byron);
- William E. Warne, DWR's second director, 1961-1967 (powerplant near Pyramid Lake, Los Angeles County);
- William Gianelli, third director, 1967-1973 (pumping-generating plant near San Luis Reservoir);
- John Teerink, fourth director, 1973-1975 (pumping plant about 23 miles south of Bakersfield in Kern County).

Seventy miles north of Sacramento and four miles west of Oroville in Butte County, Thermalito Pumping-Generating Plant is a principal feature of the Oroville-Thermalito pumped-storage power complex. This pumping–generating facility, which was constructed from 1964 to 1969 with operations starting in 1968, is operated in tandem with Hyatt Powerplant and Thermalito Diversion Dam Powerplant to produce power. With three pumping units, it has a pumping capacity of 9,120 cubic feet per second. Together, Hyatt and Themalito powerplants produce an average of 2.2 billion kilowatt-hours of electricity each year.

Former DWR Director Robie stands outside of Thermalito plant after renaming ceremony on May 2.

A high definition video clip of Robie, the Thermalito Pumping-Generating Plant at Oroville, and the Water Commission meeting is available at http://www.water.ca.gov/newsroom/video/general.cfm.

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