AGENDA  
WATER ISSUES COMMITTEE MEETING  
WITH BOARD OF DIRECTORS*  
ORANGE COUNTY WATER DISTRICT  
18700 Ward Street, Fountain Valley (714) 378-3200  
Wednesday, November 13, 2013, 8 a.m., Boardroom

* The OCWD Water Issues Committee meeting is noticed as a joint meeting with the Board of Directors for the purpose of strict compliance with the Brown Act and to allow all Board members to hear the presentations and participate in the discussions. OCWD Directors receive no additional compensation or stipend as a result of simultaneously convening this Board of Directors meeting. Items recommended for approval at this meeting will be placed on the Consent Calendar at the November 20, 2013 Board meeting.

ROLL CALL

VISITOR PARTICIPATION

Members of the audience wishing to address the Board on items of interest to the public are requested to identify themselves. If the matter on which they wish to comment is an Agenda item, the visitor will be called on when that matter comes up for consideration on the Agenda. If the item is on the Consent Calendar, it will be removed from the Consent Calendar for separate consideration. Visitors are requested to limit comments to three minutes.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

RECOMMENDATION:  Determine need to take action on item(s) which arose subsequent to posting of the Agenda (ROLL CALL VOTE: Adoption of this recommendation requires two-thirds vote of the Board/Committee, or, if less than two-thirds of the members are present, a unanimous vote)

CONSENT CALENDAR (ITEMS NO. 1 - 5)

All matters on the Consent Calendar are to be approved by one motion unless Director or staff request separate action on a specific item.

1. MINUTES OF WATER ISSUES COMMITTEE MEETING HELD OCTOBER 9, 2013

RECOMMENDATION:  Approve minutes as presented

2. AMENDMENT OF MINUTES OF WATER ISSUES COMMITTEE MEETING – SEPTEMBER 11, 2013

RECOMMENDATION:  Approve revised minutes as presented

3. CONTRACT NO. W-2013-1, FIELD HEADQUARTERS REMODEL PROJECT: FILE NOTICE OF COMPLETION (A2Z CONSTRUCT, INC.)

RECOMMENDATION:  Agendize for the November 20 Board meeting:

   1. Ratify issuance of Change Order No. 3 to A2Z Construct, Inc. in the amount of $2,145 to address unforeseen conditions related to inadequate plumbing and drywall repair;

   2. Accept completion of work and authorize filing a Notice of Completion for Contract W-2013-1, Field Headquarters Remodel Project
4. CONTRACT NO. FV-2013-2, REPLACEMENT OF ADMINISTRATION BUILDING WINDOWS
PROJECT - CHANGE ORDER NO. 3 AND REVISED BUDGET

RECOMMENDATION: Agendize for the November 20 Board meeting:

1. Authorize issuance of Change Order No. 3 to CC Construction &
   Development, Inc. in the amount of $11,500 for window frame
   preparation and painting; and

2. Authorize a revised project budget of $89,000

5. PROFESSIONAL SERVICES AGREEMENT TO ASTRIX TECHNOLOGY GROUP FOR
CONSULTING SERVICES IN THE ADVANCED WATER QUALITY LABORATORY

RECOMMENDATION: Agendize for the November 20 Board meeting: Authorize issuance
of a Services Agreement to Astrix Technology Group in an amount
not to exceed $23,995, for consulting services in support of LIMS
selection in the Advanced Water Quality Laboratory

END OF CONSENT CALENDAR

MATTER FOR CONSIDERATION

6. PETITION FROM BIG CANYON COUNTRY CLUB FOR EXCLUSION FROM PAYMENT OF
RA AND BEA

RECOMMENDATION: Agendize for November 20 Board meeting:

1. Receive and file petition from Big Canyon County Club for
   exclusion from payment of replenishment and basin equity
   assessments for groundwater produced from proposed facilities
   at Big Canyon County Club;

2. Receive and file Staff Report evaluating Big Canyon County
   Club’s petition; and

3. Schedule public hearing on this matter for December 20, 2013,
   at 5:30 p.m. in accordance with Section 38 of the District Act

INFORMATIONAL ITEM

7. STATE WATER BOARD GROUNDWATER WORKPLAN CONCEPT PAPER AND CA
WATER ACTION PLAN

DETERMINATION OF ADDITIONAL ITEMS TO BE PLACED ON CONSENT CALENDAR
FOR NOVEMBER 20 BOARD MEETING

DIRECTORS’ ANNOUNCEMENTS/REPORTS

GENERAL MANAGER’S ANNOUNCEMENTS/REPORTS

ADJOURNMENT
In accordance with the requirements of California Government Code Section 54954.2, this agenda has been posted in the main lobby of the Orange County Water District, 18700 Ward Street, Fountain Valley, CA not less than 72 hours prior to the meeting date and time above. All written materials relating to each agenda item are available for public inspection in the office of the District Secretary. Backup material for the Agenda is available at the District offices for public review and can be viewed online at the District’s website: [www.ocwd.com](http://www.ocwd.com).

Pursuant to the Americans with Disabilities Act, persons with a disability who require a disability-related modification or accommodation in order to participate in a meeting, including auxiliary aids or services, may request such modification or accommodation from the District Secretary at (714) 378-3234, by email at [jkarlsen@ocwd.com](mailto:jkarlsen@ocwd.com) by fax at (714) 378-3373. Notification 24 hours prior to the meeting will enable District staff to make reasonable arrangements to assure accessibility to the meeting.

As a general rule, agenda reports or other written documentation has been prepared or organized with respect to each item of business listed on the agenda, and can be reviewed at www.ocwd.com. Copies of these materials and other disclosable public records distributed to all or a majority of the members of the Board of Directors in connection with an open session agenda item are also on file with and available for inspection at the Office of the District Secretary, 18700 Ward Street, Fountain Valley, California, during regular business hours, 8:00 am to 5:00 pm, Monday through Friday. If such writings are distributed to members of the Board of Directors on the day of a Board meeting, the writings will be available at the entrance to the Board of Directors meeting room at the Orange County Water District office.
Water Issues Committee Chair Director Green called the meeting to order in the Boardroom of the District office located in Fountain Valley, CA. The Assistant District Secretary reported quorum:

**Committee Members**
- Cathy Green
- Denis Bilodeau (arrived 8:15 am)
- Vincent Sarmiento
- Shawn Dewane
- Philip Anthony

**Alternates**
- Steve Sheldon
- Kathryn Barr
- Harry Sidhu (arrived 8:05 am)
- Roger Yoh (arrived 8:10 am)
- Bruce Whitaker (arrived 8:20 am)

**OCWD Staff**
- Mike Markus - General Manager
- Joel Kuperberg - General Counsel
- Judy-Rae Karlsen - Assistant District Secretary
- Dave Bolin, John Bonsangue, Dan Bott,
- Jason Dadakis, Bill Dunivin, Randy Fick,
- Roy Herndon, Bill Hunt, John Kennedy,
- Chris Olsen, Audrey Perry, Don Phipps,
- Nate Scheevel, Sandy Scott-Roberts, Ben Smith,
- Tim Sovich, Mike Wehner, Marsha Westropp,
- Greg Woodside, Nira Yamachika

**Others**
- Robert Hanford – Golden State Water Company
- Howard Johnson – Richard Brady & Associates
- Keith Lyon – Municipal Water District of Orange County
- Paul Schoenberger– Mesa Water District
- Jose Diaz – City of Orange
- Greg Heiertz, Peer Swan – Irvine Ranch Water District
- Skip Griffin – SPI

**CONSENT CALENDAR**

The Consent Calendar was approved upon motion by Director Sarmiento, seconded by Director Sheldon and carried [5-0] as follows.

1. **Minutes of Previous Meeting**

The Minutes of the Water Issues Committee meeting held September 11, 2013 are approved as presented.


Recommended for approval at October 16 Board meeting: 1) Ratify Change Order No. 1 to Cascade Drilling in the amount of $37,800 and Change Order No. 2 to Cascade Drilling in the amount of $4,750; and 2) Accept completion of work and authorize filing of Notice of Completion for Contract No. GBM-2012-2, Destruction of Monitoring Well OCWD-SA22 and Construction of Replacement Monitoring Well OCWD-SA22R.

Recommended for approval at October 16 Board meeting: 1) Ratify Change Order No. 1 to Atlas Allied, Inc. in the amount of $8,240; and 2) Accept completion of work and authorize filing a Notice of Completion for Contract No. GA-2013-1, Green Acres Project Jamboree Road Bridge Crossing San Diego Creek Repair Project.


Recommended for approval at October 16 Board meeting: 1) Ratify Change Order No. 1 to CC Construction & Development, Inc. in the amount of $1,500 to modify door glass; 2) Authorize issuance of Change Order No. 2 to CC Construction & Development, Inc. in the amount of $10,176 for replacement of 13 Municipal Water District or Orange County windows; and 3) Authorize a revised project budget of $81,176.


Recommended for approval at October 16 Board meeting: Authorize publication of Notice Inviting Bids for Contract No. LAB-2013-1: Advanced Water Quality Assurance Laboratory Labs 222 & 223 HVAC Modifications Project.

MATTERS FOR CONSIDERATION

Directors Sidhu arrived at 8:05 a.m., Director Yoh arrived at 8:10 a.m. and Director Bilodeau arrived at 8:15 a.m. during the discussion on the following matter.

6. Memorandum of Understanding with the City of Santa Ana for Future Mid-Basin Injection Sites

Assistant District Engineer Chris Olsen reported that staff has identified four well sites in Santa Ana’s Centennial Park which are located across the Santa Ana River from the District’s Demonstration Mid Basin Injection (DMBI) site. He advised the wells sites have favorable aquifer hydrology and permeability that could support the future Mid Basin injection well expansion. Mr. Olsen reported that staff has prepared a Memorandum of Understanding (MOU) with the City of Santa Ana and recommends authorizing the General Manager to negotiate and finalize the MOU with the City of Santa Ana for the injection wells, pipeline and monitoring well construction. The following action was then taken.

Upon motion by Director Sarmiento, seconded by Director Sheldon and carried [5-0] the Committee recommended that the Board at its October 16 Board meeting: Authorize the General Manager to negotiate the Memorandum of Understanding with the City of Santa Ana for four injection well sites and pipeline.

Director Whitaker arrived at 8:15 a.m. during the discussion on the following matter.
INFORMATIONAL ITEMS

7. **GWRS Annual Unit Cost for Fiscal Year 2012-13**

General Manager Mike Markus reported the final 2012-13 fiscal year accounting of GWRS costs is complete. He stated the net cost to operate GWRS for the year was $31,644,716 which translates into a unit cost of $435/acre-feet (af). Mr. Markus advised that even with a dry year, GWRS produced 72,691/af, which he reported is a record high for production. He also reported that staff saved over $600,000 by reducing sulfuric acid in the treatment system; SCE refunded $242,950 of over collected fees; and the barrier staff maintained GWRS injection rates and performed fewer well cleanings that saved approximately $400,000.

8. **Basin Storage Update for Water Year 2012-13**

Principal Engineer Tim Sovich gave a detailed presentation on the District’s basin storage program for Water Year 2012-2013. He reported on water level conditions throughout the basin and reviewed groundwater elevation contour maps created by the basin modeling software. Mr. Sovich stated the relatively large decrease of 63,000/acre feet (af) of storage compared to last year was a result of decreasing groundwater levels throughout the majority of the basin in all three aquifer layers from June 2012- June 2013. He advised the decrease was primarily the result of a 28% increase in basing pumping, low incidental recharge and captured storm flow, the lowest Santa Ana River base flow in over 30 years, and a 14% decrease in managed Forebay recharge. Mr. Sovich stated the current accumulated overdraft is within the District’s basin operating range, and as of June 30, 2013 the basin overdraft was 242,000 af or 290,000 af without the water from the Metropolitan Water District storage program.

Director Sheldon asked if staff was able to provide a typographical map with groundwater basin water levels. Mr. Sovich replied that the District’s GIS department would be able to provide that information.

DETERMINATION OF ADDITIONAL ITEMS TO BE PLACED ON CONSENT CALENDAR FOR OCTOBER 16 BOARD MEETING

The Committee requested that Items No. 2 - 6 be placed on the Consent Calendar for the October 16 Board meeting.

ADJOURNMENT

There being no further business, the meeting was adjourned at 8:30 a.m.

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Director Cathy Green, Chair
AGENDA ITEM SUBMITTAL

Meeting Date: November 13, 2013  
To: Water Issues Committee  
    Board of Directors  
From: Mike Markus  
Staff Contact: J. Karlsen

Budgeted: N/A  
Budgeted Amount: N/A  
Cost Estimate: N/A  
Funding Source: N/A  
Program/Line Item No.: N/A  
General Counsel Approval: N/A  
Engineers/Feasibility Report: N/A  
CEQA Compliance: N/A

Subject: AMENDMENT OF MINUTES OF WATER ISSUES COMMITTEE

SUMMARY

The September 11, 2013 Water Issues Committee meeting minutes require amendment to show Director Roger Yoh present at the meeting.

Attachment(s):
September 11, 2013 – Water Issues Committee Minutes

RECOMMENDATION

Approve minutes as amended.
Water Issues Committee Chair Director Green called the meeting to order in the Boardroom of the District office located in Fountain Valley, CA. The Assistant District Secretary reported quorum:

**Committee Members**
- Cathy Green
- Denis Bilodeau (arrived 8:15 am)
- Vincent Sarmiento (not present)
- Shawn Dewane
- Philip Anthony

**Alternates**
- Steve Sheldon
- Kathryn Barr (not present)
- Harry Sidhu
- Roger Yoh
- Bruce Whitaker (arrived 8:15 am)

**OCWD Staff**
- Mike Markus - General Manager
- Joel Kuperberg - General Counsel
- Judy-Rae Karlsen - Assistant District Secretary
- Dave Bolin, John Bonsangue, Paula Bouyounes, Bill Dunivin, Randy Fick, Bill Hunt, John Kennedy, Chris Olsen, Don Phipps, Nate Scheevel, Sandy Scott-Roberts,

**Others**
- Ben Smith, Esmer Uribe, Mike Wehner,
- Greg Woodside, Nira Yamachika
- Don Calkins, Rick Shintaku – City of Anaheim
- Steve Conklin – Yorba Linda Water District
- Robert Hanford – Golden State Water Co
- Howard Johnson – Richard Brady & Associates
- Keith Lyon – Municipal Water District of Orange County
- Brian Ragland – City of Huntington Beach
- Nabil Sabil – City of Santa Ana
- Paul Schoenberger– Mesa Water District
- Paul Cook, Peer Swan – Irvine Ranch Water District

**CONSENT CALENDAR**

The Consent Calendar was approved upon motion by Director Anthony, seconded by Director Dewane and carried [5-0] as follows.

1. Minutes of Previous Meeting

The Minutes of the Water Issues Committee meeting held August 14, 2013 are approved as presented.

2. Agreement with Stanford University for Study Comparing Hydrogen Peroxide to Monochloramine to Control Membrane Biofouling

   Recommended for approval at September 18 Board meeting: Authorize execution of Agreement SPO 112501 with Stanford University for an amount not to exceed $28,500 for a continuation of the previous hydrogen peroxide disinfection study to compare the effectiveness of hydrogen peroxide to combined chlorine (chloramines) as a disinfectant.
3. Agreement with City of Anaheim: OCWD to Fund the Concrete Cap for the OCWD 66-Inch Pipeline Related to the Tustin Avenue and La Palma Avenue Intersection and Street Widening Project

**Recommended for approval at September 18 Board meeting:** Authorize the General Manager to finalize and execute an Agreement with the City of Anaheim for an amount not to exceed $423,042 for improvements to protect the OCWD pipeline.

4. Purchase Order to Quinn Company for a Caterpillar D7E

**Recommended for approval at September 18 Board meeting:** Authorize issuance of Purchase Order to Quinn Company in the amount of $664,788 for a Caterpillar D7E Bulldozer; and authorize the surplus and sale of TL-26 bulldozer equipment.

5. Amendment to Agreement With RBF for Prado Basin Feasibility Study Analyses

**Recommended for approval at September 18 Board meeting:** Authorize issuance of Amendment No.1 to Agreement Number 0636 with RBF to conduct technical analyses for the Prado Basin Feasibility Study reducing the total contract amount from $767,949 to $650,687, and extending termination date to June 30, 2015.


**Recommended for approval at September 18 Board meeting:** 1) Ratify Change Order No. 1 to Contract GBM-2012-1, and 2) Accept completion of work and authorize filing of Notice of Completion for Contract No. GBM-2012-1, North Basin Groundwater Protection Project Extraction Well OCWD-EW3A Installation.

**MATTERS FOR CONSIDERATION**

Directors Bilodeau and Whitaker arrived at 8:15 am during the following discussion.

7. Reject All Bids for Contract No. MBI-2012-1, Authorize Notice Inviting Bids for Contract No. MBI-2012-2: Phase II of Demonstration Mid-Basin Injection Project, Amendment to Agreement with MWH for Engineering Services

Assistant District Engineer Chris Olsen gave a detailed presentation on the Demonstration Mid-Basin Injection (DMBI) project. He advised the DMBI Project has two phases (well drilling and well equipping) and includes one injection well (MBI-1), two monitoring wells (SAR-10 and SAR-11), well housing, supply and discharge pipelines and supporting facilities. Mr. Olsen reported Phase 1 is complete and the Notice Inviting Bids for Phase 2 was published in the Orange County Register on August 3, 2013 and 7 bids were received. He advised that staff reviewed the bids and discovered the bids were all significantly higher than the original estimate primarily due to the increased cost of materials. Mr. Olsen advised that staff recommends rejecting all bids at this time and modifying the Phase 2 project by removing the Hydro Turbine equipment and re-bidding the contract with a revised scope of work and an increased project budget. The following actions were then taken.
Upon motion by Director Dewane, seconded by Director Anthony and carried [5-0] the Committee recommended that the Board at its September 18 Board meeting:

1. Receive and file affidavit of publication for Contract No. MBI-2012-1;
2. Reject all bids received for Contract No. MBI-2012-1: Phase II Demonstration Mid-Basin Injection Project;
3. Authorize publication of a Notice Inviting Bids for Contract No. MBI-2012-2: Phase II Demonstration Mid-Basin Injection Project;
4. Increase total project budget to $6,320,000, and
5. Authorize issuance of Amendment No. 5 to Agreement No. 0640 with MWH for an amount not to exceed $34,000 for additional out-of scope engineering services in support of the design of the Demonstration Mid-Basin Injection Well Project.

8. **Sunset Gap Groundwater Investigation and Proposed Monitoring Well Installations and Destructions**

Chief Hydrogeologist Roy Herndon reported that in response to the high salinity levels at City of Huntington Beach Well No. 12 (now permanently removed from service), the District commissioned a geophysical survey to delineate the extent and magnitude of seawater intrusion in the Sunset Gap. He noted that staff recommends destroying three monitoring wells in the vicinity of the Sunset Gap that are no longer in use, and constructing a total of six multi-depth monitoring wells to determine if seawater intrusion originates from the Alamitos Gap and/or Sunset Gap, and to support a future feasibility study of alternatives to address the seawater intrusion situation.

Mr. Herndon advised that in order to meet the requirements of the California Environmental Quality Act (CEQA), staff has prepared a Draft Initial Study/Mitigated Negative Declaration for the Sunset Gap Monitoring Wells Project that evaluated short-term construction impacts and long-term operational impacts associated with the project. He reported the impacts to the environment have been determined to be less than significant with the incorporation of mitigating measures. Mr. Herndon stated the documents were circulated during the public comment period and no comments were received.

Mr. Herndon reported that staff has complied with all CEQA requirements and prepared the Final Initial Study/Mitigated Negative Declaration for the Sunset Gap Monitoring Wells Project, which includes the Draft Initial Study/Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program and staff is recommending the Board adopt the Final Initial Study/Mitigated Negative Declaration for the Sunset Gap Monitoring Wells Project. The Committee then took the following actions.

Upon motion by Director Anthony, seconded by Director Dewane and carried [5-0] the Committee recommended that the Board at its September 18 Board meeting: Adopt the Resolution of the Board of Directors of the Orange County Water District Approving the Proposed Sunset Gap Groundwater Investigation and Monitoring Well Installations and Destructions, Adopting the Final IS/MND, Approving the Geologist’s Report, and Authorizing Issuance of an Request for Proposals for Inspection Services During Well Installations and Destructions.
INFORMATIONAL ITEMS

9. California Department of Public Health Proposed Maximum Contaminant Level for Hexavalent Chromium

Water Quality Director Nira Yamachika presented an update on contaminant levels for hexavalent chromium. She reported that chromium occurs naturally as a metallic element found in rocks, soil and water and is primarily found in two ionic forms or oxidation states: trivalent chromium (chromium-3, CrIII or Cr³⁺) or hexavalent chromium (chromium-6, CrVI or Cr⁶⁺). Ms. Yamachika stated that chromium is naturally occurring in water and occurrence studies have shown that chromium-3 is found mostly in surface water while chromium-6 is more common in groundwater. She stated the California Office of Environmental Health Hazard Assessment (OEHHA) is responsible for performing risk assessments and adopting public health goals (PHGs) for contaminants in drinking water. Ms. Yamachika stated that PHGs are non-enforceable standards that are based exclusively on public health considerations and set at levels that would pose no significant health risk to individuals consuming the water on a daily basis over a lifetime. She concluded her presentation with a statement that all OCWD Producer wells have been tested and they are all less than 5 µg/L hexavalent chromium, which is well below the proposed maximum contaminant level.

10. Update: Field Headquarters Operations

Executive Director William Hunt provided an update on the seasonal operations at Field Headquarters in Anaheim. He reviewed the key maintenance activities that take place in the District’s recharge and storage basins during the summer months. Mr. Hunt reported that Gentry Golf and Doug Elliott were experiencing significant operational difficulties due to the low water levels in the basins, and he reported that staff will investigate and provide an analysis of the situation.

11. Annexation Update

Executive Director John Kennedy reviewed annexation discussions with the Producers and the documents included in the Agenda packet. He stated that Howard Johnson from Richard Brady and Associates was hired to facilitate discussions, and the following potential conditions for annexing applicants are a result of those discussions:

- Continue sending certain amounts of sewage flow to Orange County Sanitation District for reclamation by the District;
- Irvine Ranch Water District (IRWD) and Yorba Linda Water District (YLWD) will have a Basin Production Percentage (BPP) of no higher than 70% for certain lengths of time going into the future; and
- No additional annexations will be considered for the next ten years.

Mr. Kennedy responded to Committee questions and reported that staff will bring the annexation agreements and the supporting Environmental Impact Report (EIR) documents to the October 2, 2013 Board meeting for review and final consideration.

Mesa Water District General Manager Paul Schoenberger expressed his appreciation to OCWD staff for their work on these annexations. IRWD Director Peer Swan advised the IRWD cost neutral provisions will be presented at the next Producer meeting. IRWD General Manager Paul Cook stated that cost neutral annexations are a shared goal.
12. **GWRS Annual Unit Cost for Fiscal Year 2012-13**

General Manager Mike Markus advised this information will be presented at the September 18 Board meeting.

**DETERMINATION OF ADDITIONAL ITEMS TO BE PLACED ON CONSENT CALENDAR FOR SEPTEMBER 18 BOARD MEETING**

The Committee requested that Items No. 2 - 8 be placed on the Consent Calendar for the September 18 Board meeting.

**ADJOURNMENT**

There being no further business, the meeting was adjourned at 9:30 a.m.

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Cathy Green, Chair
AGENDA ITEM SUBMITTAL

Meeting Date: November 13, 2013
To: Board of Directors
From: Mike Markus
Staff Contact: WT Hunt / B Smith

Budgeted: Yes
Budgeted Amount: $150,401
Revised Cost Estimate: $152,546
Funding Source: R&R
Program/ Line Item No. R12016
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: Cat. Exemption

Subject: CONTRACT NO. W-2013-1, FIELD HEADQUARTERS REMODEL PROJECT: FILE NOTICE OF COMPLETION (A2Z CONSTRUCT, INC.)

SUMMARY

The Field Headquarters Remodel Project has recently been completed and acceptance of the project’s completion is being brought to the Board for approval. Three change orders were executed for additional repair and remodel work.

RECOMMENDATION

Agendize for the November 20 Board meeting:

1. Ratify issuance of Change Order No. 3 to A2Z Construct, Inc. in the amount of $2,145 to address unforeseen conditions related to inadequate plumbing and drywall repair;
2. Accept completion of work and authorize filing a Notice of Completion for Contract W-2013-1, Field Headquarters Remodel Project.

BACKGROUND/ANALYSIS

The contract for the Field Headquarters Remodel project was awarded at the May 22, 2013 Board Meeting to A2Z Construct, Inc. for an amount of $125,640. The project originally included the remodeling of two combined kitchen-breakrooms, the reception area and two bathrooms. Change Order No. 1 was issued to the contractor, under the General Manager’s signing authority, in order to address unforeseen conditions related to the subfloor, damaged drywall, and electrical outlets for an amount of $3,442. Change Order No. 2 was issued to the contractor to add remodeling of the main building’s restroom facilities for $21,319. Change Order No. 3 was issued, under the General Manager’s signing authority, in order to correct inadequate plumbing and perform drywall repair for $2,145. The project budget is presented below in Table 1.
## Table 1
**FHQ Remodel Project Budget**

<table>
<thead>
<tr>
<th>Description</th>
<th>Approved Budget (8/21/13)</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
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<td></td>
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<tr>
<td>Construction Contract</td>
<td>$125,640</td>
<td>$125,640</td>
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<tr>
<td><em>Change Order #1</em></td>
<td>$3,442</td>
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<tr>
<td><em>Change Order #2</em></td>
<td>$21,319</td>
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</tr>
<tr>
<td><em>Change Order #3</em></td>
<td>-</td>
<td>$2,145</td>
</tr>
<tr>
<td>Contract Sub-Total</td>
<td>$150,401</td>
<td>$152,546</td>
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<td><strong>Construction Electrical Work</strong></td>
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<td>$14,500</td>
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<td><strong>Access Control Card Reader</strong></td>
<td>$6,008</td>
<td>$6,008</td>
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<tr>
<td><strong>Appliance &amp; Bid Expenses</strong></td>
<td>$9,573</td>
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<td><strong>Furniture</strong></td>
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<td>$16,795</td>
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<td><strong>Project Contingency</strong></td>
<td>$8,723</td>
<td>$0</td>
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<tr>
<td><strong>Total Project Budget</strong></td>
<td>$206,000</td>
<td>$200,285</td>
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</table>

### PRIOR RELEVANT BOARD ACTION(S)

8/21/2013, M13-113: Approving Change Orders to Contract No. W-2013-1, Field Headquarters Remodel Project, Authorizing issuance of furniture purchase, and Approving revised project budget


AGENDA ITEM SUBMITTAL

Meeting Date: November 13, 2013
Budgeted: Yes
Budgeted Amount: $71,000
To: Board of Directors
Cost Estimate: $89,000
Budgeted Amount: $71,000
Funding Source: R&R
Program/Line Item No: R12005.17300.45001
From: Mike Markus
General Counsel Approval: N/A
Cost Estimate: $89,000
Engineers/Feasibility Report: N/A
Staff Contact: B. Smith / C. Olsen
CEQA Compliance: N/A

Subject: CONTRACT NO. FV-2013-2, REPLACEMENT OF ADMINISTRATION BUILDING WINDOWS PROJECT - CHANGE ORDER NO. 3 AND REVISED BUDGET

SUMMARY

The replacement of the administration building windows has been completed. While performing this work, staff has observed the need to sand and paint the window frames in order to remove rust, preserve the metal frames, and improve aesthetic appearance.

RECOMMENDATION

Agendize for November 20 Board meeting:
1. Authorize issuance of Change Order No. 3 to CC Construction & Development, Inc. in the amount of $11,500 for window frame preparation and painting; and
2. Authorize a revised project budget of $89,000.

BACKGROUND/ANALYSIS

The District awarded Contract No. FV-2013-2, Replacement of Administration Building Windows Project, to CC Construction & Development at the July 24, 2013 Board Meeting. The project replaced all exterior glass of the Fountain Valley administration building in order to eliminate leaks and improve energy efficiency. Change Order No. 1 was issued under the signing authority of the General Manager as a modification to the glass required within the doors. Change Order No. 2 was issued through Board approval to add replacement of 13 MWDOC windows. The costs of Change Order No. 2 will be reimbursed to OCWD from MWDOC.

While inspecting the window replacement work, staff has observed locations of paint failure leading to rusty conditions. In order to properly correct this issue, the metal window frames need to be sanded, prepped, and painted. Three quotes were obtained for this work and CC Construction can perform the work for the lowest amount. Painting of the window frames will also improve the aesthetics of the windows and further reduce the amount of air penetrating the joints of the frames. Table 1 outlines the line items of the project budget.
### Table 1- Project Budget

**Replacement of Administration Building Windows**

<table>
<thead>
<tr>
<th>Description</th>
<th>Approved Budget (10/16/13)</th>
<th>Projected Expenses</th>
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<tbody>
<tr>
<td><strong>Construction</strong></td>
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<td>Construction Contract</td>
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<tr>
<td>Change Order No. 1</td>
<td>$1,500</td>
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<td><em>Change Order No. 2 (MWDOC windows)</em></td>
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<td>$10,176</td>
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<td>Change Order No. 3</td>
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<td>Construction Management (In-house)</td>
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<td><strong>Project Contingency</strong></td>
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<tr>
<td><strong>Total Project Budget</strong></td>
<td>$81,176</td>
<td>$89,000</td>
</tr>
</tbody>
</table>

*MWDOC will reimburse Change Order No. 2

### PRIOR RELEVANT BOARD ACTION(S)

10/16/13, R13-10: Ratify issuance of Change Order No. 1 to CC Construction & Development, Inc. in the amount of $1,500 to modify door glass; authorize issuance of Change Order No. 2 to CC Construction & Development, Inc. in the amount of $10,176 for replacement of 13 MWDOC windows; and authorize a revised project budget of $81,176.

7/24/13, R13-7-85: Awarding Contract No. FV-2013-1: Replacement of Administration Building Windows Project, to CC Construction & Development

6/19/13, R13-6-68: Rejecting bids for Contract No. FV-2013-1: Replacement of Administration Building Windows Project and authorize re-publication of Notice Inviting Bids

5/1/13, M13-64: Authorize publication of Notice Inviting Bids for Contract No. FV-2013-1: Replacement of Administration Building Windows Project
AGENDA ITEM SUBMITTAL

Meeting Date: November 13, 2013  
Budgeted: Yes  
Budgeted Amount: $25,000
To: Board of Directors  
Cost Estimate: $23,995
Funding Source: General Fund
Program/ Line Item No. 1038.57004

From: Mike Markus  
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A

Staff Contact: M. Wehner/Lee Yoo  
CEQA Compliance: N/A

SUBJECT: PROFESSIONAL SERVICES AGREEMENT TO ASTRIX TECHNOLOGY GROUP FOR CONSULTING SERVICES IN THE ADVANCED WATER QUALITY LABORATORY

SUMMARY

The District’s Advanced Water Quality Assurance Laboratory uses a Laboratory Information Management System (LIMS) to store, manage, and report the water quality data generated by staff and their analytical instruments. The current LIMS has been in service for over 12 years, but has become outdated and will no longer be serviceable within 2-3 years. To help ensure a cost-effective and efficient future transition to a new LIMS software application, the laboratory staff requires expertise of an experienced LIMS consultant to assist with planning, selection and implementation.

Attachment: Astrix Technology Group proposal dated September 4, 2013

RECOMMENDED ACTION

Agendize for the November 20 Board meeting: Authorize issuance of a Professional Services Agreement to Astrix Technology Group in an amount not to exceed $23,995, for consulting services in support of LIMS selection for the Advanced Water Quality Laboratory.

DISCUSSION/ANALYSIS

The LIMS is a major software system for reporting of water quality data generated by the District’s Advanced Water Quality Assurance Laboratory (AWQAL) to the end users and to the Water Resources Management System where water quality data is integrated with geospatial information and archived for information requests and use by District staff. The current LIMS application is known as Aspen, was created by Telecation, Inc., and has been in operation at the District for over 12 years. The District’s version of the Aspen application continues to be customized to the needs of the District by the on-staff AWQAL LIMS Administrator and the Information Services Department. The Lab staff believe that they can rely on the Aspen system to provide LIMS functionality for 2-3 more years with limited customization and flexibility, but planning for a replacement LIMS application needs to begin now.
The first priority in planning for a new LIMS is to ensure that all the functionality of Aspen will be included and a seamless transfer all data from Aspen into the new LIMS. In addition, potential cost savings and efficiency improvements can be obtained through the use of the new LIMS in combination with modern advanced computing systems such improved operating systems, wireless networks with advanced security features, and recently introduced hardware such as the tablet PC and other similar devices. The transition into future LIMS software implementation will need to be effectively managed by District staff with the assistance of a knowledgeable and experienced LIMS consultant.

District Lab staff prepared and issued a request for proposal (RPF) for the desired LIMS consulting services. Below is a summary of the RFP’s scope of work:

- Document the following information as related to these three candidate LIMS systems: Autoscribe’s Matrix Gemini, Chemware’s Horizon, and Starlims.

- Document the cost differences between each LIMS, based on the District’s requirements.

- Document estimated initial cost (itemize software, installation, configuration, customization and training costs)

- Document estimated - yearly costs and provide advice on questions from District management (General Manager, Assistant General Manager, Laboratory Director, and Director of Information Services)

- Document the ability of each LIMS to meet all District requirements in the Requirements Document, the estimated time to completion, and the resources required to implement each LIMS option.

- Document for each LIMS and LIMS vendor, input from District staff based on personal experience, demonstrations of LIMS, and interviews with LIMS vendors and other laboratories.

- Document the similarities and differences in the data model and the software platform between Aspen (our current LIMS) and each candidate LIMS.

- References to speed of implementation (meeting all requirements in Requirements Document) and effect on costs, and references to future configuration/customization efforts and effect on costs.

The District conducted interviews with representatives from three different firms that expressed interest. The interviews were evaluated on the basis of responsiveness to the RFP and prior experience with providing similar services.

The combination of the Astrix Technology Group and their lead consultant, Mr. Robert Walla, was rated highest based on the proposal and interview. Astrix and Mr. Walla’s specific prior experience assisting water utilities with LIMS selection, transition, and implementation is extensive. Mr. Walla is also highly recommended by the LIMS consultant.
application vendors and by the LIMS Administrator at Los Angeles County Sanitation District. Furthermore, he presented a webinar to District AWQAL and Water Quality Department staff in April 2013. The webinar was very well received and he addressed many of staff LIMS transition issues and concerns at that time. The webinar entitled “State of the Art in Lab Informatics: Emerging Technologies” is available online at the following link: http://www.chemware.com/LIMSResourceCenter/OnDemandWebinars.aspx.

There are several tasks that will comprise the OCWD LIMS evaluation project. Astrix’s attached proposal outlines their technical approach to meeting the project tasks as specified in the RFP.

- Task I – Complete the existing Requirements Document.
- Task II – Complete the Executive Summary which evaluate Autoscribe’s Matrix Gemini, ChemWare’s Horizon LIMS, and STARLIMS V10 on cost, staff recommendation, technical features ad use by other Laboratories.
- Task III – Prepare and attend a 1 day in-house meeting with OCWD staff.

Astrix fee associated with each task is summarized in the table below.

<table>
<thead>
<tr>
<th>Task</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task I: Complete the existing Requirements Document</td>
<td>$6,750</td>
</tr>
<tr>
<td>Task II: Complete the Executive Summary</td>
<td>$13,150</td>
</tr>
<tr>
<td>Task III – Attend a 1 day meeting with OCWD staff</td>
<td>$2,095</td>
</tr>
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<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Total</td>
<td>$21,995</td>
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<tr>
<td>Travel</td>
<td>$2,000</td>
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<tr>
<td>Grand Total</td>
<td>$23,995</td>
</tr>
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</table>

PRIOR RELEVANT BOARD ACTION(S): None
Orange County Water District

Consulting Services
For
Laboratory Information Management System
RFP 2013-08-21

Prepared for
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Date Approved: September 4, 2013
Notice

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For Further Information Please Contact:

Astrix Technology Group
125 Half Mile Rd
Suite 200
Red Bank, NJ 07701

Phone +1 732.661.0400
Fax +1 732.661.0410

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This Proposal has been approved for release by an officer of Astrix Technology Group, Inc.

Robert Walla
Project Director and Principal

04-September-2013

www.astrixinc.com
<table>
<thead>
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<th></th>
<th>Contents</th>
<th></th>
</tr>
</thead>
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<td>4</td>
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<td>2.4</td>
<td>Summary</td>
<td>4</td>
</tr>
<tr>
<td>2.5</td>
<td>References</td>
<td>4</td>
</tr>
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<td>6</td>
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<tr>
<td>3.1</td>
<td>Project Scope</td>
<td>6</td>
</tr>
<tr>
<td>3.2</td>
<td>Astrix Project Methodology</td>
<td>6</td>
</tr>
<tr>
<td>3.2.1</td>
<td>Project Management</td>
<td>6</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Task 1: Complete the existing Requirements Document.</td>
<td>8</td>
</tr>
<tr>
<td>3.2.3</td>
<td>Task 2: Complete Executive Summary</td>
<td>9</td>
</tr>
<tr>
<td>3.2.4</td>
<td>Prepare and attend a 1 day in-house meeting with OCWD staff</td>
<td>10</td>
</tr>
<tr>
<td>3.3</td>
<td>Project Schedule</td>
<td>10</td>
</tr>
<tr>
<td>3.4</td>
<td>Cost</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Appendix I - Resumes</td>
<td>11</td>
</tr>
</tbody>
</table>
1 Cover Letter

September 4, 2013

Lee Yoo
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Dear Mr. Yoo:

Astrix Software Technology, Inc. dba Astrix Technology Group (Astrix) is pleased to submit this response to Orange County Water District (OCWD) for RFP 2013-08-21 “Request for Proposals for Laboratory Information Management System Selection Consulting Services for Orange County Water District.”

Astrix is a leader in the field of scientific informatics and laboratory operations and has successfully demonstrated the use of industry wide best practices in the implementation of Laboratory Information Management Systems (LIMS). Our innovative methodologies and processes allow organizations to deploy systems that turn data into knowledge, increase organizational efficiency, improve quality and facilitate regulatory compliance. We have a group of professionals that are dedicated to the laboratory industry that bring together technical, strategic and content knowledge that enables our organization to provide the most effective solutions to problems faced by scientific organizations.

This response will demonstrate Astrix experience in the municipal water/wastewater industry as well as outline our innovative project methodology designed to reduce project risk and guarantee that the proper LIMS is selected for an organization on time and within budget.

Please contact me at 732-661-0400 x12 should you have any questions.

Regards,

Robert Walla
Principal
2 Astrix Qualifications

2.1 Company Overview

Astrix is a laboratory informatics company that has a specialized practice in managing LIMS evaluation and selection projects and providing services that integrate the LIMS into the infrastructure of the organization. Astrix specializes in water and wastewater organizations having performed LIMS services for multiple municipalities in the last ten years. Our specialization in the environmental testing industry dates to the founding of the company. Astrix founders were Chemists/Laboratory Managers that worked for the largest independent environmental testing company throughout the 1980’s and into the early 1990’s. The founders have a background both in the public and the private sector and were very much engaged in developing methodologies to identify known contaminants.

Astrix is a privately held company that has been in business and serving the scientific community since 1995. Astrix is headquartered in New Jersey and has 7 offices throughout the United States. Astrix does not have any conflict of interest that would affect our ability to work for the District.

2.2 Astrix Project Team

We propose for this project an experienced team composed of Astrix personnel. The following are benefits and advantages that our team can provide to OCWD

- The Astrix Project Director has over 18 years of experience in implementing LIMS solutions in large municipal wastewater facilities, federal government facilities and large private environmental testing laboratories. Mr. Walla has experience working with LIMS, PIMS, data migration, instrument interfacing and all aspects of selecting and implementing “best of breed” solutions. His track record of delivering on time and within budget solutions is impeccable.

- Our team’s expertise in enterprise-wide information solutions, including LIMS, and flawless record of successfully delivering similar projects while eliminating risk.

- Astrix project management team has significant experience working with many water/wastewater districts and can help to guide OCWD in what is considered to be “best practices” in managing data within the water and wastewater industry.

- The project team is fully capable of developing and implementing data migration and system integration strategies that are effective.

- The project team is aware of the project risks and will insure the risks are mitigated through the use of time proven processes and experience.
Robert Walla, Project Director

Mr. Walla joined Astrix in 1995 and has 18 years of experience in working with environmental laboratory based operations and assisting in the management of projects. Mr. Walla is responsible for developing project schedules, conducting project meeting, preparing project documentation and assisting with data migration and system integration plans. Mr. Walla will be responsible the day-to-day management of the project.

Relevant Project Experience:

<table>
<thead>
<tr>
<th>Role</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Director</td>
<td>Clark County Sanitation District</td>
</tr>
<tr>
<td>Project Director</td>
<td>City of Austin</td>
</tr>
<tr>
<td>Project Director</td>
<td>City of Los Angeles</td>
</tr>
<tr>
<td>Project Director</td>
<td>Los Angeles County Sanitation Districts</td>
</tr>
<tr>
<td>Project Director</td>
<td>Hampton Road Sanitation District</td>
</tr>
<tr>
<td>Project Director</td>
<td>Washington Suburban Sanitation Commission</td>
</tr>
</tbody>
</table>

Frederick (Trey) Young, LIMS Specialist

Mr. Young joined Astrix in 2005 and he has 8 years of experience working as a LIMS Specialist on environmental laboratory based projects. He will be responsible for leading the process evaluation, mapping, design and requirements gathering sessions. He has extensive experience in data migration, instrument interfacing and designing and implementing data warehouses and data marts. Mr. Young has a B.S., Electrical Engineering, University of Missouri.

Relevant Project Experience:

<table>
<thead>
<tr>
<th>Role</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIMS Specialist</td>
<td>City of Austin</td>
</tr>
<tr>
<td>LIMS Specialist</td>
<td>City of Los Angeles</td>
</tr>
<tr>
<td>LIMS Specialist</td>
<td>Los Angeles County Sanitation Districts</td>
</tr>
<tr>
<td>LIMS Specialist</td>
<td>Hampton Road Sanitation District</td>
</tr>
<tr>
<td>LIMS Specialist</td>
<td>Washington Suburban Sanitation Commission</td>
</tr>
</tbody>
</table>
2.3 Past Performance

2.4 Summary

Astrix has extensive experience on similar projects over the past eighteen years and has assisted over one hundred (100) organizations to develop informatics solutions to solve their business and data management needs. Astrix municipal wastewater experience over the last ten years includes the following organizations.

<table>
<thead>
<tr>
<th>Municipality</th>
<th>City</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hampton Roads Sanitation District</td>
<td>Virginia Beach</td>
<td>VA</td>
</tr>
<tr>
<td>Los Angeles County Sanitation Districts</td>
<td>Whittier</td>
<td>CA</td>
</tr>
<tr>
<td>Clark County Sanitation District</td>
<td>Las Vegas</td>
<td>NV</td>
</tr>
<tr>
<td>Washington Suburban Sanitation Commission</td>
<td>Washington</td>
<td>DC</td>
</tr>
<tr>
<td>City of Los Angeles, Environmental Monitoring Division</td>
<td>Los Angeles</td>
<td>CA</td>
</tr>
<tr>
<td>Orange County Sanitation District</td>
<td>Fountain Valley</td>
<td>CA</td>
</tr>
<tr>
<td>Anne Arundel County</td>
<td>Glen Burnie</td>
<td>MD</td>
</tr>
<tr>
<td>Austin Water Utility</td>
<td>Austin</td>
<td>TX</td>
</tr>
<tr>
<td>City of Longmont</td>
<td>Longmont</td>
<td>Co</td>
</tr>
<tr>
<td>City of Red Deer (Alberta, Canada)</td>
<td>Red Deer</td>
<td>AB</td>
</tr>
<tr>
<td>Napa Sanitation District Laboratory</td>
<td>Napa</td>
<td>CA</td>
</tr>
<tr>
<td>City of Arlington</td>
<td>College Stn</td>
<td>TX</td>
</tr>
</tbody>
</table>

2.5 References

LIMS Requirements and Selection

Hampton Road Sanitation District

HRSD's Central Environmental Laboratory (CEL) provides analytical and consulting services to HRSD and external Municipal Assistance Program customers. HRSD engaged Astrix to assist with the replacement of a legacy LIMS which included the following scope items: Phase 1: Needs Assessment and Marketplace Evaluation, Phase 2: Procurement Facilitation and Phase 3: Implementation

Client Contact: Patty Lee, Project Manager
Telephone Number: 757.460.4213
E-mail: plee@hrsd.com
LIMS Requirements, Acquisition and Implementation

County Sanitation Districts of Los Angeles County

The districts operate 11 water treatment facilities and have 150 scientists in 9 separate laboratory facilities. Astrix was engaged by the districts to develop a data management strategy and replace their current LIMS. Astrix completed Phase I (Requirements Analysis and Design) and Phase II (Selection and Procurement) and is currently engaged in Phase III (Implementation).

Client Contact: Chris Wissman, Project Manager
Telephone Number: 562-699-7411
E-mail: cwissman@lacsd.org

LIMS Replacement/Systems Integration Project

City of Los Angeles Bureau of Sanitation

Environmental Monitoring Division

The City of Los Angeles operates one of the largest wastewater treatment plants (Hyperion) in the nation. They have over 100 scientists conducting analysis on 275,000 samples annually. Astrix was engaged by the bureau to assist in the replacement of their current LIMS system. Astrix completed Phase I (Requirements Analysis and Design) and is engaged in Phase II. Astrix is contracted to manage Phase III (Implementation).

Client Contact: Jeff Beller, Manager
Telephone Number: 310-648-5262
E-mail: jbeller@san.lacity.org
3 Project Approach

3.1 Project Scope

The OCWD is seeking a qualified and experienced LIMS Consultant to provide professional consulting services to aid the lab in the selection of a replacement LIMS system. The scope of the project includes:

- Task I - Complete the existing Requirements Document.
- Task II - Complete the Executive Summary which evaluates Autoscribe’s Matrix Gemini, ChemWare’s Horizon LIMS, and STARLIMS V10 on cost, staff recommendation, technical features and use by other Laboratories.
  - Cost differences between each LIMS. The Requirements Document describes OCWD’s requirements in a LIMS. These requirements will determine the cost of each LIMS.
  - Estimated Initial Costs – software costs (LIMS, additional modules, third party software), estimated hardware costs, installation costs, configuration/customization costs (estimated hours and costs for LIMS configuration and data migration) and training costs.
  - Estimated Annual Support Costs – single year versus multiyear support contracts. Include estimates of costs related to database maintenance activities, includes estimates of costs related to annual configuration/customization of LIMS.
  - Staff Recommendation based on personal experience.
  - Technical Features: Configuration Tools, Customization Method, LIMS Upgrade, and Data Model and Software Platform. Document the differences between the current LIMS, Aspen, and each LIMS.
  - Use by other laboratories
- Task III - Prepare and attend a 1 day in-house meeting with OCWD staff.
- Communicate with staff via conference call or email to discuss the above three tasks as necessary.

3.2 Astrix Project Methodology

Astrix approach has been derived from researching best practices and implementing, observing and measuring results for scientific and laboratory based organizations.

3.2.1 Project Management

Effective project management is the cornerstone to a successful project and begins long before project commencement. It is important that the project management team not only follow best practices but also have the experience to develop the proper structure based on the goals and objectives of the project. This includes:

- Assessing project objectives to determine basis for project plan
- Understanding project scope to scale requirement assessment meetings
- Assembling proper technical staff
- Defining communication pathways best suited for project and client work processes
• Identifying risks and developing risk mitigation plans

Project meetings (conference calls) will occur on a weekly basis. The duration of the meetings should be one hour or less. An agenda will be distributed to the participants twenty four (24) hours prior to the meeting along with a flash report (Exhibit 3.1). The flash report is a condensed version of the project schedule that provides a quick overview of the important aspects of the project with task percent complete and project status displayed. Minutes will be taken at the meetings and the minutes will be distributed within twenty four (24) hours after the conclusion of the meeting. Items to be discussed during these meetings include but are not limited to:

• Review of previous weeks minutes and discussion of action items
• Project plan update with percent progress displayed
• Discuss tasks completed
• Obstacles and barriers to completing task
• Mitigation strategy to deal with obstacles
• Schedule for following week – tasks to be completed
• Coordination of schedules and contingencies
• List of action items

Exhibit 3.1 – Example Flash Report

---

**Flash Report**

**Project:** LIMS Implementation

**Reported by:** Trey Young, Astrix Technology Group

<table>
<thead>
<tr>
<th>PROJECT MILESTONES</th>
<th>Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Green - Activities to achieve milestone have started on time and completion date is achievable</td>
</tr>
<tr>
<td>Y</td>
<td>Yellow - Activities to achieve milestone have not started on time or unexpected obstacles have been encountered. Completion date is in jeopardy:</td>
</tr>
<tr>
<td>R</td>
<td>Red - Completion date will not be made. Revised scheduling required:</td>
</tr>
<tr>
<td>Complete</td>
<td>Activity completed</td>
</tr>
<tr>
<td>Blank</td>
<td>Activity not required to start</td>
</tr>
</tbody>
</table>

**Tasks**

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Percent Complete</th>
<th>Scheduled Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method/Instrument Configuration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrients Lab Functionality</td>
<td>75%</td>
<td>4/14/2011</td>
</tr>
<tr>
<td>Solids Lab Functionality</td>
<td>25%</td>
<td>5/2/2011</td>
</tr>
<tr>
<td>Microbiology Lab Functionality</td>
<td>25%</td>
<td>5/2/2011</td>
</tr>
<tr>
<td>Sample Workflow</td>
<td>50%</td>
<td>6/15/11</td>
</tr>
<tr>
<td>Data Migration</td>
<td>0%</td>
<td>7/25/11</td>
</tr>
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</table>

**ACTION ITEMS**

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Assigned To</th>
<th>Due Date</th>
<th>Close Date</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>Amend/merge to Project Schedule</td>
<td>Tim</td>
<td>4/29/2011</td>
<td></td>
</tr>
</tbody>
</table>
There are several tasks that will comprise the OCWD project. Astrix will outline our technical approach to meeting the project tasks listed below.

- **Task I** - Complete the existing Requirements Document.
- **Task II** - Complete the Executive Summary which evaluates Autoscribe’s Matrix Gemini, ChemWare’s Horizon LIMS, and STARLIMS V10 on cost, staff recommendation, technical features and use by other Laboratories.
- **Task III** - Prepare and attend a 1 day in-house meeting with OCWD staff.

### 3.2.2 Task 1: Complete the existing Requirements Document.

Astrix will review the existing requirements document and will conduct Needs Assessment sessions with the OCWD stakeholders. This process is made more efficient and is enhanced by the use of the *Astrix proprietary “Laboratory Requirements Database™”*. This database contains requirements for various project categories. Prior to the on-site meetings, Astrix searches this database by various industries (i.e. Water and Wastewater Analysis) retrieves the requirements, sorts and categorizes them to create a customized template for the OCWD project. Astrix will compare the template to the current OCWD requirements to assure requirements have not been overlooked. This unique approach was established by Astrix and has proven to result in a more efficient and complete means of developing requirements for LIMS.

This approach has several benefits:

- Ensures requirements are not overlooked
- Creates a more efficient process, reducing the time commitment required from the laboratory
- The use of the Astrix’s proprietary requirements database represents an industry best practice and allows OCWD to review requirements of other organizations, provides completeness and illuminates requirements that may have been overlooked

Astrix will assess the requirements for the LIMS which will include laboratory specific processes such as sample receipt and tracking, sample preparation and analysis, and reporting as well as requirements for security, data access and information technology standards. Our process decomposes the requirements to a fine level of detail so that the intention is very clear to the vendor.

**Deliverables:**

- Requirements Document which will include a requirements matrix (example provided in Exhibit 3.2)
Exhibit 3.2 – Example Requirements Matrix

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Type</th>
<th>Priority</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The LIMS must support the following data qualifiers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>' &gt; ' - Greater than the quantity in the results field</td>
<td>FN</td>
<td>1</td>
<td>Current</td>
</tr>
<tr>
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<td>' &lt; ' - Less than the quantity in the results field</td>
<td>FN</td>
<td>1</td>
<td>Current</td>
</tr>
<tr>
<td>1.3</td>
<td>' E ' - Estimated value</td>
<td>FN</td>
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<td>Current</td>
</tr>
<tr>
<td>1.4</td>
<td>' + ' - Positive value/detection</td>
<td>FN</td>
<td>1</td>
<td>Current</td>
</tr>
<tr>
<td>1.5</td>
<td>' - ' - Negative value/detection</td>
<td>FN</td>
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<tr>
<td>1.6</td>
<td>' 0 ' - 0 (zero) as a calculated value</td>
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<td>Current</td>
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<td>1.7</td>
<td>Other - user defined</td>
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<td>Current</td>
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<tr>
<td>2</td>
<td>The LIMS must create a sample ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.1</td>
<td>The system must create the number automatically</td>
<td>FN</td>
<td>1</td>
<td>Current</td>
</tr>
<tr>
<td>2.1.2</td>
<td>The system must allow for the number to be user defined</td>
<td>FN</td>
<td>1</td>
<td>Future</td>
</tr>
<tr>
<td>2.1.3</td>
<td>The system must support the user format: (To be determined: administrator defined, alphanumeric)</td>
<td>FN</td>
<td>1</td>
<td>Current</td>
</tr>
<tr>
<td>3</td>
<td>The LIMS should contain a Calendar with scheduling capabilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>The calendar should be public to all groups</td>
<td>FN</td>
<td>2</td>
<td>Future</td>
</tr>
<tr>
<td>3.2</td>
<td>The system should allow for individual group calendars</td>
<td>FN</td>
<td>2</td>
<td>Future</td>
</tr>
</tbody>
</table>

3.2.3 Task 2: Complete Executive Summary

After the requirements are finalized Astrix will develop an Executive Summary which evaluates Autoscribe’s Matrix Gemini, ChemWare’s Horizon LIMS, and STARLIMS V10 on cost, staff recommendation, technical features and use by other Laboratories. The Executive Summary will evaluate the items listed in section 3.1.

Astrix is familiar with the Autoscribe’s Matrix Gemini, ChemWare’s Horizon LIMS, and STARLIMS V10 systems. Additionally Astrix will use the Astrix Vendor Database™ to assist with this task. This is a proprietary database that contains information about LIMS products and will streamline the development of the Executive Summary.

Deliverables:
- Executive Summary
3.2.4 Prepare and attend a 1 day in-house meeting with OCWD staff

Astrix will prepare a presentation that summarizes the finding of the Executive Summary and attend an in-house meeting at the OCWD offices to discuss the Executive Summary. Astrix will also be available via email and teleconference prior to the meeting to answer any questions for the OCWD staff.

3.3 Project Schedule

Astrix estimates that the project can be completed in approximately 5 weeks. The project timeline is dependent upon the availability of OCWD personnel. A project plan will be developed prior to project commencement.

3.4 Cost

The following table outlines the costs associated with each task

<table>
<thead>
<tr>
<th>Task</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1: Complete the existing Requirements Document</td>
<td>$6,750.00</td>
</tr>
<tr>
<td>Task 2: Complete Executive Summary</td>
<td>$13,150.00</td>
</tr>
<tr>
<td>Task 3: Attend a 1 day in-house meeting with OCWD staff</td>
<td>$2,095.00</td>
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<td><strong>Sub Total</strong></td>
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<td><strong>Travel</strong></td>
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<td><strong>Grand Total</strong></td>
<td><strong>$23,995.00</strong></td>
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4 Appendix I - Resumes

Robert Walla, Project Director

Areas of Expertise
Laboratory Informatics
System Implementations
Project Management
Analytical Chemistry

Education
B.S., Chemistry, Rutgers University

Professional History
1995 – Present
Project Director- Astrix Software Technology, Inc., Edison, NJ.

Astrix is a leader in assisting organizations in developing scientific data management strategies to improve productivity, reduce cost and improve quality. Astrix Software Technology, Inc. evaluates, develops and integrates applications to enhance the collection, processing and reporting of scientific data. Mr. Walla is responsible for the overall management, development, and implementation of laboratory automation systems for Astrix’s public and private sector clients. This includes process evaluation and mapping, collection/documentation of requirements, system architecture, product evaluation, system implementation, system validation, system training and business process re-engineering.

1992 – 1995
Director, Project Management, ETC Corp., Edison, NJ.

Responsible for directing the Project Management Staff at a large commercial contract laboratory. Interfaced with clients and regulatory agencies to ensure requirements were identified and executed.

Mr. Walla also was a member of the design and development team that implemented a client contact database and Sales Forecast Production System. Mr. Walla’s main responsibility was system implementation and validation of the final products.
1990 - 1992

Laboratory Manager, ETC Corp., Edison, NJ.

Responsible for directing the operation of ETC's Edison, NJ Laboratory Operations. Responsibilities include management of all technical and administrative personnel, business / financial management of group including meeting revenue goals and cost management, management of customer contracts, development and management of Quality Assurance Project Plans (QAPP's).

Mr. Walla directed the evaluation and implementation of the Automated Compliance System (ACS) Seedpak LIMS throughout the five laboratory ETC network. Various COTS LIMS were evaluated and SeedPak by ACS (now LabVantage) selected. Post selection, Mr. Walla oversaw the implementation, which included system customization, instrument integration and user training.

1987 - 1990

Director, Project Support / Database Products, ETC Corp., Edison, NJ.

Directed the coordination of the ETC laboratory to provide government and clients with compliant analytical data in a highly regulated environment. Managed technical and administrative staff that acted as liaisons between the client and laboratory operations. Duties included financial forecasting for all analytical programs, management of product line encompassing over two thousand products, administration of proposal generation, pricing policies, and sales accounting. Designed and implemented client proposal generation and tracking database.

Mr. Walla also directed operations of Database Products Group. Responsible for management of computer programming professionals and administrative staff, design and implementation of new products, management of analytical results and quality control database. Directed migration from enterprise database system to PC / Network architecture.

1985 - 1987

Analytical Chemist / Computer Programmer, ETC Corp., Edison, NJ.

Developed and validated systems to process analytical data and transfer data to results database. Provided consultation services on the validation of computer systems used to collect and store data under Good Laboratory Procedures ("GLP").
Frederick (Trey) Young, LIMS Specialist

Areas of Expertise
Laboratory Information Management Systems
Project Management
Requirements Assessment and Documentation
Business Project Mapping
System Design and Implementation
Technical Writing
Training
System Validation
Network Systems Engineering

Technical Skills:
LIMS: Thermo SampleManager, Chemware Horizon, LabWare, Perkin Elmer LabWorks, StarLIMS
ELN: CambridgeSoft, Waters, Labtrack
SDMS: NuGenesis
Integration: Thermo Integration Manager, LIMSlink
Languages: VB.NET, ASP, ASP.NET, HTML, SQL, C#, Perl, PHP/MySQL
Databases: MS/SQL2000, ORACLE, Access
Other Tools: Northwest Analytics Quality Analyst, SharePoint, Adobe Acrobat, Microsoft Office Suite (Tools, Project, Visio, Word, Excel, Power Point, Outlook,)

Education
B.S., Electrical Engineering, University of Missouri

Professional History
2005 – Present
Technical Project Manager/Business Analyst - Consulting Division - Astrix Technology Group
Mr. Young is responsible for the management of Astrix implementation and development projects. Mr. Young is the main point of contact with the client and is responsible assessing/documenting client requirements and directing the Astrix project resources during the software development life cycle. Mr. Young also acts as the liaison between the client and vendor when implementing a commercial solution. Mr. Young manages projects in regulated environments and is experienced in developing solutions that comply with associated regulatory requirements including FDA and EPA regulations. Mr. Young’s project responsibilities include:

- Project Management
- Requirements gathering and development of specifications
- System design
- Technology evaluation and selection
- Validation and training
- Financial forecasting and tracking

Mr. Young’s project experience includes:

- County of Los Angeles - Commercial product implementation
- City of Los Angeles Environmental Monitoring Division – Commercial product implementation
- Hampton Road Sanitation District – Commercial product implementation
- U. S. Navy – System integration project
- Sunoco – Application development project
- British Petroleum – Application development project

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Project Lead, Black and Veatch Solutions, Overland Park, KS

Responsible for leading teams ranging from 5-15 technical staff responsible for process evaluation, process design, system requirements, system evaluation, system testing and production support. Provided technical project management functions for BV Solutions, a wholly owned solutions provider of Black and Veatch, a privately held global engineering firm. Assisted in validation support and technical writing and designing custom web based help services.

Information Technology Lead, Black and Veatch Solution, Overland Park, KS

Expanded data retention and reporting capabilities of Customer Relationship Management software (Salesforce.com). Created new standard reports and ad-hoc reports, as needed.
Cleaned and imported new data from sales and marketing efforts. Responsible for all aspects of the management of software system testing, validation, documentation and packaging.

System Engineer, Sprint, Westwood, KS.

Assumed positions of increasing responsibility starting as Intern-Support Systems Engineer, then hired full-time for Associate Network Engineer position, and culminating in position as System Engineer in the Consumer Technology Lab, where he served as Lab Manager for Long Distance Division of premier global telecommunications company.

- Project Management: Oversaw renovation of physical and computing infrastructure at a Sprint technology research laboratory. Monitored activities of internal and external staff in updating lab capabilities to allow for easier access of computing and network assets. Result: Improved capabilities of laboratory in completing larger, more complex projects.

- Network Systems Engineering: Prepared engineering specifications and supported implementation team on networking projects. Reconciled planning goals with existing site and network limitations.
AGENDA ITEM SUBMITTAL

Meeting Date: November 13, 2013
To: Water Issues Committee
    Board of Directors
From: Mike Markus
Staff Contact: R. Herndon

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/ Line Item No.: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: PETITION FROM BIG CANYON COUNTRY CLUB FOR EXCLUSION FROM PAYMENT OF RA AND BEA

SUMMARY

Staff has reviewed a petition from Big Canyon Country Club for exclusion from payment of the replenishment and basin equity assessments for proposed irrigation supply wells. Staff presents its evaluation of the petition and available information in the attached Staff Report and agrees that the available information supports a determination of exclusion for the proposed facilities.

Attachments:
- Big Canyon Country Club Petition for Exclusion from Replenishment and Basin Equity Assessments
- Staff Report

RECOMMENDATION

Agendize for November 20 Board Meeting:

1. Receive and file petition from Big Canyon Country Club for exclusion from payment of replenishment and basin equity assessments for groundwater produced from proposed facilities at Big Canyon County Club;
2. Receive and file Staff Report evaluating Big Canyon County Club’s petition; and
3. Schedule public hearing on this matter for December 18, 2013, at 5:30 p.m. in accordance with Section 38 of the District Act.

BACKGROUND/ANALYSIS

In October 2013, Big Canyon Country Club (BCCC) submitted a petition for exclusion from payment of the RA and BEA for groundwater produced from proposed wells at or near the BCCC golf course in the city of Newport Beach. According to its petition, BCCC is requesting Board determination of its exclusion request prior to constructing the wells, because a rejection of the exclusion request would make the proposed exploratory drilling and well construction project economically infeasible.
BCCC currently uses approximately 220 acre-feet per year of recycled water delivered from OCWD’s Green Acres Project or from IRWD’s Michelson Plant. This water is used to irrigate the golf course and surrounding landscaping.

The RA/BEA exclusion provisions fall under Section 38 of the District Act, which states in part:

"the secretary [general manager] of the district shall cause an investigation to be made by the district geologist or an engineer or engineers to determine whether the water-producing facility is or is not producing groundwater from a zone replenished by the Santa Ana River or its tributaries. . . .

[If] the board of directors determines and finds that such water-producing facility is not producing groundwater from a zone replenished by the Santa Ana River or its tributaries, the board of directors shall make an order that such water-producing facility shall be excluded from the payment of the replenishment assessment and from the levy of the basin equity assessment and the production requirements and limitations as provided in this act."

Staff reviewed the BCCC petition and available topographic, geologic, and hydrogeologic information and prepared the attached Staff Report. Staff’s findings are as follows:

1. Surface water drainage from areas including and surrounding the BCCC flows to the tidal area of Upper Newport Bay at the mouth of Big Canyon Wash.
2. Geologic formations proposed to be explored and potentially used for groundwater production by BCCC consist of Miocene-aged shales and sandstones that have been characterized as “nonwater-bearing” by the U.S. Geological Survey and the California Department of Water Resources.
3. The Pelican Hills Fault runs to the north of the BCCC and may act as a groundwater barrier between formations beneath BCCC and the main groundwater basin to the north of the fault.
4. Sources of potential surface recharge to the formations beneath BCCC consist of infiltration of precipitation and irrigation water applied within the sub-watershed above the BCCC, as well as potential leakage from Big Canyon Reservoir.

In summary, it is staff’s opinion that it in all likelihood the geologic formations beneath the BCCC are not replenished by the Santa Ana River or its tributaries, nor are they hydraulically connected to zones replenished by the Santa Ana River or its tributaries.

Staff recommends that the Board receive and file the BCCC petition and OCWD Staff Report, and schedule a public hearing to consider this matter.

PRIOR RELEVANT BOARD ACTION(S) - none
STAFF REPORT

EVALUATION OF PETITION FOR EXCLUSION FROM PAYMENT OF REPLENISHMENT AND BASIN EQUITY ASSESSMENTS BY BIG CANYON COUNTRY CLUB, NEWPORT BEACH, CA

Prepared by
Roy L. Herndon, PG, CHg, Chief Hydrogeologist

November 2013

Introduction

In October 2013, the Orange County Water District (OCWD) received a petition from Big Canyon Country Club (BCCC) for exclusion from payment of the replenishment assessments (RA) and basin equity assessment (BEA) for groundwater that would be produced from one or more wells proposed to be constructed within BCCC in the city of Newport Beach. The groundwater produced from the proposed wells would be used for irrigation purposes. The purpose of this report is to present staff’s review of available information regarding whether groundwater production proposed by BCCC would meet criteria to allow the extracted groundwater to be excluded from payment of the RA and BEA per Section 38 of the OCWD Act.

Proposed Facilities Location and Description

As shown in Figures 1 and 2, BCCC is located in the southernmost portion of OCWD and is generally bounded by Jamboree Boulevard, Ford Road, MacArthur Boulevard, and San Joaquin Hills Road in the city of Newport Beach. According to its petition, BCCC has approximately 120 acres of irrigated golf course turf and 30 acres of irrigated slope. Total irrigation demand is approximately 220 acre-feet per year. BCCC’s water supply is currently served by the city of Newport Beach, including reclaimed water supplied by OCWD’s Green Acres Project. The average amount of Green Acres Project water delivered to BCCC was 212 acre-feet over the last three years.

Given increased water costs, BCCC is evaluating the feasibility of developing its own water supply by constructing one or more groundwater wells on its property. As a key part of its economic feasibility evaluation, BCCC is seeking a determination by OCWD as to whether groundwater produced by BCCC would be charged the RA and BEA or whether an exclusion would be granted under the provisions of the District Act, Section 38.

The terrain on which BCCC is located comprises an uplifted terrace that has been eroded by canyons and arroyos, the largest of which is known as Big Canyon. Ground surface elevation ranges from approximately 50 feet above mean sea level (MSL) near
the bottom of Big Canyon to 220 feet above MSL on top of the terrace. The terrace is part of the northwesternmost flank of the San Joaquin Hills. Surface water runoff in the area feeds into the canyons which drain to the west into Upper Newport Bay via Big Canyon Wash.

BCCC’s petition indicates three potential exploratory borehole or water well locations, as shown on Figure 3. The proposed maximum depth of the boreholes or wells is 800 feet. Groundwater production potential and water quality characteristics of these proposed facilities are unknown given a lack of site-specific data, although regional information indicates a high potential for relatively low groundwater production and brackish water quality.

**Hydrogeologic Conditions**

BCCC is located in an area that is not considered to directly overly the Orange County groundwater basin. BCCC overlies geologic formations known as the Monterey shale and Topanga formation (Hughes, 1994; Morton and Miller, 1981; Greenwood and Morton, 1991). These formations primarily consist of consolidated and fractured shales and sandstones of Miocene age (5 to 23 million years old) that were deposited as marine (ocean) sediments. Over time, these deposits have been compacted, cemented, folded, fractured, and faulted. The Monterey shale has been and continues to be a prolific oil production zone in the cities of Newport Beach, Huntington Beach, Seal Beach, and extending hundreds of miles to the north into central California.

In the nearby Irvine area, the U.S. Geological Survey considered deposits of Miocene age or older to be “nonwater-bearing” (Singer, 1973). The California Department of Water Resources (DWR, 1967) reported a similar interpretation and defined “nonwater-bearing” as referring to formations that yield less than 50 gallons per minute to wells. Localized pervious zones may exist within the “nonwater-bearing” sediments, and in some areas contribute to underflow that recharges the main groundwater basin (DWR, 1934), e.g., foothills of Anaheim, Orange, and Tustin. OCWD staff has followed these characterizations when developing its hydrogeologic interpretations and groundwater models of the Orange County groundwater basin. Figure 4 presents a simplified geologic cross section, interpreted from sparsely-spaced oil well geophysical logs, that illustrates the distance and structural relationship between the Miocene-aged formations beneath the BCCC and the groundwater basin aquifers in the vicinity of the Talbert Seawater Barrier.

The Monterey shale and Topanga formation are reportedly many hundreds of feet thick, and, therefore, a proposed 800-foot deep well at the BCCC would likely only penetrate these formations. OCWD staff is not aware of any wells in or surrounding the groundwater basin that produce water from these formations. The nearest active production well to BCCC is the Newport Beach Golf Course well approximately 2.3 miles to the north on the Newport Mesa.

The Pelican Hills fault runs through the northeastern corner of BCCC in a northwest-southeast trend. The fault is thought to be an offset strand of the Newport-Inglewood
Fault system and offsets Monterey shale on the south side of the fault against Topanga formation on the north side of the fault (Hughes, 1994; Morton and Miller, 1981). The majority of BCCC is on the south side of the Pelican Hills fault. Although it is not known conclusively, the fault may act as a barrier to groundwater flow between the area underlying the BCCC south of the fault and the main groundwater basin north of the fault. Other branches of the Newport-Inglewood fault system do act as partial or complete barriers to groundwater flow.

While groundwater exists in the formations beneath the BCCC, its ability to flow in appreciable amounts to a well largely depend on the degree of open fractures. The flow also depends on the degree to which these fractures are interconnected and whether there is a significant recharge source. From a surface recharge standpoint, the sub-watershed that drains precipitation and landscape irrigation water runoff into Big Canyon Wash is relatively small (approximately two square miles – Reeder, 2011) and extends to a high point (approx. elevation 670 feet MSL) about one mile southeast of the BCCC. Potential surface water recharge sources within this sub-watershed include leakage from Big Canyon Reservoir, applied irrigation water at the Pacific View Memorial Park and surrounding areas, and local precipitation (JMM, 1977 and 1985). The degree to which these sources of recharge are able to infiltrate and reach fractures in the Monterey shale and Topanga formation in the vicinity of BCCC is unknown.

Groundwater within the formations beneath the BCCC may be brackish. Groundwater samples collected within the upper 40 feet from ground surface in the vicinity of Big Canyon Reservoir (approximately 2,500 feet southeast of BCCC) contained total dissolved solids concentrations as high as 15,000 to 18,900 mg/L (JMM, 1977).

**RA and BEA Exclusion Criteria**

Criteria for exclusion of facilities from payment of the RA and BEA are discussed in Section 38 of the District Act, which states:

"the secretary [general manager] of the district shall cause an investigation to be made by the district geologist or an engineer or engineers to determine whether the water-producing facility is or is not producing groundwater from a zone replenished by the Santa Ana River or its tributaries.

If] the board of directors determines and finds that such water-producing facility is not producing groundwater from a zone replenished by the Santa Ana River or its tributaries, the board of directors shall make an order that such water-producing facility shall be excluded from the payment of the replenishment assessment and from the levy of the basin equity assessment and the production requirements and limitations as provided in this act."
Staff Findings

Based on staff’s review of available topographic, geologic, and hydrogeologic data, the following findings are provided:

1. Surface water drainage from areas including and surrounding the BCCC flows to the tidal area of Upper Newport Bay at the mouth of Big Canyon Wash.
2. Geologic formations proposed to be explored and potentially used for groundwater production by BCCC consist of Miocene-aged shales and sandstones that have been characterized as “nonwater-bearing” by the U.S. Geological Survey and the California Department of Water Resources.
3. The Pelican Hills Fault runs to the north of the BCCC and may act as a groundwater barrier between formations beneath BCCC and the main groundwater basin to the north of the fault.
4. Sources of potential surface recharge to the formations beneath BCCC consist of infiltration of precipitation and irrigation water applied within the sub-watershed above the BCCC, as well as potential leakage from Big Canyon Reservoir.

In summary, it is staff’s opinion that it in all likelihood the geologic formations beneath the BCCC are not replenished by the Santa Ana River or its tributaries, nor are they hydraulically connected to zones replenished by the Santa Ana River or its tributaries.

References

DWR, 1934, Geology and Ground Water Storage Capacity of Valley Fill, Division of Water Resources, Bulletin No. 45.


James M. Montgomery Consulting Engineers, 1985, Big Canyon Reservoir Ground Water Evaluation, prepared for city of Newport Beach.

Reeder, Terri S., 2011, Geology, Hydrology, and Water Quality with a Focus on Selenium Sources and Potential Impacts, Big Canyon Wash Watershed, Newport Beach, California – Final Report, prepared for Santa Ana Regional Water Quality Control Board.


Figure 1. Investigation Area Location Map
Figure 2. Investigation Area Map

- Talbert Injection Wells
- Upper Newport Bay
- Big Canyon Country Club

Geologic Cross Section (see Figure 4)
Figure 3. Big Canyon Country Club Proposed Boring/Well Locations

△ Exploratory Boring/Well Location (approx.)
Figure 4. Geologic Cross Section

- Basin Aquifers (Pleistocene and Younger)
- Pliocene-aged Formation (marginal to “nonwater-bearing”)
- Miocene-aged Formation (“nonwater-bearing”)

Legend:
- NW (Northwest)
- SE (Southeast)
- 55 Freeway
- Newport Mesa
- Upper Newport Bay
- Proposed Wells

Scale:
- Horizontal Scale: 0.5 Mile
- Vertical Scale: Feet MSL (feet Mean Sea Level)

Key Locations:
- Talbert Injection Wells
- Santa Ana River
- Big Canyon Country Club
October 1, 2013

Board of Directors
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Re: Petition to Exclude Replenishment and Basin Equity Assessments

Ladies and Gentlemen,

Big Canyon Country Club (BCCC) is the owner of a golf course, driving range and other facilities on approximately 150 irrigated acres located in Newport Beach, CA in the low-lying foothills east of Upper Newport Bay, generally bounded by San Joaquin Hills Road on the south, MacArthur Blvd. on the east, Ford Road on the north and Jamboree Road on the west. Of the 150 irrigated acres, approximately 120 are turf and the other 30 acres are mostly graded slopes, approximately 15 acres of which slopes are irrigated intermittently. The irrigation demand at BCCC is approximately 220 acre feet per year.

BCCC is currently considering drilling one or two exploratory test holes to help determine the potential for generating sufficient groundwater of useable quality to justify the construction of one or more permanent wells on property owned by BCCC. The approximate locations of potential exploratory bore holes and possible wells are depicted on Exhibit A attached. The bore holes and wells would be to an approximate depth of 800 feet. The groundwater that may be generated from one or more wells would be used for onsite irrigation purposes only. The hydrogeologist retained by BCCC has opined to BCCC that given the geologic formations below the BCCC property, the amount of groundwater that may be available can at best be expected to be on the low-end of a feasible volume to justify the expense of drilling one or more wells.

Based upon the above, BCCC has determined that in order to justify speculative drilling for groundwater, BCCC will need assurances that the operating costs of any wells will allow BCCC to recoup its investment in a reasonable period of time. BCCC has concluded that the cost of exploration for groundwater and the construction of one or more new water supply wells means that the project will not be feasible if BCCC were also required to pay either a replenishment assessment or a basin equity assessment to Orange County Water District (OCWD). For that reason, BCCC hereby petitions (Petition) the Board of Directors of Orange County Water District (OCWD Board) to find that the BCCC property is excluded from the application of a replenishment assessment and the levy of a basin equity assessment (collectively, the Assessments) which might otherwise apply to groundwater produced by one or more wells on the BCCC property.
Of course, BCCC understands that any decision by the OCWD Board on the Petition cannot be based on the financial reasons that motivate BCCC to file this Petition. Rather, the decision of the OCWD Board must be rendered consistent with the provisions of Section 38 of the Orange County Water District Act (Act). Section 38 states in part “[A]ny water-producing facility which is not producing ground water from a zone replenished by the Santa Ana River or its tributaries may be excluded by order of the board of directors from the payment of the replenishment assessment and from the levy of the basin equity assessment and the production requirements and limitations provided by this act after the filing of a verified petition by the owner of a water-producing facility.”

BCCC is not presently a water-producing facility, but nonetheless seeks a finding by the OCWD Board that if BCCC were to drill one or more water supply wells on the BCCC property and become a water-producing facility, those wells would be excluded from the Assessments. As mentioned above, the exclusion can be granted to BCCC only if the OCWD Board determines and finds that any water-producing facility on the BCCC property would not be producing ground water from a zone replenished by the Santa Ana River or its tributaries.

In order to provide the OCWD Board with technical detail and a professional opinion about the replenishment zone encompassed by the BCCC property, BCCC retained Richard C. Slade & Associates LLC, consulting groundwater geologists (RCS). Attached to this Petition is a Memorandum from RCS which concludes that any groundwater that could be generated from new water supply wells on the BCCC property would not be producing from a zone replenished by the Santa Ana River or its tributaries.

Upon completion of the investigation and hearing required to be undertaken by the OCWD secretary and the OCWD Board, respectively, after the filing of this Petition, if the OCWD Board determines and finds that groundwater from beneath BCCC would not be from a zone replenished by the Santa Ana River or its tributaries, the OCWD Board is mandated to order that BCCC be excluded from the payment of the Assessments by an explicit provisions of Section 38 of the Act.

Please provide BCCC with an estimate of the expenses of advertising and costs incident to the proceedings due to this Petition as soon as possible. Lastly, please commence the investigation contemplated by Section 38 of the Act as soon as possible after providing the estimated expenses.

The undersigned verifies that the information contained in this Petition is true, correct and complete to the best knowledge of the undersigned.

Very truly yours,

Big Canyon Country Club
a California Non-Profit Corporation

By

Donald J. Wynne, President
Approximate locations of potential exploratory bore holes and water wells. Approximate depth 800’.

Exhibit A
September 30, 2013

To: Mr. Jeffrey Beardsley
   Golf Course Superintendent
   Big Canyon Country Club
   One Big Canyon Drive
   Newport Beach, CA 92660
   Sent via email (jbeardsley@bigcanyoncc.org)

From: Richard C. Slade, President & Principal Groundwater Geologist
       Richard C. Slade & Associates LLC

Re: Hydrogeologic Opinion In Support of
   Petition by Big Canyon Country Club
   For Exclusion from Replenishment and Basin Equity Assessments,
   Section 38 – Orange County Water District Act

Job No. 510-OGE01

Background

This Technical Memorandum has been prepared to provide our hydrogeologic opinion in support of the petition being submitted by Big Canyon Country Club (BCCC) for exclusion from payment of replenishment and basin equity assessments to the Orange County Water District (OCWD) pursuant to Section 38 of the OCWD Act (Act). Even though BCCC is not currently a water-producing facility as defined in the Act, it has retained Richard C. Slade & Associates LLC, Consulting Groundwater Geologists (RCS), to assess the feasibility of developing a viable source of groundwater from beneath its property via the possible construction of new irrigation-supply water wells. If RCS determines that it is hydrogeologically feasible to develop underlying groundwater supplies through drilling and testing of the exploratory boreholes at the property, then the BCCC Board of Directors (Board) may move forward in trying to develop the groundwater in adequate quantities and of appropriate quality in order to augment BCCC’s current irrigation-supply demands for its existing 18-hole golf course, practice facilities and landscaped areas (Irrigated Facilities) if it is financially feasible to do so.

Brief Description of Use of Irrigation Water at Big Canyon Country Club

BCCC is a private country club that lies in the hills just east of Upper Newport Bay and approximately 1¼ miles from the Pacific Ocean. As shown on Figure 1A, “Location Map” which has been adapted from a Google Earth image, BCCC is located in Newport Beach, CA and is generally bounded by Ford Road on the north, MacArthur Blvd on the east, San Joaquin Hills Road on the south and Jamboree Road on the west. Figure 1B “Aerial Photograph of Site”, has been prepared to visually illustrate the locations of the BCCC property relative to local streets and roads, and to Upper Newport Bay.

Water supply to meet the current domestic and irrigation demands of the Irrigated Facilities is provided by the City of Newport Beach (City). A portion of the existing irrigation supply to the
Irrigated Facilities is recycled water which the City procures from OCWD and the Irvine Ranch Water District. Due to the high and ever-increasing costs for purchasing recycled water for irrigation supply, and to become more self-sufficient in its water supply for onsite use and for emergency purposes, the BCCC Board, via RCS groundwater geologists, has begun the process of evaluating and exploring the groundwater resources beneath its property. Part of the analysis of the economic feasibility of using groundwater resources is to determine the extent to which recurring charges would be imposed in connection with the use of groundwater, in addition to the expense of constructing, equipping and maintaining one or more new water-supply wells to help develop local groundwater resources for irrigation-supply purposes.

Professional Hydrogeologic Opinion

Section 38 of the “The Act” allows “[a]ny water-producing facility which is not producing ground water from a zone replenished by the Santa Ana River or its tributaries [to] be excluded by order of the board of directors [of OCWD] from the payment of the replenishment assessment and from the levy of the basin equity assessment”... after the filing of a verified petition by the owner of a water-producing facility.

Based on the earth materials known to exist at and beneath ground surface at the BCCC property (as seen on and interpreted from Figure 2, “Geology Map”), our hydrogeologic assessment of available reports and data, on our long-term experience in conducting groundwater resource evaluations in a large variety of sedimentary, volcanic and crystalline rocks throughout southern California, and on our review of Section 38 of the Act, it is our professional opinion that the proposed development and use of groundwater resources from beneath BCCC should be wholly excluded from the payment of the replenishment assessment and from the levy of the basin equity assessment by the OCWD because such groundwater resources would not be produced from a zone that is replenished by the Santa Ana River or its tributaries. To support and document our professional opinion, we submit the following:

1. The BCCC property lies in the low-lying foothills of the San Joaquin Hills directly east of the brackish to saline water within Upper Newport Bay (see Figure 1).

2. Earth materials mapped at ground surface on and near the property, as geologically mapped and published by the USGS (2006; refer to References Reviewed) include:
   - Undifferentiated alluvial-type deposits (map symbols “Qes”, “Qop a”, “Qop 1”, “Qop 2” and “Qop 3”; on Figure 2 these materials are shown in colors of very pale yellow, peach, yellow-green, blue-green and avocado green, respectively. Importantly, none of these geologically young earth materials lie within or beneath the Orange County Groundwater Basin (OCGB), and no known water wells have ever been drilled into and/or used to extract groundwater from these materials. Further, due to their location on BCCC property, they are recognized as being either singly or combined (jointly) of very limited thickness. Hence, none of these earth materials would be considered to be a viable source of groundwater for BCCC use in the future.
   - The Monterey Formation (map symbol Tm and shown in a yellow color on Figure 2), which consists of well-consolidated to cemented siliceous to diatomaceous siltstone and shale of the Miocene geologic age; minor interbeds of sandstone
Hydrogeologic Opinions in Support of
Petition by Big Canyon Country Club
For Exclusion from Replenishment and Basin Equity Assessments
Section 38 – Orange County Water District

are likely present also. These rocks, which were deposited in a marine environment, occur at ground surface on portions of the BCCC property, and are also known to directly underlie the large ground surface exposure of the peach-colored “Qopf a” on Figure 2. This geologic unit thinly covers much of the central part of BCCC property. Monterey Formation rocks do not contain groundwater between the individual grains of materials which formed the rocks, but rather groundwater in this formation is only located in fractures and joints created in the rocks as a result of faulting and earth movements after the rocks have become lithified. No water wells are known to have ever been historically drilled or constructed into these rocks anywhere in Orange County. Further, these rocks are not a part of the OCGB, and none of the known existing water-supply wells in this basin have ever been drilled or constructed into these relatively old Monterey Formation rocks.

- The Topanga Formation, which includes the Paularino Member and the Los Trancos Member (Figure 2 symbols “Ttp” and “Ttlt”, respectively, and which are shown on that figure in a dark salmon color and a lime green color, respectively). These rocks are comprised by lithified to cemented, marine-deposited sandstone and shale with various amounts of interbedded siltstone. These rocks occur at ground surface solely in the northeast portion and near the east boundary of BCCC property. Geologically, because they are slightly older than the rocks of the Monterey Formation, the strata of the Topanga Formation are also known to underlie, at depth, that younger formation beneath the central and western portions of BCCC property. Similar to the discussion of the Monterey Formation above, rocks of the Topanga Formation are not a part of the adjoining Orange County Groundwater Basin; rather, they underlie all known geologically younger, water-bearing sediments which comprise that basin; no water wells are known to have ever been drilled into or constructed within this formation; and no known water-supply wells in the OCGB have even been drilled into, or extracted groundwater from, this formation.

3. RCS has reviewed a few other geologic maps of the Orange County region, including areas proximal to BCCC, as mapped and published by previous investigators (Vedder, USGS, 1957 and 1975; Morton et al, USGS, 1973). Each of those maps clearly reveals that the basic, predominate type of earth materials in the hillsides encompassing BCCC are the nonwater-bearing sedimentary rocks assigned to the Monterey and Topanga formations, and to an even older and underlying group of sedimentary and volcanic rocks.

4. RCS reviewed several annual reports published by OCWD and also the DWR Progress Report on Groundwater Geology in Orange County (July 1967) and determined that a map of groundwater elevations has not been created for any of the hillside and/or mountain areas which border the north, east and southeast sides of the OCGB, including the foothills area within which BCCC is located, east of Upper Newport Bay.

5. RCS has reviewed oilfield maps and maps of wildcat oil/gas wells for the Newport Beach region and obtained information on the history of the now-abandoned Newport Beach
Oilfield (14 miles west of BCCC), and on several wildcat oil/gas wells proximal to BCCC property (see locations on Figure 2). In addition, RCS reviewed detailed geologic cross sections throughout the region, as published by the AAPG (Cross Section 14R, May 1987). These maps and published cross sections, along with the geophysical electric logs (E-logs) of nearby oil wells that RCS acquired from online services, all reveal that: production from the Newport Beach Oilfield that lies within the surface extent of the OCGB is from Monterey and Topanga and/or older rocks, all of which wholly underlie the water-bearing sediments which comprise this groundwater basin; the rocks of these formations exist directly at or very near ground surface throughout the foothills and the main part of the San Joaquin Hills, directly east of Upper Newport Bay; and the available E-logs are typical of those for the nonwater-bearing rocks that exist at and beneath not only BCCC property, but that also underlie the OCGB to the west.

6. Various reports from site consultants for the Ford Autonutronics facility that was formerly located near BCCC but just north of Ford Road, as available in RCS files and from online sources, were reviewed. Those reports reveal that siltstone, shale and even some sandstone strata were encountered at/near ground surface as a result of prior subsurface drilling exploration programs on the former Ford facility, and also in the northwest corner of BCCC. Notably, even though those existing borehole logs and test results by others for the tested sedimentary rocks show limited flow rates (between 5 to 10 gpm) and high total dissolved solids concentrations (TDS) values on the order of 5,000 and 9,500 milligrams per liter, mg/L; none of those prior boreholes extended to depths greater than 75 feet or so into the sedimentary bedrock strata beneath the two properties.

7. In contrast to the low flow rates and high TDS values known to date in the sedimentary bedrock beneath the former Ford and existing BCCC properties, it is well known that those pumping rates and water quality are substantially different than those in all water-supply wells known to be located in the OCGB to the west. Known flow rates in basin-wide wells are several tens to hundreds or even a few thousand gpm, and TDS values are generally less than 1,000 mg/L in water wells.

8. Earlier Annual Engineer's Reports prepared by OCWD on groundwater conditions in the Orange County region over the years clearly show groundwater elevations and the generally-accepted boundaries of the OCGB (e.g., see Figure 3 in the 1983-84 Engineer's Report). Such figures reveal not only the complete absence of groundwater data in the hillside areas which enclose the north, east and southeast sides of that groundwater basin, but also the fact that the BCCC property does not lie within the basin. The nearest of the boundary lines for this groundwater basin lies on the order of 1-mile from BCCC property. For the record, similar water level elevation maps in later Annual Reports (like the one for 2000-2001) no longer illustrate the groundwater basin boundary, but rather the OCWD “boundary”.

9. None of these sedimentary rocks on and beneath BCCC provide groundwater to the water-bearing sediments within the OCGB. That is, there is no hydraulic communication between the rocks beneath BCCC and the sediments in the basin. Hence, the sediments in the groundwater basin receive no recharge from those sedimentary rocks.
10. Any groundwater pumped from a successful new water well at BCCC would be considered to be from a currently untapped resource in the OCWD area.

11. Any successful new water well at BCCC would not impact the quantity or water quality of any known or future water well located within the OCGB.

12. Any successful new water well at BCCC would not induce any water level drawdown interference in any known or future water-supply well in the OCGB.

13. Any successful new water well at BCCC would have the added benefit of reducing BCCC demands for currently available potable water and/or recycled water supplies in the OCWD.

14. Recharge to BCCC property, by virtue of its geographic position and its local topographic and geologic conditions, does not and will not result from the Santa Ana River or its tributaries. Rather, recharge may be due entirely to direct infiltration of rainfall on the San Joaquin Hills.
REFERENCES REVIEWED

AAPG Cenozoic Cross Section, May 1987; “Across Los Angeles Basin from Beverly Hills to Newport” - CS14R

AMEC Geomatrix, June 2008; “Data Gap Investigation Report, Former Ford Autonutronic Facility Newport Beach, California”

_____ June 2010; “Additional Data Gap Investigation Report, Former Ford Autonutronic Facility Newport Beach, California”

Department of Water Resources (DWR), July 1967; “Progress Report on Ground Water Geology of the Coastal Plain of Orange County”


_____ April 1995; “Final Remedial Investigation Report for the Former Ford Autonutronic Facility Newport Beach, California”


Orange County Water District, 2000-2001; “Engineer’s Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District”


United States Geological Surveys (USGS), Morton, D.M. et. al, 2006; “Geologic Map of the San Bernardino and Santa Ana 30’ x 60’ Quadrangles, California”

Vedder, J.G., 1975; “USGS Open File Report” 75-552

Vedder, J.G., Yerkes, R.F., & Schoellhamer, J.E., 1957; “Geologic Map of the San Joaquin Hills – San Juan Capistrano area, Orange County, California” USGS Oil and Gas Investigation Map 193
FIGURE 1B
AERIAL PHOTOGRAPH OF SITE
Job No. 510-OGGE01
July 2013
AGENDA ITEM SUBMITTAL

Meeting Date: November 13, 2013
To: Water Issues Committee
    Board of Directors
From: Mike Markus
Staff Contact: G. Woodside, M. Westropp

Subject: STATE WATER BOARD GROUNDWATER WORKPLAN CONCEPT PAPER AND CALIFORNIA WATER ACTION PLAN

SUMMARY

The State Water Resources Control Board (Water Board) has initiated an effort to address challenges to managing groundwater in California. The draft *Groundwater Workplan Concept Paper* suggests a wide-range of potential actions such as increasing collection of data, developing governance structures, and targeting cleanup actions. A related effort is Governor Brown’s multi-agency group that released the draft *California Water Action Plan*. The Plan identifies key actions for sustainable management of the state’s water resources and includes recommendations for groundwater management. OCWD will submit comments on these plans; draft comment letters are attached.

Attachment(s):
- Discussion Draft, *Groundwater Workplan Concept Paper* (from Water Board)
- Draft OCWD Comment Letters

RECOMMENDATION

Informational

BACKGROUND/ANALYSIS

*Groundwater Workplan Concept Paper from Water Board*

Groundwater is a primary source of drinking water supply in many areas of California. In some areas of the state, groundwater basins are not adequately managed resulting in unaddressed over-pumping, water quality degradation, and long-term sustainability problems. The State Water Board began an effort in 2011 to evaluate the challenges of groundwater management and develop a plan to address those challenges. The results of those efforts are outlined in the recently released *Groundwater Workplan Concept Paper*.

The concept paper outlines a workplan for the Water Board to address challenges to groundwater basins in the state. The aim is to focus efforts on groundwater problems that have the greatest potential to impact water quality, prioritize resources to address those
problems, and encourage efforts to protect and manage groundwater at the local and regional levels.

The vision is “a future where well-equipped local and regional groundwater management entities…manage and maintain groundwater of sufficient quality at sustainable levels over the long term…backed up by State support and oversight, where needed.” Included in the plan are suggested actions that strengthen local management of groundwater while also increasing the state role in collecting and managing data, focusing regulatory actions to control discharges in vulnerable areas, and establishing a task force to address groundwater overdraft, to name a few. Some of the potential recommendations include:

- Assessing groundwater conditions;
- Evaluating groundwater quality and quantity trends;
- Integrating data collection, developing publically accessible data bases using GeoTracker GAMA (existing groundwater quality database) and CASGEM (existing groundwater level database), and creating a searchable electronic database to submit well completion reports;
- Identifying basins subject to critical overdraft and conducting elevation monitoring where it is not occurring;
- Passing legislation to require well owners to test wells for nitrates and report to groundwater users if nitrate levels are elevated;
- Evaluating groundwater management plans in high-use basins and identifying where gaps in management exist;
- Establishing best practices for groundwater management; and
- Establishing a funding source for cleanup of contaminated sites.

Some of the proposals in the concept paper may be positive actions that improve groundwater management in the state. However, some proposals may lead to interference with successful groundwater management by local agencies. In Southern California, the majority of groundwater basins are well-managed and do not need additional layers of state involvement or control. Groundwater management is best achieved by local agencies such as the Orange County Water District. It is recommended that the state focus the state’s efforts on facilitating local groundwater management agencies in groundwater basins without a local management agency. Staff has prepared a draft comment letter that discusses these issues (copy attached).

California Water Action Plan

The draft California Water Action Plan was prepared jointly by the CA Environmental Protection Agency, the CA Department of Food & Agriculture, and the CA Natural Resources Agency in response to Governor Brown’s directive. Ten key actions are proposed for the next five years to sustainably manage the state’s water resources. These key actions are conservation as a way of life, invest in integrated water management, achieve co-equal goals for the Delta, ecosystem protection, manage for drought, expand water storage capacity, provide safe drinking water to all, increase flood protection, improve regulatory efficiency, and identify integrated financing opportunities.
Regarding groundwater, the Plan states:

“Groundwater accounts for more than one-third of the water used by cities and farms – much more in dry years, when other sources are cut back. Unfortunately, much of California’s groundwater is not sustainably managed. Climate change is exacerbating ongoing problems with groundwater resources in California, including overdraft, seawater intrusion, land subsidence, and water quality degradation. Taking more than is returned lowers groundwater levels which makes pumping more expensive and energy intensive. It also serves to mobilize toxins that impair water quality and causes land subsidence, which damages infrastructure and permanently diminishes the capacity to store water for the future. Land subsidence due to groundwater overdraft is impossible to reverse. Well-managed groundwater has the potential to buffer against the impacts of climate change on our water resources. The actions identified in this plan will move California toward better management of our groundwater resources.”

The report advocates that the state adopt uniform water recycling criteria for indirect potable reuse of recycled water for groundwater recharge and criteria for direct potable reuse. Other recommendations include a systematic evaluation of major groundwater basins to determine sustainable yield and overdraft status, a projection of groundwater resources in 20 years if current management trends continue, and identification of basins that are in critical overdraft.

In the ‘Actions’ section of the draft California Water Action Plan, the Plan states:

- **Improve Sustainable Groundwater Management**
  When well-managed, groundwater has the potential to be a buffer to the impacts of climate change on our water system. The administration will work with the Legislature to ensure that local agencies have the incentives, tools, authority, and guidance to develop and enforce local and regional management plans that protect groundwater elevations and quality. The administration will take steps, including sponsoring legislation if necessary; to define local responsibilities and to give local agencies the authority necessary to manage groundwater sustainably and ensure no groundwater basin is in danger of being permanently damaged by over drafting. When a basin is at risk of permanent damage, and, after having been provided the needed authority, local agencies do not make sufficient progress to correct the problem in a timely manner; the state should have carefully-defined authority to protect the basin and its users until an adequate local program is established.

Staff has prepared a draft comment letter to address the following issues:

- In Southern California, the majority of the groundwater basins are well-managed and do not need additional layers of state involvement or control
- Groundwater management is best achieved by local agencies such as the Orange County Water District

**PRIOR RELEVANT BOARD ACTION(S):**

None
DISCUSSION DRAFT

Groundwater Workplan Concept Paper

The Water Boards are developing a workplan that aligns its current groundwater protection efforts, the ongoing actions of other entities with groundwater management responsibilities, and potential actions that the Water Boards and other entities could pursue. The objective is to ensure that the Water Boards address the groundwater challenges that have the greatest potential to impact beneficial uses, focus limited resources on the most important groundwater problems, and facilitate more efficient local and regional groundwater management and provide support and oversight, where needed.

This concept paper proposes a workplan framework under which the Water Boards’ groundwater activities would be organized. Whether implemented at the local, regional, or State level, the Water Boards believe that an effective groundwater management program generally requires five key elements to be in place: thresholds, monitoring and assessment, governance, funding, and enforcement. The State Water Board is interested in your thoughts on the relevance of the proposed framework for groundwater management as well as its applicability to groundwater-related programs statewide. For each element of the proposed framework, this concept paper lists existing actions and suggests potential future actions that the Water Boards and others could take as a starting point for discussion. Many additional recommendations for action have been published in a variety of reports which can be found under reference materials in the website below.

The State Water Board is interested in meeting with various interests to continue the dialogue on this proposed framework, and the combination of existing and proposed actions, in the coming months. For more information please visit our website at:


1 Managing California’s Groundwater – Regional Leadership

Successful groundwater management requires prevention and cleanup of groundwater contamination, maximizing opportunities to recharge high-use basins, and ensuring that pumping occurs at sustainable levels over the long-term. **We envision a future where well-equipped local and regional groundwater management entities use monitoring information and thresholds to manage and maintain groundwater of sufficient quality at sustainable levels over the long-term; and where local and regional management efforts are backed-up by State support and oversight, where needed.** In some cases, management will also involve treatment of groundwater at the point of extraction or use for drinking water purposes, while measures to prevent further contamination are taken and long-term cleanup actions are implemented to address legacy pollution.

2 Implementing the Vision

The Water Boards currently implement a number of successful programs aimed at preventing and cleaning up groundwater pollution, monitoring quality, and encouraging recharge. Additionally, the State Water Board has broad constitutional authority to prevent the waste and unreasonable use of the State’s water resources (including groundwater). While California lacks a comprehensive State
groundwater regulatory program, local and regional management of groundwater basins does exist in much of the State. The nature of groundwater and its uses vary widely by area, as does the extent of control. As a result, groundwater management has largely evolved on an as needed basis in a decentralized manner across the State. In spite of this, local and regional groundwater management efforts have produced impressive results in many areas of the State. Groundwater recharge, conjunctive use and cleanup projects have extended local water supplies, and storm water capture and recharge programs are growing around the State.

Effective groundwater management will ensure groundwater quality and quantity is maintained at sustainable levels that support beneficial uses of water over the long-term. Many of the most pressing challenges associated with groundwater quality can be broken down into three categories: (1) nitrate and other salts; (2) industrial chemicals; and (3) naturally-occurring chemicals. Nitrate and salt problems are generally associated with diffuse nonpoint pollution sources, such as agricultural drainage. Industrial pollutants typically originate from discrete point sources. Naturally-occurring chemicals are associated with geologic processes, and human activities often mobilize these pollutants into groundwater. Groundwater quality can also be impacted by pumping and declining water levels. In some areas, pumping may cause polluted groundwater or seawater to migrate or be drawn into areas that would otherwise not be impacted. The greatest challenge for groundwater quantity is overdraw leading to subsidence and the permanent loss of storage capacity. Managing groundwater levels (quantity) and preventing overdraft largely depends on maintaining a balance between the amount of pumping, natural depletion from a basin, and the amount of recharge. These challenges do not lend themselves to a “one size fits all” solution, given the varying physical and institutional characteristics of California’s groundwater basins. Therefore, an integrated approach to groundwater management is needed to ensure that appropriate action occurs at all levels of government.

Whether implemented at the local, regional, or State level, effective groundwater management generally requires that the following key elements be in place:

1. **Sustainable thresholds** for water level drawdown and water quality for impacted, vulnerable, and high-use basins;

2. Water quality and water level **monitoring and assessment**, and data management systems, capable of determining if thresholds are being met and evaluating trends;

3. **Governance** structures with the **management** mechanisms needed to prevent impacts before they occur, clean up contamination where it has occurred, provide adequate treatment of contaminated drinking water sources, and ensure that meeting groundwater level and quality thresholds are managed over the long term;

4. **Funding** to support monitoring and governance/management actions; and

5. **Oversight and enforcement** in basins where ongoing management efforts are not protecting groundwater.

This approach to groundwater management is scalable by design because each key management element can be established and implemented at the local, regional, or State level, or through a combination thereof. The Water Boards will focus attention and assistance on high-use basins where thresholds are being exceeded.

The figure below portrays the application of this management framework to groundwater quality and quantity.

<table>
<thead>
<tr>
<th>Key Management Elements</th>
<th>Challenges</th>
<th>Quality (ongoing and legacy pollution)</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Nitrate and other Salts</td>
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<td>Industrial Contaminants</td>
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<td>Naturally-occurring Contaminants</td>
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<td>Pumping</td>
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<td>Funding</td>
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<td>Oversight and Enforcement</td>
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### 3 Management Elements and Potential Actions

For each of the five key management elements needed for effective groundwater management, this section lists current Water Board and other agency/entity groundwater protection actions. Actions that the Water Boards or other agencies/entities could take in the future to enhance current efforts are then provided as a starting point for discussion. The Water Boards are soliciting input on the types of actions needed to ensure viable and effective groundwater management solutions, particularly in areas of greatest need.

#### 3.1 Sustainable Thresholds

Various agencies, including the Water Boards, establish protective levels, or thresholds, that apply to groundwater. These thresholds include State water quality standards, and local or regional basin management objectives (BMOs), that are used for managing and assessing groundwater quality and quantity to support designated beneficial uses and ensure a sustainable groundwater water supply. Thresholds are an important component of groundwater management because they establish quantifiable triggers that, when approached or exceeded, signal a threat or problem. Approaching or exceeding a threshold may trigger management actions needed to address identified threats or problems. The State Water Board is soliciting comment on whether the current and proposed actions will result in thresholds for groundwater quality and elevation that support assessment of groundwater conditions, evaluation of groundwater quality and quantity trends, and informed management decisions.
3.1.1 Potential Water Board Actions

1. Clarify how the State Water Board’s Antidegradation Policy (Resolution No. 68-16) applies to groundwater (including effects related to quantity, such as recharge).


3. Summarize approaches taken towards basin management objectives (BMOs) in existing local groundwater management plans for application in high-use basins where objectives do not exist.

3.1.2 Potential Actions for Others

1. CDPH should complete the rulemaking for groundwater recharge with recycled water (indirect potable reuse).

2. The Legislature should require local groundwater management entities to establish thresholds for sustainable groundwater management in their local groundwater management plans and to report their progress.

3.2 Monitoring and Assessment

Groundwater monitoring and assessment evaluates current conditions, can be used to establish groundwater thresholds, and guides management decisions. Without sufficient monitoring, it is almost impossible to determine if groundwater problems exist or to forecast the potential for future problems that may warrant management actions. Many local, regional, and State agencies have statutory responsibility or authority to collect water quality and water use/level data and information; however, monitoring is inconsistent throughout the State, with significant regional variation in parameters monitored, monitoring frequency, and data availability. In spite of this diversity, there are excellent examples of groundwater monitoring programs now being implemented at the local, regional, and State levels. The State Water Board is interested in understanding whether the existing and proposed actions will result in better integration and accessibility of existing groundwater quality and quantity data to support assessment of groundwater conditions, evaluation of groundwater quality and quantity trends, and informed management decisions.

### Existing MONITORING AND ASSESSMENT Activities

<table>
<thead>
<tr>
<th>Water Boards</th>
<th>Other State and Federal Agencies</th>
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</thead>
<tbody>
<tr>
<td>• Groundwater Ambient Monitoring and Assessment (GAMA) Program</td>
<td>• CDPH Drinking Water Program (monitoring of public supply wells, including consumer confidence reports prepared by public water suppliers)</td>
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<tr>
<td>• GAMA Priority (high-use) Basins Project (including mapped Priority Basins)</td>
<td>• DPR Ground Water Protection Program (pesticides sampling)</td>
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<tr>
<td>• Hydrogeologically Vulnerable Area Mapping</td>
<td>• DWR California Statewide Groundwater Elevation Monitoring (CASGEM) Program</td>
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<tr>
<td>• AB 2222 Report to Legislature (Communities Relying on Contaminated Groundwater)</td>
<td>• DWR basins in critical overdraft (Bulletin 118; 1980)</td>
</tr>
<tr>
<td>• Central Coast Domestic Well Project</td>
<td>• DWR Water Data Library (historical groundwater quality trend data, and CASGEM groundwater level data)</td>
</tr>
<tr>
<td>• Central Valley Dairy and Irrigated Regulatory Lands Monitoring</td>
<td>• USGS National Water Information System (NWIS) (includes groundwater quality data collected under the GAMA Program)</td>
</tr>
<tr>
<td>• Water Rights Groundwater Recordation Program (delegated to local agencies)</td>
<td>• NASA Central Valley Groundwater Elevation Study</td>
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<tr>
<td>• Define and identify nitrate high risk areas</td>
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</table>

### 3.2.1 Potential Water Board Actions

1. **Add a basin assessment module to GeoTracker GAMA that provides publicly-accessible information on groundwater quality and is capable of analyzing trends in high-use basins.**

2. **Work with the Department of Conservation’s (DOC) Division of Oil, Gas, and Geothermal Resources (DOGGR) on monitoring and assessment requirements for hydraulic fracturing, pending the outcome of proposed legislation.**

3. **Require groundwater level data coming to the State Water Board to be submitted directly to CASGEM.**

4. **Require all groundwater quality data submitted pursuant to Water Board requirements to be in a format compatible with GeoTracker GAMA.***

### 3.2.2 Potential Actions for Others

1. **DWR could create a searchable electronic database to submit well completion reports and associated data.**

2. **The Legislature could expand the State Water Board’s Groundwater Recordation Program, which requires reporting of groundwater pumping, to basins subject to critical overdraft.**

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3. Complete CASGEM Program implementation, including: (1) statewide prioritization of basins; (2) conducting groundwater elevation monitoring in areas where voluntary monitoring is not occurring; and (3) identifying basins subject to critical overdraft.

4. Update assessments and develop projections on the condition of California’s groundwater basins, based on current groundwater management practices.

5. Develop estimates of storm water capture and groundwater recharge potential, and a tracking database to inform water resource planning and permitting decisions.

6. The Legislature should enact legislation that establishes a framework of statutory authority for the Water Boards, in coordination with other State and local agencies, to improve the coordination and cost effectiveness of groundwater quality monitoring and assessment, enhance the integration of monitoring data across departments and agencies, and increase public accessibility to monitoring data and assessment information.*

7. The Legislature should require State and local agencies to notify groundwater users in nitrate high-risk areas and recommend that the well owners test their wells to evaluate drinking water quality. The Water Boards, California Department of Public Health (CDPH), and local public health agencies will coordinate in identifying private domestic wells and small, unregulated water systems in nitrate high-risk areas.*

8. The Legislature should require property owners with either a private domestic well or other unregulated groundwater system (2 to 14 service connections) to sample their well and disclose its water quality as part of a point of sale inspection before property title transfer or purchase.*

3.3 Governance and Management

In vulnerable and high-use basins, groundwater management is necessary to ensure that thresholds for water quality and quantity are not exceeded. In some situations, actions are needed to avert potential problems or to rectify existing problems. Pollution prevention, which can help alleviate future impacts to groundwater, is the most effective and affordable form of groundwater quality control; however, once contamination occurs, more costly cleanup actions may be needed. Managing groundwater levels (quantity) generally requires maintaining a balance between pumping, natural depletion, and recharge at the basin scale over the long-term. Such a balance can effectively be achieved through conjunctive use, demand management (e.g., water conservation, reduced pumping), or a combination of both.

Various local, regional, and State agencies, including the Water Boards, have authority and responsibility for managing and regulating groundwater. The ongoing actions of these agencies have proven effective in many areas, but additional management action and controls may be needed to address current and potential future challenges associated with groundwater quality and quantity. The State Water Board is interested in understanding whether the existing and potential actions in this section will result in the sustainable management of groundwater quality and quantity in high-use basins.

<table>
<thead>
<tr>
<th>Existing GOVERNANCE AND MANAGEMENT Activities</th>
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<tbody>
<tr>
<td>Water Boards</td>
</tr>
<tr>
<td>• Expert Panel review of agricultural nitrate programs</td>
</tr>
<tr>
<td>• Onsite Wastewater Treatment Systems (OWTS) Policy</td>
</tr>
<tr>
<td>• Low-Threat Underground Storage Tank (UST) Case Closure Policy</td>
</tr>
</tbody>
</table>

Other State and Federal Agencies

- DTSC Green Chemistry and Cleanup
- DTSC/CalRecycle Solid Waste Landfill Program
- DPR Pesticide Regulations
- DOC Promulgation of Hydraulic Fracturing Regulations
- USEPA Underground Injection Control Program
- CDFA nitrogen mass balance taskforce*

Regional and Local Entities

- Local Oversight Program (UST, SCP)
- Local and Regional Groundwater Management (ordinances, GWMPs, UWMPs, AWMPs, IRWMPs)

3.3.1 Potential Options for New Water Board Actions

1. Expand the use of general orders to focus on high priority discharges to improve efficiency of regulation and better protect groundwater.

2. Prioritize cleanup cases based on threat and whether they are located in a hydrogeologically vulnerable area.

3. Focus regulatory activities to control discharges in hydrogeologically vulnerable areas that overlay high-use basins.

4. Work with DTSC to extend the cleanup oversight Memorandum of Agreement (MOA) between DTSC and the Water Boards for brownfields to include enforcement lead sites to align cleanup authorities with the type of contamination and route of exposure.

5. Incentivize permits to promote storm water infiltration and protect infiltrative capacity of hydrogeologically vulnerable areas.

7. Continue to provide technical assistance for the CDFA’s ongoing work with the University of California Cooperative Extension (UCCE) and other experts in establishing a nitrogen management training and certification program that recognizes the importance of water quality protection.*

3.3.2 Potential Recommendations to Others

1. Assess legal obstacles and associated liability for groundwater recharge with sources that contain low level contaminants.

2. Assist DWR in conducting an evaluation of local groundwater management programs in high-use basins and identify where gaps in control exist that should be addressed with further action and develop guidelines for best practices in groundwater management.

3. Enact legislation that would allow for the establishment of Active Management Areas with specific requirements governing the management of groundwater including withdrawal, use, storage and monitoring/reporting.

4. Create a standardized set of authorities that districts with groundwater management responsibilities could draw upon to effectively and actively manage groundwater.

5. The Legislature should enact legislation to establish a framework of statutory authorities for CDPH, regional organizations, and county agencies to have the regulatory responsibility to assess alternatives for providing safe drinking water and to develop, design, implement, operate, and manage these systems for small DACs impacted by nitrate.*

3.4 Funding

Successful groundwater management requires access to sufficient funding for development and implementation of groundwater management plans, monitoring (e.g., statewide programs such as GAMA and CASGEM), facilities (e.g., drinking water treatment systems, groundwater recharge facilities, storm water capture, etc.), ongoing operation and maintenance of infrastructure, pollution prevention and cleanup measures, as well as oversight or enforcement, by local and regional management agencies. In many cases, management entities have the authority to assess fees to cover the costs of local and regional management. However, the authority to assess fees is often contingent on voter approval at the local level in conformance with Proposition 218 and, therefore, approval can be difficult to achieve. In addition to local revenue sources, significant funding for conjunctive use projects, groundwater recharge facilities, groundwater treatment and monitoring, and groundwater basin management activities has been made available through various water bond measures and both State and federal funding. Please refer to the existing and potential actions in commenting on whether adequate funding will be available to implement the suggested management framework (developing thresholds, conducting monitoring and assessment, managing and controlling groundwater quality and quantity, and oversight/enforcement).

<table>
<thead>
<tr>
<th>Existing FUNDING Activities</th>
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</thead>
<tbody>
<tr>
<td>Water Boards</td>
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<tr>
<td>• Clean Water State Revolving Fund (CWSRF) Program</td>
</tr>
<tr>
<td>• Small Community Wastewater Grant Funding</td>
</tr>
<tr>
<td>• Small Disadvantaged Community Wastewater Technical Assistance</td>
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<tr>
<td>• Underground Storage Tank Cleanup Fund (USTCF) Program</td>
</tr>
<tr>
<td>• UST/Orphan Site Cleanup Fund (OSCF)</td>
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<tr>
<td>• Replacing/Repairing/Upgrading Underground Storage Tank (RUST)</td>
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</tbody>
</table>

### 3.4.2 Potential Recommendations to Others

1. Establish a funding source that also addresses liability for cleanup of contaminated sites where responsible parties are unavailable, unable, or unwilling to pay for cleanup.

2. Local and regional groundwater management agencies should assess fees, where needed, to cover costs of monitoring and managing groundwater.

3. The Legislature should provide a stable, long-term funding source for provision of safe drinking water for small DACs.*

4. DWR should give preference in the Proposition 84 Integrated Regional Water Management (IRWM) Grant Program to proposals with IRWM Plans that include an evaluation of nitrate impacts, including the access of safe drinking water to small DACs, for areas that have been identified as nitrate high-risk areas.*

5. The Legislature should enact legislation that establishes a funding source for the State Water Board’s Groundwater Ambient Monitoring and Assessment (GAMA) Program.*

6. Continue to increase access to safe drinking water funding sources for small DACs by streamlining funding applications, providing planning grants, and providing technical assistance.*

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3.5 Oversight and Enforcement

Oversight and enforcement encourages dischargers and groundwater pumpers to operate in a manner consistent with relevant regulations, plans, policies, and permits. To address violations of management plan provisions or regulatory requirements, federal, State, and local agencies provide oversight of pollution cleanup, and take enforcement actions of varying types and levels of stringency. Local and regional groundwater management entities may also need to take additional oversight actions when monitoring data demonstrate that thresholds are or will likely be exceeded within their jurisdictions. The State Water Board, along with the Department of Water Resources and the California Department of Fish and Wildlife, can exercise, in varying degrees, constitutional and statutory authorities to protect the public trust, prevent the waste and unreasonable use of the State’s water resources, and initiate actions to protect those resources. In addition to the actions suggested below, the State Water Board is soliciting input on whether these authorities should be integrated into its workplan for groundwater.

<table>
<thead>
<tr>
<th>Existing ENFORCEMENT AND OVERSIGHT Activities</th>
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<tbody>
<tr>
<td><strong>Water Boards</strong></td>
</tr>
<tr>
<td>• Enforcement and cleanup of nitrate and industrial pollutants in high-use basins and in groundwater reliant areas</td>
</tr>
<tr>
<td>• UST Fund Fraud, Waste, and Abuse Program</td>
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<tr>
<td>• Waste Discharge Requirements enforcement</td>
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<tr>
<td>• Underground Storage Tank (UST) Leak Prevention and Cleanup</td>
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<tr>
<td>• Legacy Site Cleanups</td>
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<tr>
<td>• Initiate adjudication to protect groundwater quality</td>
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<tr>
<td>• Undertake proceedings to prevent waste and unreasonable use</td>
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<tr>
<td>• Water Right Permit enforcement</td>
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<tr>
<td><strong>Other State and Federal Agencies</strong></td>
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<tr>
<td>• CDPH enforcement and oversight of public water systems</td>
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<tr>
<td>• DTSC enforcement action for violations of hazardous waste requirements</td>
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<tr>
<td>• DTSC site cleanups</td>
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<tr>
<td>• USEPA enforcement for violations of federal Safe Drinking Water Act</td>
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<tr>
<td>• Watermaster enforcement of adjudications</td>
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<tr>
<td><strong>Regional and Local Entities</strong></td>
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<tr>
<td>• CUPA enforcement activities of environmental and emergency management programs</td>
</tr>
<tr>
<td>• Local agency enforcement of tank testing requirements, GWMPs, and groundwater monitoring, reporting, and pumping requirements</td>
</tr>
</tbody>
</table>

3.5.1 Potential Options for New Water Board Actions

1. Target groundwater quality regulatory program enforcement on legacy sites in hydrogeologically vulnerable areas.

2. Evaluate and report on the effectiveness of enforcement of well design and destruction standards to eliminate conduits for contamination.

3. Establish an interagency task force to improve the integration of agency authorities that could be used to address groundwater overdraft.

4. Use Porter-Cologne authority to order parties responsible for nitrate contamination to provide replacement water.*

3.5.2 Potential Recommendations to Others

None.

Public Review Draft

California Water Action Plan

California Department of Food and Agriculture
California Environmental Protection Agency (Cal/EPA)
Dear Stakeholder,

We have reached a critical juncture for water policy in California. Climate change, drought and population growth pose significant challenges to our state. In May, Governor Brown directed our agencies to put together a multi-agency working group and identify key actions for the next one to five years that address urgent needs and provide the foundation for sustainable management of California’s water resources.

The set of actions outlined in this document begin to deal with our challenges. While this won’t resolve them all, it can put California on a firm path to sustainability. In order for this effort to be effective there must be collaboration between state, federal and local governments, regional agencies, Native American tribes, the private sector and members of the public.

This plan builds on the ideas and recommendations of a wide range of industry, government and non-governmental organizations, who understand the urgency of the task before us. We must work together and seize the opportunity to lay the foundation for sustainable water management in the coming decades.

Over the next several weeks, we will work to collect input on this public review draft of the California Water Action Plan. From this effort, we hope to drive participation in the many venues the state of California has for policy development and regulation for water. For more information about this water action plan or to submit comments and questions please email wateraction@water.ca.gov.

Sincerely,

John Laird  
Secretary, California Natural Resource Agency

Matthew Rodriquez  
Secretary, California Environmental Protection Agency

Karen Ross  
Secretary, California Department of Food and Agriculture
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California Water Action Plan: Actions for Reliability, Restoration and Resilience

Introduction

After two years of dry weather and shrinking reservoir supplies, we are reminded once again that nothing focuses Californians’ attention on our limited water resources like drought.

There is broad agreement that the state’s water system is currently unable to satisfactorily meet both ecological and human needs, too exposed to wet and dry climate cycles and natural disasters, and inadequate to handle the additional pressures of future population growth and climate change. Solutions are complex and expensive, and they require the cooperation and sustained commitment of all Californians working together. Thoughtful, decisive action is needed now to put California’s water resources on a safer, more sustainable path.

This report identifies actions that, in the next five years, will move California toward more sustainable water management by providing reliable water supply for our farms and communities, restoring important wildlife habitat and species, and helping the state’s water systems and environment become more resilient. These actions are organized around long-term objectives. Some of the actions are new proposals. Some are being planned and should be completed more rapidly, implemented in a better way, or on a larger scale. Success will require the cooperation of many partners; the state’s role is to lead, help others, and remove barriers to action. These actions will not address all of our challenges; nor should they distract from other important efforts being developed and implemented across the state. But, the actions described here are critical to moving the state forward now.

Risks to California’s Water Resources

Water has always been a scarce resource in California. Most precipitation falls in the northern and eastern mountains, yet most of the population and irrigated farmland is located in the drier west and south. Precipitation is highly variable year-to-year, but the long warm summers are always dry. In the mid-20th century, state, federal, and local agencies built a vast system of reservoirs, canals, pumps and pipelines to store water and deliver it to agricultural and urban users in dry areas. This system has resulted in unintended impacts on the natural world. In general, there is broad consensus about our challenges:

- **Uncertain water supplies** – Reductions in water from major sources like the Colorado River and the Sacramento-San Joaquin Delta (Delta)—due to hydrologic and declining environmental conditions—have made these water supplies less reliable. Moreover, climate change impacts to these sources and the Sierra headwaters further strains supply reliability from north to south. These sources are foundational supplies around which their communities develop and manage local resources, such as water use efficiency, recycled water and groundwater recharge. The unreliable nature of these supplies threatens local, regional and statewide economies. The combined benefits of all of the actions in this plan will contribute to more reliable water supplies.
Water scarcity/drought – California’s hydrology has always had extended dry periods. Much of California’s water system was originally planned to withstand a seven-year dry period without severe damage to the economy and environment. That original vision was not sustainable, and today some regions and many communities struggle to maintain adequate water supplies after only a year or two of dry conditions. Climate change will make this situation even more challenging. Improving our ability to manage scarce water supplies and better coordinate operations of major reservoirs is essential to economic and environmental sustainability. Taking action to address drought is especially urgent for agriculture where crops wither without water, and the world’s population growth and food demand creates food security concerns. Effective state preparedness reduces impacts of shortages and lessens the costs of state response actions. The actions identified throughout this plan are specifically designed to help secure more reliable water supplies and consequently improve drought preparedness.

Declining groundwater basins – Groundwater accounts for more than one-third of the water used by cities and farms—much more in dry years, when other sources are cut back. Unfortunately, much of California’s groundwater is not sustainably managed. Climate change is exacerbating ongoing problems with groundwater resources in California, including overdraft, seawater intrusion, land subsidence, and water quality degradation. Taking more than is returned lowers groundwater levels which makes pumping more expensive and energy intensive. It also serves to mobilize toxins that impair water quality and causes land subsidence, which damages infrastructure and permanently diminishes the capacity to store water for the future. Land subsidence due to groundwater overdraft is impossible to reverse. Well-managed groundwater has the potential to buffer against the impacts of climate change on our water resources. The actions identified in this plan will move California toward better management of our groundwater resources.

Poor water quality – Millions of Californians rely, at least in part, on contaminated groundwater for their drinking water. While most water purveyors blend or treat the water to meet public health standards, many disadvantaged communities cannot afford to do so. In addition, domestic wells are rapidly drying up. All Californians have a right to safe, clean, affordable and accessible water adequate for human consumption, cooking, and sanitary purposes. Safe water is necessary for public health and community prosperity. The actions in this plan will improve the organization of our water quality programs and create new tools to help ensure that every Californian has access to safe water.

Declining native fish species and loss of wildlife habitat – California’s once robust native fish populations are at or near historic lows. Federal and state fish agencies now list many species of salmon and other fish as endangered and threatened. Wildlife habitat is also being lost at a rapid pace. California’s diverse and unique ecosystems are irreplaceable and are part of the complex system that provides and protects California’s water resources. Tourism and fishing, reliant on healthy ecosystems, also provide economic benefits to local communities and to the state. The actions defined in this plan include aggressive ecosystem restoration and other actions that will restore fish populations and benefit other wildlife.
CALIFORNIA WATER ACTION PLAN: PUBLIC REVIEW DRAFT

- **Floods** – Over 7 million Californians live in a floodplain. Our state’s capital, Sacramento, has one of the lowest levels of flood protection of any major city in the nation. Climate change will exacerbate this problem because more precipitation will fall as rain rather than snow, snowmelt will be faster and earlier and there will be more extreme weather events. There is a great deal to be done to improve flood protection for existing communities and infrastructure. The actions in this plan will coordinate and streamline flood projects and identify new sources of funding.

- **Supply disruptions** – Many parts of California’s water system are vulnerable to earthquakes and flooding, particularly the Delta, which serves as the conveyance hub for a substantial percentage of all water supplies in the Bay Area, the San Joaquin Valley, and Southern California. A large earthquake along any of five major faults or a major storm-induced levee failure could render this water supply unusable for urban and agricultural needs for months. The combined benefits of all of the actions in this plan will better prepare us to manage through potential disruptions in the system.

Population growth and climate change further increase the severity of these risks. The state’s population is projected to grow from 37 million to 50 million by 2049.\(^1\)

The effects of climate change are already being felt and will worsen. Rising air temperatures and air pollution may already be decreasing the Sierra snowpack, reducing natural water storage, and altering winter and spring flood flows. Higher river and ocean water temperatures will make it harder to maintain adequate habitat for native fish species. Higher ocean temperatures will alter the already changing weather patterns. Sea level rise threatens coastal communities and islands in the Delta. Sea level rise also amplifies the risk that the pumps that supply cities and farms with Delta water will be inundated with sea water in a large earthquake or storms that breach levees. More frequent and more severe dry periods will threaten the health of our natural systems and our ability to meet our diverse water supply and water quality needs.

Fortunately, despite these challenges, there is good progress to report. State, regional, and local agencies have increasingly been pursuing a strategy of making regions more self-reliant by developing new or underused water resources locally. In the future, most new water will come from a combination of improved conservation and water use efficiency, conjunctive use (coordinated management of local surface and groundwater), recycled water, drinking water treatment, groundwater remediation, and desalination. Agencies are also focusing on projects with multiple benefits, such as stormwater capture and floodplain reconnection, that can help simultaneously improve the environment, flood management, and water supplies. These diversified local water portfolios will relieve pressure on foundational supplies and make communities more resilient against drought and climate change.

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\(^1\) [http://www.dof.ca.gov/research/demographic/reports/projections/view.php](http://www.dof.ca.gov/research/demographic/reports/projections/view.php) California’s population will cross the 50 million mark in 2049 and grow to nearly 52.7 million by 2060.
Reliability, Restoration, and Resilience

The actions outlined here are based on three broad objectives: more reliable water supplies, the restoration of important species and habitat, and a more resilient, sustainably managed water system and environment that can better withstand inevitable pressures in the coming decades. These actions reflect an integration of new ideas with the important work that state agencies are already engaged in. Together, these actions address the most pressing water issues that California faces while laying the groundwork for a sustainable and resilient future. All of these actions require coordination and collaboration across levels of government. Together, in the next five years, we must:

1. Make conservation a California way of life;
2. Invest in integrated water management and increase regional self-reliance;
3. Achieve the co-equal goals for the Delta;
4. Protect and restore important ecosystems;
5. Manage and prepare for dry periods;
6. Expand water storage capacity;
7. Provide safe drinking water and secure wastewater systems to all communities;
8. Increase flood protection;
9. Improve operational and regulatory efficiency;
10. Identify sustainable and integrated financing opportunities.

This list is not comprehensive. There are thousands of important projects that are being planned or implemented by all levels of government as well as by conservationists, farmers, water agencies, and others. This fact underscores the breadth and complexity of managing our water resources. But, these are essential actions that California can take in the next five years to set the state on the right course. These actions will, in many cases, require collaboration between state, federal and local governments, regional agencies, Native American tribes, the public, and the private sector. The Legislature is also a key partner. Water has always been among California’s most contentious issues. Only by working together, can we improve the state’s water future for generations to come.

Actions

1. **MAKE CONSERVATION A CALIFORNIA WAY OF LIFE**

Californians cannot take their water supply for granted, and must adopt conservation as part of their daily lives. In 2009, the state adopted the Water Conservation Act, through the passage of Senate Bill 7x7, which requires that we achieve a 20 percent reduction in urban per capita water use by December 31, 2020, promotes expanded development of sustainable water supplies at the regional level, and requires agricultural water management plans and efficient water management practices for agricultural water suppliers. The Water Conservation Act also requires that we make incremental progress towards this goal by reducing per capita water use by at least 10 percent by December 31, 2015. We must continue to build on our existing efforts to conserve water, and promote the innovation of new systems for increased water conservation.

- **Expand Agricultural and Urban Water Conservation and Efficiency to Exceed SB7X7 Targets**

  The Administration will expand existing programs to provide technical assistance, shared data and information, and incentives to urban and agricultural local water agencies, as well as local governmental agencies, to enable agricultural and urban water conservation in excess of the amounts envisioned by SB 7X7.
Provide Funding for Conservation and Efficiency
The administration will work with the Legislature to expand funding for urban and agricultural water use efficiency research, development and implementation through existing programs. The administration will give priority to funding integrated management plans that include robust existing or proposed water conservation measures. Conservation programs must include numeric targets.

Increase Coordinated Water-Energy Efficiency
The administration will promote regional and local projects that improve the efficiency of how water is pumped, transported, treated, and used. These actions will save water, energy, and money.

Promote Local Conservation Ordinances
The City of Los Angeles prohibits certain types of water use for all of its citizens in an effort to conserve water. Examples of the prohibited water use include: watering of any hard surfaces such as sidewalks, walkways, driveways or parking areas; outdoor watering during periods of rain; and serving water to customers in restaurants unless specifically requested. Other cities should follow this example and consider ways their communities can reduce water usage.

2. INCREASE REGIONAL SELF-RELIANCE AND INTEGRATE WATER MANAGEMENT ACROSS ALL LEVELS OF GOVERNMENT

While California has a vast state and federal managed infrastructure to store and deliver water miles from its origin, the majority of infrastructure, management, and investment reside at the local and regional levels. Sometimes that management comes in the form of regional multi-issue agencies dealing with flood control, water supply, and water quality. Other times, individual agencies deal with those issues separately. Over the past decade, the state has assisted regions in coming together in what is known as Integrated Water Management Planning, where multiple entities create a regional plan that integrates local agency water management infrastructure and operations to create new efficiencies and serve multiple purposes. State grants are provided to incentivize both regional integration and to leverage local financial investment.

Ensuring water security at the local level includes efforts to conserve and use water more efficiently, to protect or create habitat for local species, to recycle water for reuse, to capture and treat stormwater for reuse, and to remove salts and contaminants from brackish or contaminated water or from seawater. But, mostly it requires integrating disparate or individual government efforts into one combined regional commitment where the sum becomes greater than any single piece.

Support and Expand Funding for Integrated Water Management Planning and Projects
The administration will work with the Legislature to enhance the Integrated Water Management Planning program. Providing funding for locally-driven, multi-benefit projects is critical. The administration will target funding to local projects that increase regional self-reliance and result in integrated, multi-benefit solutions for ensuring sustainable water resources.

Update Land Use Planning Guidelines
The Governor’s Office of Planning and Research will engage local land use authorities and water agencies and amend the general plan guidelines to promote local land use decisions that are consistent with local sustainable water management.
• **Legislation for Local Self Reliance**
The administration will work with the Legislature to encourage local governments to adopt or amend local ordinances that enhance local water supply reliability and conservation, such as ordinances that establish minimum requirements for infiltration of water into the groundwater table, detection and prevention of utility system leaks, landscaping measures, and indoor/outdoor water use efficiency standards.

• **Demonstrate State Leadership**
All state agencies should take a leadership role in designing new and retrofitted state owned and leased facilities to increase water efficiency, use recycled water, and incorporate stormwater runoff capture and low-impact development strategies.

• **Provide Assistance to Disadvantaged Communities**
The administration will provide technical assistance, tools, and allocate dedicated funds for grant administration, project development and stakeholder collaboration to under-represented and economically-disadvantaged communities to promote greater participation and success in regional grant programs.

• **Encourage State Focus on Projects with Multiple Benefits**
The administration will direct relevant agencies and departments to evaluate existing programs and propose modifications to incentivize, recognize, and co-fund multi-benefit projects and integrated water management planning, such as stormwater permitting for cities and counties.

• **Increase the Use of Recycled Water**
California needs more high-quality water and recycling is the key to getting there. The state will adopt uniform water recycling criteria for indirect potable reuse of recycled water for groundwater recharge, and develop criteria for direct potable reuse (surface water augmentation).

• **Streamline Permitting for Local Water Reuse or Enhancement Projects**
The administration will review and propose measures to streamline permitting for local projects that make better use of local water supplies such as recycling, stormwater capture, and desalination of brackish and sea water.

3. **ACHIEVE THE CO-EQUAL GOALS FOR THE DELTA**

The Delta is California's major collection point for water, serving two-thirds of our state's population and providing irrigation water for millions of acres of farmland. The region supports farming, wetland and riparian habitats, as well as numerous fish and wildlife species. In recent years, important fish populations have declined dramatically, leading to historic restrictions on water supply deliveries. Moreover, the current system relies on water flowing through a network of fragile levees from the northern part of the Delta to the pumps in the south, where two out of three fish trapped near the pumps die. These levees were not designed to resist a significant seismic event, the probability of which is greater than 60 percent over the next 50 years. They are also vulnerable to major floods and rising sea levels, all of which puts unacceptable risk on the people who live in the Delta as well as the water supply for 25 million people and 3 million acres of farmland. Plans are underway to address these problems. The issues are contentious and have been for decades. But, the status quo in the Delta is unacceptable and it would be irresponsible to wait for further degradation or a natural disaster before taking action.
The Delta Stewardship Council was created in legislation to achieve the state-mandated co-equal goals of providing a more reliable water supply for California and to protect, restore, and enhance the Delta ecosystem. Those two goals are to be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. The council recently adopted its Delta Plan and will establish a high-level interagency coordinating body to commence implementation of a suite of actions designed to achieve the co-equal goals. The Implementation Committee can play a strong role in moving forward on the actions included in this plan, which include and build on many of the priorities included in the council’s Delta Plan.

- **Begin Implementation of the Delta Plan**
  The administration directs all of its relevant agencies to fully participate in the Implementation Committee established by the Delta Stewardship Council.

- **Complete Comprehensive Plans to Recover Populations of Threatened and Endangered Species in the Delta and Improve Water Supply Reliability for Users of Delta Water**
  State and federal agencies will complete planning for a comprehensive conservation strategy aimed at protecting dozens of species of fish and wildlife in the Delta, while permitting the reliable operation of California’s two biggest water delivery projects. The Bay Delta Conservation Plan (BDCP) would help secure California’s water supply by building new water delivery infrastructure and operating the system to improve the ecological health of the Delta. It would also restore or protect approximately 145,000 acres of habitat to address the Delta’s environmental challenges. The BDCP is made up of specific actions, called conservation measures, to improve the Delta ecosystem. It includes 22 conservation measures aimed at improving water operations, protecting water supplies and water quality, and restoring the Delta ecosystem within a stable regulatory framework. The project will be guided by 214 specific biological goals and objectives, improved science, and an adaptive management approach for operating the water conveyance facilities and implementing other conservation measures including habitat restoration and programs to address other stressors. As the Delta ecosystem improves in response to the implementation of the conservation measures, water operations would become more reliable, offering secure water supplies for 25 million Californians, an agricultural industry that feeds millions, and a thriving economy.

State and federal agencies will complete the state and federal environmental review documents; seek approval of the BDCP by the state and federal fishery agencies; secure all permits required to implement the BDCP; finalize a financing plan; complete the design of BDCP facilities; and, begin implementation of all conservation measures and mitigation measures, including construction of water conveyance improvements. Once the BDCP is permitted, it will become part of the Delta Plan.

- **Restore Delta Aquatic and Intertidal Habitat**
  In coordination with restoration proposed by the BDCP, a specific set of projects or acreage for restoration will be identified in the six priority areas listed in the Delta Plan: (1) Yolo Bypass; (2) Cache Slough Complex; (3) the confluence of the Cosumnes and Mokelumne rivers; (4) the lower San Joaquin River floodplain; (5) Suisun Marsh; and, (6) western Delta/eastern Contra Costa County. The Department of Water Resources, in consultation and coordination with the Department of Fish and Wildlife, the Delta Science Program, and the Delta Plan Implementation Committee will initiate projects to restore 8,000 acres of intertidal and associated subtidal habitat in the Delta and Suisun Marsh.
• **Implement Near-Term Delta Improvement Projects**
  In coordination with restoration proposed in BDCP, the Department of Water Resources will initiate a project to remove fish passage barriers within the Yolo Bypass and modify the Fremont Weir to increase the amount and quality of fish rearing habitat by improving access to seasonal floodplain habitat.

• **Maintain Important Infrastructure**
  The Department of Water Resources will continue implementation of the Delta Levees Subventions, Delta Special Projects, and Floodway Corridor Programs to provide financial assistance to local agencies for repair and improvement of levees and other multipurpose projects in the Delta.

• **Bay Delta Water Quality Control Plan**
  The State Water Resources Control Board (State Water Board) will complete its update of the Water Quality Control Plan for the Delta and its upstream watersheds. The plan establishes both regulatory requirements and recommended actions. The State Water Board’s action will balance competing uses of water including municipal and agricultural supply, hydropower, fishery protection, recreation, and other uses.

### 4. PROTECT AND RESTORE IMPORTANT ECOSYSTEMS

Streams and rivers once ran freely from high in the mountains to downstream reaches, meandering naturally through lowland and floodplain habitats, connecting with coastal estuaries and the Pacific Ocean. The variability of natural water flows in this complex system created vibrant and resilient habitat for many species and functioned to store water, recharge groundwater, naturally purify water, and moderate flooding. Over 80 percent of the Central Valley’s historical floodplain, riparian, and seasonal wetland habitats have been lost in the last 150 years. This loss affects the physical and ecological processes of the Central Valley and beyond, contributes to the decline of salmon and steelhead, restricts habitat for waterfowl and other species, and impacts water supply, flood protection, and sediment control. In watersheds around the state, fish and wildlife no longer have access to habitat or enough cold, clean water at key times of the year. In response to these losses and ecological challenges, as well as in anticipation of the effects of climate change on the timing, volume and temperature of water flows, activities to protect and restore the resiliency of our ecosystems will help support fish and wildlife populations, improve water quality, and restore natural system functions. This effort will increase collaboration and transparency and ensure that management decisions are supported by the best available science.

• **Restore Key Mountain Meadow Habitat**
  The Department of Fish and Wildlife in coordination with other state resource agencies will restore 10,000 acres of mountain meadow habitat in strategic locations in the Sierra Nevada and Cascade mountain ranges, which can increase groundwater storage and provide habitat for more than 100 native species, many of which are at risk as threatened or endangered.

• **Bring Back Salmon to the San Joaquin River**
  The Department of Fish and Wildlife and the Department of Water Resources will lead the effort to achieve the state goal of restoring flows to the San Joaquin River from Friant Dam to the confluence of the Merced River, and bringing back a naturally-reproducing, self-sustaining Chinook salmon fishery while reducing or avoiding adverse water supply impacts. Chinook will be reintroduced pursuant to the San Joaquin River Restoration Program, and the Department of Fish and Wildlife will complete construction of the conservation hatchery and research facility. The administration will work with the Legislature and others to secure further funding as necessary to achieve these activities and the restoration goal.
• **Protect Key Habitat of the Salton Sea Through Local Partnership**
The Natural Resources Agency, in partnership with the Salton Sea Authority, will coordinate state, local, and federal restoration efforts and work with local stakeholders to develop a shared vision for the future of the Salton Sea. The Salton Sea is one of the most important migratory bird flyways in North America and is immediately threatened with reduced inflows and increasing salinity. The Department of Fish and Wildlife and the Department of Water Resources will begin immediately to implement the first phase of this effort with the construction of 600 acres of near shore aquatic habitat to provide feeding, nesting, and breeding habitat for birds. This project is permitted to increase to 3,600 acres and could be scaled even greater with additional resources. Concurrently, the Natural Resources Agency and the Salton Sea Authority are developing a roadmap for the Salton Sea that will evaluate additional restoration projects and identify economic development opportunities through renewable energy development.

• **Continue Restoration Efforts in the Klamath Basin**
The Department of Fish and Wildlife and the Natural Resources Agency will continue to work with diverse stakeholders to implement the Klamath Basin restoration and settlement agreements. Those agreements include measures to improve water quality in the Klamath River, restore anadromous fish runs, including Chinook and Coho salmon, and improve water reliability for agricultural and other uses by providing a drought planning mechanism for low water years. The administration will work with Congress to secure the necessary federal authorizations for the agreements and secure the necessary funding for removal of four hydroelectric dams on the Klamath River and funding for the necessary basin restoration.

• **Restore Coastal Watersheds**
The Department of Fish and Wildlife in coordination with other state resource agencies will develop at least 10 off-channel storage projects, modernize at least 50 stream crossings, and implement at least 10 large-scale habitat projects along the California coast in strategic coastal estuaries to restore ecological health and natural system connectivity, which will benefit local water systems and help defend against sea level rise.

• **Water for Wetlands and Waterfowl**
The Department of Fish and Wildlife in coordination with other state resource agencies will develop and implement a water acquisition, management, and water use efficiency strategy in coordination with the U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, Central Valley Project Improvement Act refuge water program, and Central Valley Joint Venture to secure reliable and affordable water for managed wetlands statewide. The administration will work with the Legislature, and others, to secure funding to acquire water and to replace or repair the most in need conveyances for delivering water for wetlands.

• **Eliminate Barriers to Fish Migration**
This action has three parts. First, in coordination with the Central Valley Project Improvement Act Anadromous Fish Screen Program, the Department of Fish and Wildlife will create and publish a Priority Unscreened Diversion List in the Central Valley area. Second, the administration will work with the Legislature, and others, to secure funding to install or repair the top 10 unscreened diversions on the priority list described above. Third, in smaller watersheds around the state, the Department of Fish and Wildlife will complete a comprehensive analysis, working with other state resources agencies, to optimize barrier removal projects and river and stream priorities, and then complete 10 culvert and bridge improvement and small dam removal projects annually to provide anadromous fish species access to historic spawning and rearing habitat.
• **Assess Fish Passage at Large Dams**
The Department of Fish and Wildlife, in coordination with state and federal resource agencies, will develop a strategic evaluation process for addressing fish passage for California’s rim dams and develop six rim dam solution plans. Rim dams are the large dams at the base of most major river systems in California. They are too integral to California’s water infrastructure to consider removing, but, where feasible, passage around the rim dams may be necessary to recover salmon and steelhead, because 95 percent of the historical habitat for these fish is above the dams.

• **Enhance Water Flows in Stream Systems Statewide**
The State Water Board and the Department of Fish and Wildlife will implement a suite of individual and coordinated administrative efforts to enhance flows statewide in at least five stream systems that support critical habitat for anadromous fish. These actions include developing defensible, cost-effective, and time-sensitive approaches to establish instream flows using sound science and through a publicly transparent process, taking actions necessary to maintain fish in good condition through authorities such as Fish and Game Code section 5937, and promoting off-stream water storage.

5. **MANAGE AND PREPARE FOR DRY PERIODS**

Water supply reliability is critical to maintaining California’s economy. Temporary shortages caused today by extended, severe dry periods will become more frequent with climate change. Effective management of water resources through all hydrologic conditions will reduce impacts of shortages and lessen costs of state response actions. Many actions will help to secure more reliable water supplies and consequently improve drought preparedness. The actions identified below are specifically designed to address drought conditions and make California’s water system more resilient.

• **Revise Operations to Respond to Extreme Conditions**
State natural resources and water quality agencies, in collaboration with their federal counterparts, will implement a series of administrative solutions through a transparent process to make water delivery decisions and propose options to address water quality and supply objectives in extreme conditions. Through these state agencies, the administration will exercise the maximum administrative discretion and flexibility possible to address the current dry conditions now and into 2014. Especially in drought conditions, adaptive management can have substantial fishery, water quality, and water supply benefits. The identification of such opportunities requires continued improved water forecasting and prompt inter and intra agency coordination and communication. It also requires an effective coordination mechanism involving the Department of Water Resources, the Bureau of Reclamation, the State Water Project and the Central Valley Project contractors, the state and federal fishery agencies, and the State Water Board, at a minimum.

• **Streamline Water Transfers**
State agencies, in collaboration with their federal counterparts, will take all feasible steps to streamline water transfer processes to address both extreme situations and normal system operations. These include refining the schedule for the water transfers process; improving outreach in support of local water transfer programs; forming work groups to prioritize technical issues and define specific objectives to address real water supply, cumulative impacts, and third party impacts; preparing a technical information guide for those intending to propose water transfer proposals; and, identifying and evaluating measures to simplify the transfer process and reduce the cost of transfers. This action will not focus solely on additional process at the expense of implementing simple measures such as identifying a single agency point of contact, assigning dedicated staff to a multi-agency review team, and regular coordination with transfer applicants to resolve conflicts.
6. **EXPAND WATER STORAGE CAPACITY**

On average, the state receives about 200 million acre-feet of water per year in the form of rain and snow. In reality, the average rarely occurs, as California has the most variable weather conditions in the nation and climate change may increase the variability. To deal with this challenge, storage, whether surface storage or groundwater storage, is a method to save water when it flows heavily for use at times when it does not and create greater flexibility in the system. Above ground, or surface storage, can be in the form of large on-stream dams and reservoirs, or smaller on-stream and off-stream reservoirs. Groundwater storage consists of replenishing groundwater basins either directly through injection, or by allowing water to percolate into the ground naturally or from constructed spreading basins. Constructing surface storage can be challenging for environmental or financial reasons. Developing groundwater storage can be challenging because many basins are contaminated and this method of storage also requires an ability to measure and withdraw water.

The bottom line is that we need to expand our state’s storage capacity, whether surface or groundwater, whether big or small. Today, we need more storage to deal with the effects of drought and climate change on water supplies for both human and ecosystem needs. Climate change will bring more frequent drought conditions and could reduce by half our largest natural storage system—the Sierra snowpack—as more precipitation falls as rain rather than snow, and as snow melts earlier and more rapidly. Moreover, we must better manage our groundwater basins to reverse alarming declines in groundwater levels, leading to land subsidence, which is irreversible once it occurs, poor water quality, ecosystem impacts, and the permanent loss of capacity to store water as groundwater.

For over a decade, we have been working on feasibility studies for large surface storage projects that are due to be completed by year’s end. These projects face both environmental challenges and financial challenges. But, the biggest obstacle may be finding committed financial partners who will benefit from the projects to share in their cost.

Public water agencies have been reluctant to partner with the federal and state government to build new water storage projects in part because of the uncertainty involved in moving water across the Delta. The new conveyance system proposed in the Bay Delta Conservation Plan would provide more water project operational flexibility, which in turn would eventually eliminate some of that uncertainty and increase the feasibility of additional water storage. Partnerships to build additional water storage presumably would follow.

Demand for water goes well beyond water supply and flood control, the traditional purposes for which California’s major reservoirs were built. Today, water storage is also needed to help provide widespread public and environmental benefits, such as seasonal fish flows, improved water quality, water cool enough to sustain salmon, and increased flexibility to meet multiple demands. The financing of additional water storage in California must reflect not just specific local benefits, but also those broader public benefits.

- **Support Funding Partnerships for Storage Projects**
  
The administration will work with the Legislature to make funding available to share in the cost of storage projects if funding partners step forward. The state will facilitate among willing local partners and stakeholders the development of financeable, multi-benefit storage projects.
• **Update Bulletin 118, California’s Groundwater Plan**

The Department of Water Resources, in consultation with the Bureau of Reclamation, U.S. Geological Survey, the State Water Resources Control Board, and other agencies and stakeholders should update Bulletin 118 information using field data, California Statewide Groundwater Elevation Monitoring (CASYM), groundwater agency reports, satellite imagery, and other best available science, so that this information can be included in the next California Water Plan Update and be available for inclusion in future urban water management plans and agricultural water management plans. The Bulletin 118 update should include a systematic evaluation of major groundwater basins to determine sustainable yield and overdraft status; a projection of California’s groundwater resources in 20 years if current groundwater management trends remain unchanged; anticipated impacts of climate change on surface water and groundwater resources; and recommendations for state, federal, and local actions to improve groundwater management. In addition, the Bulletin 118 update should identify groundwater basins that are in a critical condition of overdraft.

• **Support Distributed Groundwater Storage**

The administration will support a comprehensive approach to local and regional groundwater management by funding distributed groundwater storage projects that are identified in groundwater management plans and removing barriers to implementation.

• **Improve Sustainable Groundwater Management**

When well-managed, groundwater has the potential to be a buffer to the impacts of climate change on our water system. The administration will work with the Legislature to ensure that local agencies have the incentives, tools, authority, and guidance to develop and enforce local and regional management plans that protect groundwater elevations and quality. The administration will take steps, including sponsoring legislation if necessary; to define local responsibilities and to give local agencies the authority necessary to manage groundwater sustainably and ensure no groundwater basin is in danger of being permanently damaged by over drafting. When a basin is at risk of permanent damage, and, after having been provided the needed authority, local agencies do not make sufficient progress to correct the problem in a timely manner; the state should have carefully-defined authority to protect the basin and its users until an adequate local program is established.

• **Accelerate Clean-up of Contaminated Groundwater and Prevent Future Contamination**

Throughout the state, groundwater basins are contaminated by historic manufacturing and farming practices. This water is an important resource in itself for the future, and these basins will be critical storage repositories in the future. The Department of Toxic Substances Control and the State Water Board will develop recommendations to prevent the spread of contamination, accelerate cleanups and protect drinking water.

7. **Provide Safe Water for All Communities**

All Californians have a right to safe, clean, affordable and accessible water adequate for human consumption, cooking, and sanitary purposes. Disadvantaged communities, in particular, often struggle to provide an adequate supply of safe, affordable drinking water. The reasons for this are numerous: changes in drinking water quality standards, pollution, aging infrastructure, lack of funding for basic infrastructure, lack of funding for ongoing operation and maintenance, and unreliable supplies resulting in service interruptions are among the most common. Programs designed to protect the quality of our waters for drinking and other uses are housed in multiple agencies, reducing their effectiveness and ability to meet communities’ needs.
• **Consolidate Water Quality Programs**
The administration is pursuing consolidation of the drinking water and surface and groundwater quality programs into a single agency to achieve broader program efficiencies and synergies that will best position the state to respond to existing and future challenges. This initiative will also better restore and protect water quality and public health for disadvantaged communities.

• **Provide Funding Assistance for Vulnerable Communities**
The administration will work with the Legislature to establish a stable, long-term funding source for provision of safe drinking water and secure wastewater systems for disadvantaged communities. The funding will be made available through a framework of statutory authorities for the state, regional organizations, and county agencies that will assess alternatives for providing safe drinking water and wastewater, including regional consolidation, and to develop, design, implement, operate, and manage these systems for small disadvantaged communities impacted by contaminated drinking water and lack of sanitary wastewater infrastructure.

• **Manage the Supply Status of Community Water Systems**
The state will identify drought vulnerable public water systems and monitor the status of these systems to help prevent or mitigate any anticipated shortfalls in supply and to secure alternative sources of water for the communities when needed. The state will also work with local governments and agencies to identify drought vulnerable areas served by domestic wells and collaborate to prevent or mitigate any anticipated shortfalls.

8. **IMPROVE FLOOD PROTECTION**

California’s exposure to flood risk presents an unacceptable threat to public safety, infrastructure, and our economy. More than 7 million people and $580 billion in assets are exposed to flood hazards in the state and the lack of sufficient and stable funding for flood control exacerbates the state’s risk. When California floods, public safety and health is endangered, critical infrastructure is damaged, vital services become isolated or interrupted, vast agricultural areas are rendered unproductive, and water supplies are threatened or impacted. The effects of climate change on the state’s water runoff patterns will only magnify these challenges. Actions by state, local and regional governments, however, can reduce flood risks and improve the state’s preparedness and resiliency when flooding inevitably occurs. Flood projects done in an integrated, regionally-driven way can also achieve multiple benefits.

• **Funding to Reduce Flood Risk and Improve Flood Response**
An estimated $50 billion is needed to reduce flood risk statewide. The administration will focus on the highest risk areas and develop proposals to fund projects through a combination of financing options.

• **Remove Barriers to Local and Regional Funding for Flood Control Projects**
The administration will review changes needed to the 1996 Right to Vote on Taxes Act (Proposition 218) to include certain flood management agencies as exempted public safety utilities to enable these agencies to assess the funds needed for flood planning and the construction, operation, and maintenance of flood control infrastructure.
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- **Streamline and Consolidate Permitting**
The administration will convene a task force of federal, state, and local permitting and flood management agencies, to develop a programmatic regulatory permitting process to replace current site-by-site mitigation requirements and expedite permitting of critical flood system improvement projects. The effort to streamline and consolidate will also incorporate regional advanced mitigation as a means to expedite planning.

- **Create a Delta Levee Assessment District**
The administration will sponsor legislation establishing a Delta levee assessment district with authority to collect fees needed to repair and maintain more than a thousand miles of Delta levees, many of them privately constructed before modern engineering standards were in place.

- **Improve Access to Emergency Funds**
The administration will sponsor legislation revising the California Disaster Assistance Act to enhance the Governor’s Office of Emergency Services’ ability to advance funds for flood response efforts and establish an emergency flood response fund maintained by the Department of Water Resources.

- **Better Coordinate Flood Response Operations**
The Governor’s Office of Emergency Services, working in coordination with the Department of Water Resources, the U.S. Army Corp of Engineers, and others, will develop and implement a common interagency protocol that all jurisdictions and agencies at all levels of government operating in the Delta in an emergency will use to establish joint field incident commands for flood operations and other emergency response functions.

- **Identify State Funding Priorities for Delta Levees**
The Delta Stewardship Council, in consultation with the Department of Water Resources, the Central Valley Flood Protection Board, the Delta Protection Commission, local agencies, and the California Water Commission, should develop funding priorities for state investments in Delta levees by January 1, 2015. These priorities will be consistent with the provisions of the Delta Reform Act in promoting effective, prioritized strategic state investments in levee operations, maintenance, and improvements in the Delta for both levees that are a part of the State Plan of Flood Control and non-project levees. The priorities should identify guiding principles, constraints, recommended cost share allocations, and strategic considerations to guide Delta flood risk reduction investments.

9. **INCREASE OPERATIONAL AND REGULATORY EFFICIENCY**

Efficiently operating the State Water Project and Central Valley Project, while complying with the requirements of state and federal endangered species acts and operating consistent with the conditions of water rights, contracts and other entitlements, is a delicate balancing act. Current coordination efforts, while longstanding and intended to cover a broad range of conditions, are not reflective of the entire Delta watershed nor are they effective at integrating all of the activities that other agencies and organizations are undertaking to improve the ecosystem.
• Prepare for 2014 and Beyond Through Better Technology and Improved Procedures
The administration will work with our federal and regional counterparts to improve coordination of operations of all major water supply (storage facilities and direct diversions), flood control, hatchery facilities, and habitat restoration projects to improve water supply and fishery conditions. The goals are to improve water project near-term operational flexibility for water year 2014 and build upon those actions in subsequent years. Better technology can result in improved coordination and more accurate data for decision making. Examples of better technology and improved coordination include but are not limited to the following:
  ○ Improve data availability, communication procedures, and analytical methods used to monitor and communicate risks to listed fish species and to water supplies when making regulatory decisions associated with implementation of incidental take provisions in the existing biological opinions.
  ○ Develop a pilot project to test if a new index for Old River and Middle River reverse flows enables compliance with biological opinion requirements.
  ○ Develop and employ new turbidity models to improve real-time turbidity management in the south Delta.
  ○ Analyze through the South Delta Science Collaborative associated operational approaches for minimizing loss of salmon in the area of the Old River barrier and effects of the operations on water supply.
  ○ Develop a Delta smelt life cycle model to help manage operations to avoid entrainment of smelt at the water projects’ intakes.
  ○ Implement a 3.5-year study to enhance and modernize Delta smelt monitoring (fish abundance and geographic distribution in the Delta), to improve the ability to protect fish populations while minimizing the impacts of fish protective measures on water project operations.
  ○ Work with federal agencies to improve coordination of hatchery fish releases with hydrologic conditions and water project operations to improve fish survival.
  ○ Improve state and federal interagency coordination and water contractor coordination on real-time forecasting and management associated with meeting water quality control objectives, to optimize project operations and avoid redirected fishery impacts.
  ○ Fund and revive the National Hydrological Dataset for California to improve high-quality framework geospatial data and the precision and accuracy of mapping and scientific studies.

• Improve and Clarify Coordination of State Bay Delta Actions
The problems affecting the Delta need to be addressed on multiple fronts, including habitat loss, export conveyance, water projects operations, pollution control, and flows. The principal state entities charged to address these issues are the Delta Stewardship Council, Department of Water Resources, Department of Fish and Wildlife, and the State Water Resources Control Board. Several federal agencies exercise regulatory authority related to these issues. There are also multiple water districts, private parties, and nongovernmental organizations with a profound stake in these issues.

A coordinated approach to managing the Delta is essential to serve the needs of California’s residents. State agencies will commit to using collaborative processes to achieve water supply, water quality and ecosystem goals. This approach embraces enhanced sharing of data, consistent use of peer-reviewed science, coordinated review under CEQA, improved integration of related processes, and encouragement of negotiated resolutions.
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- The Delta Stewardship Council, Department of Water Resources, Department of Fish and Wildlife, and the State Water Resources Control Board will ensure all relevant information is shared and will assist each other, as appropriate, to complete respective efforts to improve Delta conditions.
- State entities will encourage negotiated agreements among interested parties to implement flow and nonflow actions to meet regulatory standards and support all beneficial uses of water. State staff will participate in these processes when requested.
- The Delta Stewardship Council’s Implementation Committee, which includes leaders from all the affected state entities, and will meet regularly to review progress in coordination.

- Achieve Ecological Goals through Integrated Regulatory and Voluntary Efforts

The San Francisco Bay and Sacramento-San Joaquin River Delta are some of the most studied ecosystems in the nation. Similarly, many scientific and management plans exist concerning the decline of salmon and steelhead in California. A fundamental ecological principle is that aquatic species and estuarine ecosystems need enough cold, clean water at the right times of year to ensure species abundance and health and ecological function. Too often, regulatory processes overlook the value of voluntary programs to achieve ecological goals. Too often, different regulatory processes are not integrated, connected, or even cognizant of each other. Integration across and between all voluntary and regulatory efforts may be necessary to truly achieve basic ecological outcomes.

As a goal, the state must continue to consider how to provide water flows necessary to meet current state policy, such as significantly increasing salmon, steelhead, and trout populations while also supporting viable, self-sustaining populations of a broad range of other native aquatic species, and ensure sustainable river and estuary habitat conditions for a healthy, functional Bay Delta ecosystem. The administration, with the involvement of stakeholders, will build on the work in tributaries to the Sacramento and San Joaquin rivers, analyze the many voluntary and regulatory proceedings underway related to flow criteria, and make recommendations on how to achieve the salmon and steelhead and ecological flow needs for the state’s natural resources through an integrated, multi-pronged approach.

10. IDENTIFY SUSTAINABLE AND INTEGRATED FINANCING OPPORTUNITIES

California has a long history of making sound financial investments in water resources. However, our current investments are not keeping pace with the need. Our infrastructure is aging, levees are in need of repair, communities are without safe water, and our environment, farms, and economy are suffering from unreliable and degraded water supplies. This plan includes actions that will require multiple funding sources. We have access to a variety of funding sources including federal grants and loans, general obligation bonds, revenue bonds, rate payer dollars, local initiatives, user fees, beneficiary fees, local and statewide taxes, private investment, public-private partnerships, and more. A better understanding of the variety and types of funds and financing available for water investment will help us to make the best, most efficient and sustainable uses of the funding available.

- Develop Water Financing Strategy

The administration will develop a water financing strategy that leverages various sources of water-related project funding and proposes options for eliminating funding barriers, including barriers to co-funding multi-benefit projects. The strategy will identify all potential funding sources for water-related projects including auction revenue, energy efficiency funds, user and beneficiary fees, polluter fees, local measures, and other sources and will establish principles to guide the use of these funding sources.
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- **Remove Barriers to Local and Regional Funding for Water Projects**
The administration will review changes needed to the 1996 Right to Vote on Taxes Act (Proposition 218) to better enable water management agencies to assess the funds needed to protect public health and maintain safe, secure and sustainable water resources for their rate payers.

- **Analyze User and Polluter Fees**
The administration will direct agencies to identify areas where user and/or polluter fees may be appropriate. The agencies will assess the following: Areas where users may not be fully funding the costs or impacts associated with their use, instances where polluters are not able to diminish their pollution and have not adequately accounted for the impacts of that pollution, and opportunities to use fees to incentivize positive behavior. The agencies will provide recommendations on fees, who would pay them, how they would be collected, and how they would be used.

**Conclusion**

All Californians have a stake in our water future. These actions set us on a path toward reliability, restoration, and resilience in California water. California’s impending water crisis requires that we adapt to this “new normal” and recapture California’s resource management leadership and our economic and environmental resilience and reliability. There are no silver bullets or single projects that will “fix the problem.” We must have a portfolio of actions to comprehensively address the challenges this state faces. Some actions must be taken immediately to address current risks such as the looming drought and inadequate safe drinking water. Additionally, over the next five years we must address fundamental changes in our approach to water resource management and be prepared for the changes the future holds.
General Comments

The objective of this workplan is to ensure that Water Boards address the groundwater challenges that have the greatest potential to impact beneficial uses, focus limited resources on the most important problems, and facilitate efficient local and regional management. Focusing limited state resources on the most important problems is critical for accomplishing many of the recommendations proposed in this concept paper. Otherwise much time will be spent evaluating, collecting data, developing or expanding databases, and preparing reports for groundwater basins that are well managed as well as basins that are not managed at all. It is important that the State Board prioritizes actions to the groundwater basins most in need of state assistance.

Suggestions for focusing state efforts are as follows:

1) Future efforts by the state should focus on groundwater basins that do not have effective management programs. Many areas of the state currently have successful groundwater management programs implemented by local or regional agencies.

2) Future efforts by the state should not impact or place new burdens on groundwater management agencies that are successfully managing the basin they are empowered to manage.

3) One possible approach would be to evaluate existing Groundwater Management Plans (GWMP) to determine if such plans are adequately monitoring, protecting, and managing the groundwater basins. Focus the rest of the activities proposed in the concept paper to basins where effective management is not occurring and new management actions or structures are needed. If key elements of effective groundwater management are addressed in the GWMP the rest of the proposed actions in this plan should focus on basins that do not have a GWMP.

4) Where GWMPs have not been adopted, create incentives for local and regional entities to develop and adopt such plans.

5) Develop new approaches to cause the formation of new local or regional groundwater management agencies in areas without management agencies.

Section 2: Implementing the Vision

1) Page 2, 2nd paragraph – Suggest editing the following sentence for clarity: “Managing groundwater levels (quantity) and preventing overdraft largely depends on maintaining a balance between the amount of basin outflows, e.g.,
pumping, natural depletion from a basin, and the amount of basin inflows, e.g., natural and managed aquifer recharge.”

2) Page 2, key element #1 – At a minimum, suggest adding “storage depletion” to this bullet since this is the true management concern in some areas – not the water level elevation. This qualifier is consistent with paragraph 2 that associates water levels with quantity. “Sustainable thresholds for water level drawdown (storage or quantity depletion) and water quality for impacted, vulnerable, and high-use basins;”

Add an explanation or definition of “impacted,” “vulnerable,” and “high-use.” Does this refer to basins that have been “impacted” by water quality degradation and/or storage depletion and basins that are “vulnerable” to water quality degradation and/or storage depletion?

3) Page 2, key element #3 – Suggest editing as follows: “Governance structures with the management mechanisms needed to prevent impacts before they occur, clean up contamination where it has occurred, provide adequate treatment of contaminated drinking water sources, and ensure that groundwater level quantity and quality thresholds are managed not exceeded over the long term;”

4) Page 2, key element #5 – This element seems unnecessary, because if the proper governance structures are established (see key element #3), then oversight and enforcement are intrinsically covered. Given the importance of enforcement and oversight, these are necessary attributes of proper governance that should be included within key element #3. Otherwise, this implies that this concept paper envisions the need for additional layers of governance, an effort that is not likely to be successful and is not recommended.

Section 3.1: Sustainable Thresholds

1) Page 3, last paragraph – As stated previously in the document, the purpose of thresholds is to establish targets that should not be exceeded in order to protect groundwater quality and quantity rather than for evaluating and assessing quality and quantity. The current sentence appears to be mixing up the purpose of thresholds with the purpose of monitoring and assessment. Edit sentence as follows; “The State Water Board is soliciting comment on whether the current and proposed actions will result in thresholds for groundwater quality and elevation (quantity) that support and protect beneficial uses and sustainable groundwater supplies, assessment of groundwater conditions, evaluation of groundwater quality and quantity trends, and informed management decisions.”

2) Page 4, section 3.1.1 – Add Bullet #4: Support partnerships between state regulatory agencies, i.e., Regional Water Boards and Department of Toxic Substances Control, and local groundwater management agencies to develop groundwater pollution cleanup and containment projects and programs. Add
Bullet #5: Expand access to State Revolving Fund to allow funding for cleanup projects of industrial pollutants by local and regional groundwater management agencies. Currently the SRF is only available for cleanup of contamination due to point source discharges.

3) Page 4, section 3.1.2. – Instead of creating a new statewide regulatory program established by new legislation, utilize the existing program that encourages/incentivizes the development of GWMPs. Work to make this program more effective with guidance/requirements for periodic updating plans that include reporting of progress. The state should develop incentives for groundwater management entities that have not established thresholds for sustainable groundwater management to engage in the process of development a GWMP so that such thresholds can be established. Additional legislative and regulatory requirements should be directed at local and regional entities where there has been no progress in the development of a GWMP.

4) Page 4, sections 3.1.1 and 3.1.2 – Without addressing the issue of establishing a safe yield for each groundwater basin that is not currently managed it will be difficult to establish thresholds for sustainable groundwater management. Once the safe yield is determined a safe operating range can be determined and basin management objectives can be set. For basins without GWMPs, the state needs authority to require that basins be operated within the safe operating range.

Section 3.2: Monitoring and Assessment

1) Page 5, section 3.2.1 – The first step in working toward better integration and accessibility of data would be to determine how to present groundwater data in a meaningful way for public use. This will require coordination of data collection and database management. One example is that data collected for compliance with Title 22 overlaps with data being collected through the GAMA program. Managing the redundancies of and coordinating management of these two databases will be important before additional data collection efforts begin.

2) Page 5, section 3.2.2 – Bullet 1 suggests the creation of a searchable electronic database of well completion reports and associated data. While this idea may have merit, the problem is that under California Water Code well completion reports are confidential.

3) Page 6, section 3.2.2. – Bullet 5 should be a task that is accomplished as part of the development of a GWMP for a basin. Estimating stormwater capture and groundwater recharge potential is difficult, time consuming, and complex. Estimates of stormwater capture and groundwater recharge potential will be highly speculative as this will depend on frequency, duration, and intensity of storms as well as on projections of performance of recharge facilities and how well the recharge facilities are managed.

Section 3.3: Governance and Management
1) Page 8, section 3.3.2, Bullet 2 and 3 – Please define “high-use basins” and “Active Management Areas.” As already stated, limited state resources should be focused on evaluating high-use basins that do not have an adopted Groundwater Management Plan. Conducting an evaluation of all local groundwater management programs will dilute efforts to assist ones in critical need.

2) Page 8, section 3.3.2, Bullet 2 – One important aspect in establishing Active Management Areas is to carefully assess the hydrologic system boundaries so as to allow for successful management. Boundaries that do not adequately define a hydrologic system may result in creating areas that are difficult to manage.

3) Page 8, section 3.3.2, Bullet 5 – Districts with groundwater management responsibilities have a governance structure in place. Creating a standardized set of authorities for groundwater basins that are already managed by local districts contradicts the workplan’s objective to focus limited resources on the most important groundwater problems and facilitate more efficient local and regional groundwater management.

Section 3.4: Funding

1) Page 9, section 3.4.2, Bullet 1 – As stated previously, providing SRF loans to assist local and regional groundwater management agencies in cleanup of groundwater contamination caused by either point sources or nonpoint sources would facilitate cleanup of contaminated sites.

2) Page 9, section 3.4.2, Bullet 5 – The GAMA program would provide greater value if data collection was focused on standard constituents in groundwater basins where adequate data collection is not being conducted.

Section 3.5: Oversight and Enforcement

1) Page 10 section 3.5.1 Bullet #1 – Targeting groundwater quality regulatory program enforcement on legacy sites is valuable only if this will not draw resources away from existing regulatory programs.

Conclusion

In conclusion, the State Water Board’s workplan should first and foremost acknowledge that groundwater in many regions of the state is being managed effectively, responsibly, and sustainably by local or regional agencies. In these cases, additional requirements to collect data, complete assessments, develop plans, etc. will do little to improve the condition of groundwater in the state. Although the stated objective of the draft workplan is to focus limited state resources on the most important groundwater problems, many of the suggested actions propose intensive statewide actions such as
passing new legislation to regulate groundwater and large scale data collection efforts. The State Water Board would play a valuable role in improving the conditions of groundwater in the state by first focusing on and encouraging the development of local groundwater management, where such management does not currently exist. The first step should be expanding local and regional districts to manage groundwater. In cases where this proves to be unsuccessful, then more intensive efforts of the State Water Board will be needed to protect groundwater resources.
The California Water Action Plan was prepared in response to a directive from Governor Brown. The objective is to identify key actions for the next one to five years to address urgent needs in managing the state's water resources. Please accept the following comments on the Draft Action Plan.

On page 2, the second bullet point describes the challenge of declining groundwater basins. The statement here that “much of California's groundwater is not sustainably managed” is exaggerated and unnecessarily pessimistic. Many of the groundwater basins in Southern California are being managed sustainably through the management activities of local and regional groundwater management agencies. There are regions in the state where some of the groundwater basins are not being sustainably managed. However, this is not true of the entire state. We suggest that the text be changed from “Unfortunately, much of California’s groundwater is not sustainably managed” to “Sustainable management of many groundwater basins in California has occurred at the local levels through local groundwater management agencies. Unfortunately, groundwater basins in some regions of the state still are not sustainably managed.”

On page 2, the third bullet point contains the statement that “Millions of California rely, at least in part, on contaminated groundwater for their drinking water.” This statement could be interpreted that millions of people are drinking contaminated water. Suggest new wording as follows: “Millions of Californians rely on groundwater for their drinking water. Some of these supplies have been contaminated, are threatened with contamination, or need to be blended or treated to make them suitable for consumption. Laws require that water purveyors must meet stringent public health standards in order to provide water to customers. In spite of these laws, however, drinking water in many disadvantaged communities may not meet these standards.”

On page 6, the first bullet point suggests that local governments should be encouraged to adopt or amend local ordinances to “establish minimum requirements for infiltration of water into the groundwater table.” Infiltration of stormwater is important as a means to recharge groundwater basins. However, infiltration is not appropriate in all areas due to pre-existing conditions such as groundwater contamination or geotechnical issues. Efforts to promote or require infiltration need to account for these types of conditions.
Groundwater Concept Paper &
CA Water Action Plan

Water Issues Committee Meeting
November 13, 2013
California Statewide Groundwater Elevation Monitoring (CASGEM)

- In 2009, CA Legislature passed SBX7 6, which establishes requirement for local monitoring parties and DWR to collect groundwater elevations statewide and that this information be made available to the public
- OCWD reports groundwater elevation data once per year to DWR
‘Unmonitored’ basins shown in pink – source: DWR CASGEM web site
Unmonitored' basins shown in pink –
source: DWR CASGEM web site
Draft Groundwater Concept Paper

- Prepared by State Water Resources Control Board
- Objective: address challenges to groundwater resources & facilitate more efficient local & regional management
• OCWD Comments:
  – Focus state efforts on basins not being managed
  – Leave successful local management agencies alone
  – Encourage local management
  – New statewide requirements on all basins not needed
CA Water Action Plan

• Prepared by:
  – CA Natural Resources Agency
  – CA Dept. of Food & Agriculture
  – CA EPA

• Objective: Short-term measures for sustainable water resources
CA Water Action plan, cont.

• Actions include:
  – Managing for drought
  – Improving water quality
  – Restoring native habitats & populations
  – Expanding water storage capacity
  – Implementing Delta Plan
Discussion of Groundwater in CA Water Action Plan

- Describes importance of groundwater
- Needs clarification to correct misunderstanding that most of CA groundwater is not sustainably managed
- Most large groundwater basins in So CA are sustainably managed