



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

NOTICE OF REGULAR MEETING OF BOARD OF DIRECTORS

DATE: Wednesday, July 18, 2012
TIME: 7:00 p.m. CALL REGULAR MEETING TO ORDER
LOCATION: Zone 7 Administration Building
100 North Canyons Parkway, Livermore, California

Any member of the audience desiring to address the Board on an item under discussion may do so upon receiving recognition from the President. After receiving recognition, please step to the podium and state your name and address.

In compliance with the Americans with Disabilities Act, the meeting room is wheelchair accessible and disabled parking is available at the Zone 7 Administrative Building lot. If you are a person with a disability and you need disability-related modifications or accommodations to participate in this meeting, please contact the Zone 7 Board Secretary, Judy Rector, at (925) 454-5053 or fax (925) 454-5724. Notification 48 hours prior to the meeting will enable Zone 7 to make reasonable arrangements to ensure accessibility to this meeting. {28 CFR 35.102-35, 104 ADA Title II}

A G E N D A

1. Call Meeting to Order
 - a) Swear in Newly Appointed Directors – Assemblywoman Joan Buchanan
2. Pledge of Allegiance
3. Reorganization of the Board
4. Citizens Forum

This is an opportunity for members of the audience to speak on an item not listed on the agenda. The Board cannot deliberate or take action on a non-agenda item unless it is an emergency as defined under Government Code Section 54954.2.
5. Minutes of the Regular Meeting of June 20, 2012
6. Consent Calendar
 - a. Resolution of Commendation for Retiring Board Member Christopher Moore
 - b. Request for “Out-of-State” Travel to attend the WaterSmart Innovations 2012 Conference in Las Vegas, Nevada
 - c. Approval of Local Groundwater Assistance Grant Application and Authorization to Execute DWR Grant Agreement for PCE Contamination Assessment
 - d. Approval of Local Groundwater Assistance Grant Application and Authorization to Execute Grant Agreement with DWR for Upgrading Zone 7’s Groundwater Model for Groundwater and Salt Management Purposes
 - e. Accept Grant of Easement from DSRSD for Mocho Well No. 4 and Mocho Groundwater Demineralization Plant
 - f. Grant of Easement to the City of Livermore for an Overhead Electric Line over Arroyo Las Positas
 - g. Authorizing Contract with DSRSD for Dublin Schools Irrigation System Hardware Rebate
7. Staffing Update:
 - a. New Employee Introductions
 - b. Employee of the Month Recognition
8. Authorization for the General Manager to Negotiate and Execute Three Contracts for the Supply and Delivery of Water Treatment Chemicals

Recommended action: Adopt resolution.

9. Award of Contract for the Cope Lake Slope Repair Project

Recommended action: Adopt resolution.

10. Committees – None.

11. Reports – Directors

- a. Verbal comments by President
- b. Written report by Director Quigley – None.
- c. Verbal reports

12. Items for Future Agenda – Directors

13. Staff Reports (Information items. No action will be taken.)

- a. General Manager's Report
- b. Recent Outreach Activities
- c. Legislative Update
- d. Status Report on Separation Efforts
- e. Treatment Plant Residuals Management
- f. Quarterly Update of Expansion Fund
- g. Report on Water Sales and Connection Fee Revenue
- h. Annual Report for the Groundwater Management Program for 2011 Water Year
- i. Verbal Reports

14. CLOSED SESSION

- a) Conference with Labor Negotiators:
Agency Negotiator: G.F. Duerig
Employee Organizations: Alameda County Management Employees Association; Alameda County Building and Construction Trades Council, Local 342, AFL-CIO; International Federation of Professional and Technical Engineers, Local 21, AFL-CIO; Local 1021 of the Service Employees International Union, CTW; Unrepresented Management.
- b) Conference with Legal Counsel – Significant exposure to litigation pursuant to Subdivision (b) of Government Code Section 54956.9: 1 case
- c) Government Code Section 549547: Public Employee Performance Evaluation
Title: General Manager
- d) Conference with Legal Counsel – Existing litigation pursuant to Subdivision (a) of Government Code Section 54956.9: 1 case

City of Livermore v. All Persons Interested in the Following Matters:, etc. (Alameda County Superior Court Case No. RG 1263747)

15. Open Session and Report Out of Closed Session

16. Adjournment

17. Upcoming Board Schedule: (All meeting locations are in the Board Room at 100 North Canyons Parkway, Livermore, California, unless otherwise noted)

- a) Special Board Meeting: August 1, 2012, 7:00 p.m. (if needed)
- b) Regular Board Meeting: August 15, 2012, 7:00 p.m.
- c) Board Retreat, August 22, 2012, location TBD

Materials related to an item on this agenda that have been provided to the Board less than 72 hours prior to the meeting are available for public inspection at the Zone 7 office at the time of, and prior to, the meeting and at www.zone7water.com.
All other material otherwise provided to the Board will be available at the public meeting.

MINUTES OF THE BOARD OF DIRECTORS
ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
REGULAR MEETING

June 20, 2012

President Figuers called the regular meeting to order at 7:10 p.m. (following a reception for retiring Board member Christopher Moore) with a salute to the flag. The following were present:

DIRECTORS: SANDS FIGUERS
JOHN GRECI
A J MACHAEVICH
CHRISTOPHER MOORE
SARAH PALMER
RICHARD QUIGLEY
BILL STEVENS

DIRECTORS ABSENT: NONE

ZONE 7 STAFF: JILL DUERIG, GENERAL MANAGER
TOM HUGHES, ASSISTANT GENERAL MANAGER, ADMINISTRATION
JARNAIL CHAHAL, ENGINEERING MANAGER
RHETT ALZONA, SENIOR ENGINEER, FACILITIES ENGINEERING
BRAD LEDESMA, ASSOCIATED CIVIL ENGINEER, INTEGRATED
PLANNING
JAVIA GREEN, STAFF ANALYST, FINANCE
TOM PICO, ACTING HUMAN RESOURCES MANAGER
JUDY RECTOR, BOARD SECRETARY

COUNSEL: DAVID ALADJEM, DOWNEY BRAND

Item 3 - Citizens Forum –

Randy Werner, 5890 Arlene Way, Livermore, spoke as a water professional. He wanted to discuss the fourth contractor share and Lake Del Valle: a water supply fixture or a recreation area? The week before in June, the Department of Water Resources (DWR) shut down water and the City of Livermore was the most affected by it because of the proximity to the Patterson Pass Water Treatment Plant. The Board needs to make a decision about the lake because what the Board did in the past was acquiesce to the recreation community to make it primarily a recreational lake. It was built as a water supply lake, part of the State Water Project, and DWR needs to take the lake back for water supply. This is a touchy issue and recreational people wanted the boat ramp below water but there is a need to set a water supply priority with DWR. There may not be enough water in Del Valle due to the Aqueduct construction but when the public needs water, they need to be able to turn the tap and have water come out.

He encouraged the Board to appeal to DWR to keep Lake Del Valle a water supply facility rather than equal parts of recreation and water supply.

Item 4 - Minutes of the Regular Meeting of May 16, 2012

On a motion by Director Palmer with a second by Director Greci, the minutes of the Regular Meeting of May 16, 2012, were approved by a voice vote of 7-0. Director Quigley complimented staff on the minutes from that meeting.

Item 5 - Consent Calendar

Director Palmer moved and Director Quigley seconded a motion to approve the following resolutions by a roll call vote of 7-0. The following resolutions were approved:

- Resolution 12-4195 Authorized the General Manager to negotiate and execute the Recreational Trail Use License Agreement with the East Bay Regional Park District. (Item 5a)
- Resolution 12-4196 Authorized the General Manager to execute a certificate of acceptance causing the Easement Area Use Agreement with 7099 Amador Plaza, LLC, for Line J-2 to be recorded at the Office of the Recorder of Alameda County. (Item 5b)
- Resolution 12-4197 Authorized the General Manager to negotiate and execute a contract for district-wide embankment slope mowing with Bruce Balala Excavating for an amount not to exceed \$95,000; extend the contract up to two times to cover the period July 1, 2013 to June 30, 2015; and issue change orders when required in an amount not to exceed \$9,500 per year. (Item 5c)
- Resolution 12-4198 Authorized the General Manager to negotiate and execute a professional services contract with DTN Engineers, Inc., for electrical engineering support services for FY 2012/2013 in an amount not to exceed \$84,200. (Item 5d)
- Resolution 12-4199 Authorized the General Manager to negotiate and execute a professional services contract with Biggs Cardosa Associates, Inc., for as-needed structural engineering support services for the next three fiscal years in an amount not to exceed \$75,000 per year; and a professional services contract with Biggs Cardosa Associates, Inc., for structural engineering support services for the Del Valle Water Treatment Plant and Patterson Pass Water Treatment Plant aqueous ammonia facilities in an amount not to exceed \$140,000. (Item 5e)
- Resolution 12-4200 Authorized the General Manager to negotiate and execute a professional services contract with Kier & Wright Civil Engineers & Surveyors, Inc., for as-needed surveying support services for each of the next two fiscal years in an amount not to exceed \$165,000 per year. (Item 5f)
- Resolution 12-4201 Authorized the General Manager to negotiate and execute a consulting services contract with Kenneth R. Henneman for \$50,000 plus a contingency amount of \$25,000 to cover further unanticipated project delays and additional unanticipated technical support needs for a total not to exceed amount of \$75,000. (Item 5g)

Item 6 - Staffing Updates

Item 6 (a) – Employee of the Month Recognition

Plant Mechanic Ron Ray from the Maintenance Section is the April Employee of the Month. General Manager Jill Duerig noted that Mr. Ray has a very helpful, positive work attitude and responds promptly to operator work requests which are critical to the Operations crew. While working on the new PPWTP Clarifier Modification Project, it was noticed how detailed his installation of the new chemical feed lines in the Settled Water Channel were. Mr. Ray was not present but the Board applauded him in absentia.

Item 7 - Solid Waste Disposal Contract with Republic Services, Inc.

Jarnail Chahal, Engineering Manager, introduced the agenda item regarding a new solid waste contract with Republic Services, Inc. Two proposals were received for a new contract: one from Republic Services and one from Waste Management. Staff reviewed the proposals and determined that Republic Services' proposal was the lowest cost option for Zone 7, therefore staff is recommending approval of a \$215,000 contract for Fiscal Year 2012-2013 with an option to extend the contract for two more years covering the period through Fiscal Year 2015/2016.

Director Palmer commented that there is a problem with the consistency of the centrifuge and she is hoping to see that it will be more consistent in the future. Because there is only a \$14,000 difference between the two vendors, depending upon the consistency, it may not be worth re-evaluating in the future.

Director Moore asked what percentage of dewatering do we do? Mr. Chahal answered that at Del Valle there are eight to nine sludge drying beds plus the centrifuge so maybe 50 percent of the sludge is dried through the centrifuge. That is only 25 percent solids and 75 percent moisture. Even sludge that goes through the centrifuge undergoes additional drying in the sludge drying beds to meet the target moisture content.

Director Stevens asked if there is a possibility of using the Chain-of-Lakes' sedimentation ponds or is this hazardous waste? Mr. Chahal said the solid waste is considered hazardous so it could not be dumped into the Chain-of-Lakes area.

President Figures asked the approximate annual cost of centrifuges? Mr. Alzona replied that the rental cost is approximately \$600,000 per year, including labor to operate.

Ms. Duerig added that the reason Zone 7 went to the centrifuge was because we didn't have the room to expand the capacity of the drying beds so ultrafiltration at PPWTP was added along with the mechanical dewatering to make the most of the drying bed area we have.

President Figures reiterated that \$600,000 is spent to rent centrifuges to get the sludge down to under 50 percent and yet it would cost us only \$400,000 and Waste Management would haul it out and we would not have to dry it. Why are we spending extra money?

Ms. Duerig explained that there is a limit to what can be hauled easily on the roads, it is not just what the landfill will accept. Mr. Alzona and his team have done an excellent analysis that it is more cost effective in the long run to buy the centrifuge and bring the labor in-house. This is one of the projects we chose to defer because of cash flow constraints; we are bringing this back to the Board probably in the next year to move forward and it will pay for itself in a short time. This item allows us to have a place to take the sludge in the meantime.

Director Quigley broke down the three components involved: 1) landfill portion – what it costs to cover the landfill; 2) centrifuge – making the sludge lighter and dryer; and 3) transporting it to the landfill. When this project comes back to the Board, Director Quigley requested that staff put those three components together and breakdown what the sludge costs are to address the Board's concerns.

Director Greci said that when you go to Waste Management or Republic Services, it is not by the yard, it is by weight. If it is really wet, even if we do find a way to haul it without dripping on the road, you are going to pay more to dump it and that means more loads to take to the dump. When figuring the costs, you have to compare the difference between a dry load and a wet load and making more trips.

Ms. Duerig recommended that for the next Board meeting, staff will bring forward a staff report to show a more complete analysis.

Director Palmer moved that the item be approved and Director Moore seconded the motion. Resolution No. 12-4202 was approved by a roll call vote of 7-0.

Item 8 - Annual Report of Sustainable Water Supply for Zone 7 Water Agency

In response to the Board of Directors' May 16th request for a staff presentation, Brad Ledesma, Associate Civil Engineer in Integrated Planning, discussed the annual review of the Sustainable Water Supply report which is part of the Reliability Policy for Municipal and Industrial Water Supplies. It is made up of several components such as an estimate of the current water demands for the current year and over the next five year period, and how much supply is available for Zone 7 at the beginning of the year (both supply yields and storage). Those two components are compared to see how Zone 7 will fare over the next five years. There was also a discussion about conservation and other programs necessary to retain long term reliability for Zone 7's customers.

Mr. Ledesma explained the numbers in his slide show presentation. The current allocation from the State Water Project is 65 percent, about 52,400 acre feet, essentially 93 percent of our total yield for this year. The Arroyo del Valle runoff is only 1,000 acre feet and shows the difference between what is going on in the State and locally because of the micro-climates within California. The other two sources are Byron Bethany Irrigation District and the Yuba Accord.

Mr. Ledesma stated that Zone 7 has sufficient supplies to meet projected water demands over the next five years with or without conservation.

Director Quigley said he would like to see the actual "throughput" (a supply and distribution term that means metric numbers are run through a warehouse, i.e, inventory control) of the watershed because it differs seasonally: when it rains we get a lot of water and we lose a lot, we can see it go out to the bay. He believes that using resources such as flow meters will capture that and give us 100 percent "throughput" of our water. Once we get 100 percent, he feels the Board and staff can look at options on how to manage the water better in concert with Chain of Lakes and other opportunities. The next time water sustainability is discussed, he wants to see 100 percent for a year of the water molecules in acre feet that come through the watershed. Director Palmer suggested using the existing flow data available online from the USGS and DWR.

Item 9 - Consider Increasing Director's Compensation

Ms. Duerig introduced Tom Pico, Acting Human Resources Manager, who was present to answer any questions the Board had on the agenda item. Mr. Pico stated that board members currently make \$159.99 per meeting and are eligible for a maximum of four meetings which is \$639 per month. Under the County system, the Board is currently not eligible to receive medical or retirement benefits. The mean based on a survey of agencies is \$174.41 per meeting and the average number of meetings attended is 9.6 per month for a total of \$1,548.88 per month. In terms of benefits, compensation ranges from \$2,186.09 to \$3,494.38 per month. Different options available are:

- o Option 1: maintain the compensation at the current \$159.99 per meeting.
- o Option 2: set the compensation for FY 12/13 and FY 13/14 at the mean derived from the current market compensation salary survey (\$170.41 per meeting, an increase of approximately 6.5%.)
- o Option 3: since the board has taken no increase since 2008, and per the Water Code Section 20202 (attached) a 5% per year increase is allowed, up to 20% increase could be granted this year (up to \$191.98 per meeting.)
- o Option 4: retain current compensation but add compensation for attendance at any meeting approved by Board up to a maximum of ten per month by modifying Compensation Policy.

Director Palmer asked if the Board got more money per meeting, would a public hearing be needed? The response was affirmative.

Director Machaevich's question regarding Option 4 was about the wording "up to a maximum of ten per month." He asked if that meant 10 days or 10 events, i.e., if a Director attended an ACWA conference for ten days? General Counsel David Aladjem answered that would be for ten days, not ten events, and if a meeting went for ten days, it would be the ten meetings for the month.

General Manager Jill Duerig further clarified that if you go to ACWA for three days, it is a single event, and you would get paid for each of the three days as if it were three meetings, even though it is a single meeting.

President Figuers said that most things Directors attend are single day with the exception of ACWA and a couple of others.

Director Palmer added that she liked the idea of being compensated for meetings that Board members attend. If it is Zone 7 business, the Board could approve a type of meeting up to a ten maximum rather than approve each meeting, i.e., if Director Greci is meeting with elected officials, the Board should not have to approve or disapprove of the meeting because it is Board business and he should be compensated for it.

Director Machaevich asked if it is written that it has to be pre-approved? Director Palmer replied that it is not stated either way.

President Figuers says he disagrees with that philosophy because if you meet with a local public official and it takes an hour or two, it is part of the duties of a Board member unless the Director leaves Alameda County to go to Sacramento for an ACWA committee meeting that involves a time commitment.

Director Palmer respectfully disagreed because she feels it is a time commitment for any meeting as the Director must prepare for the meeting, transport themselves to the meeting, and whether it takes three hours or six hours, it is a meeting. A Director's time should be valued and they should be compensated.

In following that logic, President Figuers asked if the President comes in and meets with staff two or three times a month, would those be considered meetings? Director Palmer replied that this depends upon what is considered to be a meeting and the Board needs to be sensible about the definition of a meeting.

Director Moore agreed with Director Palmer and he respected the fact that the Board currently approves meetings, but it is about taking care of business and Directors should be compensated. He also likes the idea of a ten-meeting limit. Because this concept is new to this Board and they have not historically done this, if there are concerns moving forward, they will have the opportunity to change it.

Director Quigley liked Option 4 but suggested that the General Manager and Board President be the referee if a Director goes to something legitimate for the benefit of Zone 7, and he agrees that there should be some kind of compensation. A Director also has a duty either verbally or in writing to report back and there is a check-and-balance system in place.

Director Machaevich feels that if a Board member is giving a written or verbal report about a meeting, that meeting should be compensable. If the meeting is important enough to go to and share with the Board in an open forum, comments can be kept simple and it should be a paid meeting.

Director Stevens recommended Options 1 and 2. He agrees that the Board needs to decide the definition of what a meeting is and not have to get permission beforehand but that could be done in a subcommittee. Director Palmer mentioned the Administrative Committee, which is rarely used, but the Administrative Committee could review a list of meetings.

Ms. Duerig referred to the redline part of the policy attached to the agenda item and it reads:

“Board members will be compensated for attendance at each at each board-approved meeting, event and activity.”

Instead it could say:

“Board members will be compensated for attendance for each day of a Zone 7-related meeting, event or activity.”

That would open it up and eliminate the need for Board approvals up to a maximum of ten or for each day of each activity related to Zone 7.

President Figuers also agrees with Option 4 but would like to see the number of days in a month reduced to four. He suggests starting off small because four covers ACWA and very few Board members historically go four days or more; it can be increased later.

Director Palmer suggested an addendum such as “or as reviewed by the Administrative Committee” and that Committee could monitor whether the meetings are necessary.

Director Moore asked for clarification on how often the policy can be amended. Ms. Duerig responded that the policy can be amended at the board's pleasure but, in terms of the compensation itself, the number of dollars for compensation can be amended every other year. General Counsel David Aladjem agreed. Director Moore said that now that the Board is talking about Delta issues and separation issues, Board member involvement in the last year has necessitated more than four so he thinks the policy should be for ten meetings.

President Figuers asked if it is ten meetings per Board member or ten total for the Board? Ms. Duerig said it is currently written as four per Board member. Staff did a comparison to show what the other agencies have and Zone 7 is the only one at the four-meeting level. The other agencies are between eight and ten with an average of 9.46. Director Palmer stated that it was four per Board member but four meetings, not someone meeting with another public official.

President Figuers said he is interpreting it as above-and-beyond regularly-scheduled Board or committee meetings. Ms. Duerig said that if they had a Board meeting tonight and a Special Board meeting in a couple of weeks, you could not do more than two others. Director Palmer said that if you are on a committee, too, you could not go meet with an official or you couldn't do a meeting with Metropolitan Water if they had a couple of meetings a year. President Figuers said that in that case he would modify the number of meetings to six. Director Palmer countered with ten because the Board is getting more politically involved and the option is there.

Directors Machaevich and Quigley agreed with the ten meeting maximum.

Director Stevens moved for Option 4 with changes as discussed earlier.

President Figuers asked for public comments. Angela Ramirez Holmes from Pleasanton pointed out that in last month's and this month's discussion, the biggest bone of contention despite the six versus ten meetings issue, is what defines a meeting. Both DSRSD and CCWD have language in the agenda item that clearly captures what the Zone 7 Board is trying to include and perhaps that it can be done all at once instead of bringing it back again.

The Directors agreed to a roll call vote and the motion by Director Stevens and seconded by Director Palmer for Resolution No. 12-4203 was passed by a roll call vote of 6-0 with President Figuers voting no.

Mr. Aladjem said the Board just adopted a policy revision but can always amend that policy if it so chooses by a motion, a second, and a vote.

Director Palmer wanted to amend the "approval by Board" language. The Board could approve types of meetings, things that are defined as benefiting Zone 7 and serving the Zone 7 Board's purposes. The current policy is only for agendaized Board meetings and she wanted to re-state what would be an "approved" meeting. President Figuers suggested that it go to the Administrative Committee.

Mr. Aladjem suggested a couple of ways this could be handled. The definition of a meeting for DSRSD is in the agenda packet but what the General Manager suggested and what was incorporated in Director Stevens' motion was that the compensation would be for events, meetings and activities that would relate to Zone 7. That is broad language and covers Director Palmer's concerns so if the Board is comfortable that it is covered, no other action is needed.

Mr. Aladjem read out loud the DSRSD language. Although Director Palmer agreed, it is DSRSD language so she wants to confirm that Zone 7 can apply it to Zone 7 policy under the present circumstances.

Mr. Aladjem responded that the simplest way would be for the minutes to show that it is the District's intent in adopting the policy to define a meeting, activity or event, in the same way that it is interpreted by DSRSD.

8. Notwithstanding other sections of this Policy, Board Member compensation for attendance at each day of a Zone 7-related meeting, event or activity, shall not be paid for more than a total of ten (10) days per Director in any calendar month.

C. Amount of Compensation for Attendance:

The amount of compensation to Board Members for attendance at each meeting, event and activity authorized pursuant to Sections A & B above, shall be reviewed on a biennial basis. The amount of compensation shall be established in accordance with the provisions of Water Code Section 20200, *et seq.*, and shall be adopted by ordinance. Board members will be compensated for attendance for each day of a Zone 7-related meeting, event or activity.

There was general concurrence with this approach. President Figuers urged that if issues arise with the amended policy, it should be put to the Administrative Committee for review because this is a complex subject.

Item 10 - July 1 – June 30 Fiscal Year Capital Budgets

Tom Hughes, Assistant General Manager, Administration, explained to the Board that a FY 12/13 capital budget for Funds 72, 73 and 76 for July 1, 2012 – June 30, 2013 was needed due to the delay in transitioning to a calendar fiscal year. The Board had adopted an 18-month capital budget on April 18, 2012, but a twelve-month budget for operating funds 50, 51 and 52 was needed for FY 12/13 to incorporate in the county budget. Because capital fund 72 – (Renewal/Replacement and System-Wide Improvements), 73 (Expansion Fund) and 76 (Flood Protection and Stormwater Drainage Development Impact Fee) budgets were not a County requirement, the Board did not adopt 12-month FY12/13 budgets for these funds, only the 18-month transition budgets.

A draft budget book was provided to the Board members for information only and Mr. Hughes offered that staff could meet with the Directors if they had individual questions. Mr. Hughes also complimented his staff for putting the budget book together in two weeks due to the delay of the transition from the County.

JaVia Green, Staff Analyst in Finance, presented a short presentation explaining the need for a twelve month capital funds budget extending six months for FY 12/13. The proposed capital funds budget is \$37.8 million dollars.

Directors Moore and Quigley thanked staff for putting the numbers together so quickly. Director Quigley noted the expense involved in leasing the North Canyons building and recommended that staff think about using options for the future concerning the lease of the North Canyons building, perhaps discussed at the Board retreat.

President Figuers asked for public comments but there were none.

Director Machaevich moved and Director Palmer seconded a motion to approve the resolution. After a roll call vote of 7-0, Resolution No. 12-4204 was adopted authorizing and directing the General Manager to adjust accounts as the General Manager may deem necessary to account for any changes in available fund balances, revenues or expenditures.

Item 11 - Committees – None.

Item 12 - Reports – Directors

- a. Verbal comments by President – none.
- b. Written report by Director Quigley

Director Quigley noted that there was an incorrect attachment to his written comments in the agenda packet. The correct attachment was made available to Directors which was an attachment on Hetch Hetchy and O'Shaughnessy Dam. He also mentioned the new Irvington Tunnel from Sunol and that he was not previously aware of the 146 mgd treatment facility in Sunol. He also attended a San Francisco Habitat Conservation Plan meeting in Dublin and Zone 7 staff was also present. He will present information next month on a recreation and water meeting he plans to attend in Walnut Grove the week after this Board meeting.

Director Moore said that after the May Board meeting he had an opportunity to speak to the Santa Clara Valley Water District Board on the issue of homeless encampments in creeks. He was able to do dual duty as a Zone 7 board member and as the San Jose Police Chief. Zone 7 staff members were also present. There is an issue everywhere with homeless encampments including potentially Zone 7's own watershed.

Item 13 - Items for Future Agendas – Directors

President Figuers referred to the term "cut" used in the General Manager's staff report about the pumping in the DWR water supply. He asked for clarification on how the water supply was interrupted.

General Manager Jill Duerig replied that the South Bay Aqueduct had gone dry three times. The first time there was a planned project where WAPA (Western Area Power Authority) and PG&E were doing heavy duty work on lines that crossed some of the South Bay Aqueduct's pumping plant lines. Although there was advance notice given to DWR, the line fell on DWR's line and they had to power down for several hours to go through the safety steps after the repair. The second time was almost an identical situation. This was on a Tuesday and Thursday night and staff was scrambling, along with the retailers, to turn on pumps and help out. After this happened twice to DWR during the hottest week of the year, they finally put a contingency plan into place on Friday and realized that they had Lake Del Valle valved so that the lake could fill because it was recreationally at a low level. This meant that if there was a shutdown, they couldn't pull out of the lake to give Zone 7 a supply. In case there was another outage and before the hot weekend, DWR decided to turn the valves so that if something happened over the weekend they could draw out of the lake. When it happened a third time on Sunday, Zone 7 staff was able to keep the Del Valle plant running at half the rate. There continue to be discussions with DWR and Zone 7 would like to encourage them to use contingency plans, recognize that they have a water supply that they can use in emergencies, and make sure that they don't shut Zone 7 down for hours because they failed to put those safety plans in place. The Operations

team has met several times and came up with ideas, not only contingency plans but using mutual aid. DWR couldn't get anyone out in the middle of the night with their reduced State staffing to turn the valves at Lake Del Valle. There have been operational team meetings with all of the retailers.

President Figuers asked if the Board should sign a letter to DWR both chiding and complimenting them or is what is going on sufficient? Ms. Duerig asked if she can get back to him on this subject. Director Palmer noted a bigger issue of communications between different agencies not only on water, but police and fire.

Ms. Duerig noted the new staff report on the status of Water Sales and Connection Fee Revenue.

Item 14 - Staff Reports (Information items)

- a. General Manager's Report
- b. Recent Outreach Activities
- c. Legislative Update
- d. Status Report on Separation Efforts
- e. Water Sales and Connection Fee Revenue
- f. Verbal Reports

The Board went into closed session at 8:50 p.m.

Item 15 - Closed Session

- a) Conference with Labor Negotiators:
Agency Negotiator: G.F. Duerig
Employee Organizations: Alameda County Management Employees Association; Alameda County Building and Construction Trades Council, Local 342, AFL-CIO; International Federation of Professional and Technical Engineers, Local 21, AFL-CIO; Local 1021 of the Service Employees International Union, CTW; Unrepresented Management.
- b) Conference with Legal Counsel – Significant exposure to litigation pursuant to Subdivision (b) of Government Code Section 54956.9: 3 cases
- c) Government Code Section 549547: Public Employee Performance Evaluation
Title: General Manager

Item 16 - Open Session and Report Out of Closed Session

The Board came out of closed session at 10:25 p.m. President Figuers said there was nothing to report out of closed session.

There was a brief continuation of the discussion on sending DWR a letter concerning recent South Bay Aqueduct shutdowns. Staff was directed to prepare a letter for President Figuers' signature.

Item 17 - Adjournment

The meeting was adjourned at 10:30 p.m.



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: ADMINISTRATION
CONTACT: JILL DUERIG

AGENDA DATE: July 18, 2012

ITEM NO. 3

SUBJECT: Reorganization of the Board

SUMMARY:

- The Board will discuss and select a President and Vice-President to serve for the next year.
- Once the President is selected, s/he immediately assumes the role and may make committee assignments either at this meeting or in the future. A copy of the 2011-2012 list of assignments is attached.

RECOMMENDED ACTION:

- Take steps to reorganize the Board, as described above.

Zone 7 Board Committees 2011 - 2012

Administrative Committee - This committee reviews all of the Zone's operations, including administrative topics, flood control, space and major facility needs, and safety and security issues.

Bill Stevens
Sarah Palmer
John Greci

City Liaison Committee - This committee meets to discuss topics of mutual interest between Zone 7, its retail water agencies and the cities

Sarah Palmer
John Greci
Dick Quigley

Finance Committee - This committee reviews budgets, proposed financial plans, proposed rate increases and proposed connection charge increases for the Zone prior to submission to the Board

Sandy Figuers
Chris Moore
A.J. Machaevich

Delta Committee – This committee reviews water supply issues and has recently focused on emerging issues related to conveyance of water through the Delta as part of the State Water Project. *Previously, the board discussed renaming this as the Water Committee; the new president could choose to take this action.*

John Greci
Sarah Palmer
Bill Stevens

Ad Hoc Separation Committee – This committee has been working on the political and outreach aspects associated with separating functions from the County.

John Greci
Sarah Palmer
Sandy Figuers

Ad Hoc Energy Committee – *This committee has not met for over a year. Because of its Ad Hoc nature it has effectively sunset. It would have to be formed anew as a Standing Committee by a board president wishing to reactivate it.*

Sandy Figuers
Dick Quigley
AJ Machaevich



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: OFFICE OF THE GENERAL MANAGER
CONTACT: JILL DUERIG/JUDY RECTOR

AGENDA DATE: July 18, 2012

ITEM NO. **6a**

**SUBJECT: RESOLUTION OF COMMENDATION FOR RETIRING BOARD MEMBER
CHRISTOPHER MOORE**

SUMMARY:

Christopher M. Moore, who served on the Zone 7 Water Agency Board of Directors in 2006 and again from 2009 to 2012, decided not to seek another term of office this year. His latest term officially ended on June 30. Staff recommends that your Board adopt the attached resolution commending Mr. Moore for his years of valuable public service as a Zone 7 Board member.

FINANCIAL:

None.

RECOMMEND ACTION:

Adopt resolution of commendation for Mr. Moore.



**Zone 7
Alameda County Flood Control & Water Conservation District
Board of Directors**

Resolution No.

WHEREAS, Christopher M. Moore served the citizens of the Livermore-Amador Valley with great distinction on the Zone 7 Board of Directors in 2006 and again from 2009-2012; and

WHEREAS, Mr. Moore's legal background, financial acumen, knowledge of governmental principals and service on Zone 7's Finance Committee have provided invaluable contributions to the Agency in matters of fiscal management, responsibility and accountability; and

WHEREAS, as a member of the Zone 7 Board of Directors, Mr. Moore always exemplified the highest ethical standards in his service to the community; and

WHEREAS, Mr. Moore decided not to seek another term and, therefore, left the Zone 7 Board at the end of his term on June 30, 2012;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Zone 7 of Alameda County Flood Control & Water Conservation District does hereby acknowledge, commend and thank Mr. Moore for his fine public service on this Board.

Adopted by Unanimous Vote on July 18, 2012

**Sarah Palmer, President
Board of Directors**



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: Integrated Planning – Water Conservation

CONTACT: Robyn Navarra/Carol Mahoney

AGENDA DATE: July 18, 2012

ITEM NO. 6b

SUBJECT: Request for “Out-of-State” Travel Authorization to attend the WaterSmart Innovations 2012 Conference in Las Vegas, Nevada

SUMMARY:

- Out-of-state travel authorization is requested for Robyn Navarra, Water Conservation Coordinator, to attend the WaterSmart Innovations 2012 Conference.
- The WaterSmart Innovation 2012 Conference is holding its annual conference on October 2-7, 2012 in Las Vegas, Nevada. The largest urban water efficiency conference of its kind is presented by the Southern Nevada Water Authority and offers a wide variety of technical sessions, exhibits, and technical tours to share the latest on new technologies, case studies, research projects specific to the area of water conservation and offers an exhibition of emerging and cutting-edge water efficiency products and services, featuring appliances, plumbing fixtures, landscape and irrigation equipment, consulting and professional services, software and technology.
- Ms. Navarra is currently working with the water retailers in the development and implementation of water efficiency incentive programs and water efficient technologies. This conference will provide information on the challenges to meet current and future water supply demand through improved efficiency by bringing together diverse disciplines to enhance mutual understanding of urban water efficiency policy, programs and products.
- Zone 7 meets the requirements of the Water Conservation Act of 2009, SBX7-7 through incentives, education, technology, and outreach. The conference primary function is bringing water conservationist, resources managers, and engineer together to discuss current legislation and the impacts of SBX7-7 and how to reduce water use and waste.
- Zone 7 is committed to California Urban Water Conservation Council BMP's to plan and manage our water supply through our financial incentive, education and public outreach. Attending the WaterSmart Conference, staff will incorporate new water efficiency measures and technologies and develop incentive programs to reduce water use.

FUNDING:

Conference costs include a \$440 registration cost, \$170 in workshop fees for Water Conservation and for Benefit-Cost Analysis, plus travel, lodging and miscellaneous expenses for a total not-to-exceed \$1,500. Funds are budgeted in the Water Enterprise Fund (52).

RECOMMENDED ACTION:

Adopt attached Resolution approving out-of-state travel and the reimbursement of actual and necessary expenses associated with staff's attendance at the WaterSmart Innovation 2012 Conference in Las Vegas, Nevada.

ATTACHMENTS:

Resolution

ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO

INTRODUCED BY
SECONDED BY

**Authorization for Out-of-State Travel to Attend the
WaterSmart Innovation 2012 Conference in Las Vegas, Nevada**

WHEREAS, Robyn Navarra, Water Conservation Coordinator, requests authorization to attend the WaterSmart Innovation 2012 Conference in Las Vegas Nevada;

NOW BE IT RESOLVED, that the Board of Directors of Zone 7 of the Alameda County Flood Control & Water Conservation District does hereby authorize out-of-state travel for Ms. Navarra to attend the WaterSmart Innovation 2012 Conference in Las Vegas Nevada, October 2-7, 2012;

BE IT FURTHER RESOLVED that reimbursement of actual and necessary expenses associated with her attendance is approved.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

ABSTAIN:

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of Alameda County Flood Control and Water Conservation District on July 18, 2012.

By: _____
President, Board of Directors



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: GROUNDWATER SECTION

CONTACT: Matt Katen/Colleen Winey

AGENDA DATE: July 18, 2012

ITEM NO. **6c**

SUBJECT: Approval of Local Groundwater Assistance Grant Application and Authorization to execute DWR Grant Agreement for PCE Contamination Assessment

SUMMARY:

- Tetrachloroethylene (PCE) contamination from an unidentified source has been detected in a small public supply well located on the County Fairgrounds in Pleasanton since 2000, requiring the Fairgrounds to treat the pumped water to remove the PCE before serving it.
- Staff submitted a proposal for a Local Groundwater Assistance Program (LGA) grant to the Department of Water Resources (DWR) for a project to identify source(s) of the PCE contamination, to help identify the Potential Responsible Parties.
- The goal of the project is to collect enough information to enable the RWQCB to open a new Spills, Leaks & Investigation Cleanup (SLIC) case and begin directing further assessment, and ultimately, cleanup efforts.
- Without any cleanup effort, the contamination may spread to other parts of the Basin, rendering them unsuitable for future municipal wells including those proposed in the Well Master Plan.
- The proposed project scope includes an historic record search for PCE-use businesses; soil, soil gas, and groundwater sampling; PCE entry survey in the contaminated well; the installation of a monitoring well, if necessary; and preparation of progress and final reports.
- The Fairgrounds, City of Pleasanton and the RWQCB have indicated their support for this project.
- If awarded, the grant would reimburse Zone 7 for up to \$250,000, or 100% of its project costs, including grant administration costs.
- Adopting the accompanying resolution approves the application and authorizes the General Manager to execute a Grant Agreement with DWR if the grant is awarded. This resolution is a requirement to complete the application process.

FUNDING:

Funding for the project will initially be provided from Fund 52–Water Enterprise, but the grant will reimburse Zone 7 for up to 100% of the project costs.

RECOMMENDED ACTION:

Adopt the attached resolution approving the grant application and authorizing the General Manager to execute a grant agreement with the DWR should the grant be awarded.

ATTACHMENTS:

- Memo providing additional background and discussion on agenda item
- Zone 7 Board Resolution

Interoffice Memo

Date: July 18, 2012
To: Jill Duerig, General Manager
From: Matt Katen, Principal Geologist
Colleen Winey, Assistant Geologist
Subject: Approval of Local Groundwater Assistance Grant Application and Authorization to execute DWR Grant Agreement for PCE Contamination Assessment

The following provides additional background and discussion on the above-referenced Agenda Item.

BACKGROUND

The Alameda County Fairgrounds is located within the Bernal Subbasin and is considered to be a small public supplier of drinking water. Beginning in December 2000, tetrachloroethylene (PCE) has been detected in the main fairgrounds well (3S/1E 20B 2) at or above the maximum contaminant level (MCL) established by the State for drinking water (i.e., 5 ppb). This has led the Fairgrounds to treat the pumped water with granular activated carbon (GAC) to remove the PCE before distributing it for potable uses onsite.

The source of this contamination has not been identified; however, PCE is a man-made chemical used for dry-cleaning clothes, degreasing metal parts, and as an ingredient in the manufacturing of other chemicals. There are several active and former dry cleaners in the area, but staff is unaware of any prior investigations into the release of PCE from these or other establishments. Staff has requested that the Regional Water Quality Control Board (RWQCB) officially open a case for this contaminated site; however, without the source of contamination or a responsible party being identified, RWQCB has not opened a case.

The contaminated well is within 5,000 feet of the City of Pleasanton's municipal wells, within 4,000 feet of the San Francisco Public Utilities Commission (SFPUC) municipal wells, and within 3,000 feet of potential future Zone 7 well sites in the Bernal Well Field (Well Master Plan, 2003). Zone 7 concerns are that without knowing where the PCE is originating, whether it is a continuing source, or its vertical and lateral extent, a new well might be constructed within the contamination, or the contamination might spread elsewhere in the municipal supply aquifer when a new well is pumped or the Fairgrounds well is idled.

The California Department of Water Resources (DWR) offers Local Groundwater Assistance (LGA) grants, up to \$250,000, that are funded with Proposition 84, Chapter 2 funds, to local public agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities. The latest round for proposals ended July 13, 2012. Staff submitted two proposals by the deadline including one for the assessment of the PCE contamination in the central Bernal Subbasin. The program awards no more than one grant per agency during any given grant cycle.

DISCUSSION

The goal of the proposed study is to provide the RWQCB with enough information about the contamination that they would be compelled to open an official case for further delineation and characterization, and ultimately, clean-up or containment of the PCE contamination in this part of the Bernal Subbasin. Funding from the LGA grant would finance the preliminary work needed to

gather the necessary information for presentation to the RWQCB.

The scope-of-work proposed in the grant application included:

- Researching historical records and maps for locations of former dry cleaners and other potential PCE sources;
- Mapping potential pathways and conduits that may have contributed to the spread of PCE contamination, e.g., leaky sewers, disposal wells, abandoned wells, coarse grained soils, etc.
- Conducting Passive Soil Gas Surveys to delineate areas of higher contamination, which are typically near the potential source or pathways;
- Performing Membrane Interface Probe (MIP) survey to further assess the extent of contamination;
- Selectively sampling soil and groundwater to confirm MIP results.
- Installing a groundwater monitoring well between the Fairgrounds well and the source(s) of suspected contamination, if warranted,
- Conducting a well profile survey and depth discrete sampling in the Fairgrounds well to determine at what depth(s) the PCE is entering the well.

If awarded, the grant should fund 100% of the investigation costs, including staff time for grant administration. DWR gives priority to local public agencies that have adopted a groundwater management plan (GWMP) and demonstrate collaboration with other agencies in the management of the groundwater basin. We have a GWMP, and can demonstrate collaboration with the Fairgrounds, City of Pleasanton, SFPUC and the RWQCB.

Adoption of a Board Resolution is a requirement for the completion of the grant application.

ZONE 7

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO

INTRODUCED BY
SECONDED BY

WHEREAS, the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District adopted a Groundwater Management Plan (GWMP) in accordance with the California Groundwater Management Planning Act (Water Code Sec. 10750) on September 21, 2005 (Resolution No. 06-2796): and

WHEREAS, Zone 7 actively manages the groundwater within the Livermore-Amador Valley Groundwater Basin (DWR Basin 2-10) for public water supply and groundwater quality; and

WHEREAS, the Bernal Sub-basin is one of the three sub-basins within the Main Groundwater Basin; and

WHEREAS, tetrachloroethylene (PCE) contamination from an unidentified source has impacted one public supply well located in the Bernal Sub-basin and may be a threat to the water quality of other existing and future public supply wells; and

WHEREAS, the San Francisco Bay Regional Water Quality Control Board (RWQCB) needs more information about the contamination before taking action towards identifying a Responsible Party and directing investigation, cleanup, and containment activities; and

WHEREAS, Zone 7 of the Alameda County Flood Control and Water Conservation District is submitting an application to the Department of Water Resources for a Local Groundwater Assistance Grant to fund the research necessary to obtain the information needed by the RWQCB to facilitate identification of a Potentially-Responsible Party.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District that application be made to the California Department of Water Resources to obtain a Local Groundwater Assistance Grant pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resource Code (PRC) Section 75001, *et seq.*), and to enter into an agreement to receive a grant for PCE Contamination Assessment, Central Bernal Subbasin, Pleasanton California; and

BE IT FURTHER RESOLVED that the General Manager of the Zone 7 of the Alameda County Flood Control and Water Conservation District is hereby authorized and directed to prepare the necessary data, conduct investigations, file such application, and execute a grant agreement with the California Department of Water Resources.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

ABSTAIN:

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District on July 18, 2012.

By _____
President, Board of Directors



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: Groundwater Section

CONTACT: Matt Katen/Tom Rooze

AGENDA DATE: July 18, 2012

ITEM NO. 6d

SUBJECT: Approval of Local Groundwater Assistance Grant Application and Authorization to execute Grant Agreement with DWR for Upgrading Zone 7's Groundwater Model for Groundwater and Salt Management purposes.

SUMMARY:

- In September 2011 Zone 7 retained the services of HydroMetrics to develop a plan to address limitations identified in the current groundwater model, particularly with respect to its ability to evaluate salt loading.
- Staff identified the need to modify and re-calibrate the model, taking advantage of recent computer hardware improvements, advancements in model software, and recent groundwater datasets, to make it more effective at simulating groundwater and salt transport in the Livermore-Amador Valley Groundwater Basin.
- Staff submitted a proposal for a Local Groundwater Assistance Program (LGA) grant to the Department of Water Resources (DWR) for \$250,000 to fund the groundwater model improvements recommended.
- The work proposed for funding by the grant includes:
 - Refining model layers to better represent clay overburden and to provide for the necessary level of detail to successfully model salt migration,
 - Incorporating stream, lake, and arroyo features into the model,
 - Recalibrating the model using the most recent versions of MODFLOW and PEST software, and
 - Extending the model calibration period eight additional years, through 2012.
- The total cost of the project is estimated at \$250,000, all of which would be reimbursed by the grant, if awarded.
- Adopting the accompanying resolution approves the application and authorizes the General Manager to execute a Grant Agreement with DWR if the grant is awarded. This resolution is a requirement of the application process.

FUNDING:

Funding for the project will initially be provided from Fund 72 – Renewal & Replacement/System-Wide Improvements (70%) and Fund 73–Expansion (30%), but the grant will reimburse Zone 7 for up to 100% of the project costs.

RECOMMENDED ACTION:

Adopt the attached resolution approving the grant application and authorizing the General Manager to execute a grant agreement with the DWR should the grant be awarded.

ATTACHMENTS:

- Memo providing additional background and discussion on agenda item
- Zone 7 Board Resolution

Interoffice Memo

Date: July 18, 2012
To: Jill Duerig, General Manager
From: Matt Katen, Principal Geologist
Tom Rooze, Associate Geologist
Subject: Approval of Local Groundwater Assistance Grant Application and Authorization to execute Grant Agreement with DWR for Upgrading Zone 7's Groundwater Model for Groundwater and Salt Management purposes

The following provides additional background and discussion on the above-referenced Agenda Item.

BACKGROUND:

During recent groundwater modeling efforts, staff identified several limitations of Zone 7's current groundwater flow and transport model, particularly with respect to its ability to evaluate salt loading for the various Water Supply Evaluation (WSE) portfolios. In September 2011, the Board approved retaining HydroMetrics Water Resources Incorporated (HydroMetrics) of Oakland, California, to develop a plan to resolve these limitations and assist staff with accomplishing the identified improvements. Under this contract, HydroMetrics has already helped staff migrate Zone 7's existing model software to a newer version of MODFLOW and to improve our method of estimating areal recharge. The remaining scope of work includes modifying and re-calibrating the model to take advantage of recent advancements in model software, computer hardware improvements, and the additional groundwater datasets collected during the last eight years.

The California Department of Water Resources (DWR) offers a Local Groundwater Assistance (LGA) grant program that is funded with Proposition 84, Chapter 2 funds, to help local public agencies conduct groundwater studies or carry out groundwater monitoring and management activities. Priority is given to local public agencies that have adopted a groundwater management plan (GWMP) and demonstrated collaboration with other agencies in the management of the groundwater basin. We have a GWMP, and can demonstrate collaboration with our retailer agencies. The latest round for proposals ended July 13, 2012. Staff submitted two proposals including one for the remaining modeling upgrades and recalibration work mentioned above. The program awards no more than one grant per agency during any given grant cycle.

DISCUSSION:

The goal of the project is to implement the recommended improvements to the model so that the model can be used more confidently to evaluate groundwater supply and salt management plans and operational alternatives. In the project, model layers will be added to better represent the clay overburden in the southwestern portion of the basin and some of the heterogeneity that exists in the lower aquifer to provide the level of detail necessary to successfully simulate historic solute transport in the Main Basin. Another desired model upgrade is to incorporate stream, lake, and arroyo features into the model so that surface water to groundwater interaction can be better simulated.

After the structural upgrades, the model will be re-calibrated with actual groundwater level and TDS concentration data, and stream flow data using a recent version of the PEST (Parameter ESTimation) software. In addition, the calibration period will be extended over the eight additional years for which we now have historic water levels and TDS concentration data, 2004-2012. Matching a longer period of historic data will increase confidence levels in using the model to predict groundwater sustainability and future effects of various hydrologic and operational scenarios.

Another planned use for the improved model is to use it with an “optimization package” to help develop and refine strategies for maximizing the use of the basin’s storage and supplies while maintaining or improving groundwater quality. For example, one possible scenario could investigate how to maximize salt removal while maintaining groundwater levels above historical lows. The ability to confidently run these types of modeled scenarios will be invaluable for the implementation of our Groundwater Management Plan, any updates to the Salt Management Plan, the Well Master Plan, and any future Water Supply Planning efforts.

ZONE 7

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO

INTRODUCED BY
SECONDED BY

WHEREAS, the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District adopted a Groundwater Management Plan (GWMP) in accordance with the California Groundwater Management Planning Act (Water Code Sec. 10750) on September 21, 2005 (Resolution No. 06-2796): and

WHEREAS, Zone 7 actively manages the groundwater within the Livermore-Amador Valley Groundwater Basin (DWR Basin 2-10) for public water supply and groundwater quality; and

WHEREAS, the Bernal Sub-basin is one of the three sub-basins within the Main Groundwater Basin; and

WHEREAS, tetrachloroethylene (PCE) contamination from an unidentified source has impacted one public supply well located in the Bernal Sub-basin and may be a threat to the water quality of other existing and future public supply wells; and

WHEREAS, the San Francisco Bay Regional Water Quality Control Board (RWQCB) needs more information about the contamination before taking action towards identifying a Responsible Party and directing investigation, cleanup, and containment activities; and

WHEREAS, Zone 7 of the Alameda County Flood Control and Water Conservation District is submitting an application to the Department of Water Resources for a Local Groundwater Assistance Grant to fund the research necessary to obtain the information needed by the RWQCB to facilitate identification of a Potentially-Responsible Party.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District that application be made to the California Department of Water Resources to obtain a Local Groundwater Assistance Grant pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resource Code (PRC) Section 75001, *et seq.*), and to enter into an agreement to receive a grant for PCE Contamination Assessment, Central Bernal Subbasin, Pleasanton California; and

BE IT FURTHER RESOLVED that the General Manager of the Zone 7 of the Alameda County Flood Control and Water Conservation District is hereby authorized and directed to prepare the necessary data, conduct investigations, file such application, and execute a grant agreement with the California Department of Water Resources.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

ABSTAIN:

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District on July 18, 2012.

By _____
President, Board of Directors



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: Engineering
CONTACT: Dennis Gambs/Jarnail Chahal

AGENDA DATE: July 18, 2012

ITEM NO. 6e

SUBJECT: Accept Grant of Easement from DSRSD for Mocho Well No. 4 and Mocho Groundwater Demineralization Plant

SUMMARY:

- In June of 2000, Zone 7 entered into an agreement with Dublin San Ramon Services District (DSRSD) under which Zone 7 constructed the Mocho Well No. 4 on the Camp Parks Well site. DSRSD had an easement for use of this property from the Federal Government that allowed it to give Zone 7 permission for this well construction.
- In June of 2005, the agreement was amended to allow Zone 7 to construct the Mocho Groundwater Demineralization Plant. Under the amendment DSRSD shall grant an easement to Zone 7 once DSRSD obtains ownership of the site from the Federal Government. In addition, the terms of the amendment require Zone 7 to pay DSRSD two hundred and fifty thousand dollars (\$250,000) for the easement.
- In August of 2011, ownership of the well site transferred from the Federal Government to DSRSD, allowing DSRSD to grant the easement to Zone 7.
- The attached easement agreement allows Zone 7 to use the property for the well, groundwater demineralization plant, and other water related purposes.

FUNDING:

Funding for the easement in the amount of \$250,000 was budgeted and is available from Fund 72 - Renewal Replacement and System-wide Improvements (\$125,000) and Fund 73 – Expansion (\$125,000).

RECOMMENDED ACTION:

Adopt attached resolution authorizing the General Manager to negotiate, execute, accept and record the grant of easement from DSRSD and pay DSRSD the sum of \$250,000.

ATTACHMENTS:

1. Memo providing additional background and discussion
2. Resolution
3. Location Map
4. Easement Agreement

INTEROFFICE MEMO

Date: June 18, 2012
To: Jill Duerig, General Manager
From: Dennis Gambs, Principal Engineer

Subject: Accept Grant of Easement from DSRSD for Mocho Well No. 4 and Groundwater Demineralization Plant

The following provides additional background and discussion on the above-referenced agenda item.

BACKGROUND:

In June of 2000, Zone 7 entered into an agreement with Dublin San Ramon Services District (DSRSD) granting Zone 7 permission to construct and operate a municipal well on the Camp Parks well site, about 1.75 acres. Under this agreement Zone 7 constructed Mocho Well No. 4. In June of 2005, the Board approved Amendment No. 1 to the agreement which allowed Zone 7 to construct the Mocho Groundwater Demineralization Plant at the site. The terms of the amendment also require DSRSD to grant an easement to Zone 7 once DSRSD obtains fee ownership of the site from the Federal Government. DSRSD had an easement from the Federal Government for use of the property at the time of the agreement which allowed them to give Zone 7 permission to construct the well and the demineralization plant. In addition, the terms of the amendment require Zone 7, upon recordation of the grant of easement to Zone 7 with the Alameda County Recorder's Office, to pay DSRSD two hundred and fifty thousand dollars (\$250,000) for the easement.

DISCUSSION:

In August of 2011, ownership of the site transferred from the Federal Government to DSRSD, allowing DSRSD to grant an easement to Zone 7.

The attached easement agreement was developed in cooperation with DSRSD and allows Zone 7 to use the property for the well, groundwater demineralization plant and other water related purposes. All provisions of the original agreement between Zone 7 and DSRSD for the site remain in effect, including Zone 7 pumping of the DSRSD's Groundwater Pumping Quota (645 acre-feet/year) and reimbursement from DSRSD for the costs of pumping the 645 acre-feet and an option for DSRSD to purchase Mocho Well No. 4.

This easement grants Zone 7 the rights to operate, maintain, repair, replace, and otherwise improve the Mocho Well No. 4, Mocho Groundwater Demineralization Plant, Santa Rita–Dougherty Pipeline and other water related facilities on the site. Zone 7 agrees to assume, at its sole cost and expense, full responsibility for the operation, maintenance, repair, replacement, improvements of the water facilities, and maintenance of the property. DSRSD assumes responsibility for all maintenance resulting directly from any of its uses or activities at the site.

Staff is recommending that the General Manager be authorized to accept and record the grant of easement from DSRSD and to pay DSRSD the sum of \$250,000 for the said easement.

ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
BOARD OF DIRECTORS

RESOLUTION NO

INTRODUCED BY
SECONDED BY

**Accept Grant of Easement for the Mocho Well No. 4 and the Mocho Groundwater
Demineralization Plant**

WHEREAS, Dublin San Ramon Services District (DSRSD) is granting an easement to Alameda County Flood Control and Water Conservation District, Zone 7 for the Mocho Well No. 4 and the Mocho Groundwater Demineralization Plant on the lands designated and described in Exhibit A (No. 70171).

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District does hereby authorize the General Manager to negotiate and execute an Easement Agreement, then accept said easement from DSRSD and execute a certificate of acceptance causing the same to be recorded at the Office of the Recorder of Alameda County; and

BE IT FURTHER RESOLVED, that the General Manager be authorized to pay DSRSD the sum of two hundred and fifty thousand dollars (\$250,000) for said easement.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

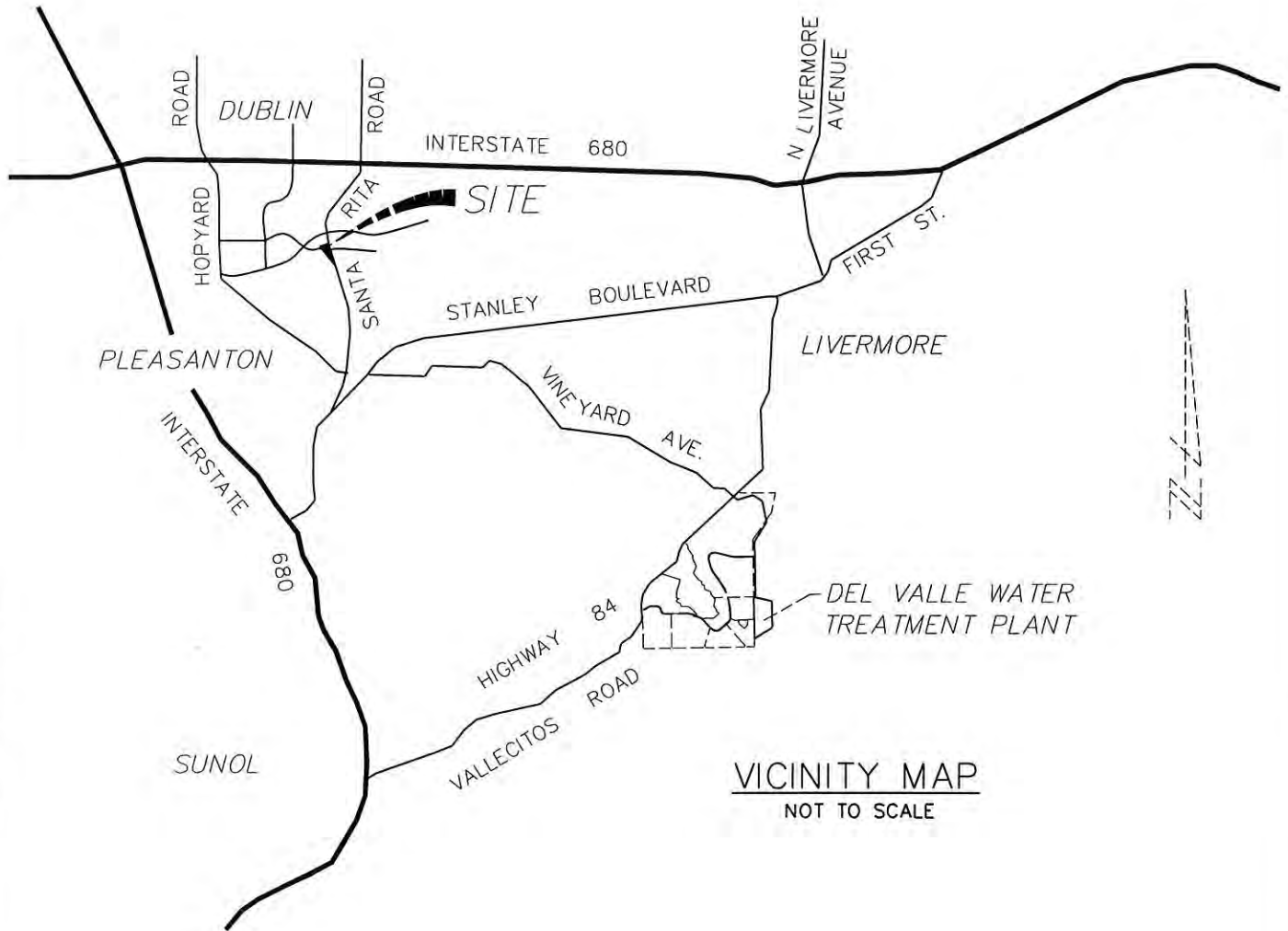
ABSENT:

ABSTAIN:

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District on July 18, 2012.

By _____
President, Board of Directors

Mocho Well No. 4/Mocho Demin Facility
No. 70171
Map: RF-10019



VICINITY MAP
NOT TO SCALE



KIER & WRIGHT
CIVIL ENGINEERS & SURVEYORS, INC.
2850 Collier Canyon Road (925) 245-8788
Livermore, California 94551 Fax (925) 245-8796



ZONE 7

ALAMEDA COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

SITE LOCATION MAP

MOCHO WELL No. 4 GROUNDWATER
DEMINERALIZATION PLANT
EASEMENT TO BE ACQUIRED FROM
DUBLIN SAN RAMON SERVICES DISTRICT

DRAWN: AJA	TRACED:	DATE: APRIL, 2012		
CHECKED: MJF		SCALE: AS SHOWN		
APVL. REC:		FILE NO.	SHEET NO.	OF
APPROVED:			1	1

Recording Requested By:

Alameda County Flood Control
and Water Conservation District

And When Recorded Mail to:

Zone 7
100 N. Canyons Parkway
Livermore, CA 94551
Attention: Real Property Services

Space Above This Line for Recorder's Use

Zone 7 hereby declares this instrument to be exempt from Recording Fees (Govt. Code §27383) and Documentary Transfer Tax (Revenue and Taxation Code §11922), Government agency acquiring title.

APN 946-3200-002-05 (Por.)

EASEMENT AGREEMENT

THIS EASEMENT AGREEMENT is made this ___ day of _____, 20__, by and between the DUBLIN SAN RAMON SERVICES DISTRICT, a public agency in the counties of Alameda and Contra Costa, California, (hereinafter called "DSRSD"), and ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7, a body corporate and politic in the County of Alameda, California (hereinafter called "Zone 7"), (DSRSD and Zone 7 are collectively hereinafter called "Parties").

WITNESSETH:

WHEREAS, on August 17, 2011 DSRSD obtained ownership of the property commonly known as the Camp Parks Well Site by Quitclaim Deed from the United States of America recorded as Series Number 2011236703 Official Records of Alameda County and that said Quitclaim Deed sets forth a number of covenants which run with the property in perpetuity.

WHEREAS, the "Agreement Granting Zone 7 Permission to Construct and Operate a Municipal Well on Camp Parks Well Site and Providing Terms for Delivery of Dublin San Ramon Services District's Groundwater Pumping Quota ("Mocho Well No. 4")" dated June 20, 2000, as amended on June 22, 2005 (hereinafter referred to as "Well Agreement") specifies that DSRSD shall convert the Demineralization License for the Well Head Demineralization Facilities (hereinafter called "License") into an easement upon obtaining ownership of the property.

WHEREAS, in consideration of the payment of two hundred and fifty thousand dollars (\$250,000) by Zone 7 to DSRSD, and delivery of the DSRSD Groundwater Pumping Quota in accordance with the Well Agreement, DSRSD is converting the License into this Easement Agreement subject to the terms and conditions set forth herein.

NOW, THEREFORE, the Parties hereto do mutually agree as follows:

1. DSRSD hereby grants Zone 7 an easement to use the property as described and delineated in Exhibit A attached hereto and made a part herein (hereinafter referred to as "Property").
2. The easement includes the rights to operate, maintain, repair, replace, and improve the following facilities: Mocho Well No. 4, the Mocho Groundwater Demineralization Plant, the Santa Rita–Dougherty Pipeline and all other water related facilities located within the Property (hereinafter called "Facilities"). Zone 7 agrees to assume, at its sole cost and expense, full responsibility for the operation, maintenance, repair, replacement, and improvement of said Facilities located within the Property.
3. The License entered into by the Parties pursuant to the terms of the Well Agreement dated May 17, 2007, shall become null and void upon the recordation of this Easement Agreement in the Official Records of the County of Alameda.
4. DSRSD may, from time to time, use or permit other parties to use a portion or portions of the Property not being used by Zone 7 hereunder so long as such use does not unreasonably interfere with Zone 7's uses or other activities permitted by this Easement Agreement. DSRSD will provide Zone 7 with plans for any proposed uses or activities and obtain concurrence from Zone 7 that such use or activity will not interfere with Zone 7's use of the Property. In addition, any proposed use by DSRSD must be for a purpose so designated in said Quitclaim Deed from the United States of America. Zones 7 will make a good faith effort to accommodate any use or activities proposed by DSRSD.
5. Zone 7 shall bear all costs and shall be solely responsible for all maintenance of the Property and Facilities; however, DSRSD shall bear all costs and shall be solely responsible for all maintenance resulting directly from any of DSRSD's uses or activities or DSRSD permitted uses on the Property.
6. DSRSD may inspect the Property and Facilities, from time to time, to verify compliance with the provisions of this Easement Agreement. DSRSD shall provide Zone 7 reasonable notice to schedule said inspections.
7. This Easement Agreement shall automatically cease to have any force or effect upon abandonment, herein defined as nonuse of the Facilities for any sixty (60) consecutive months, and all interests granted herein shall revert to DSRSD, or its successor, upon such abandonment. Zone 7 may propose, and DSRSD will not unreasonably withhold approval of, use of the Property for other facilities to carry out the Zone 7 mission of water supply instead of abandonment. In the case of abandonment, DSRSD may elect to retain any facility or improvement abandoned by Zone 7, or may notify Zone 7 in writing to remove any facility or improvement abandoned by Zone 7. Zone 7 shall bear all costs and expense to remove all Facilities or portions thereof as may be requested by DSRSD within six (6) months of receipt of written notice of such request. Upon written request by DSRSD, Zone 7 shall forthwith duly execute and notarize a quitclaim of easement to DSRSD relinquishing all right, title, and interest to all

abandoned Facilities, and all right, title, and interest to the Property underlying such Facilities or portions thereof.

8. Except as stated to the contrary herein, this Easement Agreement is subject to the terms and conditions set forth in the Well Agreement which, together with this Easement Agreement, constitutes the entire agreement between DSRSD and Zone 7 relative to the Facilities and the Property.

9. Written communications and notices under the Well Agreement and this Easement Agreement shall be effective when received at the respective addresses set forth below:

If to DSRSD:

General Manager
Dublin San Ramon Services District
7051 Dublin Blvd.
Dublin, CA 94568

If to Zone 7:

General Manager
Zone 7 Water Agency
100 North Canyons Parkway
Livermore, CA 94551

10. To the extent permitted by law, Zone 7 shall indemnify and hold DSRSD, and its officers, agents, employees, and instrumentalities harmless from any and all losses, damages, liability on account of personal injury, death or property damage, or claim for personal injury, death or property damage of any nature whatsoever and by whomsoever made, arising out of the activities of Zone 7, its employees, subcontractors, or agents under this Easement Agreement. Likewise, to the extent permitted by law, DSRSD shall indemnify and hold Zone 7, and its officers, agents, employees, and instrumentalities harmless from any and all losses, damages, liability on account of personal injury, death or property damage, or claim for personal injury, death or property damage of any nature whatsoever and by whomsoever made, arising out of the activities of DSRSD, its employees, subcontractors, or agents under this Easement Agreement.

11. This Easement Agreement may only be altered, amended or revoked by an instrument in writing signed by both DSRSD and Zone 7. DSRSD and Zone 7 hereby agree that all prior or contemporaneous oral agreements between and among themselves and their agents or representatives relative to the Facilities and the Property are merged in or revoked by this Easement Agreement. The Parties agree that there are no warranties, either expressed or implied, no covenants or promises or expectations other than those contained and set forth in writing in this Easement Agreement or as may be otherwise set forth in the Well Agreement.

12. During the term of this Easement Agreement Zone 7 shall include DSRSD as an additional insured on its insurance policies covering the Well Head Demineralization Facilities and the Camp Parks Well Site, including Commercial General Liability or its equivalent in self-insurance coverage, in an amount deemed reasonable to cover the foreseeable liabilities of DSRSD, and shall furnish DSRSD with original policy endorsements from its contractors naming DSRSD, its governing Board of Directors,

committees, officers, employees and agents, as additional insured. Zone 7 shall be responsible for requiring insurance coverage by its contractors and consultants. Zone 7 and DSRSD shall determine the amount and adequacy of such coverage.

The procuring of the above-mentioned policies of insurance shall not be construed as a limitation in any respect on Zone 7's obligations of indemnification herein.

13. The waiver or failure to declare a breach of this Easement Agreement as a result of violation of any term or provision set forth in this Easement Agreement shall not constitute a continuing waiver of that term or condition or a waiver of any subsequent breach either of the same or another provision of this Easement Agreement and shall not provide the basis for a claim of estoppel.

14. Zone 7 shall not assign, sell or otherwise transfer interests under this Easement Agreement without first receiving the prior written consent of DSRSD, which consent shall not be unreasonably withheld, and any transfer or assignment or attempted transfer or assignment of this Easement Agreement or any of the rights herein granted, whether voluntary, by operation of law, or otherwise, without such consent in writing, shall be void and without effect.

15. This Easement Agreement does not create, and shall not be construed to create, any rights enforceable by any person, partnership, corporation, joint venture, limited liability company or other form of organization or association of any kind that is not a Party to this Easement Agreement.

16. If any term, provision, covenant or condition of this Easement Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions shall remain in full force and effect.

17. Zone 7 agrees to comply with all applicable federal, state and local laws as they apply to use of the premises, including but not limited to the State and Federal Endangered Species Act, the California Environmental Quality Act, and any applicable local ordinances, as each may be revised from time to time during the term of the Easement Agreement.

18. This Easement Agreement and all conduct hereunder shall be governed by and construed in accordance with the laws of the State of California. The parties shall make good faith efforts to resolve all claims and disputes related to this Easement Agreement at the lowest possible cost. Unless the parties agree upon an alternative forum of dispute resolution, any litigation concerning claims and disputes related to this Easement Agreement shall be filed in and timely prosecuted to conclusion in the Superior Court in and for Alameda County, and each party hereby waives its right to move to change venue.

IN WITNESS WHEREOF, the Parties hereto have executed this Easement Agreement as of the date and year first written.

ZONE 7:
Zone 7 of Alameda County Flood Control
and Water Conservation District

DSRSD:
Dublin San Ramon Services District

By: _____
Jill Duerig
General Manager

By: _____
Bert Michalczyk
General Manager

Date: _____

Date: _____

Attest:

Nancy Gamble Hatfield
District Secretary

APPROVED AS TO FORM:

Carl P. A. Nelson
General Counsel

EXHIBIT "A"

DESCRIPTION FOR ALAMEDA COUNTY FLOOD CONTROL AND WATER
CONSERVATION DISTRICT, ZONE 7 WATER AGENCY

MOCHO GROUNDWATER DEMINERALIZATION PLANT – MOCHO WELL No. 4

EASEMENT AREA TO BE ACQUIRED FROM
DUBLIN SAN RAMON SERVICES DISTRICT

Map: RF 10019
APN: 946-3200-005-05

No. 70171
April 10, 2012

ALL THAT CERTAIN REAL PROPERTY SITUATE IN THE CITY OF PLEASANTON, COUNTY OF ALAMEDA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

BEING A PORTION OF THAT CERTAIN PARCEL OF LAND DESCRIBED IN THE FINAL JUDGMENT OF DISTRICT COURT OF THE UNITED STATES, IN AND FOR THE NORTHERN DISTRICT OF SAID STATE, SOUTHERN DIVISION; CASE NO. 22466-0, RECORDED DECEMBER 8, 1949 AS DOCUMENT SERIES NUMBER AD85682 IN BOOK 5957 AT PAGE 204, (U.S.A. PARCEL) ALAMEDA COUNTY RECORDS, DESCRIBED AS FOLLOWS:

BEING A PORTION OF THAT CERTAIN PARCEL OF LAND DESCRIBED IN THE QUITCLAIM DEED BETWEEN THE UNITED STATES OF AMERICA AND THE DUBLIN SAN RAMON SERVICES DISTRICT, A CALIFORNIA COMMUNITY SERVICES DISTRICT, DATED JUNE 27, 2011, AND RECORDED ON AUGUST 17, 2011 AS RECORDER'S DOCUMENT SERIES NUMBER 2011236703, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF PARCEL I AS SAID PARCEL IS DELINEATED AND SHOWN UPON THAT CERTAIN PARCEL MAP 3863 FILED FOR RECORD ON MAY 22, 1986 IN BOOK 161 OF MAPS AT PAGES 15 THROUGH 30, ALAMEDA COUNTY RECORDS, SAID CORNER ALSO BEING THE INTERSECTION OF THE SOUTHWESTERLY LINE OF THE AFORESAID U.S.A. PARCEL DESCRIBED IN SAID FINAL JUDGEMENT WITH THE SOUTHEASTERLY LINE OF THAT CERTAIN PARCEL OF LAND DESCRIBED IN THE QUITCLAIM DEED TO THE ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT RECORDED NOVEMBER 12, 1969 ON REEL 2513 AT IMAGE 34, ALAMEDA COUNTY RECORDS;

THENCE ALONG SAID SOUTHWESTERLY LINE OF SAID U.S.A. PARCEL, SOUTH 47°18'25" EAST, 175.09 FEET TO THE INTERSECTION THEREOF WITH THE NORTHERLY LINE OF THAT CERTAIN PARCEL OF LAND GRANTED TO THE CITY OF PLEASANTON AND DESCRIBED ON EXHIBIT "A" IN THE DEPARTMENT OF ARMY – EASEMENT FOR PUBLIC ROAD, RECORDED JULY 3, 1997 AS INSTRUMENT NUMBER 97-166457, ALAMEDA COUNTY RECORDS;

THENCE LEAVING SAID SOUTHWESTERLY LINE, ALONG THE SAID NORTHERLY LINE, EASTERLY ALONG THE ARC OF A 499.50-FOOT RADIUS, NON-TANGENT CURVE TO THE LEFT, THE CENTER OF WHICH CURVE BEARS NORTH 16°33'14" EAST, THROUGH A CENTRAL ANGLE OF 30°44'28", AN ARC DISTANCE OF 268.00 FEET TO A POINT OF COMPOUND CURVATURE;

THENCE CONTINUING ALONG SAID NORTHERLY LINE, EASTERLY AND NORTHEASTERLY ALONG THE ARC OF A 49.50-FOOT RADIUS, TANGENT CURVE TO THE LEFT, THROUGH A CENTRAL ANGLE OF 41°38'41", AN ARC DISTANCE OF 35.98 FEET TO THE WESTERLY RIGHT OF WAY LINE OF SANTA RITA ROAD, AS SAID ROAD NOW EXISTS;

THENCE ALONG SAID WESTERLY RIGHT OF WAY LINE, THE FOLLOWING TWO COURSES:

EXHIBIT "A"

- 1.) NORTHWESTERLY ALONG THE ARC OF A 9,929.00 FOOT RADIUS, NON-TANGENT CURVE TO THE LEFT, THE CENTER OF WHICH CURVE BEARS SOUTH 75°27'48" WEST, THROUGH A CENTRAL ANGLE OF 0°51'44", AN ARC DISTANCE OF 149.42 FEET; AND
- 2.) NORTH 15°23'56" WEST, 121.13 FEET TO THE INTERSECTION THEREOF WITH THE AFOREMENTIONED SOUTHEASTERLY LINE OF SAID PARCEL DESCRIBED IN SAID DEED TO THE ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT (RE:2513 IM:34);

THENCE ALONG SAID SOUTHEASTERLY LINE, SOUTH 65°54'53" WEST, 385.02 FEET TO THE POINT OF BEGINNING AND THE END OF THIS DESCRIPTION.

CONTAINING 1.7428 ACRES MORE OR LESS.

THE BEARINGS USED IN THE ABOVE DESCRIPTION ARE BASED UPON THE BEARING OF NORTH 42°41'35" EAST TAKEN ON THE MONUMENT LINE OF LIN GATE STREET AS SHOWN ON THAT CERTAIN MAP OF TRACT 5099 – LINVALE UNIT 4, WHICH MAP WAS FILED ON AUGUST 17, 1983 IN BOOK 140 OF MAPS AT PAGES 9 AND 10, OFFICIAL RECORDS OF ALAMEDA COUNTY, STATE OF CALIFORNIA.

A PLAT OF THE ABOVE DESCRIBED EASEMENT PARCEL IS ATTACHED HERETO AS EXHIBIT "B" AND BY THIS REFERENCE MADE A PART HEREOF.

THIS DESCRIPTION WAS COMPILED FROM RECORD DATA.

THIS REAL PROPERTY DESCRIPTION HAS BEEN PREPARED BY ME, OR UNDER MY DIRECTION, PURSUANT TO CHAPTER 15, ARTICLE 3, SECTION 8726(L) OF BUSINESS AND PROFESSIONS CODE (PROFESSIONAL LAND SURVEYOR'S ACT) OF THE STATE OF CALIFORNIA, AND SHALL NOT BE UTILIZED IN ANY CONVEYANCE WHICH MAY VIOLATE SAID ACT OR LOCAL ORDINANCES.

PREPARED ON APRIL 10, 2012
FOR KIER & WRIGHT CIVIL ENGINEERS & SURVEYORS, INC.


MICHAEL JAMES FOLEY
PROFESSIONAL LAND SURVEYOR
STATE OF CALIFORNIA,
CERTIFICATE NUMBER: L 5777
LICENSE EXPIRATION: 06/30/2012



SIGNED ON THIS 15th DAY OF May, 2012

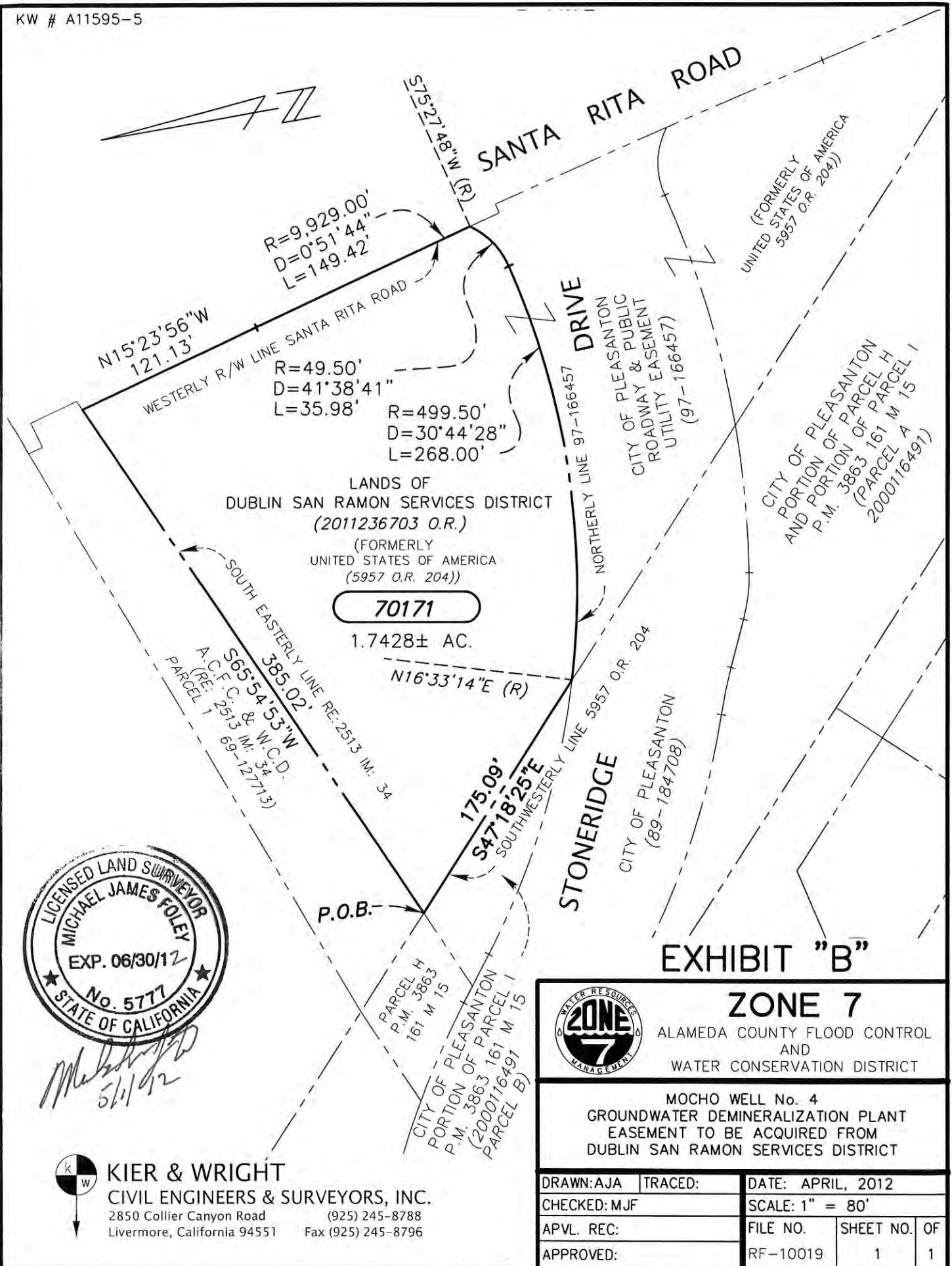
(Seal)

END OF DESCRIPTION

AFFECTS ALAMEDA COUNTY TAX ASSESSOR'S PARCEL NUMBER: 946-3200-005-05



KIER & WRIGHT, Civil Engineers & Surveyors, Inc
2850 Collier Canyon Road, Livermore, CA 94551-9201
(925) 245-8788 Phone | (925) 245-8796 Fax



KIER & WRIGHT
CIVIL ENGINEERS & SURVEYORS, INC.
2850 Collier Canyon Road (925) 245-8788
Livermore, California 94551 Fax (925) 245-8796

DRAWN: AJA	TRACED:	DATE: APRIL, 2012		
CHECKED: MJF		SCALE: 1" = 80'		
APVL. REC:		FILE NO.	SHEET NO.	OF
APPROVED:		RF-10019	1	1



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: Engineering
CONTACT: Dennis Gambs/Jarnail Chahal

AGENDA DATE: July 18, 2012

ITEM NO. 6f

SUBJECT: Grant of Easement to City of Livermore for Overhead Electric Line crossing the Arroyo Las Positas near El Charro Road in Livermore

SUMMARY:

- A regional outlet mall is currently being constructed near El Charro Road in Livermore by Paragon Outlets.
- The outlet mall development requires a relocation of a PG&E overhead electric line. The proposed relocation is from the west to the east side of El Charro Road where it crosses the Arroyo Las Positas within the Zone 7 channel right of way.
- The overhead line will have a minimum of 15 feet clearance to the existing ground surface and will not impact flood control maintenance or operation.
- The grant of easement will allow for installation, operation, and maintenance of a PG&E overhead electric line under their franchise agreement with the City.

FUNDING:

Zone 7 will be compensated \$1,000 by the City of Livermore for the easement which will be deposited into Fund 50 – General Fund/Flood Control.

RECOMMENDED ACTION:

Adopt attached resolution authorizing the General Manager to negotiate and finalize the easement language, and recommending and requesting that the Board of Supervisors of the Alameda County Flood Control and Water Conservation District grant the easement to the City of Livermore.

ATTACHMENTS:

1. Memo providing additional background and discussion
2. Resolution
3. Location Map
4. Draft Grant of Easement

INTEROFFICE MEMO

Date: July 18, 2012
To: Jill Duerig, General Manager
From: Dennis Gambs, Principal Engineer

Subject: Grant of Easement to City of Livermore for Overhead Electric Line crossing the Arroyo Las Positas near El Charro Road in Livermore

The following provides additional background and discussion on the above-referenced agenda item.

BACKGROUND:

The development currently being constructed east of El Charro Road in Livermore is a regional outlet mall by Paragon Outlets. The outlet mall development has led to a request by the City of Livermore for PG&E to relocate its overhead electric line from the west side of El Charro Road to the east side. This alignment is along the El Charro Road Bridge where it crosses the Arroyo Las Positas which is within Zone 7's right of way.

DISCUSSION:

Zone 7's flood control staff has reviewed the plans for the power line, which will be a minimum of 15 feet above existing grade, and determined that there is no conflict or interference with the use of the channel property by Zone 7 for flood control purposes.

The proposed easement across the Arroyo Las Positas is approximately 271.58 feet in length and 15 feet in width. The easement is designated as an overhead electric line easement, and would allow the City, or a public utility company such as PG&E which has a franchise agreement with the City, to construct an overhead electric line within the easement. In any case, the installation of an electric line will require first obtaining written approval from Zone 7.

The value of the easement to be granted to the City of Livermore would be nominal. Accordingly, the City will pay an administrative fee of \$1,000 as compensation for the granting of the easement. The City of Livermore and Zone 7 staffs are in the process of negotiating easement language that is acceptable to both. In addition, PG&E is also in the process of reviewing the easement language.

The legal title to the property vests with the Alameda County Flood Control and Water Conservation District. As the legal owner of the property over which the easement is to be granted, the Board of Supervisors of the Alameda County Flood Control and Water Conservation District is required to approve granting the easement. To that end, the Zone 7 Board of Directors would request and authorize the District Board to approve granting the easement.

ZONE NO. 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO.

INTRODUCED BY
SECONDED BY

Approval of Grant of Easement for Overhead Electric Line to City of Livermore

WHEREAS, Alameda County Flood Control and Water Conservation District, Zone 7 is the owner of the real property known as Arroyo Las Positas (Line H) consisting of a trapezoidal earthen channel; and

WHEREAS, in connection with the Paragon Outlets development, the City of Livermore has requested an easement for overhead electric line crossing Line H in the City of Livermore; and

WHEREAS, a grant document has been prepared conveying an easement to the City of Livermore for an overhead electric line on the lands described in Exhibit A (No. 70150); and.

WHEREAS, the granting of said easement has been reviewed by Zone 7's staff who have determined that the granting of said easement is in the public interest and will not substantially conflict nor interfere with the use of said property by the District.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District does hereby authorize the General Manager to negotiate and finalize the Grant of Easement document with the City of Livermore; and

BE IT FURTHER RESOLVED, that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District does hereby request and recommend that the Board of Supervisors of Alameda County Flood Control and Water Conservation District approve granting said easement and authorize the President of the Board of Supervisors to execute same.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

ABSTAIN:

Line H
No. 70172
Map: RF 10120

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District on July 18, 2012.

By _____
President, Board of Directors



ZONE 7 WATER AGENCY
100 North Canyons Parkway
Livermore, CA

DRAWN: BW

REVIEWED: DG

File:

SCALE: AS SHOWN

DATE: 6/29/2012

FIGURE #

Location Map
P.U.E. to
City of Livermore

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO

City Clerk
City of Livermore
1052 South Livermore Avenue
Livermore, CA 94551

NO RECORDING FEE REQUIRED (GOVT. CODE §27383)

SPACE ABOVE THIS LINE FOR RECORDER'S USE

APN 904-0001-003-23 & APN 904-0001-009-05 (Por.)

GRANT OF EASEMENT
(Overhead Electric Line)

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a
body corporate and politic, ("GRANTOR"), does hereby GRANT unto CITY OF LIVERMORE,
a Municipal Corporation, its successors and assigns, ("GRANTEE").

a perpetual non-exclusive Easement for overhead electric line, and related construction, and maintenance purposes and incidents thereto over and across that certain real property, situated in the City of Livermore, County of Alameda, State of California, described and depicted in Exhibit "A," attached hereto and incorporated herein by reference.

This Grant of Easement is executed and delivered to GRANTEE upon the following terms and conditions, to wit:

- a) To the extent permitted by law, GRANTOR and GRANTEE shall each indemnify and hold the other, and their respective governing bodies and the individual members thereof, officers, agents, employees, and instrumentalities harmless from any and all losses, damages, liability on account of personal injury, death or property damage, or claim for personal injury, death or property damage of any nature whatsoever and by whomsoever made, arising out of the activities of the other Party, its employees, subcontractors, or agents under this Easement.
- b) Prior to installation of any or making any additions or modifications to the overhead electric line installed therein GRANTEE shall submit plans and specifications to GRANTOR for review and approval. The overhead electric line, including additions and modifications, shall not be installed by GRANTEE without first securing written approval of GRANTOR, which shall not be unreasonably withheld. GRANTOR shall approve said overhead electric line including additions and modifications, unless such overhead electric line would interfere with the primary use of said Easement area for flood control and water management purposes.
- c) PERMITS: Overhead electric line and any related improvements by GRANTEE shall only be installed after obtaining all required construction, building or use permits, for compliance with any applicable federal, state, or local government requirements as well as an encroachment permit from GRANTOR.

- d) GRANTEE agrees that any overhead electric line shall be constructed and maintained at a height of at least fifteen (15) feet above the present surface of the ground.
- e) Except in emergencies, GRANTEE shall not enter upon the adjacent property of GRANTOR nor make any additions or modifications or reconstruct the overhead electric line without securing an encroachment permit from GRANTOR and the issuance thereof shall not be unreasonably withheld.
- f) GRANTEE agrees that upon the completion of any of its work within the Easement area to restore as near as possible the surface of the ground to the condition in which it was prior to the commencement of said work to the satisfaction of Zone 7.
- g) In the event of any emergency, GRANTEE shall notify GRANTOR of the need for emergency access as soon as reasonably possible, but no later than twenty-four hours.
- h) GRANTEE shall be obligated to maintain the overhead electric line and will utilize and maintain the Easement area in such a manner that there is no interference with the use of the Easement area by GRANTOR. GRANTEE shall be responsible for repairing any damage to GRANTOR'S property caused by the operation and maintenance of the overhead electric line as well as the cleanup of the easement area.
- i) GRANTOR reserves the right to convey easement rights to others so long as such easement(s) do not conflict or interfere with GRANTEE'S Easement rights herein conveyed, but prior to making such a conveyance, GRANTOR will provide written notice to GRANTEE.
- j) GRANTOR reserves the right to use the Easement area for any purpose not in conflict with the Easement rights being granted herein, but prior to any use that may be in conflict with GRANTEE'S rights, GRANTOR will provide GRANTEE a copy of the plans and specifications and will make a good faith effort to address any concerns GRANTEE may have to protect GRANTEE'S overhead electric line.
- k) GRANTEE shall not assign the Easement rights herein conveyed to another without the express written permission of GRANTOR, which shall not be unreasonably withheld.
- l) GRANTOR shall pay no fees, charges or transfer taxes of any kind in connection with the Easement rights herein conveyed.
- m) Insurance. GRANTEE may be self-insured or shall procure and maintain, at GRANTEE'S sole expense, for the duration of this Agreement, and shall ensure that its agents, consultants, and contractors procure and maintain for the duration of entry upon the GRANTOR'S real property, insurance insuring against claims for injuries to persons or damages to property which may arise from or in connection with the construction, maintenance, or repair on the Easement, the use of the Easement granted herein, or the use of the temporary access by GRANTEE or its agents, representatives, employees, contractors, subcontractors, and invitees.

The policy of insurance or self-insurance coverage maintained by GRANTEE shall include the equivalent of the following, and the insurance maintained by its agents, consultants, and contractors shall include the following: (i) Commercial General Liability coverage: \$2,000,000 combined single limit per occurrence for injury to or death of one or more persons in an occurrence, and for damage to property (including loss of use), \$2,000,000 general aggregate; \$2,000,000 products and completed operation aggregate; coverage is to be provided on an "occurrence" basis; (ii) Excess Liability coverage: \$2,000,000 each occurrence; \$2,000,000 aggregate; (iii) Workers' Compensation: statutory limits; (iv) Business Automobile Liability coverage (will apply to the permissive use of owned or hired vehicles): \$2,000,000 each accident; the agents, consultants, and contractors' insurance shall also include the following: shall contain, or be endorsed to contain, the following provisions: (i) name GRANTOR and their successors as additional insureds without limitations, (ii) provide a cross liability provision, and (iii) provide that the insurance shall be primary, excess, and non-contributing with any other insurance available to GRANTORS. GRANTEE has a \$500,000 self-insured retention. GRANTEE's agents, consultants, and contractors' policies shall provide that coverage shall not be cancelled, except for nonpayment of premium, except after thirty (30) days prior written notice to GRANTORS, and ten (10) days prior written notice for cancellation for nonpayment of premium.

Prior to execution of this Agreement, GRANTEE shall furnish GRANTOR with certificates of insurance and with original endorsements affecting the coverage required herein. All certificates and endorsements, and, in addition, for GRANTEE's agents, consultants, and contractors, evidence of Worker's Compensation coverage must be received.

- n) Any notice which GRANTOR or GRANTEE are required to provide related to this Easement shall be given in writing and may be personally served, sent by overnight courier delivery, or deposited in the United State Mail as certified mail, return receipt requested, postage prepaid, addressed to the other party at the following address:

GRANTOR: Zone 7
 Alameda County Flood Control and Water Conservation District
 Attention: General Manager
 100 N. Canyons Parkway
 Livermore, CA 94551
 925 454-5000

GRANTEE: City of Livermore
 Attention: City Engineer
 1052 South Livermore Avenue
 Livermore, CA 94550
 925 960-4510

- o) Acceptance and recordation of the Grant of Easement by GRANTEE shall signify GRANTEE's acceptance of the terms and conditions of the conveyance.

IN WITNESS WHEREOF, this instrument is duly executed pursuant to Alameda County Flood Control and Water Conservation District Resolution No. _____ adopted _____, 2012, a certified copy of which is attached hereto and made a part hereof.

Dated: _____

ALAMEDA COUNTY FLOOD CONTROL AND
WATER CONSERVATION DISTRICT

By: _____

Nate Miley, President
The Board of Supervisors
Alameda County Flood Control and
Water Conservation District

Line H
Map: RF-10120
No. 70172



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: Integrated Planning

CONTACT: Robyn Navarra/Carol Mahoney

AGENDA DATE: July 18, 2012

ITEM NO. 6g

SUBJECT: Authorizing Contract with Dublin San Ramon Services District (DSRSD) for Dublin Schools Irrigation System Hardware Rebate

SUMMARY:

- Conservation is an important part of Zone 7's water supply portfolio.
- In October 2007, the Zone 7 Board of Directors authorized Zone 7 to become a signatory to the Memorandum of Understanding (MOU) to the California Urban Water Conservation Council (CUWCC). Pursuant to this MOU, Zone 7 is committed to comply with the prescribed Best Management Practices (BMPs) that set the benchmark for water conservation.
- In April 2009, the Zone 7 Board declared its support for and adopted ACWA's conservation principles and in Fall 2009, the state passed SBx 7-7, which included a target of reducing per capita water use 20% by the year 2020.
- In November 2009, Kennedy-Jenks completed a study that identified the most cost-effective BMPs for Zone 7; one of their top recommendations is to provide non-residential customers (commercial, industrial and institutional) with support and incentives to improve their landscape water-use efficiency.
- DSRSD has received State and Federal grant funding to extend their recycled water distribution system in central Dublin to reach four existing schools - Dublin High School, Murray Elementary School, Frederiksen Elementary School and Wells Middle/Valley High School (see attached map) and is seeking assistance to provide the school with additional funding.
- The Irrigation System Hardware rebate sought for the four schools is approximately \$70,000. The recycled water retrofit projects are estimated to remove one hundred acre-feet water demand Zone 7 has money in its conservation program to provide incentives to the financially strapped schools within its service area.
- The Cities of Pleasanton and Livermore have agreed to use their portions of Zone 7's current school conservation budget to complete this project in Dublin.

FUNDING:

Funding is available in Fund 72 (75%) – Renewal & Replacement and Fund 73 (25%) – Capital Expansion for FY 12 and 13. This program is partially funded by a Proposition 84 grant which will reimburse approximately \$12,000 so Zone 7's actual costs for this project are \$58,000.

RECOMMENDED ACTION:

Authorize the General Manager to negotiate and execute a contract with Dublin San Ramon Services District in an amount not to exceed \$70,000

ATTACHMENTS:

- Resolution
- Location Map
- Draft Agreement with Dublin San Ramon Services District

ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO.

INTRODUCED BY:

SECONDED BY:

**Authorizing a contract with Dublin San Ramon Services District for
Dublin School Irrigation System Hardware Rebate**

WHEREAS, Zone 7 has budgeted conservation money for a schools program to fully fund Large Landscape Water Use Surveys and Irrigation System Hardware Rebates, which is usually spread approximately equally among the retailers' service areas; and

WHEREAS, DSRSD has received State and Federal grant funding to extend the recycled water distribution system in central Dublin reaching four existing schools - Dublin High School, Murray Elementary School, Frederiksen Elementary School and Wells Middle/Valley High School (see attached map) and is seeking assistance to provide the school with additional funding; and

WHEREAS, the Project includes school irrigation retrofits and weather-based irrigation controller retrofits estimated to remove 100 acre-feet water demand from Zone 7 supply requirements; and

WHEREAS, the Cities of Livermore and Pleasanton have agreed to use their portions of the current conservation budget for this project;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District does hereby authorize the General Manager to negotiate and execute a contract with the Dublin San Ramon Services District in an amount not to exceed \$70,000 for this project.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

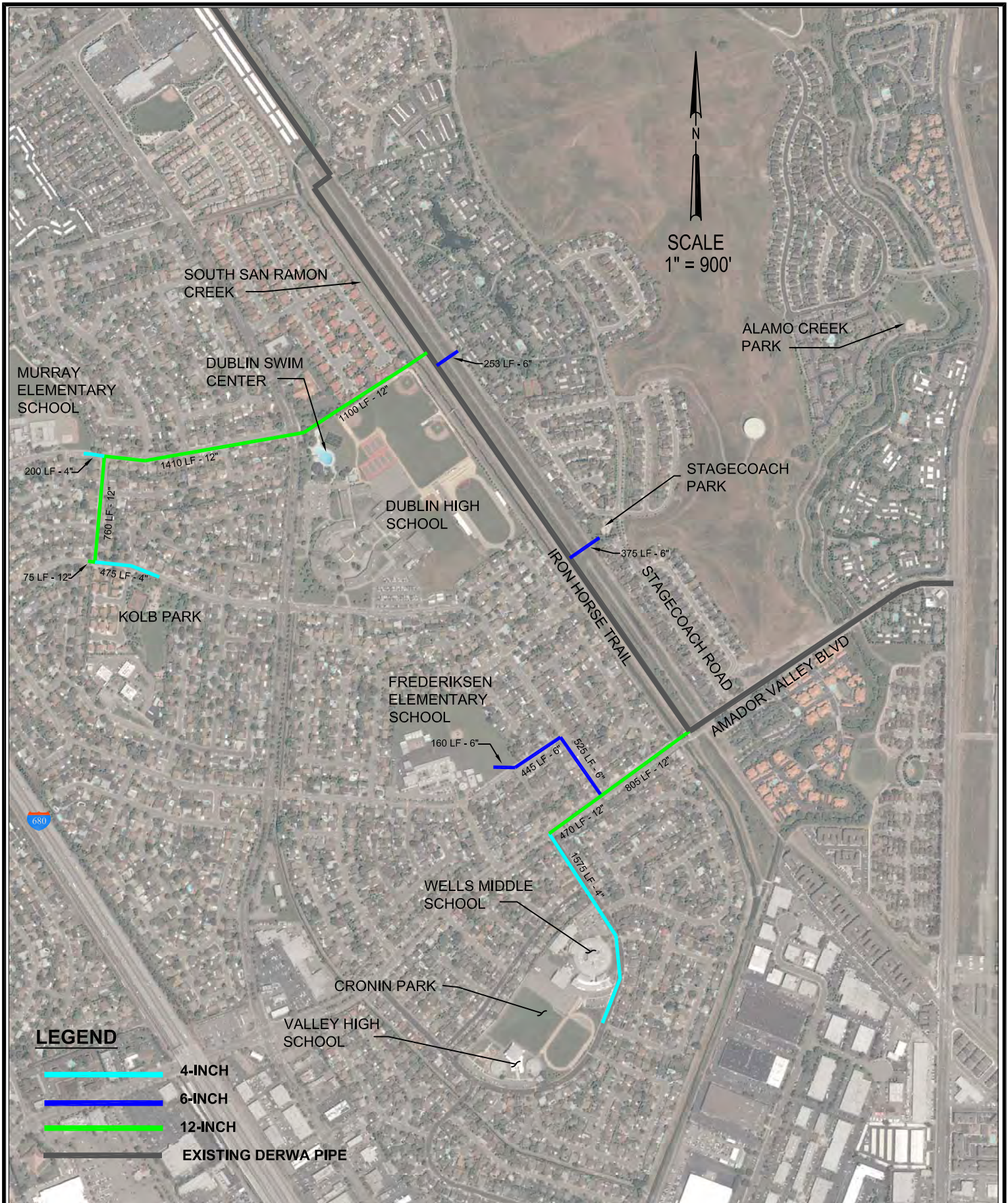
NOES:

ABSENT:

ABSTAIN:

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of Alameda County Flood Control and Water Conservation District on July 18, 2012.

By: _____
President, Board of Directors



LEGEND

- 4-INCH
- 6-INCH
- 12-INCH
- EXISTING DERWA PIPE

**DUBLIN SAN RAMON
SERVICES DISTRICT**



**PROJECT ALIGNMENT -
PIPELINE SIZING AND LOCATION**

FIGURE NO.

1

02/2012

DUBLIN SAN RAMON SERVICES DISTRICT PROPOSAL
LARGE LANDSCAPE IRRIGATION SYSTEM HARDWARE REBATES

Proposal

DSRSD requests the Tri-Valley Task Force support Zone 7 using FYE 2012 and FYE 2013 funds budgeted for “Large Landscape Water Use Surveys and Irrigation System Hardware Rebates (Schools Only)” for DSRSD projects to retrofit and convert schools to recycled water. This is a way for the retailers to maximize the benefits of the Zone 7 rebate programs for the total valley water supply.

Background

Zone 7 allocates the annual budget for Large Landscape Water Use Surveys and Irrigation System Hardware Rebates (Schools Only) equally among the retailer service areas. The money has been going largely unused, primarily because in the current financial situation schools do not have the funds for the non-eligible portions of retrofit projects. In addition, because of budget limitations, the school irrigation systems are deteriorating more each year becoming less and less water efficient.

DSRSD has received State and Federal grant funding to extend the recycled water distribution system in central Dublin reaching four existing schools. However, the grant funds can only be used for the expansion of the recycled water distribution system, not for onsite irrigation retrofits. To take advantage of the grant funding the District will fund the full cost of the school retrofits and would like to offset this cost with the School Irrigation System Hardware Rebates.

All retailers benefit from the reduction in potable water use. In future years or under other Zone 7 programs where a retailer has a specific project need, DSRSD will defer allocated Zone 7 funding to the appropriate retailer.

Projects

The Irrigation System Hardware Rebates sought for the four schools total \$70,000. The recycled water retrofit projects are estimated to remove 100 acre-feet water demand from the Zone 7 supply requirements. The avoided cost of new water supply for Zone 7 with these projects would be \$826 per acre-foot. A brief summary of the individual projects for which DSRSD requests the Irrigation System Hardware Rebates is provided below. See Figure 1 for a map of the project locations.

Project 1 – Dublin High School

This project would retrofit seventeen acres of turf irrigation at Dublin High School permanently reducing the potable water demand by 45 acre-feet annually. The retrofit would include replacing 1814 irrigation heads and rotors, 261 regulator and check valves, and 7 controllers with an equipment cost of \$38,900. (\$120,000 total cost).

Project 2 – Murray Elementary School

This project would retrofit eight acres of turf irrigation at Murray Elementary School permanently reducing the potable water demand by 18 acre-feet annually. The retrofit would include replacing 127 irrigation heads and rotors, 60 regulator and check valves, and 3 controllers with an equipment cost of \$10,800 (\$24,000 total cost).

Project 3 – Fredericksen Elementary School

This project would retrofit eight acres of turf irrigation at Frederickson Elementary School permanently reducing the potable water demand by 13 acre-feet annually. The retrofit would include replacing 495 irrigation heads and rotors, 94 regulator and check valves, and 4 controllers at an equipment cost of \$12,300 (\$38,000 total).

Project 4 – Wells Middle School, Valley High School and Cronin Park

This project site has a middle school and a high school with a large common turf area between the schools. This project would retrofit seven acres of turf irrigation permanently reducing the potable water demand by 23 acre-feet annually. The retrofit would include replacing 790 irrigation heads and rotors, 81 regulator and check valves, and 3 controllers at an equipment cost of \$20,600 (\$54,000 total cost).



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: Administrative Services

CONTACT: Tom Hughes

AGENDA DATE: July 18, 2012

ITEM NO. **7a**

SUBJECT: New Employee Introductions

SUMMARY:

We are introducing two new employees to the Board of Directors who joined the Zone 7 team since our last Board meeting.

Joshua Chapman, Water Plant Operator III

Josh Chapman joined Zone 7 on Monday, June 25, 2012 as a Water Plant Operator III working for the Operations Section. He comes to Zone 7 with over six years of water treatment plant operations experience, most recently as a Senior Water Treatment Plant Operator at Yuba City. Josh received his Bachelor's degree in Organizational Leadership from Chapman University and a Master's Degree in City and Regional Planning from California Polytechnic State University, San Luis Obispo. He is certified as a T4 water treatment operator by the State of California Department of Public Health.

Mary Miller, Office Assistant

Mary Miller also joined Zone 7 on Monday, June 25 as an Office Assistant in the Finance Section at the North Canyons Administration Office. Mary originally came to Zone 7 through the County Temporary Assistance Pool (TAP) program and has worked in the Finance Section assisting with purchasing activities for the agency. Prior to this, Mary worked in the home equity field managing sales for over 10 years. She received an Associate's Degree in General Studies and Fine Arts from Fullerton College.

Please join me in welcoming Josh and Mary to the Zone 7 team!

RECOMMENDED ACTION:

Information only.



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

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ORIGINATING SECTION: Administrative Services

CONTACT: Tom Hughes

AGENDA DATE: July 18, 2012

ITEM NO. **7b**

SUBJECT: Employee of the Month Recognition

SUMMARY:

The Employee Recognition Program Nomination Committee met in June and selected the Employee of the Month for May 2012 according to the established Program Guidelines. The individual chosen out of the submitted nominations is then recommended to Management for approval and there is a subsequent announcement of the selection to all Agency employees.

Wendy Duldulao, Water Quality Lab Technician, has been chosen from among those nominated as the May 2012 Employee of the Month. Wendy has worked in the Water Quality Lab in the Water Quality Section for almost five years. According to recommendations the committee received, Wendy has a very helpful, positive work attitude, quietly and diligently performing all of her duties. She collects field samples and runs very sophisticated water quality analysis tests utilizing complicated analytical instrumentation. Her knowledge and dependability have made her an indispensable resource in providing high quality laboratory services to Zone 7.

Wendy has a good work ethic and is always willing to put in extra effort to complete non-routine sampling and laboratory analysis. Her enthusiasm and willingness to learn and perform new tasks and be an active participant in the Water Quality team effort is very much appreciated. The recommendations the committee received noted that Wendy is a pleasure to work with.

The committee seconds the recommendation and recognizes Wendy as a valuable employee and an asset to Zone 7, with management approving the selection.

RECOMMENDED ACTION:

It is recommended that the Zone 7 Board of Directors recognize and congratulate Wendy Duldulao as May 2012 Employee of the Month.



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: FINANCE AND BUSINESS SERVICES

CONTACT: TAMARA BAPTISTA/KAREN BARTELS

AGENDA DATE: July 18, 2012

ITEM NO. **8**

SUBJECT: Authorization for the General Manager to Negotiate and Execute Three Contracts for the Supply and Delivery of Water Treatment Chemicals

SUMMARY:

- Zone 7 Purchasing staff historically collaborated with Alameda County's General Services Agency (GSA) to conduct water chemical bids on behalf of Zone 7. However, Zone 7 staff has now been soliciting bids independently in anticipation of separation from the County.
- Regardless of which agency solicits the bids, the County is currently responsible for issuing all of Zone 7's Purchase Orders; therefore, staff must follow the County's purchasing requirements.
- In the past, when GSA solicited bids, they would present the award of contract to the Board of Supervisors for approval. Since Zone 7 staff is now soliciting bids for water chemical contracts, Zone 7 Board approval is needed.
- In March 2012, the Bay Area Chemical Consortium (BACC) advertised and solicited bids for the supply and delivery of Sodium Hypochlorite, Sodium Hydroxide and Ferric Chloride. 13 firms submitted bids and Univar, USA, Inc., and Kemira respectively were the lowest, responsive responsible bidders.
- In June 2012, the District advertised and solicited bids for the supply and delivery of Polymer used in the treatment process. 2 firms submitted bids and Nalco Company was selected as the lowest responsive responsible bidder.
- Staff is recommending that the Board authorize the General Manager to negotiate and execute three contracts with the following vendors to provide water treatment chemicals for the term of July 1, 2012 through June 30, 2013, with the option to renew by mutual consent for (4) four additional one year terms.
 - o Univar, USA, Inc., to supply and deliver Sodium Hypochlorite and Sodium Hydroxide for a not-to-exceed amount of \$856,140;
 - o Kemira to supply and deliver Ferric Chloride for a not-to-exceed amount of \$1,395,000; and
 - o Nalco Company to supply and deliver Polymer for a not-to-exceed amount of \$332,960.

FUNDING:

The delivery and supply of these chemicals will be funded from Fund (52 – Water Enterprise). Funds are currently budgeted and available.

RECOMMENDED ACTION:

Adopt attached resolution.

ATTACHMENTS:

Zone 7 Board Resolution

Interoffice Memo

DATE: July 18, 2012

TO: Jill Duerig, General Manager

VIA: Tamara Baptista, Finance and Systems Services Manager

FROM: Karen Bartels, Buyer II

SUBJECT: Background and Discussion for Recommendation to Award Water Chemical Contracts

BACKGROUND:

Zone 7 Purchasing staff historically collaborated with Alameda County's General Services Agency (GSA) to conduct water chemical bids on behalf of Zone 7. However, Zone 7 staff has now been soliciting bids internally in anticipation of separation from the County. Regardless of which agency solicits the bids, the County is currently responsible for issuing all of Zone 7's Purchase Orders, including water chemical contracts; therefore, staff must follow the County's purchasing requirements. In the past, when GSA solicited bids on Zone 7's behalf, they would present the award of contract to the Board of Supervisors for approval. Since Zone 7 staff is now soliciting bids for water chemical contracts, Zone 7 Board approval is needed.

DISCUSSION:

When possible, Zone 7 participates in contracts competitively bid by the State, Federal, or County governments, as well as purchasing consortiums. In March 2012, staff participated in the Bay Area Chemical Consortium (BACC) in the solicitation of various water treatment chemicals. Additionally, staff issued separate bid requests for chemicals not solicited through the BACC, since Zone 7 was the only agency who uses some particular chemicals.

Bids for sodium hypochlorite, sodium hydroxide (caustic) and ferric chloride were received and publically read by Dublin San Ramon Services District, BACC lead agency, on April 16, 2012 at 7399 Johnson Drive, Pleasanton, CA, and bids for polymers were received and read publically on June 27, 2012 at 10:00 a.m. at Zone 7's Administration Building.

Suppliers are selected through an Invitation for Bid process for the procurement of goods and services where cost is the only basis for award. Bidders must meet minimum performance or material specifications in order to be considered responsive.

The following vendors have been selected based on their lowest, responsive responsible bid price for their respective water chemicals:

Vendor	Chemical	Requested Contract Amt.
Univar, USA, Inc.	Sodium Hypochlorite, Sodium Hydroxide	\$856,140
Kemira	Ferric Chloride	\$1,395,000
Nalco Company	Liquid anionic & cationic polymer	\$332,960

The most significant reductions in unit costs over FY 2011-2012 pricing were seen in sodium hypochlorite (-16%), sodium hydroxide (-11%), and one of the two cationic polymers (-11%); In contrast, there was a (9%) increase in another cationic polymer and no price change for ferric chloride.

Staff recommends adoption of the attached resolution to authorize the General Manager to negotiate and execute three contracts with the following vendors to provide water treatment chemicals for the term of July 1, 2012 through June 30, 2013, with the option to renew by mutual consent for (4) four additional one year terms. The costs will be re-negotiated each year due to volatile market prices for raw materials used in the processing and manufacturing of the chemicals:

- Univar, USA, Inc., to supply and deliver Sodium Hypochlorite and Sodium Hydroxide for a not-to-exceed amount of \$856,140;
- Kemira to supply and deliver Ferric Chloride for a not-to-exceed amount of \$1,395,000; and
- Nalco Company to supply and deliver Polymer for a not-to-exceed amount of \$332,960.

ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO.

INTRODUCED BY
SECONDED BY

WATER TREATMENT CHEMICALS

WHEREAS, Zone 7 of the Alameda County Flood Control and Water Conservation District desires to enter into contracts with the following three (3) firms for the term of July 1, 2012 through June 30, 2013, with the option to renew by mutual consent for (4) four additional one year terms: Univar, USA, Inc., Kemira, and Nalco Company to supply and deliver water treatment chemicals to District facilities as needed; and

WHEREAS, the scope of these contracts shall consist of supplying and delivering Sodium Hypochlorite, Sodium Hydroxide, Ferric Chloride and Polymer; and

WHEREAS, through the formal bid process, the above referenced (3) three vendors were selected as the lowest, responsive, responsible bidders for the respective chemicals to enter into contracts with the District to supply materials referenced above.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District does hereby authorize the General Manager to negotiate and execute the contracts with the (3) three low bidders: Univar, USA, Inc., Kemira, and Nalco Company on half of the District for the supply and delivery of water treatment chemicals referenced above.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

ABSTAIN:

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of Alameda County Flood Control and Water Conservation District on July 18, 2012.

By: _____
President, Board of Directors



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
100 NORTH CANYONS PARKWAY LIVERMORE, CA 94551 PHONE (925) 454-5000 FAX (925) 454-5727

ORIGINATING SECTION: FACILITIES ENGINEERING
CONTACT: BRANDON WOODS / RHETT ALZONA

AGENDA DATE: July 18, 2012

ITEM NO. 9

SUBJECT: Award of Contract for the Cope Lake Slope Repair Project

SUMMARY:

- Cope Lake, a former siltation pond, was given to Zone 7 in an “as is” condition since it was not originally part of the established Chain of Lakes network. Improvements (i.e., slope repairs and drainage) need to be made to Cope Lake to make it safe and functional.
- The project scope includes cutting back the over-steepened upland area on the east side of the lake; using this cut material and reinforcement fabric to rebuild approximately 1,325 feet of lake slope; installing a drainage system; and improving the access roads.
- Per CEQA guidelines, Zone 7 staff prepared a Mitigated Negative Declaration for the project which was adopted by the Board at the February 2012 Board meeting.
- Zone 7 advertised the construction contract and on July 12, 2012, six bids ranging from \$1,499,999 to \$1,988,871 were received. The Engineer’s estimate for the project scope under this contract is \$1.2 million. After reviewing the bids, it is clear that there was more uncertainty and complexity in completing the scope of work than accounted for in the original Engineer’s estimate.
- Bids were reviewed by Zone 7 staff and it was determined that the lowest responsive and responsible bidder is Steelhead Constructors, Inc., with a bid of \$1,499,999.
- The lowest bidder, Steelhead Constructors, Inc., has complied with the bid requirements.

FUNDING:

Based on the future intended use of Cope Lake, the project is funded from the following: Fund 72 - Renewal & Replacement/System-Wide Improvements (15%), Fund 73 – Expansion (35%), Fund 50 – Flood Control\General Fund (22%), and Fund 76 – Flood Control Development Impact Fee (28%).

Due to higher than expected bid for the construction contract, additional appropriations in the amount of \$300,000 are needed to increase the FY 12/13 Board approved project budget to \$1,800,000. Funding is available in these four funds.

RECOMMENDED ACTION:

Consider bids for the construction of the Cope Lake Slope Repair Project and adopt the attached resolution to: 1) Approve plans, specifications, appendices and addenda; 2) Accept the bid and award a contract to Steelhead Constructors, Inc., as the lowest responsive and responsible bidder for the bid amount of \$1,499,999; 3) Appropriate an additional \$300,000 to increase the project budget to \$1,800,000 for FY 12/13; and 4) Authorize the General Manager to negotiate and execute the contract with Steelhead Constructors, Inc. and issue change orders as and when required in an amount not-to-exceed \$150,000 (10% of contract amount).

ATTACHMENTS:

1. Memo providing additional background and discussion of agenda item
2. Zone 7 Board Resolution

Interoffice Memo

Date: July 18, 2012
To: Jill Duerig, General Manager
From: Brandon Woods, Water Resources Technician II
Rhett Alzona, Senior Engineer
Subject: Award of Contract for the Cope Lake Slope Repair Project

The following provides additional background and discussion on the above-referenced agenda item:

BACKGROUND:

Cope Lake has been used by Hanson Aggregates for many years for various mining operations such as settling silt from processing water. In June 2003, Cope Lake was given to Zone 7 in an “as is” condition since it was not originally part of the Chain of Lakes network described in the Livermore-Amador Valley Quarry Area Reclamation (LAVQAR) Specific Plan or associated contracts with quarry owners.

Improvements (i.e. slope repairs and drainage) need to be made to Cope Lake to make it safe and functional for water management purposes, and avoid damaging the Jamieson house on the southeast side of Cope Lake.

DISCUSSION:

The existing slope of Cope Lake’s eastern shore has, over many years, become highly eroded and over-steepened due to wave action, underground seepage, and surface water runoff resulting from a lack of proper drainage. This, in turn, has made the eastern shore access road unsafe for operations and maintenance. Repairs are necessary to avoid further erosion, to utilize the lake for flood control and water management purposes and to provide safe access for operations and maintenance personnel.

Staff prepared a Mitigated Negative Declaration for the project which was adopted by the Zone 7 Board at the February 2012 Board meeting. Zone 7 staff has prepared the design and contract documents incorporating required mitigation. The project includes cutting back the overly-steepened upland area, using cut material, and geogrid-reinforced soil mass (ie. fabric reinforcement) to rebuild approximately 1,325 feet of lake slope embankment, rebuilding a new access road on the east side of the lake, and installing a surface water drainage system. The project scope also includes reinforcing and stabilizing the upland area directly below the Jamieson property on the southeast corner of the lake.

The project was advertised on June 28 and July 5 in a local newspaper, on an internet site (Onvia) and on Zone 7’s website. In addition, copies of the plans and specifications were posted in 22 Northern California building exchanges. Subsequent to advertising, 13 general contractors attended the required pre-bid site visit. On July 12, in accordance with established procedures, the following six bids were received:

	<u>CONTRACTOR</u>	<u>BID AMOUNT</u>
1	Steelhead Constructors, Inc., Redding, CA	1,499,999.00
2	Engineered Soil Repairs, Walnut Creek, CA	1,544,030.00
3	Proven Management, San Francisco, CA	1,738,460.00
4	Evans Brothers, Livermore, CA	1,899,826.48
5	Fanfa, Inc., San Lorenzo, CA	1,901,375.80
6	Grade Tech, Inc., Castro Valley, CA	1,988,871.00

The Engineer's estimate for the project scope under this contract is approximately \$1,200,000. The bids have been reviewed by Zone 7 staff. The low bid was 25% higher than the Engineer's estimate. The highest bid was almost 66% higher than the Engineer's estimate. It appears that based upon the number of questions received and the bids submitted there was more uncertainty and complexity in completing the scope of work than accounted for in the original Engineer's estimate. Based on the review of bids, staff believes that the low bid is a fair and reasonable bid for this scope of work.

The low bidder has complied with the bid requirements and was determined to be responsive to the contract requirements. Staff recommends the award of contract to the lowest responsive and responsible bidder, Steelhead Constructors, Inc., in an amount not-to-exceed \$1,499,999. Additionally, staff recommends that the General Manager be authorized to negotiate and issue change orders as and when needed in an amount not-to-exceed \$150,000 (10% of contract amount).

Based on the future intended use of Cope Lake, the project is funded from the following: Fund 72 - Renewal & Replacement/System-Wide Improvements (15%), Fund 73 – Expansion (35%), Fund 50 – Flood Control\General Fund (22%), and Fund 76 – Flood Control Development Impact Fee (28%). A budget of \$1.5 million was approved in FY 12/13 for the Cope Lake Slope Repair Project which will cover the construction cost. However, due to the higher than expected bid for the construction contract, additional funding over the budgeted amount is needed to cover construction contingency and construction management/inspection (to be performed by Zone 7 staff). Staff recommends that the Board approve additional appropriations to increase the project budget by \$300,000 to \$1,800,000 from the following Funds:

Fund 72 - Renewal & Replacement/System-Wide Improvements (15%, \$45,000)
Fund 73 – Expansion (35%, \$105,000)
Fund 50 – Flood Control\General Fund (22%, \$66,000)
Fund 76 – Flood Control Development Impact Fee (28%, \$84,000)

SCHEDULE:

Construction is scheduled to commence towards the end of August 2012 and substantial completion of the project is anticipated by the middle of November 2012.

ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO.

INTRODUCED BY
SECONDED BY

Award of Contract for the Cope Lake Slope Repair Project

WHEREAS, Zone 7 of the Alameda County Flood Control and Water Conservation District has a project for the construction of the Cope Lake Slope Repair Project; and

WHEREAS, a Mitigated Negative Declaration per the California Environmental Quality Act (CEQA) guidelines was prepared for the project and was adopted by the Board at the February 2012 Board meeting; and

WHEREAS, the Project plans, specifications and addenda were developed and advertised for bids in accordance with the California Public Contract Code; and

WHEREAS, bids were received and publicly read by the Zone 7 General Manager's authorized representatives at the Zone 7 Administration Office, 100 North Canyons Parkway, Livermore, California 94551 on July 12, 2012 at 4:30 pm; and

WHEREAS, six bids were received and the lowest responsive responsible bid received for Project No. 219-12 is the bid by Steelhead Constructors, Inc., with a bid amount of \$1,499,999; and

WHEREAS, additional funding over the previously approved project budget is needed in an amount of \$300,000 due to a higher than expected bid for the construction contract.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District does hereby approve the plans, specifications, appendices, and addenda for the Cope Lake Slope Repair Project; and

BE IT FURTHER RESOLVED that the bid of the lowest responsive and responsible bidder, Steelhead Constructors, Inc. be accepted, and that the contract for the work be awarded to Steelhead Constructors, Inc., in an amount not to exceed \$1,499,999; and

BE IT FURTHER RESOLVED that the General Manager be authorized to negotiate and execute the contract on behalf of Zone 7 of the Alameda Flood Control and Water Conservation District upon such presentation and approval of the contract and each of the bonds presented by Steelhead Constructors, Inc.; and

BE IT FURTHER RESOLVED that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District does hereby authorize the General Manager to appropriate an additional \$300,000 to increase the Project budget to \$1,800,000 from the following Funds:

Fund 72 - Renewal & Replacement/System-Wide Improvements - \$45,000

Fund 73 – Expansion - \$105,000

Fund 50 – Flood Control\General Fund - \$66,000

Fund 76 – Flood Control Development Impact Fee - \$84,000; and

BE IT FURTHER RESOLVED that the General Manager be authorized to negotiate and issue change orders as and when needed in an amount not to exceed \$150,000.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

ABSTAIN:

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District on July 18, 2012.

By _____
President, Board of Directors



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: ADMINISTRATION

CONTACT: Jill Duerig

AGENDA DATE: July 18, 2012

ITEM NO. 13a

SUBJECT: GENERAL MANAGER'S REPORT

SUMMARY: The following highlights a few of the key activities which occurred during June. Also attached is a list of the General Manager (GM) contract(s) executed during the month.

Operations and Maintenance:

- Power to the South Bay Pump Station was unexpectedly interrupted three separate times in early June. The first two incidents resulted in complete South Bay Aqueduct (SBA) shutdowns while the third involved a transfer of aqueduct operations to Lake Del Valle (so that the Del Valle Plant was not shut down but instead was able to continue operating at about half rate). Pleasanton's water operations staff were extremely supportive in each of these emergencies to minimize customer impacts. Zone 7 staff have been in discussion with the Department of Water Resources (DWR) to determine how repetitions will be avoided. The lake filling process is on hold until Dyer Reservoir is able to supply water to the SBA in case of additional short-term energy interruptions; by the end of the month, storage in Lake Del Valle dropped to 35,700 acre feet (AF) due to evaporative losses. East Bay Regional Park District has expressed concerns with the current lake level.
- The Patterson Pass Ultra-Filtration (UF) Plant was brought online Saturday June 23rd at 3 million gallons per day (MGD), with three (of the five) racks out of service due to membrane integrity issues. Repairs and module transfers were made and a third rack was brought on line. UF provides additional back-up in case of temporary aqueduct outages, as long as there is water in the raw water reservoir at the plant.
- Chain of Lakes Well #2 is now completely back in service, as is the soft water carriage system at the Demineralization Facility, both repaired by in-house staff. For the latter, the possibility of a re-design to take advantage of the permeate water is under evaluation.
- The upper bearing in the Stoneridge Well pump motor has begun to make noise so the well has been put in standby mode for the duration of the high-demand season; it will be repaired in the fall when demands are lower to better accommodate a period of it being completely out-of-service while the motor is removed and taken to an offsite shop for repair. In the meantime, it may be able to still function if an emergency arises.

Engineering and Flood Control:

- Cawelo agreed to accept another 5,000 acre feet of transfer from Zone 7 this year (sending a larger portion of Zone 7's State Water Project allocation to this out-of-basin groundwater storage bank). Although this will increase the amount of expenses this year to purchase the water, it will serve as additional insurance for future years as Delta uncertainties potentially impact reliability.
- The contractor is now installing the Patterson Pass Water Treatment Plant sewer line within Patterson Pass Road toward the east. The biological consultant has updated the bird next survey. The kestrel chicks have apparently fledged (left the nest) so there is no environmental obstacle to continuing sewer line installation.
- Flood Control's summer maintenance program continues, with Zone 7's contractor, Fanfa, completing slide repairs along South San Ramon Creek in Dublin and moving on to compaction of slopes along the Pleasanton Canal (to repair damage from squirrels). Under Zone 7's direction, county laborers continued with vegetation management work along the Arroyo Mocho in Pleasanton while other contract labor (Balala) did mowing in Tassajara Creek. Zone 7 staff removed fallen trees that were obstructing access roadways and/or the channel, itself, in two separate locations.
- The City of Livermore requested a three-day period of no-flow conditions on the Arroyo Mocho at Holmes Street to allow them to expeditiously remove gravel that has collected under the bridge. The plan is to coordinate the project with DWR's South Bay Aqueduct applications of copper sulfate, when permit conditions require releases to temporarily cease anyway.

Environmental & External Affairs:

- Qualified Water Efficient Landscaper (QWEL) training classes were hosted at Parkside. A written test was given to 29 students. All passed with an average score of 92%. Class evaluations were glowing. Staff will work to place a link on Zone 7's website to the QWEL program; the website link will list all of the graduates in the Livermore-Amador Valley area.
- The cost-sharing agreement between several Bay Area water agencies to develop a regional general National Pollutant Discharge Elimination System (NPDES) permit was finalized and is being routed for signature. Zone 7's total contribution will be about \$15,000 per year for two years. The funding will pay for the Regional Board/Association of Bay Area Governments (ABAG) to hire a staff person who will be developing the permit for the water agencies.

Finance & Administration

- Following the SBA outages early in the month, the Tri-Valley Water Agencies' respective water operations staffs are planning to develop a joint tabletop exercise focused on operational responses to a lack of source water (e.g., if the California Department of Water Resources/DWR has a prolonged shutdown of the South Bay Aqueduct/SBA).
- The new Proposition 65 signs have been received from the City of Pleasanton's sign shop and have now been installed at the appropriate facilities.

Monthly List of GM Contracts

June 2012

Contracts:

Checkers Catering	\$15,000	Catering Services for Meetings, Conferences and Workshops
Alameda County Resource Conservation District	14,000	MOU Funding a Portion of the Alameda Creek Historical Ecology Study
Parsons Corporation	10,000	Coaching and Mentoring Services
Ecoblue	20,000	Product Services and Training for Water Conservation
HydroMetrics WRI	10,000	Local Groundwater Assistance Grant Application
Total June 2012	\$69,000	



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: Administrative Services

CONTACT: Boni Brewer/Mike Wallace

AGENDA DATE: July 18, 2012

ITEM NO. 13b

SUBJECT: Recent Outreach Activities

Livermore Farmers' Market, June 21

Zone 7 shared a large booth with the City of Livermore's Water Resources Division and the City's Beautification Committee during this popular downtown event. The joint booth provided information and activities on everything from stormwater pollution prevention to water conservation.

Dublin Farmers' Market, June 28

Zone 7 partnered with Dublin San Ramon Services District in staffing a booth at a Dublin Farmers' Market that specifically featured a "Green Day" theme focused on sustainability and reducing waste. Zone 7 provided information and activities on water conservation and on the Clean Water Program.

Alameda County Fair, June 20 – July 8

As in past years, Zone 7 partnered with several other agencies this year in helping to staff an Alameda County Clean Water Program booth during the annual County Fair in Pleasanton. Zone 7 staffed the booth on Sunday, July 1. The messaging on water pollution prevention focused on ways to promote a clean, healthy watershed, including through non-toxic pest control.



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ORIGINATING SECTION: Administration

CONTACT: Jill Duerig/Tim Hunt

AGENDA DATE: July 18, 2012

ITEM NO. 13c

SUBJECT: Legislative Update

SUMMARY:

- Zone 7 staff, with the support of the agency's lobbying firm, The Gualco Group, Inc., and the agency's legislative support consultant, Tim Hunt, monitors legislation that is being considered in Sacramento, as well as other political activities of interest to the Agency.
- The Zone 7-sponsored South American Spongeplant bill (AB 1540, authored by Assemblywoman Buchanan) passed the Senate and is pending on the Assembly floor for concurrence with technical amendments made in the Senate.
- The Legislature passed the budget before the June 15 deadline and concluded negotiations with the governor on the trailer bills that were passed to implement the plan. The budget hinges on passage of the governor's initiative to raise the sales tax one-quarter cent for four years and to increase income taxes on high earners for seven years. If voters reject the measure in November, then automatic cuts will be triggered that will fall heavily on K-14 education to close the \$8.5 billion gap.
- The budget included a continuing appropriation for Davis-Dolwig funding from the Harbors and Watercraft Revolving Fund. The budget also includes 37 new positions and 38 two-year positions for the Department of Water Resources to implement the Delta Habitat, Conveyance and Conservation Plan. DWR has assured the State Contractors that the positions will not be filled until a funding agreement is in place.
- Both houses of the Legislature voted overwhelmingly to delay the vote on the \$11.2 billion water bond until November 2014. Senator Lois Wolk, an outspoken opponent of the bond, roundly criticized it both in committee and on the floor and then voted to delay it to remove any competition to the governor's tax increase on the November ballot.
- The Legislature adjourned for its summer recess July 6 and will return August 6.

RECOMMENDED ACTION: Information only.

ATTACHMENTS: Executive Summary



EXECUTIVE SUMMARY

State Legislation

Prepared for the Zone 7 Water Agency, Eastern Alameda County
by The Gualco Group, Inc.



July 5, 2012

Bill	TOPIC	SYNOPSIS	STAFF RECOMMENDATION	STATUS OF THE BILL / COMMENTS
Sponsored Legislation				
AB 1540 (Buchanan)	South American Spongeplant	The bill would authorize the Dept. of Water Resources to eradicate this invasive species.	Sponsor	07/05/2011 Assembly Floor, 2 nd reading, File Item #6
SB 1337 (DeSaulnier)	Zone 7 Water Agency	This bill would state the intent of the Legislature to enact a bill to allow Zone 7 to separate from Alameda County.	Sponsor	Failed Deadline – Dead for 2011-12 Legislative Session
Peripheral Canal				
SB 200 (Wolk)	Delta levee maintenance	This bill would define the board for purposes of levee maintenance as the Central Valley Flood Protection Board	Support	In Assembly Committee on Appropriations
Public Employment				
AB 1184 (Gatto)	Public employees' retirement benefits	This bill would state that a CalPERS agency not experience a significant increase in actuarial liability due to increased compensation paid by another contracting agency to a non-represented employee. (NOTE - unrelated to Zone 7's retirement plan.)	Watch	2 Year Bill: will be eligible to be taken up during the 2012 legislative year
AB 1808 (Williams)	Meyers-Milias-Brown Act: Public Employees	This bill would expand the definition of "public employee" to include any person employed by an employer that is a not a public agency, but with which a public agency shares or codetermines decisions governing essential employment conditions of that person.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session

Water Conservation, Supply & Delivery

AB 1607 (Galgiani)	Local Water Supply Projects: inventory	This bill would require the Dept. of Water Resources to conduct a statewide inventory of local regional water supply projects and post the results of the inventory on the department's Internet Web site by July 1, 2013.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 1669 (Perea)	Groundwater: Nitrate at Risk Area Fund	This bill would establish the Nitrate at Risk Area Fund, moneys in the fund would be available for the purposes of developing and implementing sustainable and affordable solutions for disadvantaged communities in areas reliant on nitrate-contaminated groundwater as their source of drinking water.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 1750 (Solorio)	Rainwater Capture Act of 2012	This bill would allow residential, commercial and governmental landowners to install, maintain and operate rain barrel systems and rainwater capture systems.	Watch	To Senate Floor
AB 1798 (Perea)	Posting agricultural water management plans	This bill would require the Dept. of Water Resources to post agricultural water management plans on its web site after they are submitted by agricultural water users.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 2056 (Chesbro)	Drinking water	This bill would simplify requirements to install a point-of-entry and point-of-use water treatment system.	Watch	In Senate Environmental Quality, failed passage
AB 2208 (Perea)	Drinking Water	This bill would require the Dept. of Public Health to consider regional solutions when awarding grant money to provide clean water to underserved communities.	Watch	07/05/2012 In Assembly Floor, 2 nd Reading File Item #28
AB 2238 (Perea)	Public water systems: drinking water	This bill would require the Dept. of Public Health to consider determinations and recommendations made by the affected local agency formation commission within the previous five years when considering an application for funding.	Watch	08/06/2012 Set for hearing in Senate Committee on Appropriations
AB 2398 (Hueso)	Water recycling	This bill would enact the Water Recycling Act of 2012 to revise and consolidate the law related to recycled water and establish statewide goals.	Watch	In Senate Committee on Appropriations
AB 2529 (Weickowski)	Safe Drinking Water: Revolving Fund	This bill would authorize the Dept. of Public Health to adopt interim regulations for purposes of implementing provisions relating to the Safe Drinking Water State Revolving Fund.	Watch	In Senate Committee on Natural Resources and Water
SB 1340 (La Malfa)	Appropriation of water: Oroville Sewage Comm.	This bill would authorize the Oroville Sewage Commission to file an application to appropriate water based upon its discharges into the Feather River.	Watch	In Assembly Committee on Appropriations

SB 1386 (Lowenthal)	Municipal Water Districts: Water Storage	This bill would prohibit a district located in a county with a population greater than 8 million persons and where at least 80% of the area of the district is included within the boundaries of a water replenishment district from having specified authority relating to the storage of water.	Watch	07/05/2012 In Assembly Floor, 2 nd Reading File Item #1
Special Districts				
SB 31 (Correa)	Post government employment: restrictions	This bill would apply the prohibitions of the Political Reform Act of 1974, in addition, to local appointed officials.	Watch	In Assembly Committee on Appropriations
CEQA - Infrastructure Projects				
SB 52 (Steinberg)	Environmental quality: jobs and economic improvement	The bill would require a lead agency to place the highest priority on feasible measures that would reduce greenhouse emissions on the project site and the surrounding neighborhoods.	Watch	In Assembly Committee on Appropriations
Financing				
AB 1538 (Cook)	Recovery Audits	This bill would require the Controller to contract with consultants to provide semiannual recovery audits of state agencies with expenditures exceeding \$50,000,000 in a fiscal year, unless excepted by regulation.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
Natural Resources/Environment/ Delta				
AB 1813 (Buchanan)	Delta Reform Act of 2009	This bill would require the system of Delta watershed diversion, for certain diversions, in lieu of requiring reporting, to use data from the consumptive use index modeling used by the Dept. of Water Resources to determine the Net Delta Outflow index.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 1884 (Buchanan)	Delta Reform Act of 2009, covered actions	This bill would exclude from the definition of "covered action" any anticipated upgrades to existing drinking water, stormwater, or watershed treatment facilities to meet state water quality requirements.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 2000 (Huber)	Delta Plan	This bill would reduce the Governor's appointments to the Delta Stewardship Council to 2 members.	Oppose	In Assembly Water, Parks and Wildlife
AB 2421 (Berryhill, Bill)	Bay Delta Conservation Plan: delta Plan Project: costs and benefits	This bill would require an independent 3 rd party to conduct an analysis of the costs and benefits for any project being submitted by the Day Delta Conservation Plan to the Delta Plan.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 2422 (Berryhill, Bill)	Delta: Western Delta Intakes Concept: feasibility study	This bill would require the Department of Water Resources to undertake an expedited evaluation and feasibility study of the Western Delta Intakes Concept.	Oppose	Failed Deadline – Dead for 2011-12 Legislative Session

AB 2423 (Berryhill, Bill)	Comprehensive Sacramento-San Joaquin Delta planning	This bill would make technical, non-substantive changes to provisions of the 2009 Delta Reform Act.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 2443 (Williams)	Vessels: registration fees: mussels	This bill would authorize a county to assess a fee on vessels registered there to establish and operate a dreissenid mussel monitoring, inspection and eradication program.	Watch	In Senate Committee on Appropriations
SB 1251 (Evans)	Ocean Protection Council: Aquatic Invasive Species Working Group	This bill would establish an Aquatic Invasive Species Working Group for the development and implementation of an aquatic invasive species control program.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
SB 1495 (Wolk)	Covered actions, Delta Reform Act 2009	This bill would exclude from the definition of "covered action" specified leases approved by special districts as well as dredging activities conducted by the federal government.	Watch	In Assembly Committee on Appropriations
Regulatory				
AB 1537 (Cook)	Government Accountability Act of 2012	The bill would require that new regulations that are estimated to have a \$1 million or more impact on business or individuals contain a provision requiring repeal two years after enactment.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 1543 (Alejo)	Public Contracts: Buy American	The bill would repeal the provisions that prohibit the application of existing United States-made preferences for specified equipment.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
AB 1549 (Gatto)	Development: expedited permit review	The bill would require the Office of Permit Assistance to assist state and local agencies in streamlining the permit approval process as well as providing developers with information about required permits and the environmental process.	Watch	In Assembly Committee on Appropriations. Held under submission
SB 1146 (Pavley)	Wells: reports: public availability	The bill would require the department to provide specified disclaimers when providing the reports to the public.	Watch	Failed Deadline – Dead for 2011-12 Legislative Session
SB 1364 (Huff)	Water corporations	This bill would expand inspection provisions of the Public Utilities Act to authorize the inspection of accounts, books, papers and documents of any subsidiary of a water corporation.	Watch	In Assembly Committee on Appropriations



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ORIGINATING SECTION: Administrative Services
CONTACT: Tom Hughes

AGENDA DATE: July 18, 2012

ITEM NO. 13d

SUBJECT: Status Report on Separation Efforts

SUMMARY:

Zone 7's website has been updated to include a separate page on future separation, which has links to various relevant documents (see <http://www.zone7water.com/future-separation>). This page can be accessed in two ways from the home page – either by using the pull-down menu under “About Us” or by using the “Quick Links” menu on the right hand side of the page.

Employee Services:

- As communicated by the General Manager at the recent all-employee meetings, staff has been directed to continue to pursue separation from Alameda County.
- Staff continues to assess all separation-related activities and to reach out to Alameda County staff to address any remaining concerns and to keep moving the transition forward.
- Following the events of the last couple of months (SB 1337 being withdrawn, the letter from the County Supervisors and the Grand Jury Report) the Agency is in the process of establishing a committee of Management Advisory Team (MAT) and Staff Advisory Team (SAT) members to begin brainstorming options for moving forward so that we can present some alternatives to the board.

Business Administration:

- Due to a decision to abandon the previously-identified payroll provider, implementation will be further delayed until at least January 2013. In the meantime, Finance and Accounting staff are actively pursuing alternative payroll providers.
- Staff is researching cost accounting systems for labor charges.



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ORIGINATING SECTION: Facilities Engineering

CONTACT: Rhett Alzona/Jarnail Chahal

AGENDA DATE: July 18, 2012

ITEM NO. 13e

SUBJECT: Treatment Plant Residuals Management

SUMMARY:

- “Sludge”, a term used throughout this report, refers to residuals generated by the water treatment process. Unlike wastewater treatment, the sludge in potable water is mostly comprised of treatment chemical residuals with a small contribution from raw water solids. This staff report provides a review of the plant sludge dewatering process, long-term options for sludge dewatering, and a cost comparison for disposing sludge at approximately 25% solids (directly from a centrifuge or other mechanical dewatering equipment) and the current practice of disposing sludge at approximately 75% solids.
- Zone 7’s current practice is to use sludge beds and centrifuge rental services to dewater sludge from 1%-2% solids to around 25% solids (75% moisture content) then spread this material into one of the sludge beds for further drying to around 75% solids prior to off-haul and disposal at the landfill.
- Without a centrifuge or mechanical dewatering system, the sludge beds alone at both plants do not have the capacity to keep up and would result in limiting treated water production.
- Renting entrifuges for the last several years has provided an economical (initial cost & O&M) and expeditious way to deal with the sludge capacity limitations in the short term and has provided full scale testing before making any significant capital investments.
- A Sludge Handling Study conducted in 2011 (attached) by Zone 7 staff evaluated the following four major long-term sludge dewatering options at both Zone 7 treatment plants: additional sand drying beds (with underdrain system), additional solar drying beds (paved beds), continue centrifuge rental operations, and purchase/install centrifuge or other mechanical dewatering equipment for in-house operation.
- Considering life cycle costs (capital, O&M and replacement costs), the study concluded the following:
 - o At PPWTP, adding sand drying beds is the most suitable and economical long-term option. This option has the lowest initial construction cost and staff is familiar with the process.
 - o At DVWTP, with the sludge thickener structure and equipment already constructed and operated by Zone 7 staff, addition of Zone 7-owned portable mechanical dewatering system was the most suitable option. Moreover, suitable land would be difficult to acquire for additional drying beds at DVWTP.
- In the near term, the current centrifuge rental services contract is competitively priced, but it may not be if prices increase when the services are re-bid in the future.
- The current practice of drying sludge to approximately 75% solids is less costly by approximately \$700,000/year than hauling sludge at approximately 25% solids. The attached memorandum provides additional details of the sludge dewatering process and cost comparison calculations.

RECOMMENDED ACTION:

Information Only.

ATTACHMENT:

- 1) Memorandum providing additional background and discussion of staff report.
- 2) Sludge Handling Study (2011)

Interoffice Memo

Date: July 18, 2012
To: Jill Duerig, General Manager
From: Rhett Alzona, Senior Civil Engineer
Subject: Treatment Plant Residuals Management

This memorandum provides a review of Zone 7's current sludge dewatering processes at the surface water treatment plants, long-term options for sludge dewatering, and cost comparison for disposing of sludge at various moisture content levels.

"Sludge", a term used throughout this report, refers to the residuals produced/separated in water and wastewater treatment processes. Unlike in the wastewater treatment process, the sludge produced/separated in potable water treatment process is mostly comprised of treatment chemical residuals with a small contribution from raw water solids.

BACKGROUND:

Originally, Patterson Pass Water Treatment Plant (PPWTP) and Del Valle Water Treatment Plant (DVWTP) were 9 mgd and 18 mgd plants, respectively. With expansion over the years, PPWTP and DVWTP production capacities increased to 19 mgd and 36 mgd, respectively. In addition, both plants were designed to use alum as the primary coagulant. With the onset of additional drinking water regulations, ferric chloride became the coagulant of choice at both plants. Ferric chloride enhances the sedimentation process, especially in the superpululators and provides more effective treatment for total organic carbon (TOC) removal. However, ferric chloride produces more sludge than alum. While sludge bed areas were increased, the additional area is still insufficient to contain the sludge generated at either plant.

In the late 1990's and early 2000's, Zone 7 crews were working throughout the day moving sludge so that there would be capacity for more sludge in the beds. Both plants started to have sludge stockpiles outside of the beds and sludge dewatering became the bottleneck to plant production. Since 2005, Zone 7 has been utilizing a combination of sludge beds and mechanical dewatering at both treatment plants. Early on, as a trial, PPWTP and DVWTP used a belt press system and centrifuge system, respectively. The centrifuge performed better than the belt press in terms of processing a more consistent solids concentration, easier operational control, and reliability. The belt press had more moving parts that needed to be managed and were more susceptible to breakdowns and maintenance.

Since those trial runs in 2005, Zone 7 has bid out centrifuge rental services at both plants and sludge bed capacity has no longer been a bottleneck to treatment plant production. In addition, with sludge drying a non-issue, Zone 7 Operations was able to optimize treatment processes such that DVWTP now has a rated maximum plant production capacity of 40 mgd. Currently Zone 7 spends between \$500,000 and \$600,000 annually for centrifuge rental services.

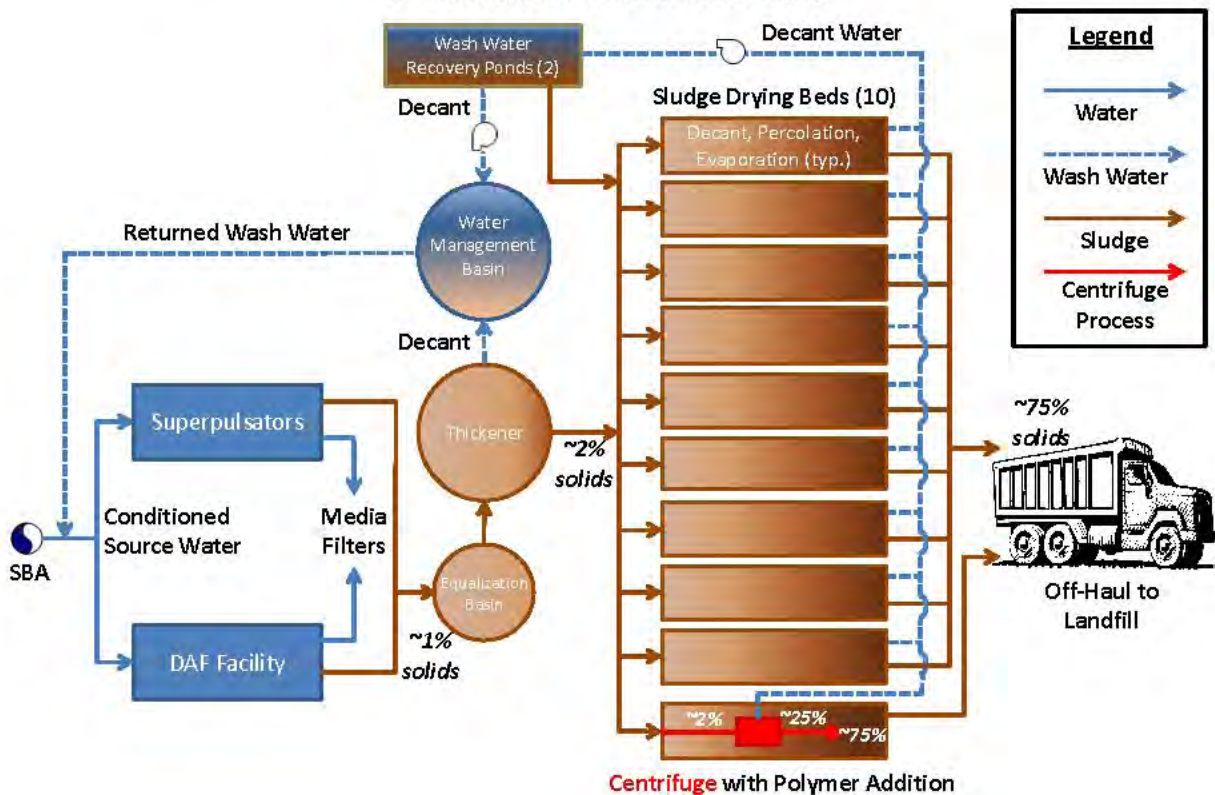
DISCUSSION:

Currently, both plants process sludge using sludge beds and rental centrifuge services, depending on the plant production rate. Following is a description of each process:

Process Using Centrifuge System

Figure 1 shows the current sludge thickening and handling process at the Del Valle Water Treatment Plant (DVWTP). Through the flocculation, coagulation and settling process in the superpulsators and/or dissolved air flotation (DAF) basin using ferric chloride and polymers with the raw water, sludge is formed and collected into a sludge waste stream. This waste stream is approximately 1% solids and 99% water. This sludge with 1% solids concentration goes first to the equalization basin and then to the thickener basin. Additional polymer is used in the pump line to the thickener basin to help thicken the sludge to around 2% solids. The 2% solids is a minimum percent solids concentration needed for the mechanical dewatering to consistently and efficiently separate solids from the water in the sludge. The sludge then leaves the thickener and is usually sent to the mechanical dewatering system (i.e., the centrifuge) to bring the solids concentration up to around 25% (by weight). Additional polymer is also fed at the centrifuge to enhance sludge solids-water separation.

Figure 1: DVWTP Current Sludge Handling Process Schematic



The centrifuge dumps the 25% solids sludge into one of the sludge beds. Each week this sludge stockpile is then transferred to another bed and spread out for additional drying before off-hauling and disposal at the landfill. Typically one or two sludge beds are needed when using the combination of centrifuge and spreading process for additional sludge drying. Another third bed is also used for detention of the centrifuge separated water, before it is returned to the plant's headworks.

Process Using Sludge Drying Beds

Before the centrifuge system was in place, Zone 7 relied solely on the sludge drying beds. The sludge waste stream from the thickener dumped directly to the sludge beds. The sludge bed mimics a sedimentation basin in that the 2% solids (98% water) sludge stream would continue to fill the bed and solids would further separate from the water by settling to the bottom of the bed. Figure 2 shows a PPWTP sludge bed where sludge with 1% -2% solids concentration was being dumped.

Figure 2 – Sludge where 1 -2% solids settle and water on surface goes to decant box



Some separation between the solids and water has occurred over time as the solids settle. The upper portion of water is collected by a decant box which eventually recycles the water back to the head of the plant (See Figure 1 for decant flow process). As sludge fills up the bed, the decant intake is periodically raised to allow proper time for solids settling and to continue to allow for decanting. This is done by inserting up to 3- 2" x 4" wood blocks starting from the bottom of the decant intake. The decant process covers the top 12 inches of the approximate 27-inch deep sludge bed. Each of the three 2" x 4" wood blocks covers 1/3 of the decant intake. Eventually, the sludge bed is filled and solids no longer have the time to settle and separate. To prevent dumping excess solids into the decant, the bed is then closed off and another bed is put into service to receive sludge.

After the bed is closed, the sludge is given more opportunity for solids settling. As this occurs, water is separated at the top of the bed. The decant intake can then slowly be lowered by periodically removing a 2' x 4" wood block so that the water continues to decant and be recycled back to the headworks. After

allowing time for solids settling and decanting the upper 12 inches of the 27 inch deep bed, decanting can no longer be used. For the remaining 15 inches below the decant intake, percolation and evaporation are the driving forces to drying sludge. Percolation occurs since the sludge beds have a pervious bottom with an underdrain system which connects to the decant piping system so that percolated water is also brought back to the headworks.

Evaporation is effective during the dry, hot months and not very effective during rainy, cold months. Also, due to direct exposure to the sun, drying is faster on top of the beds such that a cake forms preventing the liquid below from effective drying by evaporation. The viscosity of the liquid below the cake is also thick enough that percolation is not as effective. Figure 3 below shows an example of a caked surface (approximately 38% solids concentration) with a wet, gelatinous, thick layer of sludge below (approximately 6% solids concentration).



Figure 3 - Caked sludge surface approximately 38% solids concentration and beneath the caked surface is wet, gelatinous sludge approximately 6% solids concentration.

As shown in Figure 4, in the past, to speed up the sludge drying process, there is a point when the sludge provides enough traction to drive a small bobcat with a tiller to agitate or churn up the cake. This brings the wetter material to the surface for exposure to the sun and hence more effective drying. Depending on the time of year, this agitation process fluctuates. On hot days, the cake can form rapidly so agitation could be conducted throughout the day for several days. On cooler days, agitation is less frequent and less effective.

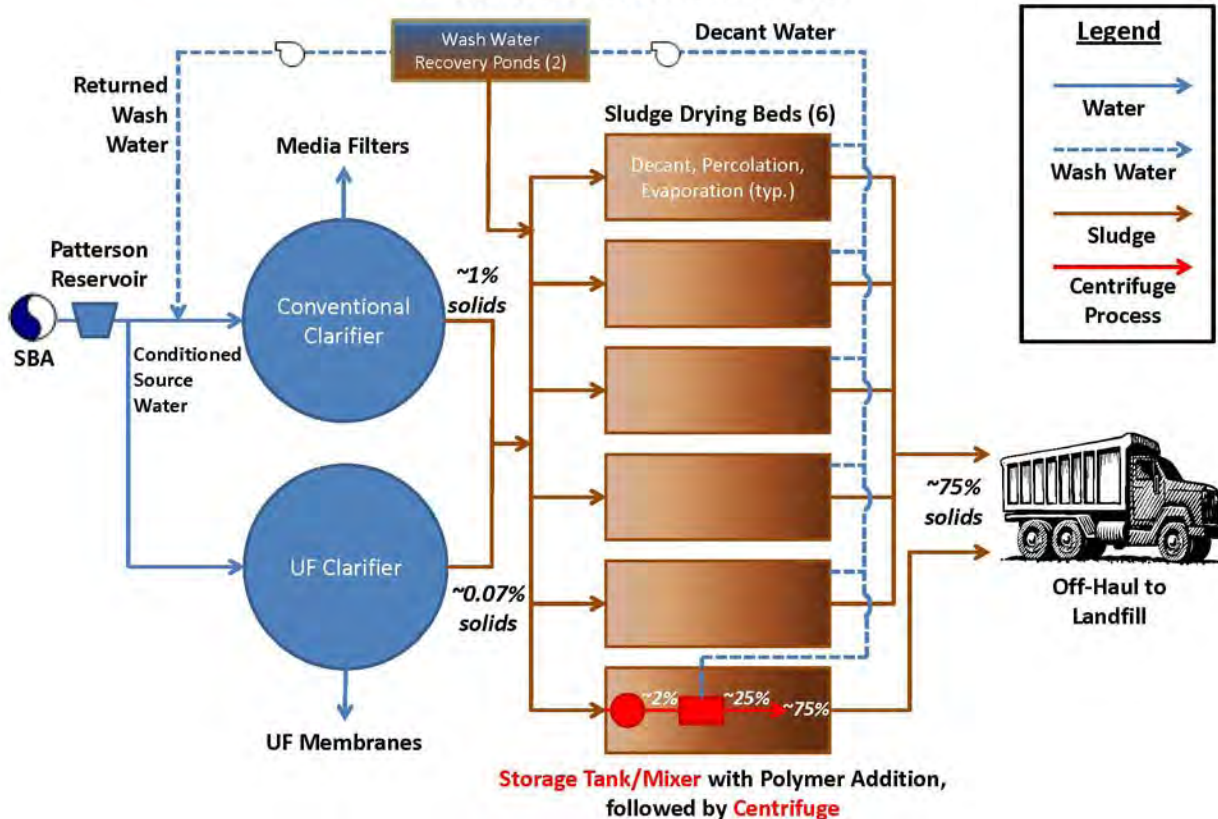
Figure 4 – Bobcat with tiller to agitate or churn up caked surface so that sludge beneath gets exposure to sun.



It should also be noted that from Figure 1, there is a connection from the washwater recovery ponds to the drying beds. This is to handle unplanned/planned discharges and/or to free up the ponds for more rapid filter backwashes when water production is high. Taking into account these issues and the variable percolation and evaporation rates, there are many variables to drying sludge effectively through the beds, only. The existing 10 sludge beds are inadequately sized to handle the volume of sludge produced at DVWTP. Accordingly, with no place to put new sludge, treatment plant output must be reduced. The centrifuge processes sludge so that the sludge bed capacity is not a limitation to treated water production.

Figure 5 shows the current sludge handling process at Patterson Pass Water Treatment Plant.

Figure 5: PPWTP Current Sludge Handling Process Schematic



PPWTP has many similarities to the sludge drying process as DVWTP. One of the differences is that without a sludge thickener, a portable mixing tank is needed to bring up the 0.07% - 1% solids from the clarifiers to close to 2% solids concentration to enhance solids-water separation in the centrifuge process. Sludge from the UF clarifier is only around 0.07% solids as polymers cannot be used due to incompatibility with the ultrafiltration membrane system. Without a centrifuge or mechanical dewatering system, the six drying beds are inadequately sized to handle the volume of sludge produced at PPWTP.

Long-Term Options for Sludge Dewatering at Both Plants - 2011 Sludge Handling Study (attached)

In 2011, a sludge handling study was conducted by staff. The main purpose of this study was to compare centrifuge rental services, sand drying bed (with underdrain system) expansion, solar drying bed (paved bottom) expansion, and Zone 7 owned and operated mechanical dewatering. The existing drying beds are sand drying beds in that a pervious surface is used to allow for percolation. Solar drying beds would have an impervious surface and would rely on decantation and evaporation. For this study, asphalt concrete was the solar bed surface considered. The benefit to solar drying beds is that the agitation process can be conducted without significant effects to the beds. With sand drying beds, the pervious layer is often damaged by agitation and offloading sludge such that regular bed maintenance repairs are needed. The conclusions of the study were:

1. Over the long term, additional sand drying beds are the most suitable option at PPWTP in terms of life cycle costs (capital, O&M and replacement costs), lowest initial construction cost and process familiarity.

2. Over the long term, with a sludge thickener already constructed, an in-house operated mechanical dewatering system/equipment was the most suitable option at DVWTP in terms of life cycle costs (capital, O&M and replacement costs). Moreover, suitable land would be difficult to acquire for additional drying bed area at DVWTP.
3. In the near term, the current centrifuge rental services contract is competitively priced but it may not be if prices increase when the services are re-bid in the future.

Since this study was completed, Zone 7 is working to acquire California Department of Water Resources (DWR) land on the east side of PPWTP for future sludge bed expansion in FY 13/14. For DVWTP, Staff recommends purchasing and operating its own centrifuge system. Funding has been included in the CIP in FY 12/13 for a centrifuge system bid package preparation and purchase.

In summary, Zone 7 does need mechanical dewatering of sludge in order to maintain plant treated water production. Zone 7 is using centrifuge rental services in the near term and is in the process (i.e. acquiring land at PPWTP and preparing to purchase centrifuge for DVWTP) of implementing long term sludge dewatering solutions.

The Current Practice vs. dumping sludge from the centrifuge to the landfill

At the June 2012 Board meeting, during approval for the sludge disposal contract, staff was asked if it would be economical to off-haul sludge directly from the centrifuge instead of the current practice of further drying by spreading to approximately 75% solids. Although staff had done this analysis, it was not included in the written report at that time. This option is compared below to the current practice of stockpiling centrifuge sludge, spreading the sludge for additional drying, then off-hauling the drier sludge to the landfill.

Figure 6 shows sludge at approximately 75% solids concentration.



Figure 7 shows the sludge produced from the centrifuge at approximately 25% solids concentration.

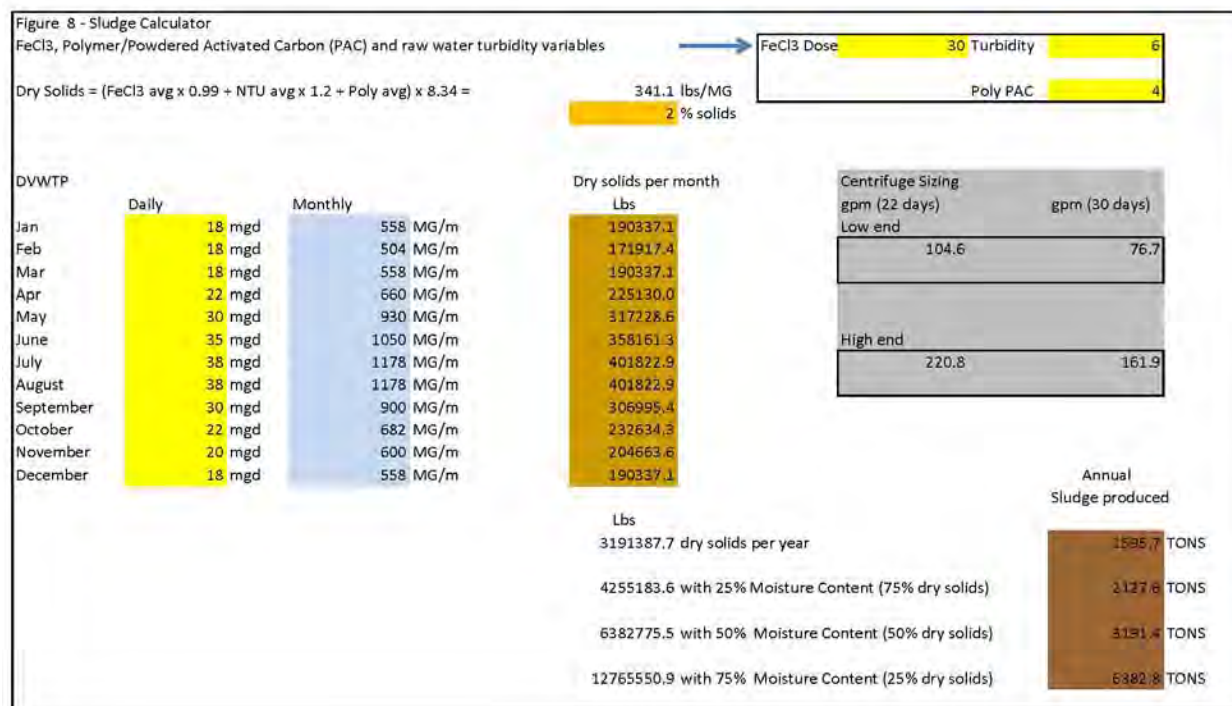


The following factors influence the total sludge handling cost:

1. An estimated typical amount of sludge produced throughout the year at varying percent solids concentration. Higher solids concentration means lower moisture content, resulting in lower overall sludge weight.
2. The labor rates and time/effort for sludge handling and off-hauling (truck trips to the landfill and sludge spreading efforts to further reduce sludge moisture content).
3. The sludge disposal fees. Higher solids concentration means lower disposal fee per ton.

1. Sludge Production

Figure 8 is a snapshot of a working spreadsheet that can be used to estimate sludge production throughout the year.



For typical Ferric Chloride (FeCl₃) sludge using polymer, an empirical formula has been developed to determine dry solids sludge production in terms of pounds (lbs) per million gallons (MG) of water treated. The formula uses FeCl₃ dosage (parts per million, ppm), raw water turbidity (NTU), polymer dosage (ppm), and powdered activated carbon (PAC, ppm) variables for estimating the dry solids. The yellow highlighted cells in the upper right hand box of Figure 8 is where the variables have been entered to determine the 341.1 lbs/MG of dry solids. This example uses “30” as the average FeCl₃ dosage, “6” as the average raw water turbidity and “4” as the combined average dosage of polymer and PAC. Average values anticipated over the entire year are used as the empirical formula is more accurate over longer periods of time. Shorter periods would be difficult to predict as turbidity spikes and dosage adjustments have more variance.

Monthly dry sludge production (light brown highlights) is estimated utilizing the projected monthly plant production (shown in the blue highlights) and the dry solids production rate of 341.1 lbs per MG of water production. The annual dry solids sludge production for the entire year for DVWTP is estimated to be about 1,600 tons.

Since we do not have dry solids sludge, moisture content is factored into the sludge weight. For 75% solids (with 25% moisture content), the annual sludge yield based on the yellow highlighted variables is around 4,250,000 lbs. This is estimated by dividing the dry solids amount of 3,200,000 lbs by 0.75. The 25% dry solids annual sludge production of approximately 12,760,000 lbs would represent the amount of sludge to be off-hauled if taken directly from the centrifuge. Annual sludge produced for 75%, 50%, and 25% solids converted from lbs to tons are shown on the lower right hand side of Figure 8 in dark brown highlights.

2.1 Truck Trips

Using the previously developed sludge production totals, the annual truck trips for sludge (at different percent moisture content) can be estimated assuming trucks with 20 TON loading capacity.

Lbs	Annual Sludge produced	Assume 20 TON Trucks
3191387.7 dry solids per year	1595.7 TONS	
4255183.6 with 25% Moisture Content (75% dry solids)	2127.6 TONS	107 Trips
6382775.5 with 50% Moisture Content (50% dry solids)	3191.4 TONS	160 Trips
12765550.9 with 75% Moisture Content (25% dry solids)	6382.8 TONS	320 Trips

From the above Figure, 25% solids coming off the centrifuge, dumped into a truck for off-haul is estimated to take 320 truck trips annually. Sludge from a centrifuge that is spread out in the sludge bed for additional drying to 50% and 75% solids, then loaded into a truck for off-haul is estimated annually to take 160 truck trips and 107 truck trips, respectively.

The landfill sites are relatively close to the treatment plants so travel time was estimated at approximately 2.5 hours per trip.

2.2 Sludge Spreading and Off-hauling

Zone 7 bids out services for sludge handling and off-hauling to the landfill. California Landscaping Contractors (sludge contractor) was the low bidder in 2010 and their contract can be renewed annually for up to three years. Although Zone 7 is in the process of bringing the loading and off-hauling service in-house, this analysis utilizes labor and off-hauling rates from the existing contract. Their labor rates were adjusted in 2012 using an established cost index. The rate for sludge handling (spreading on-site, loading from bed to truck) was increased from \$110 to \$115/ hour. The rate to off-haul to the landfill was increased from \$74 to \$77/hour.

Since the centrifuge produces approximately 25% solids (75% moisture content), the sludge is stockpiled in one bed. For spreading, the sludge contractor takes approximately one 8-hour day per week to move the sludge stockpile to an empty bed and spread the sludge to optimize drying from the sun. The sludge contractor would also take on average the same amount of time as spreading to collect and load sludge onto a truck for disposal at the landfill.

3. Sludge Disposal

Two landfill operations serve Alameda County and the Livermore Valley: Republic Services, Inc. (Vasco Road landfill) and Waste Management (Altamont landfill). The landfill operators compete on prices for disposal of waste material. To obtain the best value, Zone 7 solicits bids from both landfill operators. The prices quoted by each landfill are shown below.

Type of Material	Republic Services	Waste Management
Sludge:		
75% solids/Moisture content around 25%	\$ 22.50	\$ 26.00
50% solids/Moisture content around 50%	\$ 40.00	\$ 55.00
25% solids/Moisture content around 75%	NA	\$100.00

Annual Cost Comparison for disposing of sludge at 25%, 50% and 75% Solids

Figure 9 shows a comparison given the annual estimates for sludge at the different percent solids concentrations and the costs for truck trips, spreading and loading sludge, and tipping/dumping fees at the landfill. Based on these comparisons, the current practice of spreading and drying sludge after centrifuge processing to around 75% solids concentration is the least costly. The extra effort to spread and further dry sludge is less costly than dumping centrifuge sludge directly to the landfill.

Figure 9 - Cost Analysis					
Operator/Laborer	\$ 115.00 per hour	75% Solids	TONS	Trips	
Dump Truck Size	20 TONS		2127.6	107	
Truck Loading Duration	8 Hours	50% Solids	3191.4	160	
Truck Trip Duration	2.5 Hours	25% Solids	6382.8	320	
Truck Off-haul to Landfill	\$ 77.00 per hour				
Republic - Vasco Landfill 75% solids	\$ 22.50 per TON				
Republic - Vasco Landfill 50% solids	\$ 40.00 per TON				
Waste Mgmt Altamnt Landfill 25% solids	\$ 100.00 per TON				
			Annual		
			Total		Difference
75% Solids	Travel \$ 20,597.50 + Tipping/Dumping Fee \$ 47,870.82 + Spread/Load Total \$ 95,680.00 =		\$ 164,148.32		
50% Solids	\$ 30,800.00 + \$ 127,655.51 + \$ 95,680.00 =		\$ 254,135.51		\$ 89,987.19
25% Solids	\$ 61,600.00 + \$ 638,277.55 + no cost =		\$ 699,877.55		\$ 535,729.23
75% and 50% solids need spreading then loading onto the truck					
Assume 1- 8 hour day per week for each operation					
\$ 920.00	52 weeks	\$ 47,840.00	spreading		
\$ 920.00	52 weeks	\$ 47,840.00	loading		
Total		\$ 95,680.00			

The different colored highlights were to calculate costs for each activity. For example, the travel costs for annual dumping of 75% solids sludge is 107 trips x 2.5 hours/trip x \$77/hour (or \$20,597). The dumping fee) for 75% solids sludge is 2,127.6 TONS x \$22.50/TON (or \$47,871). The spreading cost is 8 hours per week x \$115/hour x 52 weeks or \$47,840. Loading is expected to take the same effort as spreading so that the total annual spreading/loading effort is \$95,680. Once again there is no cost assumed for spreading or loading if the centrifuge sludge (approximately 25% solids concentration) is collected and off-hauled for disposal.

Once the costs are calculated for travel, tipping/dumping fees, and spreading and loading costs, these costs for each level of solids concentration (25%, 50% and 75% solids) is summed up (shown in the dark orange highlights). The difference column highlighted in grey, shows the annual difference in costs if sludge is disposed off at 75% solids concentration vs. 50% or 25%.

In summary, due to the high tipping fees (landfill cost) for 25% solids sludge directly from the centrifuge, the annual costs at DVWTP can be around \$700,000. By spreading the additional drying to around 75% solids sludge, the annual costs are expected to be below \$165,000 making the difference between the two options around \$535,000.

As a smaller plant, PPWTP has lower treated water production than DVWTP. Making the same calculations for PPWTP, the difference between disposal of 25% solids from the centrifuge and disposal of around 75% solids from additional spreading/drying of sludge is around \$200,000 annually.

In conclusion, the current practice of drying sludge to approximately 75% solids is less costly by \$700,000/year than off-hauling sludge at approximately 25% solids. Note, however, that this analysis will be reviewed when and if Zone 7 has experience operating its own centrifuge as one of the factors is the inconsistent dewatering operation by the contractor.



Memorandum

To: Jill Duerig, General Manager
Kurt Arends, Assistant General Manager, Engineering
Vince Wong, Assistant General Manager, Operations
Colter Andersen, Operations Manager
Gerald Dewitt, Maintenance Manager
Via: Jarnail Chahal, Water Supply Engineering Manager
JaVia Green, Staff Analyst
From: Rhett Alzona, Associate Civil Engineer, Water Supply Engineering
Date: February 10, 2011
Re: Solids Handling at Del Valle (DVWTP) and Patterson Pass (PPWTP) Water Treatment Plants

Conclusions and Recommendations

- WSE Staff reviewed four options to increase sludge handling capacity at both Zone 7 treatment plants – additional sand drying beds, additional solar drying beds, current centrifuge rental operations and purchase/installation of additional mechanical dewatering equipment for Zone 7 (in-house) operations.
- Over the long term, additional sand drying beds are the most suitable option at PPWTP in terms of life cycle costs (capital, O&M and replacement costs), lowest initial construction cost and process familiarity.
- Over the long term, with a gravity thickener already constructed, an in-house operated portable mechanical dewatering system/equipment was the most suitable option at DVWTP in terms of life cycle costs (capital, O&M and replacement costs). Moreover, suitable land would be difficult to acquire for additional drying bed area at DVWTP.
- The project cost estimates for sand drying beds at PPWTP (approximately \$5 million including land purchase) and portable mechanical dewatering equipment at DVWTP (approximately \$3 million - for hybrid operation; mechanical dewatering equipment sized to supplement existing sand beds) are less than the costs included in our last update of the 10-year CIP.
- The current option of centrifuge rental services contracts at both plants which is subject to periodic rebidding has a higher but reasonable cost than other options in the short term and should be continued. Moreover, centrifuge rental services are the only available option over the next one to two years.
- Recommendations are to prepare for the uncertainty that centrifuge rental services are no longer economically viable by constructing additional sand beds at PPWTP and providing mechanical dewatering equipment for in-house operations at DVWTP.
- While it is unlikely to complete construction of new drying beds at PPWTP before completion of the current centrifuge rental services contract, additional land for drying beds at PPWTP should be acquired (a budget of approximately \$760,000 in Fiscal Year 2011/12) so that Zone 7 has more control in scheduling the construction of new drying beds. Staff can also begin performing in-house design for the additional PPWTP drying beds (\$300,000 in FY 2012/13) and DVWTP mechanical dewatering equipment (\$200,000 in FY 2011/12).

Discussion

A sludge handling study was conducted to determine long term sludge handling needs at PPWTP and DVWTP. A summary of findings was presented to the Zone 7 Operations and Maintenance staff on August 27, 2010. Comments from that presentation were taken and a presentation was made to Executive Management on October 22, 2010. Final revisions were made and the Final Presentation is attached as Appendix A. For reference, the sludge drying model data and cost analyses for PPWTP and DVWTP are attached as Appendix B. Miscellaneous data is attached as Appendix C.

Long Term Sludge Production Estimates

Based on current plant operations, projected output during the shoulder months (October- March) are a minimum 12 million gallons per day (MGD) at PPWTP and minimum 22 MGD at DVWTP. Recent maximum output data from both treatment plants was used to increase the minimum production from April –September, the high demand seasons. Additionally, a one month winter spike of 7 MGD and 12 MGD was added to the PPWTP and DVWTP plant outputs, respectively, to make up for a one month shutdown of one of the plants.

Sludge Drying Model for Bed Sizing Needs

A sludge drying model was developed using empirical estimates for sludge decantation and percolation rates and Livermore historical estimates for monthly evaporation rates. The desired dry sludge concentration used was 75% dry solids (also can be referred to as 25% moisture content). Based on evaporation rates in the spring and summer seasons, drying solids from 75% to 25% moisture content (or from 25% dry solids to 75% dry solids) does not significantly increase bed capacity needs. On the other hand, evaporation rates in the fall and winter seasons are so low that drying solids up to and beyond 75% moisture content would be significant to bed sizing needs. In addition, the annual savings by achieving 75% dry solids over 25% dry solids for off-haul and disposal are around \$140,000 and \$330,000 for PPWTP and DVWTP, respectively.

Incorporating the estimated sludge production into the sludge drying model, the estimated drying bed area needs for two options, sand and solar beds, were determined at PPWTP and DVWTP as shown in the Table below.

	Existing Drying Bed Area	Total Drying Bed Area Needs	Additional Drying Bed Area Needs
PPWTP Sand Beds	81,000 square feet	224,000 square feet	143,000 square feet
PPWTP Hybrid (Existing Sand/New Solar) Beds	81,000 square feet	289,000 square feet	208,000 square feet
DVWTP Sand Beds	126,000 square feet	230,000 square feet	104,000 square feet
DVWTP Hybrid (Existing Sand/New Solar) Beds	126,000 square feet	341,000 square feet	215,000 square feet

Based on the historical evaporation rates in the Livermore area, sand and solar drying bed sizing are driven by sludge production in the shoulder months (October – March). Although the sludge volume

generated is higher in the non-shoulder months, the evaporation rates also dry sludge more rapidly, resulting in net lower drying bed area needs.

Solar drying beds have an asphalt concrete (AC) liner resulting in higher capital costs and lower maintenance costs by elimination of the need for sand bed repairs. The AC liner prevents any percolation benefit as in the case of sand drying beds. Therefore, solar drying beds rely on decant and evaporation. Compared to sand drying beds, solar drying beds result in a larger drying bed surface area due to the need for sludge storage in the shoulder months when evaporation rates are inconsequential.

Sludge Handling Options Cost Comparison

With the sludge beds sized, a 40-year life cycle cost comparison was made among sand drying beds, solar drying beds, in-house mechanical dewatering and the current centrifuge rental services operation. Capital costs include land acquisition. Material/equipment replacement costs over the 40-year life cycle were also determined. For the solar beds option presented, no initial changes are made to the existing sand drying beds. Therefore, the Capital Cost under the solar beds option covers only new bed surface area. The plan would be to treat the sand beds as solar beds and over time offset the replacement cost of an AC Liner for conversion to solar beds by eliminating sand bed maintenance AB repairs. Based on observations and agreed upon operations and maintenance (O&M) practices, assumptions for O&M effort and material/equipment replacement intervals were made for each of the options. All costs were then converted to equivalent uniform annual costs (EUAC) for comparison.

At PPWTP, the Table below shows that sand drying beds had the lowest EUAC and is the recommended option.

PPWTP Options Cost Comparison					
Option	Sand Beds	Solar Beds	Mech Dewater	Centrifuge Rent KNE	Centrifuge Rent Bio
Capital Cost	\$4,233,137	\$8,178,817	\$5,440,962	\$361,400	\$992,000
Land Acquisition Cost	\$707,500	\$1,004,650	\$0	\$0	\$0
Replacement Cost	\$524,860	\$1,215,129	\$9,339,900	\$14,094,600	\$38,688,000
Total Conversion to EUAC	\$5,465,497	\$10,398,596	\$14,780,862	\$14,456,000	\$39,680,000
EUAC Cost	\$200,000	\$390,000	\$550,000	\$540,000	\$1,480,000
O&M Cost	\$437,225	\$276,473	\$298,206	\$298,206	\$298,206
Total Annual Cost	\$637,225	\$666,473	\$848,206	\$838,206	\$1,778,206
Notes 1. Analysis for 40 year time period, 3% inflation, 5% interest. 2. Capital Cost, land acquisition and replacement costs are in terms of present worth. 3. Under Solar Beds option, existing sand beds are also used for hybrid operation. 4. Centrifuge rental costs are broken down annually with Year 1 cost calculated in Capital Cost line item. Year 1 cost is extrapolated over 40 year period and shown in the Replacement Cost line item.					

Solar drying beds were within the planning level contingencies. However, sand drying beds are preferred over solar drying beds due to lower initial construction cost and process familiarity.

The mechanical dewatering option included the cost of constructing a gravity thickener to provide sludge with at least 2% solids. A sludge with a minimum 2% solids concentration is needed for a dependable mechanical dewatering system performance.

The centrifuge rental services cost for the first year was listed in the Capital Cost line item and extrapolated over a 40-year life. The extrapolated cost is represented in the Replacement Cost line item.

For the low bidder, KNE, this cost is considerably higher than sand drying beds option over the long term. As it is difficult to implement the additional sand bed option right away, in the near term, KNE rental services should be continued. It should also be noted that the second low bidder, Bionomic, provided a substantially higher bid than KNE. Hence, while centrifuge rental services are competitive in the near term, there is a high level of uncertainty in the cost of centrifuge rental services over a span of 40 years.

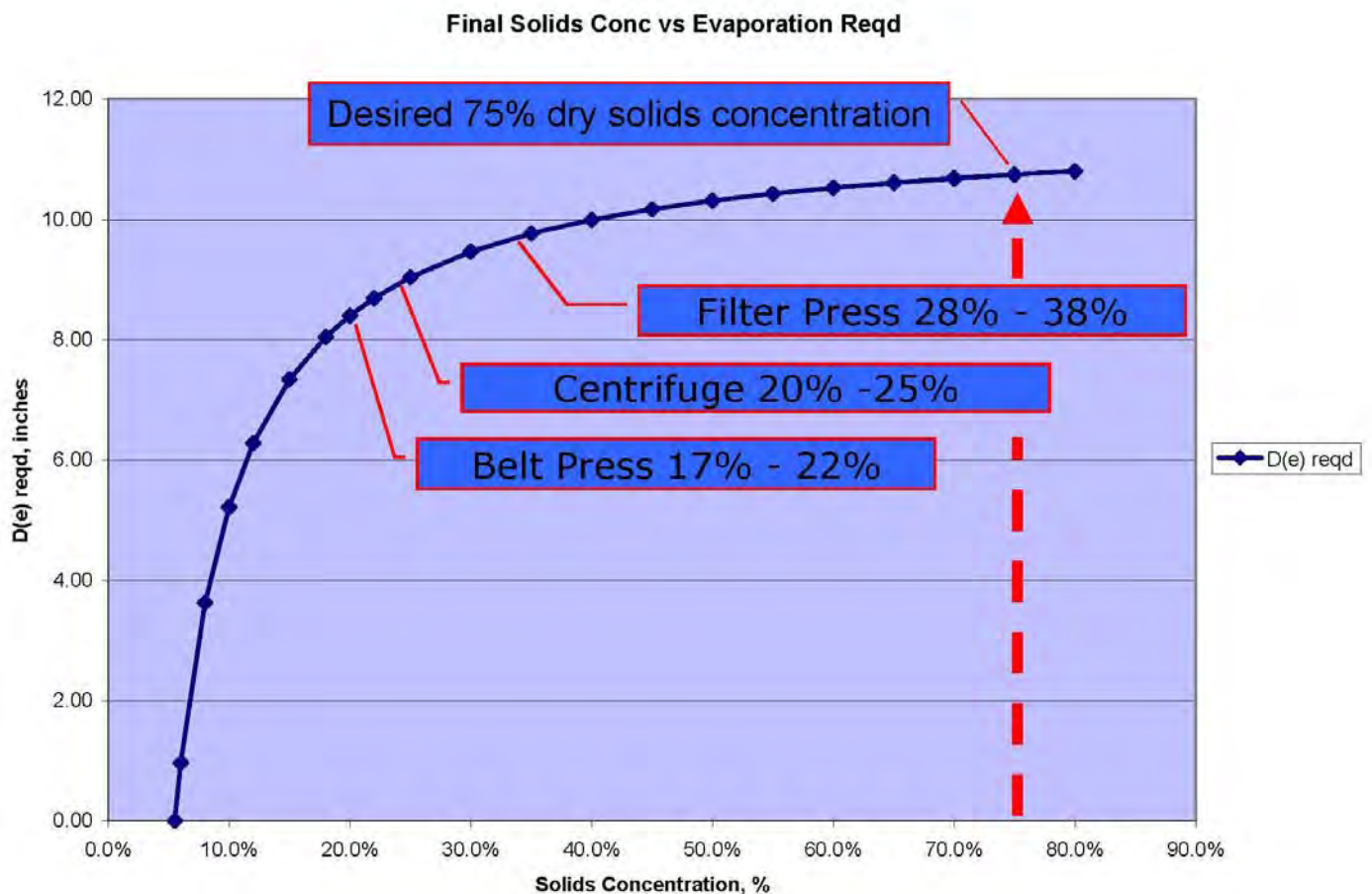
Unlike at PPWTP, DVWTP already has a gravity thickener. Sludge thickening facilities upstream of the mechanical dewatering system provide a consistent and thicker sludge concentration needed to enhance the mechanical dewatering process. The Table below shows that in-house mechanical dewatering had the lowest EUAC and is the recommended option. The gravity thickener can also be seen as making centrifuge rental services by KNE more advantageous at DVWTP than at PPWTP. Bionomic, being unfamiliar with Zone 7 sludge balanced their bids equally between PPWTP and DVWTP.

DVWTP Options Cost Comparison					
Option	Sand Beds	Solar Beds	Mech Dewater	Centrifuge Rent KNE	Centrifuge Rent Bio
Capital Cost	\$3,753,177	\$9,376,613	\$3,510,462	\$299,600	\$992,011
Land Acquisition Cost	\$608,450	\$1,089,550	\$0	\$0	\$0
Replacement Cost	\$496,606	\$1,425,767	\$7,383,900	\$11,684,400	\$38,688,421
Total Conversion to EUAC	\$4,858,233	\$11,891,930	\$10,894,362	\$11,984,000	\$39,680,432
EUAC Cost	\$180,000	\$440,000	\$410,000	\$450,000	\$1,480,000
O&M Cost	\$707,354	\$461,498	\$416,948	\$416,948	\$416,948
Total Annual Cost	\$887,354	\$901,498	\$826,948	\$866,948	\$1,896,948
Notes					
1. Analysis for 40 year time period, 3% inflation, 5% interest.					
2. Capital Cost, land acquisition and replacement costs are in terms of present worth.					
3. Under Solar Beds option, existing sand beds are also used for hybrid operation.					
4. Centrifuge rental costs are broken down annually with Year 1 cost calculated in Capital Cost line item. Year 1 cost is extrapolated over 40 year period and shown in the Replacement Cost line item.					

It should be noted that the sand drying beds option would take up most of the usable land on the DVWTP property and the solar drying beds option would require land outside of the DVWTP property. The existing usable land on DVWTP property has competing interests. One of the competing interests is the installation of alternative power (solar panels) on the available 4.6 acre site.

Mechanical Dewatering Equipment Review

Filter presses, centrifuges, and belt presses are established mechanical dewatering equipment. Based on the figure below (the vertical axis, D(e) reqd, is the depth of evaporation required in inches), each would be successful in providing a level of dry solids concentration that significantly reduces evaporation time to get to the desired 75% dry solids concentration for off-haul and disposal. For instance, from May to September, the net pan evaporation average from the Lake Del Valle station is approximately 6 inches or greater per month. Using the low end 17% solids concentration from a Belt Press, (given that the sludge is spread out in the sludge bed for optimum drying), it will take approximately 2.5 inches of evaporation or 10 days to reach the 75% solids concentration.



As the procurement of mechanical dewatering equipment goes to detailed design, the advantages and disadvantages of each can be weighed to determine a final preference. Notable advantages of the portable centrifuge system are fewer moving parts and expected greater durability/less maintenance than a belt press. Notable advantages of the portable belt press are less power consumption, and better visual control than the centrifuge. The belt press also does not rely on one integral piece of equipment such that, unlike a centrifuge, failure of a belt press component is less likely to have a catastrophic effect on mechanical dewatering operations. The filter press produces dry solids at a higher concentration (average of 33% dry solids concentration) than either the centrifuge or belt press. However, it is notably more expensive than the centrifuge or belt press. The 1997 Sludge Handling Study prepared by CDM for Zone 7 lists the filter press, centrifuge and belt press systems to be about \$6.2 million, \$3.7 million and \$3.6 million, respectively.

Project Schedule and Funding

Given the uncertainty in acquiring land, it is unlikely that the construction of the new PPWTP sludge drying beds will be completed by the end of the current three year centrifuge rental services contract; therefore, a new rental contract may be needed to fill the gap. To improve the likelihood of constructing the sand drying beds by FY 13/14 and to take advantage of the low cost real estate market, the following schedule and present worth costs are recommended:

- \$760,000 for acquisition of land in FY 11/12
- \$300,000 for sand drying bed design in FY 12/13

- \$4 million for construction and project management in FY 13/14

Lastly, the land acquisition costs for PPWTP assumes a take of roughly 5 acres of a 35 acre parcel on the west side of the PPWTP site. Approximately \$700,000 was estimated for the 5 acre take in the above revised budget. In case there are severance issues, additional land may be need to be purchased. Land needs on the west side of the PPWTP site will also be further assessed for potential need in case of future PPWTP expansion.

The procurement of a mechanical dewatering system at DVWTP may be able to be timed for the end of the current three year centrifuge rental services contract. By implementing the recommendation to procure, operate, and maintain a portable containerized mechanical dewatering system at DVWTP, the projected cash flow needs over the next ten years are as follows:

- \$200,000 for planning and design in FY 11/12
- \$3.1 million for procurement and installation including project management in FY 12/13

Sludge Handling Study 2011

Appendix A

Due to animations in slideshow, printed version may be difficult to follow. Electronic version is available upon request

1

Agenda

- ◆ Sludge Bed Sizing
- ◆ Cost Comparison of sludge bed expansion and mechanical dewatering
- ◆ Next Steps

2

Sludge Dry Solids Generation Formula

$$S = 8.34(Q)(0.44 A_l + bT + A) \quad (1)$$

or

$$S = 8.34(Q)(0.99 Fe + bT + A) \quad (2)$$

where:

S = solids production (lb/day)
 Q = plant flow (MGD)
 A_l = alum dose (mg/l)
 Fe = ferric chloride dose (mg/l)
 b = correlation coefficient between turbidity and total suspended solids (TSS)
 T = raw water turbidity (NTU)
 A = polymer dose (mg/l)

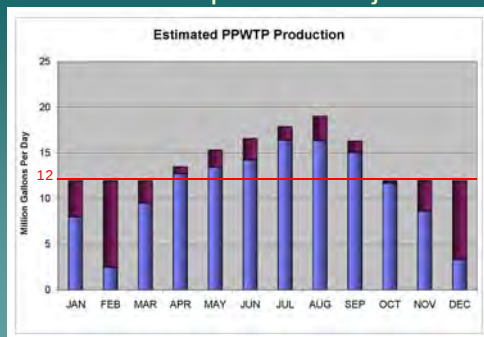
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Sludge Dry Solids Generation Estimate

3 ppm polymer all scenarios	Ferric Chloride, 25 ppm	Aluminum Sulfate, 35 ppm
PPWTP, 6 NTU RW Turbidity	292 lbs/ MG	214 lbs/MG
DVWTP, 12 NTU RW Turbidity	352 lbs/MG	274 lbs/MG

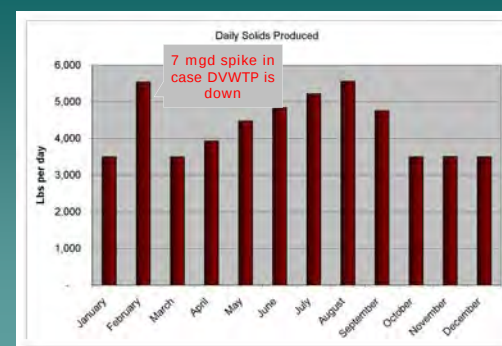
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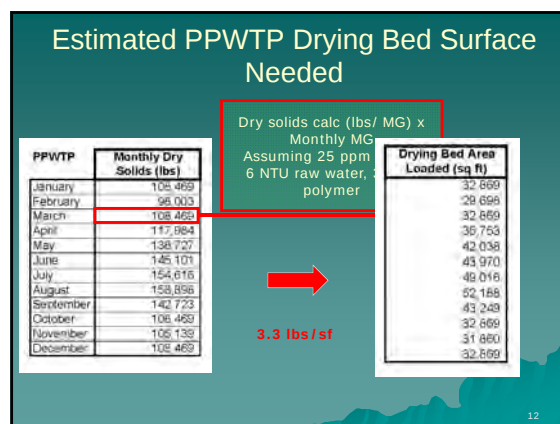
Historical Output and Projections



5

Estimated Sludge Production





Drying Cycle

- Now that we know the amount of dry solids generated each month and drying bed area needed to hold the solids/sludge, we need to determine the duration of drying from a sludge of 1.2% solids to a sludge of 75% solids.
- Additional Decant, Percolation, Evaporation

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Drying Cycle Equations

$$D(d) = D(i) \times SS(i)/SS(d)$$

$$D(e)_{reqd} = D(d) - [D(d) \times SS(d)/SS(f)]$$

$D(d)$ = Drained depth, inches

$D(i)$ = Initial depth, inches

$SS(i)$ = Initial solids concentration, %

$SS(d)$ = Initial drained solids conc., %

$SS(f)$ = Final drained solids conc., %

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PPWTP Req'd Evaporation to get to Final Drained Solids Conc.

$$D(e)_{reqd} = D(d) - [D(d) \times SS(d)/SS(f)]$$

$$D(d) = D(i) \times [SS(i) / SS(d)]$$

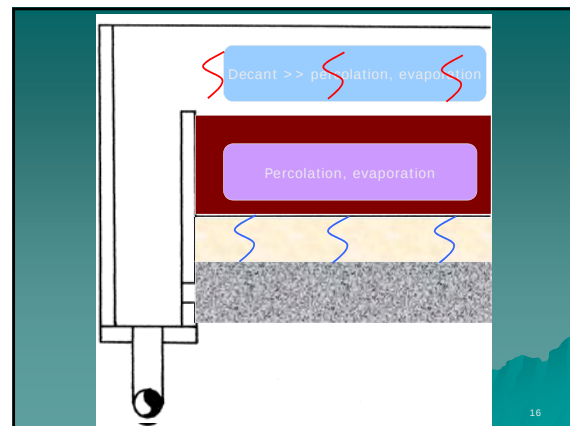
$D(e)_{reqd}$ = Required depth change due to evaporation, inch
 $D(d)$ = Drained depth, inch
 $SS(f)$ = Desired Solids Final Concentration, % =
 $SS(d)$ = Initial Drained Solids Concentration, % =
 $SS(i)$ = Initial Solids Concentration adjusted, % =
 $D(i)$ = Initial Depth adjusted, inch =
 L = Initial Loading Rate, lbs/sq ft, L =

75.00%
5.50%
2.40%
26.4
3.3

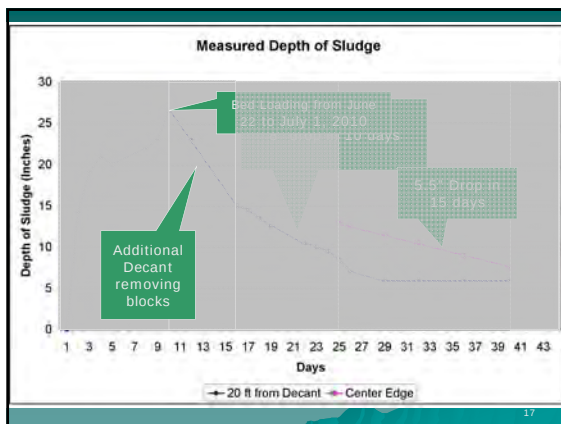
$D(d) = 11.5$ inches

$D(e)_{reqd} = 10.7$ inches

15



16



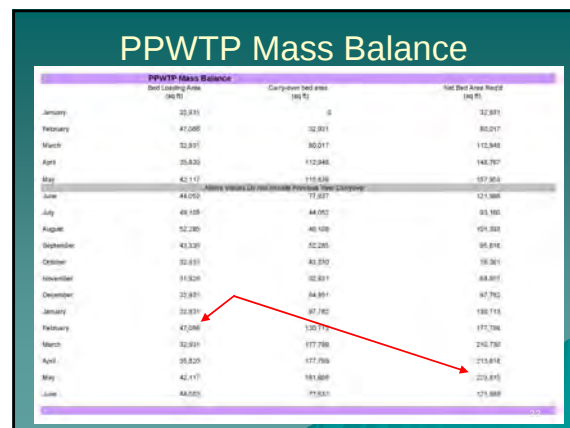
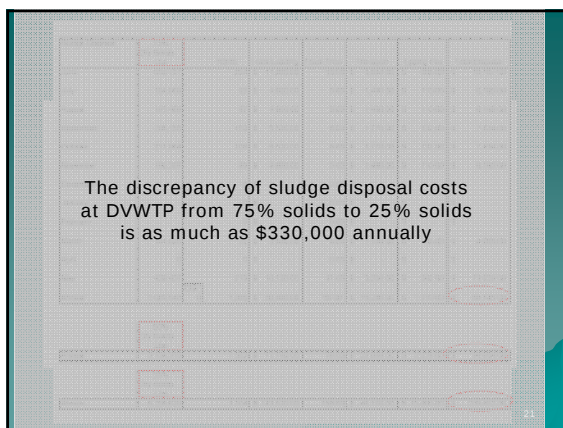
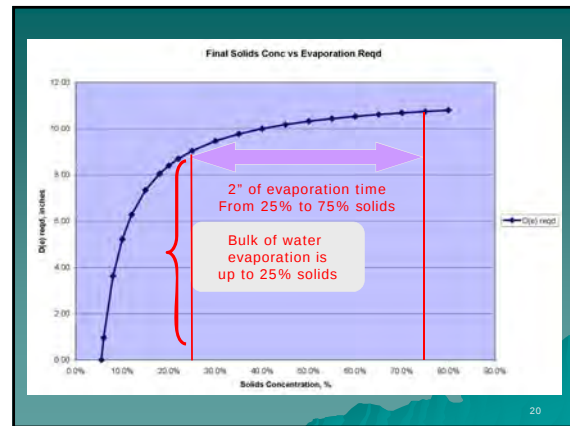
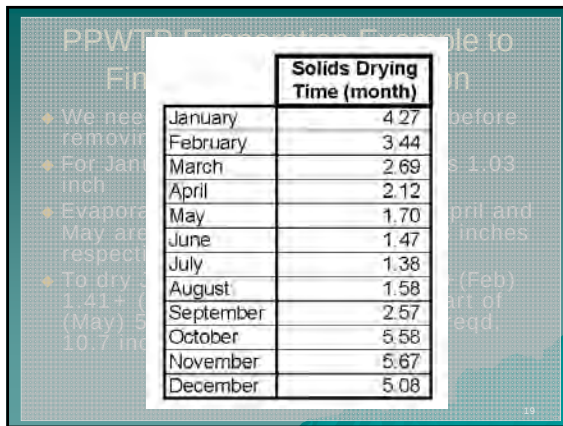
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Net Pan Evaporation Rates

Monthly Evaporation Distribution

January	1.03
February	1.41
March	2.67
April	4.04
May	5.80
June	6.95
July	7.95
August	7.30
September	5.84
October	3.83
November	1.78
December	1.09

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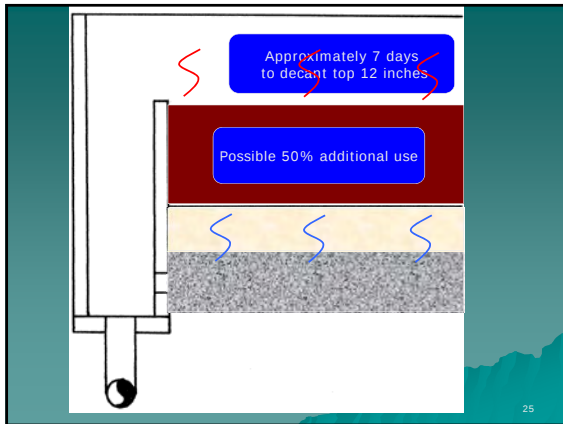


Checking Assumptions (Sensitivity Analysis)

- ◆ Lowering Initial Solids Concentrations – No significant change
- ◆ Adding PAC to sludge – Seasonal, No significant change
- ◆ Anticipating lowest net evaporation in 40 years – No significant change
- ◆ Anticipating additional PPWTP winter month loading of 7 mgd if DVWTP is shut down – 224,000 sf - or 10 new equivalent sized beds with the 6 existing 185' x 73' beds

PPWTP Sand Bed Management

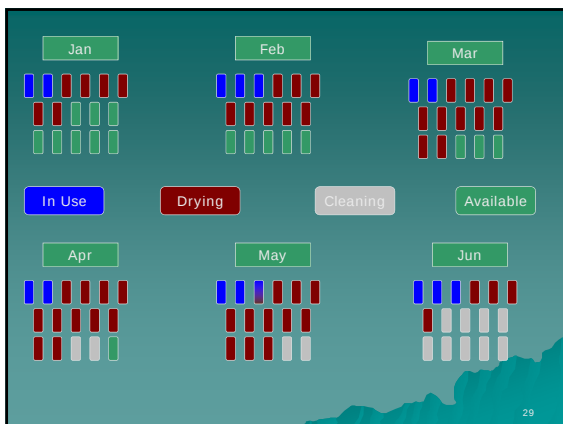
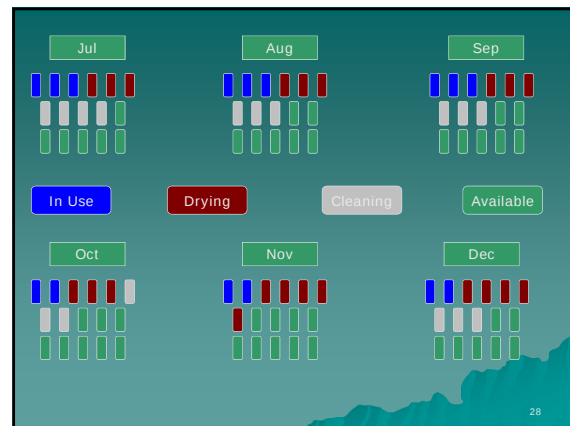
- ◆ At 15 mgd, approx. 10 days of sludge loading for 222,238 sf bed
- ◆ At 12 mgd, approx. 12.5 days of sludge loading
- ◆ At 19 mgd, approx. 8 days of sludge loading



Monthly Bed Use Distribution

Month	Production (MGD)	Beds In Use
January	12.0	2
February	19.0	3
March	12.0	2
April	13.5	2
May	15.3	2.5
June	16.6	2.5
July	17.9	3
August	19.0	3
September	16.3	2.5
October	12.0	2
November	12.0	2
December	12.0	2

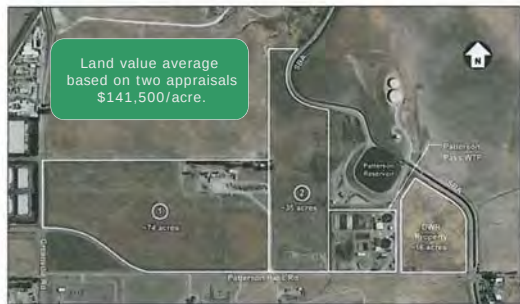
	Solids Drying Time (month)
January	4.27
February	3.44
March	2.69
April	2.12
May	1.70
June	1.47
July	1.38
August	1.58
September	2.57
October	5.58
November	5.67
December	5.08



Life Cycle Cost of Options

- ◆ Sand Drying Beds
- ◆ Solar Drying Beds
- ◆ Mechanical Dewatering
- ◆ Centrifuge Rental
- ◆ Land Acquisition, Initial construction, O&M and Equipment/Materials Replacement Costs

Land Cost



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PPWTP Sand Drying Bed Capital Cost

Description	Estimated Quantity	Unit	Engineer's Estimate	
			Unit Price	Total
1 Bonds and insurance	1	LS	xxx	\$12,281.32
2 Mobilization and Demobilization	1	LS	xxx	\$155,892.20
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Concrete EQ Basin	1	LS	xxx	\$100,000.00
5 Sludge pumps	1	LS	xxx	\$20,000.00
6 Decant Well	1	LS	xxx	\$100,000.00
7 Decant Well/pumps	1	LS	xxx	\$20,000.00
8 Decant Well/piping	1000	LF	\$50	\$50,000.00
9 Excavation	20432.52	CY	\$40	\$817,300.80
10 Underdrain	3000	LF	\$100	\$300,000.00
11 Decant covers	5	EA	\$10,000	\$50,000.00
12 Backfill/Compaction Fill Gravel	2633.89	CY	\$40	\$105,358.56
13 Backfill/Compaction Sand	2633.89	CY	\$40	\$105,358.56
14 0.5 ft Divider wall	1710.00	LF	\$144	\$246,240.00
15 Chain-Link Fence with gate	2166.00	LF	\$12	\$25,992.00
16 6-in Aggregate base/compaction	23400.00	SF	\$6	\$140,400.00
17 AC Paving/Compaction	900.00	TON	\$30	\$27,000.00
18 Electrical Instrumentation Control	1	LS	xxx	\$100,000.00
19 Hydroseeding	1	LS	xxx	\$20,000.00
subtotal				\$2,605,007.56
25% contingency				\$651,251.89
TOTAL				\$3,256,259.45
Planning, Design				\$976,877.84
Project TOTAL				\$4,233,137.29

32

PPWTP Solar Drying Bed Capital Cost

Description	Estimated Quantity	Unit	Engineer's Estimate	
			Unit Price	Total
1 Bonds and insurance	1	LS	xxx	\$12,281.32
2 Mobilization and Demobilization	1	LS	xxx	\$233,014.74
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Concrete EQ Basin	1	LS	xxx	\$100,000.00
5 Sludge pumps	1	LS	xxx	\$20,000.00
6 Decant Well	1	LS	xxx	\$100,000.00
7 Decant Well/pumps	1	LS	xxx	\$20,000.00
8 Decant Well/piping	1000	LF	\$50	\$50,000.00
9 Excavation	25154.11	CY	\$40	\$1,006,164.35
10 Underdrain	0	LF	\$100	\$0.00
11 Decant covers	7.5	EA	\$10,000	\$75,000.00
12 Backfill/Compaction Fill Gravel	0.00	CY	\$0	\$0.00
13 Backfill/Compaction Sand	0.00	CY	\$0	\$0.00
14 2.5 ft Divider wall	2550.00	LF	\$144	\$367,200.00
15 Chain-Link Fence with gate	3058.00	LF	\$12	\$36,696.00
16 6-in Aggregate base/compaction	24040.00	SF	\$6	\$144,240.00
17 AC Paving/Compaction	5195.34	TON	\$50	\$259,767.00
18 Electrical Instrumentation Control	1	LS	xxx	\$100,000.00
19 Hydroseeding	1	LS	xxx	\$20,000.00
20 AC Liner Existing Beds	1	LS	xxx	\$622,887.50
subtotal				\$6,033,118.37
25% contingency				\$1,259,279.58
TOTAL				\$7,292,397.95
Planning, Design				\$1,887,419.39
Project TOTAL				\$9,179,817.35

33

PPWTP Sand Drying Beds					
Scenario	Exist Beds	New Beds	Land (Ac)	Land Cost	Capital Cost
2040 Max Production, no spike, Ferric Chloride	6	9	4.5	\$ 636,750.00	\$ 3,897,907.00
2040 Max Production, 1 month spike, Ferric Chloride	6	10	5.0	\$ 707,500.00	\$ 4,233,137.00
2040 Max Production, no spike, Aluminum Sulfate	6	5	2.7	\$ 382,050.00	\$ 2,556,988.00
2040 Max Production, 1 month spike, Aluminum Sulfate	6	6	3.2	\$ 452,800.00	\$ 2,892,218.00

PPWTP Solar Drying Beds					
Scenario	Exist Beds	New Beds	Land (Ac)	Land Cost	Capital Cost
2040 Max Production, no spike, Ferric Chloride	6	14	6.7	\$ 948,050.00	\$ 7,765,052.00
2040 Max Production, 1 month spike, Ferric Chloride	6	15	7.1	\$ 1,004,650.00	\$ 8,178,817.00
2040 Max Production, no spike, Aluminum Sulfate	6	9	4.4	\$ 622,600.00	\$ 5,696,225.00
2040 Max Production, 1 month spike, Aluminum Sulfate	6	10	4.9	\$ 693,350.00	\$ 6,109,990.00

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Monthly Evaporation Distribution
January 1.03

1997 CDM Sludge Study
Centrifuge/Belt Press - \$3.6 million
Filter Press - \$6.2 million

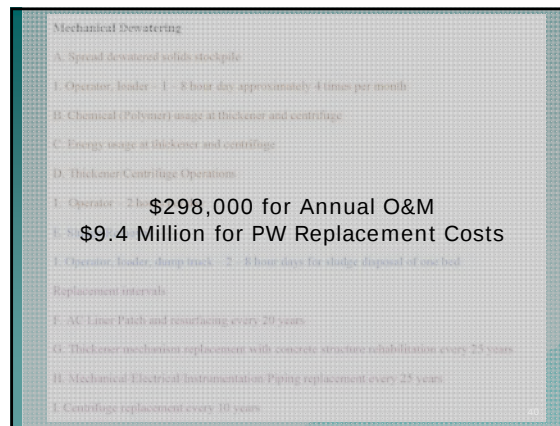
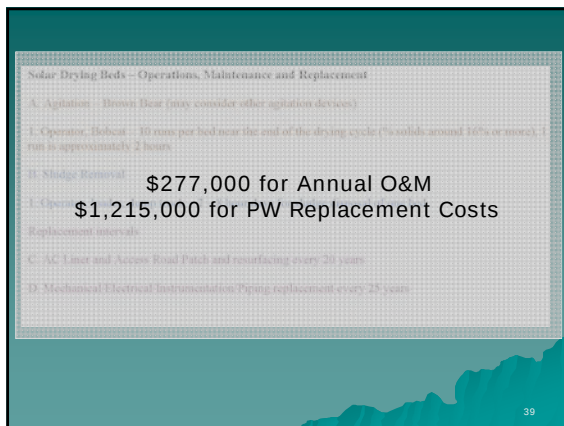
July 7.30
August 7.30
September 5.84
October 3.83
November 1.78
December 1.09

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PPWTP Mechanical Dewatering Capital Cost

Description	Estimated Quantity	Unit	Engineer's Estimate	
			Unit Price	Total
1 Bonds and insurance	1	LS	xxx	\$93,007.90
2 Mobilization and Demobilization	1	LS	xxx	\$155,013.16
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Gravity Thickener	1	LS	xxx	\$1,200,000.00
5 Centrifuge System	1	LS	xxx	\$700,000.00
6 Decant Line	500	LF	\$50	\$25,000.00
7 MCC Pre-Fab Metal Building	1	LS	xxx	\$100,000.00
8 Solids Pumps	1	LS	xxx	\$100,000.00
9 Valves and Appurtenances	1	LS	xxx	\$100,000.00
10 6-in Aggregate base/compaction	3063.05	SF	\$6	\$18,378.30
11 AC Paving/Compaction	76.50	TON	\$30	\$2,295.00
12 Electrical Instrumentation Control	1	LS	xxx	\$800,000.00
subtotal				\$3,348,284.33
35% contingency				\$837,071.08
Construction TOTAL				\$4,185,355.42
Planning, Design				\$ 1,265,606.63
Project TOTAL				\$ 5,440,962.04

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The image shows a screenshot of a spreadsheet titled "DVWTP Mass Balance". The spreadsheet has three main columns: "Dewitt Mass Balance", "Cattaraugus Mass Balance", and "Ratt Mass Balance". Each column has sub-headers for "Flow Loading Rate (MGD)" and "Flow (MGD)".

A green callout box is overlaid on the spreadsheet, containing the following text:

- Higher average turbidity/solids production
- Higher solids concentration/Solids Loading rate due to Thickener

A red arrow points from the text "Higher average turbidity/solids production" to the "Turbidity" row in the "Dewitt Mass Balance" column. A red rectangle highlights the "Flow" value of 345.391 in the "Ratt Mass Balance" column.

	Dewitt Mass Balance	Cattaraugus Mass Balance	Ratt Mass Balance
	Flow Loading Rate (MGD)	Flow Loading Rate (MGD)	Flow (MGD)
Setpoint	300.000	0	300.000
Reference	300.000	300.000	300.000
Actual	300.000	300.000	300.000
Flow			300.000
Turbidity			225.417
SS			225.000
Flow			144.393
Setpoint			154.819
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
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Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000
Reference			155.000
Actual			155.000
Flow			155.000
Setpoint			155.000

DWWTP Sand Drying Beds					
Scenario	Exist Beds	New Beds	Land (Ac)	Land Cost	Capital Cost
2040 Max Production, no spike, Ferric Chloride	10	7	3.8	\$ 537,700.00	\$ 3,389,697.00
2040 Max Production, 1 month spike, Ferric Chloride	10	8	4.3	\$ 608,450.00	\$ 3,753,177.00
2040 Max Production, no spike, Aluminum Sulfate	10	4	2.1	\$ 297,150.00	\$ 2,134,608.00
2040 Max Production, 1 month spike, Aluminum Sulfate	10	5	2.5	\$ 353,750.00	\$ 2,448,380.00

DWWTP Solar Drying Beds					
Scenario	Exist Beds	New Beds	Land (Ac)	Land Cost	Capital Cost
2040 Max Production, no spike, Ferric Chloride	10	16	7.1	\$ 1,004,650.00	\$ 8,824,329.00
2040 Max Production, 1 month spike, Ferric Chloride	10	17	7.7	\$ 1,089,550.00	\$ 9,376,613.00
2040 Max Production, no spike, Aluminum Sulfate	10	10	4.6	\$ 650,900.00	\$ 6,485,031.00
2040 Max Production, 1 month spike, Aluminum Sulfate	10	11	5.1	\$ 721,650.00	\$ 6,979,997.00

Summary of Costs for Each DWWTP Option					
DWWTP Options Cost Comparison					
Option	Sand Beds	Solar Beds	Mech Dewater	Centrifuge Rent X0E	Centrifuge Rent B0
Capital Cost	\$3,753,177	\$9,376,613	\$3,510,462	\$299,600	\$992,019
Land Acquisition Cost	\$608,450	\$1,089,550	\$0	\$0	\$0
Replacement Cost	\$496,606	\$1,425,787	\$7,383,900	\$11,684,400	\$38,688,421
Total Conversion to EUAC	\$4,858,233	\$11,891,950	\$10,894,362	\$11,684,400	\$38,688,421
EUAC Cost	\$180,000	\$440,000	\$440,000	\$450,000	\$1,480,000
O&M Cost	\$707,354	\$401,498	\$216,848	\$416,948	\$416,948
Total Annual Cost	\$607,354	\$841,498	\$656,848	\$866,948	\$1,896,948

DWWTP	Sand Drying Beds	Solar Drying Beds	Mechanical Dewatering	Centrifuge Rental
Advantages	Process familiarity	Low O&M costs	Gravity thickener is already constructed, lowest initial capital cost	Easy near term implementation
Disadvantages	Most intensive O&M effort, costs	High Initial Capital Cost	High replacement costs	Not in complete control of operations
	May take up most of the available land on existing site	Land needs may make option infeasible		Future cost has most uncertainty



Next Steps

- Start process for procuring Mechanical Dewatering System at DWWTP (To further reduce cost, start with Hybrid Mech Dewatering System Winter Use/Sand Bed Summer Use Operation)
- Start process for Land Acquisition at PPWTP

Project Funding

- PPWTP Capital Project Cost to acquire land, design and construct 10 new 75' x 190' sand beds = \$5 Million
- DWWTP Capital Project Cost to procure and install a centrifuge system for hybrid sludge handling = \$3 Million
- Funding From Water Rates, Fund 72

FY Funding of \$8 Million

- FY 11/12 –
\$760,000 PPWTP land acquisition
\$200,000 DWWTP mech dewater bid package
- FY 12/13 –
\$300,000 for sand drying bed design
\$3.1 million for procurement of DWWTP mech dewatering system including construction mgmt
- FY 13/14 –
\$4 Million for PPWTP sand bed construction including construction management

7/9/2012





Appendix B

A. PPWTP Sludge Drying Model data.

1. Anticipated Monthly Sludge Drying Bed Area needed each month, depth of evaporation calculation to meet sludge with 75% solids concentration.
2. Calculated Drying Time each month.
3. Sludge Bed Mass Balance to determine net bed area required each month and maximum bed area size.

PPWTP

1.2 % solids from clarifier(s)

0.325851 AF Conversion factor to MG

292 lbs/MG at PPWTP

Input									
	AF 0	MG 0	Ave MGD	Ave Daily Dry Solids (lbs)	Monthly Dry Solids (lbs)	Volume (GPD)	Volume (cu ft/day)		Monthly Net Evaporation * (in)
January	1140	371	12.0	3,499	108,469	34,962	4,674		1.03
February	1630	531	19.0	5,539	155,092	55,346	7,399		1.41
March	1140	371	12.0	3,499	108,469	34,962	4,674		2.67
April	1240	404	13.5	3,933	117,984	39,297	5,254		4.04
May	1458	475	15.3	4,475	138,727	44,715	5,978		5.80
June	1525	497	16.6	4,837	145,101	48,328	6,461		6.95
July	1700	554	17.9	5,218	161,752	52,136	6,970		7.95
August	1810	590	19.0	5,555	172,219	55,510	7,421		7.30
September	1500	489	16.3	4,757	142,723	47,536	6,355		5.84
October	1140	371	12.0	3,499	108,469	34,962	4,674		3.83
November	1105	360	12.0	3,505	105,139	35,018	4,682		1.78
December	1140	371	12.0	3,499	108,469	34,962	4,674		1.09

* Data is average rates
From 1969 to 2009

Drying Bed Capacity

222,238.28 gallons
29,711.00 cu ft
13,505.00 sq ft
2.2 ft depth

Average			4,318	43,145
Yearly Total	16528	5386	1,572,614	

PPWTP	Monthly Dry Solids (lbs)	Initial Loading Rate (lbs/sq ft)	Drying Bed Area Loaded (sq ft)	Monthly Net Evaporation * (in)	Evap Est (in)	Solids Drying Time (month)
January	108,469	3.29	32,931	1.03	10.7	4.26
February	155,092	3.29	47,086	1.41	10.7	3.44
March	108,469	3.29	32,931	2.67	10.7	2.68
April	117,984	3.29	35,820	4.04	10.7	2.12
May	138,727	3.29	42,117	5.80	10.7	1.70
June	145,101	3.29	44,052	6.95	10.7	1.47
July	161,752	3.29	49,108	7.95	10.7	1.37
August	172,219	3.29	52,285	7.30	10.7	1.58
September	142,723	3.29	43,330	5.84	10.7	2.56
October	108,469	3.29	32,931	3.83	10.7	5.57
November	105,139	3.29	31,920	1.78	10.7	5.66
December	108,469	3.29	32,931	1.09	10.7	5.07

477,442

$$D(e)_{reqd} = D(d) - [D(d) \times SS(d)/SS(f)]$$

$$D(d) = D(ia) \times [SS(ia) / SS(d)]$$

D(e)reqd = Required depth change due to evaporation, inch
D(d) = Drained depth, inch
SS(f) = Desired Solids Final Concentration, % =
SS(d) = Initial Drained Solids Concentration, % =
SS(ia) = Initial Solids Concentration adjusted, % =
D(ia) = Initial Depth adjusted, inch =
L = Initial Loading Rate, lbs/sq ft, L =

75.00%
5.50%
2.40%
26.4
3.3

Desired thru percolation/evaporation before off-hauling/disposing of sludge
Assumed from additional decant, initial percolation, evaporation
1.2% solids with 50% of water decant/percolation, evaporation

$$D(d) = 11.5 \text{ inches}$$

$$D(e)_{reqd} = 10.7 \text{ inches}$$

PPWTP Calculated Drying Time Each Month

Recheck Entire Calculations When Changing Initial Loading Rate, D(e)reqd, or Evaporation Rates

January	2.44 (Jan) + (Feb)	6.71 (Mar + Apr)	p x	5.80 portion of (May) =	10.7
	2 month	2 month	p =	0.26 month	
February	1.41 (Feb)	6.71 (Mar) + (Apr)	p x	5.80 portion of (May) =	10.7
	1 month	2 month	p =	0.44 month	
March	2.67 (Mar) +	4.04 (Apr) +	p x	5.80 portion of (May) =	10.7
	1 month	1 month	p =	0.68 month	
April	4.04 (Apr) +	5.80 (May)+	p x	6.95 portion of (Jun) =	10.7
	1 month	1 month	p =	0.12 month	
May	5.80 (May) +	+	p x	6.95 portion of (Jun) =	10.7
	1 month	0 month	p =	0.70 month	
June	6.95 (Jun) +	+	p x	7.95 portion of (Jul) =	10.7
	1 month	0 month	p =	0.47 month	
July	7.95 (Jul) +	+	p x	7.30 portion of (Aug) =	10.7
	1 month	0 month	p =	0.37 month	
August	7.30 (Aug) +	+	p x	5.84 portion of (Sep) =	10.7
	1 month	0 month	p =	0.58 month	
September	5.84 (Sep) +	3.83 (Oct) +	p x	1.78 portion of (Nov) =	10.7
	1 month	1 month	p =	0.56 month	
October	5.61 (Oct) + (Nov)	3.54 (Dec, Jan, Feb)	p x	2.67 portion of (Mar) =	10.7
	2 month	3 month	p =	0.57 month	
November	3.91 (Nov)+(Dec) +(Jan)	4.08 (Feb) + (Mar)	p x	4.04 portion of (Apr) =	10.7
	3 month	2 month	p =	0.66 month	
December	3.54 (Dec, Jan, Feb) +	6.71 (Mar, Apr) +	p x	5.80 portion of (May) =	10.7
	3 month	2 month	p =	0.07 month	

PPWTP Mass Balance			
	Bed Loading Area (sq ft)	Carry-over bed area (sq ft)	Net Bed Area Req'd (sq ft)
January	32,931	0	32,931
February	47,086	32,931	80,017
March	32,931	80,017	112,948
April	35,820	112,948	148,767
May	42,117	115,836	157,953
Above Values Do Not Include Previous Year Carryover			
June	44,052	77,937	121,989
July	49,108	44,052	93,160
August	52,285	49,108	101,393
September	43,330	52,285	95,616
October	32,931	43,330	76,261
November	31,920	32,931	64,851
December	32,931	64,851	97,782
January	32,931	97,782	130,713
February	47,086	130,713	177,799
March	32,931	177,799	210,730
April	35,820	177,799	213,618
May	42,117	181,698	223,815
June	44,052	77,937	121,989

Solids Drying Time (month)	
January	4.26
February	3.44
March	2.68
April	2.12
May	1.70
June	1.47
July	1.37
August	1.58
September	2.56
October	5.57
November	5.66
December	5.07

For Solar:
288,666



Appendix B (Cont'd)

B. PPWTP Cost Analysis.

1. Sand Beds Capital Cost Estimate for maximum projected demands using Ferric Chloride.
2. Sand beds O&M and Replacement Cost Estimate.
3. Sand Drying Beds Summary for other scenario runs including maximum projected demands (2040 Max Production, 1 month spike, Ferric Chloride)
4. Solar Beds Capital Cost Estimate for maximum projected demands using Ferric Chloride (2 pages).
5. Solar beds O&M and Replacement Cost Estimate.
6. Solar Drying Beds Summary for other scenario runs including maximum projected demands (2040 Max Production, 1 month spike, Ferric Chloride).
7. Mechanical Dewatering (In-House) Cost Estimate.
8. Summary of Options

PPWTP Sand Beds Capital Cost Estimate

Given:

75 ft width
 190 ft length
 14250 sqft per bed
 10 beds
 3.75 ft depth
 01:02.5 V/H Slope Ratio
 0.5 ft depth of pea gravel backfill
 0.5 ft depth of sand backfill
 3800 2 - 6-inch PVC perforated underdrain per bed
 190 ft of 2.5 ft tall concrete divider wall
 9 # of 2.5 ft tall concrete divider walls
 0.67 ft width of divider walls
 5 Decant box
 1000 8-inch sludge line
 1000 Decant piping
 1950 ft inside perimeter of access road
 12 ft width Access road
 0.5 ft depth of AC Paving

Vert Horiz
 3.5 8.75

Based On:

224000 sf total sand drying bed area
 81000 sf existing sand drying bed area
 143000 sf needed
 142500 sf new sand drying bed area

Beds	Land Acquisition	4.97	AC	\$141,500	\$702,949.31
60%	Land Acquisition	21.00	AC	\$141,500	\$2,971,500.00
All	Land Acquisition	35.00	AC	\$141,500	\$4,952,500.00

Quantities:

1710.00 LF of 2.5 ft tall concrete divider wall
 19791.67 cuyd of base excavation
 640.86 cuyd of side slope excavation
 2638.89 cuyd of pea gravel
 2638.89 cuyd of sand
 4.97 acres of area for sludge beds/access road
 2166.00 perimeter around sludge beds
 35 acre west side property
 21 acre purchase backside of west side property

other costs developed from bid summaries

			<u>Engineer's Estimate</u>	
Description	Estimated Quantity	Unit	Unit Price	Total
1 Bonds and Insurance	1	LS	xxx	\$72,361.32
2 Mobilization and Demobilization	1	LS	xxx	\$120,602.20
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Concrete EQ Basin	1	LS	xxx	\$100,000.00
5 Sludge pumps	1	LS	xxx	\$20,000.00
6 Decant Wetwell	1	LS	xxx	\$100,000.00
7 Decant Wetwell pumps	1	LS	xxx	\$20,000.00
8 Decant Wetwell piping	1000	LF	\$50	\$50,000.00
9 Excavation	20432.52	CY	\$40	\$817,300.93
10 Underdrain	3800	LF	\$100	\$380,000.00
11 Decant boxes	5	EA	\$10,000	\$50,000.00
12 Backfill/Compaction Pea Gravel	2638.89	CY	\$40	\$105,555.56
13 Backfill/Compaction Sand	2638.89	CY	\$40	\$105,555.56
14 2.5 ft Divider wall	1710.00	LF	\$144	\$246,240.00
15 Chain-Link Fence with gate	2166.00	LF	\$12	\$25,992.00
16 6-in Aggregate base/compaction	23400.00	SF	\$6	\$140,400.00
17 AC Paving/Compaction	900.00	TON	\$90	\$81,000.00
18 Electrical, Instrumentation, Control	1	LS	xxx	\$100,000.00
19 Hydroseeding	1	LS	xxx	\$20,000.00
subtotal				\$2,605,007.56
25% contingency				\$651,251.89
TOTAL				\$3,256,259.45

Planning, Design

\$976,877.84

Project TOTAL

\$4,233,137.29

PPWTP Sand Beds O&M and Replacement Cost Estimate

<u>O&M</u>	34 beds			
Laborer	1768 hrs	\$ 115.00	\$	203,320.00
Brown Bear/Bobcat	136 hrs	\$ 41.00	\$	5,576.00
Loader	1632 hrs	\$ 27.00	\$	44,064.00
Dump truck - Disposal			\$	68,145.00
Roller	544 hrs	\$ 20.00	\$	10,880.00
20 Ton AB per bed	680 TON	\$ 90.00	\$	61,200.00
Truck + trip	136 hrs	\$ 140.00	\$	19,040.00
Annual Maintenance Budget			\$	25,000.00
O&M Cost Total			\$	437,225.00

Replacement/Rehabilitation

		Factor			
Replacement of Mechanical/Electrical/Instrumentation/Piping	25 years	1.6	\$	100,000.00	\$ 160,000.00
Rehabilitation of Pavement	20 years	2	\$	81,000.00	\$ 162,000.00
Replacement Construction Cost Total					\$ 322,000.00
Replacement Project Total					\$ 524,860.00

PPWTP Sand Drying Beds (Various Scenarios)					
Scenario	Exist Beds	New Beds	Land (Ac)	Land Cost	Capital Cost
2040 Max Production, no spike, Ferric Chloride	6	9	4.5	\$ 636,750.00	\$ 3,897,907.00
2040 Max Production, 1 month spike, Ferric Chloride	6	10	5.0	\$ 707,500.00	\$ 4,233,137.00
2040 Max Production, no spike, Aluminum Sulfate	6	5	2.7	\$ 382,050.00	\$ 2,556,988.00
2040 Max Production, 1 month spike, Aluminum Sulfate	6	6	3.2	\$ 452,800.00	\$ 2,892,218.00

PPWTP Solar Beds Capital Cost Estimate

Given:

75 ft width
 185 ft length
 13875 sqft per bed
 15 beds
 3.75 ft depth
 01:02.5 V/H Slope Ratio
 0.5 ft depth of pea gravel backfill
 0.5 ft depth of sand backfill
 5550 2 - 6-inch PVC perforated underdrain per bed
 185 ft of 2.5 ft tall concrete divider wall
 14 # of 2.5 ft tall concrete divider walls
 0.67 ft width of divider walls
 7.5 Decant box
 1000 8-inch sludge line
 1000 Decant piping
 2690 ft inside perimeter of access road
 12 ft width Access road
 0.5 ft depth of AC Paving

Vert 3.5
 Horiz 8.75

Based On:

289000 sf total
 81000 sf existing
 208000 sf needed
 208125 sf new

Beds	Land Acquisition	7.10	AC	\$141,500	\$1,004,754.66
60%	Land Acquisition	21.00	AC	\$141,500	\$2,971,500.00
All	Land Acquisition	35.00	AC	\$141,500	\$4,952,500.00



Quantities:

2590.00 LF of 2.5 ft tall concrete divider wall
 28906.25 cuyd of base excavation
 847.86 cuyd of side slope excavation
 3854.17 cuyd of pea gravel
 3854.17 cuyd of sand
 7.10 acres of area for sludge beds/access road
 2906.00 perimeter around sludge beds
 35 acre west side property
 21 acre purchase backside of west side property

other costs developed from bid summaries

PPWTP Solar Bed Capital Cost Estimate

Description	Estimated Quantity	Unit	Engineer's Estimate	
			Unit Price	Total
1 Bonds and Insurance	1	LS	xxx	\$139,808.84
2 Mobilization and Demobilization	1	LS	xxx	\$233,014.74
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Concrete EQ Basin	1	LS	xxx	\$100,000.00
5 Sludge pumps	1	LS	xxx	\$20,000.00
6 Decant Wetwell	1	LS	xxx	\$100,000.00
7 Decant Wetwell pumps	1	LS	xxx	\$20,000.00
8 Decant Wetwell piping	1000	LF	\$50	\$50,000.00
9 Excavation	29754.11	CY	\$40	\$1,190,164.35
10 Underdrain	0	LF	\$100	\$0.00
11 Decant boxes	7.5	EA	\$10,000	\$75,000.00
12 Backfill/Compaction Pea Gravel	0.00	CY	\$0	\$0.00
13 Backfill/Compaction Sand	0.00	CY	\$0	\$0.00
14 2.5 ft Divider wall	2590.00	LF	\$144	\$372,960.00
15 Chain-Link Fence with gate	2906.00	LF	\$12	\$34,872.00
16 6-in Aggregate base/compaction	240405.00	SF	\$6	\$1,442,430.00
17 AC Paving/Compaction	5135.34	TON	\$90	\$462,180.94
18 Electrical, Instrumentation, Control	1	LS	xxx	\$100,000.00
19 Hydroseeding	1	LS	xxx	\$20,000.00
20 AC Liner Existing Beds	1	LS	xxx	\$622,687.50
subtotal				\$5,033,118.37
25% contingency				\$1,258,279.59
TOTAL				\$6,291,397.97

Planning, Design \$1,887,419.39

Project TOTAL \$8,178,817.36

PPWTP Solar Beds O&M and Replacement Cost Estimate

O&M

Laborer	1224 hrs	\$ 115.00	\$	140,760.00
Brown Bear/Bobcat	680 hrs	\$ 41.00	\$	27,880.00
Loader	544 hrs	\$ 27.00	\$	14,688.00
Dump truck - Disposal			\$	68,145.00
Annual Maintenance Budget			\$	25,000.00
O&M Cost Total			\$	276,473.00

Replacement/Rehabilitation

	Factor			
Replacement of Mechanical/Electrical/Instrumentation/Piping	25 years	1.6	\$ 100,000.00	\$ 160,000.00
Rehabilitation of Pavement	20 years	2	\$ 292,739.06	\$ 585,478.13
Replacement Construction Cost Total				\$ 745,478.13
Replacement Project Total				\$ 1,215,129.34

PPWTP Solar Drying Beds (Various Scenarios)					
Scenario	Exist Beds	New Beds	Land (Ac)	Land Cost	Capital Cost
2040 Max Production, no spike, Ferric Chloride	6	14	6.7	\$ 948,050.00	\$ 7,765,052.00
2040 Max Production, 1 month spike, Ferric Chloride	6	15	7.1	\$ 1,004,650.00	\$ 8,178,817.00
2040 Max Production, no spike, Aluminum Sulfate	6	9	4.4	\$ 622,600.00	\$ 5,696,225.00
2040 Max Production, 1 month spike, Aluminum Sulfate	6	10	4.9	\$ 693,350.00	\$ 6,109,990.00

PPWTP Mechanical Dewatering Cost Estimate
Capital

65 ft dia Gravity thickener
32.50 ft radius
204.20 ft perimeter inner road edge

Description	Estimated Quantity	Unit	Engineer's Estimate	
			Unit Price	Total
1 Bonds and Insurance	1	LS	xxx	\$93,007.90
2 Mobilization and Demobilization	1	LS	xxx	\$155,013.16
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Gravity Thickener	1	LS	xxx	\$1,200,000.00
5 Centrifuge System	1	LS	xxx	\$700,000.00
6 Decant Line	500	LF	\$50	\$25,000.00
7 MCC Pre-Fab Metal Building	1	LS	xxx	\$100,000.00
8 Solids Pumps	1	LS	xxx	\$100,000.00
9 Valves and Appurtenances	1	LS	xxx	\$100,000.00
10 6-in Aggregate base/compaction	3063.05	SF	\$6	\$18,378.30
11 AC Paving/Compaction	76.50	TON	\$90	\$6,884.97
12 Electrical, Instrumentation, Control	1	LS	xxx	\$800,000.00
subtotal				\$3,348,284.33
25% contingency				\$837,071.08
Construction TOTAL				\$4,185,355.42
Planning, Design			\$	1,255,606.63
Project TOTAL			\$	5,440,962.04

O&M

Laborer	1304 hrs	\$	115.00	\$	149,960.00
Loader	576 hrs	\$	27.00	\$	15,552.00
Dump truck - Disposal				\$	68,145.00
Polymer	12581 lbs	\$	1.22	\$	15,348.72
Power -- 50 hp centrifuge, 9 hp thickener rake and turbine	142352.473 KWH	\$	0.17	\$	24,199.92
Annual Maintenance Budget				\$	25,000.00
O&M Cost Total				\$	298,205.64

Replacement/Rehabilitation

		Factor			
Replacement of Centrifuge System	10 years	4	\$	700,000.00	\$ 2,800,000.00
Replacement of Thickener Mechanism, Rehab of Thickener Structure	25 years	1.6	\$	1,000,000.00	\$ 1,600,000.00
Replacement of Mechanical/Electrical/Instrumentation/Piping	25 years	1.6	\$	800,000.00	\$ 1,280,000.00
Rehabilitation of Pavement	20 years	2	\$	25,000.00	\$ 50,000.00
Replacement Construction Cost Total					\$ 5,730,000.00
Replacement Project Total					\$ 9,339,900.00

Summary of Options

PPWTP Options Cost Comparison					
Option	Sand Beds	Solar Beds	Mech Dewater	Centrifuge Rent KNE	Centrifuge Rent Bio
Capital Cost	\$4,233,137	\$8,178,817	\$5,440,962	\$361,400	\$992,000
Land Acquisition Cost	\$707,500	\$1,004,650	\$0	\$0	\$0
Replacement Cost	\$524,860	\$1,215,129	\$9,339,900	\$14,094,600	\$38,688,000
Total Conversion to EUAC	\$5,465,497	\$10,398,596	\$14,780,862	\$14,456,000	\$39,680,000
EUAC Cost	\$200,000	\$390,000	\$550,000	\$540,000	\$1,480,000
O&M Cost	\$437,225	\$276,473	\$298,206	\$298,206	\$298,206
Total Annual Cost	\$637,225	\$666,473	\$848,206	\$838,206	\$1,778,206
Notes 1. Analysis for 40 year time period, 3% inflation, 5% interest. 2. Capital Cost, land acquisition and replacement costs are in terms of present worth. 3. Under Solar Beds option, existing sand beds are also used for hybrid operation. 4. Centrifuge rental costs are broken down annually with Year 1 cost calculated in Capital Cost line item. Year 1 cost is extrapolated over 40 year period and shown in the Replacement Cost line item.					



Appendix B (Cont'd)

C. DVWTP Sludge Drying Model data.

1. Anticipated Monthly Sludge Drying Bed Area needed each month, depth of evaporation calculation to meet sludge with 75% solids concentration.
2. Calculated Drying Time each month.
3. Sludge Bed Mass Balance to determine net bed area required each month and maximum bed area size.

DVWTP

2 % solids from clarifier

0.325851 AF Conversion factor to MG

352 lbs/MG at DVWTP

Input									
	AF 0	MG 0	Ave MGD	Ave Daily Dry Solids (lbs)	Monthly Dry Solids (lbs)	Volume (GPD)	Volume (cu ft/day)		Monthly Net Evaporation * (in)
January	2090	681	22.0	7,733	239,722	46,361	6,198		1.03
February	1890	616	22.0	7,742	216,782	46,416	6,205		1.41
March	2090	681	22.0	7,733	239,722	46,361	6,198		2.67
April	2540	828	27.6	9,711	291,337	58,221	7,784		4.04
May	3000	978	31.5	11,100	344,099	66,547	8,897		5.80
June	3220	1049	35.0	12,311	369,333	73,807	9,867		6.95
July	3700	1206	38.9	13,690	424,388	82,074	10,972		7.95
August	3700	1206	38.9	13,690	424,388	82,074	10,972		7.30
September	3600	1173	39.1	13,764	412,918	82,518	11,032		5.84
October	2090	681	22.0	7,733	239,722	46,361	6,198		3.83
November	2030	661	22.0	7,761	232,840	46,531	6,221		1.78
December	2090	681	22.0	7,733	239,722	46,361	6,198		1.09

* Data is average rates
From 1969 to 2009

Drying Bed Capacity

222,238.28 gallons
29,711.00 cu ft
13,505.00 sq ft

2.1 ft depth
73 x 185

Average
Yearly Total

32040 10440

10,058

60,303

3,674,974

January
February
March
April
May
June
July
August
September
October
November
December

DVWTP	Monthly Dry Solids (lbs)	Initial Loading Rate (lbs/sq ft)	Drying Bed Area Loaded (sq ft)	Monthly Net Evaporation * (in)	Evap Est (in)	Solids Drying Time (month)
January	239,722	5.49	43,667	1.03	7.4	3.57
February	216,782	5.49	39,489	1.41	7.4	2.83
March	239,722	5.49	43,667	2.67	7.4	2.12
April	291,337	5.49	53,070	4.04	7.4	1.58
May	344,099	5.49	62,681	5.80	7.4	1.23
June	369,333	5.49	67,277	6.95	7.4	1.06
July	424,388	5.49	77,306	7.95	7.4	0.93
August	424,388	5.49	77,306	7.30	7.4	1.02
September	412,918	5.49	75,217	5.84	7.4	2.41
October	239,722	5.49	43,667	3.83	7.4	3.70
November	232,840	5.49	42,414	1.78	7.4	4.79
December	239,722	5.49	43,667	1.09	7.4	4.30

669,428

$$D(e)_{reqd} = D(d) - [D(d) \times ISC/FSC]$$

$$D(d) = D(i) \times [SS(i) / ISC]$$

D(e)reqd = Required depth change due to evaporation

D(d) = Drained depth, inch

FSC = Desired Solids Final Concentration, % =

ISC = Initial Drained Solids Concentration, % =

SS(i) = Initial Solids Concentration, % =

D(i) = Initial Depth, inch =

L = Initial Loading Rate, lbs/sq ft, L =

75.00%

7.00%

3.80%

15.1

5.5

D(d) = 8.2 inches

D(e)reqd = 7.4 inches

DVWTP Calculated Drying Time Each Month

Recheck Entire Calculations When Changing Initial Loading Rate, D(e)reqd, or Evaporation Rates

January	2.44 (Jan) + (Feb)	2.67 (Mar) +	p x	4.04 portion of (Apr) =	7.4
	2 month	1 month	p =	0.57 month	
February	1.41 (Feb)	2.67 (Mar) +	p x	4.04 portion of (Apr) =	7.4
	1 month	1 month	p =	0.83 month	
March	2.67 (Mar) +	4.04 (Apr) +	p x	5.80 portion of (May) =	7.4
	1 month	1 month	p =	0.12 month	
April	4.04 (Apr) +	+	p x	5.80 portion of (May) =	7.4
	1 month	0 month	p =	0.58 month	
May	5.80 (May) +	+	p x	6.95 portion of (Jun) =	7.4
	1 month	0 month	p =	0.23 month	
June	6.95 (Jun) +	+	p x	7.95 portion of (Jul) =	7.4
	1 month	0 month	p =	0.06 month	
July	+	+	p x	7.95 portion of (Jul) =	7.4
	month	0 month	p =	0.93 month	
August	7.30 (Aug) +	+	p x	5.84 portion of (Sep) =	7.4
	1 month	0 month	p =	0.02 month	
September	5.84 (Sep) +	+	p x	3.83 portion of (Oct) =	7.4
	2 month	0 month	p =	0.41 month	
October	6.70 (Oct)+(Nov)+(Dec)	+	p x	1.03 portion of (Jan) =	7.4
	3 month	month	p =	0.70 month	
November	3.91 (Nov)+(Dec) +(Jan)	1.41 (Feb) +	p x	2.67 portion of (Mar) =	7.4
	3 month	1 month	p =	0.79 month	
December	3.54 (Dec)+(Jan)+(Feb)	2.67 (Mar) +	p x	4.04 portion of (Apr) =	7.4
	3 month	1 month	p =	0.30 month	

DWWTP Mass Balance			
	Bed Loading Area (sq ft)	Carry-over bed area (sq ft)	Net Bed Area Req'd (sq ft)
January	43,667	0	43,667
February	39,489	43,667	83,156
March	43,667	83,156	126,824
April	53,070	126,824	179,893
Above Values Do Not Include Previous Year Carryover			
May	62,681	136,226	198,906
June	67,277	62,681	129,958
July	77,306	67,277	144,583
August	77,306	77,306	154,612
September	75,217	77,306	152,523
October	43,667	75,217	118,884
November	42,414	118,884	161,298
December	43,667	86,081	129,749
January	43,667	129,749	173,416
February	39,489	129,749	169,237
March	43,667	169,237	212,905
April	53,070	170,491	223,561
May	62,681	136,226	198,906

Solids Drying Time (month)	
January	3.57
February	2.83
March	2.12
April	1.58
May	1.23
June	1.06
July	0.93
August	1.02
September	2.41
October	3.70
November	4.79
December	4.30

For Solar:
328,655



Appendix B (Cont'd)

D. DVWTP Cost Analysis.

1. Sand Beds Capital Cost Estimate for maximum projected demands using Ferric Chloride.
2. Sand beds O&M and Replacement Cost Estimate.
3. Sand Drying Beds Summary for other scenario runs including maximum projected demands (2040 Max Production, 1 month spike, Ferric Chloride).
4. Solar Beds Capital Cost Estimate for maximum projected demands using Ferric Chloride (2 pages).
5. Solar beds O&M and Replacement Cost Estimate.
6. Solar Drying Beds Summary for other scenario runs including maximum projected demands (2040 Max Production, 1 month spike, Ferric Chloride).
7. Mechanical Dewatering (In-House) Cost Estimate.
8. Summary of Options.
9. Additional Hybrid Existing Sand Bed Operation (summer operation) – In-House Mechanical Dewatering (smaller system for winter operation).

DVWTP Sand Beds Capital Cost Estimate

Given:

72 ft width
 185 ft length
 13320 sqft per bed
 9 beds
 3.75 ft depth
 01:02.5 V/H Slope Ratio
 0.5 ft depth of pea gravel backfill
 0.5 ft depth of sand backfill
 3330 2 - 6-inch PVC perforated underdrain per bed
 185 ft of 2.5 ft tall concrete divider wall
 8 # of 2.5 ft tall concrete divider walls
 0.67 ft width of divider walls
 4.5 Decant box
 1000 8-inch sludge line
 1000 Decant piping
 1736 ft inside perimeter of access road
 12 ft width Access road
 0.5 ft depth of AC Paving

Vert Horiz
 3.5 8.75

Based On:

245000 sf total
 126500 sf existing
 118500 sf needed
 119880 sf new

Beds	Land Acquisition	4.27	AC	\$141,500	\$603,962.64
60%	Land Acquisition	21.00	AC	\$141,500	\$2,971,500.00
All	Land Acquisition	35.00	AC	\$141,500	\$4,952,500.00

Quantities:

1480.00 LF of 2.5 ft tall concrete divider wall
 16650.00 cuyd of base excavation
 577.34 cuyd of side slope excavation
 2220.00 cuyd of pea gravel
 2220.00 cuyd of sand
 4.27 acres of area for sludge beds/access road
 1952.00 perimeter around sludge beds
 35 acre west side property
 21 acre purchase backside of west side property

other costs developed from bid summaries

			<u>Engineer's Estimate</u>	
Description	Estimated Quantity	Unit	Unit Price	Total
1 Bonds and Insurance	1	LS	xxx	\$64,156.88
2 Mobilization and Demobilization	1	LS	xxx	\$106,928.13
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Concrete EQ Basin	1	LS	xxx	\$100,000.00
5 Sludge pumps	1	LS	xxx	\$20,000.00
6 Decant Wetwell	1	LS	xxx	\$100,000.00
7 Decant Wetwell pumps	1	LS	xxx	\$20,000.00
8 Decant Wetwell piping	1000	LF	\$50	\$50,000.00
9 Excavation	17227.34	CY	\$40	\$689,093.52
10 Underdrain	3330	LF	\$100	\$333,000.00
11 Decant boxes	4.5	EA	\$10,000	\$45,000.00
12 Backfill/Compaction Pea Gravel	2220.00	CY	\$40	\$88,800.00
13 Backfill/Compaction Sand	2220.00	CY	\$40	\$88,800.00
14 2.5 ft Divider wall	1480.00	LF	\$144	\$213,120.00
15 Chain-Link Fence with gate	1952.00	LF	\$12	\$23,424.00
16 6-in Aggregate base/compaction	20832.00	SF	\$6	\$124,992.00
17 AC Paving/Compaction	803.70	TON	\$90	\$72,333.00
18 Electrical, Instrumentation, Control	1	LS	xxx	\$100,000.00
19 Hydroseeding	1	LS	xxx	\$20,000.00
subtotal				\$2,309,647.52
25% contingency				\$577,411.88
TOTAL				\$2,887,059.40

Planning, Design \$866,117.82

Project TOTAL \$3,753,177.22

DVWTP Sand Beds O&M and Replacement Cost Estimate

O&M

Laborer	2704 hrs	\$ 115.00	\$	310,960.00
Brown Bear/Bobcat	208 hrs	\$ 41.00	\$	8,528.00
Loader	2496 hrs	\$ 27.00	\$	67,392.00
Dump truck - Disposal			\$	156,114.00
Roller	832 hrs	\$ 20.00	\$	16,640.00
20 Ton AB per bed	1040 TON	\$ 90.00	\$	93,600.00
Truck + trip	208 hrs	\$ 140.00	\$	29,120.00
Annual Maintenance Budget			\$	25,000.00
O&M Cost Total			\$	707,354.00

Replacement/Rehabilitation

		Factor			
Replacement of Mechanical/Electrical/Instrumentation/Piping	25 years	1.6	\$	100,000.00	\$ 160,000.00
Rehabilitation of Pavement	20 years	2		\$72,333.00	\$ 144,666.00
Replacement Construction Cost Total					\$ 304,666.00
Replacement Project Total					\$ 496,605.58

D VWTP Sand Drying Beds (Various Scenarios)					
Scenario	Exist Beds	New Beds	Land (Ac)	Land Cost	Capital Cost
2040 Max Production, no spike, Ferric Chloride	10	7	3.8	\$ 537,700.00	\$ 3,389,697.00
2040 Max Production, 1 month spike, Ferric Chloride	10	9	4.3	\$ 608,450.00	\$ 3,753,177.00
2040 Max Production, no spike, Aluminum Sulfate	10	4	2.1	\$ 297,150.00	\$ 2,134,608.00
2040 Max Production, 1 month spike, Aluminum Sulfate	10	5	2.5	\$ 353,750.00	\$ 2,448,380.00

DVWTP Solar Beds Capital Cost Estimate

Given:

- 72 ft width
- 185 ft length
- 13320 sqft per bed
- 17 beds
- 3.75 ft depth
- 01:02.5 V/H Slope Ratio
- 0.5 ft depth of pea gravel backfill
- 0.5 ft depth of sand backfill
- 6290 2 - 6-inch PVC perforated underdrain per bed
- 185 ft of 2.5 ft tall concrete divider wall
- 16 # of 2.5 ft tall concrete divider walls
- 0.67 ft width of divider walls
- 8.5 Decant box
- 1000 8-inch sludge line
- 1000 Decant piping
- 2888 ft inside perimeter of access road
- 12 ft width Access road
- 0.5 ft depth of AC Paving

Vert 3.5 Horiz 8.75

Based On:

- 350000 sf total
- 126500 sf existing
- 223500 sf needed
- 226440 sf new

Beds	Land Acquisition	7.69	AC	\$141,500	\$1,088,359.24
60%	Land Acquisition	21.00	AC	\$141,500	\$2,971,500.00
All	Land Acquisition	35.00	AC	\$141,500	\$4,952,500.00



Quantities:

- 2960.00 LF of 2.5 ft tall concrete divider wall
- 31450.00 cuyd of base excavation
- 904.00 cuyd of side slope excavation
- 4193.33 cuyd of pea gravel
- 4193.33 cuyd of sand
- 7.69 acres of area for sludge beds/access road
- 3104.00 perimeter around sludge beds
- 35 acre west side property
- 21 acre purchase backside of west side property

other costs developed from bid summaries

DVWTP Solar Bed Capital Cost Estimate

Description	Estimated Quantity	Unit	Engineer's Estimate	
			Unit Price	Total
1 Bonds and Insurance	1	LS	xxx	\$160,283.98
2 Mobilization and Demobilization	1	LS	xxx	\$267,139.97
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Concrete EQ Basin	1	LS	xxx	\$100,000.00
5 Sludge pumps	1	LS	xxx	\$20,000.00
6 Decant Wetwell	1	LS	xxx	\$100,000.00
7 Decant Wetwell pumps	1	LS	xxx	\$20,000.00
8 Decant Wetwell piping	1000	LF	\$50	\$50,000.00
9 Excavation	32354.00	CY	\$40	\$1,294,160.19
10 Underdrain	0	LF	\$100	\$0.00
11 Decant boxes	8.5	EA	\$10,000	\$85,000.00
12 Backfill/Compaction Pea Gravel	0.00	CY	\$0	\$0.00
13 Backfill/Compaction Sand	0.00	CY	\$0	\$0.00
14 2.5 ft Divider wall	2960.00	LF	\$144	\$426,240.00
15 Chain-Link Fence with gate	3104.00	LF	\$12	\$37,248.00
16 6-in Aggregate base/compaction	261096.00	SF	\$6	\$1,566,576.00
17 AC Paving/Compaction	5567.85	TON	\$90	\$501,106.50
18 Electrical, Instrumentation, Control	1	LS	xxx	\$100,000.00
19 Hydroseeding	1	LS	xxx	\$20,000.00
20 AC Liner Existing Beds	1	LS	xxx	\$972,468.75
subtotal				\$5,770,223.39
25% contingency				\$1,442,555.85
TOTAL				\$7,212,779.24
Planning, Design				\$2,163,833.77
Project TOTAL				\$9,376,613.01

DVWTP Solar Beds O&M and Replacement Cost Estimate

O&M

Laborer	1872 hrs	\$ 115.00	\$	215,280.00
Brown Bear/Bobcat	1040 hrs	\$ 41.00	\$	42,640.00
Loader	832 hrs	\$ 27.00	\$	22,464.00
Dump truck - Disposal			\$	156,114.00
Annual Maintenance Budget			\$	25,000.00
O&M Cost Total			\$	461,498.00

Replacement/Rehabilitation

		Factor			
Replacement of Mechanical/Electrical/Instrumentation/Piping	25 years	1.6	\$	100,000.00	\$ 160,000.00
Rehabilitation of Pavement	20 years	2	\$	357,351.75	\$ 714,703.50
Replacement Construction Cost Total					\$ 874,703.50
Replacement Project Total					\$ 1,425,766.71

DVWTP Solar Drying Beds (Various Scenarios)					
Scenario	Exist Beds	New Beds	Land (Ac)	Land Cost	Capital Cost
2040 Max Production, no spike, Ferric Chloride	10	16	7.1	\$ 1,004,650.00	\$ 8,824,329.00
2040 Max Production, 1 month spike, Ferric Chloride	10	17	7.7	\$ 1,089,550.00	\$ 9,376,613.00
2040 Max Production, no spike, Aluminum Sulfate	10	10	4.6	\$ 650,900.00	\$ 6,485,031.00
2040 Max Production, 1 month spike, Aluminum Sulfate	10	11	5.1	\$ 721,650.00	\$ 6,979,997.00

DWWTP Mechanical Dewatering Cost Estimate
Capital

65 ft dia Gravity thickener
 32.50 ft radius
 204.20 ft perimeter inner road edge

Description	Estimated Quantity	Unit	<u>Engineer's Estimate</u>	
			Unit Price	Total
1 Bonds and Insurance	1	LS	xxx	\$60,007.90
2 Mobilization and Demobilization	1	LS	xxx	\$100,013.16
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Gravity Thickener	0	LS	xxx	
5 Centrifuge System	1	LS	xxx	\$800,000.00
6 Decant Line	500	LF	\$50	\$25,000.00
7 MCC Pre-Fab Metal Building	1	LS	xxx	\$100,000.00
8 Solids Pumps	1	LS	xxx	\$100,000.00
9 Valves and Appurtenances	1	LS	xxx	\$100,000.00
10 6-in Aggregate base/compaction	3063.05	SF	\$6	\$18,378.30
11 AC Paving/Compaction	76.50	TON	\$90	\$6,884.97
12 Electrical, Instrumentation, Control	1	LS	xxx	\$800,000.00
subtotal				\$2,160,284.33
25% contingency				\$540,071.08
Construction TOTAL				\$2,700,355.42

Planning, Design \$ 810,106.63

Project TOTAL \$ 3,510,462.04

O&M

Laborer	1304 hrs	\$ 115.00	\$ 149,960.00
Loader	576 hrs	\$ 27.00	\$ 15,552.00
Dump truck - Disposal			\$ 156,114.00
Polymer	29400 lbs	\$ 1.22	\$ 35,867.74
Power -- 75 hp centrifuge, 9 hp thickener rake and turbine	202671.317 KWH	\$ 0.17	\$ 34,454.12
Annual Maintenance Budget			\$ 25,000.00
O&M Cost Total			\$ 416,947.87

Replacement/Rehabilitation

		Factor		
Replacement of Centrifuge System	10 years	4	\$ 800,000.00	\$ 3,200,000.00
Replacement of Mechanical/Electrical/Instrumentation/Piping	25 years	1.6	\$ 800,000.00	\$ 1,280,000.00
Rehabilitation of Pavement	20 years	2	\$ 25,000.00	\$ 50,000.00
Replacement Construction Cost Total				\$ 4,530,000.00
Replacement Project Total				\$ 7,383,900.00

Summary of Options

DWWTP Options Cost Comparison					
Option	Sand Beds	Solar Beds	Mech Dewater	Centrifuge Rent KNE	Centrifuge Rent Bio
Capital Cost	\$3,753,177	\$9,376,613	\$3,510,462	\$299,600	\$992,011
Land Acquisition Cost	\$608,450	\$1,089,550	\$0	\$0	\$0
Replacement Cost	\$496,606	\$1,425,767	\$7,383,900	\$11,684,400	\$38,688,421
Total Conversion to EUAC	\$4,858,233	\$11,891,930	\$10,894,362	\$11,984,000	\$39,680,432
EUAC Cost	\$180,000	\$440,000	\$410,000	\$450,000	\$1,480,000
O&M Cost	\$707,354	\$461,498	\$416,948	\$416,948	\$416,948
Total Annual Cost	\$887,354	\$901,498	\$826,948	\$866,948	\$1,896,948
Notes 1. Analysis for 40 year time period, 3% inflation, 5% interest. 2. Capital Cost, land acquisition and replacement costs are in terms of present worth. 3. Under Solar Beds option, existing sand beds are also used for hybrid operation. 4. Centrifuge rental costs are broken down annually with Year 1 cost calculated in Capital Cost line item. Year 1 cost is extrapolated over 40 year period and shown in the Replacement Cost line item.					

Hybrid DVWTP Sand Bed Operation - Mechanical Dewatering (Initially smaller centrifuge for winter operation, sand beds for summer operation)

Capital

65 ft dia Gravity thickener
32.50 ft radius
204.20 ft perimeter inner road edge

Description	Estimated Quantity	Unit	Engineer's Estimate	
			Unit Price	Total
1 Bonds and Insurance	1	LS	xxx	\$51,007.90
2 Mobilization and Demobilization	1	LS	xxx	\$85,013.16
3 Sludge Line	1000	LF	\$50	\$50,000.00
4 Gravity Thickener	0	LS	xxx	
5 Centrifuge System	1	LS	xxx	\$500,000.00
6 Decant Line	500	LF	\$50	\$25,000.00
7 MCC Pre-Fab Metal Building	1	LS	xxx	\$100,000.00
8 Solids Pumps	1	LS	xxx	\$100,000.00
9 Valves and Appurtenances	1	LS	xxx	\$100,000.00
10 6-in Aggregate base/compaction	3063.05	SF	\$6	\$18,378.30
11 AC Paving/Compaction	76.50	TON	\$90	\$6,884.97
12 Electrical, Instrumentation, Control	1	LS	xxx	\$800,000.00
subtotal				\$1,836,284.33
25% contingency				\$459,071.08
Construction TOTAL				\$2,295,355.42
Planning, Design			\$	688,606.63
Project TOTAL			\$	2,983,962.04

O&M

Laborer	652 hrs	\$	115.00	\$	74,980.00
Loader	288 hrs	\$	27.00	\$	7,776.00
Dump truck - Disposal				\$	82,393.50
Polymer	12722 lbs	\$	1.22	\$	15,520.30
Power -- 40 hp centrifuge, 9 hp thickener rake and turbine	59112.4676 KWH	\$	0.17	\$	10,049.12
Sand Drying Bed Usage during April - September				\$	341,789.50
Annual Maintenance Budget				\$	12,500.00
O&M Cost Total				\$	545,008.42

Replacement/Rehabilitation

		Factor			
Replacement of Centrifuge System	10 years	4	\$	500,000.00	\$ 2,000,000.00
Replacement of Mechanical/Electrical/Instrumentation/Piping	25 years	1.6	\$	800,000.00	\$ 1,280,000.00
Rehabilitation of Pavement	20 years	2	\$	25,000.00	\$ 50,000.00
Replacement Construction Cost Total					\$ 3,330,000.00
Replacement Project Total					\$ 5,427,900.00



Appendix C – Miscellaneous Data

1. Lake Del Valle Station Historical Net Pan Evaporation Rate data.
2. Assumptions for Cost Analysis.

NET PAN EVAPORATION RATES From Lake Del Valle Station

STATION	YEAR	UNITS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL_CY
CM_STA LDV-EV	1968	INCHES										3.2	2.5	1.54	0
CM_STA LDV-EV	1969	INCHES	0.66	1.08	4.89	5.92	9.99	7.84	11.38	11.77	8.32	4.04	2.94	1.12	69.95
CM_STA LDV-EV	1970	INCHES	1.23	2.29	4.96	5.83	8.88	8.88	11.52	9.92	9.16	5.07	2.14	1.05	70.93
CM_STA LDV-EV	1971	INCHES	1.33	2.12	3.67	5.17	6.54	8.91	10.92	10.3	9.12	5.91	3.01	1.49	68.49
CM_STA LDV-EV	1972	INCHES	1.53	2.01	4.74	6.52	8.84	10.03	11.63	10.4	7.12	3.67	1.3	0.93	68.72
CM_STA LDV-EV	1973	INCHES	1.14	1.2	2.98	6.36	8.69	10.59	10.89	10.21	7.33	4.7	1.86	0.85	66.8
CM_STA LDV-EV	1974	INCHES	1.4	1.73	2.4	4.16	7.31	9.14	9.68	9.73	7.94	5.52	2.15	1.44	62.6
CM_STA LDV-EV	1975	INCHES	1.73	1.99	3.01	3.64	8.27	8.63	9.45	9.39	7.45	3.72	2.28	1.58	61.14
CM_STA LDV-EV	1976	INCHES	2.45	1.96	3.94	5.56	8.47	9.85	9.8	7.05	6.8	4.82	2.75	2.59	66.04
CM_STA LDV-EV	1977	INCHES	1.08	2.12	3.84	7.15	5.48	9.28	11.24	8.89	6.74	5.12	2.7	1.37	65.01
CM_STA LDV-EV	1978	INCHES	0.99	1.43	2.57	3.73	8.69	8.91	10.52	10.24	7.9	5.8	2.24	1.51	64.53
CM_STA LDV-EV	1979	INCHES	1.25	1.29	2.29	4.8	8.36	11.02	10.4	9.23	9.47	4.14	1.85	1.95	66.05
CM_STA LDV-EV	1980	INCHES	1.66	1.4	3.82	4.78	6.22	8.18	9.41	9.17	7.16	5.86	3.3	1.79	62.75
CM_STA LDV-EV	1981	INCHES	1.08	2.18	2.83	5.8	8.11	11.82	11.34	10.23	7.72	4.43	2.1	1.14	68.78
CM_STA LDV-EV	1982	INCHES	1.23	2.1	2.25	4.59	7.55	7.31	10.34	10.58	6.83	4.53	1.5	1.54	60.35
CM_STA LDV-EV	1983	INCHES	1.72	1.54	2.17	4.05	6.71	8.34	10.44	9.35	7.82	4.37	1.86	1.08	59.45
CM_STA LDV-EV	1984	INCHES	1.52	1.79	4.29	5.32	9.04	9.88	11.99	9.8	9.24	4.02	1.63	1.11	69.63
CM_STA LDV-EV	1985	INCHES	1.18	2.7	3.09	5.95	7.75	10.4	11.49	9.23	6.38	5.05	2.27	1.11	66.6
CM_STA LDV-EV	1986	INCHES	1.11	1.75	3.55	4.96	7.44	8.67	10.2	8.88	6.1	4.84	3.47	1.22	62.19
CM_STA LDV-EV	1987	INCHES	1.45	2.08	3.19	6.43	7.9	8.73	8.46	8.97	7.29	4.71	1.71	1.5	62.42
CM_STA LDV-EV	1988	INCHES	1.21	2.94	5.17	5.3	7.22	8.92	11.46	8.9	7.9	4.81	1.85	1.64	67.32
CM_STA LDV-EV	1989	INCHES	1.39	1.57	2.75	5.75	7.7	9.3	11.3	9.14	6.41	4.86	2.95	1.75	64.87
CM_STA LDV-EV	1990	INCHES	1.57	1.83	3.64	5.74	7.86	9.18	10.19	9.21	7.09	6.56	3.48	1.95	68.3
CM_STA LDV-EV	1991	INCHES	1.86	2.44	2.63	5	6.42	8.5	10.25	8	7.61	6.45	3.03	1.71	63.9
CM_STA LDV-EV	1992	INCHES	0.96	1.65	2.84	5.91	8.87	8.23	10.01	10.76	7.82	5.12	2.79	1.19	66.15
CM_STA LDV-EV	1993	INCHES	1.21	1.42	2.83	4.93	6.61	9.64	10.23	10.02	8.18	4.65	3.27	1.22	64.21
CM_STA LDV-EV	1994	INCHES	1.49	1.36	4.12	5.23	6.38	10.01	10.03	10.31	7.44	4.94	1.66	0.76	63.73
CM_STA LDV-EV	1995	INCHES	0.73	1.61	2.33	4.75	5.22	8.18	10.06	10.39	7.65	6.23	2.8	0.88	60.83
CM_STA LDV-EV	1996	INCHES	1.33	1.66	3.85	6.38	8.12	9.68	12.03	11.13	7.48	5.44	2.05	1.04	70.19
CM_STA LDV-EV	1997	INCHES	1.02	2.67	4.824	6.45	8.95	9.4	10.32	8.78	8.52	5.25	1.82	1.6	69.604
CM_STA LDV-EV	1998	INCHES	1.19	0.96	2.8	4.36	4.13	7.1	9.91	10.57	7.51	4.51	1.63	1.41	56.08
CM_STA LDV-EV	1999	INCHES	1.32	1.58	2.93	5.25	7.04	8.7	10.51	8.58	7.53	6.864	2.73	2.51	65.544
CM_STA LDV-EV	2000	INCHES	1.57	1.55	3.91	5.48	7.164	9.66	9.23	9.82	7.86	3.84	1.84	1.68	63.604
CM_STA LDV-EV	2001	INCHES	1.45	2.2	4.14	4.86	10.05	10.92	9.78	9.75	7.98	6.56	2.56	1.47	71.72
CM_STA LDV-EV	2002	INCHES	1.97	2.56	4.63	5.65	7.82	9.87	11.08	9.87	9.13	5.64	3.23	1.73	73.18
CM_STA LDV-EV	2003	INCHES	1.26	2.31	4.04	4.05	7.62	9.78	12.14	9.23	8.84	6.71	1.72	1.12	68.82
CM_STA LDV-EV	2004	INCHES	1.08	2.22	4.99	7.38	8.66	9.46	10.16	9.88	8.76	4.86	2.21	1.54	71.2
CM_STA LDV-EV	2005	INCHES	1.14	1.54	3.2	4.93	6.6	8.37	11.13	10.65	7.41	5.19	2.5	1.5	64.16
CM_STA LDV-EV	2006	INCHES	1.52	2.47	3.04	3.814	8.54	9.82	12.43	9.37	8.42	5.27	2.09	2.22	69.004
CM_STA LDV-EV	2007	INCHES	1.98	1.71	4.34	5.86	8.58	9.59	9.814	10.45	7	4.45	3.25	1.68	68.704
CM_STA LDV-EV	2008	INCHES	1.37	2.14	4.6	6.65	8.66	10.37	10.54	10.54	8.42	6.27	2.401	1.35	73.311
CM_STA LDV-EV	2009	INCHES	2.04	1.95	3.9	6.24	8.52	9.092	11.053	10.12	8.63	6.27	2.4	1.35	71.565
Averages		INCHES	1.38	1.88	3.56	5.38	7.73	9.27	10.60	9.73	7.79	5.10	2.38	1.46	66.30
Pan to Small Water Body Evaporation Ratio 4:3		INCHES	1.03	1.41	2.67	4.04	5.80	6.95	7.95	7.30	5.84	3.83	1.78	1.09	49.70

Assumptions for Cost Analysis

Escalation Rate	3 %
Interest Rate	5 %

Hourly Rates

Zone 7 Operator/Laborer	\$ 115.00
Brown Bear	\$ 41.00
Rubber Tire Loader w backhoe	\$ 27.00
Roller	\$ 20.00
Trucker/Truck Off-haul to Landfill	\$ 74.00
Trucker/Truck Transfer to stockpile	\$ 110.00

Notes

Zone 7 2008 Burdened Hourly Rate
Based on Total Rentals.CA \$325/ 8 hour day
Caltrans Labor and Equipment Rental Rates 580B
Caltrans Labor and Equipment Rental Rates Bomag BW-4AS
Bid Item 3, California Landscaping Dimensions Contract A10-07-CAL
Bid Item 2, California Landscaping Dimensions Contract A10-07-CAL

Tonnage Tipping Rates

Republic - Vasco Landfill 25% solids	
Republic - Vasco Landfill 50% solids	\$ 26.00
Republic - Vasco Landfill 75% solids	\$ 22.00
Waste Mgmt - Altamont Landfill 25% solids	\$ 100.00
Waste Mgmt - Altamont Landfill 50% solids	\$ 40.00
Waste Mgmt - Altamont Landfill 75% solids	\$ 26.00

No rate given
Per Republic Services Inc -Vasco Landfill Contract A10-36-REP
Per Republic Services Inc -Vasco Landfill Contract A10-36-REP
Per Waste Mgmt of Alameda Co - Altamont Landfill Contract A08-91-WAS
Per Waste Mgmt of Alameda Co - Altamont Landfill Contract A08-91-WAS
Per Waste Mgmt of Alameda Co - Altamont Landfill Contract A08-91-WAS

Chemicals

Polymer (per lb cost)	\$ 1.22
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Nalco Invoice

Power

kWHours	\$ 0.17
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PG&E Rate provided by Zone 7 Liaison

Materials

Asphalt concrete per TON	\$ 90.00
AB/Gravel for Resurface (6-in Thick) per SF	\$ 6.00

Based on regional bids
Based on regional bids

Excavation per cubic yard (cuyd)	\$ 40.00
Backfill/Compaction per cuyd	\$ 40.00
2.5 ft tall divider wall per Linear Foot (LF)	\$ 144.00
4 ft tall divider wall per LF	\$ 202.00

Based on regional bids
Based on regional bids
BCA provided estimate
BCA provided estimate

Assumptions for Cost Analysis

Land

	\$	141,500.00	Cost per acre of land per AWTP Peer Rvw Study Pg 27 - \$218,000/ac Cost per acre of land per DWR appraisal \$65,000/ac
DWR property ~ 10 acres			
West of PPWTP			
Vineyard adjacent to DVWTP			

Equipment and specialty work

Mechanical Dewatering Equipment

Portable Centrifuge w Container *	\$	800,000.00	Andritz and Centremax quotes
Portable Belt Press w Container *	\$	700,000.00	Andritz and Centremax quotes

* Includes PLC, sludge pump sys, polymer batch system, skid, 15' conveyor

Gravity Thickener- Lamella Plate Settlers

Gravity thickener	\$	1,200,000.00	DVWTP Solids Handling and AWTP Cost Estimates
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ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

100 NORTH CANYONS PARKWAY LIVERMORE, CA 94551 PHONE (925) 454-5000 FAX (925) 454-5727

ORIGINATING DIVISION: ADMINISTRATIVE SERVICES

CONTACT PERSON: JAVIA GREEN

AGENDA DATE: July 18, 2012

ITEM NO: 13f

SUBJECT: Quarterly Update of Expansion Fund

SUMMARY:

- A \$60 million (M) Installment Sale Agreement (ISA) was established with Wells Fargo Bank in January 2008, to fill a funding shortfall for the Altamont Water Treatment Plant and Pipeline Project. A portion of the project, the Altamont Pipeline - Livermore Reach, has been constructed. On February 17, 2010, Zone 7 drew \$30.5M from the ISA and payback is required by January 1, 2014.
- Staff prepares quarterly updates of this fund to assure cash availability for ISA payment by the end of 2013.
- Projected sources and uses of funds and year-end available funding through Fiscal Year 15/16 is as follows:

Fiscal Year	Actual/Projected Equivalent Connections ¹	Actual/Projected Total Revenue ¹	ISA Draw/Payback	Actual/Projected Expenses ¹	Projected End of Year Available Funding ²
10/11	412	\$11,860,555		\$16,172,443	\$46,800,014
11/12	455	\$11,783,297		\$17,613,418	\$40,969,894
12/13 ³	520	\$15,283,180		\$22,676,346	\$33,576,728
13/14 ⁴	760	\$25,847,756	-\$30,503,481	\$20,948,670	\$7,972,334
14/15 ⁴	840	\$25,262,309		\$25,056,002	\$8,178,641
15/16 ⁴	1930	\$54,748,600		\$30,967,000	\$31,960,241

1. FY 10/11 and FY 11/12 equivalent connections, revenue and expenses are based on actuals. Total revenue shown includes connection fee revenue and other revenue such as interest income and refunds from the Department of Water Resources.
2. Represents the sum of net available funds from cash and ISA after expenses, excluding designated reserves.
3. FY 12/13 projections have been revised downward from previous projections.
4. Projected number of connections, revenue and expenses are based on the FY 12/13 Ten-Year Water System CIP and the 2011 Municipal and Industrial Water Connection Fee Report adopted by the Zone 7 Board on October 19, 2011.

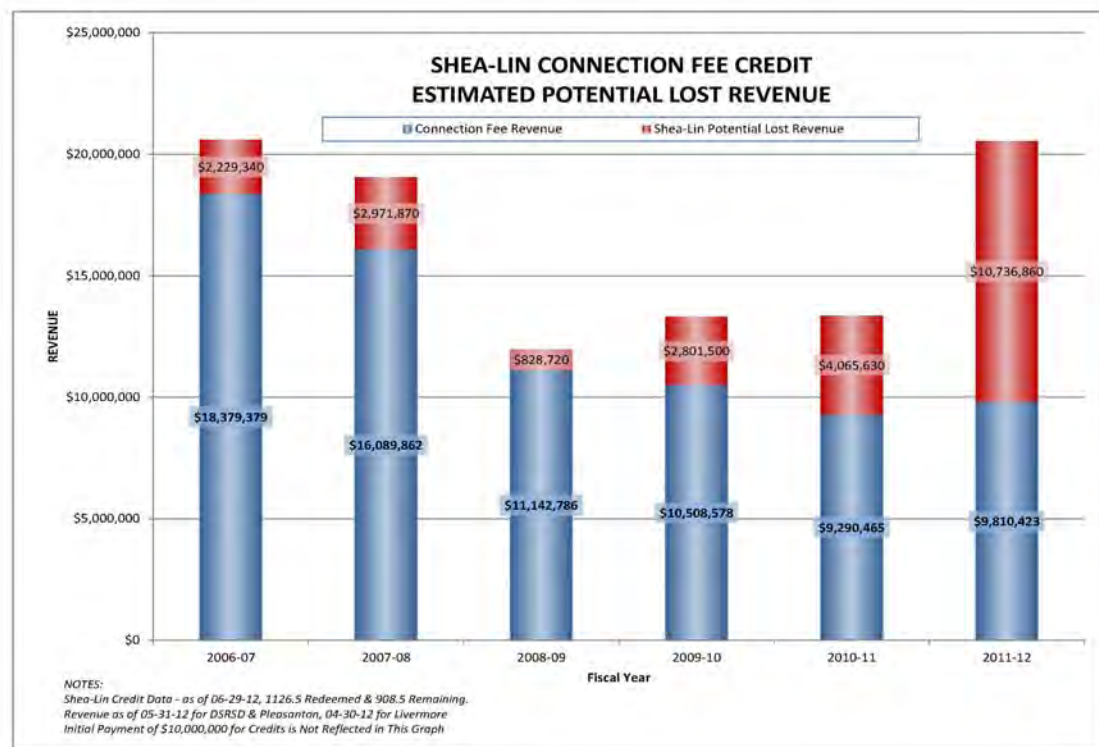
- Based on these revenue and expenditure projections, staff anticipates sufficient funding to pay off the ISA by January 1, 2014. However, staff has begun evaluating other sources of income in the event that connection fee revenue does not materialize as projected. Staff's preliminary analysis includes inter-fund borrowing and exploring additional financing options with Wells Fargo.

- FY 10/11 and FY 11/12 To-Date Connections

Zone 7 received a total of 412 connection fees in FY 10/11 totaling \$9.3M. Of this amount 301 connections came from DSRSD. However, staff is aware that DSRSD received a large number of connections (about 1,700) in FY 10/11 due to a significant increase in their connection fee effective July 1, 2011. In FY 11/12, Zone 7 has received revenue for 370 connections from DSRSD to-date, leaving around 1000 connections that developers will ultimately pay Zone 7 connection fees for. Since developers are not required to pay the Zone 7 connection fee at the same time the retailer's fee is paid, it has been difficult to predict when these developers will pay the Zone 7 connection fee or whether connection fee credits will be redeemed for these developments.

- Connection Fee Credits

Per the chart below, 908.5 connection fee credits are outstanding. Of this amount, staff knows that 127 are to be used in Livermore. Staff does not know where the remaining 781 will be used and whether they will be used for the same developments DSRSD received connection fees for in FY 10/11. If credits are redeemed for these developments, a worst-case scenario is Zone 7 may not earn revenue for 781 out of the newly paid DSRSD connections from FY 10/11 (about 1700). Since developers are not required to pay the Zone 7 connection fee at the same time the retailer's fee is paid, it is difficult to predict exactly when Zone 7 can expect revenues from these connections or if they will be redeemed as credits. Staff will continue tracking the use of the connection fee credits and provide updates to the Board monthly as part of the staff revenue report.



W:\WSE\Programs\Water Connection Fee\Connection Fee Credits\FY Summary Graph.xlsSHEA-LIN CONN FEE CHART

6/29/2012

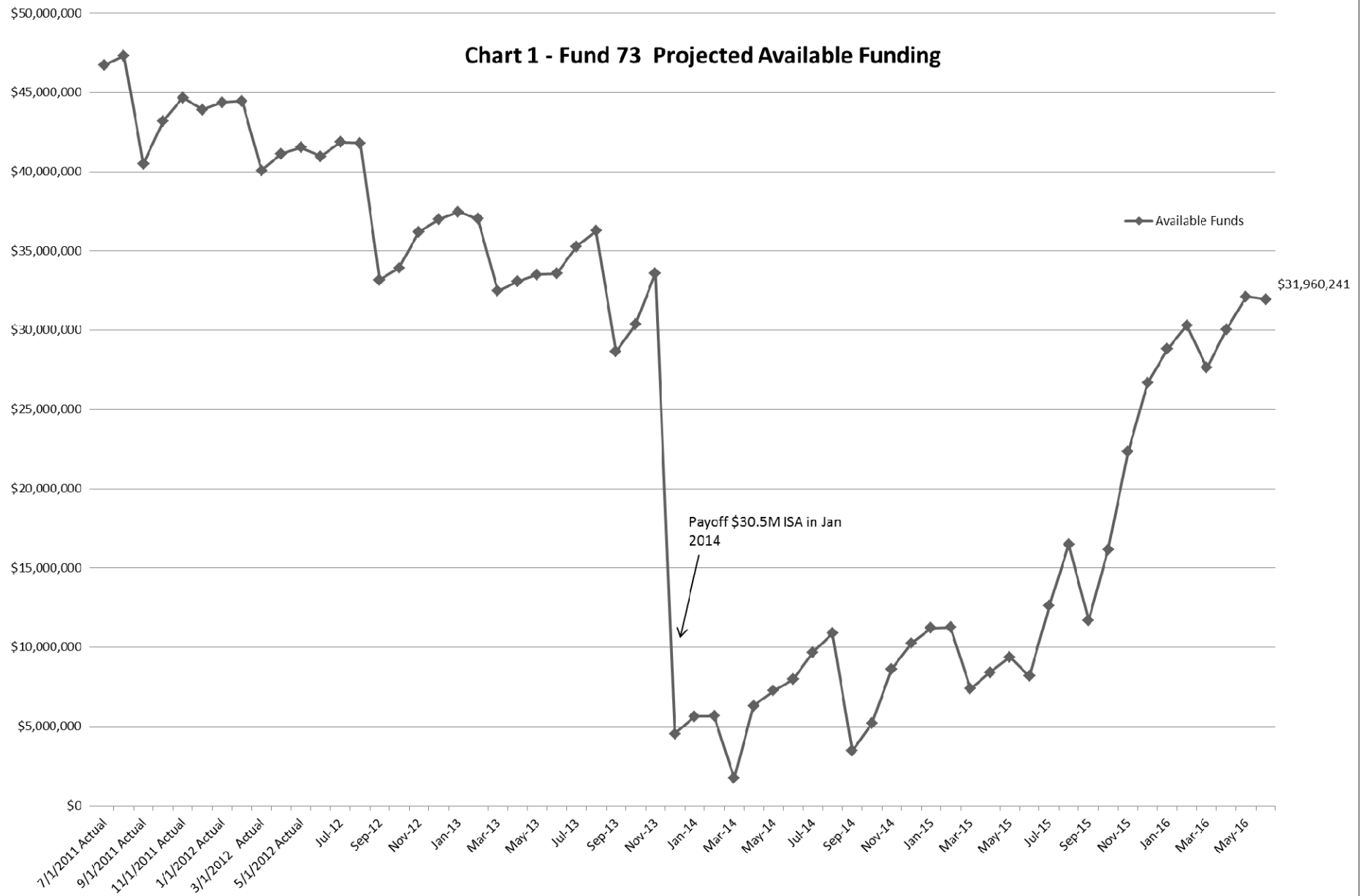
RECOMMENDED ACTION:

Information only.

ATTACHMENT:

Chart 1 – Fund 73 Projected Available Funding
 Fund 73 Five-year Cash Flow Tables

Chart 1 - Fund 73 Projected Available Funding



Fund 73 Cash Flow Tables

[illegible]

FY 11/12 Key Data:	Projected Connection Fee Revenue:	\$ 8,501,965	Projected Expenditures	\$ 17,613,418
	Actually Received	\$ 9,810,423	Actually Spent	\$ 16,750,857
	% of Actual to Projected	115%	Actually Encumbered	\$ 288,701
			% of Actual to Projected	97%

[illegible]

[illegible][illegible]

[illegible]



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: ADMINISTRATIVE SERVICES

CONTACT: JAVIA GREEN

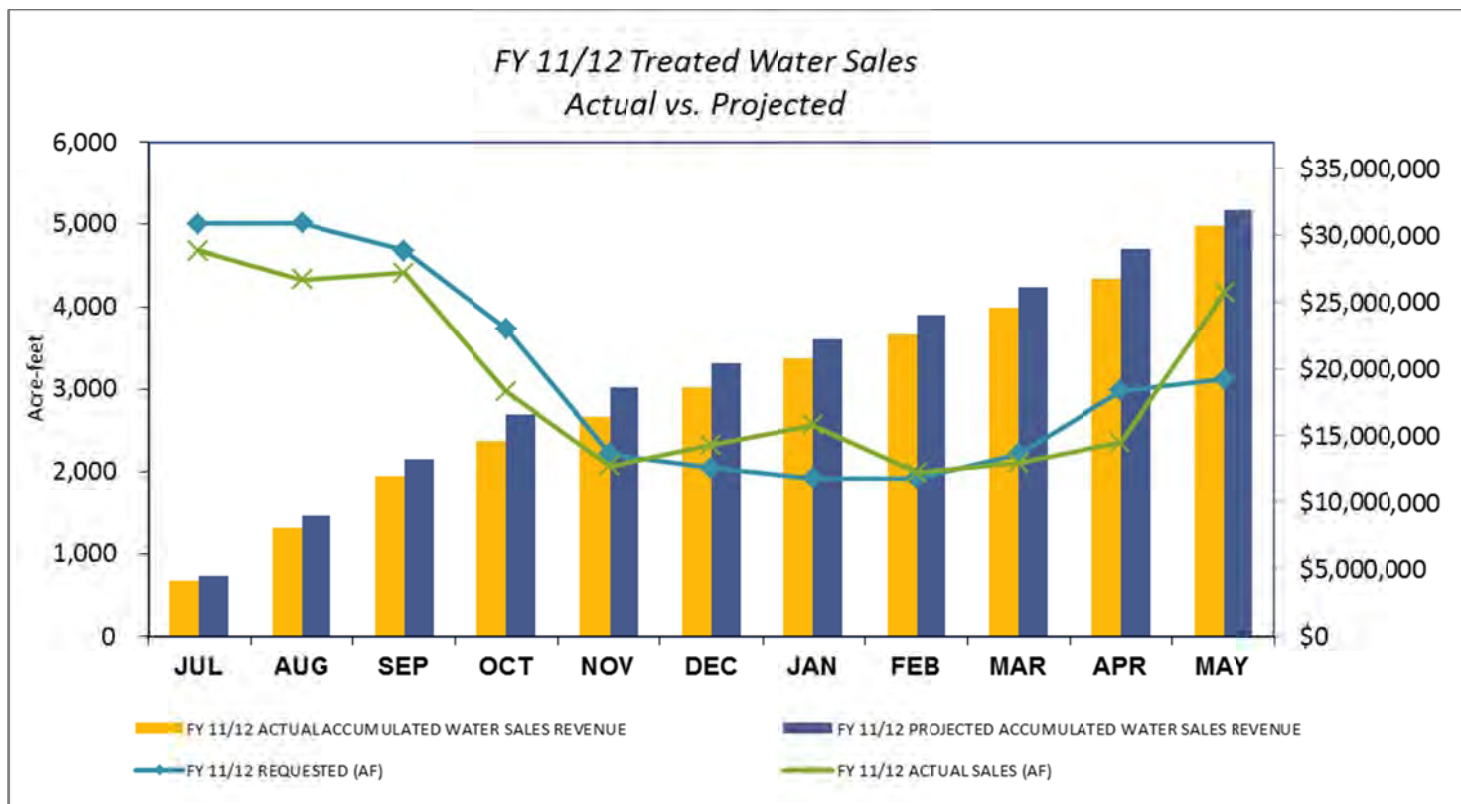
AGENDA DATE: July 18, 2012

ITEM NO. 13g

SUBJECT: Report on Water Sales and Connection Fee Revenue

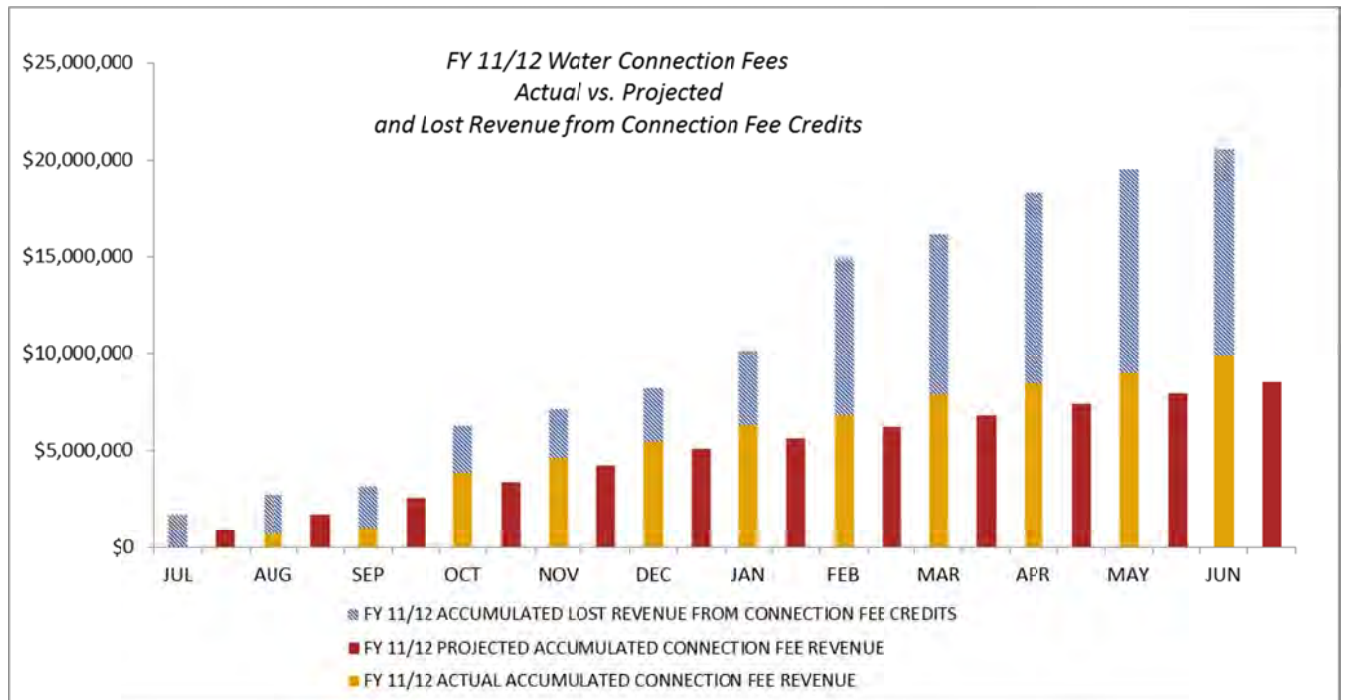
Treated Water Sales

Treated water sales revenue funds the Water Enterprise (Fund 52). A warm May helped year-to-date revenues. Through the end of May, actual sales are \$30.7M, 4% below projected sales (compared to 6% below through the end of April). Actual water sales compared to projected sales is shown in the graph below:



Connection Fees

Connection fee revenue funds Water System Expansion (Fund 73). Through the end of June, collected connection fees are \$9.8M, 15% above projected fees (compared to 9% above through the end of May). Another \$10.7M worth of connection fee credits were used. Actual connection fee revenue plus lost revenue from credits used compared to projected revenue is shown in the graph below:



RECOMMENDED ACTION:

Information only.



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

100 NORTH CANYONS PARKWAY • LIVERMORE, CA 94551 • PHONE (925) 454-5000 • FAX (925) 454-5727

ORIGINATING SECTION: GROUNDWATER SECTION

CONTACT: Colleen Winey/Matt Katen

AGENDA DATE: July 18, 2012

ITEM NO. **13h**

SUBJECT: Annual Report for the Groundwater Management Program for 2011 Water Year

SUMMARY:

Staff has completed its 2011 Annual Report for the Zone 7 Groundwater Management Program. The report documents Zone 7's groundwater monitoring and management results for the 2011 Water Year (WY) (October 2010 through September 2011). The Executive Summary is attached, and the full report is available on the Zone 7 website: www.zone7water.com. The following are highlights contained in this year's report:

- The Livermore Valley received about 122% of its average annual rainfall between October 2010 and September 2011, resulting in 8,100 acre-feet (AF) of areal rainfall recharge over the Main Groundwater Basin (Main Basin).
- Rainfall runoff and stream flow from fringe groundwater basins resulted in about 7,400 AF of in-stream recharge (130% of average), while releases from the South Bay Aqueduct into the Streams\Creeks resulted in 4,800 AF of artificial recharge into the Main Basin (94% of our historic annual average). Including 5,000 AF of recharge from all other recharge components, the total recharge\inflow for the Main Basin was 25,300 AF.
- A total of 13,500 AF of groundwater was pumped from the Main Basin wells (approximately 85% of average), and about 6,900 AF of groundwater was lost due to gravel mining operations and quarry area evaporation resulting in a total groundwater demand\outflow of 20,400 AF for the year.
- The Main Basin ended the water year with approximately 107,000 AF of groundwater in "operational" storage. This represents about 85% of the operational capacity of 126,000 AF (calculated as the difference between the established high in 1983 and historic low of 1962).
- The Mocho Groundwater Demineralization Plant (MGDP) exported approximately 2,000 tons of salt from the Main Basin while operating at about one third capacity. MGDP operations were curtailed to take advantage of increased surface water availability.
- After accounting for salt inflows and outflows from all sources and sinks, the net salt loading to the Main Basin has been approximately unchanged or neutral for each of the last two water years (WY 2010 and WY 2011).
- There were no new commercial septic tank applications in 2011; however, Zone 7 staff provided comments to Alameda County Environmental Health on three commercial system expansions and two special case residential systems within Zone 7's service area.
- Staff ensured that progress was being made on 70 active contamination sites within our service area.

FUNDING: Funding for this program is from Fund 52 - Water Enterprise.

RECOMMENDED ACTION: Information only.

ATTACHMENTS: Executive Summary of the Annual Report of the Groundwater Management Program.

ES Executive Summary

This Annual Report for the Groundwater Management Program summarizes Zone 7's groundwater management and monitoring efforts in the Livermore Valley Groundwater Basin for the 2011 Water Year (October 2010 through September 2011). This report includes 2011 Water Year data sets, results, and interpretations for the monitoring, evaluation, and management programs outlined in the 2005 Groundwater Management Plan (GWMP). This report also includes revised quantities for various groundwater storage and salt loading components (e.g., rainfall recharge, applied recharge). The current and historical numbers in this report replace any generated for past reports.

ES 1 Overview

From October 2010 through September 2011 (2011 Water Year), groundwater supplies stored locally in the Main Basin increased by approximately 3,000 acre-feet. Above-normal rainfall that fell on the watershed and the Main Basin during the Water Year led to higher-than-average rainfall recharge and natural stream recharge components of the Basin's supply, and factored into lower-than-normal demands for municipal and agricultural groundwater pumping. However, the total demand for groundwater during the Water Year was about normal because of an offsetting increase in aggregate mining dewatering operations, which was likely associated with the deepening of the active mining pits and an increase of seepage into those pits from the above-average natural recharge.

With this modest increase to the local groundwater supply, the 2011 Water Year ended with an estimated 107,000 acre-feet of groundwater available for recovery above the "historic low" groundwater level constraint. This represents about 85% of the Main Basin's estimated operational storage capacity. Accordingly, groundwater elevations in the Main Basin's Key Wells were generally slightly higher (0 to 8 feet) than they were at the end of the 2010 Water Year (Figures ES-2 and ES-3). The exception was in the lower Amador East Subbasin Key Well, where the September 2011 Water Year level was approximately 14 feet lower than the September 2010 Water Year level. There were no indications that inelastic subsidence occurred anywhere in the valley during the water year due to groundwater pumping.

The greatest salt inflows to the Main Basin during the 2011 Water Year came from "applied water recharge" and "natural stream recharge," whereas the greatest salt removal (sinks) resulted from the salt exports associated with "municipal pumping" and "mining discharges." Zone 7's Mocho Groundwater Demineralization Plant (MGDP) was directly responsible for removing approximately 2,000 tons of salt while operating at about 1/3 of its capacity during the 2011 Water Year. After accounting for salt inflows and outflows from all sources and sinks, the net salt loading on the Main Basin was approximately neutral (40 tons) for the 2011 Water Year, as it was in the 2010 Water Year. Because of the diluting effect of the areal rainfall recharge (8,100 acre-feet in the 2011 Water Year), which adds practically no salt to the basin, the calculated basin-wide average TDS concentration decreased by about 14 mg/L.

Staff issued 140 well activity permits in 2011; ten more than in 2010. No new commercial septic tank use approval applications were received during the year. Staff carefully tracked the progress being made for the cleanup of 16 “high priority” toxic sites that have either impacted or are a threat to potable water supply wells within the valley. None of the local development project proposals received and reviewed by staff during the year, contained unmitigated “potentially significant impacts” for groundwater supply or quality.

ES 2 Monitoring Programs

Climatological – The 2011 Water Year rainfall in the valley was above average at 122% of normal (Figure ES-1 shows rainfall at Station 15E, which was 112% of normal). The evaporation for the Valley, represented by the Lake Del Valle Station, ended the year with 98% of normal evaporation.

The precipitation and evapotranspiration data collected from the California Irrigation Management System (CIMIS) station located at the Pleasanton Fairways Golf Course (CM-STA 191) was added to the climatological program in 2011.

Groundwater – In general, the 2011 Upper Main Basin groundwater levels mirrored the 2010 Upper groundwater levels throughout the water year (+/- 4 feet), and ended the year at approximately the same levels as they ended the 2010 Water Year (Figure ES-4). The Lower Main Basin groundwater levels rose five to eight feet from last year’s levels, except in the Amador East Subbasin where it ended the Water Year 14 feet below Water Year 2010’s year-end level (Figure ES-5).

In the central and western portion of the Main Basin, in the areas around Zone 7’s and City of Pleasanton’s wellfields, groundwater levels ended the water year at 40 to 95 feet above historical lows (Figure ES-6). Further to the southwest, in the central and southern portions of the Bernal Subbasin, water levels remain at greater than 100 feet above historical lows. Only SFPUC is using this part of the basin for municipal supply (for the Castlewood Development and Golf Course). In the eastern part of the Main Basin (Mocho II Subbasin), where California Water Service wells are located, the end of year groundwater levels were 80 to 160 feet above their respective historical lows.

Groundwater quality in the Upper Main Basin (Figure ES-7) and Lower Main Basin (Figure ES-8) aquifers remained relatively unchanged from the 2010 Water Year. However, individual municipal supply wells in the Mocho Wellfield experienced higher than average increases in hardness and salinity in the past few years. The poorer quality water seems to be coming from the upper aquifers as a result of a strong downward gradient induced by the pumping wells. Staff is continuing to investigate whether these localized increases are consequences of natural “leaky” aquitards between the upper aquifers (with poorer water quality) and the lower aquifers (which are being pumped) or are due to poorly constructed wells in the neighboring area serving as conduits.

Surface Water - During the 2011 Water Year, the watershed runoff total into Lake Del Valle was 28,634 acre-feet. Flood releases from Lake Del Valle totaled 2,559 acre-feet. The total volume of State Water Project (SWP) water released from the South Bay Aqueduct (SBA) to the Arroyo Valle totaled 3,905 acre-feet, releases from the SBA to the Arroyo Mocho totaled 4,113 acre-feet, and releases from the SBA to the Las Positas (via Altamont Creek) totaled 1,121 acre-feet.

Subsidence – There was no evidence of inelastic (permanent) subsidence due to groundwater pumping during the 2011 Water Year. Zone 7's survey benchmarks change in elevation from Fall 2010 to Fall 2011 varied from +0.020 to -0.024 ft. These changes in land surface elevation are within the range of elastic subsidence observed over the life of the monitoring program. Elevation changes from Spring to Fall 2011, which varied from -0.056 to -0.001 ft, were also within the range of elastic movement.

Mining Area - Mining activities continued for Vulcan Materials (formerly Calmat) and Cemex (formerly RMC and Lonestar). Vulcan Materials continued their mining in R28 located south of Stanley Boulevard (future Lake D area) and increased dewatering from various ponds (e.g., R24 – future Lake E). Cemex continued mining in P42, located just north of Arroyo Valle (in the future Lake B area). As a result of these mining operations, about 4,277 acre-feet of the water discharged to the Arroyo Mocho flowed out of the Valley. Evaporation from the mining ponds accounted for another 1,905 acre-feet of groundwater loss. Total dissolved solids (TDS) concentrations (a surrogate for hardness readings) in the mining area pits ranged from about 250 mg/L to over 1,000 mg/L, with the better water quality found in the ponds that are intercepting groundwater and artificially recharged surface water. The higher TDS concentrations are found, for the most part, in the sealed ponds, where evaporation is likely concentrating the minerals in the water.

Land Use - For the 2011 Water Year, Main Basin land use remained relatively unchanged from the 2010 Water Year. Development continues to be slow due to the effect of the poor economy.

Groundwater Production - During the 2011 Water Year, about 13,523 acre-feet of groundwater was pumped from the Main Basin. Zone 7 produced approximately 6,200 acre-feet of the pumped groundwater. For the 2011 Water Year, Pleasanton pumped 3,435 AF and California Water Service pumped 2,673 AF. All other groundwater production (1,215 AF) was about normal for the basin.

Wastewater and Recycled Water – In 2011, approximately 21,092 acre-feet of wastewater flowed to the two publicly-owned treatment works (POTWs; Livermore Water Reclamation Plant (LWRP), and Dublin San Ramon Services District's (DSRSD) wastewater plant) as compared to 19,660 acre-feet in 2010. About 18% of the wastewater received by these two POTWs was recycled and used for irrigation projects; 1,421 acre-feet by City of Livermore and 2,462 acre-feet by DSRSD. About 68% (963 acre-feet) of the recycled water produced by LWRP was applied over the Main Basin; whereas all of DSRSD's recycled water was applied on areas outside of the Main Basin, primarily on fringe basin areas. Zone 7 staff continues to investigate the hydrogeologic relationship between the fringe and Main basins as part of updating its Salt Management Plan (SMP) to quantify the inflow of groundwater and salts from the fringe basins to the Main Basin.

The recycled water from both plants met the State Department of Public Health "Title 22" water quality standards for irrigation uses during the 2011 Water Year. TDS concentrations in the portion applied directly on the Main Basin ranged from 550 mg/L to 570 mg/L, while its Total Kjeldahl Nitrogen (TKN) content ranged from 39 mg/L to 44 mg/L. Less than 5% (542 tons) of the Main Basin's gross salt loading (12,830 tons) was attributed to recycled water use over the Main Basin during the 2011 Water Year.

ES 3 Basin Evaluation Programs

Recharge Calculations – For the 2011 Water Year, total natural recharge was about 20,507 acre-feet. This includes rainfall recharge of about 8,104 acre-feet, natural stream recharge of about 7,441 acre-feet, Arroyo Valle Prior Rights recharge of 1,768 acre-feet, applied water recharge at about 2,195 acre-feet and subsurface Basin inflow of about 1,000 acre-feet. Artificial stream recharge for the 2011 Water Year was limited to only about 4,806 acre-feet due to limited available recharge capacity during the period.

Groundwater Storage - At the end of the 2011 Water Year, the total groundwater in storage was estimated to be 235,000 acre-feet, and the total recoverable groundwater in storage was estimated to be about 107,000 acre-feet, which is about 85% of the basin's operational capacity of 126,000 acre-feet calculated as the difference in groundwater storage between the "low" established in early 1960's and the "high" in 1983. This is approximately a 4% increase from that estimated for the 2010 Water Year (Figure ES-10).

Salt Loading Calculations – Net salt loading to the Main Basin remained practically neutral for the second year in a row. This year's main salt contributors were "applied water recharge" (4,563 tons which includes 542 tons from recycled water), "natural stream recharge" (4,939 tons), "basin inflow" (2,024 tons), and "artificial stream recharge" (920 tons). The main de-salting components were "municipal pumping" (9,960 tons including 2,006 tons removed by the Mocho Groundwater Demineralization Plant) and "mining export" (2,756 tons).

For the second year in a row, the calculated basin-wide average TDS concentration decreased by 14 mg/L. This reversal in the basin-wide average TDS trend is attributed to the dilution from the above-average areal rainfall recharge that occurred in the 2010 and 2011 Water Years (6,800 acre-feet and 8,100 acre-feet, respectively), which adds water to the basin with almost no extra salt, and the additional salt mass removed by the Mocho Groundwater Demineralization Plant during the 2010 and 2011 Water Years (2,760 tons and 2,006 tons, respectively).

ES 4 Basin Management Programs

Most 2011 Basin Management Programs remained unchanged from 2010 except for:

Groundwater Demineralization – During the 2011 Water Year, approximately 3,140 acre-feet of groundwater produced from Mocho Wellfield wells was run through the Mocho Groundwater Demineralization Plant's (MGDP), which uses reverse osmosis technology to remove dissolved minerals/salts. As a result, 429 AF of brine containing 2,000 tons of salt was generated and exported from the basin via DSRSD. These results were attained while operating the MGDP at approximately one-third of its capacity during the 2011 Water Year.

Well Ordinance Program - Zone 7 issued 140 drilling permits in the 2011 Calendar Year, 10 more than were issued in 2010. Zone 7 permit compliance staff inspected approximately 50% of all permitted well work in 2011.

Septic Tank Management - No new commercial septic tank applications were received by Zone 7 during 2011. However, staff provided comments to Alameda County Environmental Health Agency (ACEH) on expansion or modification plans for three existing commercial systems and two special case residential systems with regard to Zone 7's Wastewater Management Plan policies. ACEH is the permitting agency for onsite wastewater treatment and disposal systems within Zone 7's service area.

Toxic Site Surveillance Program - In 2011, Zone 7 tracked the progress of 70 active sites where contamination has been detected or is threatening groundwater. Sixteen of the sites are designated as "High Priority" because they have impacted or are an immediate threat to potable water supply wells or surface water. Twelve of the high priority sites are fuel leak cases; the other four cases involve solvent contamination (tetrachloroethylene [PCE]). Two contamination cases were closed during 2011, after they were determined to no longer pose a threat to drinking water. Alameda County Environmental Health (ACEH) is the lead agency overseeing the cleanup of all of the fuel leak sites. Generally, the Regional Water Quality Control Board (RWQCB) oversees solvent contamination cases; however, two of the solvent cases have not been incorporated into the RWQCB's case load because the responsible parties have not yet been identified. For these two cases, Zone 7 staff is working with the RWQCB to identify the potential responsible parties so that they can begin pursuing investigation and cleanup.

Other Projects – Zone 7 completed its study, "*Hydrostatic Investigation of the Aquifer Recharge Potential for Lakes C and D of the Chain of Lakes* (Zone 7, May 2011)" in 2011, for which Zone 7 received a Local Groundwater Assistance (LGA) Grant from the Department of Water Resources. The project investigated the connectivity between future Lakes C and D and the productive aquifers in the West Amador Subbasin. The results of the study suggest that the future Lakes C and D would be effective aquifer recharge facilities for replenishing the upper portions of the Lower Aquifer, from which several of Zone 7's and the City of Pleasanton's municipal supply wells pump groundwater. In 2011, the final report was generated and submitted to DWR for approval.

On another project, Zone 7 is continuing to make progress on a collaborative effort with Vulcan Materials Co. to capture the groundwater they pump from their quarry pits to de-water them for ease of gravel mining. For this project, Vulcan would pump the extracted groundwater into a Zone 7-owned lake within the future Chain of Lakes, where it could be used to replenish Main Basin aquifers instead of being discharged to the arroyos and lost as basin outflow.

FIGURE ES-1
ZONE 7 WATER AGENCY
Graph of Livermore Rainfall (Station 15E NOAA)

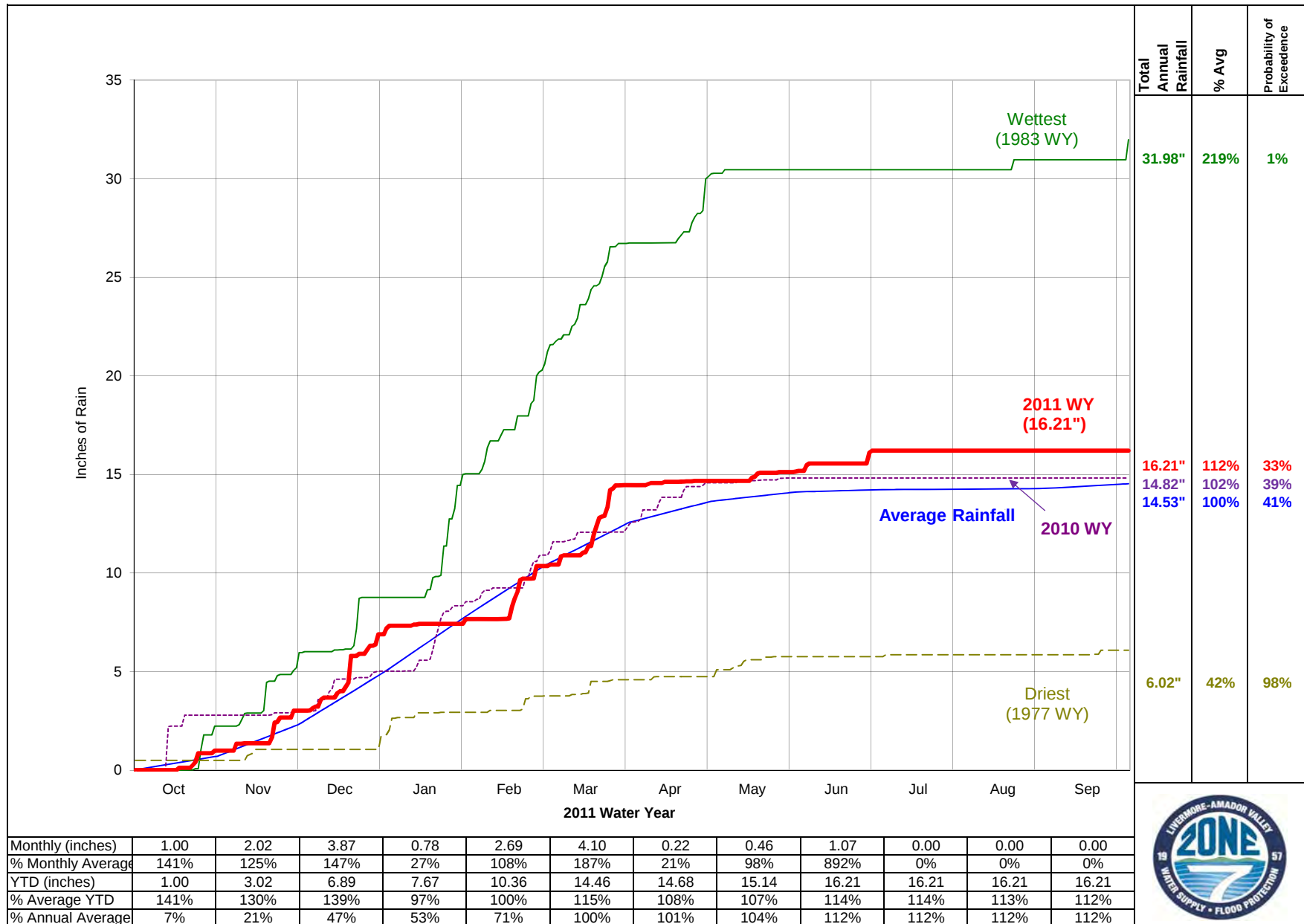


Figure ES-2
Zone 7 Water Agency
Key Well Hydrographs - Western Portion of Main Basin
2011 Water Year

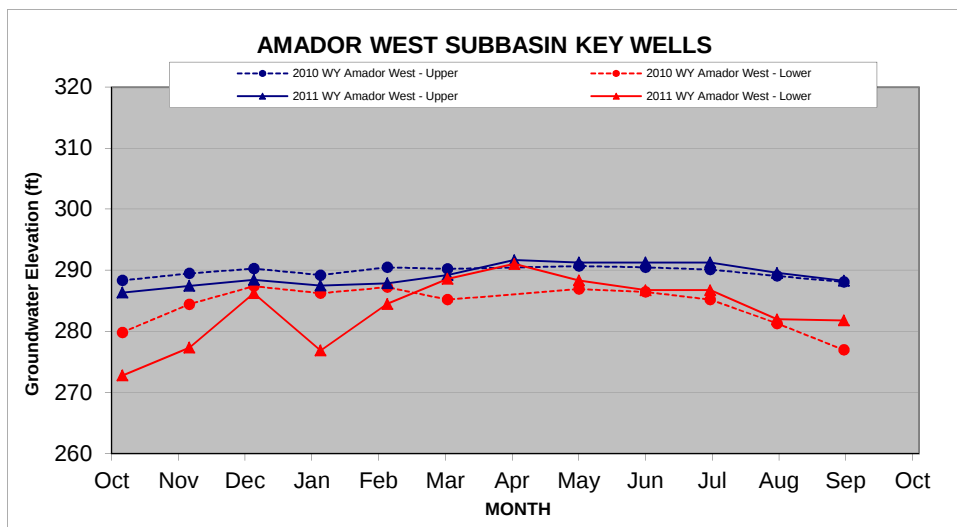
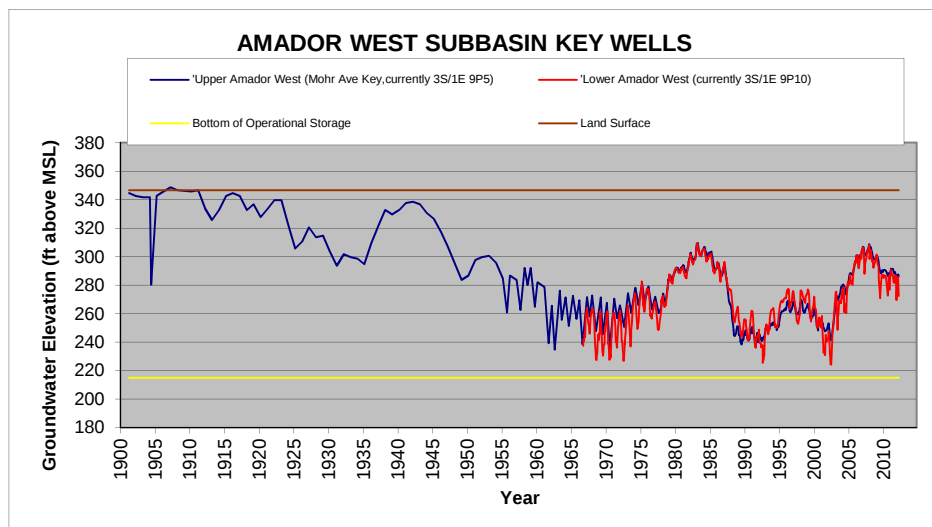
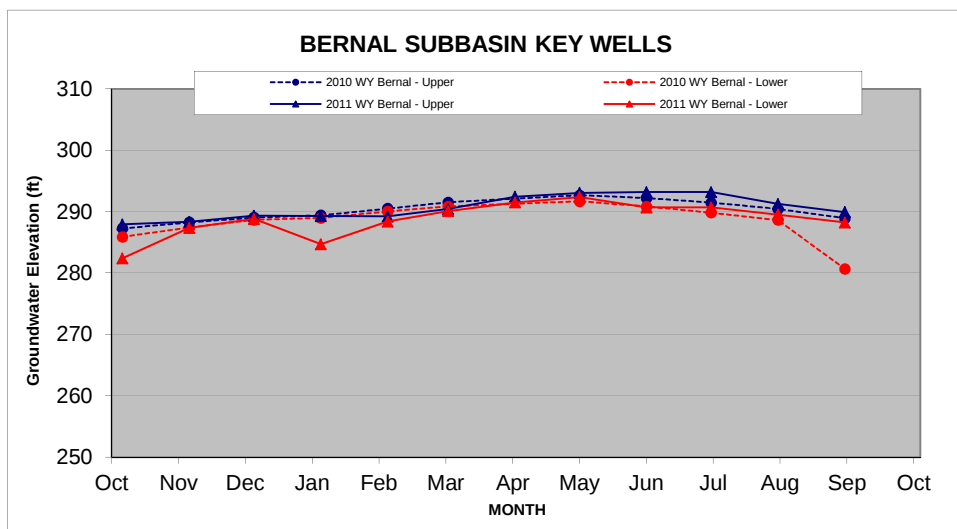
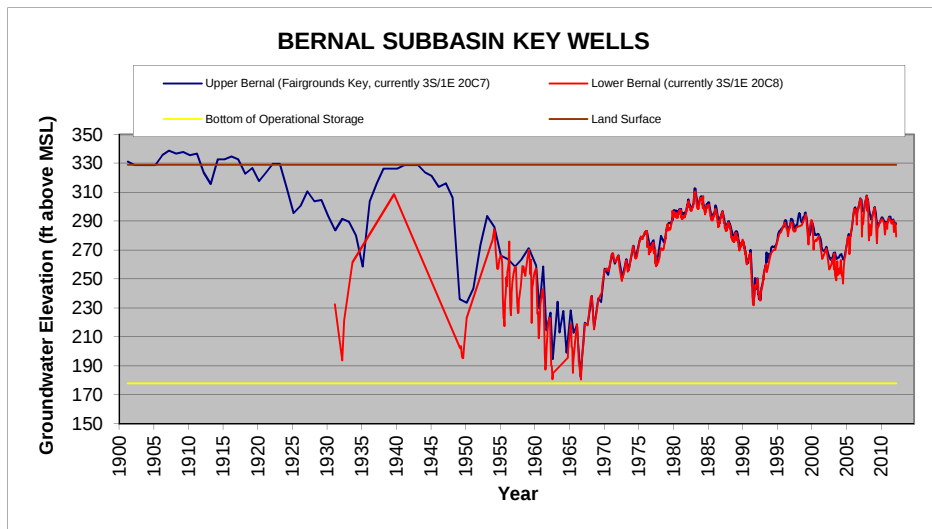
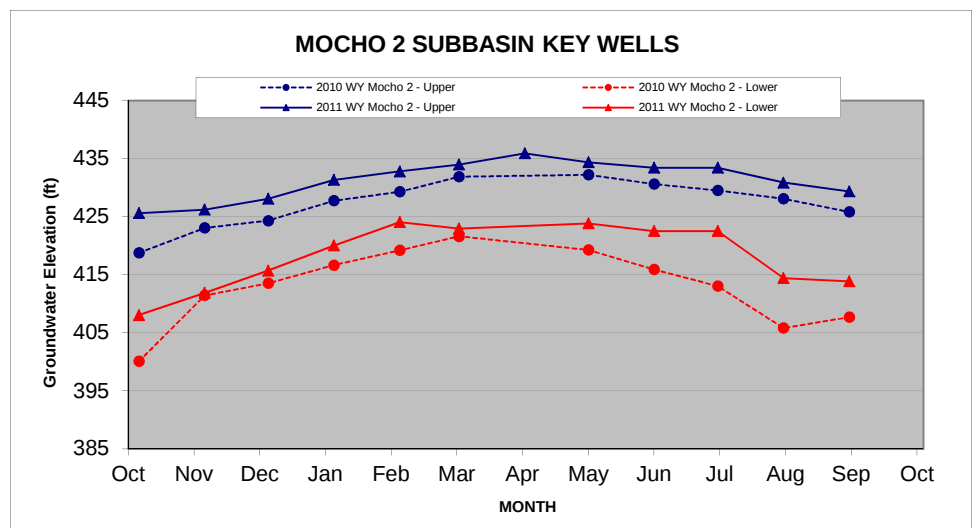
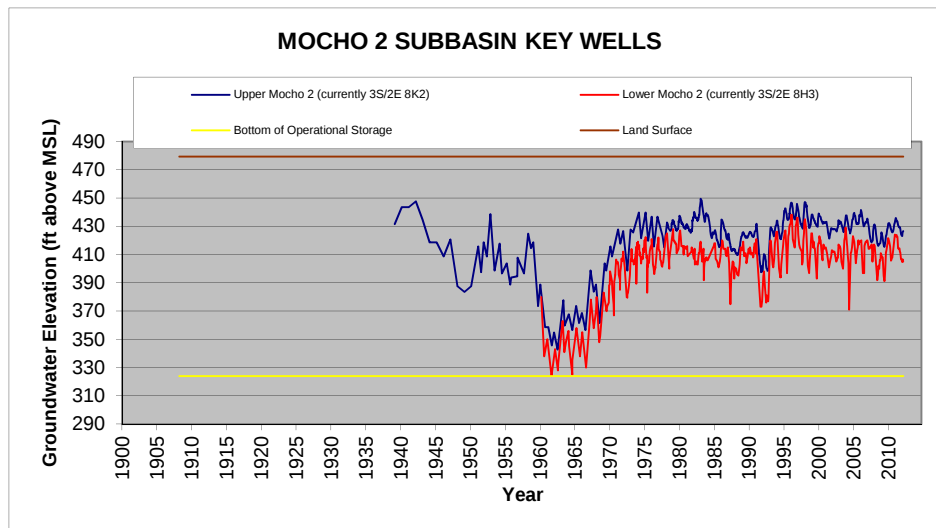
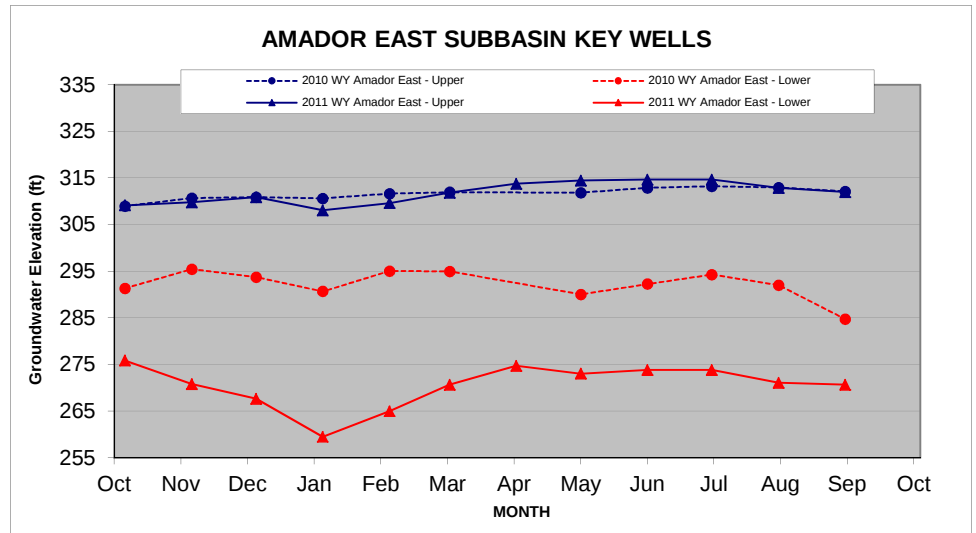
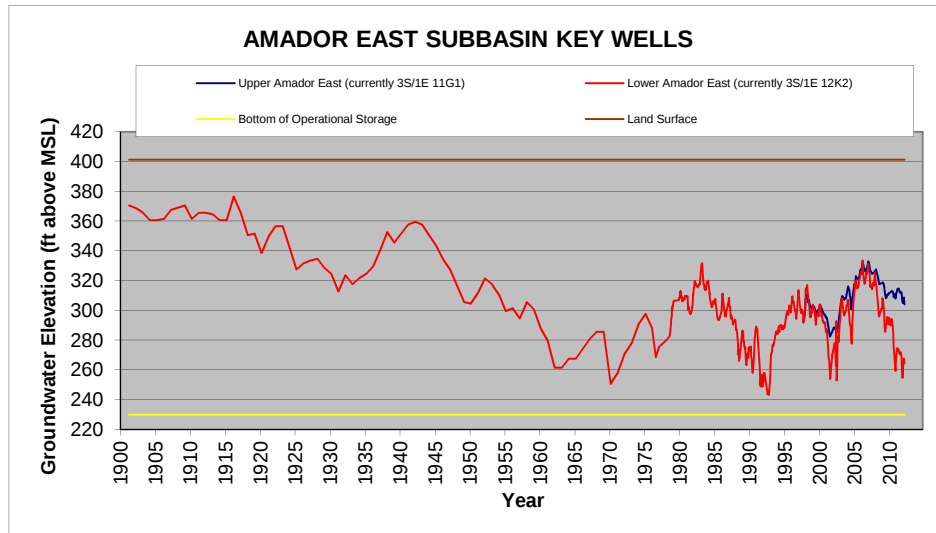
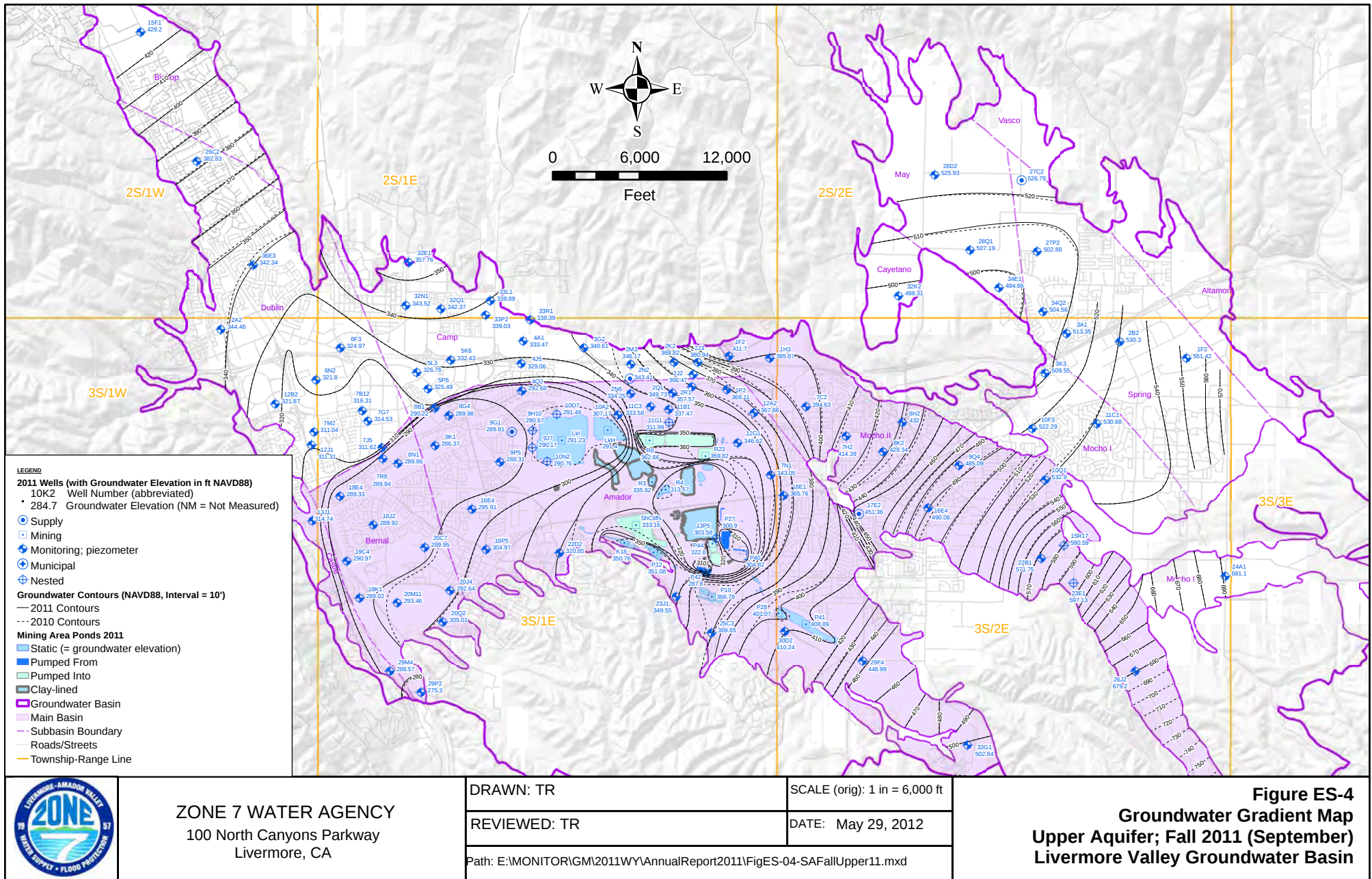
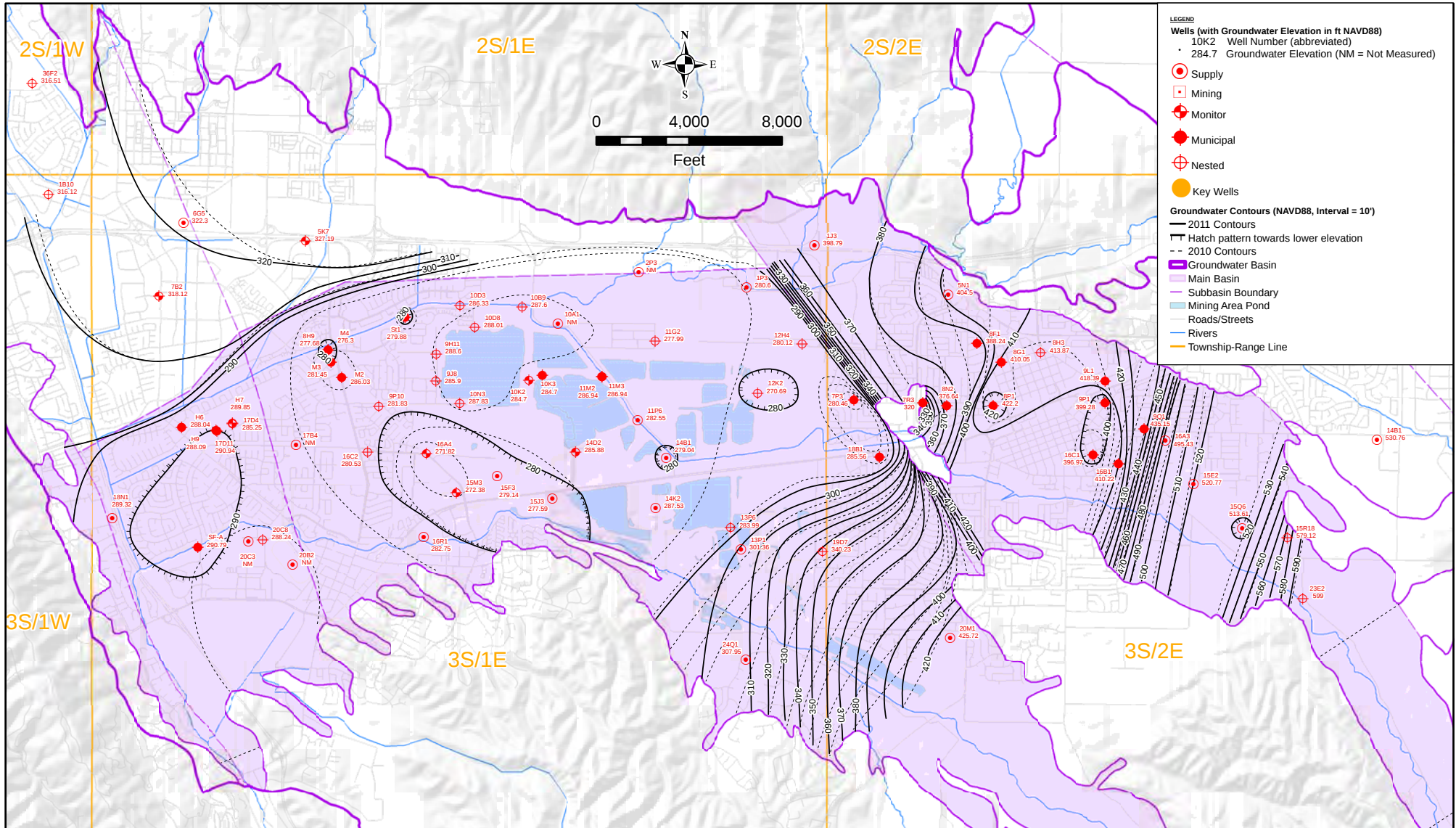


Figure ES-3
Zone 7 Water Agency
Key Well Hydrographs - Eastern Portion of Main Basin
2011 Water Year







ZONE 7 WATER AGENCY
100 North Canyons Parkway
Livermore, CA

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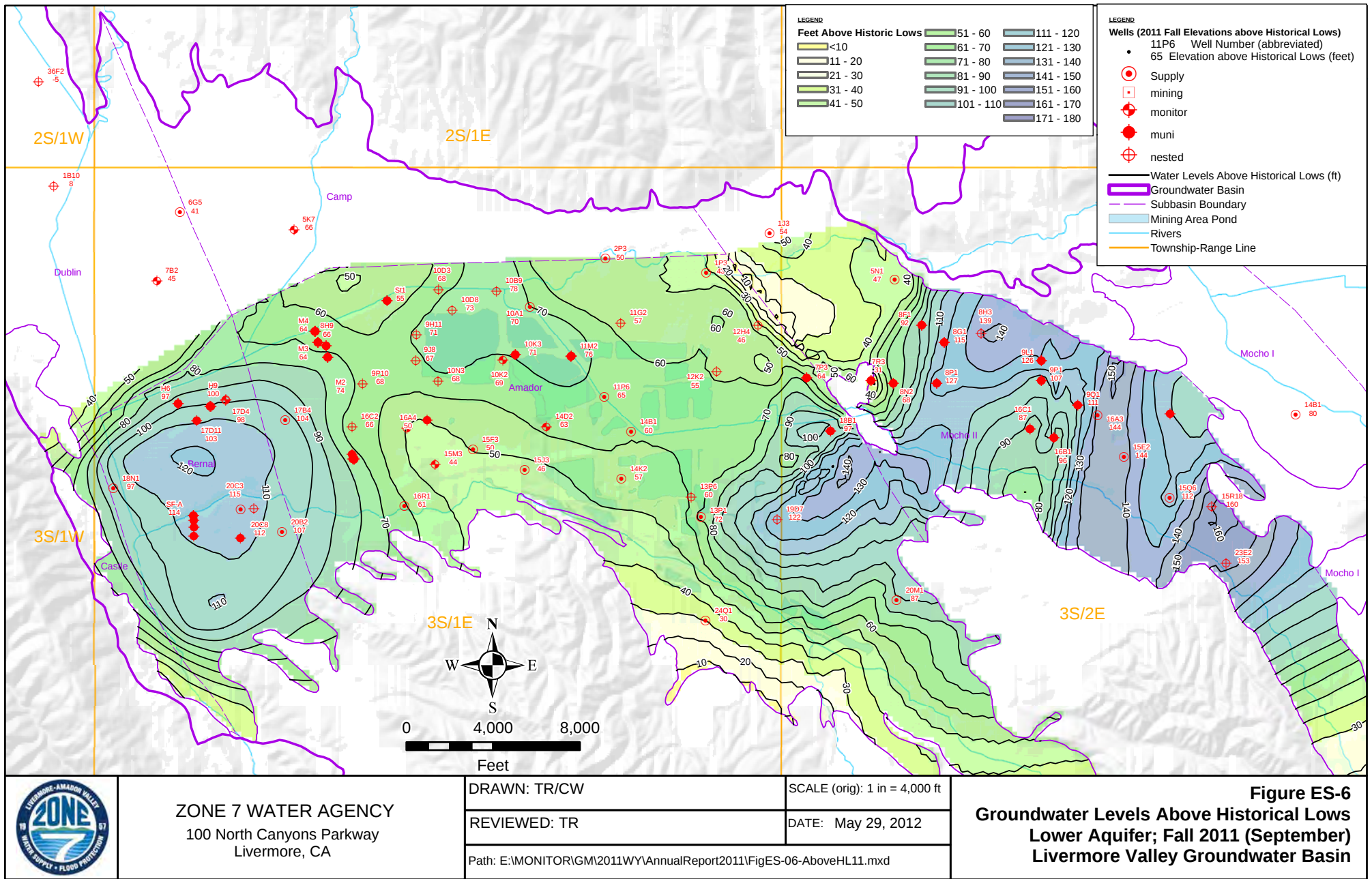
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DATE: May 29, 2012

Figure ES-5
Groundwater Gradient Map
Lower Aquifer; Fall 2011 (September)
Livermore Valley Groundwater Basin



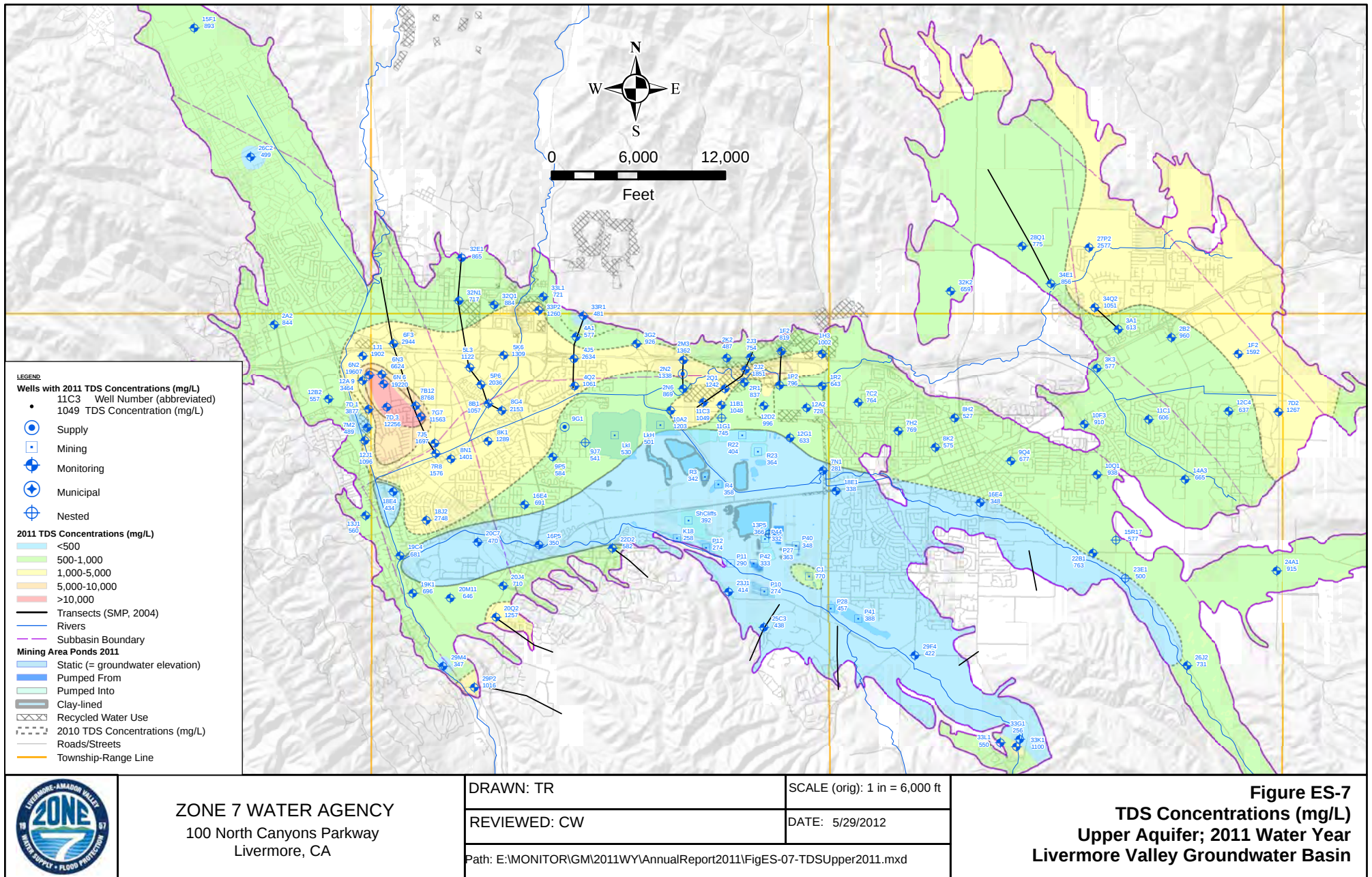


Figure ES-10
Graphs of Historical Main Basin Hydrologic Inventory
1974 to 2011 Water Years

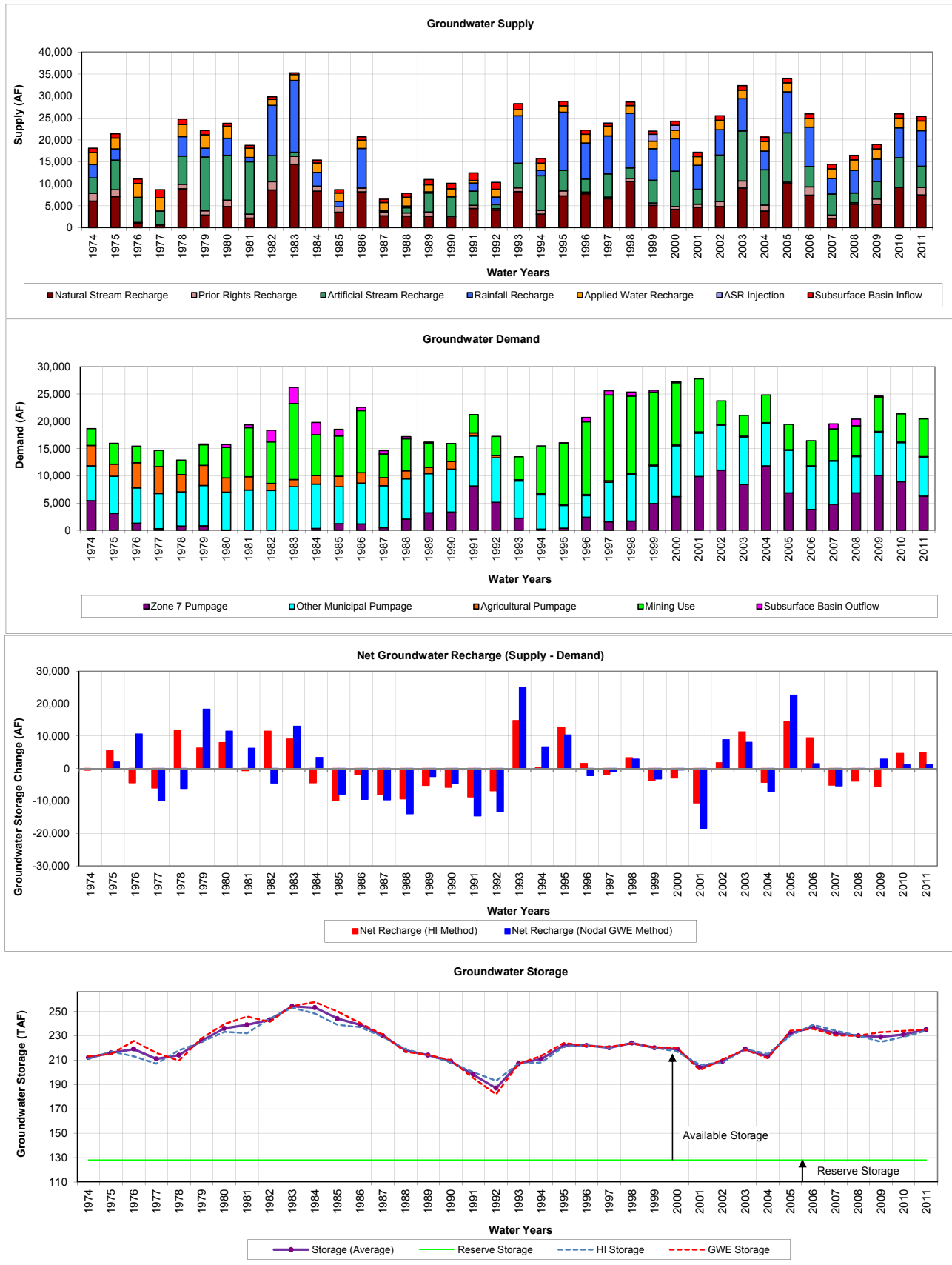


Figure ES-11
Graphs of Salt Loading and Salt Concentrations
1974-2011 Water Years

