MONTEREY COUNTY WATER RESOURCES AGENCY
BOARD OF DIRECTORS
RESERVOIR OPERATIONS COMMITTEE

COMMITTEE MEMBERS

David Hart, Chair
Ken Ekelund
Fred Ledesma
Mark Nielsen
David Pozzi

John Baillie
Benny Jefferson
Paavo Ogren
Tom Shepherd (Parks)
Randy Korsgaard (CalParks)

TIME: 1:30 pm
DATE: Thursday, February 7, 2013
PLACE: Monterey County Water Resources Agency
Board Room
893 Blanco Circle
Salinas, CA 93901

AGENDA

1. CALL TO ORDER

2. PUBLIC COMMENT
(Limited to three (3) minutes per speaker on matters within the jurisdiction of the Agency not listed on this agenda. The public will have the opportunity to ask questions and make statements on agenda items as the Committee considers them.)

3. APPROVE THE MINUTES OF THE RESERVOIR OPERATIONS COMMITTEE MEETINGS HELD ON JANUARY 10, 2013
The Committee will consider approval of the minutes of the above-mentioned meetings (Attachment 1).

4. REVIEW THE STATUS OF BOTH RESERVOIRS; AND, REVIEW RELEASES AND RELEASE SCHEDULE
Howard Franklin, Senior Water Resources Hydrologist / Program Manager will present a summary of current conditions at both reservoirs, as well as provide a synopsis of the release changes that have occurred since the last meeting (Attachments 2, 2a, 3, 3a, 4).

5. **RECEIVE REPORT REGARDING OPERATIONS AND MAINTENANCE ACTIVITIES AT THE RESERVOIRS**

Brent Buche, Assistant General Manager / Chief of Operations and Maintenance will present a verbal report discussing the various Operations and Maintenance activities at both reservoirs that have occurred over the last month.

6. **RECEIVE REPORTS ON STATUS OF:**

   A. **LAKE RECREATION BY CONCESSIONAIRE & PARKS DEPARTMENT**
   B. **EASEMENTS AND AGENCY LEASES**
   C. **QUAGGA / ZEBRA MUSSEL PLAN**
   D. **UPDATE ON SLO COUNTY ACTIVITIES**

7. **DISCUSS POSSIBLE RELEASE SCENARIO OPTIONS FOR NON-SALINAS VALLEY WATER PROJECT WATER DELIVERY SEASON**

The Committee will discuss possible reservoir release scenario options for the months of February to March, dependant on the SVWP Biological Opinion and Flow Prescription.

8. **DISCUSS EMERGENCY WATER SUPPLY REQUEST BY HERITAGE RANCH COMMUNITY SERVICES DISTRICT (HRCSD)**

The Committee will discuss the request of John D'Ornellas, General Manager HRCSD, for an emergency water supply project at Nacimiento Reservoir. A full presentation of the proposed project was presented to the Committee by Mr. D'Ornellas at its June 2010 meeting (Attachments 5, 6, 7, 8).

9. **SET NEXT MEETING DATE AND DISCUSS FUTURE AGENDA ITEMS**

The Committee will discuss and determine details for its next meeting.

10. **ADJOURNMENT**

MONTEREY COUNTY WATER RESOURCES AGENCY
BOARD OF DIRECTORS
RESERVOIR OPERATIONS COMMITTEE

Ken Ekelund, Chair
David Hart
John Baillie
Tom Shepherd
David Pozzi

Mark Nielsen
Paavo Ogren
Benny Jefferson
Randy Korsgaard
Fred Ledesma

TIME: 1:30 p.m.
DATE: **Thursday, January 10, 2013**
PLACE: Monterey County Water Resources Agency
Board Room
893 Blanco Circle
Salinas, CA 93901
(831) 755-4860

MINUTES

1. CALL TO ORDER @ 1:32 p.m. by Chair Ken Ekelund.

Members present: Ken Ekelund, David Hart, John Baillie, Tom Shepherd, David Pozzi, Mark Nielsen, Benny Jefferson
Members absent: Paavo Ogren, Randy Korsgaard, Fred Ledesma

A quorum was established.

2. PUBLIC COMMENT

John D'Ornellas, General Manager, Heritage Ranch Community Services District (HRCSD) requested an update from Agency staff and/or direction on the next steps for the request by HRCSD for an emergency water supply. A full presentation was provided to the Committee in 2010. The Committee will consider placing this item as an agenda item for the next meeting. (see ITEM 8, FUTURE AGENDA ITEMS)

3. APPROVE THE MINUTES OF THE RESERVOIR OPERATIONS COMMITTEE HELD ON DECEMBER 6, 2012

Committee Action: On motion and second of Committee members John Baillie and David Hart the Committee unanimously approved the minutes.

4. REVIEW THE STATUS OF BOTH RESERVOIRS; REVIEW RELEASES AND RELEASE SCHEDULE

Howard Franklin, Senior Water Resources Hydrologist provided a status report. Flow has been recorded at all the gages in the Salinas River and there is continuous flow to the ocean; the Lagoon is open. On February 1 staff will begin managing releases based on triggers for providing upstream fish migration opportunities. A proposed release schedule will be presented to the Committee in April for review.

As a result of the storms during the period of November 30, 2012 to January 3, 2013, Nacimiento received 50,800 acre feet of storage, an increase of 15 feet in elevation. San Antonio received 14,003 acre feet of storage, an increase of 4.1 feet in elevation. January and February is expected to be cold and dry, and March through May are expected to be near-normal.

NACIMIENTO elevation is 757.95 feet and 179,170 acre-feet of storage, 47% of capacity, and current release is 60 cfs.

SAN ANTONIO elevation is 746.70 feet and 184,285 acre-feet of storage, 55% of capacity, and current release is 10 cfs.

5. RECEIVE REPORT REGARDING OPERATIONS AND MAINTENANCE ACTIVITIES OCCURING AT THE RESERVOIRS

Brent Buche, Assistant General Manager & Chief of Operations and Maintenance provided a report. At San Antonio activities involved routine maintenance, including the electrical lines and outlets, the servicing of a vent fan, debris clean-up on the spillway gutters, and spot-spraying for rodents. Monterey County Public Works is in the process of surveying both dams.

The Agency sent out a Request for Bids for repair of the valve actuator at Nacimiento. Staff is currently evaluating the two (2) bids that were received. Final details are being coordinated with the manufacturer prior to ordering the items, which will cost $100,000. The parts are expected to be installed in September/October. Other activities involve debris clean-up on the spillway gutters, and spot-spraying for rodent control. Staff is in negotiations with Site Construction Inc., a subcontractor to Kvaerner Inc, who built the Powerplant. Once the contract is signed the contractor will begin disassembling Unit 1. The repair costs may be covered under the Agency's insurance, possibly including business interruption costs. The repair project is estimated take approximately six months to complete. The Agency continues to seek alternatives for a new Power Purchase Agreement.

San Luis Obispo County and Oak Shores are looking to place about 50 buoys to identify the sewerlines which are located along the lake.

There was discussion on the recent events leading to Salinas River Lagoon Sandbar Management Activities. The regulatory agencies were notified and an emergency proclamation was signed by the Monterey County Board of Supervisors, which allowed the breaching to be performed.

6. REPORTS ON STATUS OF:

A. LAKE RECREATION BY CONCESSIONAIRE & PARKS DEPARTMENT

Tom Shepherd, Monterey County Parks Department, provided a report. The Board of Supervisors recently approved the selection of a new Parks Dept. Director, Michael Ferry. Mr. Ferry was previously employed with the State Parks Department, and also worked for Monterey County Parks Dept. years ago. The recruitment for Park Rangers

is nearing completion; background checks are being conducted on the final six candidates. Parks staff recently participated in the annual National Eagle Count, counting Bald and Golden Eagles at the lakes, and Ft. Hunter Liggett. Other activities involve general maintenance to docks, painting facilities, and preparing for the winter weather, as well as the Spring/Summer season. Parks staff is coordinating with Cal Trans for repairing the erosion that occurred at San Lorenzo Park caused by flooding.

B. EASEMENTS AND AGENCY LEASES: STATUS REPORT AND INFORMATION PRESENTED TO AGENCY PERSONNEL & ADMINISTRATION COMMITTEE

Chris Keehn, Right-Of-Way Specialist, provided an update to the Committee. To clarify his statement in the December minutes; *the Agency denied the Lessee's request for a lease reduction, which he then paid in full. Staff informed him this must not occur again, and any future requests must follow the proper procedures*. The Agency has received a request from Running Deer Ranch for a wave attenuator and a log boom structure at Running Deer Ranch. Staff has informed Running Deer Ranch representatives that the Agency currently does not have a policy in place that relates to such structures; however the Agency does have an Easement policy which could possibly be updated to include a section on management of the lake surface.

C. UPDATE ON QUAGGA / ZEBRA MUSSEL PLAN

Elizabeth Krafft and Tom Shepherd reported on proactive measures for quagga/zebra mussel prevention. Activities include preparations for training inspections, and coordinating with Monterey County Parks Department and SLO County. One of the things discussed during one of the conference calls with SLO County, was setting up site visits for staff to visit Lopez Lake to observe the inspection stations and methods, and for SLO to visit our lakes here, and discuss reciprocal banding.

D. UPDATE ON SLO COUNTY ACTIVITIES

There was not a representative from SLO present to provide a report, and Mr. Buche provided a brief update. SLO has been working to repairing the Nacimiento Water Project. The stainless steel pipeline was removed and was found to be flattened. A new section of pipeline will be installed.

7. DISCUSS POSSIBLE RELEASE SCENARIO OPTIONS FOR NON-SALINAS VALLEY WATER PROEJCT WATER DELIVERY SEASON

Howard Franklin discussed the three conditions; open lagoon, trigger from storm flows in the Arroyo Seco or Nacimiento Rivers, and reservoir elevation. If natural flows do not meet conditions, they must be met with enhanced flows. The Committee discussed the various scenarios. It was suggested that this topic be combined with the *RESERVOIR STATUS AND RELEASES* agenda item.

8. SET NEXT MEETING DATE AND DISCUSS FUTURE AGENDA ITEMS

The next meeting is scheduled for Thursday, February 7, 2013 at 1:30 p.m. at the Agency. Heritage Ranch emergency water system will be placed on the Agenda for discussion.

9. ADJOURNMENT BY CHAIR KEN EKELUND @ 2:40 P.M.

SUBMITTED BY: TERESA CAMPA

WATER RESOURCES AGENCY

MEMORANDUM

Monterey County

DATE: January 30, 2013

TO: Reservoir Operations Committee

FROM: Howard Franklin

SUBJECT: Reservoir Release Update

RESERVOIR ELEVATION / STORAGE: As of the date of this memorandum, San Antonio Reservoir is at approximately 747.25 feet mean sea level (msl), 186,263 acre-feet of storage. Nacimiento Reservoir is at elevation 758.55 feet msl, 181,413 acre-feet of storage. San Antonio Reservoir is currently at 56% of storage capacity and Nacimiento Reservoir is at 48% of capacity.

RESERVOIR RELEASES: October 19, 2012 marked the end of the 2012 Diversion Season at the Salinas River Diversion Facility (SRDF). Impoundment of water at the SRDF ended on November 15, 2012 and the gates were completely lowered.

On December 4, 2012 storm activity prompted the breaching of the Salinas River Lagoon. With diminishing natural flows, the river mouth closed to the ocean on December 21st. Five days later, on December 26th, winter storm activity resulted in a reopening of the lagoon to the ocean. On January 28, 2013 the lagoon mouth closed to the ocean.

Releases from Nacimiento Reservoir were reduced to minimum fisheries flows on October 23, 2012. Releases from San Antonio Reservoir were reduced to minimum fisheries flows on October 29, 2012.

Current releases are as follows:

Nacimiento Reservoir:	60 cfs
San Antonio Reservoir:	10 cfs

Total releases from both reservoirs to the Salinas River are approximately 70 cfs. As of the date of this memorandum the following "provisional" flows have been recorded by the USGS and/or Agency:

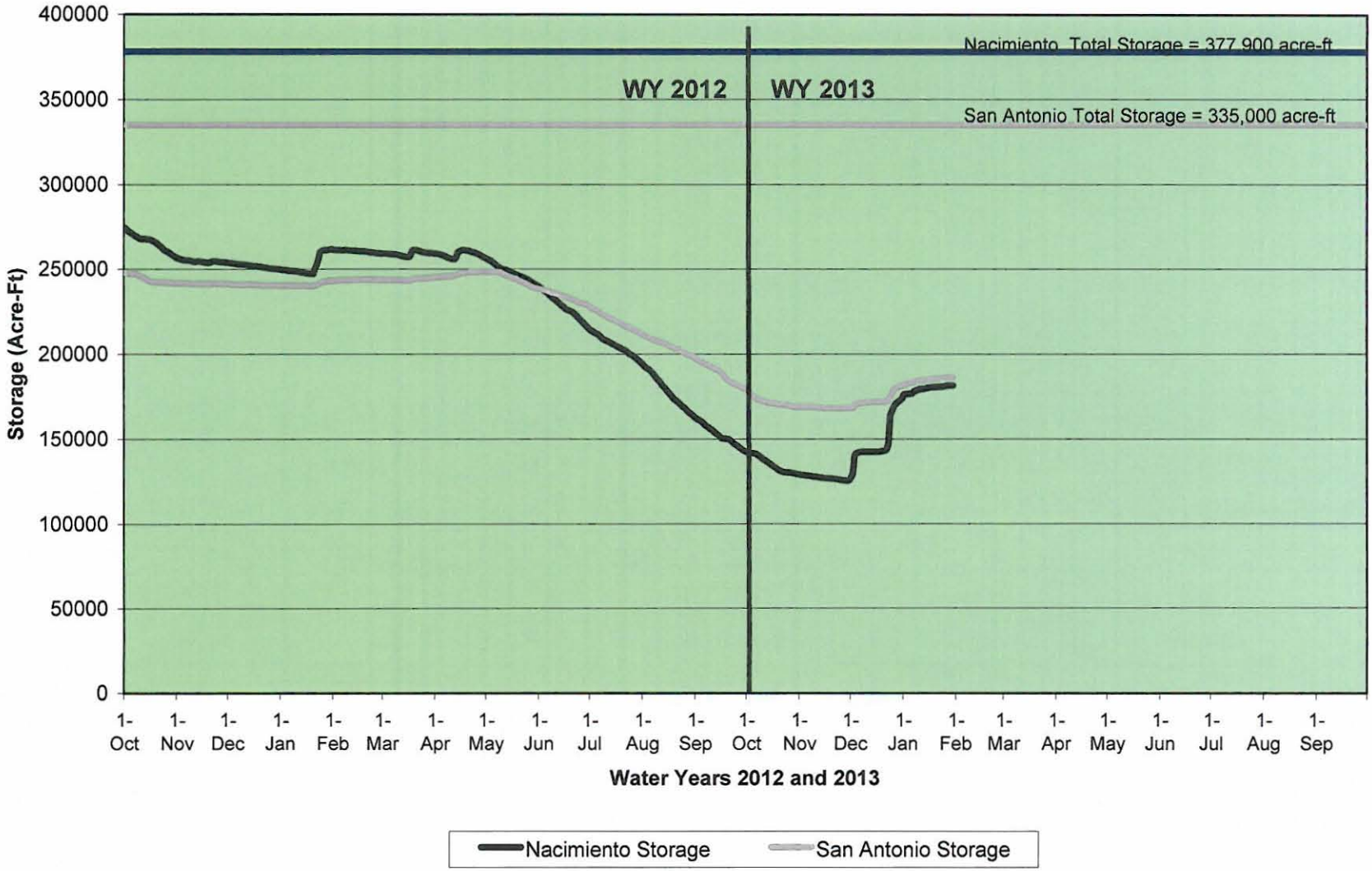
- Salinas River near Spreckels: 4 cfs (pooling)
- Salinas River near Chualar: 29 cfs (decreasing)
- Salinas River near Soledad: 69 cfs (steady)
- Salinas River near Bradley: 94 cfs (steady)

Synopsis of Reservoir Release Changes from
October 1, 2012 to January 30, 2013

	San Antonio Reservoir		Nacimiento Reservoir		
Date	Starting Flow	Ending Flow	Starting Flow	Ending Flow	Total Releases
October 1, 2012	300	550	233	39	589
October 2, 2012	550	550	39	23	573
October 3, 2012	550	500	23	24	524
October 4, 2012	500	500	24	25	525
October 5, 2012	500	425	25	60	485
October 6, 2012	425	125	60	350	475
October 8, 2012	125	150	350	350	500
October 12, 2012	150	100	350	350	450
October 15, 2012	100	75	350	350	425
October 16, 2012	75	50	350	350	400
October 20, 2012	50	50	350	250	300
October 22, 2012	50	50	250	90	140
October 23, 2012	50	90	90	60	150
October 26, 2012	90	75	60	60	135
October 29, 2012	75	10	60	60	70
November 28, 2012	10	10	60	300	310
November 28, 2012	10	10	300	100	110
November 29, 2012	10	10	100	60	70

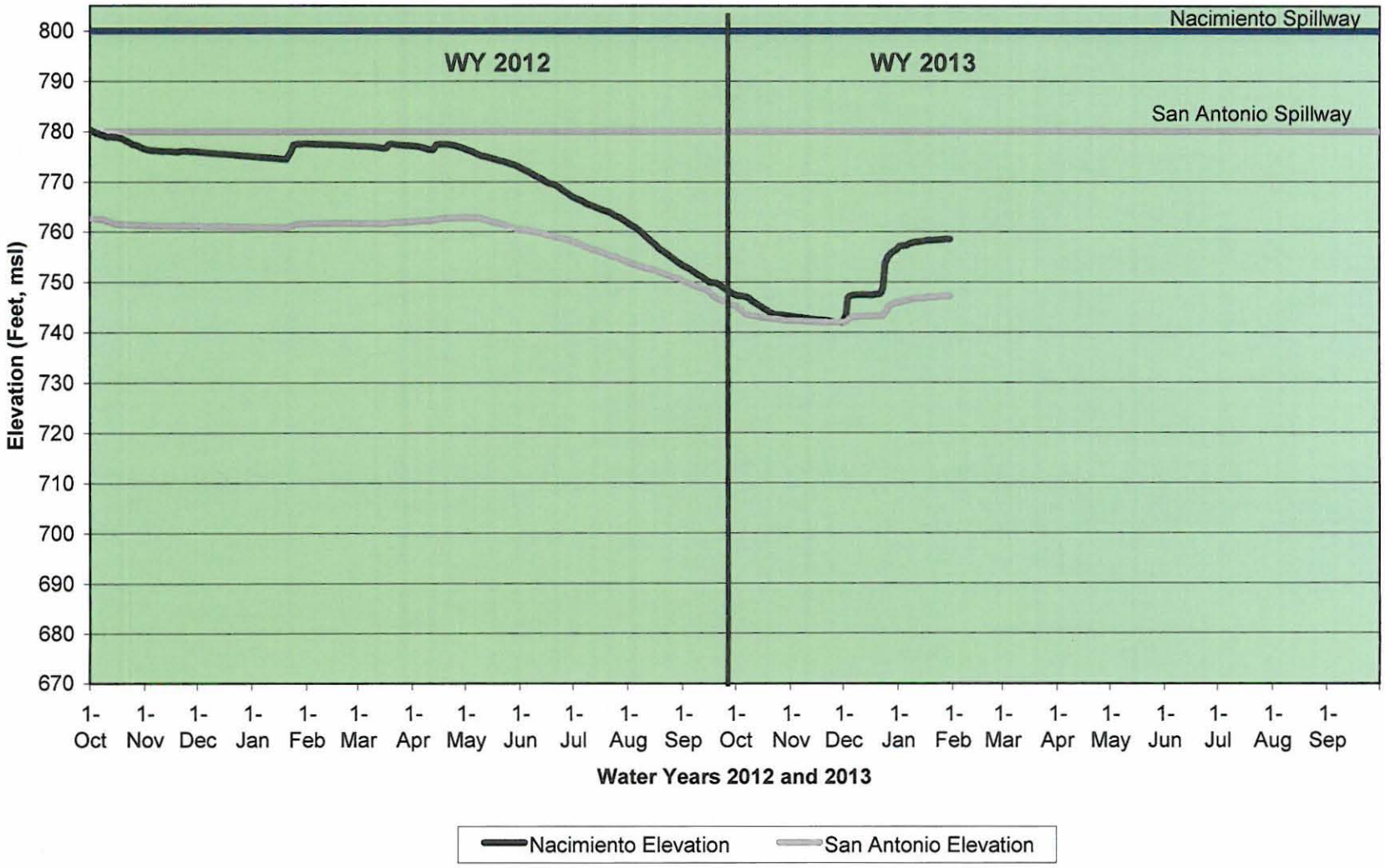
ATTACHMENT 2a

Reservoir Storage



ATTACHMENT 3

Reservoir Elevation



ATTACHMENT 3a

MONTEREY COUNTY WATER RESOURCES AGENCY

PRELIMINARY - Estimated Elevation/Storage/NWP Diversions; after Jan. 1st

1/30/2013

RESERVOIR RELEASE SCHEDULE FOR 2013

			NACIMIENTO							SAN ANTONIO				
	Combined Releases (cfs)*	Combined Releases (ac-ft)	Evap. Losses (ac-ft)**	Reservoir Releases (cfs)*	Reservoir Releases (ac-ft)	NWP Orders (ac-ft)	NWP Diversions (ac-ft)	**Storage** (ac-ft)	**Elev.** (ft)	Evap. Losses (ac-ft)**	Reservoir Releases (cfs)*	Reservoir Releases (ac-ft)	**Storage** (ac-ft)	**Elev.** (ft)
1/1/2013								**176,101**	**757.1**				**181,623**	**746.0**
	70	620	396	60						276	10	620		
2/1/2013								**181,413**	**758.6**				**186,263**	**747.3**
3/1/2013														
4/1/2013														
5/1/2013														
6/1/2013														
7/1/2013														
8/1/2013														
9/1/2013														
10/1/2013														
11/1/2013														
12/1/2013														
1/1/2014														
TOTALS:		**620**	**396**		**0**	**0**	**0**			**276**		**620**		

* Mean daily flow for the month in cubic feet per second.

** Evap. Losses estimated from long term pan evaporation data at Nacimiento and San Antonio Reserviors.

NOTES:

1. Nacimiento Reservoir storage capacity 377,900 acre feet.
2. San Antonio Reservoir storage capacity 335,000 acre feet.
3. Reservoir Operations Committee may make release consideratons for fish spawn and holiday periods to benefit recreation.
4. Shaded areas represent periods when elevations are influenced by inflow/runoff; releases may include flood control releases.
5. Preliminary Schelule assumes no inflow to reserviors after May 1st.
6. "NACIMIENTO "NWP Diversions" are San Luis Obispo County - Nacimiento Water Project conveyance facilities diversions. Max. allowable diversions for water year (Oct. 1 - Sept. 30) are 15,750 ac-ft.

ATTACHMENT 4

State of California—Health and Human Services Agency
California Department of Public Health

MARK B HORTON, MD, MSPH
Director

ARNOLD SCHWARZENEGGER
Governor

April 12, 2010

John D'Ornellas, General Manager
Heritage Ranch Community Services District
4870 Heritage Road
Paso Robles, CA 93446

RE: Redundant Potable Water Supply for Heritage Ranch Community Services District

Dear Mr. D'Ornellas

Thank you for submitting the letter dated March 24, 2010 to the Department of Public Health, Drinking Water Program (Department) regarding the addition of an emergency/backup water supply for the community served by Heritage Ranch Community Services District (HRCSD). The Department has review the letter, approves of the proposal, and adds the following comments.

- The proposal requires approximately 2,500 feet of temporary piping and a temporary floating pump. HRCSD shall ensure the temporary equipment has not previously been used for applications which may make it unfit for delivery of water to a potable water treatment plant.

- HRCSD shall evaluate the existing treatment plant's ability to meet the requirements of the Surface Water Treatment Rule when treating water from the emergency/backup supply. The results of the evaluation shall be submitted to the Department for review during and comment.

- HRCSD shall describe the temporary equipment connection process and procedures used to protect the quality of the water delivered to the treatment facility (e.g. flushing).

The Department will require HRCSD to submit a permit application and associated attachments prior to adding this source to the drinking water system. Permit application attachments include environmental documentation (e.g. negative declaration, etc.) and plans and specifications. HRCSD shall submit intermediate design plans (e.g. 70% design) to the Department for review and comment.

Southern California Drinking Water Field Operations Branch
1180 Eugenia Place, Suite 200, Carpinteria, California 93013
(805) 566-1326; (805) 745-8196 fax
Internet Address: http://www.cdph.ca.gov/programs/Pages/DDWEM.aspx

ATTACHMENT 5

Thank you for your timely response to the Department's concerns related to the reliability of HRCSD's water supply. If you have any questions or comments regarding this letter please contact Jeff Densmore at (805) 566-1326.

Sincerely,

Kurt Souza, P.E., Chief
Southern California Section
CDPH-DWFOB

ATTACHMENT 5

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS
Paavo Ogren, Director

County Government Center, Room 207 • San Luis Obispo, CA 93408 • (805) 781-5252
Fax (805) 781-1229 email address: pwd@co.slo.ca.us

MEMORANDUM

DATE: **May 26, 2010**

TO: **Reservoir Operations Committee**

FROM: **San Luis Obispo County Flood Control and Water Conservation District**

VIA: **Paavo A. Ogren, Director** PAO
Public Works Department, San Luis Obispo County

SUBJECT: **Emergency Plan for Heritage Ranch Community Services District**

Recommendation

The San Luis Obispo County Flood Control and Water Conservation District (District) recommends a verbal discussion with the Reservoir Operation Committee (Committee) members regarding the efforts of Heritage Ranch Community Services District to develop an emergency plan for obtaining water, as required by the California Department of Public Health.

Discussion

Heritage Ranch Community Services District (HRCSD) utilizes water from Nacimiento Reservoir as their sole source of supply. Attached is correspondence and analysis prepared by HRCSD and their engineering consultant on the development of an emergency plan in the event that the reservoir level falls below the low level intake. The rights of the District to implement the plan envisioned by HRCSD pursuant to the 1959 agreement, including amendments, are currently under review by legal counsel. As a result, no action is requested at this time, and understandably, additional dialogue will be necessary between staff before the development of recommendations and approvals identified in the attachments prepared by HRCSD. Nevertheless, Committee discussions at this point are desirable to provide an overview of the basic approach being pursued by HRCSD, and to recognize that at this time, MCWRA has not provided any implied approvals or determinations regarding rights to pump from the dead pool utilizing the low level intake to accommodate downstream releases.

ATTACHMENT 6

Other Agency Involvement/Impact

The District's water entitlement is established by the 1959 Agreement executed by the District's Board of Supervisors, and the former Monterey County Flood Control and Water Conservation District's Board of Supervisors, now under the control of the MCWRA's Board of Directors. HRCSD is a user of a portion of the District's supply. The California Department of Public Health has directed HRCSD to develop a backup supply/emergency plan for when the lake level is below the low level intake.

Financial Considerations

No financial impacts exist for a discussion of this item. HRCSD is solely obligated on costs associated with complying with direction from the Department of Public Health.

Results

The result of this subject is to begin the dialogue at the Committee level as HRCSD is endeavoring to comply with direction from the Department of Public Health.

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MEMORANDUM

Date: March 22, 2010

To: JOHN D'ORNELLAS, GENERAL MANAGER
KARI WAGNER, WALLACE GROUP, DISTRICT ENGINEER

From: STEVE TANAKA

Subject: UPDATED EMERGENCY WATER SUPPLY EVALUATION, HERITAGE RANCH COMMUNITY SERVICES DISTRICT

This memorandum provides an update to the November 10, 2009 draft technical memorandum (TM) for evaluation of alternatives to provide an emergency water supply connection to Heritage Ranch CSD (District). The draft TM evaluated options to deliver raw water to the HRCSD water treatment plant (WTP) under the drought condition when Nacimiento Lake level reaches dead pool level (definitions of dead pool, minimum pool will follow later in this report). At this level, water can no longer be drawn from the lake by gravity, and without such emergency water provision, the District's gallery wells would be dry and the District would have no water supply under this condition. Although this happens rarely, just this year in October 2009, the lake neared minimum pool level, at which point Monterey County Water Resources Agency (MCWRA) generally reduces outflow from the dam significantly.

BACKGROUND

The District currently serves approximately 1,750 water services with an estimated population of 4,200 persons, based on a 2.4 persons per household density. At full build-out the District will provide water service for up to 2,900 services, or a population of approximately 6,960 persons. The District relies on a single water supply source, Lake Nacimiento. Releases from the Dam feed the District's Gallery Wells (three horizontal wells in the river bed) approximately 1 mile downstream of Nacimiento Dam. Typically, the Nacimiento River is fed year-round by the release of water through the upper and/or lower outlet works in the dam at Lake Nacimiento. The release of the water is monitored and controlled by Monterey County until the water level of the Lake drops below 687 feet (this elevation defines minimum pool level), at which time San Luis Obispo County maintains control over the lake releases. The water is primarily released to sustain habitat in the river, provide water to farmers in the Salinas valley, and halt salt water intrusion into the Salinas Valley, in addition to providing a water supply source to the District. If no water is released from the lake, which has rarely occurred in the past 50 years, the District will not have a water supply. Even though the water level of Lake Nacimiento has never dropped below the dam outlet (elevation 670, dead pool level), it has come close. The last time this occurred was in October of 1989 where the lake level diminished to within 2 feet above the lower outlet works.

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History of Lake Nacimiento

To determine how to prepare for a water shortage, it is best to first understand the history of Lake Nacimiento, its critical water levels, and the current water usage of the Lake. Operations of Lake Nacimiento began in 1957 with the construction of the Nacimiento Dam. The Dam is owned and operated by Monterey County Water Resources Agency (MCWRA). In 1987 a hydroelectric power generating facility was installed and is in operation at the Nacimiento Dam. As a result of this, the MCWRA is under the jurisdiction of the Federal Energy Regulatory Commission (FERC), which establishes conditions for operations as it relates to the water surface elevations of the Lake. The Dam is also under the jurisdiction of the State Division of Safety of Dams (DSOD), which also regulates the water surface elevations of the Lake based on time of year. MCWRA has been monitoring the Lake levels on a daily basis since 1958.

Lake Nacimiento can store up to 377,900 acre-feet (af) of water and has a surface elevation of 800 feet at full capacity. The surface area at full capacity is 5,727 acres. MCWRA maintains control of the release throughout the year, unless the Lake reaches Minimum Pool, or 687 feet. At this point, San Luis Obispo County maintains control over the release of water. At Dead Pool, or 670 feet, water can no longer flow by gravity out of the lower outlet works and users downstream of the outlet works, such as the District, will no longer have water available via the Nacimiento River.

Entitlement to water in Lake Nacimiento is shared by both MCWRA and San Luis Obispo County. MCWRA's entitlement is 180,000 af of water per year. MCWRA typically takes this entire entitlement to recharge the groundwater basin, slow sea water intrusion, and provide water to farmers in the Salinas Valley. This entitlement is taken through river diversions along the Nacimiento River. In 1959, the SLO County Flood Control and Water Conservation District executed an agreement with MCWRA for an entitlement of 17,500 afy. Of this 17,500 af, 1,750 afy is allocated to lake side users including Heritage Ranch CSD. Heritage Ranch's allocation is 1,100 afy. At this time, SLO County has not been taking their 15,750 af entitlement. However, with the construction of the Nacimiento Water Project, SLO County anticipates taking a large portion of this entitlement by 2010.

Monitoring the Lake levels is a high priority for Monterey County. As mentioned previously, if the Lake does drop below dead pool, not only will the District be out of water, so will farmers in the Salinas Valley and the habitat in the river. Therefore, it is not in MCWRA and San Luis Obispo County's interest to allow this to occur.

Recent Developments

Understanding that Nacimiento Lake was nearing minimum pool level this Fall, the California Department of Public Health (CDPH) recently (September 22, 2009) issued a letter to the District, expressing concerns of the vulnerability of the District's water supply, and has required the District provide CDPH with an emergency water supply plan by March 31, 2010. The District replied to CDPH's letter on October 7, 2009, updating CDPH on actions being taken by the District, and confirming the District's commitment to provide a viable emergency water supply plan.

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Meeting of September 17, 2009

Representatives of MCWRA, the District, and SLO County met on September 17, 2009 to discuss the District's options for providing water during minimum pool conditions, and MCWRA's plan for dam releases when Minimum Pool Level was to be reached in late October 2009. The main concern is that it was thought that water releases might cease all together at this time, and/or releases would be minimized to a degree that adequate flow to the District's gallery wells would be impacted.

Major points of this meeting are summarized as follows:

- MCWRA releases were expected to cease on October 23, 2009. Both the District gallery well and the Nacimiento Resort well could be impacted.
- MCWRA staff indicated that flows would be maintained to whatever minimum level would be required to assure adequate flow to the District's gallery well. It was agreed that a 5 cfs release would likely be sufficient for the District's and Nacimiento Resort's water supply. MCWRA staff and District Operations staff agreed to coordinate with one another to adjust dam releases to the minimum needed for ensuring the District's water supply needs are met.
- Between minimum and dead pool levels, dam releases must go through the penstock supplying the hydroelectric plant; at releases of 10 cfs and less, it is not viable to operate the hydroelectric plant, and releases bypass the hydroelectric plant.
- Various connection points were discussed, as to the best location for the District to provide a piping connection for pumping water to the District's water plant intake wetwell. It was envisioned that temporary piping would need to be laid along the narrow access road on the south side of the river, between the Dam and District's water intake facilities. A permanent pipe connection at the Hydroelectric plant leading to the access road was also envisioned, to allow for rapid connection of the temporary piping during an emergency/drought condition.

Technical Evaluation of Emergency Water Supply

During an emergency/drought condition, the District's water supply needs are estimated as follows:

• Existing Population	3,500
• Future Build-out Population	5,800
• Existing Demand,	~0.55
• Future Build-out Demand, mgd	~0.93
• Current Drought Demand, mgd	~0.26
• Future Build-out Drought Demand, mgd	~0.44

Existing Conditions. Key conditions and elevations are summarized as follows:

Dead Pool Elevation, feet MSL	670
Base of Dam Elevation, feet MSL	617 (at tie-in point)
Gallery Well Wetwell Elevation, feet MSL	621

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Distance, Hydroelectric Plant to Gallery Well, feet	0.5 miles (2,500 LF)
Access Road Profile, Highest Point Elevation, feet MSL	~730

Refer to **Figure 1** for a portrayal of the hydraulic conditions relative to Lake Nacimiento and the hydroelectric power plant. The overall pipeline alignment, to take raw water from the power plant to the District's wetwell/gallery well intake structure is shown on **Figure 2.**

Design Criteria. Design criteria are as follows:

Raw Water Delivery Required	0.44 mgd, average
Water Plant Operation	4 days per week
Delivery Rate Required, gpm	535 (24-hour, 4-day per week delivery)
Delivery Rate Required, cfs	1.2 (24-hour, 4-day per week delivery)
Pipe Diameter@5 fps velocity, inches	8

Platform Intake Pump. When dead pool elevation is reached, water from the lake must be pumped into the penstock to feed water to the hydroelectric plant. A floating platform pump would be suitable for this application. The pumps can be equipped with optional floating discharge piping, extended power supply cords, and pump controls. A suitable pump supplier, Pirahna Pumps, was contacted and information was reviewed on their website. A floating-type pump, 6.5 HP, 4" discharge, requiring 460v/3PH power, was considered. Other pumps can be reviewed to get the best fit for pumping capacities and head conditions. This is a low-head pump application, since pumping will be directly to the intake structure of the penstock. At the time this pump is needed, details of how the discharge from this pump will convey water to the intake structure will be addressed.

This particular pump can pump at 500 gpm@15' TDH. This is within a reasonable range of the required flow of 530 gpm. The pump would be equipped with a flotation device (see photo above right), and an anchor to stabilize the platform. Inquiries were made as to if these pumps and flotation devices can be available by rental, and this particular company did not have rentals available. The data sheet for this pump is included as Attachment A.

Power Supply. The floating pumps can be equipped with varying lengths of power cord, depending on site conditions. However, after a certain length of cord, power losses will begin to compromise power to the pump. With the pumping scenario of dead pool condition, it is likely that a temporary power source must be provided at the new shoreline at dead pool elevation, to power this pump. It is envisioned that a standby portable gas or diesel powered generator should be provided (rented) for this purpose. Based on the size of the pump/generator required, the local Air

Quality Management District indicated this application would be exempt from permitting (less than 50 HP does not require an AQMD permit).

Connection to Hydroelectric Power Plant. There were two basic locations considered for a suitable tie-in point at the hydroelectric power plant, the "downstream" side and the "upstream" side. The downstream side of the plant (see photos below) had one location where a pipe could be tied into; however, this connection point would have required considerable modification to the existing valve, and there was no reasonable pipeline alignment on this side of the plant.

On the upstream side of the plant, there were two possible tie-in locations to ancillary piping to the penstock. These locations would be near the exterior wall to the hydroelectric power plant on either pipe connecting to the penstock, and the connection would include two isolation gate valves (to isolate the new raw water feed line from the connecting pipeline), a blow off, and check valve. Based on the needed water supply, an 8" diameter connection is recommended. Pipe material is recommended to be all welded steel to match existing pipe material. Both of these locations would be difficult from an access standpoint. However, after receiving comments from MCWRA, the tie-in point will be on the bypass pipeline, immediately adjacent to the penstock (on the right side, or south side of penstock). The penstock can be shut down and isolated to allow construction of the new tie-in. This new pipeline will then be extended to an open area to the west, near the base of the dam (near an existing fire hydrant, see photo at right), where a future in-line pump will be rented and connected to this permanent piping. The design of the piping will allow quick and easy connection of this pumping equipment. Also, a permanent electrical service and meter can be extended from the switchyard to the area near the fire hydrant (approximately 90 feet) to serve this future pump.

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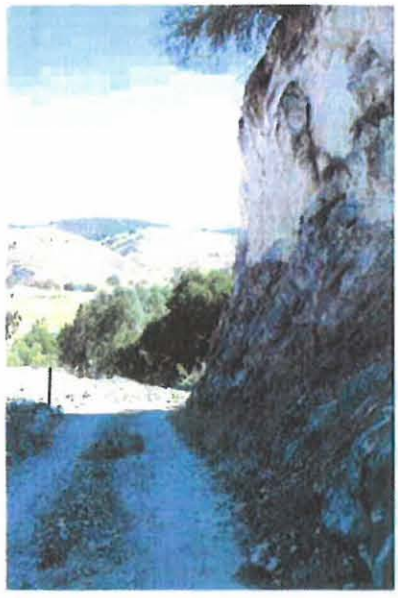
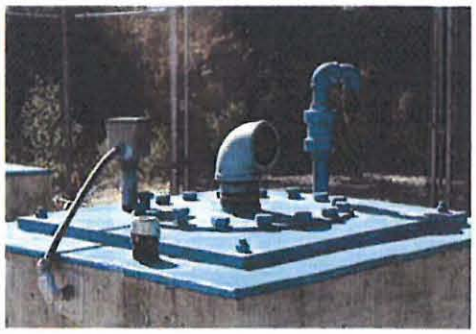
Originally, it was proposed that the permanent piping would extend west and up the slope of the dam; however, subsequent comments from MCWRA indicate that permanent physical construction of piping on the toe of the dam will not be allowed. Thus, it is envisioned that at the time this emergency water supply project is needed, temporary piping will be laid up the slope of the dam at this location up to the access road, and will be placed in a protective sleeve to prevent the potential for any erosion from pipe/pipe joint leakage.

Temporary Piping Layout. The existing access road on the south side of the river is the only available and viable pipeline alignment. Consideration was given to a riverbed alignment; however, the environmental ramifications would be significant. Furthermore, at the time the temporary piping would need to be laid down, there could still be flow in the river (releases prior to reaching minimum pool elevation). Discussions with MCWRA staff indicate the access road above the hydroelectric power plant on the south side of the river would be acceptable so long as vehicle access is maintained. Although placing a temporary pipe on this access road is viable, the placement of such temporary piping must consider the following:

- The access road cannot be blocked as part of this pipe installation.
- The "downslope" side of the access road is not recommended, due to "pinch point" areas caused by erosion. However, MCWRA desires the pipeline to be placed on the downslope side. Exact alignment will be coordinated with MCWRA at the time the temporary piping is needed.



The final tie-in point at the District's intake structure/wetwell is shown in the photo on the right. Connection to this facility will be coordinated with the temporary piping at the time the project is needed.



Costs

Costs were estimated for the various components of this emergency water supply project. The costs are presented as three separate costs:

- Construction and engineering costs for permanent piping and tie-in to Hydroelectric Power Plant
- Purchase of Floatable Lake Pump (purchase only at time actually needed)
- Rental Equipment (in-line pump near Hydroelectric power plant, temporary piping to HRCSD water plant intake/wetwell, generator for floating pump at lake)

Construction and Engineering Costs

The permanent construction facilities, which includes tie-in to the existing fire hydrant near the hydroelectric power plant, pipeline extending up the base of the dam to the access road, manhole, electrical service to the temporary pump (located near the fire hydrant), is estimated as follows:

ITEM	QUANTITY	UNITS	DESCRIPTION	UNIT PRICE	ITEM COST	ENGINEER'S ESTIMATE
1	1	LS	MOBILIZATION	15,000	15,000	15,000
2	1	LS	CONSTRUCTION SURVEY	7,500	7,500	7,500
3	1	LS	TIE-IN AT HYDRO PLANT	10,000	10,000	10,000
4	200	LF	PERMANENT PIPE TO ACCESS ROAD	200	40,000	40,000
5	1	LS	ELECTRICAL	10,000	10,000	10,000
			PROBABLE CONSTRUCTION COST			82,500
			CONSTR. CONTINGENCY (20%)			16,500
			TOTAL ESTIMATED CONSTRUCTION COST			99,000

The engineering plans and specifications, review with HRCSD, MRWCA, PG&E, and DSOD, are under contract at $37,000. Construction management is estimated at $25,000. The environmental services contract value is approximately $13,000.

The permanent construction work is estimated as follows:

- Design $ 37,000
- Environmental $ 13,000
- Construction $100,000
- CM Services $ 25,000
- Total: $175,000

Purchase of Lake Pump

As indicated earlier in this report, a preliminary pump selection was made for the floating pump needed to pump lake water to the intake structure. The pump is attached to a floating support to carry the weight of the pump. A suitable rental pump could not be located at this time; however, this option should continue to be pursued if and when this pump is needed. If purchased, it is recommended that this pump be purchased at the time actually needed, so that equipment does not sit idle for extended periods of time. The costs for this pump and flotation device are as follows:

- Pump, purchase price: $3,659
- FP-1 Flotation Device: $1,206
- Subtotal $4,865
- Sales Tax $ 365
- Total: $5,230
- Shipping: $ 500
- **Budget, say** **$6,000 (direct purchase by HRCSD)**

Rental Equipment

In addition to construction/engineering costs for permanent facilities, since this project will be very infrequent in nature, it will be prudent to rent as much equipment as practicable. It is recommended that the following items be rented at the time needed:

- 8" diameter aluminum piping w/victualic couplings, 2,500 LF
- In-line 20-HP Pump, 530 gpm@70 feet TDH
- 20 kW Generator to power Lake Pump

The costs for rental are summarized as follows:

Piping, $2,300/month
In-line Pump, $2,000/month
Generator and ancillary tank, $1,700/month
Delivery and Pickup, $500

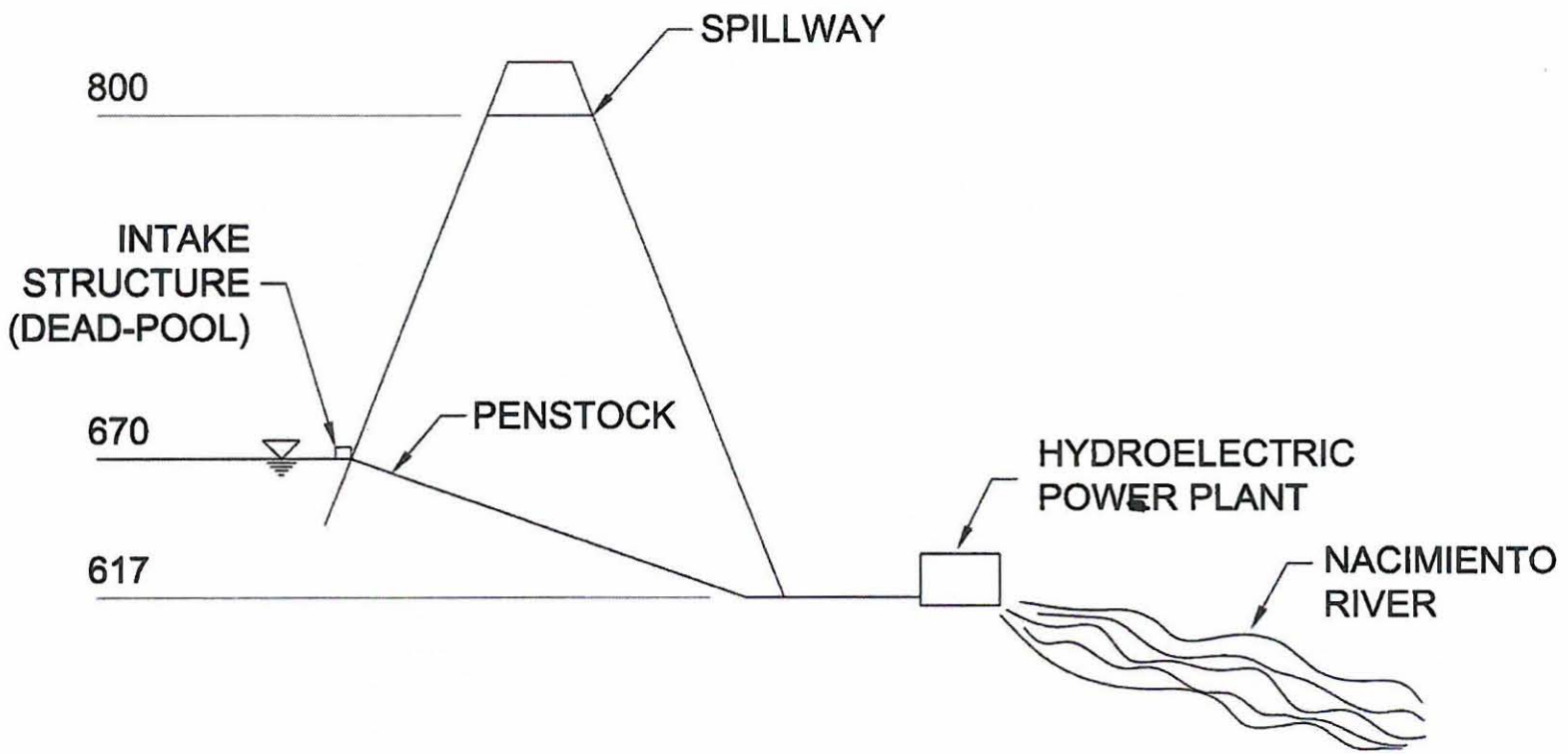
Operation and Maintenance Costs

Power and fuel costs were estimated for both the lake pump, and in-line pump, based on pumping and head requirements, at 530 gpm, for 24 hours per day, 4

days per week operation. Using $0.12/kwH for power, weekly energy costs are estimated as follows:

Lake Pump	$60/week
In-Line Pump	$175/week
Total Power:	$235/week, say, $250/week, or approximately $1,075/month

ATTACHMENT 7



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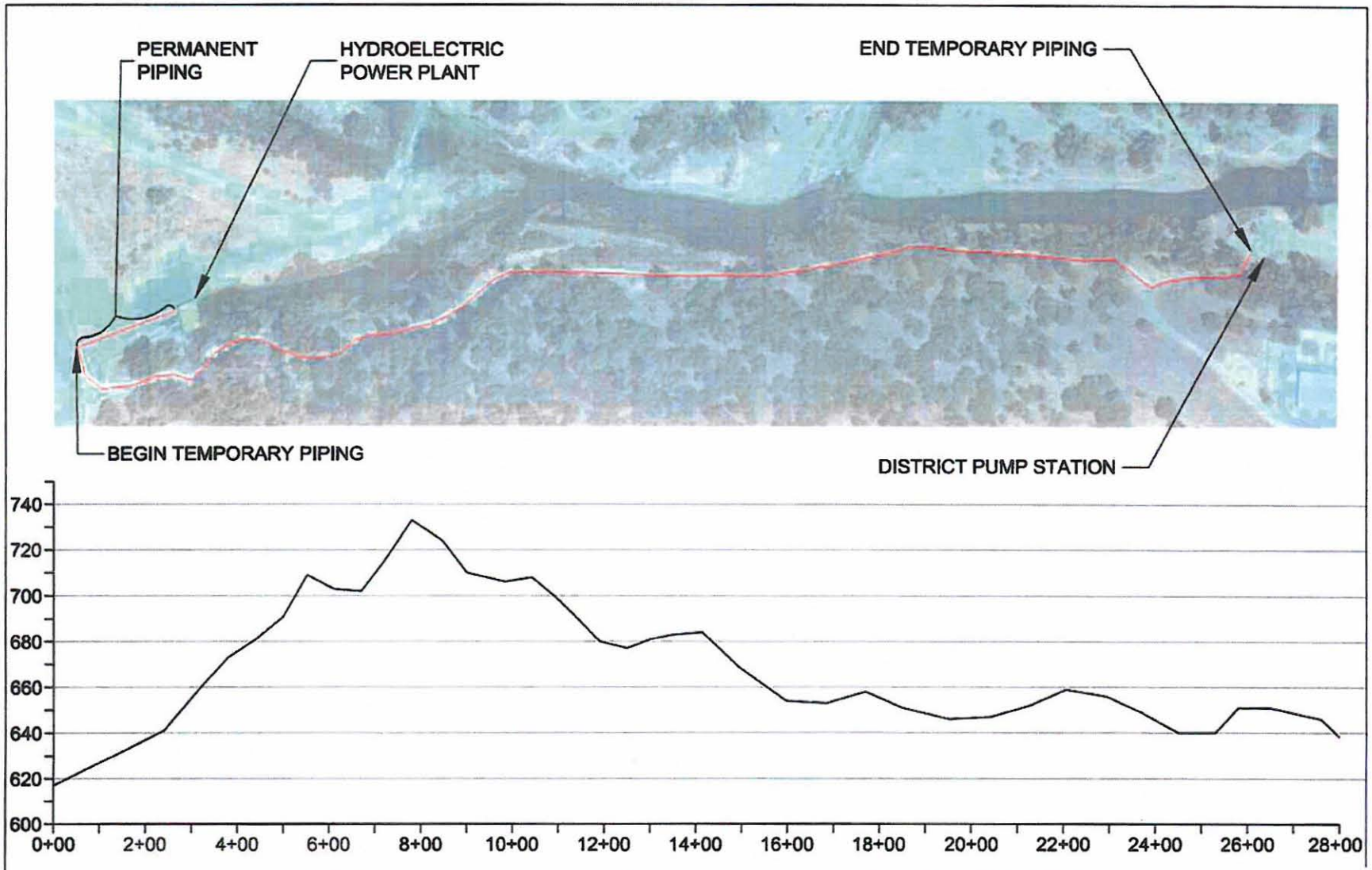
HERITAGE RANCH CSD
EMERGENCY WATER SUPPLY
HYDRAULIC PROFILE
FIGURE 1

JOB No. :	0160-0003
DRAWING :	FIG 1
DRAWN BY:	MJB
DATE :	11-09-2009
SCALE :	NTS

ATTACHMENT 7



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HERITAGE RANCH CSD
EMERGENCY WATER SUPPLY
PLAN AND PROFILE
FIGURE 2

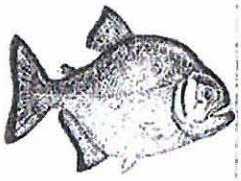
JOB No.:	0160-0003
DRAWING:	FIG 2
DRAWN BY:	MJB
DATE:	11-09-2009
SCALE:	1"=300'

ATTACHMENT 7

ATTACHMENT A

PIRANHA PUMP (FLOATING PUMP FOR RESERVOIR)

PIRANHA PUMPS ARE MADE BY: EQUIPMENT SPECIALTIES CO. ALBUQUERQUE, NM
PHONE: (505) 822-0449 FAX: (505) 858-0171



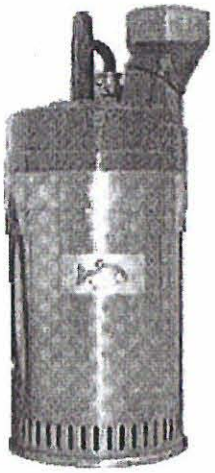
Piranha

Submersible Dewatering Pumps
Model P-650
6.5 HP / 3 & 4 Inch Discharge
230v/460v/575v three phase

Home Of Piranha Pumps *www.piranhapump.com*

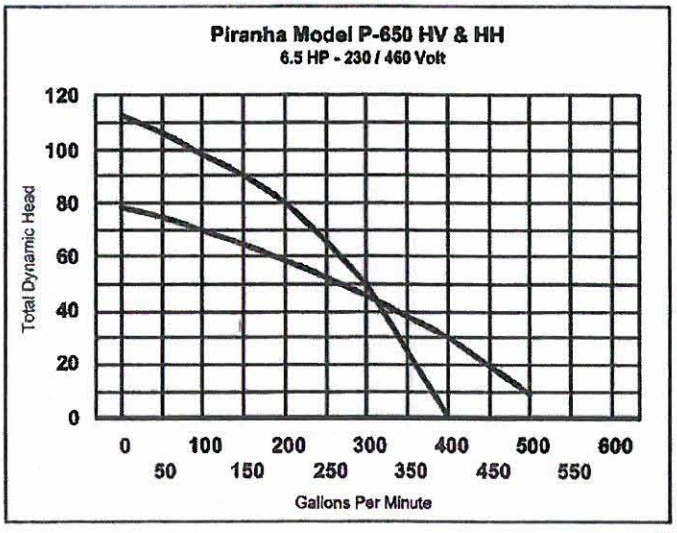
Pump Construction

- Housing 356T6 Al Alloy
- Mechanical Seals Silicon Carbide
- Impeller Heat Treated 17-4 PH SS
- Rotor Shaft 416 SS
- Lower Diffuser Nitrile Rubber – Adjustable
- Discharge Lining Nitrile Rubber
- Strainer 316 SS 1/4" x 1" Openings
- Hardware 304 SS
- Pump Weight 80 Lbs
- Lifting Handle 316 SS With Rubber Grip
- Dimensions: HV 25.5" H x 10.75" D
- Dimensions: HH 22.75" H x 10" D



Motor Specifications

- Motor Seal Double Oring
- Rating 3 Phase 6.5 HP
- Voltage 230 / 460 Volt
- Current F.L.A. 17.8 / 8.9
- Thermal Overload 2 Integral Switches
- Circuit Breaker Short Circuit, Locked Rotor, & Overload Protection
- RPM 3450
- Insulation Class F / 310 Degrees F
- Power Cable 50' 12/4 SOW-A
- Control NEMA 4X



4N

ATTACHMENT 7

HERITAGE RANCH
COMMUNITY SERVICES DISTRICT

DRAFT

MEMORANDUM

TO: Reservoir Operations Committee, MCWRA

FROM: Heritage Ranch Community Services District
John D'Ornellas, General Manager
Steve Tanaka, District Engineer

DATE: June 3, 2010

SUBJECT: **Emergency Water Supply Project**

Background

Heritage Ranch Community Services District (HRCSD) provides water, wastewater, and solid waste services to the community of Heritage Ranch. This community consists of 1,750 residential home water services, a public school, and a small commercial center. Heritage Ranch was once primarily a weekend or summer residence to many home owners. This has changed over the last ten years with most residents now living full-time in the community and working in San Luis Obispo and southern Monterey counties. The annual year long population is approximately 4,200 people.

HRCSD's only water source is the Nacimiento Reservoir via the Nacimiento River. HRCSD has a water entitlement of 1,100 acre feet year (afy) of Nacimiento water of which 889 afy is currently under contract with San Luis Obispo County Flood Control and Water Conservation District (Flood Control District). HRCSD's raw water intake facility is a series of shallow infiltration gallery wells located under the Nacimiento River approximately 3,000 feet downstream of the Nacimiento Dam. The existing gallery wells consist of three 60-foot long (18" diameter) well screens laid horizontally under the Nacimiento River bed, under approximately 10-foot of rock and bedding. The water production/yield through the existing gallery wells is dependent upon a variety of factors including river flow rate and turbidity. During calendar year 2009, 564 acre feet (af) of water was treated and distributed to customers. This was the lowest water year since 2005 with 2007 being the highest water year at 625 af distributed. The water system includes a two million gallon per day water treatment plant, five storage tanks, six pump stations, seven pressure zones, and over sixteen miles of pipeline.

Emergency Water Supply

The California Department of Public Health (DPH) issued a letter on September 22, 2009, directing the HRCSD to identify options for a permanent backup/emergency water supply for Heritage Ranch. This direction was prompted by the low Nacimiento Reservoir water elevation and the potential of reduced or no water flow in the Nacimiento River. The Reservoir reached it lowest water level in many years at 9% of capacity on October 13, 2009. The HRCSD's water supply is totally dependent on a flow of water in the Nacimiento River directly below the dam. There is no viable groundwater basin in Heritage Ranch property. HRCSD did pursue an agreement with its neighbor, Camp Roberts California National Guard Base, for access to one of its groundwater wells as an emergency water supply. Unfortunately, Camp Roberts indicated they were not prepared to consider any water supply agreement with HRCSD.

Water to serve Heritage Ranch has always been available via the flow in the Nacimiento River. This source of water has never failed since the community was developed in the early 1970s. The long range weather forecast projected a rainy 2009/10 season, but HRCSD was obligated to respond to the DPH direction and identify how it will supply water to its residents if there was no flow in the Nacimiento River.

Emergency Water Supply Project

The HRCSD's emphasis for an emergency water supply project is to provide water for basic health and safety requirements of the community. The HRCSD Board of Directors adopted a water conservation ordinance to reduce water demand during any water shortage periods. This ordinance financially penalizes water users that use over a minimum base amount of water and can totally eliminate any use of water for landscape irrigation or other uses outside of the home. During any water shortage period, this ordinance can be implemented to significantly reduce the water demand at Heritage Ranch.

The HRCSD Engineer prepared a report that concluded the only viable emergency water supply project is a direct connection between the Nacimiento Reservoir and the HRCSD's gallery well system. A direct connection between the gallery well system (pump station 1) and the Nacimiento Reservoir Dam does not provide a new source of water, however it would give direct access to the HRCSD's entitlement in times of dead pool when water could not be released to the Nacimiento River. During dead pool conditions, reservoir elevation below 670 feet, water can no longer be gravity fed to the lower outlet works. The proposed project would pump water from the Reservoir into the intake structure that feeds the penstock to the outlet works, and the water would be pumped from the outlet works through a pipeline that will transport water to pump station 1. The project consists of construction of a temporary pipeline including a permanent tie-in to the lower outlet works and installation of a temporary pump station to transport water to pump station 1. The Flood Control District has the right of withdrawing its Nacimiento water entitlement through the lower outlet works. HRCSD will use this authority to establish a connection point for our water entitlement.

The HRCSD's proposed emergency water supply project may never be needed. The Nacimiento Reservoir has never been below dead pool (670 feet). It has come within 1 foot of dead pool, but gravity release water to the Nacimiento River has always been available since the construction of the dam. The project is only an emergency supply for access to HRCSD's water entitlement to maintain the health and safety of the community. A complete engineering report on the proposed project is attached.

Actions Taken to Date

- HRCSD has provided MCWRA staff and the DPH with a conceptual plan and preliminary drawings of the emergency water supply project.
- Design changes have been made based on comments received by MCWRA staff.
- The DPH has approved the conceptual plan.
- HRCSD has contracted with Rincon Consultants to conduct an environmental determination in compliance with CEQA for the project.

Actions that must be completed

- Approval from MCWRA of the conceptual project to allow final design and survey work to commence. All project costs will be funded by HRCSD.
- Develop an agreement with MCWRA detailing when and how the HRCSD will operate the emergency water supply project. All operations or maintenance costs will be funded by HRCSD.
- Receive easements and/or rights of way to construct and operate the temporary pipeline. Temporary pipeline will only be installed when the project is operated.
- Complete the environmental determination.

Attachments: Wallace Group Report Emergency Water Supply
California Department of Public Health Approval Letter