

Zone 3 Lopez Water Project
September 17, 2015
**Agenda Item VIII. A - Zone 3 Technical Advisory Committee's
Extended Drought Emergency Water Supply Options Evaluation**

September 17, 2015

MEMORANDUM

TO: Flood Control Zone 3 Advisory Committee

FROM: Flood Control Zone 3 Technical Advisory Committee

SUBJECT: Extended Drought Emergency Water Supply Options Evaluation

Recommendation

The Zone 3 Technical Advisory Committee (TAC) has been investigating potential water supply options for an extended drought and recommends that the Zone 3 Advisory Committee (Advisory Committee) submit a letter to the San Luis Obispo County Flood Control and Water Conservation District (District) Board of Supervisors (BOS) requesting a study session to further evaluate emergency water supply options for San Luis Obispo County. A draft letter to the BOS is attached for your review and consideration.

Discussion

For nearly 50 years, Lopez Lake has been an integral component of the south county water resources portfolio and for the first time in its history, deliveries to the Zone 3 agencies have been reduced. Additionally, the Zone 3 agencies' other water supply sources have been severely impacted as well. Groundwater levels are declining. Since 2009, when evidence of seawater intrusion was detected in the Santa Maria Groundwater Basin, the Zone 3 agencies that rely upon the basin have been forced to limit their pumping to approximately 30% of their groundwater entitlements to protect this critical

water supply. Additionally, in 2014 and 2015 State Water Project Allocations have been at unprecedented levels. Therefore, it is imperative that emergency sources of water are identified and secured to ensure that the Zone 3 and other south county agencies can continue to supply safe, reliable drinking water.

To help the Zone 3 agencies prepare for potential extended drought conditions, the Zone 3 TAC formed a drought preparedness subcommittee to investigate potential emergency water supply options. The subcommittee developed a list of potential emergency supply options, which are shown in Table 1.

Table 1. Potential Emergency Water Supply Options

Cloud Seeding	Investigate opportunities to utilize cloud seeding to enhance rainfall within the Lopez Watershed. This could involve cooperative agreement with Santa Barbara County.
SWP Maximization	Maximize importation of District State Water Project (SWP) supplies, including subcontractor and “Excess Entitlement” supplies.
Unsubscribed Nacimiento	Investigate transfer/exchange opportunities to obtain unsubscribed Nacimiento water for the Zone 3 agencies (i.e. exchange agreements with the City of San Luis Obispo and the Chorro Valley pipeline SWP subcontractors).
Water Market Purchases	Investigate opportunities to obtain additional imported water and deliver it to the Zone 3 agencies through the SWP infrastructure (e.g. Exchange agreements with San Joaquin/Sacramento Valley farmers, Water broker consultation, Groundwater Banking Exchange Agreements, etc.).
Morro Bay Desal	Investigate opportunities to obtain SWP water from Morro Bay by providing incentives for Morro Bay to fully utilize its desalination plant capacity.
Land Fallowing	Evaluate potential agreements with local agriculture representatives to offer financial incentives to fallow land within the Arroyo Grande and Cienega Valleys and make that water available for municipal use.
Lopez Reservoir Minimum Pool	Investigate feasibility of extracting water from Lopez Reservoir below the 4,000 AF minimum pool level. This may require utilization of emergency pumps to deliver the water to the Lopez Water Treatment Plant.
Enhanced Conservation	Evaluate opportunities for enhanced water conservation by the Zone 3 agencies beyond the Governor’s Mandatory Water Conservation Order (e.g. water rationing, no outdoor watering, agriculture water restrictions, etc.) to preserve additional water.
Diablo Desal	Utilize excess capacity from the Diablo Power Plant’s Desalination Facility to supply water to the Zone 3 agencies through a connection to the Lopez Pipeline.
Nacimiento/CMC Intertie	Complete design of pipeline that would connect the Nacimiento Pipeline to the California Mens Colony (CMC) Water Treatment Plant.

	Investigate opportunities for Zone 3 agencies to purchase Nacimiento Water and utilize exchange agreements and existing infrastructure to deliver additional water to Zone 3 through the Coastal Branch pipeline.
Emergency IPR	Investigate opportunities to develop an Indirect Potable Reuse (IPR) Groundwater Recharge System, under emergency permits, to provide a supplemental supply for the Zone 3 Agencies.
Emergency Desal	Investigate opportunities to develop a desalination facility, under emergency permits, to provide a supplemental supply for the Zone 3 Agencies.
Price Canyon Produced Water	Investigation into opportunities to recover and utilize produced water from ongoing oil operations in Price Canyon.
Upper Lopez Wells	Investigate potential water storage in aquifers upstream of Lopez Reservoir and evaluate opportunities to obtain this water supply.

The potential supply options were evaluated by the Zone 3 TAC using an agreed upon set of evaluation criteria, which included: supply benefit (quantity available); timeframe to implement; infrastructure requirements; feasibility; long term sustainability; and cost effectiveness. To assist in providing an objective evaluation, a scoring system was developed for each of the evaluation criteria. The scoring system is shown in Table 2.

Table 2. Evaluation Criteria Scoring

Scoring	Supply Benefit (Quantity Available)	Time Frame to Implement	Infrastructure Requirements	Feasibility	Long Term Sustainability	Cost Effectiveness
1	X<1,000 AFY	X>2 Yr	Significant	Very Difficult	Temporary (One-time only)	>\$2,000 AF
2	1,000<X<3,000 AFY	1<X<2 Yr	Moderate	Challenging	2-5 Year Availability	\$500<X<\$2,000 AF
3	X>3,000 AFY	X<1 Yr	Minimal/None	Easily Implemented	Indefinite Duration	<\$500/AF

The individual Zone 3 TAC members evaluated the emergency supply options utilizing the evaluation criteria and scoring system. The results of the individual scoring were then averaged together to provide a preliminary ranking for the potential emergency water supply options and are shown in Table 3 below. Not all of the specific evaluation criteria information was available for each of the supply options, however, the Zone 3 TAC members were instructed to select the appropriate scoring using their best professional judgement. Additional information on some of the potential emergency supply options has become available since the Zone 3 TAC Members completed the scoring (e.g. further

development of the Diablo Desal supply option). This additional information, if available, could have influenced the relative scoring of the potential emergency water supply options. The scoring and ranking is not intended to be a comprehensive evaluation, but was designed to provide an initial evaluation of potential supply options for further discussion.

The Zone 3 TAC is requesting that the Zone 3 Advisory Committee review the draft letter and the emergency water supply options evaluation and submit a letter to the BOS request a study session to further investigate potential actions that could be taken to ensure sufficient water supply in an extended drought. A draft letter to the BOS is included as an attachment to this Staff Report.

Table 3. Initial Emergency Water Supply Option Scoring and Ranking¹

Emergency Water Supply Option	Average of Supply Benefit (Quantity Available)	Average of Time Frame to Implement	Average of Infrastructure Requirements	Average of Feasibility	Average of Long Term Sustainability	Average of Cost Effectiveness	Average of Total Score
Enhanced Conservation	1.83	2.83	3.00	2.67	2.33	3.00	15.57
Land Fallowing	1.60	2.80	3.00	2.60	1.60	2.20	13.83
Cloud Seeding	1.40	2.00	3.00	2.40	1.60	2.60	13.33
SWP Maximization	2.20	2.17	2.67	2.17	2.00	1.83	12.67
Nacimiento/CMC Intertie	2.17	1.50	1.50	2.00	2.67	1.67	11.50
Emergency Desal	2.80	1.40	1.20	2.00	2.80	1.20	11.40
Lopez Reservoir Minimum Pool	1.60	2.40	2.00	2.20	1.20	2.00	11.40
Water Market Purchases	1.75	2.00	3.00	2.00	1.50	1.33	11.25
Emergency IPR	2.00	1.20	1.40	2.20	3.00	1.40	11.20
Diablo Desal	1.75	1.50	1.75	1.75	3.00	1.50	11.20
Upper Lopez Wells	1.25	1.75	2.00	1.75	2.25	2.00	11.00
Unsubscribed Nacimiento	2.00	1.83	1.67	1.83	2.17	1.33	10.83
Morro Bay Desal	1.40	2.20	2.40	1.60	1.60	1.40	10.50
Price Canyon Produced Water	1.80	1.00	1.20	1.40	3.00	1.40	10.00

¹ The scoring and ranking is not intended to be a comprehensive evaluation, but was designed to provide an initial evaluation of potential supply options for further discussion.