Oceano Community Services District
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MEMORANDUM

DATE: October 28, 2009

TO: Board of Directors

VIA: Raffaele Montemurro, General Manager

FROM: John L. Wallace, P.E., District Engineer

SUBJECT: Water supply issues regarding the Northern Cities Groundwater Basin

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RECOMMENDATIONS:

Staff recommends the Board:

1. Receive and file this report.
2. Direct staff to coordinate with the other agencies in the "Northern Cities Groundwater Basin" to develop a coordinated plan to diminish groundwater pumping and to facilitate the use of alternate supplies.
3. Direct staff to return to the board with more detail on the cost of alternate supplies and arrangements with other purveyors to share costs of this program.

FUNDING:

The cost to conduct groundwater monitoring, as required by the Santa Maria Groundwater Basin, stipulated judgment is being shared by affected agencies. The cost of alternate supplies to replace groundwater pumpage is being discussed with all affected agencies in order to arrive at a fair and equitable sharing of costs. Staff is continuing to meet with the other agencies within the "Northern Cities Management Area", (Pismo Beach, Arroyo Grande, and Grover Beach), to determine, first the best method for reducing groundwater pumpage and secondly the appropriate cost sharing between agencies.

BACKGROUND:

The District previously adopted several editions of a Master Water Plan with a current effort (2009) to update the previous report completed in 2004. Because much has changed in the overall management of the Northern Cities Groundwater Basin and with the limitation of supply from the State Water Project due to environmental and drought conditions, the previous plan is being updated.

The District's total available sources of water amount to 1,953 acre feet per year (AFY). The District is currently using approximately 910 AFY which is 47% of it total supply. Also according to the current draft Master Water Plan, the District is expected to reach it's buildout population of 12,855 sometime after the year 2030 if the current zoning is not changed. Current population is approximately 8,714. At the buildout population of 12,855, the District anticipates using 1,419

AFY therefore leaving an unused buffer of 534 AFY. If the population increases beyond the "buildout population" or if drought and environmental restrictions continue to limit our supply, this "buffer" could be substantially reduced. Also, with the current threat of seawater intrusion, this buffer will be reduced due to a lesser ability to utilize our groundwater allocation. Therefore it is very important to clarify the reliability of the existing sources and to investigate alternatives that will protect these sources.

The District, along with the Cities of Arroyo Grande, Grover Beach and Pismo Beach (referred to as the "Northern Cities") has been a party to the Santa Maria Valley Litigation regarding regional groundwater impacts. Two years ago, the District became a party to a settlement agreement to end this litigation. As a part of the settlement agreement, the District participates with its partners, the Northern Cities, in monitoring the groundwater basin and is required to make available an annual report on the status of the groundwater basin. This monitoring program makes use of monitoring wells across the basin, but has also included the sampling of several sentry wells located along the coast. During this past year, samples taken at the sentry well located near the Pier Avenue entrance to the State Park in Oceano displayed characteristics indicating the beginning of seawater intrusion.

The purpose of this report is to provide the Board with an update regarding the status of options the District is pursuing regarding the ongoing basin monitoring program, and to review options available for dealing with the issue noted at the sentry well in Oceano.

DISCUSSION

The District has three principal water sources: groundwater, Lopez water (Zone 3), and the State Water Project. At present, the total amount of water available to the District is 1,953 AF per year. This amount is detailed as follows:

Water Source	Acre Ft per year (AFY)
Ground Water	900
Agricultural land conversion	750
South County Zone 3 (Lake Lopez)	303
Total	1,953

The amount of water allocated from groundwater pumping and the amount of water available through agricultural conversion is controlled by the "Gentleman's Agreement". The Cities of Arroyo Grande, Grover Beach, and Pismo Beach and the Oceano Community Services District are all signatories to the agreement and all extract water from the basin. The agreement was first developed and approved in 1983. Its intent was to ensure that the safe yield of the underlying groundwater basin was not compromised. Agricultural land conversion applies as a "credit". Agricultural crops generally use 3 AF of water per year and are more water intensive than other uses. For example, as agricultural land was converted to other uses, the City of Grover Beach received a credit for the decrease in ag water consumption and water consumer by the new use. This credit allows the City to pump more (up to 209 AFY) from the basin than was originally allowed under the Gentlemen's Agreement. The City of Arroyo Grande has also obtained ag conversion credits as well. As also noted, the District is allocated 303 AF from Lake Lopez. The Lopez project is managed by the County and all costs associated with the operation of the lake are passed along to the municipal users, which includes the three Cities and the Oceano Community Services District.

Review of Water Source Options

The District has been pursuing several options to identify various additional water sources including subscribing to the purchase of "drought buffer program water" from the unused state water allocation still held by the County.

Water Conservation

Water conservation can curtail water consumption to between 5-15% under an advisory and volunteer basis. More reduction can be achieved with stringent measures including restrictive ordinances. However, other agencies have achieved good results with measures such as:

- Free low-flow toilets and water fixture retrofits
- High-efficiency washing machine rebates
- Water irrigation sensors and controllers
- Rebates for Turf Removal and Drought-tolerant Plant Replacement
- Tiered Water Rate Structure

Extend Lake Nacimiento Pipeline

The potential of extending the Nacimiento pipeline was considered as an option for some of the neighboring Cities some time ago, however, the costs were deemed to be excessive and the option was dropped from further consideration. As an example, the extension would have translated into an estimated per acre foot cost of approximately $3,827. to the City of Grover Beach.

Desalination Plant

Construction of a desalination plant at the South San Luis Obispo County Sanitation District Plant site was reviewed in a study completed by the Wallace Group in 2008. The Cities and the District received a Clean Waters Grant that paid the majority of the costs associated with the study. The study revealed that, while construction of the plant would be feasible, it would be expensive to construct. Construction was estimated in the study to cost $37,500,000. In addition, substantial ongoing operational and maintenance costs would also be incurred. Ultimately, it was estimated that the per acre foot cost for this alternative would be approximately $3,380.

Lopez Spillway Raise

The possibility of increasing the storage capacity and therefore the safe yield of the Lopez Lake water supply system was first studied in 1985. At that time, it was estimated that raising the dam spillway would result in an additional safe yield of 800 AF. In 2008, the URS Corporation was commissioned by the County of San Luis Obispo, at the request of the Zone 3 Advisory Board, to re-evaluate this type of project. Results of this second review indicated that, while there is a considerable level of regulatory hurdles to overcome, the project could result in an increased safe yield of between 731 and 916 AF. This increase would conceivably be shared amongst those entities sharing in the increased yield. The URS Corporation study indicated that a project cost would be in the order of $5,000,000. The estimates of the cost per acre ft., once this improvement is complete varies, but is presently estimated to be about $800 per acre foot. Timing of the actual production of additional water from this project would be at least five years from authorization to proceed.

The next step in the development of the project is the development of a complete feasibility study. URS had indicated an estimated cost of $160,000 for the study. The District had previously indicated that because of the adequacy of our existing water supplies that we would not participate in this project. Recently, the Director of Public Works for the City of Pismo Beach has volunteered to complete a modified Scope of Work for the study, in an effort to reduce the cost of the study.

Wastewater Reclamation

In 2001, the Wallace Group completed a Water Recycling Report and also completed an additional report regarding the use of recycled wastewater as a possible replacement water source for irrigation and possibly wildlife environment mitigation. The results of these reports indicated the costs for upgrading the South County Sanitation Plant and the costs of transmission would be prohibitive. At the time, these costs were estimated in excess of $5,000 per acre ft. However, further studies are on-going that may substantially reduce this cost. Following the completion of the City of Pismo Beach's new wastewater treatment plant, the City issued its own report on reclamation. While at first glance it would appear that the costs for the use of reclaimed or recycled wastewater might be high, properly treated water may be a source of injection into the water basin and the costs associated with this option should be further reviewed.

State Water Purchase

The District had the foresight of purchasing sufficient State water (750 AFY) as part of the County's State Water allocation. The County of San Luis Obispo allocation is 25,000 AFY and has currently retained an excess allocation of approximately 20,000 acre ft of State Water, some of which is obligated to several agencies as "drought buffer water". After subtracting the drought buffer water, approximately 16,500 acre ft of State Water remains within the ownership of the County. Also, periodically the State Water Project pipeline has the capacity to convey additional State Water to the South County. For those agencies desiring to buy "new water", acquiring a permanent allocation of County-owned State water is likely to be time consuming and costly. Staff recommends that it is prudent to negotiate with the County for a purchase of drought buffer water to augment groundwater pumping on a temporary basis or when State Water supply is limited.

Santa Maria Valley Litigation, Groundwater Monitoring

As noted, the District, as part of the "Northern Cities" was a party to the Santa Maria Valley Litigation. In accordance with the Settlement Agreement, the Northern Cities have engaged the firm of Todd Engineering to complete an extensive monitoring of the water basin and to prepare an annual report that is provided to the Court and interested parties. The monitoring being done by Todd Engineering includes groundwater surface elevation monitoring to see how the groundwater system is responding to the continuing drought and the extraction of water by urban and agricultural entities. The monitoring specifically includes the study of four "sentry" wells located along the coast from Pismo Beach to just south of Oceano. These wells are situated in such a location as to provide "early warning of impending deterioration of water quality and, in particular, seawater intrusion.

The sentry wells have been in place for some time and have been monitored inconsistently since the 1970s. Most recently, Todd Engineering sampled the sentry wells as a part of their

monitoring activity. The sampling took place in May and August of this year. The results of these tests displayed a rise in sodium, chloride, and potassium in one well located in Oceano. All of the constituents noted are common in seawater and could therefore indicate the onset of seawater intrusion.

While the possible onset of seawater intrusion needs to be taken very seriously, the issue needs, at a minimum, further review. It should be noted that while the constituents noted in the one well did increase significantly between the first testing completed in May and the second round of testing completed in August, none of the remaining three wells showed any indication in water quality deterioration. It should also be noted that the water levels within the District's wells seem to have remained fairly static, despite the drought conditions.

There are several activities that staff has undertaken to deal with this potential issue, and we would recommend the following:

1. Continue the annual groundwater monitoring program as provided by Todd Engineering (this is mandated by the Santa Maria Groundwater Basin Settlement Agreement).

2. Continue to work cooperatively with our neighboring agencies comprising the Northern Cities to identify potential sources of water as may be necessary to augment (decrease) groundwater pumping.

3. Investigate with the County the purchase of State drought buffer water in cooperation with the "Northern Cities".

4. Return to the Board with more detail on the costs of alternate supplies including the drought buffer program and discuss what arrangements are to be made with other purveyors to share the costs of this program.

Attachments

1. Monitoring Well Locations
2. Oceano Well Site Information
3. Oceano Wells – Static Water Level Above Sea Level

September 2009

TODD ENGINEERS
Alameda, California

Figure 1
Location of Sentry Wells

Oceano Well Sites Information

	Date Drilled (year)	Well Depth (feet)	Present Water Production (gpm)	Well Head Elevation (above msl/feet)	Static Level Below Well Head Elevation (feet in Oct 09)	Water Level Above Sea Level (feet)	Notes
Well 4	1952	200	200	85.33	81.56	3.77	Production has dropped 30% in last 15 years High selenium (Se) for last 10 years However, selenium (Se) is going down Some months selenium (Se) is under MCL 50 mg/l High in NO_3 in the 70's and 80's (MCL 45 mg/l) But this has gone away with no ag irrigation
Well 5	1952	200	650	89.48	82.43	7.05	Natural gas High selenium (Se) for last 10 years However, selenium (Se) is going down Some months selenium (Se) is under MCL 50 mg/l High in NO_3 in the 70's and 80's (MCL 45 mg/l) But this has gone away with no ag irrigation
Well 6	1979	487	300	86.13	83.43	2.70	Relined / acid cleaned
Well 7	1984	162	Standby	35.99	35.45	0.54	High iron (Fe)
Well 8	1984	525	900	34.06	30.28	3.78	125 Hp electric generator
Test Well (Green)	-	-	-	38.78	33.28	5.50	
Test Well (Blue)	-	-	-	38.78	31.77	7.01	
Test Well (Silver)	-	-	-	38.78	31.64	7.14	
Test Well (Yellow)	-	-	-	38.78	30.09	8.69	

OCSD Wells
Static Water Level Above Sea Level
(October 2009)