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December 3, 2007

Nipomo Community Services District
148 Wilson Street
P.O. Box 326
Nipomo, CA 93444

(805) 929-1133 Phone
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Dear Bruce Buel:

During the Friday 30th 2007 special meeting and planning workshop there was a presentation by Mike Nunely (spelling?) from Boyle Engineering on Salt. I am making a public record request for a copy of the slide presentation.

Also during that presentation Mike referenced sending NCSD a technical memorandum on sodium, cloride and water softers. I am requesting a copy of that technical memorandum.

Thank You

Harold Snyder

Hand Delivered.

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December 13, 2007

Mr. Harold Snyder
P. O. Box 926
Nipomo, CA 93444

SUBJECT: DECEMBER 3, 2007 PUBLIC RECORDS REQUEST RE SALT MANAGEMENT

Dear Mr. Snyder,

Attached is a copy of the Slide Presentation and Technical Memorandum per your request.

If you have any questions, please don't hesitate to call me.

Sincerely,

NIPOMO COMMUNITY SERVICES DISTRICT

Bruce Buel
General Manager

CC: Public Records Request File
Chronological File

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Salt Management

NCSD Strategic Planning Workshop

November 30, 2007

Presentation Overview

- What we know
- What we don't know
- Options

What we know

- RWQCB has high interest in regulating salts
- WDR's often contain salt limits
  - Black Lake WWTF has salt limits
  - Southland WWTF has receiving water limits
  - Salt management typically required as well

What we know (Cont.)

- Monthly monitoring reports indicate salt violations occur at Black Lake
- RWQCB has ability to fine dischargers for violations
- Brine from self-regenerating water softeners (SRWS) contains remarkable salt concentrations
  - Examples: Santa Clarita, Paso Robles

What we don't know

- Salt contributions or significance of brine discharge from SRWS in causing violations
- Number of SRWS in either Black Lake or Town division
- Future permit conditions at either Black Lake or Southland WWTF
- Deep aquifer (receiving water) conditions at Southland site

Salt Management Options

- Wellhead treatment
- Regulating self-regenerating water softeners
- Enhanced treatment at WWTFs

- Goals must be community-based
  - Proposition 218

MEMORANDUM

TO: Bruce Buel, Peter Sevcik, PE

November 9, 2007

FROM: Mike Nunley, PE

SUBJECT: Salt Removal Allowance

Salt management has become a significant concern for wastewater treatment agencies around California. Nipomo Community Services District directed Boyle to provide a planning-level opinion of cost to remove salt from the District's groundwater supply, in an attempt to determine the "value" of discontinuing use of onsite-regenerating water softeners within the District service area. In order to perform this analysis, we relied on the following information :

1) 2007 Water Production for Town System = 3008 acre-feet per year (AFY)

2) Maximum Day Demand (MDD) for 2007 = 4.6 million gallons per day (MGD)

3) The Town System water supply had an average total dissolved solids (TDS) concentration of 666 mg/L according to the 2006 Consumer Confidence Report (CCR).

4) According to data from the District's 2005 Salt Study and Self-Monitoring Reports at the Blacklake Wastewater Treatment Facility (WWTF), increase in total dissolved solids (TDS) between well water and WWTF plant influent was approximately 261 mg/L. This increase was assumed for the Town System as well.

5) 200 mg/L is a typical increase in TDS for water systems without onsite-regenerating water softeners. Therefore, it is assumed the source water TDS should be reduced by approximately 60 mg/L to account for contribution of brine from these softeners.

Treatment Approach

Salts could either be removed at the Southland WWTF or at District wells. Less pretreatment would be required for salt removal from groundwater than from treatment plant effluent. Therefore, it is assumed TDS would be removed from District groundwater. Several District wells could be routed to a central treatment facility. The cost for combining these wells is not considered in this memorandum, but is likely to be a significant increase over treatment costs.

An option commonly used for removing TDS from groundwater is reverse osmosis (RO). However, a concentrated brine will be generated that will require disposal. Recovery of 75% is expected from the treatment system. Assuming the RO system will reduce TDS from 666 to 100 mg/L in the groundwater supply, a ratio of 1:8 (permeate to groundwater) would produce a TDS of 600 mg/L. Therefore, during a maximum day, approximately 0.5 MGD of permeate and 4.1 MGD of raw groundwater would be required. Assuming 75% recovery, the RO system would be sized for approximately 0.67 MGD. The system would would require 500 AFY of raw water to yield 375 AFY of permeate to meet water quality goals.

Not including brine disposal costs, the cost for this facility (at $3/gpd for groundwater RO) would be approximately $2M with an additional 40% for contingency and engineering costs, or $2.8M planning-level project cost. Operation and maintenance costs for a groundwater RO system would be approximately $400/AF ($270,000 per year) based on similar systems.

Brine Disposal

Brine disposal will be a challenge, since the TDS concentration will be over 2000 mg/L and the Basin Plan objective for the Nipomo groundwater basin is 710 mg/L. Assuming a second RO stage followed by mechanical vapor compression and crystallization are used to recycle the brine and produce dry salt for offsite disposal, the cost for these stages would be approximately 1.5 times the RO cost listed above ($4.2M) including construction, contingencies, and engineering, and another $600/AF of total plant inflow ($430,000 per year) for operation and maintenance.[1] Nearly all water entering the RO facility would be available for use to customers, if this alternative is pursued, and no discharge of brine would be required. Conceptually, this disposal option would provide the same benefits as eliminating onsite-regenerating water softeners. Other options for brine disposal may be pursued, such as deep injection or ocean discharge.

Summary

Therefore, a "salt removal cost", based on the assumptions stated above, would be approximately $7.5M in capital cost and $700,000 per year in operations and maintenance costs in order to reduce TDS by 60 mg/L, as opposed to eliminating onsite-regenerating water softeners. This does not include costs to build pipelines to connect District wells to a central treatment facility. Those costs are expected to be substantial.

This study is not intended to be a detailed treatment evaluation. Other treatment approaches should be explored if source water treatment is desired, but this analysis is considered adequate for a "planning-level" opinion of the "value" of eliminating these types of softeners.

[1] Cost Estimates Derived in Water Source Evaluation, City of El Paso de Robles (September, 2006) by Boyle