STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF MAY 8, 2009
Prepared on April 16, 2009

ITEM NUMBER: 15

SUBJECT: Status of the Los Osos Wastewater Project and Water Balance in the Los Osos Groundwater Basin, San Luis Obispo County

BACKGROUND

The Los Osos/Baywood Park area of San Luis Obispo County is located on the southern edge of Morro Bay National Estuary, approximately ten miles west of the City of San Luis Obispo. The community has a population of approximately 15,000 people, and contains about 5,000 individual lots. Throughout the community on-site septic systems are used for treatment and disposal of wastewater.

The Central Coast Water Board adopted Resolution No. 83-13 in 1983, which amended the Water Quality Control Plan, Central Coast Basin (Basin Plan) and prohibited, effective November 1, 1988, discharges of waste from individual and community sewage systems within portions of the Los Osos/Baywood Park area. Connecting to a community sewer system is the most practical manner for residents to comply with this prohibition.

San Luis Obispo County (County) is currently leading the process to evaluate wastewater treatment alternatives and released a Draft Environmental Impact Report (DEIR) on November 14, 2008. The DEIR evaluated four project alternatives on a co-equal basis. All four of the proposed projects meet the project goals and objectives. The County solicited public comments on the Los Osos Wastewater Project (LOWWP) DEIR, which were due on January 30, 2009.

At the February 5, 2009 Water Board meeting, several members of the public commented on the project scenarios outlined in the DEIR. Specifically, the comments related to the relationship between the wastewater project alternatives and the Los Osos groundwater basin and seawater intrusion. The Water Board discussed seawater intrusion in association with the wastewater project and requested more information on the matter. The Executive Officer also followed up the February Water Board meeting by sending a letter February 23, 2009, to the County encouraging its participation at the May 8, 2009 Water Board meeting, with similar correspondence to the three water purveyors for Los Osos.

On March 30, 2009, the County published the Final EIR, which specified the Tonini parcel as the site of two components of the Preferred Project – treatment plant and spray disposal area.

This staff report briefly describes the interrelated issues of wastewater treatment and disposal, groundwater basin hydrology, groundwater recharge and production, seawater intrusion, and water conservation. Representatives of the County, Los Osos Community Services District, Golden State Water Company, and S & T Mutual Water Company will provide the Water Board

with presentations that integrate these issues at the May 8, 2009 Water Board meeting, or will be present to answer questions.

Note that this is an informational item only and no action will be taken by the Water Board at this meeting. For the orderly conduct of business, the Chair may limit time for comments on this item.

LOS OSOS WASTEWATER PROJECT

The primary goal of the LOWWP is to construct and operate a community wastewater collection, treatment and disposal system for approximately 15,000 residents, thereby complying with the Water Board's Resolution No. 83-13. Eliminating discharges from onsite septic systems, as directed by the Water Board, will also help accomplish the LOWWP's second goal of alleviating nitrate groundwater pollution, which has been caused by the use of septic systems throughout the community. The County's Mission Statement for the project is, "To evaluate and develop a wastewater treatment system for Los Osos, in cooperation with the community water purveyors, to solve the Level III water resource shortage and groundwater pollution, in an environmentally sustainable and cost effective manner, while respecting community preferences and promoting participatory government, and addressing individual affordability challenges to the greatest extent possible."

The project will consist of three main components: wastewater collection; wastewater treatment, which includes biosolids processing and disposal; and effluent disposal. The County's Final EIR determined that the environmentally superior project consists of an extended aeration process (e.g., oxidation ditch or Biolac®) treatment plant located at the Tonini property, a gravity collection system, a main pump station located at the Mid-Town site, spray field disposal at the Tonini property, and leach field disposal at the Broderson site (refer to Attachment 1, Location of Proposed Project Alternatives).

GENERALIZED GROUNDWATER CHARACTERISTICS

The Los Osos Basin covers approximately 10 square miles, of which approximately 6.7 square miles underlie Los Osos, Baywood Park, and the Los Osos Creek Valley. The groundwater basin is bounded to the north, east, and south by relatively impermeable bedrock formations and to the west where the aquifers crop out on the ocean floor. The fresh water portion of the basin is defined by the saltwater/fresh water interface, which has moved onshore. In the deepest portions of the basin the fresh water-bearing deposits extend to depths of approximately 700 feet below sea level. Previous studies have identified six aquifer zones in the Los Osos Basin, which include the unconfined alluvial aquifer in the Los Osos Creek Valley and five interbedded aquifer zones designated in previous reports as Zones A through E. The aquifer zones include: 1) the unconfined perched aquifer (Zone A), 2) the upper transitional aquifer (Zone B), 3) the upper main supply aquifer (Zone C), and 4&5) the lower aquifers (Zones D and E). The upper and lower aquifer systems are separated by a regional aquitard that averages approximately 50 feet in thickness[1] (refer to Attachment 2, Los Osos Valley Groundwater Basin Cross-Section). Appendix D of the DEIR discussing groundwater quality resources can be found at the following web address:

http://www.lowwp-eir.net/lowwpeir/pdf/EIR/Appendix%20D%20-%20Groundwater.pdf

[1] Cleath & Associates, Sea Water Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Valley Ground Water Basin, San Luis Obispo County, California, Prepared for the Los Osos Community Services District, Dated October 2005.

GROUNDWATER BALANCE

Within the Los Osos Creek Valley alluvial aquifer, there are four distinct recharge compartments, which include the perched aquifer (Zone A), the Creek Valley aquifer (creek compartment), Upper Aquifer (Zones B and C), and Lower Aquifer (Zones D and E). The County DEIR describes the current basin conditions of recharge to each aquifer as well as the outflow in the table below:

Component of Water Budget (acre-feet/year)	Perched Aquifer[1]	Creek Valley Aquifer[2]	Upper Aquifer[3]	Lower Aquifer[4]
Aquifer Inflow				
Percolation from precipitation and irrigation	736	430	1,489	0
Septic flow	631	30	606	0
Seawater intrusion	0	0	0	469
Low Osos Creek flow	0	665	0	0
Subsurface inflow and leakage/subsurface cross flow in	0	284	900	1,248
Total Aquifer Inflow	**1,367**	**1,409**	**2,995**	**1,717**
Aquifer Outflow				
Well production	0	-870	-803	-1717
Subsurface inflow and leakage/subsurface cross flow out	-815	-456	-2192	0
Los Osos Creek outflow	0	-77	0	0
Warden drain	0	-6	0	0
Willow creek outflow and evapotranpiration	-552	0	0	0
Total aquifer outflow	**-1,367**	**-1,409**	**-2,995**	**-1,717**
Aquifer inflow/outflow balance	0	0	0	0

Note: Table obtained from San Luis Obispo County DEIR, Appendix D, Table 5.2-1 Current Basin Balance Conditions.

1 The main water supply to this aquifer includes precipitation, irrigation, and septic system percolation.

2 The main water supply to this aquifer includes precipitation, irrigation return flows, septic system percolation, vertical leakage through the confining clay, and subsurface inflow from underlying bedrock.

3 The upper aquifer is recharged primarily by sources that include precipitation, irrigation return flows, septic system percolation, vertical leakage through the confining clay, and subsurface inflow from the perched aquifer (Zone A), the creek valley alluvium, and underlying bedrock.

4 Recharge sources include for this aquifer include subsurface inflow from underlying bedrock, the Los Osos Creek Valley, leakage through the regional aquitard from the upper aquifer, and seawater.

The model summarized in the above table indicates that the current Los Osos groundwater basin inflows and outflows are unbalanced, with outflow exceeding inflow by 469 acre-feet per year. Consequently, seawater intrudes the lower aquifer by the same rate. These values will change as septic flows generated from the prohibition area are removed, treated wastewater is disposed of at the Broderson Site, treated wastewater is disposed of outside of the Los Osos groundwater basin at Tonini Propriety, and water conservation measures are implemented. The County estimates that the overall efficiency of septic system flow from the perched zone into the intruded zone is only about 10%, with the remaining approximately 90% draining out or seeping out into the estuary. The Broderson Site efficiency in repelling seawater intrusion will be about twice as much as existing septic system flow, so only half as much flow to the Broderson Site will create a 1:1 mitigation for elimination of septic tank drainage. The County intends to start using the Broderson Site with minimum flows, coupled with monitoring of down gradient water levels. The County will gradually increase flows to this site as indicated by monitoring well responses.

GROUNDWATER PRODUCTION

Domestic water from the Los Osos community is produced by three main water purveyors. Appendix D of the County's DEIR provides the following data for the amount of groundwater produces by various agencies and public. The production values listed in the table below reflect water use patterns prior to 2005. More recent data show a decrease in production on the order of 20 percent. As a result, seawater intrusion has already decreased from the previously estimated values. The quantification of this shift will be evaluated in a study to be completed in May 2009.

(acre-feet/year)	Golden State Water Company	Los Osos CSD	S&T Mutual Water Company	Private Domestic	Agricultural Irrigation
Total production [1]	1070	1140	110	200	950

Note: Table obtained from San Luis Obispo County DEIR, Appendix D-2, Table 1 Los Osos Basin Groundwater Production Data.
Table quantities are reported in acre-feet per year.
1 – Production values were calculated using production rates from aquifer zones A through E.

To resolve a formal complaint that was filed in the San Luis Obispo County Superior Court by the Los Osos Community Services District, the three main water purveyors and San Luis Obispo County entered into a Interlocutory (not final – pending court decision) Stipulated Agreement on August 5, 2008, which allows for the parties to cooperatively assess, develop, and implemental a plan to adequately address water rights and use in the Los Osos Basin. The County's participation in the Interlocutory Stipulated Agreement allows coordinated efforts between the construction of the wastewater project and water management in Los Osos. The Interlocutory Stipulated Agreement or ISJ can be found at the following web address:

http://www.losososcsd.org/pdf/ISJ_Water_Purveyors8.08.pdf

SEAWATER INTRUSION

The Los Osos Basin has been the subject of several studies that have evaluated seawater intrusion using water levels and water quality data as the primary criteria. According to the most recent studies, only upper aquifer water level elevations and outflows are sufficient to

prevent seawater intrusion. Furthermore, the upper aquifer (Zones B and C) fresh water/salt water interface is relatively stable, but with potential for intrusion during extended drought periods. The rate of seawater intrusion into the low aquifer (Zones D and E) has the potential to impact the municipal and domestic beneficial uses of the basin[2]. More recent data indicate seawater intrusion at a rate of 469 acre-feet per year as indicated in the Groundwater Balance Table (above). Currently, the water purveyors and the County are addressing these issues through a collaborative study as outlined in the Interlocutory Stipulated Agreement. The goal of this collaborative effort is to halt seawater intrusion, by way of reductions in overdraft that will actually go beyond halting intrusion, to provide a factor of safety. The October 2005 Seawater Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Valley Groundwater Basin provided by the Los Osos Community Services District can be found at the following web address:

http://www.losososcsd.org/pdf/Sea_Water_Intrusion_Report_10.2005.pdf

WATER CONSERVATION

As part of project development and implementation, the LOWWP would include a water conservation component. According to the County's DEIR, water conservation, in concert with disposal in the basin, natural inflow, and recharge, must account for a savings of approximately 160 acre-feet per year in order to maintain hydrologic balance in the Los Osos Basin. These water conservation measures will include the replacement of commercial and domestic water fixtures, such as toilets and shower heads with low flow fixtures. The resulting conservation is estimated to reduce pumping from the overdrafted lower aquifer system. Furthermore, the County DEIR estimates that the reduction in lower aquifer system production effectuated by conservation will result in less seawater intrusion. Currently, the water purveyors are developing an approach to address water conservation in the Los Osos community (i.e., rebate program for low–flow fixture retrofits). Additionally, the County adopted two plumbing retrofit ordinances for the Los Osos area on April 22, 2008. These ordinances require the replacement of new and existing fixtures (i.e., toilets and shower heads) with low-flow fixtures upon sale of a property. These actions will help with Los Osos Basin overdrafting problems. The ordinance can be found at the following web address:

http://www.losososcsd.org/pdf/LOGroundwaterBasinRetrofit1008.pdf

Projected conservation savings of 160 acre-feet per year will provide a 1:1 mitigation for seawater intrusion. When coupled with the Broderson Site's 1:1 mitigation, these two factors combine to provide 2:1 mitigation. Additional stormwater recharge will be accomplished by the project via elimination of septic discharges, consequent decreases in areas with very high groundwater, providing more capacity for stormwater infiltration.

WATER BOARD'S AUTHORITY TO PROTECT GROUNDWATER

The Central Coast Water Board does not have authority to directly address the issue of water balance and seawater intrusion within the Los Osos basin because it cannot regulate the use of water. The Water Board's mission is to protect and maintain a high quality of water through the regulation of waste discharges and implementation of water quality objectives. The State Water Resources Control Board recently adopted a policy that calls for development of salt

[2] Cleath & Associates, Sea Water Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Valley Ground Water Basin, San Luis Obispo County, California, Prepared for the Los Osos Community Services District, Dated October 2005.

and nutrient management plans by "local water and wastewater entities" (State Recycled Water Policy). Seawater intrusion is the ultimate salt imbalance problem that needs a management plan for reversing salt intrusion. The ISJ provides a vehicle for including a complete salt and nutrient management plan for Los Osos groundwater. The State Recycled Water Policy can be found at the following web address:

http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/index.shtml

Water Board staff will continue to work with and encourage water purveyors, the County, and the public to develop a plan that will adequately address water balance and seawater intrusion in the Los Osos Basin. In addition, staff will draft waste discharge requirements for the LOWWP that work in concert with the policies developed to address water balance in Los Osos. The Water Board encourages conservation throughout the region, including stringent mandatory conservation programs in severely over drafted basins. Lastly, through stormwater permitting, the Water Board requires recharge optimization through Low Impact Development requirements. Once septic system discharges are eliminated, the perched zone will have more capacity for stormwater recharge. Increased stormwater recharge will not only help to replace the quantity of water removed by the wastewater project, but it will also accelerate perched water cleansing in some areas. All of these factors need to be managed cooperatively by all parties to ultimately lead to a sustainable watershed and groundwater supply.

PUBLIC COMMENTS

Water Board staff has received various written and oral public comments regarding the LOWWP and its impacts to the environment. The purpose of this item is to share information regarding the current status of the wastewater treatment project and the current Los Osos groundwater basin water imbalance and actions underway to correct that imbalance. We anticipate this item will provide discussion among the experts actively working on these issues and the public. Staff is optimistic that these two important issues will be clarified through this discussion. As an example, a copy of a March 14, 2009 letter to the editor, "Viewpoint: County's take on the Los Osos sewer project," demonstrates some existing opinions (refer to Attachment 3). The County discusses the wastewater project's role in Los Osos Basin's sustainability in Attachment 4. In addition, members of the public have provided reports specific to the potential for imbalance of the Los Osos groundwater basin and seawater intrusion, and staff has provided links to those documents to the Board.

The County received public comments on the DEIR on January 30, 2009, and recently published its responses to comments on March 30, 2009. Water Board staff is incorporating an excerpt from "Typical Response 3: Water Resources and Project Scope" from Section 3 of the County's Response to Comments document. The following excerpt provides additional discussion of water balance and the wastewater project, which is pertinent to this informational item.

> *"Several commentors focused on how the County is approaching water reclamation, beneficial reuse of treated effluent, and sustainability of the groundwater supplies. Several state that agricultural exchange must be a central component of the LOWWP. Several commentors also point to language in AB 2701 identifying that the County has some legislative ability to implement water resource efforts as part of the wastewater project. Several commentors assert that the Draft EIR is deficient in this respect.*

These comments seek to expand the LOWWP beyond solving the wastewater issue and do not recognize the cooperative efforts between the water purveyors and the County under the Court approved Interlocutory Stipulated Judgment; which is guiding resolution of the existing groundwater litigation. Seawater intrusion is occurring and must be resolved. The LOWWP will reduce the existing rate of seawater intrusion. Nevertheless, expanding the wastewater project to incorporate other programs will repeat the LOWWP history of trying to do too much and then risking not funding and constructing the project as a result of further delays. RWQCB sanctions could also occur. Developing a wastewater project is the single most important issue to addressing the greater water resource problem, and solving the water resource issue requires completing a wastewater project.

The County's wastewater project approach is to develop a project that provides the County, the water purveyors and the community with the ability to solve the water resource issue. An approach that attempts to solve all problems with one project could delay LOWWP construction under the premise that all problems must be solved simultaneously or nothing should be done. Over the past two years, following the guidelines of the Court approved Interlocutory Stipulated Judgment; the County has met with the community, the purveyors, environmental, agricultural, and cultural groups, and each regulatory agency to develop a solution that is the best possible outcome for the community considering the complexity of the challenges. Developing a wastewater project for Los Osos must be based on the practical realities of the challenges the community faces; the roles and responsibilities of the County, the purveyors, the public, the Courts, regulatory agencies and others; and with the clear understanding that solving all issues will not be accomplished with a single project-that multiple issues exist and that the County's multi-faceted approach and process is the most viable.

The LOWWP approach to seawater intrusion is established in the project objectives: "Address water resource issues by mitigating the Project's impacts to saltwater intrusion. Furthermore, the wastewater project will maintain the widest possible options for beneficial reuse of treated effluent." Draft EIR Section 5.2, Groundwater Resources, together with Appendix D; clearly describes the magnitude of the project's seawater intrusion impact together with the measures that will fully mitigate this impact. The Broderson leachfield site is anticipated to provide 99 acre feet/year of seawater intrusion mitigation; the conservation program would provide 88 acre feet/year of seawater intrusion mitigation. Given that the LOWWP would have a seawater intrusion impact of 90 acre feet/year, the project would provide approximately double the needed mitigation amount. (See Draft EIR Section 5.2, Groundwater Resources; Draft EIR Appendix D, Groundwater Quality Resources; and the Fine Screening Report's Sections 2.2 through 2.4.) Consequently, each mitigation effort (Broderson or conservation) provides back-up for the other. The LOWWP does not in any way prevent the community from achieving higher water use reductions through developing and implementing more sophisticated, or more restrictive, mandatory conservation measures. Building the LOWWP, which is essentially collecting and treating wastewater at a central point, will provide the community a number of options for further treatment and reuse. The community can then develop these effluent

reuse options in concert with the water purveyors and possible agricultural participants."

RECOMMENDATION

This item is a status report and opportunity for discussion of project goals and basin management. No action will be taken by the Water Board.

ATTACHMENTS

1 – Proposed Project Alternatives Location Map – November 14, 2008 DEIR
2 – Los Osos Valley Groundwater Basin Cross-Section – October 2008 Hopkins Groundwater Report
3 – March 14, 2009 Letter to the Editor "Viewpoint: County's Take on Los Osos Sewer Project."
4 - March 29, 2009 Letter to the Editor "Viewpoint: Gravity System is Best Solution for Los Osos."

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