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COUNTY OF SAN LUIS OBISPO
DEPARTMENT OF PUBLIC WORKS
LFR 021-10255-00

January 29, 2009

Mr. Mark Hutchinson
Environmental Programs Manager
San Luis Obispo County Dept. of Public Works
County Government Center, Room 207
San Luis Obispo, California 93408

Subject: Comments - Maximizing Beneficial Reuse of Treated Effluent
Draft Environmental Impact Report, County of San Luis Obispo,
Los Osos Valley Wastewater Project (LOWWP),
State Clearinghouse No. 2007121034, dated November 14, 2008.

EXECUTIVE SUMMARY

From the water resources perspective, the treated effluent from the LOWWP should ideally be kept within the Los Osos groundwater basin. Beneficial reuse of all treated effluent within the basin would help to increase local water supplies and reduce seawater intrusion, which are vital local concerns. The LOWWP, in the form recommended by the Draft Environmental Impact Report (DEIR), would keep only a portion of the treated effluent within the basin for beneficial reuse.

The DEIR recognizes that further beneficial reuse within the basin is desirable, in accordance with the secondary project goal of improving local water resources. The DEIR specifically indicates (p. 7-6) that the LOWWP "will maintain the widest possible options for beneficial reuse of treated effluent." To maximize these options, LFR offers the following recommendations:

1. The current DEIR recognizes agricultural reuse and urban reuse as potentially viable "Level B" alternatives for future local implementation. Another alternative, groundwater injection, was dismissed in the DEIR as an impractical "Level C" alternative, based on a 2001 study conducted for the Los Osos Community Services District (LOCSO). However, a more recent 2006 study for the LOCSO indicated that groundwater injection, as a form of indirect potable reuse, should be retained as an option for future local implementation. The Orange County Groundwater Replenishment System, which began operation in January 2008, has demonstrated that treated effluent can be successfully used to mitigate seawater intrusion and recharge local water supplies. For these reasons, and to maximize the available options, **the beneficial reuse of treated effluent by direct injection into groundwater should be reclassified as a potentially viable "Level B" alternative for possible future implementation.**

2. The LOWWP currently includes the installation of an extensive network of sewers and mains (influent pipelines). **The LOWWP should also include the simultaneous installation of a strategically placed network of effluent pipelines in the same excavations, as this could likely be accomplished with relatively little additional cost or effort.** An in-place network of pipelines for treated effluent would significantly reduce the costs for implementing any future beneficial reuse strategies, regardless of the exact alternative that might be selected.
 3. Even if the LOWWP is not modified at this time to include installation of effluent pipelines, **this option should nonetheless be fully addressed in the environmental review and project approval processes.** It is possible that additional beneficial reuse strategies may become feasible or necessary at some future date, prior to sewer installation. If the option of adding effluent pipelines was considered during the initial review and approval processes, then the LOWWP could be readily modified to include effluent pipelines at that future time. The review and approval processes will already address the installation of influent pipelines, and so the optional installation of effluent pipelines in the same excavations could be evaluated as well, for little additional cost or effort.
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Dear Mr. Hutchinson:

LFR Inc. (LFR) has reviewed the Draft Environmental Impact Report (DEIR) for the County of San Luis Obispo's Los Osos Valley Wastewater Project (LOWWP). The DEIR was prepared by Michael Brandman Associates, and is dated November 14, 2008.

LFR specifically considered the implications of the DEIR for water resources issues, particularly the beneficial reuse of treated effluent. Water resources issues are considered as part of the LOWWP, but only as "secondary objectives" (p. 7-6).

Primary and Secondary Goals of LOWWP

The "primary goals" of the LOWWP (p. 7-58) are to "construct and operate a community wastewater system" in compliance with regulatory requirements. A "second primary goal" is to "alleviate groundwater contamination, primary nitrates" associated with the historic use of septic systems in the Los Osos area. Clearly these are pressing issues, and the LOWWP appears capable of successfully addressing them.

However, the LOWWP, in its current form, will be less successful at addressing a "secondary project objective," which is "the opportunity to benefit the community's water resources" (p. 7-59). These problems, as acknowledged in the DEIR, are also important and pressing. In 2007, the San Luis Obispo County Board of Supervisors certified a "Level of Severity III" determination for the community of Los Osos; this is the highest severity level for a resource problem in the County General Plan's Resource Management System (p. 7-6). All domestic water for Los Osos is obtained from the underlying groundwater aquifers, and these are deteriorating due to overpumping and seawater intrusion (p. 7-59).

LOWWP Limitations for Water Resources Management

From the water resources perspective, the treated effluent from the LOWWP should ideally be kept within the Los Osos groundwater basin. In theory, treated effluent could be used either (1) as a replacement for other supplied water, for such uses as agricultural or landscape irrigation, thereby reducing the demand for groundwater, or (2) to recharge the local aquifers, thereby increasing the supply of groundwater. Both of these approaches would tend to increase local water supplies and reduce seawater intrusion.

The DEIR (table 7-7) recognized these advantages, and considered different “Seawater Intrusion Mitigation Levels” that might be achieved by the LOWWP. These options ranged from “Level 0 - No mitigation of seawater intrusion” to “Level 4 - Achievement of a balanced basin at buildout.”

The recommended alternative, which falls between these two endpoints, is “Level 2 – Maximum mitigation of seawater intrusion without purveyor participation in project development.” The DEIR recommends that a portion of the treated effluent (up to 448 acre-feet per year, or AFY) be discharged to the Broderson leachfield, where it will help to recharge the local aquifers. However, most of the treated effluent (up to 842 AFY) will be transported to local sprayfields outside the Los Osos basin, where it will provide no benefit as far as Los Osos water resources are concerned.

The recommended alternative is therefore not optimal from the water resources perspective: the DEIR implicitly acknowledges that there will continue to be an imbalance between groundwater pumping and recharge under the “Level 2” alternative. Other approaches would be necessary to reach “Level 3 – Achievement of a balanced basin at present water use rates” or “Level 4 – Achievement of a balanced basin at buildout.”

Since a “balanced basin” will not be achieved under the “Level 2” alternative, the fundamental problems affecting Los Osos water resources will not change: water supplies will continue to be severely limited, and seawater will continue to intrude into the local aquifers. These problems will still have to be addressed by the Los Osos community in the future, regardless of the success of the LOWWP as planned.

LOWWP Rejected Alternatives

The DEIR discusses alternative approaches that would reuse treated effluent within the Los Osos basin, including agricultural reuse and urban reuse. For these alternatives, treated effluent would be used to irrigate local crops or landscaping. These approaches would increase available water supplies, reduce groundwater pumping, and thereby mitigate seawater intrusion, as acknowledged by the DEIR (p. 7-64).

The DEIR also identified drawbacks to these approaches, including the cost for additional (tertiary) treatment of effluent, the cost to construct effluent distribution pipelines, and the need to cooperate with local water purveyors. However, the DEIR (pp. 7-64, 7-65) acknowledged that both agricultural reuse and urban reuse “could be pursued in the future by local water purveyors, especially if they are willing to participate in a treatment plant upgrade to tertiary treatment. Both agricultural reuse and urban reuse

were classified as “Level B alternatives,” which means that “these potentially viable alternatives should be held for future consideration by the community” (p. 7-15).

Another potential beneficial reuse option would be to pump treated effluent directly into local water-supply aquifers through injection wells. This approach, while still relatively new, could potentially be very effective at both recharging the aquifer and mitigating seawater intrusion. In January 2008, the Orange County Water District and Orange County Sanitation District began successful joint operation of a large-scale “Groundwater Replenishment System.” The Orange County system uses tertiary-treated effluent to recharge aquifers and prevent seawater intrusion, which are the same problems currently facing Los Osos.

The DEIR (p. 7-67) briefly considered direct injection of treated effluent into groundwater, but noted the need for “an extremely high level of tertiary treatment” and “regulatory constraints.” This approach was then dismissed as a “Level C alternative”, which implies that it is “non-viable due to a ‘fatal flaw’” (p. 7-15). As a supporting reference, the DEIR cited a historical Environmental Impact Report (Crawford Multari and Clark Associates 2001), prepared in 2001 for the Los Osos Community Services District (LOCSD).

However, this option was reconsidered in a more recent 2006 report on “Wastewater Collection, Treatment, Storage, and Water Recycling: Beneficial Reuse of Water and Nutrients” for the LOCSD. Ripley Pacific (2006, p. 66) concluded that the injection of treated effluent into potable-use aquifers, as a form of indirect potable reuse, “will not be precluded for a distant future implementation.” Ripley Pacific acknowledged that this approach was “controversial,” and might not be suitable for Los Osos given “the highly divided opinion regarding wastewater management.” However, the recent success of the Orange County Groundwater Replenishment System has demonstrated that this approach is technically feasible, and it is likely to find increasing regulatory and community acceptance in the future.

Opportunity to Install Effluent Pipeline Network

Local water resources could be significantly improved by the beneficial reuse of treated effluent within the basin. The DEIR recognizes this point, and makes provision for beneficial reuse of some treated effluent by percolation at the Broderson leachfield. However, most of the treated effluent would be “exported” to sprayfields outside the basin, where it would provide no benefit to Los Osos water resources.

Additional beneficial reuse within the basin is therefore desirable. And the DEIR (p. 7-6) recognizes this point as well, stating that:

“the wastewater project will maintain **the widest possible options** for beneficial reuse of treated effluent.” (*emphasis added*)

Such options could include agricultural reuse or urban reuse of – both of which are acknowledged by the DEIR as “potentially viable alternatives” that “should be held for future consideration.” Another reuse option could be direct injection of treated effluent into water-supply aquifers. This may be a more controversial alternative at present, but it now appears to be technically feasible, and it has been

identified in another recent LOCSD study as a possible approach for future local implementation in the Los Osos basin.

These reuse options obviously vary, but they have one point in common: they would all require a network of distribution pipelines, to transport treated effluent from the treatment facility to the reuse points. The total cost for implementing any such option would have to include the costs for constructing such a network, which could be quite significant. In fact, the DEIR (p. 7-65) pointed out that “it is not cost effective to construct effluent distribution pipelines” to all potential urban reuse sites.

However, there appears to be a way to significantly reduce the cost of effluent distribution pipelines. The LOWWP includes the installation of an extensive network of sewers and mains (inflow pipelines). **It should also consider the simultaneous installation of a strategically placed network of effluent pipelines in the same excavations, as this could likely be accomplished with relatively little additional cost or effort.** This network could be used to support future beneficial reuse projects throughout the Los Osos basin, regardless of the exact reuse options that might be selected in the future.

It might be objected that the installation of effluent distribution pipelines is beyond the scope of the LOWWP project authority, and that it should be the responsibility of water purveyors instead. But all parties should be able to recognize the potential value of this opportunity, and should be able to work together for the benefit of the community – just as the Orange County Water District and Orange County Sanitation District have recently worked together to develop their Groundwater Replenishment Project. The DEIR (p. 7-6) recognizes that:

“While the primary purpose of the Los Osos Wastewater Project is to construct a community wastewater system and, thereby, to alleviate groundwater contamination, **how that goal is met can create or hinder opportunities for the water purveyors to improve the local water resources.**” (*emphasis added*)

The installation of a sewer system poses one such opportunity: it may allow the simultaneous installation of a pipeline network for treated effluent for a low additional cost. Such a network would facilitate the future beneficial reuse of treated effluent throughout the basin, which in turn would reduce pumping demand, mitigate seawater intrusion, and improve the overall availability of water supplies.

The history of the LOWWP is one of missed opportunities, and it would be regrettable if this one was missed as well. If the LOWWP is truly to provide **“the widest possible options for beneficial reuse”** – as the DEIR (p. 7-6) indicates – then it should include distribution pipelines for treated effluent – particularly if these can be installed at the same time as the sewers, for minimal additional cost and effort.

Specific Recommendations for LOWWP

1. The current DEIR recognizes agricultural reuse and urban reuse as potentially viable “Level B” alternatives for future local implementation. Another alternative, groundwater injection, was dismissed in the DEIR as an impractical “Level C” alternative, based on a 2001 study conducted for the LOCSD. However, a more recent 2006 study for the LOCSD indicated that groundwater injection, as a form of indirect potable reuse, should be retained as an option for future local implementation. The Orange County Groundwater Replenishment System, which began operation in January 2008, has demonstrated that treated effluent can be successfully used to mitigate seawater intrusion and recharge local water supplies. For these reasons, and to maximize the available options, **the beneficial reuse of treated effluent by direct injection into groundwater should be reclassified as a potentially viable “Level B” alternative for possible future implementation.**
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Please contact me if you have any questions or comments.

Sincerely,



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